



APPENDIX J:

Notices & Communication

Appendix J

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Content Guide

STAGE 1 Newspaper Notice

BIOSOLIDS
Strategy



LAUNCH EVENT

The Region of Waterloo Presents

The Science of Biosolids

What is it? What do we do with it?

Join us on November 17th, 2015 along with Canada's best known science journalist, Bob McDonald, as we discuss the science of biosolids and how you can get involved in developing a new strategy for our community.

The open house is free to attend, but seating is limited for the talk with Bob McDonald, so please register in advance.

If you have any questions or comments please contact:

Kaoru Yajima

Tel 519-575-4757 ext. 3349

TTY 519-575-4608

Email kyajima@regionofwaterloo.ca

If you require accessibility assistance to participate in this event, please contact us in advance.

Biosolids Strategy Open House

Tuesday, November 17th

6:00-9:00pm

**Waterloo Region Museum
10 Huron Road, Kitchener ON**

Bob McDonald Talk: 7:00pm

Preregistration required for the discussion with Bob McDonald.

Registration opens November 4th

Register at:

www.regionofwaterloo.ca/biosolids

With...

Bob McDonald

CBC's host of

Quirks & Quarks



STAGE 2 Newspaper Notice

Follow the Drain: Biosolids in Waterloo Region



Biosolids are the treated organic materials removed from our water after we flush it down the drain. The Region is developing a new Biosolids Strategy and we need the community to be involved to help identify the best possible solutions.

Webinar

Discover how biosolids are made and managed in the Region today.

June 15th, 6:30pm – 7:30pm

June 16th, 12:00pm – 1:00pm

Webinar instructions:
regionofwaterloo.ca/biosolids

We will also be on location at your local mall or Farmer's Market over May and June to discuss the project.

Take the Survey!

Tell us about the issues that matter to you when it comes to biosolids management in your community.

Visit the Project Website to participate
regionofwaterloo.ca/biosolids

STAGE 3 Newspaper Notice

Your input matters!

Come out and join the conversation on how we can decide on a short list of alternatives for the future of managing biosolids in the Region



For more information visit
regionofwaterloo.ca/biosolids

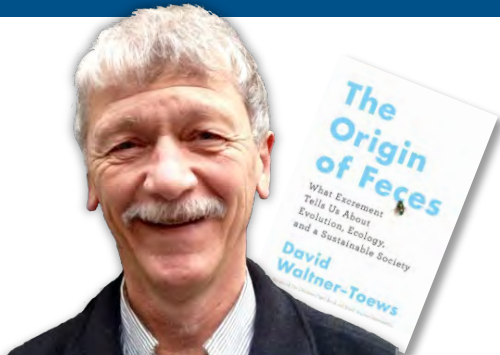
The Future of Biosolids in Waterloo Region

Three Exciting Events – Three Great Opportunities to Participate!

March 23, Cambridge City Hall

Open House: 6PM-9PM

David Waltner-Toews Talk: 7PM



GUEST SPEAKER

David Waltner-Toews

Award-Winning Author of
'The Origin of Feces'

Attend for a chance to win a copy of
'The Origin of Feces'!

March 28, Waterloo Region Museum

Open House: 6PM-9PM



Open House

Meet Our Team & Get Free Admission to
Tyrannosaurs: Meet the Family

Attend for a chance to win a Rain Barrel!

April 12, Waterloo Memorial Rec Complex

Open House: 6PM-9PM

Water Brothers Talk: 7PM



GUEST SPEAKERS

The Water Brothers

Award Winning Documentary Film Makers and
Hosts of the Popular Eco Adventure Series on TVO

Attend for a chance to win TVO's
'The Water Brothers' on DVD!

STAGE 4 Newspaper Notice



How Will We Make a Decision? Biosolids Strategy Public Workshop

We need your input

Attend a workshop to help us set the criteria to choose the Region's new Biosolids Strategy

**June 21, Region of Waterloo
99 Regina Street South,
Waterloo**

**5 p.m. – 8 p.m.
(Light Dinner Included)**

Space is Limited!

**Register at
[regionofwaterloo.ca/
biosolids](http://regionofwaterloo.ca/biosolids)**

You can also visit us at an event near you:

June 18, Open Streets Waterloo

June 24, KW Multi-cultural Festival

July 8, Cambridge Farmers' Market

Can't make it in person? Take the Survey:

regionofwaterloo.ca/biosolids

STAGE 5 Newspaper Notice

Wastewater Treatment Master Plan



BIOSOLIDS
Strategy

The community has helped shape the Region's future
wastewater treatment master plan and
biosolids management strategy.

Join us to see how it has all come together!

Includes free
admission to the
'Trailblazing
Women in Canada'
exhibition!

Attend one of these final
Open House Events
and let us know what
you think

**December 5,
Waterloo Region Museum**
5 p.m. – 7:30 p.m.

**December 7,
Waterloo Memorial Rec
Complex**
5 p.m. – 7:30 p.m.

**December 14,
Cambridge City Hall**
5 p.m. – 7:30 p.m.

**Attend for a chance to win a Waterloo Region Museum
season pass!**

regionofwaterloo.ca/biosolids

STAGE 6 Newspaper Notice



Notice of Study Completion



The Study: Waterloo Region is growing, and needs to establish a long term, sustainable strategy for managing biosolids. The Region has completed a Biosolids Master Plan (Biosolids Strategy) to manage biosolids until 2051.

The Process: The Region has completed the Biosolids Strategy according to the requirements for a Master Plan project under the Municipal Class Environmental Assessment (Class EA). The study completes Phases 1 and 2 of the Class EA process using community feedback in the decision-making to find a community-made approach. This notice places the Master Plan on the public record.

The Result: The Biosolids Strategy recommends a two phase approach:

Phase 1 (Immediate Need): Develop storage for biosolids at the Region's three largest wastewater treatment plants (Kitchener, Waterloo, Galt). This will provide the flexibility we need for the current operations to deal with any issues that arise.

Phase 2 (Medium to Long Term): Develop a facility to reduce biosolids volume by producing a dried fertilizer. This could be a single facility or several smaller ones created at existing facilities in the Region. Prior to commencing, an update to the Biosolids Strategy will be undertaken to confirm the approach.

Phase one would proceed under the Class EA process (Schedule A) as would Phase two (Schedule C).

Copies of the Biosolids Master Plan are available for your information at the following locations from April 18 to May 22, 2018, Monday - Friday 8:30 a.m. - 4:30 p.m.:

Regional Clerk's Office
150 Frederick Street, 2nd Floor, Kitchener

City of Kitchener Clerk's Office
200 King Street West, Kitchener

City of Cambridge Clerk's Office
50 Dickson Street, 2nd Floor, Cambridge

City of Waterloo Clerk's Office
100 Regina St. S., Waterloo

The documents are also available for download on the Region's website at: regionofwaterloo.ca/biosolids

Study Completion:
The Biosolids Master Plan is available for review starting on April 18, 2018.

Please provide all written comments to the Region of Waterloo **by Tuesday, May 22, 2018**. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued April 18, 2018.

Please send information requests or comments to the Region's Project Manager:
Kaoru Yajima, P.Eng.
Senior Project Engineer
Water Services - The Regional Municipality of Waterloo
150 Frederick Street, 7th Floor,
Kitchener, ON N2G 4J3
Tel: 519-575-4757 ext. 3349
Fax: 519-575-4452
TTY: 519-575-4608
Email: biosolids@regionofwaterloo.ca

Biosolids Strategy Agency Contact List

Full Name	Job Title	Department	Email	Address	City	Prov	Country	Postal Code
Al Murray	Resources Management Supervisor, Guelph District	Ministry of Natural Resources	al.murrary@ontario.ca	1 Stone Road West, Ontario Government Bldg	Guelph	ON	Canada	N1G 4Y2
Andrea Pastori	Cabinet Liaison & Strategic Policy Coordinator, Strategic Policy	Ministry of Energy, Strategic Network and Agency Policy Division	andrea.pastori@ontario.ca	6th Flr, 77 Grenville St.	Toronto	ON	Canada	M7A 2C1
Audrey Bennet	Director, Local Government and Planning Policy Division	Ministry of Municipal Affairs and Housing	audrey.bennett@ontario.ca	777 Bay St., 13th Floor	Toronto	ON	Canada	M5G 2E5
Barbara Slattery	Environmental Resource Planner & EA Coordinator, Air, Pesticides and Environmental Planning	Ministry of the Environment and Climate Change	barbara.slattery@ontario.ca	119 King Street West, 12th Floor	Hamilton	ON	Canada	L8P 4Y7
Bruce Curtis	Regional Director (Acting) - Western Municipal Services Office, Municipal Services Division	Ministry of Municipal Affairs and Housing	Bruce.Curtis@ontario.ca	659 Exeter Road, 2nd floor, Exeter Road Complex	London	ON	Canada	N6E 1L3
Carol Neumann	Rural Planner, Environmental and Land Use Policy	Ministry of Agriculture, Food and Rural Affairs	carol.neumann@ontario.ca	6484 Wellington Road 7, Unit 10, Elora Resource Ctr	Elora	ON	Canada	N0B 1S0
Carola Serwotka	Water Inspector, Guelph Office, Drinking Water Management Division	Ministry of the Environment and Climate Change	carola.serwotka@ontario.ca	1 Stone Rd., W., Ontario Government Building, 4th floor	Guelph	ON	Canada	N1G 4Y2
Chris Stack	Manager, West Region	Ministries of Citizenship and Immigration, Culture and Tourism and Recreation	chris.stack@ontario.ca	4275 King Street, 2nd Floor	Kitchener	ON	Canada	N2P 2E9
Damian Dupuy	Manager, Policy and Strategy Division	Ministry of Economic Development, Employment and Infrastructure	damian.dupuy@ontario.ca	900 Bay St., 6th Fl., Heart Block	Toronto	ON	Canada	M7A 2E1
David Cooper	Manager, Environmental and Land Use Policy	Ministry of Agriculture, Food and Rural Affairs	david.cooper@ontario.ca	1 Stone Rd., W., Ontario Government Building, 3rd floor	Guelph	ON	Canada	N1G 4Y2
David Marriott	District Planner, Guelph District	Ministry of Natural Resources	david.marriott@ontario.ca	1 Stone Road West	Guelph	ON	Canada	N1G 4Y2
Greg Flood	Manager, Issues/Media Relations Unit, Communications Branch	Ministry of Community Safety and Correctional Services	greg.flood@ontario.ca	25 Grosvenor St., 10th floor, George Grew Bldg	Toronto	ON	Canada	M7A 1Y6
Greta Najcler	Supervisor, Guelph District Office	Ministry of the Environment and Climate Change	greta.najcler@ontario.ca	1 Stone Road West, Ontario Government Bldg, 4th floor	Guelph	ON	Canada	N1G 4Y2
Ian Hagman	District Manager, Guelph District	Ministry of Natural Resources	ian.hagman@ontario.ca	1 Stone Road West, Ontario Government Bldg	Guelph	ON	Canada	N1G 4Y2
Jane Glassco	Manager, Guelph District Office	Ministry of the Environment and Climate Change	jane.glassco@ontario.ca	1 Stone Road West, Ontario Government Bldg, 4th floor	Guelph	ON	Canada	N1G 4Y2
John Archiuch	Aboriginal Consultation Advisor (Acting), Operations Division	Ministry of the Environment and Climate Change	john.archiuch@ontario.ca	135 St. Clair Ave. W., 1st Floor	Toronto	ON	Canada	M4V 1P5
Julius Arscott	Environmental Assessment Officer	Ministry of the Environment and Climate Change	julius.arscott@ontario.ca	135 St. Clair Ave. W., 1st Floor	Toronto	ON	Canada	M4V 1P5
Laura Hatcher	Team Lead (A), Culture Services Unit, Programs and Services Branch	Ministry of Tourism and Culture	laura.e.hatcher@ontario.ca	401 Bay Street, Suite 1700	Toronto	ON	Canada	M7A 0A7
Lisa Williamson	Supervisor, Guelph Office, Drinking Water Management Division	Ministry of the Environment and Climate Change	lisa.williamson@ontario.ca	1 Stone Rd., W., Ontario Government Building, 4th floor	Guelph	ON	Canada	N1G 4Y2
Malcolm Horne	Archaeology Review Officer, Archaeology Programs Unit	Ministry of Tourism, Culture and Sport	malcolm.horne@ontario.ca	401 Bay Street, Suite 1700	Toronto	ON	Canada	M7A 0A7

Biosolids Strategy Agency Contact List

Full Name	Job Title	Department	Email	Address	City	Prov	Country	Postal Code
Michael Helfinger	Senior Policy Advisor, Cabinet Office Liaison and Policy Support Unit, Policy and Strategy Division	Ministry of Economic Development, Employment and Infrastructure	michael.helfinger@ontario.ca	900 Bay St., 6th Fl., Heart Block	Toronto	ON	Canada	M7A 2E1
Michele Doncaster	Policy Advisor, Environmental and Land Use Policy	Ministry of Agriculture, Food and Rural Affairs	michele.doncaster@ontario.ca	1 Stone Rd., W., Ontario Government Building, 3rd floor	Guelph	ON	Canada	N1G 4Y2
Paul Odom	Surface Water Group Leader	Ministry of the Environment and Climate Change	paul.odom@ontario.ca	119 King Street West, 12th Floor	Hamilton	ON	Canada	L8P 4Y7
Sally Renwick	Team Lead (A), Environmental Planning - Economics, Research and Environmental Planning Section, Strategic Policy and Economics Branch	Ministry of Natural Resources	sally.renwick@ontario.ca	300 Water Street, 5th Floor, North Tower	Peterborough	ON	Canada	K9J 3C7
Sarah Paul	Director, Environmental Approvals Access and Service Integration Branch	Ministry of the Environment and Climate Change	sarah.paul@ontario.ca	135 St. Clair Ave. W., 1st Floor	Toronto	ON	Canada	M4V 1P5
Shannon McNeill	Senior Program Advisor, Program Implementation	Ministry of the Environment and Climate Change	shannon.mcneill@ontario.ca	135 St. Clair Ave. W., 12th Floor	Toronto	ON	Canada	M4V 1P5
Todd Barranger	Executive Assistant (Acting), Drinking Water Management Division	Ministry of the Environment and Climate Change	todd.barranger@ontario.ca	135 St. Clair Ave. W., 14th Floor	Toronto	ON	Canada	M4V 1P5
Tony Amalfa	Manager, Environmental Health Policy & Programs, Public Health Division	Ministry of Health and Long-Term Care	tony.amalfa@ontario.ca	393 University Avenue, 21st Floor	Toronto	ON	Canada	M7A 2S1
Victor Doyle	Manager - Planning Innovation Section, Local Government and Planning Policy Division	Ministry of Municipal Affairs and Housing	victor.doyle@ontario.ca	777 Bay St, 13th Floor, College Park	Toronto	ON	Canada	M5G 2E5
	Enforcement Officer - Ontario Region	Canadian Transportation Agency	conformite-compliance@otc-cta.gc.ca	4900 Yonge Street, Suite 300	Toronto	ON	Canada	M2N 6A5
	Environmental Assessment Coordinator	Transport Canada	EnviroOnt@tc.gc.ca					
Rob Dobos	Manager, Environmental Assessment Section Environmental Protection Operations Division - Ontario Region	Environment Canada	rob.dobos@ec.gc.ca	867 Lakeshore Rd. P.O. Box 5050	Burlington	ON	Canada	L7R 4A6
Sheila Allan	Head of Environmental Assessment Section,	Environment Canada	sheila.allan@ec.gc.ca	867 Lakeshore Rd. P.O. Box 5050	Burlington	ON	Canada	L7R 4A6
Grant Wedge	Legal Director	Ministry of Aboriginal Affairs		160 Bloor St. E. 4th floor	Toronto	ON	Canada	M7A 2E6
	Communications Research Centre Canada	Industry Canada		3701 Carling Avenue, PO Box 11490, Station H	Ottawa	ON	Canada	K2H 8S2
		Parks Canada		30 Victoria Street	Gatineau	QC	Canada	J8X 0B3
	Portfolio Manager for Research	Indian and Northern Affairs Canada		10 Wellington Street	Gatineau	QC	Canada	K1A 0H4
Gord Peters	Grand Chief	Association of Iroquois and Allied Indians			London	ON	Canada	N6B 2A7
Densie Stonefish	Deputy Grand Chief	Association of Iroquois and Allied Indians			London	ON	Canada	N6B 2A7
Paul General	Wildlife Manager	Six Nations of the Grand River		Iroquois Village Plaza, PO Box 5000	Ohsweken	ON	Canada	N0A 1M0
Lonny Bomberry	Director	Six Nations of the Grand River - Land & Resources Department		PO Box 5000	Ohsweken	ON	Canada	N0A 1M0

Biosolids Strategy Agency Contact List

Full Name	Job Title	Department	Email	Address	City	Prov	Country	Postal Code
G. Ava Hill	Chief	Six Nations of the Grand River		PO Box 5000	Ohsweken	ON	Canada	N0A 1M0
Joanne Thomas	Consultation Supervisor	Six Nations of the Grand River		PO Box 5000	Ohsweken	ON	Canada	N0A 1M0
Patrick Foley		Cambridge Trails Advisory Committee, c/o City Clerk's office		PO Box 669	Cambridge	ON	Canada	N1R 5W8
Michael Mcgann	Manager of Design	City of Cambridge		3rd Floor, PO Box 669	Cambridge	ON	Canada	N1R 5W8
Neil Main	Fire Chief	City of Cambridge Fire Department			Cambridge	ON	Canada	N1R 7J4
Jon Rehill	Fire Chief	City of Kitchener Fire Department			Kitchener	ON	Canada	N2E 3M6
Richard Hepditch	Fire Chief	City of Waterloo Fire Rescue		2-470 Columbia St W	Waterloo	ON	Canada	N2T 2Y6
Paul Emerson	CAO/Clerk	County of Brant		PO Box 160	Burford	ON	Canada	N0E 1A0
Michael Raine	Fire Chief	The Corporation of the Township of Wilmot			Baden	ON	Canada	N3A 1A1
Karen Landry	CAO/Clerk - Treasurer	Township of Puslinch			Guelph	ON	Canada	N0B 2J0
Rick Pedersen	Fire Chief	Township of Woolwich			St Jacobs	ON	Canada	N0B 2N0
Michael Nadeau	Manager Engineering Office	Ministry of Transportation - West Region, Provincial Highways Management Division		4th Floor 659 Exeter Rd	London	ON	Canada	N6E 1L3
Heather Levecque	Director (Acting)	Ontario Ministry of Aboriginal Affairs - Aboriginal Relations & Ministry Relations Branch		9th Floor	Toronto	ON	Canada	M7A 2E6
Réjean Sirois	Director of Education and Secretary-Treasurer	Conseil scolaire de district catholique Centre-Sud			Toronto	ON	Canada	M2M 1C8
Gyslaine Hunter-Perreault	Director of Education	Conseil scolaire Viamonde			Toronto	ON	Canada	M6L 2K5
Loretta Notten	Director of Education and Secretary of the Board	Waterloo Catholic District School Board		PO Box 91116	Kitchener	ON	Canada	N2G 4G2



TRANSPORTATION AND
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Water Services

150 Frederick Street 7th Floor
Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4452
www.regionofwaterloo.ca

October 28, 2015

<Name>

<Address>

Dear <Name>

Re: Region of Waterloo Biosolids Strategy

The Region of Waterloo has initiated work to develop a Biosolids Strategy. The project involves six phases of work over the next four years to understand biosolids in the Region, to identify alternative ways of dealing with biosolids in the future, and to evaluate alternatives, resulting in a preferred Biosolids Strategy. The Region is undertaking this Study in accordance with the requirement for Master Plans under the Municipal Class Environmental Assessment process (Municipal Engineers Association, June 2000 as amended in 2007 and 2011).

An important part of developing this strategy is to provide education about biosolids, to engage with the public and stakeholders throughout the project, and to obtain their input as the project unfolds. We are pleased to invite you to the first opportunity for your participation in this project, the Biosolids Strategy Launch Event being held on November 17 (see attached flyer). This event will provide an opportunity for the Region of Waterloo community to learn what biosolids are, where biosolids come from, what happens to them currently, and why a strategy is needed.

We will keep you informed at key contact points throughout this project including sending notification of upcoming meetings. If you have any questions about the Biosolids Strategy project or comments and suggestions you wish to provide, please

feel free to get in touch with me. Also, please visit the project website for more information: regionofwaterloo.ca/biosolids.

We look forward to your participation in the development of the Biosolids Strategy over the next four years.

Sincerely,

A handwritten signature in black ink, appearing to read 'K Yajima', with a stylized, cursive script.

Kaoru Yajima

Attachment: Launch event flyer

All comments and information received from individuals, stakeholder groups and agencies regarding this Study are being collected by the Region of Waterloo in making a decision. Under the Municipal Act, personal information such as name, address, telephone number, and property location may be included if a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the Region's Project Manager.

The Science of Biosolids



PRESENTS:

BIOSOLIDS
Strategy

**LAUNCH
EVENT**

What is it? What do we do with it?

Biosolids Strategy Open House

**Tuesday November 17
6:00-9:00pm**

Waterloo Region Museum
10 Huron Road, Kitchener ON

Bob McDonald Talk: 7:00pm

Preregistration required for discussion
with Bob McDonald

Registration opens November 4th at:
www.regionofwaterloo.ca/biosolids

If you have any questions or comments,
or wish to be added to the mailing list,
please contact:

Kaoru Yajima

Senior Project Engineer, Water Services
The Regional Municipality of Waterloo
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
Tel: 519-575-4757 ext. 3349
TTY: 519-575-4608
Email: kyajima@regionofwaterloo.ca

The Region of Waterloo is starting to put together a biosolids strategy. Biosolids are the organic materials removed from our water after we flush it down the drain. Join us on November 17th, 2015 to learn more about biosolids and how you can get involved in developing a new strategy for our community.

At the event, Bob McDonald, one of Canada's best known science journalists, will be hosting a special talk on the science of biosolids and the importance of civic participation.

The open house is free to attend, but seating is limited for the talk with Bob McDonald so please register in advance.

If you require accessibility assistance to participate in this event, please contact us in advance.

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments received will become part of the public record. Questions regarding the collection of this information should be referred to the Regional Clerks Office.

With...

Bob McDonald

CBC's host of
Quirks and Quarks





TRANSPORTATION AND
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Water Services

150 Frederick Street 7th Floor
Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4452
www.regionofwaterloo.ca

June 3, 2016

<Name>
<Address>

Dear <Name>

Re: Region of Waterloo Biosolids Strategy – Project Update and Upcoming Events

The Biosolids Strategy is now entering Phase 2 of the Project schedule. Our team has been busy since our last notice so we wanted to update you and inform you of some events we have lined up in the coming months.

Webinar - Follow the Drain: Biosolids in Waterloo Region

To share the work we have done over the past few months we have scheduled a webinar that anyone can access from the internet. They will learn how biosolids are created and managed in the Region today. This live webinar will be shown online on the following dates:

Evening: Wednesday, June 15th, 6:30pm – 7:30pm

Afternoon: Thursday, June 16th, 12:00pm – 1:00pm

How to Join the Webinar:

Anyone can visit the Project website at **www.regionofwaterloo.ca/biosolids**, and follow directions to join the webinar, just prior to the scheduled time.

Advertisements for the webinar will also be made through the local newspapers, the notification list and social media.

In case anyone can't make the times above, the webinar will be recorded and posted to the Biosolids Strategy website afterwards.

Take the Survey!

Feedback is important to us and so we will be asking members of the public to fill out a brief survey, which will be available on the Project website until the end of June 2016. The survey will ask what issues that matter to them when it comes to biosolids management in the community. The survey can be accessed from the Project website.

Community Pop-up Events

Over the next few months, our team is going to be out in the community, looking to engage with the public on the issues that matter related to the Biosolids Strategy and provide the public with an opportunity to learn more about this Project. Locations will be posted on the Project website.

Project Charter

The Biosolids Strategy Project Charter is now available and can be freely shared from the Project website! The Charter is a guiding document that describes the need for a Biosolids Strategy in the Region and the scope and intent of the Project, among other useful facts about the Project. The Charter can be downloaded from the Project website.

Getting Technical: Progress to Date

Our team has been busy this year working on two technical reports that will help us develop the Strategy: the first report covers the Environmental Assessment Process that the Project is following, and the second report is a detailed Existing Conditions Background Study that explores how the Region manages biosolids today. Both of these reports will be made available on the Project website soon.

Next Steps

Over the summer and fall, our team will be working on three new technical reports:

- Draft Evaluation Criteria for Assessing Strategy Alternatives – Summer 2016
- Draft Biosolids Technology & Disposal Options – Fall 2016
- Draft Biosolids Management Strategies for Consideration – Fall 2016

These three reports will be discussed in the fall.

If you have any questions about the Biosolids Strategy project or comments and suggestions you wish to provide, please feel free to get in touch with me.

Also, as mentioned in this letter, please visit the Project website for more information and for regular updates on the project:

www.regionofwaterloo.ca/biosolids

We look forward to your participation in the development of the Biosolids Strategy.

Sincerely,

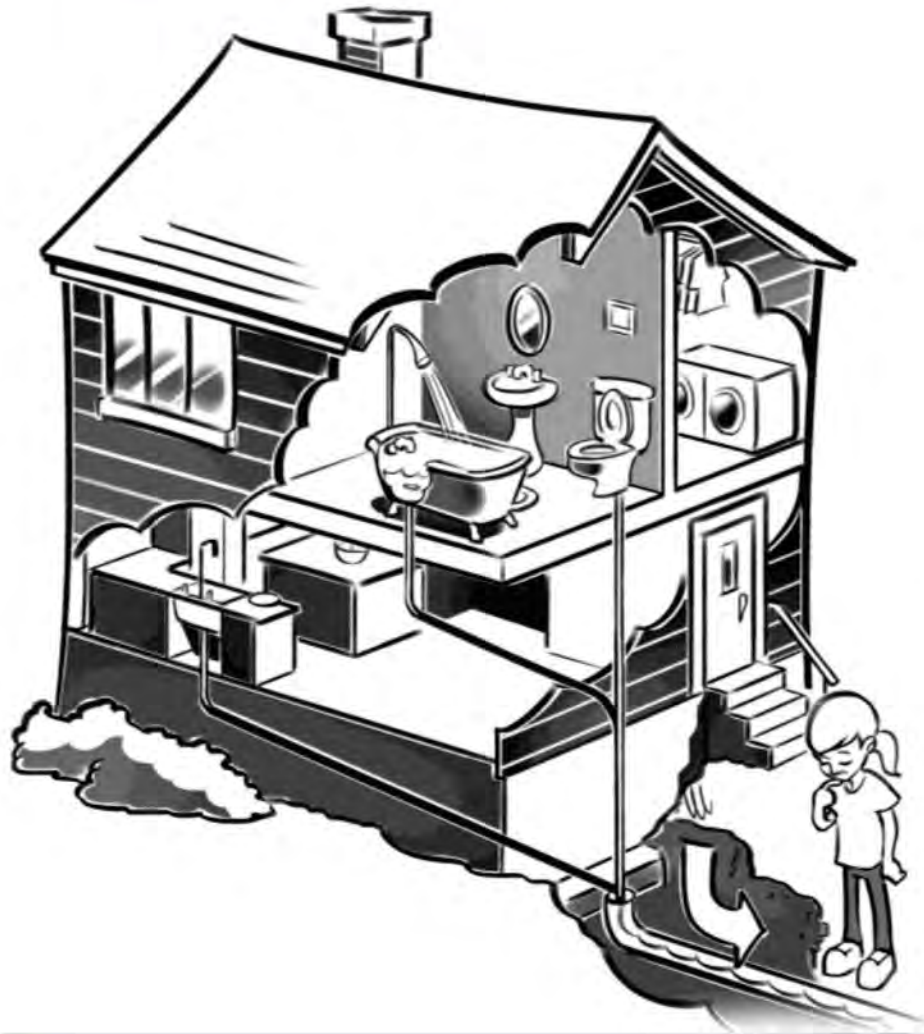
A handwritten signature in dark ink, appearing to read 'K Yajima', is positioned above the printed name.

Kaoru Yajima

Attachment: Webinar and Survey Notice

All comments and information received from individuals, stakeholder groups and agencies regarding this Study are being collected by the Region of Waterloo in making a decision. Under the Municipal Act, personal information such as name, address, telephone number, and property location may be included if a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the Region's Project Manager.

Follow the Drain: Biosolids in Waterloo Region



Webinar

Discover how biosolids are made and managed in the Region today.

June 15

6:30 p.m. – 7:30 p.m.

June 16

12:00 p.m. – 1:00 p.m.

Webinar instructions:
regionofwaterloo.ca/biosolids

Take the Survey!

Visit the Project Website to participate: regionofwaterloo.ca/biosolids



TRANSPORTATION AND
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Water Services

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Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4452
www.regionofwaterloo.ca

March 13, 2017

<Name>

<Address>

Dear <Name>

Re: Region of Waterloo Biosolids Strategy – Project Update and Upcoming Events

The Region of Waterloo is undertaking a Biosolids Strategy study to develop a long term management strategy for its biosolids. The study has reached another milestone in the schedule. A long list of biosolids strategy alternatives has been developed as well as the proposed criteria to be used to make a decision.

Upcoming Events – Join Us!

We have three exciting engagement events lined up to gain feedback from the community on our long list of alternatives the decision-making criteria to be used. This is an important opportunity to get involved and tell us what you think.

- Thursday March 23rd, 6 p.m. – 9 p.m.
Open House with guest speaker **David Waltner-Toews** at 7p.m.
Cambridge City Hall
50 Dickson St, Cambridge, ON
- Tuesday March 28th, 6 p.m. -9 p.m.
Open House with free admission to **Tyrannosaurus: Meet the Family**
Waterloo Region Museum
10 Huron Rd, Kitchener, ON
- Wednesday April 12th, 6 p.m. -9 p.m.
Open House with guest speakers TVO's **The Water Brothers** at 7 p.m.
Waterloo Memorial Recreational Complex
101 Father David Bauer Drive, Waterloo, ON N2L 0B4

Please see the enclosed flyer for more information on these events. Come out and join the conversation!

Next Steps

Following the upcoming round of public consultation, the public will be invited to provide input and comment until April 30, 2017.

The next milestone in the study will consist of updating our technical reports and developing the short list of biosolids management alternatives for consideration. We will be back out in the community to gain feedback on the short list in early summer.

If you have any questions or comments about the study, please feel free to get in touch with me. Also, please visit the project website for more information: regionofwaterloo.ca/biosolids.

We look forward to your participation in the development of the Biosolids Strategy.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kyajima'.

Kaoru Yajima

kyajima@regionofwaterloo.ca

Attachment: Notice of Upcoming Consultation Events

The Region is undertaking this Study in accordance with the requirements for Master Plans under the Municipal Class Environmental Assessment process (Municipal Engineers Association, June 2000 as amended in 2007, 2011 & 2015).

All comments and information received from individuals, stakeholder groups and agencies regarding this Study are being collected by the Region of Waterloo in making a decision. Under the Municipal Act, personal information such as name, address, telephone number, and property location may be included if a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the Region's Project Manager.

Your input matters!

Come out and join the conversation on how we can decide on a short list of alternatives for the future of managing biosolids in the Region.



For more information visit
regionofwaterloo.ca/biosolids

The Future of Biosolids in Waterloo Region

Three Exciting Events – Three Great Opportunities to Participate!



Attend for a chance to win TVO's The Water Brothers' on DVD!

Attend for a chance to win a copy of The Origin of Feces!

GUEST SPEAKERS

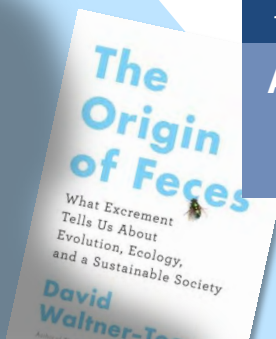
The Water Brothers

Award-Winning Documentary Film Makers and Hosts of the Popular Eco-Adventure Series on TVO

April 12, Waterloo Memorial Rec Complex

Open House: 6PM 9PM
Water Brothers Talk: 7PM

Attend for a chance to win a Rain Barrel!



GUEST SPEAKER

David Waltner-Toews

Award-Winning Author of
'The Origin of Feces'

March 23, Cambridge City Hall

Open House: 6PM 9PM
David Waltner Toews Talk: 7PM

Open House

Meet Our Team & Get Free Admission to
Tyrannosaurs: Meet the Family

March 28, Waterloo Region Museum

Open House: 6PM 9PM





TRANSPORTATION AND
ENVIRONMENTAL SERVICES
Water Services

150 Frederick Street 7th Floor
Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4452
www.regionofwaterloo.ca

November 23, 2017

<Name>
<Address>

Re: Region of Waterloo Biosolids Strategy – Notice of Public Consultation Centers

The Region of Waterloo is undertaking a Biosolids Strategy (master plan) to develop a long term management plan for its biosolids. The study has reached another milestone in the schedule. A short list of biosolids strategy alternatives has been developed and evaluated, and the results of the evaluation are being brought forward for public review and feedback. We have also developed a preliminary implementation approach for the strategy.

Upcoming Events – Join Us!

We have three public consultation center engagement events planned to gain feedback from the community on our evaluation results and the implementation approach proposed. This is an important opportunity to get involved and tell us what you think, and will be the final round of formal public consultation centres held for the Project.

- Tuesday December 5th, 5:00 p.m. – 7:30 p.m.
Waterloo Region Museum
10 Huron Rd, Kitchener, ON
- Thursday December 7th, 5:00 p.m. – 7:30 p.m.
Waterloo Memorial Recreational Complex
101 Father David Bauer Drive, Waterloo, ON
- Tuesday December 14th, 5:00 p.m. – 7:30 p.m.
Cambridge City Hall
50 Dickson St, Cambridge, ON

The information presented at all three locations is identical. Please see the enclosed flyer for more information on these events. Come out and join the conversation! If you are unable to join us at one of these events, the material will be posted on the project website: regionofwaterloo.ca/biosolids

Next Steps

Following the upcoming round of public consultation, the public will be invited to provide input and comment until January 15, 2017.

The next milestone in the study will consist of updating our technical reports and developing the recommended strategy for presentation to Council, which will be followed by a 30-day public review period.

If you have any questions or comments about the study, please feel free to get in touch with me.

We look forward to your participation in the development of the Biosolids Strategy.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kyajima', with a stylized, cursive script.

Kaoru Yajima
Senior Project Engineer, Water Services
Region of Waterloo
150 Frederick Street, 7th Floor
Kitchener, Ontario N2G 4J3
519-575-4757 ext. 3349
kyajima@regionofwaterloo.ca

Attachment: Notice of Upcoming Public Consultation Centers

The Region is undertaking this Study in accordance with the requirements for Master Plans under the Municipal Class Environmental Assessment process (Municipal Engineers Association, June 2000 as amended in 2007, 2011 & 2015).

All comments and information received from individuals, stakeholder groups and agencies regarding this Study are being collected by the Region of Waterloo in making a decision. Under the Municipal Act, personal information such as name, address, telephone number, and property location may be included if a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the Region's Project Manager.

Wastewater Treatment Master Plan



BIO SOLIDS
Strategy

The community has helped shape the Region's future
wastewater treatment master plan and
biosolids management strategy.

**Join us to see how it has all come
together!**

Includes free
admission to the
'Trailblazing
Women in
Canada'
exhibition!

Attend one of these final
Open House Events
and let us know what
you think

**December 5,
Waterloo Region Museum**
5 p.m. – 7:30 p.m.

**December 7,
Waterloo Memorial Rec
Complex**
5 p.m. – 7:30 p.m.

**December 14,
Cambridge City Hall**
5 p.m. – 7:30 p.m.

Attend for a chance to win a Waterloo Region Museum season pass!

regionofwaterloo.ca/biosolids



TRANSPORTATION AND
ENVIRONMENTAL SERVICES
Water Services

150 Frederick Street 7th Floor
Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4452
www.regionofwaterloo.ca

April 13, 2018

<Name>

<Address>

Re: Notice of Completion – Region of Waterloo Biosolids Strategy

The Region of Waterloo has completed a Biosolids Master Plan (Biosolids Strategy) to develop a long term management plan for its biosolids until 2051. This letter is to notify that the draft Final Report is now available for review.

The Biosolids Strategy was undertaken under the latest Municipal Class Environmental Assessment (Class EA) process for master plans, and completes Phases 1 and 2 of the Class EA process with community feedback integrated in decision-making. A wide range of community consultation and engagement activities across the Region were conducted for the project which resulted in meaningful input towards the development of the Biosolids Strategy.

The Result: The Biosolids Strategy recommends a two phase approach:

Phase 1 (Immediate Need): In the first phase, the Biosolids Strategy recommends the development of short-term storage for biosolids at the Region's three largest wastewater treatment plants (Kitchener, Waterloo, and Galt). This will provide the flexibility we need for the current operations to deal with any challenges that arise.

Phase 2 (Medium to Long Term): In the second phase, towards 2030, it recommends the development of a facility to reduce biosolids volume by producing a dried fertilizer. This could be a single facility, or several smaller ones created at existing wastewater facilities in the Region. Prior to commencing with this phase, an update to this Biosolids Strategy will be undertaken to confirm the approach.

Phase one would proceed as Schedule A project (pre-approved) and Phase two as Schedule C project (additional studies) under the Class EA process.

Copies of the Biosolids Master Plan report are available for public information and review at the following locations from **April 18 to May 31, 2018, Monday - Friday 8:30 a.m. - 4:30 p.m.:**

Regional Clerk's Office

150 Frederick Street, 2nd Floor, Kitchener

City of Cambridge Clerk's Office

50 Dickson Street, 2nd Floor, Cambridge

City of Kitchener Clerk's Office

200 King Street West, Kitchener

City of Waterloo Clerk's Office

100 Regina St. S., Waterloo

The document is also available for download on the Region's website at: regionofwaterloo.ca/biosolids

Study Completion:

Please provide all written comments to the Region of Waterloo by **Thursday, May 31, 2018**.

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

This notice first issued April 18, 2018.

Please send information requests or comments to:

Kaoru Yajima, P.Eng.

Senior Project Engineer
Water Services - The Regional Municipality of
Waterloo
150 Frederick Street, 7th Floor,
Kitchener, ON N2G 4J3

Tel: 519-575-4757 ext. 3349
Fax: 519-575-4452
TTY: 519-575-4608
Email: biosolids@regionofwaterloo.ca

Thank you for your interest in the Biosolids Strategy.

Sincerely,



Kaoru Yajima
kyajima@regionofwaterloo.ca

Attachment: Notice of Completion of the Biosolids Strategy

The Region is undertaking this Study in accordance with the requirements for Master Plans under the Municipal Class Environmental Assessment process (Municipal Engineers Association, June 2000 as amended in 2007, 2011 & 2015).

All comments and information received from individuals, stakeholder groups and agencies regarding this Study are being collected by the Region of Waterloo in making a decision. Under the Municipal Act, personal information such as name, address, telephone number, and property location may be included if a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the Region's Project Manager.



Notice of Study Completion



The Study: Waterloo Region is growing, and needs to establish a long term, sustainable strategy for managing biosolids. The Region has completed a Biosolids Master Plan (Biosolids Strategy) to manage biosolids until 2051.

The Process: The Region has completed the Biosolids Strategy according to the requirements for a Master Plan project under the Municipal Class Environmental Assessment (Class EA). The study completes Phases 1 and 2 of the Class EA process using community feedback in the decision-making to find a community-made approach. This notice places the Master Plan on the public record.

The Result: The Biosolids Strategy recommends a two phase approach:

Phase 1 (Immediate Need): Develop storage for biosolids at the Region's three largest wastewater treatment plants (Kitchener, Waterloo, Galt). This will provide the flexibility we need for the current operations to deal with any issues that arise.

Phase 2 (Medium to Long Term): Develop a facility to reduce biosolids volume by producing a dried fertilizer. This could be a single facility or several smaller ones created at existing facilities in the Region. Prior to commencing, an update to the Biosolids Strategy will be undertaken to confirm the approach.

Phase one would proceed under the Class EA process (Schedule A) as would Phase two (Schedule C).

Copies of the Biosolids Master Plan are available for your information at the following locations from April 18 to May 31, 2018, Monday - Friday 8:30 a.m. - 4:30 p.m.:

Regional Clerk's Office
150 Frederick Street, 2nd Floor, Kitchener

City of Kitchener Clerk's Office
200 King Street West, Kitchener

City of Cambridge Clerk's Office
50 Dickson Street, 2nd Floor, Cambridge

City of Waterloo Clerk's Office
100 Regina St. S., Waterloo

The documents are also available for download on the Region's website at: regionofwaterloo.ca/biosolids

Study Completion:
The Biosolids Master Plan is available for review starting on April 18, 2018.

Please provide all written comments to the Region of Waterloo **by Thursday, May 31, 2018**. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued April 18, 2018.

Please send information requests or comments to the Region's Project Manager:

Kaoru Yajima, P.Eng.

Senior Project Engineer
Water Services - The Regional Municipality of Waterloo
150 Frederick Street, 7th Floor, Kitchener, ON N2G 4J3
Tel: 519-575-4757 ext. 3349
Fax: 519-575-4452
TTY: 519-575-4608
Email: biosolids@regionofwaterloo.ca

E-Newsletters & Biosolids Bulletin

STAGE 1

This newsletter is an update on the progress of the Regional Biosolids Strategy, including notices for opportunities to provide input.

No Images? [Click here](#)



August 2015

Region of W aterloo: Biosolids Strategy E-News #1

I'd like to personally welcome you to the first edition of the Region of Waterloo's Biosolids Strategy newsletter: Biosolids Strategy E-News!

Based on Region Council approval on June 24, 2015, background work has started for developing the Region's Biosolids Strategy. The team is onboard and we are currently preparing for engagement activities starting this fall.

This Biosolids Strategy E-News will be sent out periodically to ensure that key stakeholders and staff are kept up to date. We will endeavour to inform you of upcoming work and consultation activities.

First Steps of the Biosolids Strategy: Project Charter

The Strategy will be completed over four years. A Project Charter will be developed to guide the Project.

A workshop will be held with the Regional Councillors (assigned to the Project) and Region and local municipal staff. At the workshop, we will explore and develop a common understanding of the Project and its purpose, identify key issues and stakeholders and identify how and when the team will engage the community during the development of the Biosolids Strategy.

Upcoming Community Engagement Activities

The following community engagement activities are planned for this fall.

- Early September, 2015: A baseline telephone survey to approximately 500 residents in the Region will be conducted to learn about their knowledge and opinions on the subject.
- October, 2015: Environews will have a short introduction of the Biosolids Strategy; Environews reaches every household in the Region. An information report and public consultation boards will also be presented to the Region's Planning and Works Committee.
- November 17, 2015: A launch event of the Biosolids Strategy will be held at the Waterloo Region Museum on Homer Watson Boulevard. Science Journalist Bob McDonald is the guest speaker who will address the topic and staff will provide information on how the process will unfold.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

tel: 519-575-4757 extension 3349; email: kyajima@regionofwaterloo.ca

Nancy Kodousek, Director - Water Services, Region of Waterloo

tel: 519-575-4447; email: nkodousek@regionofwaterloo.ca



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FORWARD

Region of Waterloo, Water Services
regionofwaterloo.ca/biosolids

You are receiving this email as an identified stakeholder in the
development of a Regional biosolids strategy.

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BIOSOLIDS Strategy

E-Newsletter #2 December 2015

Greetings <<First Name>>!

Since the last E-Newsletter update I provided on the [Region of Waterloo's Biosolids Strategy](#), the team has been working away on a number of things that we would like to share with you.

Launch Event

Officially kicking off the four-year Biosolids Strategy process, we held a public Launch Event on November 17, 2015 at the Waterloo Region Museum. Regional Councillor Jowett was the MC for the presentation portion of the evening where special guest Bob McDonald, host of CBC's "Quirks and Quarks" spoke about the topic.

McDonald from CBC's Quirks and Quarks took us on a 10,000-year journey through how humans have managed their poop throughout history. Bob also situated the importance of responsible biosolids management within the wider context of clean water protection and overall environmental responsibility.



Over 100 people attended the event, 30 participants completed a survey and 43 submitted feedback forms. Overall, the Region received positive feedback and many participants believed the event was a good start to an engaging process. Some participants noted they are eager for more information that will provide a deeper understanding of this topic.

Many attendees provided feedback and the strategy team is reviewing and summarizing the material now. Here is a sample of some of the verbatim feedback we received:

- Good effort in using a public forum to invite public input
- School talks are a great idea. Not just about biosolids. Teach them the entire process. They have been taught about what happens to their garbage, now teach them about poop.
- Concern over pollution

From this small sample set of comments, it appears people appreciated the Region's approach, would like more information about the subject, and do have

Telephone Survey

This past fall, COMPAS Research carried out a representative telephone survey among 502 respondents in the Region of Waterloo to explore the topic of biosolids. The survey was to measure the awareness of biosolids and current opinions and perceptions of its management within the Region. The results of the survey will be made available soon.

About our New Program Identifier for the Strategy

You may have noticed the new Biosolids Strategy program identifier at the top of this e-newsletter. It will be used on all publications and electronic media produced by the Biosolids Strategy to help readers quickly identify the subject matter. The colours were chosen to remind us of what good biosolids planning represents: blue for clean water, brown for the potential to return them safely back to the earth, and green for the potential of green energy.

Biosolids Bulletin

As part of our outreach and engagement efforts, we will be distributing a public “Biosolids Bulletin” email newsletter to the project contact list. Contents of the first bulletin will include a summary of the Launch Event, an invitation to complete the project survey, and a call for those interested in applying for the project Stakeholder Committee. You should receive your copy of the Biosolids Bulletin in your inbox shortly.

Next Steps

We will begin establishing a public Stakeholder Committee comprised of interested members of the community (approximate timing - February 2016). Also, we will establish a Planning and Technical Advisory Committee,

Biosolids Strategy (approximate timing - January 2016).

Our next round of public engagement activities will be occurring in late spring 2016. Please watch for future announcements about upcoming events.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo
tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

Nancy Kodousek, Director Water Services, Region of Waterloo
tel: 5195754447; email: nkodousek@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. The project will span approximately 4 years with multiple opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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This email newsletter is the third in a series of updates on the progress of the Regional Biosolids Strategy.

[View this email in your browser](#)



BIOSOLIDS Strategy

E-Newsletter #3 January 2016

Greetings <<First Name>>!

This [Biosolids Strategy](#) E-Newsletter is being sent to let you know that at the end of this week we will begin accepting applications for our project Stakeholder Committee. The Stakeholder Committee, to be made up of representatives from various interest groups, academics, businesses and the community, will provide advice and feedback to the Region of Waterloo Biosolids Strategy project team at key milestone points over the course of the project.

An Application Package, including a draft Stakeholder Committee Terms of Reference, will be made available on January 29th on the project website: www.regionofwaterloo.ca/biosolids. Applications will be accepted until February

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Please let your contacts and constituents know about this important opportunity for them to apply to be involved in the Biosolids Strategy project as a Stakeholder Committee member.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

Nancy Kodousek, Director Water Services, Region of Waterloo

tel: 5195754447; email: nkodousek@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. The project will span approximately 4 years with multiple opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

The Biosolids Bulletin #1 Biosolids Strategy Launch Event



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Forward

Hello <<First Name>>

The Region of Waterloo officially kicked off the four-year [Biosolids Strategy process](#), with a public Launch Event on November 17, 2015 at the Waterloo Region Museum.

In front of a full house at the Region Museum theatre, guest speaker Bob McDonald from CBC's Quirks and Quarks took us on a 10,000-year journey through how humans have managed their poop throughout history. Bob also



Open house participants were also greeted with a series of information panels that introduced biosolids and the upcoming strategy process. Information panels can be downloaded in PDF format by clicking the link below.

Download the Launch Event Information Panels



Over 100 people attended the event, 30 participants completed a survey and 43 submitted feedback forms. Overall, the Region received positive feedback and many participants believed the event was a good start to an engaging process. Some participants noted they are eager for more information that will provide a deeper understanding of this topic.

Thank you to all those who participated in the Biosolids
Strategy Launch Event!

We Need Your Input

If you have not yet done so, but would like to, please click the link below to complete the first project survey and help us understand your initial perspectives on biosolids.

The survey will be available until January 15, 2016. It can also be accessed on the project website at www.regionofwaterloo.ca/biosolids.

Take the Project Survey

Stakeholder Advisory Committee

If you are interested in receiving information about joining the Biosolids Strategy Stakeholder Advisory Committee, please contact us at 519-575-4426 or biosolids@regionofwaterloo.ca.

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo

[Subscribe](#)[Past Issues](#)

Tel: 519-575-4426

Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. The project will span approximately 4 years with multiple opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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Apply to join the Region of Waterloo Biosolids Strategy Stakeholder Committee.

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BIOSOLIDS Strategy

Biosolids Bulletin #2

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Hello <<First Name>>

The Region is embarking on a multi-year process to develop a new Biosolids Strategy and we need everyone to be involved to help identify the best possible solutions. Biosolids are the treated organic materials removed from our water after we flush it down the drain. We are all involved in creating biosolids, so we should all be involved in determining what we do with them as a community.



Apply to Join our Project Stakeholder

[Subscribe](#)[Past Issues](#)[Committee](#)

We are recruiting a group of interested and engaged community members to join the Stakeholder Committee for the Region's Biosolids Strategy Project. The Stakeholder Committee, to be made up of representatives from various interest groups, academics, businesses and the community, will provide advice and feedback to the Region of Waterloo Biosolids Strategy project team at key milestone points over the course of the project.

To obtain the Stakeholder Committee application package, including draft Terms of Reference, please download and complete the PDF at the link below.

[Download the Application Package](#)

You can also apply online by visiting this link: <http://goo.gl/forms/4c6XuzgLQY>.

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
(519) 575-4426
Email: biosolids@regionofwaterloo.ca

Applications will be accepted until February 29, 2016.



Survey Deadline Extended

If you have not yet done so, but would like to, please click the link below to complete the first project survey and help us understand your initial perspectives on biosolids. The survey will be available until February 5, 2016.

[Take the Project Survey](#)

[Subscribe](#)[Past Issues](#)

Connect with us:



Contact: W ater Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. The project will span approximately 4 years with multiple opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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Region of Waterloo Biosolids Strategy

Application for Consideration of Appointment to Biosolids Strategy Stakeholder Committee

Instructions:

Please review the Terms of Reference provided after this form prior to submitting the form. To submit your completed form by email, please scan and send the file to: biosolids@regionofwaterloo.ca. Alternatively, it can be submitted by hand during normal business hours, mailed or faxed to:

Transportation and Environmental Services, Water Services
Region of Waterloo
150 Frederick Street, 7th Floor
Kitchener, Ontario, Canada N2G 4J3
Attention: Biosolids Strategy Project
Fax: 1-519-575-4452

An online version of the form is available [here](#). The deadline for applications is end of business day, **Monday, February 29, 2016**.

Name: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Affiliation: _____

Are you currently a member of any regional or city committee or board, or community group? If yes, which one(s)? Please list prior or current community involvement or experience within the Region.

Please list the skills or qualifications you would bring to this committee.

Please list your reason(s) for seeking membership on this committee and other pertinent information you may deem helpful in considering your application including any potential conflict of interest.

(use separate sheets if necessary)

Thank you for your interest in the Biosolids Strategy Stakeholder Committee!

Region of Waterloo Biosolids Strategy Stakeholder Committee Terms of Reference and Application Form

1. Introduction and Background

Biosolids are the treated organic materials removed from our water after we flush it down the drain. We are all involved in creating biosolids, so we should all be involved in determining what we do with them as a community. The Region is embarking on a comprehensive process to develop a new Biosolids Strategy and we need everyone to be involved. Successful strategies will take the whole community's interests to heart and we need the public and all key stakeholders to help us identify the best possible solutions.

The Biosolids Strategy will examine current practices, consider all the available technologies and develop a sustainable way to manage biosolids within the Region over the long term. Work will be completed to meet the requirements of the Environmental Assessment Act as outlined by the Municipal Engineers Association Municipal Class Environmental Assessment (Oct 2000 as amended 2010) process.

The Region of Waterloo intends to establish a Stakeholder Committee to provide feedback on the Region's Biosolids Strategy project. Engagement with the community is a critical part of the development of this Strategy and the Stakeholder Committee is intended to be one component of the overall engagement program for the project. This Terms of Reference will guide the development and operation of the Stakeholder Committee.

2. Purpose and Objectives of the Stakeholder Committee

The purpose of the Stakeholder Committee is to provide advice and feedback to the Region of Waterloo Biosolids Strategy project team at key milestone points over the course of the project. The Stakeholder Committee is a non-political advisory body.

The objectives of the Stakeholder Committee include:

- Provide insight and feedback on the Strategy development at various points in the process;
- Provide insight into key issues related to the Biosolids Strategy from the perspective of the members and the organizations/interests represented;
- Explore opportunities and solutions to resolve these concerns;
- Engage in collaborative discussion to increase project understanding;

- Review materials and provide feedback on matters brought to the Stakeholder Committee for comment;
- Communicate project information back to their organization/community; and
- Participate in consultation events for the project.

The Biosolids Strategy topics likely to be discussed at Stakeholder Committee meetings include:

- The need for the Strategy;
- Key issues and context;
- Existing conditions and biosolids management practices;
- Biosolids management options;
- Evaluation methodology and decision criteria;
- Consultation activities and results; and
- Other related project issues and items as may be identified throughout the study.

3. Stakeholder Committee Formation and Conduct

Membership

Membership for the Stakeholder Committee will be chosen by the Region based on the objective of bringing varied perspectives to the discussion. Accordingly, it is suggested that membership on the Stakeholder Committee would include representatives from the following community “sectors”.

Community Sector	Number of Representatives	Potential Organizations
Agriculture	3	Ministry of Agriculture, Food and Rural Affairs Waterloo Federation of Agriculture Ministry of Natural Resources and Forestry
Business/Industry	Up to 2	Chambers of Commerce
Citizen-at-Large	7	Residents of area municipalities
Community Groups	Up to 4	Neighborhood associations Umbrella community organizations Ratepayers groups
Environment, Public Health	4	Region of Waterloo Public Health Not-for-profit Advocacy groups
Academics and Scientists	2	University of Waterloo, Wilfrid Laurier University, Conestoga College
Municipal Staff Representatives	Up to 7	Area municipality staff representatives from the project Technical Committee

The targeted number of representatives from each community sector mentioned in the table above may be modified by the Region based on interest in participation.

Notice of the opportunity to participate as a citizen-at-large will be advertised in local newspapers, as well as through the Biosolids Bulletin e-newsletter. The application form is attached to this document. Completed applications for participation in the Stakeholder Committee will be reviewed for suitability.

Stakeholder Committee members are expected to commit to the full term of the project. While it is preferred that selected members attend all meetings, if necessary Stakeholder Committee members can send an alternate from the organization they represent.

Non-members are welcome to observe Stakeholder Committee meetings as space permits. During the meeting, observers are not allowed to participate in the discussion. However, if appropriate, additional time as reasonable may be added to the end of the agenda to address comments from observers.

Effective Committee Practices

In the interest of committee effectiveness, Stakeholder Committee members agree to be bound by the following practices:

- Members will listen to, review and consider the information provided by the Project Team;
- Members will strive, at all times, to ensure that the best interests of all members are taken into account;
- Members will be courteous, listen to and consider the opinions of other Stakeholder Committee members;
- Members should participate fully in discussion, but not dominate the discussion or allow others to do so;
- Members should speak one at a time and not interrupt other members while they are speaking;
- Members wishing to make comments should do so through the facilitator, and wait their turn to speak;
- Members will provide constructive feedback regarding suggestions for improvements;
- Members will address their concerns within the Stakeholder Committee, seeking to develop a common message for discussion in a public forum; and

- Members will not, on their own, or as part of another association, engage in independent action that is in conflict with the Stakeholder Committee Terms of Reference and Region's Conflict of Interest policy, attached.

Meetings

Stakeholder Committee meetings will be convened at key points in the Biosolids Strategy project study process. Meetings will be held on weekday evenings at the offices of the Region of Waterloo. Approximately 6-8 meetings are anticipated over the duration of the project.

Minutes

Stakeholder Committee meeting notes will be taken by a representative of the consultant team. Notes will be circulated to the Stakeholder Committee following each meeting for review and comment by members. Notes will be approved by the Stakeholder Committee at the following meeting.

4. Roles and Responsibilities

As a Stakeholder Committee member, each participant will:

- a) Commit to working with the Region and the Stakeholder Committee over the project life.
- b) Accept the Stakeholder Committee Terms of Reference.
- c) Consider any matters, issues, or information referred to them by the Project Team relating to the Biosolids Strategy development, and provide advice and recommendations as requested.
- d) Prepare for meetings by reviewing any materials provided and provide direct input into the process.
- e) Liaise with the organization/group they represent (if applicable) and bring forward advice, issues, or comment from their organization to the Stakeholder Committee.
- f) Strive to openly discuss views and opinions, and seek to develop common ground and narrow areas of disagreement to the best of their ability.
- g) Ensure that the results of Stakeholder Committee discussions are accurately recorded in the meeting records, or in additional reports that members may determine are needed.
- h) Assist the Project Team by keeping the local community and other interest groups apprised of information about the project.
- i) Inform the Region of Waterloo of any situation that may be either a conflict of interest or a potential conflict of interest with their Stakeholder Committee

obligations. Note: Members will be expected to agree to and sign the Region of Waterloo's Conflict of Interest Policy for Citizen Appointees to Advisory Committees.

Project Team members will:

- a) Strive to provide accurate, understandable and timely information to Stakeholder Committee members, such that they can contribute informed advice and recommendations.
- b) Ensure that appropriate Region staff (or their delegate) are present at discussions on specific issues or components of the planning process.
- c) Ensure that the advice and recommendations from the Stakeholder Committee are fully considered as part of developing the Biosolids Strategy.
- d) Ensure meeting is facilitated and meeting minutes are prepared and circulated.

Reporting Relationship

The Stakeholder Committee is acting in an advisory capacity to the Project Team, and through the Project Team to Regional Council. All meeting records and recommendations from the Committee to the Project Team will be posted on the Region's website for review by Council and the public.

By participating as members in this committee, Stakeholder Committee members are not expected to waive their rights to the democratic process, and may continue to avail themselves of participation opportunities through delegation to committees of Council, and/or providing written briefs. Any positions taken by individual members are without prejudice.

5. Confidentiality and Conflict of Interest

If Region staff are compelled to release confidential information, each Stakeholder Committee member will be required to sign and abide by a confidentiality agreement. Members shall not express an opinion on behalf of the Stakeholder Committee, or discuss with the media any information discussed during the Stakeholder Committee meetings, in order to maintain confidentiality and integrity of the process.

Applicants to the Stakeholder Committee should indicate any potential conflicts of interest associated with meeting discussions on the application form.

Those selected to the Stakeholder Committee will be required to sign the Region of Waterloo's Conflict of Interest Policy for Citizen Appointees to Advisory Committees during the first meeting. A copy of the policy is attached at the end of this document for the applicant's review.

6. Media Protocol

All media requests to Stakeholder Committee members will be directed to Kaoru Yajima, Project Manager, Biosolids Strategy, Region of Waterloo:

Kaoru Yajima
Transportation and Environmental Services, Water Services
Region of Waterloo
150 Frederick Street, 7th Floor
Kitchener, Ontario, Canada N2G 4J3
Tel: 1-519-575-4757 ext.3349
Fax: 1-519-575-4452
Email: KYajima@regionofwaterloo.ca

Attachment A – Copy of Region of Waterloo Conflict of Interest Form:

Note: Successful applicants will be requested to sign the form below upon joining the Stakeholder Committee.

The Region of Waterloo's

CONFLICT OF INTEREST POLICY

FOR CITIZEN APPOINTEES TO ADVISORY COMMITTEES

Policy Application

This policy applies to Citizen Appointees only. Municipal Councillors appointed to Advisory Committees are governed by the *Municipal Conflict of Interest Act* and the oath in their Declaration of Office. The conduct of Regional staff is governed by Human Resources policies.

Operating Principles:

Members of the Regional Municipality of Waterloo's Advisory Committees have a duty to conduct themselves in an impartial and objective manner. While the Region values the participation of citizens on its Advisory Committees, it is recognized that appointees have a broad range of interests and, from time to time, actual or potential conflicts of pecuniary interest or the appearance of such conflicts may arise. The purpose of this policy is to enable the Committees to deal with such conflicts in as open and appropriate a way as possible.

It is understood that members of Advisory Committees will perform their duties in such a way as to promote public confidence and trust in the integrity, objectivity and impartiality of the Committee. No member shall directly or indirectly receive any profit from his/her position, provided that an honorarium, as established from time to time by Regional Council and reasonable expenses may be paid in the performance of their duties.

Definitions

"Affected Party" means any individual, partnership, corporation, organization or other legal entity which has an interest in property, objects or other assets which are the subject matter of consideration by the Committee;

“Business associate” means an individual in a formal partnership or in a shared ownership of a company or enterprise with a Member;

“Committee” is the applicable Advisory Committee as established by the Regional Municipality of Waterloo;

“Immediate family” means a parent, child, spouse or common-law spouse of a Member;

“Member” is an individual formally appointed to the Committee by the Regional Municipality of Waterloo, but does not include any elected member of Regional Council or a member of Regional staff.

Conflicts

Conflicts of pecuniary interest arise when Members may financially benefit, directly or indirectly, from their membership on a Committee. Such involvements include, but are not limited to, the following:

- Members being the Affected Party or employed by or doing business with the Affected Party
- Members’ immediate family being the Affected Party or employed by or doing business with the Affected Party
- Members’ business associates being the Affected Party or employed by or doing business with the Affected Party

A conflict of interest may be actual, potential or apparent. The same duty to disclose applies to each. The pecuniary interests of a Member’s immediate family or business associate are considered to also be the pecuniary interests of the Member. Full disclosure in itself does not remove a conflict of interest.

Principles and procedures

It is important that Members be sensitive to appearance and perception and err on the side of transparency. In case of conflicts, whether actual, potential or apparent, Members are expected to fully disclose the conflict as soon as it arises and before the Committee makes any decisions in the matter where the conflict exists.

Once such a disclosure has been made, the Member involved shall abstain from voting and shall not participate in the discussion of the matter which gave rise to the conflict. The affected Member must not in any way, whether before during or after the meeting, attempt to influence the outcome of any discussion or voting on the matter. If the meeting at which the matter is discussed is not open to the public, in addition to the

above, the Member must leave the meeting room for the duration of any discussion and voting on the matter.

In cases where one or more of the Committee's Members has abstained from voting as a result of conflict, such Members shall be identified in the minutes of the meeting.

Individual Members are encouraged to seek independent advice on conflicts or potential conflicts.

Quorum

Where the number of Members who, by reason of conflict, are disabled from participating in a meeting such that the remaining Members no longer constitute a quorum as set out in the Committee's Terms of Reference, then remaining Members shall be deemed to constitute a quorum provided there are not less than two Members present.

Solicitation

No Member may in any way, either overtly or otherwise, use the fact of their membership on the Committee to solicit business for their own benefit or the benefit of their immediate family or business associates.

Removal of Members

If the Council of the Regional Municipality of Waterloo determines, in its sole discretion, that a Member has failed to fulfill their obligations pursuant to this policy, Council may remove the Member from the Committee. No notice is required, nor any hearing of the matter, prior to Council making the decision to remove the Member.

AGREEMENT AND SIGNATURE

I have received, read and understand the policy in its entirety. I agree to be bound by the terms of the policy.

Name: _____

Committee: _____

Signature: _____

Date: _____

E-Newsletters & Biosolids Bulletin

STAGE 2

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This email newsletter is the fourth in a series of updates on the progress of the Regional Biosolids Strategy.

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BIOSOLIDS Strategy

E-Newsletter #4 May 2016

Greetings <<First Name>>!

The [Biosolids Strategy](#) is now entering Phase 2 of the Project schedule. Our team has been busy since our last e-newsletter so we wanted to update you and inform you of some upcoming events we have lined up in the coming months.

In this issue:

- [Webinar - Follow the Drain: Biosolids in Waterloo Region](#)
- [Take a Short Survey!](#)
- [Community Pop-up Events](#)
- [Project Charter](#)

Webinar - Follow the Drain: Biosolids in Waterloo Region

To share the work we have done over the past few months we have scheduled a webinar that anyone can access from the internet. They will learn how biosolids are created and managed in the Region today. This live webinar will be shown online on the following dates:

[Evening: Wednesday, June 15th, 6:30pm – 7:30pm](#)

Add to your calendar:

 [Outlook Calendar](#)  [Lotus Notes Calendar](#)  [Google Calendar](#)

[Afternoon: Thursday, June 16th, 12:00pm – 1:00pm](#)

Add to your calendar:

 [Outlook Calendar](#)  [Lotus Notes Calendar](#)  [Google Calendar](#)

How to Join the Webinar:

Anyone can visit the Project website at www.regionofwaterloo.ca/biosolids, and follow directions to join the webinar just prior to the scheduled time.

Advertisements for the webinar will be made through the local newspapers, the notification list and social media.

In case anyone can't make the times above, the webinar will be recorded and posted to the Biosolids Strategy website afterwards.

Take a Short Survey!

Feedback is important to us and so we will be asking members of the public to fill out a brief survey, which will be available on the Project website until the end of June. The survey will ask what issues matter to them when it comes to

Issues That Matter Survey



What issues matter most to you?

Community Pop-up Events

Over the next few months, our team is going to be out in the community, looking to engage with the public on the issues that matter related to the Biosolids Strategy and provide the public with an opportunity to learn more about this Project. Locations and dates for the pop-up events will be posted on the [Project website](#) when confirmed.

The Biosolids Strategy Project Charter is now available and can be freely shared from the Project website! The Charter is a guiding document that describes the need for a Biosolids Strategy in the Region and the scope and intent of the Project, among other useful facts about the Project. Click on the link below to download the Charter.



[Download the Project Charter](#)

Getting Technical: Progress to Date

Our team has been busy this year working on two technical reports that will help us develop the Strategy: the first report covers the Environmental Assessment Process that the Project is following, and the second report is a detailed Existing Conditions Background Study that explores how the Region manages biosolids today. Both of these reports will be made available on the [Project website](#) soon.

Next Steps

Over the summer and fall, our team will be working on three new technical reports:

- Draft Evaluation Criteria for Assessing Strategy Alternatives – Summer 2016
- Draft Biosolids Technology & Disposal Options – Fall 2016
- Draft Biosolids Management Strategies for Consideration – Fall 2016

These three reports will be discussed in the fall.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo
tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

Nancy Kodousek, Director Water Services, Region of Waterloo
tel: 5195754447; email: nkodousek@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

Biosolids Bulletin #3 May 2016



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Greetings <<First Name>>!

The [Biosolids Strategy](#) is now entering Phase 2 of the Project schedule. We are looking for your feedback on the issues that matter to you when it comes to managing biosolids in our community. We have a series of opportunities available to engage with the Project team coming up. Don't miss this opportunity to have your say!

In this issue of the Biosolids Bulletin:

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- [Webinar - Follow the Drain: Biosolids in Waterloo Region](#)
- [Community Clean-up Events](#)

- [Take a Short Survey!](#)
- [Project Charter](#)



Webinar - Follow the Drain: Biosolids in Waterloo Region

Join us online and discover how biosolids are made and managed in the Region today. This live webinar will be online on the following dates:

[Evening: Wednesday, June 15th, 6:30pm – 7:30pm](#)

Add to your calendar:

 [Outlook Calendar](#)  [Lotus Notes Calendar](#)  [Google Calendar](#)

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How to Join the Webinar:

Visit the Project website at www.regionofwaterloo.ca/biosolids, and follow directions to join the webinar just prior to the scheduled time. The webinar will be recorded and posted to the Project website for those who can't join us.

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Community Pop-up Events

Over the next few months, our team is going to be out and about in the community, looking to engage with you on the issues that matter and provide you with an opportunity to learn more about the Project. Check our [Project website](#) periodically for the events and venues we will be at.

Take a Short Survey!

Tell us about the issues that matter to you when it comes to biosolids management in your community. Click the button below to take the survey.

Issues That Matter Survey

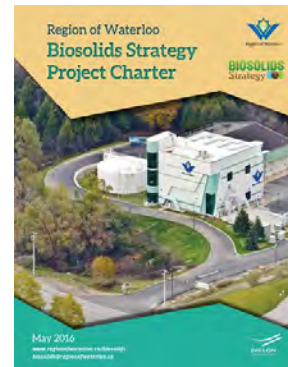


What issues matter most to you?

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Project Charter

The Biosolids Strategy Project Charter is now available and can be freely shared from the Project website! The Charter is a guiding document that describes the need for a Biosolids Strategy in the Region and the scope and intent of the Project, among other useful facts about the Project. Click on the link below to download your copy today!



[Download the Project Charter](#)

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
(519) 575-4426
Email: biosolids@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-

Subscribe	Past Issues	your project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

E-Newsletter #5 July 2016



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Greetings <<First Name>>,

The [Biosolids Strategy](#) is in the midst of Phase 2 of the Project schedule. We would like to take this opportunity to update you on our progress.

In this issue:

- [Follow the Drain: Biosolids in Waterloo Region](#)
- [Community Pop-up Events](#)
- [Survey Update](#)
- [Stakeholder Committee Meeting](#)

[Subscribe](#)[Past Issues](#)[Setting Technical Progress Update](#)

Follow the Drain: Biosolids in Waterloo Region

The Region of Waterloo hosted a live webinar on June 15th (evening) and 16th (afternoon). The purpose of the webinar was to share the work the team has done over the past few months and to take participants on a journey through the Region's underground pipelines to discover how biosolids are made and managed in the Region today. The webinars concluded with an open Q&A session.

A total of 15 viewers over the two webinar sessions logged in to participate and a number of attendees submitted questions via the chat function during the Q&A. A recording of the webinar segmented into easy-to-follow sections is available and can be viewed at the links below. These links are also provided on the [project website](#) and will be advertised in the forthcoming Biosolids Bulletin email newsletter.

- [Part 1 - Introduction to Biosolids in Waterloo Region](#)
- [Part 2 - What is the Region's Current Biosolids Management Approach](#)
- [Part 3 - What are the laws and regulations we follow?](#)
- [Part 4 - The Biosolids Strategy Project](#)
- [Part 5 - Next Steps](#)
- [Part 6 - Questions and Answers](#)

Community Pop-up Events

Throughout the spring and summer, our team has been attending community events, looking to discuss the issues that matter related to biosolids and provide an opportunity for community members to learn more about the Project. The following is a list of events that have been attended to-date as well as upcoming scheduled appearances (in bold):

- Saturday May 28th - EcoFest
- Saturday June 4th - Cambridge Farmers Market
- Thursday June 9th - Conestoga Mall

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- [Friday, June 10th - Cambridge Centre](#)
- [Saturday, June 18 - St. Agatha Strawberry Festival](#)

- [Saturday June 18 - Kitchener Market](#)
- [Saturday June 25th - KW Multicultural Fest](#)
- [Tuesday August 2nd - St. Jacob's Farmers Market](#)
- [Thursday August 25th - North Dumfries Township Office](#)
- [Friday August 26th - Waterloo Busker Carnival](#)

Survey Update

The Issues That Matter survey has remained open. The survey asks what issues matter to community members when it comes to biosolids management. The topic on the [Region's Engage page](#) has seen over 500 visitors and we have received 313 responses to the survey to-date. We will continue to promote the survey at upcoming community pop-up events. It can be accessed through the [project website](#) or by clicking the button below.

[Issues That Matter Survey](#)

Stakeholder Committee Meeting

On Wednesday, June 22, we held our first Stakeholder Committee meeting for the Biosolids Strategy project. The purpose of the Stakeholder Committee is to provide advice and feedback to the Region of Waterloo Biosolids Strategy project team at key milestone points over the course of the project. It is a non-political advisory body made up of representatives from various sectors selected to bring varied perspectives to the discussion. Membership includes representatives from agriculture, business/industry, various community groups, environment, public health, academics and scientists and citizens-at-large.

Seventeen of the Committee's twenty-two members were in attendance and participated in discussions led by third-party facilitator, Ron Brecher. The meeting presentation included a Committee orientation, project overview, summary what we have heard from the public and stakeholders so far, an

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the Issues that Matter list.

The Stakeholder Committee will continue to meet throughout the Strategy development process to provide valuable insights and feedback.

Getting Technical: Progress Update

The summer is a busy season for our technical team as they work through three new draft reports that will be brought forward for public review and discussion in the fall.

The first of these three reports discusses Draft Evaluation Criteria for Assessing Strategy Alternatives. The current Issues that Matter survey will help us understand what matters most to the community and this feedback will be considered in the development of the draft evaluation criteria.

We are also working on two more reports, one that looks at the wide array of Biosolids Technology and Disposal Options, and another that examines ways to combine these technology and disposal options into adaptable and sustainable Biosolids Management Strategies.

Drafts of all three reports should be ready for discussion later in the year.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo
tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

Nancy Kodousek, Director Water Services, Region of Waterloo
tel: 5195754447; email: nkodousek@regionofwaterloo.ca

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Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS

Strategy

Biosolids Bulletin #4 July 2016



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Follow the Drain: Biosolids in Waterloo Region

Let us take you on a journey through the Region's underground pipelines to discover how biosolids are made and managed in the Region today.

The webinar took place live on June 15 and 16, 2016, but you can view the recording now, segmented into easy-to-follow sections at the following links:

- [Part 1 - Introduction to Biosolids in Waterloo Region](#)

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- [Part 2 - What is the Region's Current Biosolids Management Approach](#)
- [Part 3 - What are the laws and regulations we follow?](#)

- [Part 4 - The Biosolids Strategy Project](#)
- [Part 5 - Next Steps](#)
- [Part 6 - Questions and Answers](#)

Community Pop-up Events

Throughout the spring and summer, our team has been out and about in the community, looking to engage with you on the issues that matter and provide you with an opportunity to learn more about the Project. We still have some events coming up in August. Be sure to check our [Project website](#) for the events and venues coming up.



The Biosolids Strategy project at the St. Agatha's Strawberry Festival on June 18th, 2016.

Take a Short Survey!

[Subscribe](#)[Past Issues](#)[The Issues That Matter survey is still open! Tell us about the issues that matter](#)

to you when it comes to biosolids management in your community. Click the button below to take the survey.

[Issues That Matter Survey](#)

Stakeholder Committee Meeting

On Wednesday, June 22, we held our first Stakeholder Committee meeting for the Biosolids Strategy project. The purpose of the Stakeholder Committee is to provide advice and feedback to the Region of Waterloo Biosolids Strategy project team at key milestone points over the course of the project. It is a non-political advisory body made up of representatives from various sectors selected to bring varied perspectives to the discussion. Membership includes representatives from agriculture, business/industry, various community groups, environment, public health, academics and scientists and citizens-at-large.

The Stakeholder Committee will continue to meet throughout the Strategy development process to provide valuable insights and feedback.

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
(519) 575-4426
Email: biosolids@regionofwaterloo.ca

Connect with us:



[Subscribe](#)[Past Issues](#)[Contact: Water Services](#)

The Regional Municipality of Waterloo

Tel: 519-575-4426

Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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Biosolids Strategy Update

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BIOSOLIDS

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E-Newsletter #6 September 2016



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Greetings <<First Name>>,

The [Biosolids Strategy](#) is in the midst of Phase 2 of the Project schedule. We would like to take this opportunity to update you on our progress.

In this issue:

- [New Biosolids Strategy Video](#)
- [Community Pop-up Events Wrap-up](#)
- [Survey Update](#)
- [Vendor Engagement](#)

[Subscribe](#)[Past Issues](#)[Getting Technical: Progress Update](#)

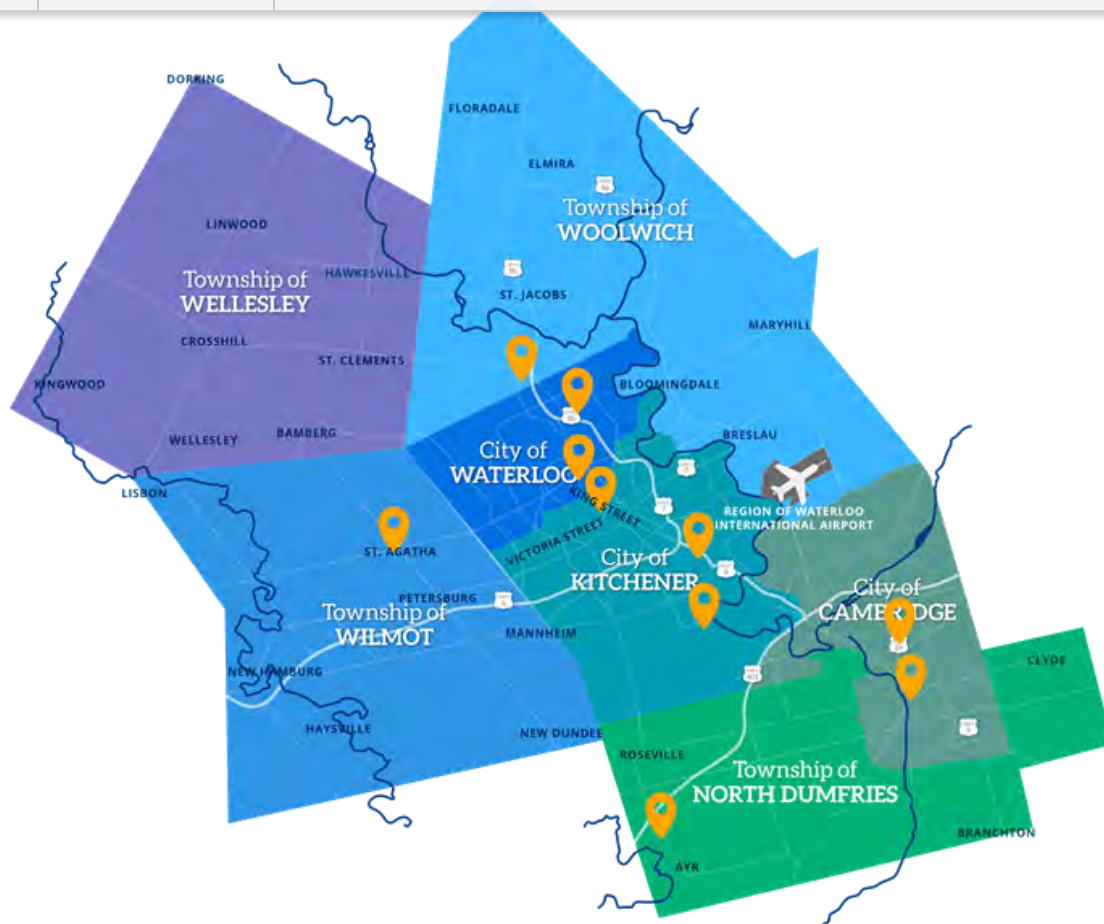
New Biosolids Strategy Video

Ever wondered what happens when you flush the toilet in the Region of Waterloo? Check out the latest video created for the Biosolids Strategy explaining where it goes and how the Region of Waterloo treats wastewater and biosolids: bit.ly/BiosolidsinWR.



Community Pop-up Events Wrap-up

As the summer draws to a close, our team has wrapped up a series of community pop-up events scheduled across the Region. We visited 10 community venues and events, handed out over 450 Biosolids Colouring Books and crayon kits for kids, and interacted with over 300 community members to provide information about the project and hear feedback on the issues that matter to residents when it comes to managing the Region's biosolids. See below for a map of where we have been over the summer.

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Our conversations with community members so far have highlighted a number of key issues that matter to residents of the Region of Waterloo when it comes to biosolids management, including preserving the environment, ensuring public health and safety, and impacts to quality of life, like odour issues.

Survey Update

The Issues That Matter survey has remained open. We plan to issue a final reminder in the upcoming Biosolids Bulletin email newsletter. The survey will close on September 30, 2016 .

The survey asks what issues matter to community members when it comes to biosolids management. The results of the survey will help us develop the objectives for the Biosolids Strategy and the criteria for choosing the preferred solution. To date, the topic on the [Region's Engage page](#) has seen 548 visitors and we have received 326 responses to the survey. The survey can

be accessed through the [project website](#) or by clicking the button below.

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Issues That Matter Survey

Vendor Engagement

The Biosolids Strategy is being developed using the latest information on available technologies to process and manage biosolids. We are formally reaching out to service and technology providers in the wastewater and biosolids management industry to tell us about their products and provide information that will be used in considering the range of alternatives for the Strategy. To see the Expression of Interest bid details, please visit the Region of Waterloo website at [this link](#).

Getting Technical: Progress Update

Our technical team is wrapping up three new draft reports that will be brought forward for public review and discussion this winter.

The first of these three reports discusses Draft Evaluation Criteria for Assessing Strategy Alternatives. The current Issues that Matter survey will help us understand what matters most to the community and this feedback will be considered in the development of the draft evaluation criteria.

We are also working on two more reports, one that looks at the wide array of Biosolids Technology and Disposal Options, and another that examines ways to combine these technology and disposal options into adaptable and sustainable Biosolids Management Strategies.

Drafts of all three reports should be ready for discussion this winter.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

[Subscribe](#)tel: 519-575-4757 extension 3349; email: kyajima@regionofwaterloo.ca[Past Issues](#)

or

Nancy Kodousek, Director Water Services, Region of Waterloo

tel: 519-575-4447; email: nkodousek@regionofwaterloo.ca

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Contact: Water Services

The Regional Municipality of Waterloo

Tel: 519-575-4426

Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

Biosolids Bulletin #5 September 2016



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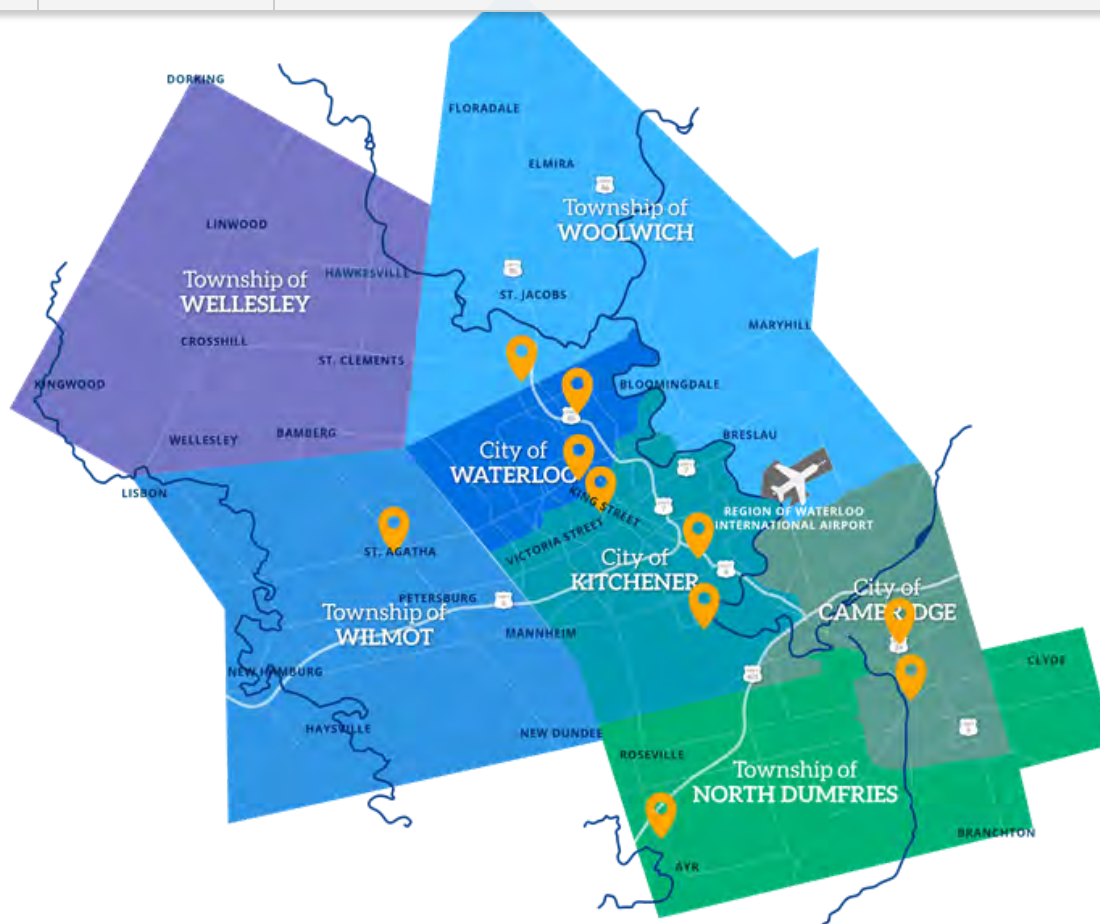
What Happens When You Flush?

Ever wondered what happens when you flush the toilet in the Region of Waterloo? Check out the latest video created for the Biosolids Strategy explaining where it goes and how the Region of Waterloo treats wastewater and biosolids : bit.ly/BiosolidsinWR.

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Community Pop-up Events Wrap-up

As the summer draws to a close, our team has wrapped up a series of community pop-up events scheduled across the Region. We visited 10 community venues and events , handed out over 450 Biosolids Colouring Books and crayon kits for kids, and interacted with over 300 community members to provide information about the project and hear feedback on the issues that matter to residents when it comes to managing the Region's biosolids. See below for a map of where we have been over the summer.

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Our conversations with community members so far have highlighted a number of key issues that matter to residents of the Region of Waterloo when it comes to biosolids management, including preserving the environment, ensuring public health and safety, and impacts to quality of life, like odour issues.

Don't Forget to Take the Survey

The Issues That Matter survey will close on September 30, 2016 ! Tell us about the issues that matter to you when it comes to biosolids management in your community. The results of the survey will help us develop the objectives for the Biosolids Strategy and the criteria for choosing the preferred solution. Click the button below to take the survey.

[Issues That Matter Survey](#)

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Are You a Biosolids Technology Provider?

The Biosolids Strategy is being developed using the latest information on available technologies to process and manage biosolids. We are formally reaching out to service and technology providers in the wastewater and biosolids management industry to tell us about their products and provide information that will be used in considering the range of alternatives for the Strategy. For more information, visit the Region of Waterloo website at [this link](#).

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
(519) 575-4426
Email: biosolids@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
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E-Newsletters & Biosolids Bulletin

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BIOSOLIDS Strategy

E-Newsletter #7 March 2017

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Greetings <<First Name>>,

We have reached another milestone in the Biosolids Strategy project schedule and would like to take this opportunity to update you on our progress, and invite you to join us for a series of upcoming events!.

In this issue:

- [Upcoming Events - Join Us!](#)
- [Celebrate World Water Day](#)

[Subscribe](#)[Past Issues](#)

- [Survey Coming Soon!](#)
- [New Teacher Resources](#)

- [Getting Technical: Progress Update](#)
- [Next Steps](#)

Upcoming Events - Join Us!

We are excited to announce three public events where people can come learn about the topic and give us the feedback we need at this stage of the project. We need input on:

- a full list of alternatives for managing biosolids, and
- the criteria we plan to use to shorten the list of alternatives

We need your input, so come join the conversation!



For more information, visit
regionofwaterloo.ca/biosolids

Help plan the future of biosolids in Waterloo Region
We need your input on our possible alternatives. Join us at any of our three events.

R0014237126

March 23, Cambridge City Hall
Open House: 6 - 9 p.m.
David Waltner-Toews Talk: 7 p.m.

David Waltner-Toews
Award-Winning Author of
'The Origin of Feces'

Win a copy of his book!



March 28, Waterloo Region Museum
Open House: 6 - 9 p.m.

Open House

Meet Our Team & Get Free Admission to
Tyrannosaurs: Meet the Family

Win a Rain Barrel!



April 12, Waterloo Memorial Rec Complex
Open House: 6 - 9 p.m.
Water Brothers Talk: 7 p.m.

The Water Brothers
Award-Winning Documentary Film Makers
and Hosts of the Popular
Eco-Adventure Series on TVO

Win 'The Water Brothers' DVD!



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The event will be held at the Lazaridis School of Business & Economics from 9:00 a.m. to 4:00 p.m. Click on the image below for more details



Survey - Coming Soon!

We will be launching a survey and project update video through the [Region of Waterloo's Engage Portal](#). The survey is an opportunity for those who prefer online feedback to tell us what they think about the way we're evaluating the long list of alternatives in order to come up with a short list that will be reviewed in close detail. We will send you an update as soon as it is launched. Don't miss this opportunity to tell us what you think!

New Teacher Resources

Do you know a teacher in grade 4 or 5 who is looking for ideas to help teach the Science and Technology section of the Ontario Education Curriculum? The Biosolids Team has some activities

[Subscribe](#)[Past Issues](#)[Teacher Resources](#)

Getting Technical: Progress Update

Our team has been putting together a detailed long list of biosolids management alternatives for the upcoming round of consultation. To help develop the alternatives, the Region asked biosolids vendors who were interested to provide information on their technologies and examples of their use. We also researched what is being used in other parts of Canada and the rest of the world.

We have also developed the questions used to evaluate the long list of alternatives to arrive at a short list. The short list, and subsequently the preferred alternative, will be the focus of future consultations.

Next Steps

After receiving the community's input on the criteria and long list of alternatives, we will update our technical reports and develop the short list of alternatives for consideration. We will be back out in the community to gain feedback on the short list once the evaluation is done in late spring / early summer.

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

Subscribe**Past Issues***Nancy Kodousek, Director, Water Services, Region of Waterloo*tel: 5195754447; email: nkodousek@regionofwaterloo.ca

Connect with us:



Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

Biosolids Bulletin #6 March 2017

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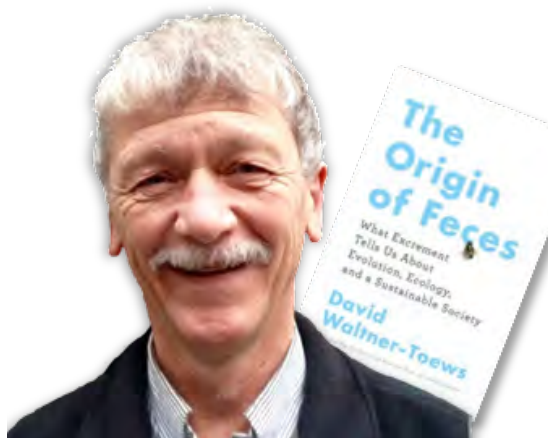
Upcoming Events!

We are excited to announce a range of upcoming events with engaging guest speakers and great prizes to be won. Come learn about biosolids in the Region and where we are in the project, and give us feedback on:

- a full list of alternatives for managing biosolids, and
- the criteria we plan to use to shorten the list of alternatives.

[Subscribe](#)[Past Issues](#)[Download a PDF of the information panels for the events here](#)

Don't miss out - come join the conversation!



March 23, Cambridge City Hall

Open House: 6 - 9 p.m.

Guest Talk: 7 p.m.

David Waltner-Toews

Award-Winning Author of 'The Origin of Feces'

Win a copy of his book!



March 28, Waterloo Region Museum

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The Water Brothers

Award-Winning Documentary Film Makers and Hosts of the

Popular Eco-Adventure Series on TVO

Win 'The Water Brothers' on DVD!

Take the Survey!

We have launched a new survey and project update video through the [Region of Waterloo's Engage Portal](#). The survey is an opportunity to tell us what you think about the way we're evaluating the long list of alternatives in order to come up with a short list that will be reviewed in close detail. Don't miss this opportunity to give us your feedback!

[How Will We Make a Decision Survey](#)

Celebrate World Water Day

The Biosolids Strategy team will be at Wilfrid Laurier University on Wednesday March 22nd to talk to visitors about how the Region manages its wastewater and

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biosolids. The event will be held at the Lazaridis School of Business & Economics from 9:00 a.m. to 4:00 p.m. Click on the image below for more details.



New Teacher Resources

Do you know a teacher in grade 4 or 5 who is looking for ideas to help teach the Science and Technology section of the Ontario Education Curriculum? The Biosolids Team has some activities on wastewater and biosolids they might find helpful. The resources can be found by clicking on the button below:

[Teacher Resources](#)

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3

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Email: biosolids@regionofwaterloo.ca



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Contact: Water Services
The Regional Municipality of Waterloo
Tel: 519-575-4426
Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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BIOSOLIDS Strategy

E-Newsletter #8 June 2017



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Greetings <<First Name>>,

Here is an update on the progress the Biosolids Strategy team has made this spring since the last newsletter. The focus was primarily on evaluating the long list of alternatives for managing biosolids. This newsletter also contains a preview of information on the next round of public engagement, where the community can get involved in helping us develop the criteria to evaluate the short listed alternatives and move towards a preferred Strategy for the Region.

In this issue:

Subscribe**Past Issues**

- [Upcoming Public Workshop: Join Us!](#)
- [Going Out into the Community](#)

- [Survey - Coming Soon!](#)
- [Illustrating the Wastewater Treatment & Biosolids Management Process in the Region](#)
- [Getting Technical: Progress Update](#)
- [Next Steps](#)
- [Region of Waterloo Recognized for Biosolids Planning Efforts](#)

Upcoming Public Workshop: Join Us!

We are excited to announce an interactive workshop where people can come learn about the short listed alternatives for managing biosolids in Waterloo Region, and give us the feedback we need for the next stage of the project. We need input on:

- confirming the short list of alternatives; and
- the criteria we plan to use to evaluate the alternatives and select a preferred Strategy.

We need your input, so come join the conversation!
Click [here](#) to register and see below for more details:

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How Will We Make a Decision?

Biosolids Strategy Public Workshop

We need your input

Attend a workshop to help us set the criteria to choose the Region's new Biosolids Strategy

June 21,
Region of Waterloo
99 Regina Street South,
Waterloo
5 p.m. – 8 p.m.
(Light Dinner Included)

Space is Limited!
Register at
[regionofwaterloo.ca/
biosolids](http://regionofwaterloo.ca/biosolids)

Going out into the Community

We are also going to be out in the community at a set of three upcoming local events, so come find our booth and talk with us about the important decisions coming up.

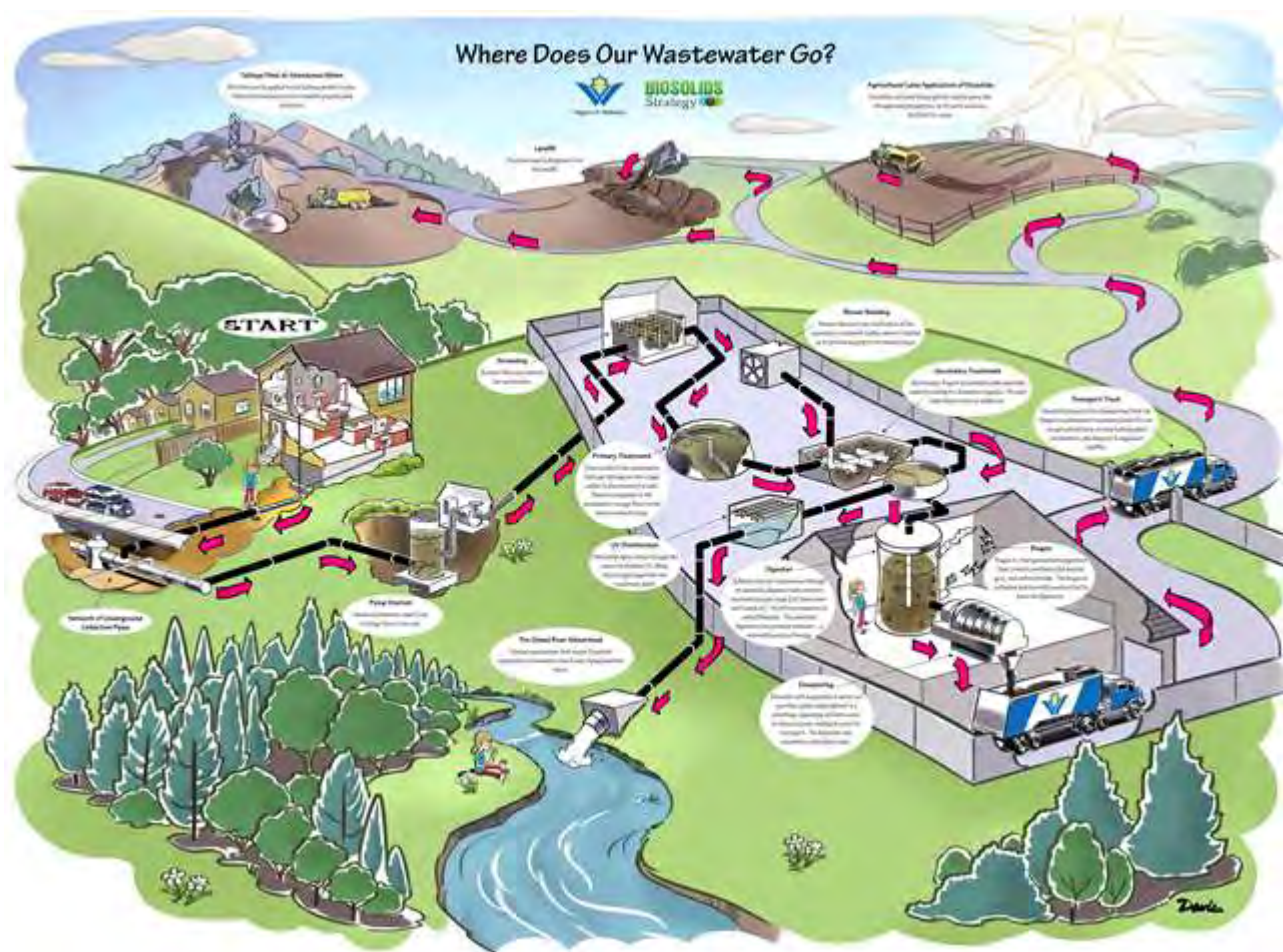
June 18th: Open Streets Waterloo
June 24th: KW Multi-cultural Festival
July 8th: Cambridge Farmers' Market

Survey - Coming Soon!

We will be launching a survey and project update video through the [Region of Waterloo's Engage Portal](#). The survey is an opportunity for those who prefer online feedback to tell us what they think about the way we're evaluating the short list of alternatives in order to arrive at a preferred strategy for the Region. We will send you an update as soon as it is launched. Don't miss this opportunity to tell us what you think!

Illustrating the Wastewater Treatment & Biosolids Management Process in the Region

Our team worked with an illustrator to develop a highly visually engaging poster depicting the various steps that take place along the process of wastewater treatment and biosolids processing and management in the Region. The poster has been a useful educational tool and has been displayed at recent events including the public consultation sessions held during March and April as well as the Groundwater Festival in May.



[Download the Poster](#)

Getting Technical: Progress Update

Our team has evaluated the long list of biosolids management alternatives using a set of

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along with a set of criteria that will be used to evaluate these short listed alternatives are the subject of the upcoming round of consultation.

Next Steps

This summer we will undertake the detailed evaluation of the short listed alternatives and produce a report that brings together our team's technical work to answer the criteria questions as well as the input from the community to show which alternative(s) or combination thereof best meet the objectives set out for the Strategy.

We will be back out in the community to gain feedback on the evaluation results in the fall.

Region of Waterloo Recognized for Biosolids Planning Efforts

This past April, the Region of Waterloo was recognized by the Water Environment Foundation of Ontario (WEAO – the voice of the wastewater profession in Ontario) for its biosolids planning efforts.

The WEAO annually awards its Exemplary Biosolids Management Award and the Region of Waterloo was the recipient for 2017. The evaluation committee commended the Region for its efforts to provide more education to the public and to have them involved in the process of creating its future biosolids management plan.

Shown below is the Chair of Planning and Works Committee, Councillor T. Galloway and Director of Water Services Division, Nancy Kodousek displaying the award received by WEAO.

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The Region is committed to continued public engagement as the biosolids planning process evolves.

For more details, see page 42 of the April 25 [Council Package](#).

If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

Nancy Kodousek, Director Water Services, Region of Waterloo

tel: 5195754447; email: nkodousek@regionofwaterloo.ca

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The Regional Municipality of Waterloo

Tel: 519-575-4426

Email: biosolids@regionofwaterloo.ca

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BIOSOLIDS Strategy

Biosolids Bulletin #7 June 2017



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Welcome to another edition of the Region of Waterloo's Biosolids Bulletin. Here's an update on the progress we have made this spring since the last bulletin, and information on how you can get involved in helping us develop a preferred Biosolids Strategy for the Region.

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Join us for an interactive workshop! We have developed a short list of alternatives for managing biosolids in Waterloo Region and need your feedback on:

- the short list of alternatives; and
- the criteria we plan to use to choose the Region's new Biosolids Strategy.

Click [here](#) to register and see below for more details:



The graphic features the Region of Waterloo logo and the 'BIOSOLIDS Strategy' title. Below this is a purple arrow pointing right with the text 'How Will We Make a Decision? Biosolids Strategy Public Workshop'. Two overlapping circles are at the bottom: a dark blue one on the left and a light blue one on the right.

Region of Waterloo

BIOSOLIDS Strategy

How Will We Make a Decision?
Biosolids Strategy Public Workshop

We need your input
Attend a workshop to help us set the criteria to choose the Region's new Biosolids Strategy

June 21,
Region of Waterloo
99 Regina Street South,
Waterloo
5 p.m. – 8 p.m.
(Light Dinner Included)

Take the Survey!

In case you can't join us for the workshop on June 21, you can still provide your feedback. We have launched a new survey and project update video through the [Region of Waterloo's Engage Portal](#). The survey is another way for you to tell us what you think about the short list of alternatives and the criteria we will use to evaluate them. Don't miss

[Subscribe](#)[Past Issues](#)[this opportunity to give us your feedback!](#)[Moving Towards a Biosolids Strategy for the Region Survey](#)

Recent Public Events: A Recap

Public Consultation Centres

In March and April this year our team held a series of Public Consultation Centres, located in Kitchener (Region of Waterloo Museum), Waterloo (Waterloo Memorial Recreational Complex), and Cambridge (Cambridge City Hall). In total, we welcomed over 100 community members from across the Region, and received some insightful feedback that has helped us progress into the next stage of the project.



Biosolids Public Event at Cambridge City Hall, March 23, 2017

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Biosolids Public Event at the Waterloo Region Museum, March 28, 2017

World Water Day

On March 22nd, we celebrated United Nations World Water Day at Wilfrid Laurier University, held in conjunction with the University of Waterloo. With this year's theme being 'wastewater', it was an excellent opportunity to speak to students about biosolids.



Region of Waterloo Booth at World Water Day, Wilfrid Laurier University, March 22, 2017

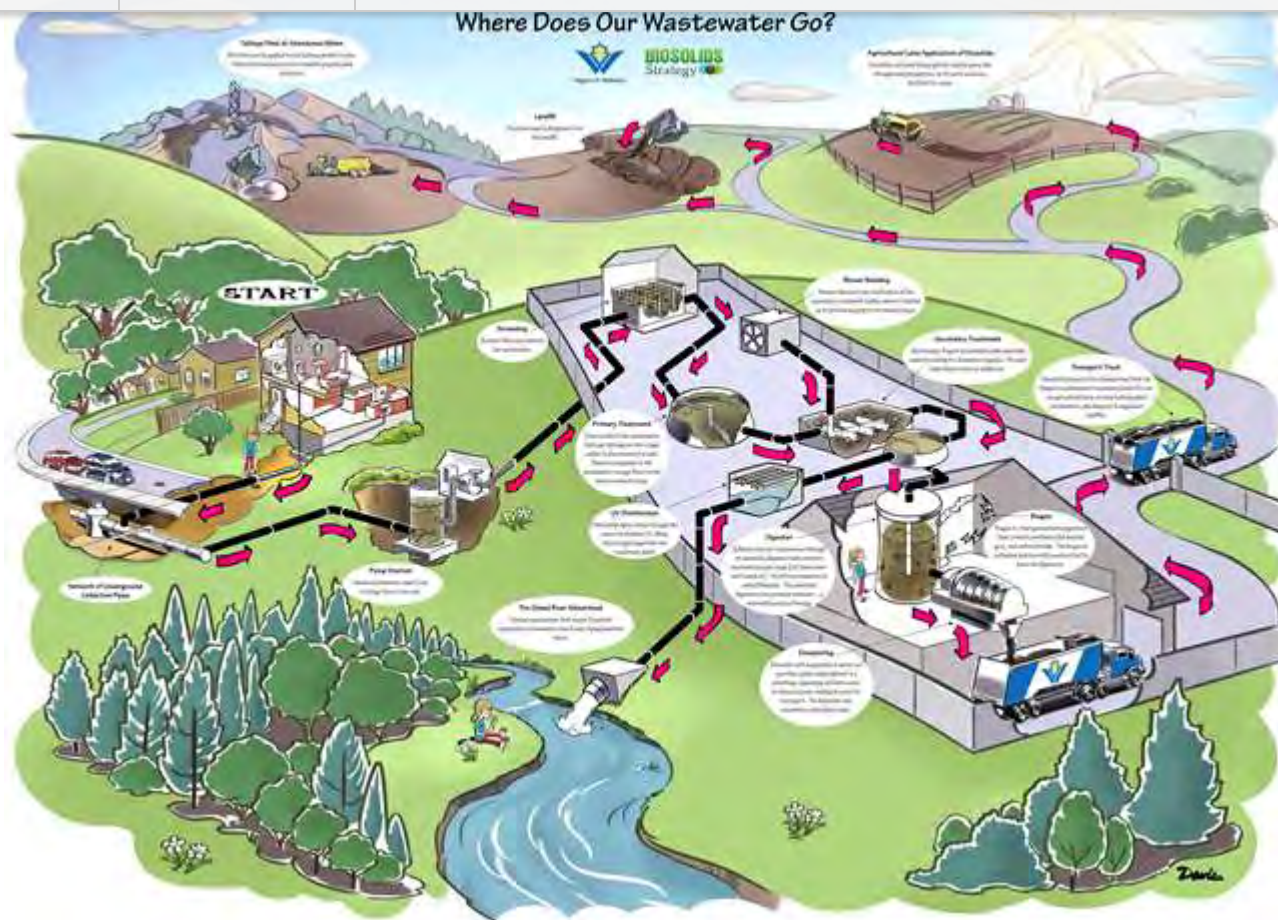
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Waterloo-Wellington Engineering and Science Fair

At the invitation of one of the Project's Stakeholder Committee Members, our team also took part in this year's Waterloo-Wellington Engineering and Science Fair, held on April 4th, 2017. This is the second year that a biosolids activity was run at this event, and we had a fantastic time helping over 200 Grade 7-8 students understand how biosolids are processed and managed in the Region.

Illustrating the Wastewater Treatment & Biosolids Management Processes in the Region

Through previous public consultation, we heard from a number of elementary school teachers who requested a graphic showing the steps in the wastewater treatment and biosolids management processes in the Region. Our team worked with an illustrator to develop a poster that has been displayed at recent events, including the public consultation centres held during March and April and the Groundwater Festival held in May this year.

[Subscribe](#)[Past Issues](#)[Download the Poster](#)

Region of Waterloo Recognized for Biosolids Planning Efforts

This past April, the Region of Waterloo was recognized by the Water Environment Foundation of Ontario (WEAO – the voice of the wastewater profession in Ontario) for biosolids planning efforts.

WEAO annually awards its Exemplary Biosolids Management Award and the Region of Waterloo was the recipient for 2017. The evaluation committee commended the Region for its efforts to provide more education to the public and to have them involved in the process of creating its future biosolids management plan.

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Shown below is the Chair of Planning and Works Committee, Councillor Tom Galloway and Director of Water Services Division, Nancy Kodousek displaying the award



The Region is committed to continued public engagement as the biosolids planning process evolves.

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project

150 Frederick Street, 7th Floor

Kitchener, ON N2G 4J3

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BIOSOLIDS

Strategy

E-Newsletter #9

November 2017



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Greetings <<First Name>>,

Here is an update on the progress the Biosolids Strategy team has made since the last newsletter. The focus has turned to the results of the evaluation of our alternatives for managing biosolids. This newsletter also contains a preview of information on the next round of public engagement, where the community can get involved in providing feedback on the evaluation results and the proposed implementation approach for the Biosolids Strategy moving forward.

In this issue:

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- [Upcoming Public Consultation Centers: Join Us!](#)
- [Survey, Coming Soon!](#)

- [Getting Technical: Progress Update](#)
- [Next Steps](#)

Upcoming Public Consultation Centers: Join Us!

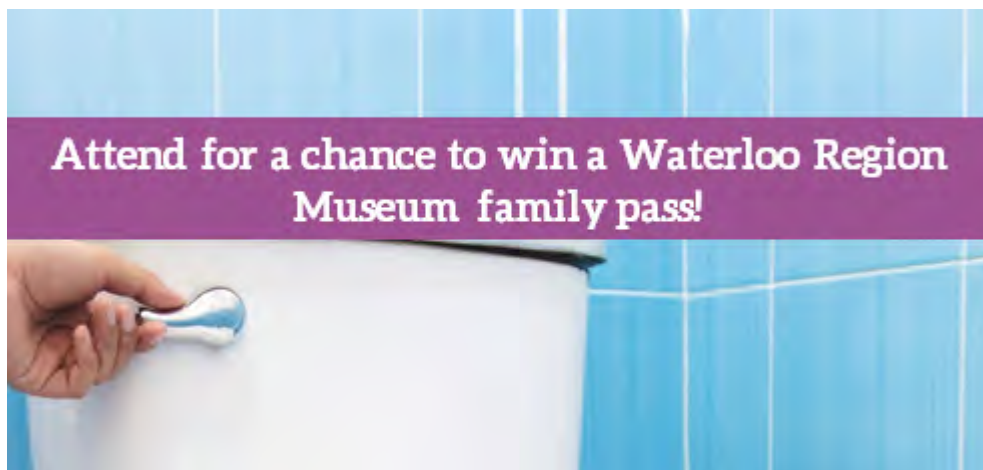
During the last round of public consultation held in the early summer, we listened to community feedback on the short list of alternatives for managing biosolids in the Region and the criteria we planned to use to evaluate the alternatives.

There are three upcoming public consultation center events planned to gain feedback from the community on:

- our evaluation results, and
- the implementation approach proposed.

This is an important opportunity to get involved and tell us what you think. This will be the last round of formal public consultation centers held for the Project.

We need your input, so come join the conversation!



December 5th, Waterloo Region Museum
10 Huron Rd, Kitchener, ON
Open House: 5 - 7:30 p.m.

[Subscribe](#)[Past Issues](#)[Includes free admission to the 'Trailblazing - Women in Canada' exhibit!](#)

December 7th, Waterloo Memorial Rec Complex
101 Father David Bauer Drive, Waterloo, ON
Open House: 5 - 7:30 p.m.

December 14th, Cambridge City Hall
50 Dickson St, Cambridge, ON
Open House: 5 - 7:30 p.m.

Survey - Coming Soon!

In December, we will launch another online survey through the [Region of Waterloo's Engage Portal](#). The survey is another opportunity to tell us what you think about the evaluation of alternatives and implementation approach. We will send you an update as soon as it is launched. Don't miss this opportunity to tell us what you think!

Getting Technical: Progress Update

Our team has evaluated the short list of biosolids management alternatives using a set of criteria that were developed with input from the community and technical experts. The criteria also align with the Strategy objectives. The results of the evaluation will be used to develop the Biosolids Strategy for the community. No sites will be proposed for the preferred alternatives. Instead, this Strategy will answer the question of what is the most suitable approach for managing biosolids in Region.

Next Steps

Leading into 2018, our team will be putting together the recommended Biosolids Strategy. The recommended Strategy will be brought to Council for approval in early 2018, after which there will be a 30-day public review period

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If you have any questions, please contact:

Kaoru Yajima, Project Manager, Region of Waterloo

tel: 5195754757 extension 3349; email: kyajima@regionofwaterloo.ca

or

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BIOSOLIDS

Strategy

Biosolids Bulletin #8

November 2017

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Welcome to another edition of the Region of Waterloo's Biosolids Bulletin. Here's an update on the progress we have made since the last bulletin, and information on how you can get involved in helping us develop a preferred Biosolids Strategy for the Region.

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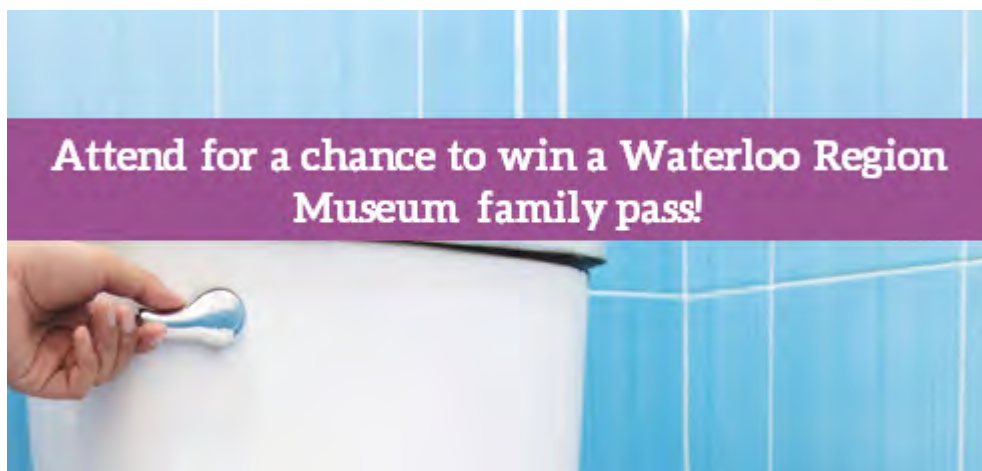
During the last round of public consultation held in the early summer, we listened to community feedback on the short list of alternatives for managing biosolids in the Region and the criteria identified to evaluate the alternatives.

The Project has since moved on with evaluation of the short listed alternatives. There are three upcoming public consultation center events planned to gain feedback from the community on:

- our preliminary evaluation of the short listed alternatives, and
- the proposed implementation approach.

This is an important opportunity to get involved and tell us what you think. This will be the last round of formal public consultation centers held for the Project.

We need your input, so come join the conversation!



December 5th, Waterloo Region Museum

10 Huron Rd, Kitchener, ON

Open House: 5 - 7:30 p.m.

[Includes free admission to the 'Trailblazing - Women in Canada' exhibit!](#)

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December 14th, Cambridge City Hall

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50 Dickson St, Cambridge, ON

Open House: 5 - 7:30 p.m.

Survey - Coming Soon!

Unable to attend one of the sessions above? In December, we will launch another online survey through the [Region of Waterloo's Engage Portal](#). The survey is another opportunity to tell us what you think about the evaluation of alternatives and implementation approach. We will send you an update as soon as it is launched. Don't miss this opportunity to tell us what you think!

Next Steps

Leading into 2018, our team will be putting together the recommended Biosolids Strategy. The recommended Strategy will be brought to Council for approval in early 2018, after which there will be a 30-day public review period where further comments can be provided.

For more information, visit www.regionofwaterloo.ca/biosolids or contact:

Region of Waterloo, Water Services Division - Biosolids Strategy Project
150 Frederick Street, 7th Floor
Kitchener, ON N2G 4J3
(519) 575-4426
Email: biosolids@regionofwaterloo.ca

Connect with us:



Contact: Water Services

[Subscribe](#)[Past Issues](#)

The Regional Municipality of Waterloo

Tel: 519-575-4426

Email: biosolids@regionofwaterloo.ca

Wastewater and biosolids are generated daily in all communities in the Region of Waterloo. This Biosolids Strategy will look at the biosolids produced within the 13 Region wastewater treatment plants, consider available options and determine an appropriate strategy to manage biosolids into the future. This multi-year project will include many opportunities for community engagement. Please visit www.regionofwaterloo.ca/biosolids for more information.

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APPENDIX K:

**Public Consultation Event Panels/
Workshop Materials**

Content Guide

Appendix K

- **Materials for Public Consultation Events**
 - o Stage 1 – Launch Event Display Boards, November 17, 2015
 - o Stage 2 – Pop-up Events Display Boards, Summer 2016
 - o Stage 3 – Open House + Guest Speaker Events Display Boards, March 26 – April 12, 2017
 - o Stage 4 – Public Workshop Workbook, June 21, 2017
 - o Stage 5 – Open House Events Display Boards, December 5 – 14, 2017
- Meeting Minutes
 - o Stakeholder Advisory Committee
 - o Project Technical Advisory Committee

STAGE 1

Welcome!

BIOSOLIDS Strategy



LAUNCH EVENT

November 17, 2015

Waterloo Region Museum, 10 Huron Road, Kitchener



Region of Waterloo

www.regionofwaterloo.ca/biosolids

What's Happening Tonight?



The Region of Waterloo is initiating a *Biosolids Strategy.*

At this launch event you will have an opportunity to:

- Learn about the science of biosolids and their potential uses
- Discuss the Biosolids Strategy process
- Fill out a survey
- Provide feedback

Tonight's Agenda

6:00-9:00 - Open House

Have a look at the project information on display and chat with Region staff.

7:00

Listen to **Bob McDonald** talk about the Science of Biosolids and participate in a Q&A.

Note: Space in the theatre is limited and only open for pre-registered guests. A screen and chairs have been set up in the main hall for others to view the talk live.

SPECIAL GUEST:

Bob McDonald
The Science of Biosolids

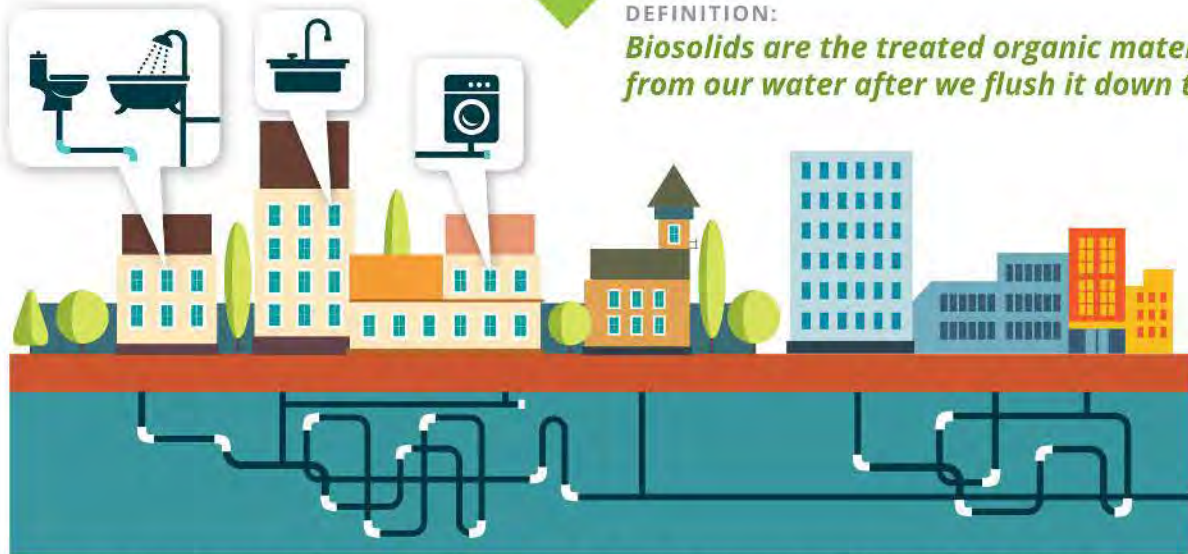
Canada's best-known science journalist and host of CBC's Quirks and Quarks.



What are Biosolids?

DEFINITION:

Biosolids are the treated organic materials removed from our water after we flush it down the drain.



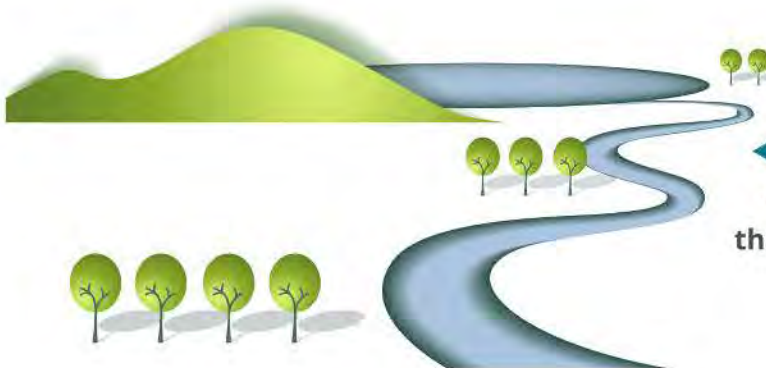
Wastewater and sewage from towns are transported through a series of complex pipelines to a sewage treatment plant...

Inside the sewage treatment plant, a series of processes is performed where water is separated and treated



The clean water is then returned to the environment

The separated material is also treated...



And the remaining product is **BIOSOLIDS!**

Biosolids are not:

- Septage
- Untreated wastewater
- Manure

Biosolids in Waterloo Region Today

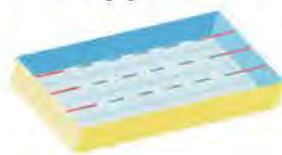
**“When you finish doing your business,
that’s when the Region of Waterloo
gets busy doing its business.”**



**535,000 Residents...
and growing!**

In a recent telephone survey, over two-thirds of respondents believed that processing biosolids within the Region is a good financial and environmental decision

66 Million m³ of
wastewater processed
every year...



...equivalent to
26,400 Olympic-sized
swimming pools!



**13 Wastewater
Treatment Plants**

Liquid biosolids are generated from the wastewater treated, and that means a lot of processing and management throughout the year.



LAND APPLICATION

Much of the biosolids produced in the Region’s treatment plants **is transported out of the Region** for land application in Wellington County, County of Brant, City of Hamilton, Middlesex County, County of Oxford, and Perth County.



SAFE DISPOSAL VIA LANDFILL

The **remainder** of biosolids produced in the Region’s treatment plants **is safely disposed of via landfills in Blenheim and Petrolia, Ontario.**

The Potential Power of Biosolids

Biosolids can either become...

Beneficial Reuse



Fertilizer Products

Biosolids can be used by farmers as a fertilizer.

Using biosolids as a fertilizer means reduced costs for farmers and a lower impact on the environment.

Biosolids can also make soil quality better by adding organic material that helps retain water, balance pH, and add micronutrients to soil.



Soil Conditioner



Biogas Production

Digesters, used in some biosolids production methods, produce biogas.

Biogas is a fuel that can be used in place of natural gas, or as a vehicle fuel.

Biosolids may be used as land cover in rehabilitation projects to repair damage done to soil.



Recovering Land



Generating Electricity

Biosolids may be combined with other fuels to generate electricity through high efficiency combustion technologies.

Or end up in...

Disposal



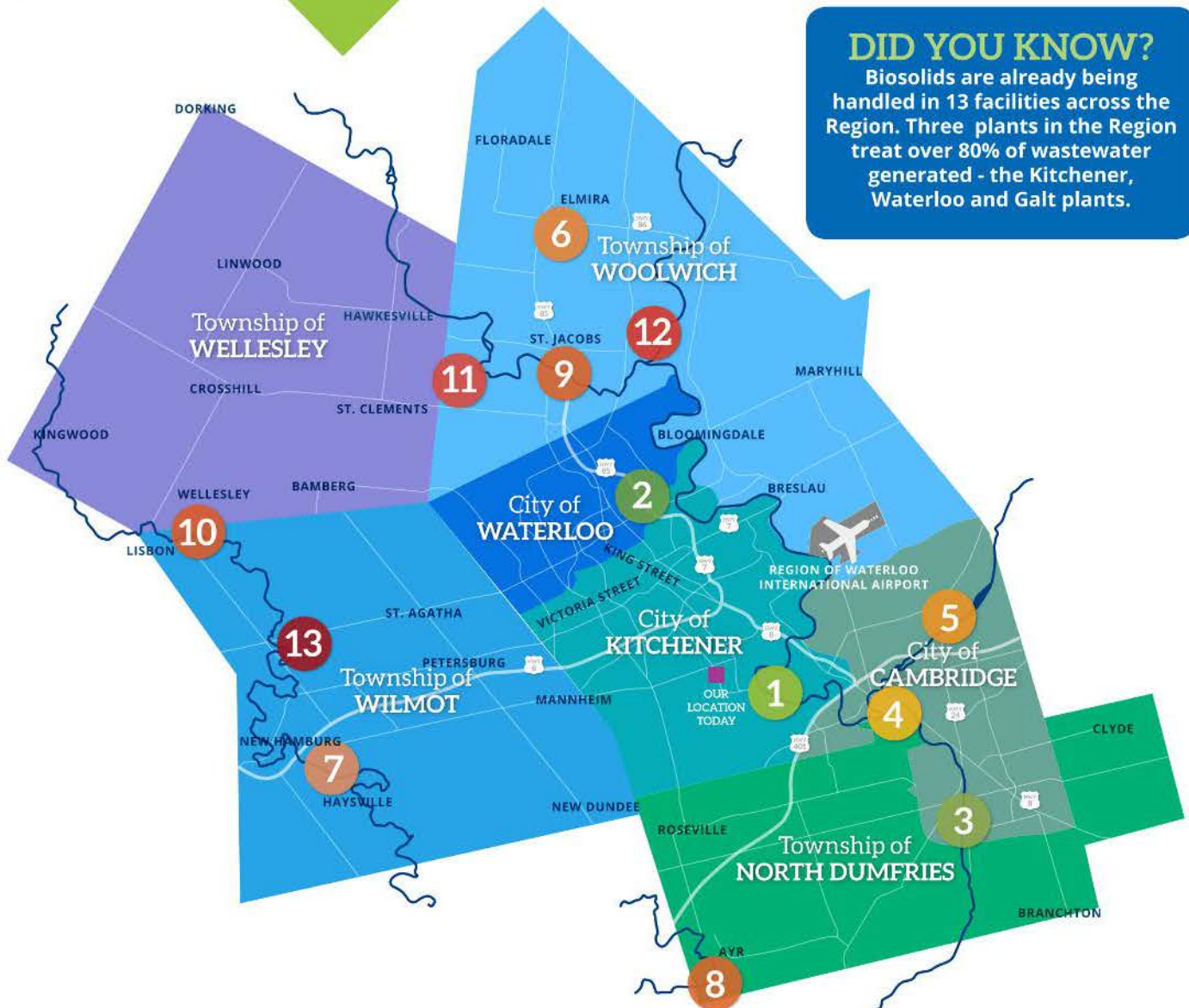
Landfill

Biosolids are safely disposed of in landfills, where they decompose over time to produce greenhouse gases.

Waterloo Region Waste Water Treatment Plants

DID YOU KNOW?

Biosolids are already being handled in 13 facilities across the Region. Three plants in the Region treat over 80% of wastewater generated - the Kitchener, Waterloo and Galt plants.



LARGE TREATMENT PLANTS Processing Capacity > 50 Million Litres/day

- 1. Kitchener
- 2. Waterloo
- 3. Galt

MID-SIZED TREATMENT PLANTS Processing Capacity 5 to 20 Million Litres/day

- 4. Preston
- 5. Hespeler
- 6. Elmira
- 7. New Hamburg

SMALL TREATMENT PLANTS Processing Capacity < 5 Million Litres/day

- 8. Ayr
- 9. St. Jacobs
- 10. Wellesley
- 11. Heidelberg
- 12. Conestogo
- 13. Foxboro Green

Why do we need a Biosolids Strategy?



We all contribute to the creation of biosolids!

Biosolids are produced constantly, all year round. And our population is only increasing.

Population Growth



The region is expected to grow by the size of the City of Kitchener in the years ahead.

Land Constraints



Finding suitable locations for the application of biosolids will only become more challenging.

Regulatory Changes



Updates to regulations can place more restrictions on how we can use biosolids.

Increasing Costs



The costs associated with trucking, storage and disposal of biosolids will continue to rise over time.

"We are all involved in creating biosolids, so we should all be involved in determining what we do with them as a community. The best strategies take the whole community's interests to heart and we need the public to help us identify the best possible solutions."

- Kaoru Yajima
Water Services project manager at
the Regional Municipality of Waterloo

BIOSOLIDS Strategy

We may have an opportunity through investment in new technologies to enhance the biosolids we produce to create a safer, more flexible product.

Planning for a Sustainable Solution

The Region has taken a long-term approach to planning its biosolids management program, with the key goal of **volume reduction** to allow for a wider **range of reuses** and more **cost-effective disposal**.

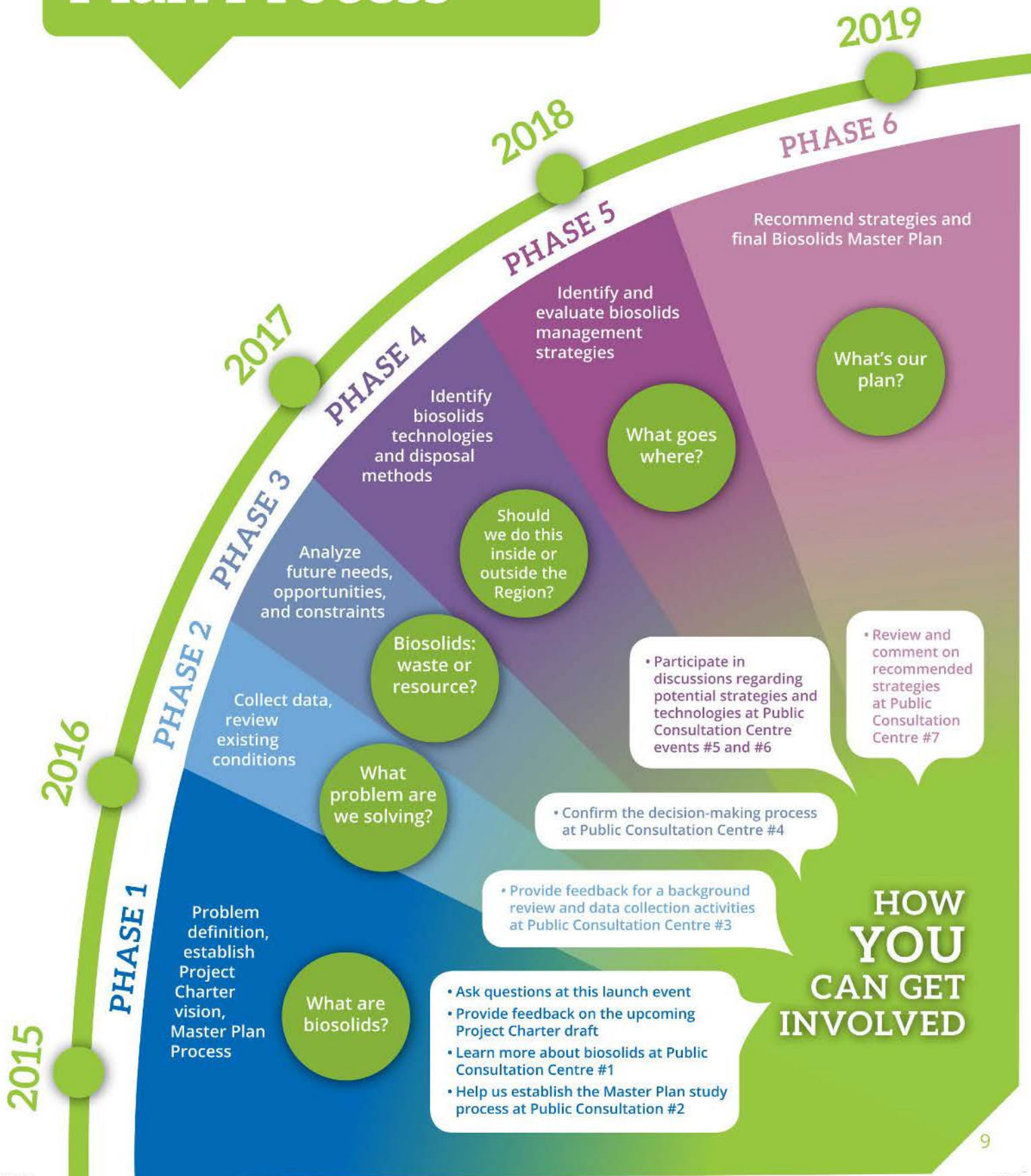
Where we have been...



In considering our long-term strategy, there are a lot of complex questions that need to be answered:



Biosolids Master Plan Process



How would you like to be involved?

What other ways would you like to be involved with this project?

Have an idea for an event?

Who are the key stakeholders that we should ensure are part of this process?

Please leave us your thoughts below:

Any other comments or questions?

At this early stage of the process, we need to understand what is important to you.

Any other comments on what you have learned today?

Do you have any additional questions you would like to see addressed?

Please leave us your thoughts below:

Thank You!

How You Can Help...

Over this multi-year planning process, there will be a number of ways you can get involved. Here's how you can help our community identify the best possible solutions:



Ask questions today



Fill out the questionnaire here or online



Sign up for our contact list



Visit www.regionofwaterloo.ca/biosolids



Apply to be a member of our Stakeholder Committee



Attend upcoming events



We can meet with your group or organization

Join the conversation
on Facebook and
Twitter....



[www.facebook.com/
ROWWaterServices](http://www.facebook.com/ROWWaterServices)



[@RegionWaterloo
#waterloobiosolids](https://twitter.com/RegionWaterloo)

And if you have any questions or concerns, please do not hesitate to contact:

KAORU YAJIMA, P.Eng.

Senior Project Engineer

Water Services – The Regional Municipality of Waterloo

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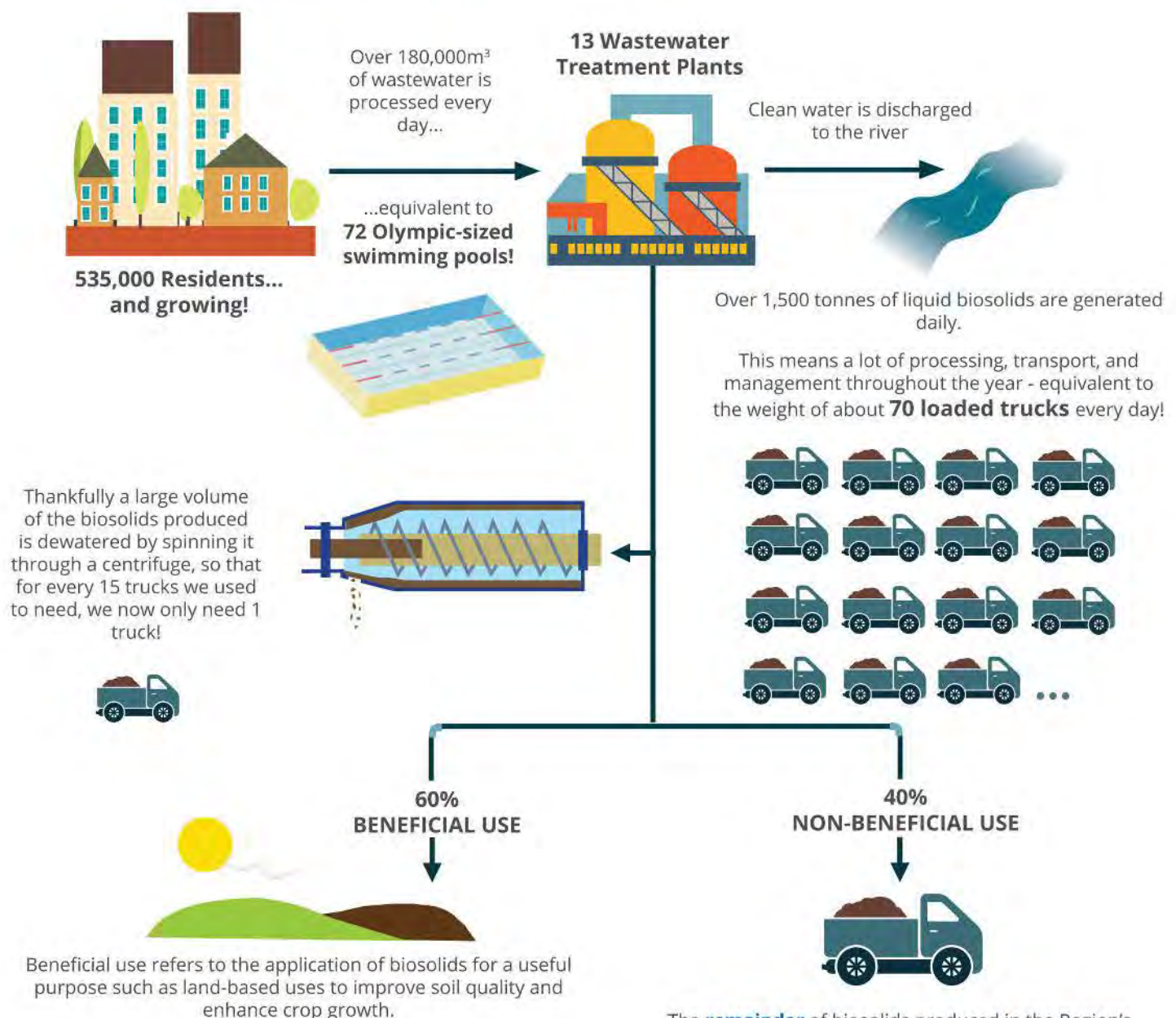
TTY: 519-575-4608

Email: biosolids@regionofwaterloo.ca

STAGE 2

Biosolids in Waterloo Region Today

When you finish doing your business, that's when the Region of Waterloo gets busy doing its business. The diagram below describes how biosolids were managed in 2015 in the Region.



In 2015, **Land Application** in agricultural areas surrounding the Region of Waterloo (to Wellington County, County of Brant, City of Hamilton, Middlesex County, County of Oxford, and Perth County) comprised roughly 45% of the Region's total biosolid output.

In 2015, the Region also began **Land Reclamation**, with roughly 15% of the total used in former mining tailing ponds (near Sudbury, Ontario).

The **remainder** of biosolids produced in the Region's treatment plants is **safely disposed of in approved landfills outside the Region of Waterloo**.

How the Region manages biosolids varies from year to year; this diagram provides an overview of the approach in 2015.

Why do we Need a Biosolids Strategy?

As the Region plans for its future, having a strong Strategy for biosolids management will allow for important decisions to be made with community input. A few of the main reasons why a Strategy is essential are outlined here.



The region is expected to experience population growth equivalent to the size of the City of Kitchener in the years ahead. This means that there will be additional demand and pressures placed on the current approach.



A number of environmental, social, and economic constraints will need to be considered, including land availability, range of applications, climate change, and transportation routes.



Updates to regulations can place more restrictions on how we can use biosolids, or create opportunities for beneficial use.



The costs associated with trucking, storage and disposal of biosolids will continue to rise over time, and it is important to consider the best value to the Region in developing the Strategy.



A more diversified Strategy would allow the Region the flexibility and adaptability to appropriately plan for contingencies and emergencies, manage risk, and tackle mid to long term biosolids storage needs.



With new technologies and scientific advances, the Region should consider and present new, feasible approaches and opportunities.

The Regulatory Framework

Biosolids Management is impacted by Provincial and Federal legislation as well as a number of Regional plans and policies.

APPLICABLE REGULATIONS & POLICIES

REGULATING THE SAFETY AND QUALITY OF BIOSOLIDS THAT ARE BENEFICIALLY USED TO PROTECT THE ENVIRONMENT & HUMAN HEALTH

- Ontario Nutrient Management Act & O.Reg. 267/03, as amended
- Federal Fertilizers Act R.S.C.
- Canadian Fertilizers Regulation
- Ontario Compost Quality Standard
- Environmental Protection Act
- O.Reg. 347: General Waste Management

CONTROLLING THE QUALITY OF BIOSOLIDS THAT ARE DISPOSED OF

- Environmental Assessment Act
- Environmental Protection Act
- O.Reg. 347: General Waste Management



LANDFILL DISPOSAL



BENEFICIAL USE: AGRICULTURAL APPLICATION & MINE RECLAMATION



BIOSOLIDS TRANSPORTATION AND PROCESSING

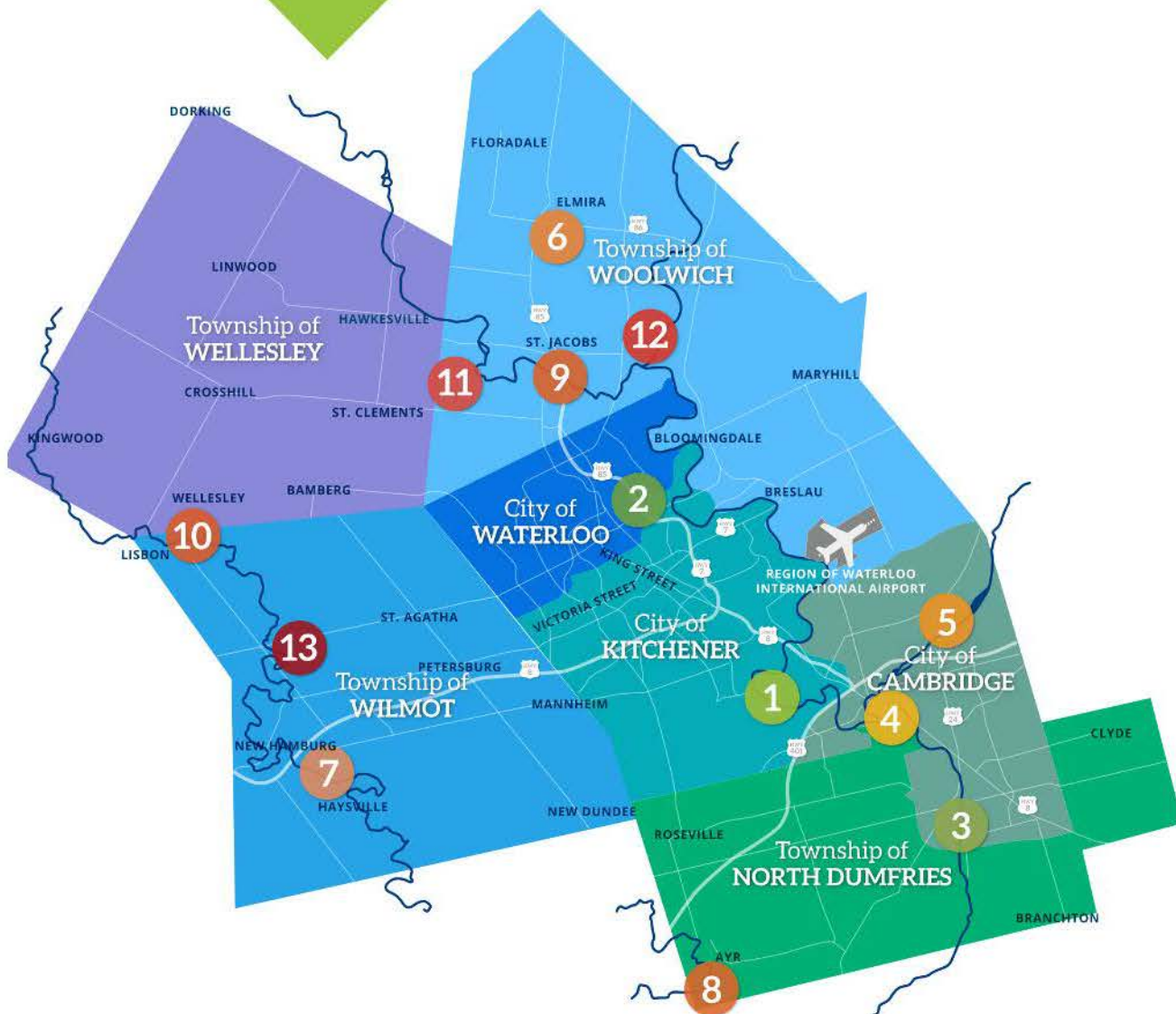
MANAGING THE ENVIRONMENTAL IMPACTS OF BIOSOLIDS TRANSPORTATION & PROCESSING

- Environmental Assessment Act
- Environmental Protection Act
- Ontario Regulation 419/05: Air Pollution – Local Air Quality
- Ontario Water Resources Act
- Safe Drinking Water Act
- Clean Water Act
- O.Reg. 347: General Waste Management

KEY REGIONAL PLANS & POLICIES GUIDING THE BIOSOLIDS STRATEGY

- Regional Strategic Plan
- Regional Official Plan
- Regional Waste Water Treatment Master Plan (In Development)
- Hauled Wastewater Management Study (Ongoing)

Biosolids & Waste Water Processing in Waterloo Region



LARGE TREATMENT PLANTS Processing Capacity > 50 Million Litres/day

1. **Kitchener**
Anaerobic Digestion & Dewatering
48% of the Region's Dewatered Biosolids
2. **Waterloo**
Anaerobic Digestion & Dewatering
21% of the Region's Dewatered Biosolids
3. **Galt**
Anaerobic Digestion & Dewatering
27% of the Region's Dewatered Biosolids

MID-SIZED TREATMENT PLANTS Processing Capacity 5 to 20 Million Litres/day

4. **Preston**
Anaerobic Digestion
Biosolids sent to Galt for Dewatering
5. **Hespeler**
Aerobic Digestion
Biosolids sent to Galt for Processing
6. **Elmira**
Anaerobic Digestion & Dewatering
4% of the Region's Dewatered Biosolids
7. **New Hamburg**
Storage Lagoons
Liquid Biosolids

SMALL TREATMENT PLANTS Processing Capacity < 5 Million Litres/day

8. **Ayr**
Storage Lagoons
Liquid Biosolids
9. **St. Jacob's**
10. **Wellesley**
11. **Heidelberg**
12. **Conestogo**
13. **Foxboro Green**

Issues that Matter: What we have Heard

Consultation to date has identified some issues that matter to the community related to biosolids management. What do you think? Please use the stickers provided to tell us which issues matter most to you.



Climate Change

Pharmaceuticals in
Wastewater & Biosolids

Energy Consumption

Beneficial use

Sustainability



Environmental
Safety

Public Safety

Product Safety

Public Health

Worker Safety



Public Perception
of Alternatives

Waste as a
Resource

Agriculture

Support for
Innovation



Existing
Wastewater
Infrastructure
Efficiency &
Compatibility

New Infrastructure
Needs

Security & Flexibility
of Options



Locations for
Biosolids Use &
Disposal

Transportation
Routes

Storage



Truck Traffic

Visual Impacts

Odour

Noise



Technology

Innovation

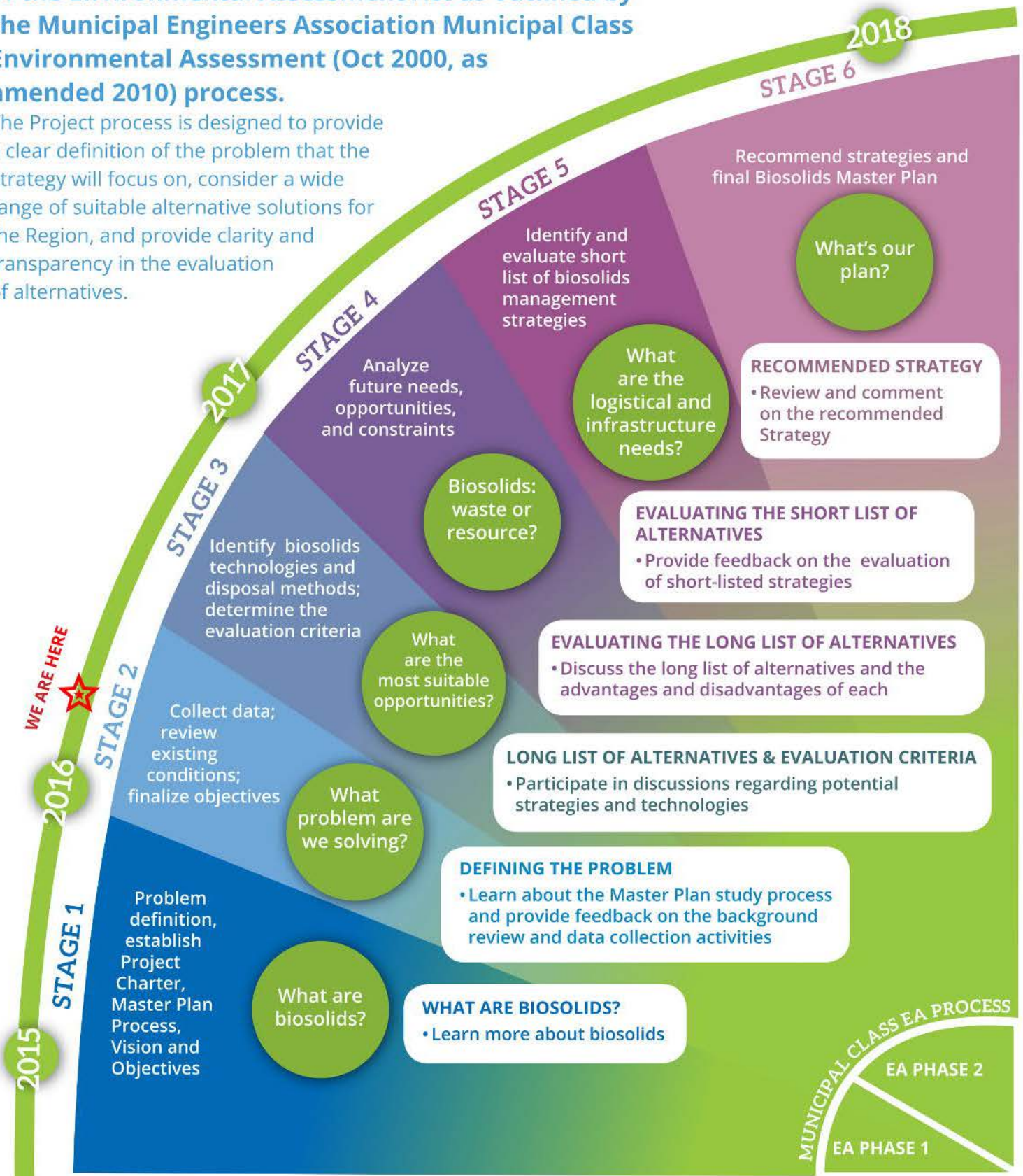
Cost

Forms of Beneficial
Uses

Project Timeline

Work will be completed to meet the requirements of the Environmental Assessment Act as outlined by the Municipal Engineers Association Municipal Class Environmental Assessment (Oct 2000, as amended 2010) process.

The Project process is designed to provide a clear definition of the problem that the Strategy will focus on, consider a wide range of suitable alternative solutions for the Region, and provide clarity and transparency in the evaluation of alternatives.



STAGE 3

Welcome!

BIOSOLIDS Strategy

PUBLIC CONSULTATION EVENT

Spring 2017

March 23: Cambridge City Hall, 6PM - 9PM

March 28: Region of Waterloo Museum, 6PM - 9PM

April 12: Waterloo Memorial Recreational Complex, 6PM - 9PM



Region of Waterloo

www.regionofwaterloo.ca/biosolids

What's Happening Tonight?



The Region of Waterloo is developing a *Biosolids Strategy.*

At this event you will have an opportunity to:

- Review what we are doing with biosolids today
- Learn about alternatives for managing this material
- Understand how we will be making a decision
- Fill out a survey
- Provide feedback

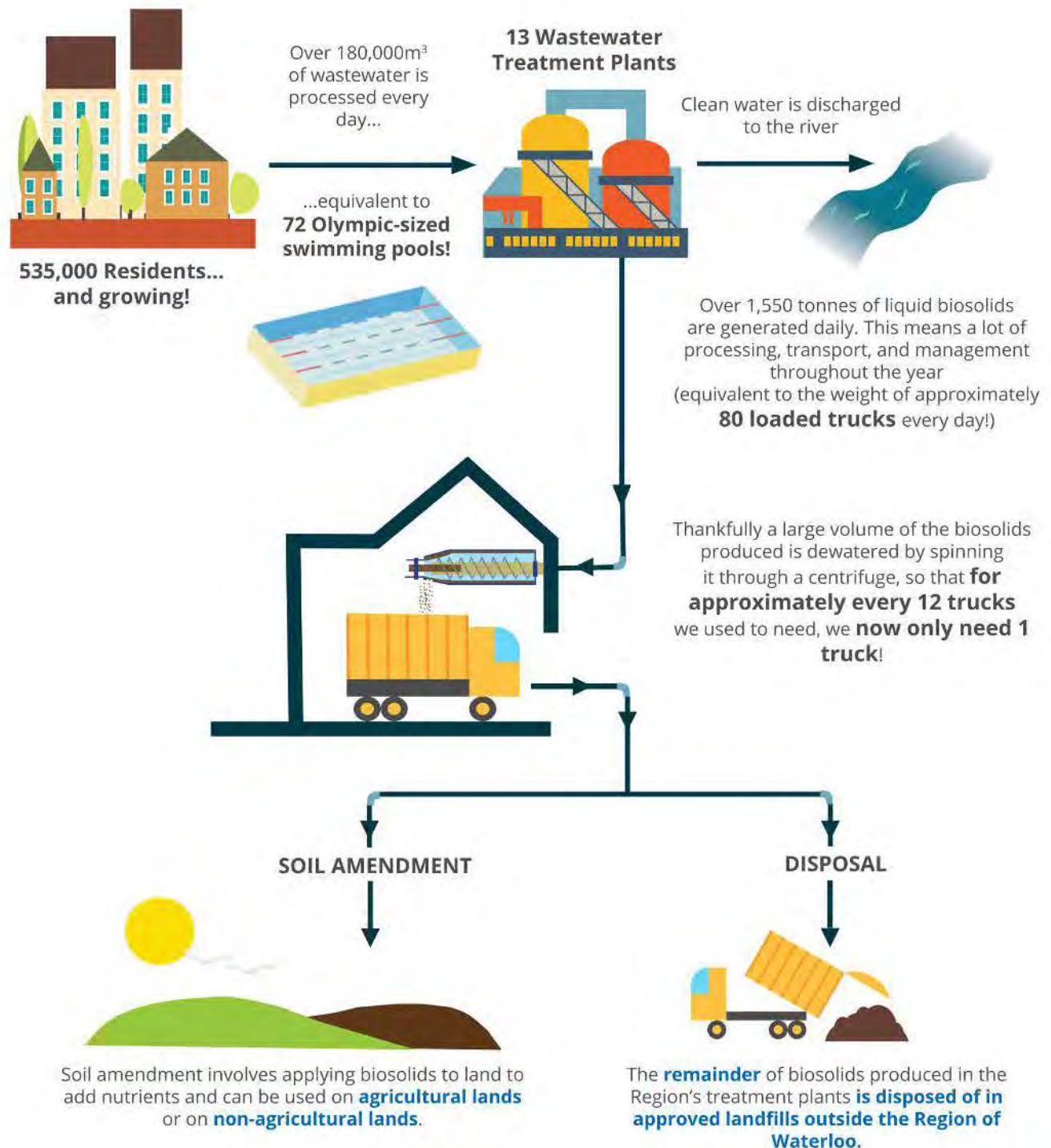
Tonight's Agenda

Open House

- Have a look at the project information on display and chat with the Project Team.
- Provide input on the strategy alternatives
- Provide input on the criteria used at each of the two steps in the decision making process

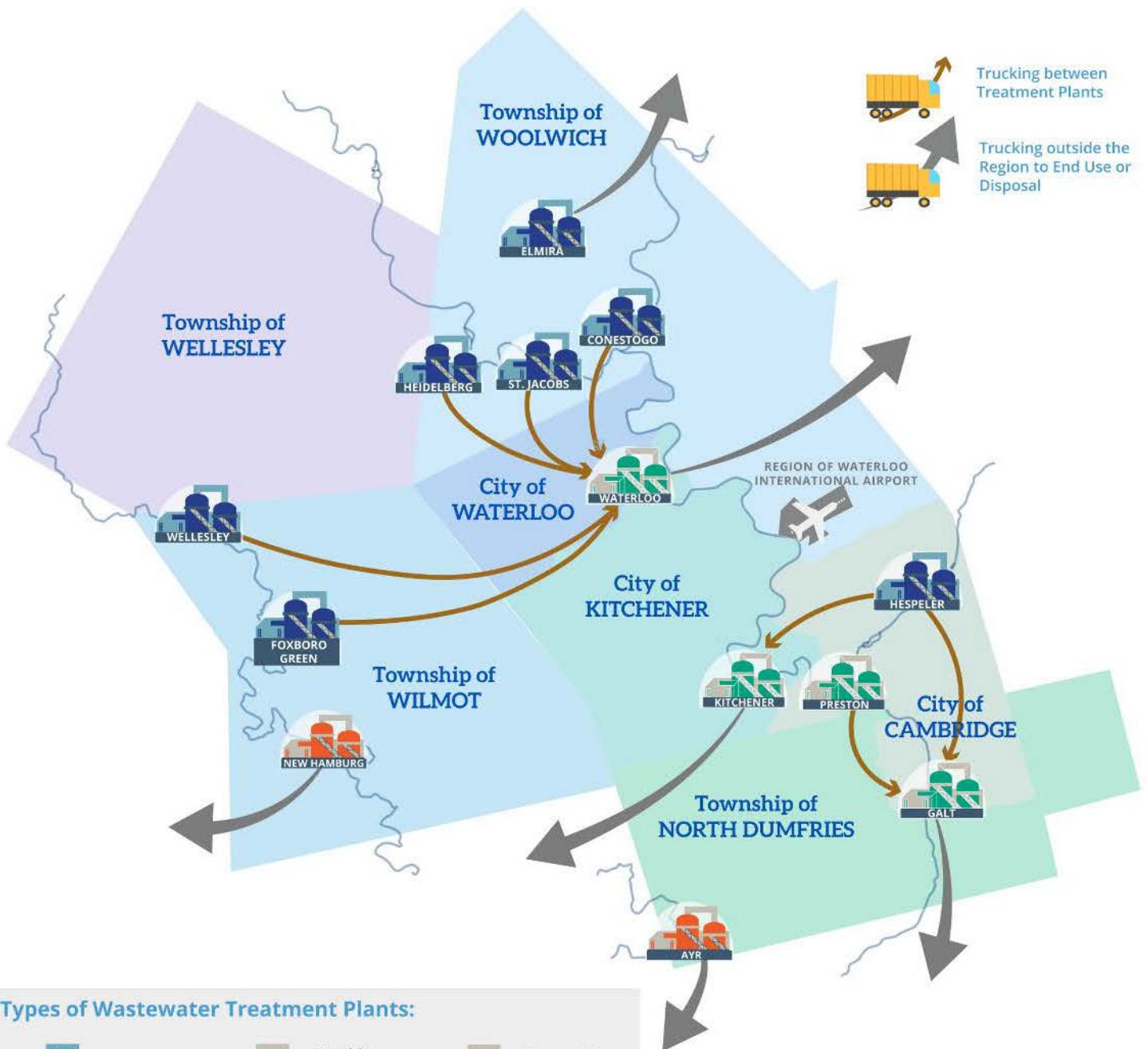
Biosolids in Waterloo Region Today

When you finish doing your business, that's when the Region of Waterloo gets busy doing its business. The diagram below describes how biosolids are managed in the Region today.



How are Biosolids Trucked in the Region Today?

Trucking is an important part of biosolids management in the Region today. There are two types of trips, both infrequent: trips between wastewater treatment plants for further processing of biosolids, and trips out of the Region for end use or disposal of processed biosolids.



Types of Wastewater Treatment Plants:



No Biosolids Digestion

Biosolids are processed at another plant



Aerobic Digestion of Biosolids

Biosolids created in presence of air



Anaerobic Digestion of Biosolids

Biosolids created in absence of air

Why do we Need a Biosolids Strategy?

Here are a few of the main reasons why a strategy is essential for our community.

Growth



The region is expected to grow by the equivalent of the size of Kitchener in the years ahead. This means additional demand for biosolids management.

Environmental Constraints



Environmental and social constraints must be considered, including land availability, possible uses, climate change, and transportation routes.

Regulatory Changes



Updates to regulations can restrict how we use biosolids.

Security



The Region needs flexibility and adaptability to plan for emergencies, manage risk, and tackle mid to long term biosolids storage needs.

Innovation



The Region should consider feasible new technologies and scientific advances that present opportunities for innovation.

Increasing Costs



As the costs associated with trucking, storage and disposal of biosolids will continue to rise, it is important to consider the best value to the Region.

Addressing these aligns with the Region's 2015-2018 Strategic Plan.

Roadmap to a Strategy

2015



Defining Biosolids and Project Launch

Launch the Project and draft the Problem Statement, Vision and Project Charter.

2016



Problem Statement and Issues that Matter

Collect data, review existing conditions, and consult with the community on issues that matter.



WE ARE HERE



Project Objectives and Long List of Strategy Alternatives

Use community feedback on the issues that matter to develop the Project Objectives and a decision making framework, and develop a long list of strategy alternatives.

2017



MINIMUM PERFORMANCE QUESTIONS

Short List of Strategy Alternatives

Identify alternatives that would work for the Region using Minimum Performance Questions that are based on the project objectives. A short list of alternatives is created.



SHORT LIST EVALUATION CRITERIA

Preferred Alternative

Evaluate the short listed strategies in detail using the objectives-based Short List Evaluation Criteria.

2018



Our Strategy

Refine the best performing strategy resulting from the short list evaluation.

Region of Waterloo Council
for Approval

Developing a Biosolids Strategy Alternative

There are three components that make up a biosolids strategy alternative.



A. Solids Preparation/Modification

Technologies to prepare organic material for processing to become biosolids, or modify biosolids after processing to reduce volume.



B. Biosolids Processing

Core technologies to create biosolids from the organic solids separated from our wastewater.



C. Biosolids Storage, End Uses, and Disposal

Storing of biosolids to be transported for end use or disposal. End use and disposal options can include:

- Agricultural Soil Amendment
- Non-Agricultural Soil Amendment
- Energy Recovery
- Incineration
- Landfill

Wastewater collected from around the Region is collected at one of the Region's 13 wastewater treatment plants.

Processed biosolids are transported for storage, end use or disposal.

What Can We Do With Biosolids?

Soil Amendment End Uses

Agricultural



Biosolids that meet Provincial and Federal quality standards can be applied to crop lands as a nutrient source.

Key considerations include the quality of the biosolids produced, available lands for application, potential presence of substances of concern, trucking, and the ability to store biosolids in the fall and winter.



Non-Agricultural



Non-agricultural uses include application to forested areas to improve nutrient supply to the soil, enhancing impacted lands such as mine tailings ponds, and use as daily cover material for landfills.

Key considerations include the quality of biosolids produced, the availability of suitable sites for application, trucking, and the ability to store biosolids awaiting transport.



Energy End Uses

Energy Recovery



Energy can be recovered by burning biogas generated from biosolids processing, or burning the biosolids itself. The energy recovered depends on many factors including the processing method and the biosolids dryness.

Key considerations include the facility complexity, the cost of energy to burn the product, and potential for air quality impacts.



Disposal

Incineration



Biosolids can be reduced to ash by incineration, which generates the smallest amount of material for disposal. Supplemental fuel (e.g. natural gas) is required where energy recovery from biosolids is not feasible.

Key considerations include the approvals associated with an incineration facility, the cost of fuel, and potential for air quality impacts.



Landfill



Biosolids can be disposed of in landfills that are allowed to accept this material. Landfilling has historically been used for managing biosolids when other end use and disposal options are not available.

Key considerations include future potential to landfill biosolids at existing facilities, costs associated with trucking biosolids to distant sites, and tipping fees.



What Does the Region Currently Do With Its Biosolids?

In 2016, the Region of Waterloo's biosolids were transported for use or disposal as follows:

Agricultural Soil Amendment



45%

Non-Agricultural Soil Amendment



40%

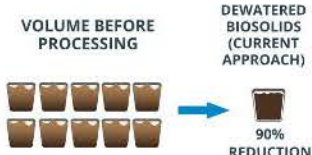
Landfill



15%

What are our Strategy Alternatives? (1 of 2)

Eight biosolids strategy alternatives have been identified, each comprised of the three steps shown on Panel #8. In the next stage of the project, a short list of alternatives will be evaluated using the criteria displayed on Panel #11.

	 SOLIDS PREPARATION/ MODIFICATION	 BIOSOLIDS PROCESSING	 NEW STORAGE FACILITY SIZE	 OUTPUT VOLUME (COMPARED TO CURRENT APPROACH)	 END USES & DISPOSAL
Alternative #1 Current Approach with Expanded Capacity The current approach provides stable biosolids management. Biosolids are spread on fields or used for land reclamation, or landfilled when these options are not available.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	CURRENT DIGESTION (EXPANSION WITH POPULATION GROWTH)		 NO CHANGE	 AGRICULTURAL SOIL AMENDMENT  NON-AGRICULTURAL SOIL AMENDMENT  LANDFILL
Alternative #2 Current Approach with Solids Preparation Before Digestion This alternative can reduce the total solids by generating more biogas, and reduce the amount of liquid in the dewatered biosolids, with a similar end product.	THICKENING (NEW INFRASTRUCTURE)	CURRENT DIGESTION (LESS EXPANSION WITH POPULATION GROWTH)		 NO CHANGE	 AGRICULTURAL SOIL AMENDMENT  NON-AGRICULTURAL SOIL AMENDMENT  LANDFILL
Alternative #3 Produce Fertilizer from Biosolids This alternative would make a fertilizer product that could be sold. Different technologies can produce fertilizer products with slightly varying volumes.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	STABILIZATION OR HYDROLYSIS TECHNOLOGIES (NEW INFRASTRUCTURE)		 66% MORE NO CHANGE 33% LESS CAN VARY BASED ON TECHNOLOGY	 AGRICULTURAL SOIL AMENDMENT  NON-AGRICULTURAL SOIL AMENDMENT  LANDFILL
Alternative #4 Produce Compost from Biosolids This alternative would add composting to the current process.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	COMPOSTING TECHNOLOGY + ASSOCIATED BUILDINGS (NEW INFRASTRUCTURE)		 60% LESS	 AGRICULTURAL SOIL AMENDMENT  NON-AGRICULTURAL SOIL AMENDMENT  LANDFILL

What are our Strategy Alternatives? (2 of 2)

	 SOLIDS PREPARATION/ MODIFICATION	 BIOSOLIDS PROCESSING	 NEW STORAGE FACILITY SIZE	 VOLUME BEFORE PROCESSING DEWATERED BIOSOLIDS (CURRENT APPROACH) 90% REDUCTION OUTPUT VOLUME (COMPARED TO CURRENT APPROACH)	 END USES & DISPOSAL
Alternative #5 Produce Dry Fertilizer Pellets from Biosolids This alternative would add further drying to the current process to substantially reduce the total amount of product. The product is a fertilizer that could be sold or used as renewable fuel in certain applications.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	DRYING TECHNOLOGY + POTENTIAL ASSOC. BUILDINGS (NEW INFRASTRUCTURE)	 S	 75% LESS	 AGRICULTURAL SOIL AMENDMENT  NON-AGRICULTURAL SOIL AMENDMENT  LANDFILL  ENERGY FROM SOLIDS  INCINERATION
Alternative #6 Thermal Reduction of Biosolids to Ash (No Energy Recovery) This alternative could use the current digested and dewatered biosolids as input and burn this to ash for use as an industrial input, or disposal in landfill.	THICKENING (NEW INFRASTRUCTURE)	INCINERATOR + ASSOCIATED BUILDINGS (NEW INFRASTRUCTURE)	NO NEW STORAGE NEEDED	 90% LESS	 INCINERATION  LANDFILL
Alternative #7 Thermal Reduction With Energy Recovery This alternative would 'burn' biosolids to ash and generate energy. Ash can be used as an industrial input, or disposed in landfill. This option requires enhanced dewatering and cannot be used in series with other energy recovery methods such as the existing biogas generation approach.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	THERMAL REDUCTION PROCESS + ASSOCIATED BUILDINGS (NEW INFRASTRUCTURE)	NO NEW STORAGE NEEDED	 90% LESS	 ENERGY FROM SOLIDS  LANDFILL
Alternative #8 Landfill All Biosolids This alternative would send all biosolids produced in the Region to a landfill. Existing infrastructure such as dewatering and digestion would need to be expanded with population growth.	CURRENT DEWATERING (EXPANSION WITH POPULATION GROWTH)	CURRENT DIGESTION (EXPANSION WITH POPULATION GROWTH)	NO NEW STORAGE NEEDED	 NO CHANGE	 LANDFILL

How do we Make a Decision?

Step 1: Minimum Performance Questions

To pass this screening step, a biosolids strategy alternative must meet all the listed Minimum Performance Questions.

Have we missed any important questions?

OBJECTIVE

MINIMUM PERFORMANCE QUESTIONS



Work collaboratively to find solutions.

Provide multiple opportunities for public engagement and input in the decision making process. This objective goes beyond regulatory requirements and is being met through the study design.

No specified Minimum Performance Threshold applied. This objective will be addressed through the development of the strategy.



Build on existing infrastructure.

The Region has significant investment in infrastructure and a strategy that maximizes this investment is preferred.

- Is it compatible with the Region's existing wastewater treatment infrastructure?
- Is it based on commercially proven technology that provides a long term solution?



Protect the natural environment.

The preferred strategy should minimize impacts to the environment and surroundings.

- Does it meet current environmental regulations, and is it capable of meeting permitting requirements?
- Does it align with best practices in the field of biosolids management?



Protect health and safety.

The strategy should support healthy living for both workers and the public.

- Does it meet current health and safety regulations?
- Does it align with best practices in the field of biosolids management?



Minimize and manage operational risk.

The preferred strategy must allow the Region to provide continual, uninterrupted biosolids management service to the public.

- Can the Region control all the necessary elements of implementation?
- Can the storage requirements be permitted in the Region?



Protect quality of life.

The existing quality of life for citizens should be maintained when planning for biosolids infrastructure

- Does it protect quality of life for citizens regardless of where it is built?



Be cost effective and provide value.

The cost of the preferred strategy must be reasonable to the Region, both now and in the future.

No specified Minimum Performance Threshold applied. This objective will be addressed through specific criteria for the short-listed strategies.

How do we Make a Decision?

Step 2: Short List Evaluation Criteria

In fall 2017 we will be carrying out an evaluation of the short listed biosolids strategy alternatives. We would like your early input on the criteria used for evaluation.

Do any other considerations come to mind?



Work collaboratively with the community to find solutions.

- This objective is being addressed through the study design.



Build on existing infrastructure.

- How compatible is the alternative with existing municipal infrastructure?
- How much new supporting municipal infrastructure is required (e.g. roads, power and water services, etc.)?
- Can the alternative solve other municipal needs?
- How vulnerable is the alternative to changing government regulations, policies and market demands?
- How scalable is the alternative and can it be expanded to meet future population needs?



Minimize and manage operational risk.

- Does the alternative provide multiple opportunities for end uses to minimize risk?
- Does the alternative require intermediate trucking of product?
- Are there risks related to any new storage that is required?
- What's the size and character of any site(s) required?
- How complex is the alternative?



Protect quality of life.

- If a facility is required, what are the impacts to the surrounding community? i.e. is there a smell, noise, or visual impacts?



Protect and enhance the natural environment.

- Does the alternative provide environmental benefits?
- Does the alternative use energy or generate energy?
- Is the alternative adaptable to climate change impacts?
- How much greenhouse gas emission does the alternative produce?
- Does the alternative minimize the amount of waste generated?



Be cost effective and provide value.

- Would the alternative involve some innovative approach that would provide value to the Region?
- What are the initial costs? What are the life-cycle costs?
- Is there an opportunity to apply for carbon credits?
- What's the local economic benefit? How many local jobs would it create?
- Is a biosolids product created that has value? If yes, how valuable is it?



Protect health and safety.

- What are the health and safety risks associated with the alternative?

Next Steps

Upcoming Schedule

Spring 2017

- Release of Technical Memos on the Evaluation Criteria, Biosolids Technologies, End Use and Disposal Options, and Long List of Biosolids Strategy Alternatives

Summer/Fall 2017

- Public Consultation on the Short List of Biosolids Strategies

How You Can Help...

Give us your feedback on the project objectives, evaluation criteria, and strategy alternatives, to help us as we develop the short list of alternatives.



Ask questions today



Fill out the survey here or online



Sign up for our contact list



Visit www.regionofwaterloo.ca/biosolids



Attend upcoming events.



We can meet with your group or organization.

Join the conversation on Facebook and Twitter....



www.facebook.com/ROWWaterServices



[@RegionWaterloo](https://twitter.com/RegionWaterloo)

And if you have questions or comments, please do not hesitate to contact:

KAORU YAJIMA, P.Eng.

Senior Project Engineer

Water Services – The Regional Municipality of Waterloo
150 Frederick Street, 7th Floor

Kitchener, ON N2G 4J3

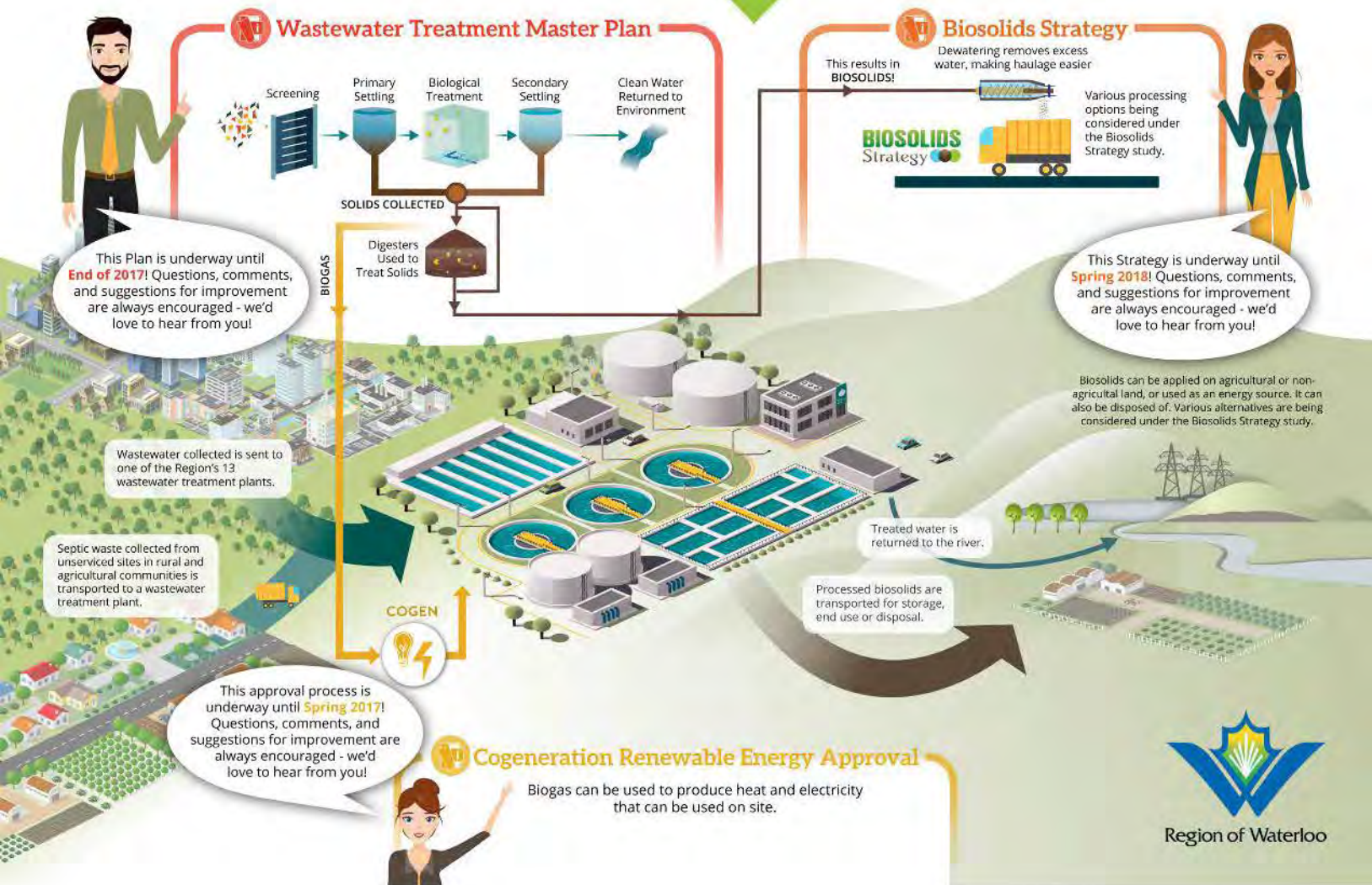
Tel: 519-575-4757 ext. 3349

Fax: 519-575-4452

TTY: 519-575-4608

Email: kyajima@regionofwaterloo.ca

Current Region Wastewater Studies



STAGE 4

BIOSOLIDS Strategy

Stakeholder Committee Meeting #3 &
Public Workshop:

How We Will Make a Decision

June 21, 2017

DISCUSSION WORKBOOK

Project Contact Information:

Kaoru Yajima, P.Eng.

Senior Project Engineer

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www.regionofwaterloo.ca/biosolids



[www.facebook.com/
ROWWaterServices](http://www.facebook.com/ROWWaterServices)



[@RegionWaterloo](https://twitter.com/RegionWaterloo)

Workshop Objectives & Agenda



Workshop Objectives

- Understand the process used to short-list the alternatives
- Obtain input on the evaluation criteria to be used to determine the preferred strategy(s)

Workshop Agenda

1. Welcome and Introductions
2. Project Background
3. Project Technical Review
4. Discussion of Long List Evaluation Process
5. Discussion of Short List Evaluation Criteria
6. Questions and Next Steps

Strategy Process

2015



Defining Biosolids and Project Launch

2016



Problem Statement and Issues that Matter



2017



Project Objectives and
Long List of Strategy Alternatives



WE ARE HERE

MINIMUM PERFORMANCE QUESTIONS

Short List of Strategy
Alternatives

SHORT LIST EVALUATION CRITERIA

Preferred Alternative

2018



Our Strategy

Region of Waterloo Council
for Approval

Current stage:
Developing criteria to evaluate the short
listed biosolids management alternatives

The final Strategy will not recommend a
particular facility or site.

Short List of Alternatives

- 1. Produce Fertilizer from Biosolids:** Consider implementation of one of the range of technologies available to produce a certified fertilizer product.
- 2. Produce Compost from Biosolids:** Consider implementation of a composting process.
- 3. Produce Dry Fertilizer Pellets from Biosolids:** Consider production of a certified fertilizer product through implementation of a drying process.
- 4. Thermal Reduction of Biosolids to Ash:** Reduce biosolids to ash, producing the minimum volume of residual product and identify use opportunities for ash aligning with CCME best practices.

Process Used to Short List Alternatives

Do you have any comments on the process used to short list the alternatives?

Project Objectives

The project objectives were developed based on stakeholder input and will guide the evaluation of the short list of strategies.



1. Work collaboratively to find solutions.



2. Align with existing infrastructure.



3. Protect the natural environment.



4. Protect Health and Safety



5. Minimize and manage operational risk.



6. Protect quality of life.



7. Be cost effective and provide value.

- Each of the project objectives has associated questions that form the evaluation criteria
- Criteria are based on input received through consultation and engagement with the community and Region staff as well as input from the technical team
- Criteria will be used to assess the performance of each short listed alternative

The following section explores each of the objectives and related criteria in detail.



Align with Existing Infrastructure



What is this objective about?

The Region has significant investment in infrastructure to support wastewater management and biosolids processing, and a strategy which maximizes this investment is preferred.



Align with Existing Infrastructure

Criteria	Tell Us Your Thoughts
How compatible is the alternative with existing Regional wastewater and biosolids processing infrastructure?	
How much new supporting municipal infrastructure is required (e.g. roads, power and water services, etc.)?	
Can the alternative solve other municipal needs?	
How vulnerable is the alternative to changing government regulations, policies and market demands?	
Does the alternative allow us to accommodate future population growth?	



Align with Existing Infrastructure

Are these the right questions to ask ourselves? What else needs to be considered?



Protect and Enhance the Natural Environment



What is this objective about?

The preferred strategy should seek to make the natural environment better, rather than focusing solely on minimizing negative impacts.



Protect and Enhance the Natural Environment

Criteria	Tell Us Your Thoughts
What are the environmental effects of the alternative (on air quality, surface water quality, groundwater quality, soil, etc.)?	
Does the alternative use energy or generate energy?	
Is the alternative adaptable to climate change impacts?	
How much greenhouse gas emissions does the alternative produce? (Note: Greenhouse gases are any gas in the atmosphere that traps heat and contributes to global warming)	
Does the alternative minimize the amount of biosolids to be disposed?	



Protect and Enhance the Natural Environment

Are these the right questions to ask ourselves? What else needs to be considered?



Protect Health and Safety



What is this objective about?

Consistent with the Region's Strategic Plan, the strategy should promote and support healthy living and prevent disease and injury, for both workers and the public.



Protect Health and Safety

Criteria	Tell Us Your Thoughts
Does the alternative provide opportunities to lower health and safety risks to the public?	
What are the relative health risks posed to workers for each alternative?	
Does the alternative improve the quality of biosolids to reduce potential health and safety risks compared to the existing approach?	
Does the alternative meet industry best practices for protecting health and safety?	



Protect Health and Safety

Are these the right questions to ask ourselves? What else needs to be considered?



Minimize and Manage Operational Risk



What is this objective about?

The preferred strategy must be robust and limit the potential for complications during the operations that would compromise the Region's ability to provide on-going biosolids services.



Minimize and Manage Operational Risk

Criteria	Tell Us Your Thoughts
How do the end use or disposal options affect the risk of disruption to biosolids management services?	
Do the trucking requirements affect the risk to the biosolids production process?	
Can any new storage or other facility that is needed for the alternative be built in Waterloo Region to help lower operational risk?	
How complex is the alternative?	



Minimize and Manage Operational Risk

Are these the right questions to ask ourselves? What else needs to be considered?



Protect Quality of Life



What is this objective about?

The existing quality of life for citizens should be maintained, regardless of where a new facility is planned.



Protect Quality of Life

Criteria	Tell Us Your Thoughts
How will odour impacts be reduced?	
How will noise impacts be reduced?	
How will visual impacts be reduced?	
How will trucking impacts be reduced?	



Protect Quality of Life

Are these the right questions to ask ourselves? What else needs to be considered?



Be Cost Effective and Provide Value



What is this objective about?

The preferred strategy must be affordable to the Region, both now and in the future.



Be Cost Effective and Provide Value

Criteria	Tell Us Your Thoughts
How much will it cost to build this alternative?	
How much will it cost over the lifetime of this alternative to operate?	
Is there an opportunity to apply for carbon credits? (Note: Carbon credits are given to municipalities by the province for making proven efforts to reduce the gas emissions created.)	
What is the local economic benefit? How many local jobs would it create?	
Is a biosolids product created that has value? If yes, how valuable is it?	
Would the alternative involve an innovative approach that demonstrates leadership in the area of biosolids management?	



Be Cost Effective and Provide Value

Are these the right questions to ask ourselves? What else needs to be considered?

Thank You!

Please complete and submit the
Feedback Form on the following
page.



Feedback Form

We value your feedback – please complete the form and return it to the registration desk. Thank you!

1. What did you think about this event?

2. Do you have any comments on the process to short list the alternatives?

Feedback Form

3. Do you have any additional comments on the evaluation approach or criteria?

4. Other comments



Region of Waterloo



STAGE 5

Welcome!

**Biosolids Strategy
&
Wastewater
Treatment Master Plan**

Public Consultation Event

Fall 2017

December 5th: Region of Waterloo Museum, 5PM - 7:30PM

December 7th: Waterloo Memorial Recreational Complex, 5PM - 7:30PM

December 14th: Cambridge City Hall, 5PM - 7:30PM



Region of Waterloo

www.regionofwaterloo.ca/biosolids

What's Happening Tonight?



Help the
Region of Waterloo
develop its
Biosolids Strategy
and
*Wastewater
Treatment Master
Plan*

Tonight's Agenda

Open House

- Have a look at the project information on display and chat with the Project Team
- Review what we do with wastewater and biosolids today
- Provide input on the evaluation of the short-listed alternatives
- Review how the recommendations in both studies will be developed and implemented



Region of Waterloo

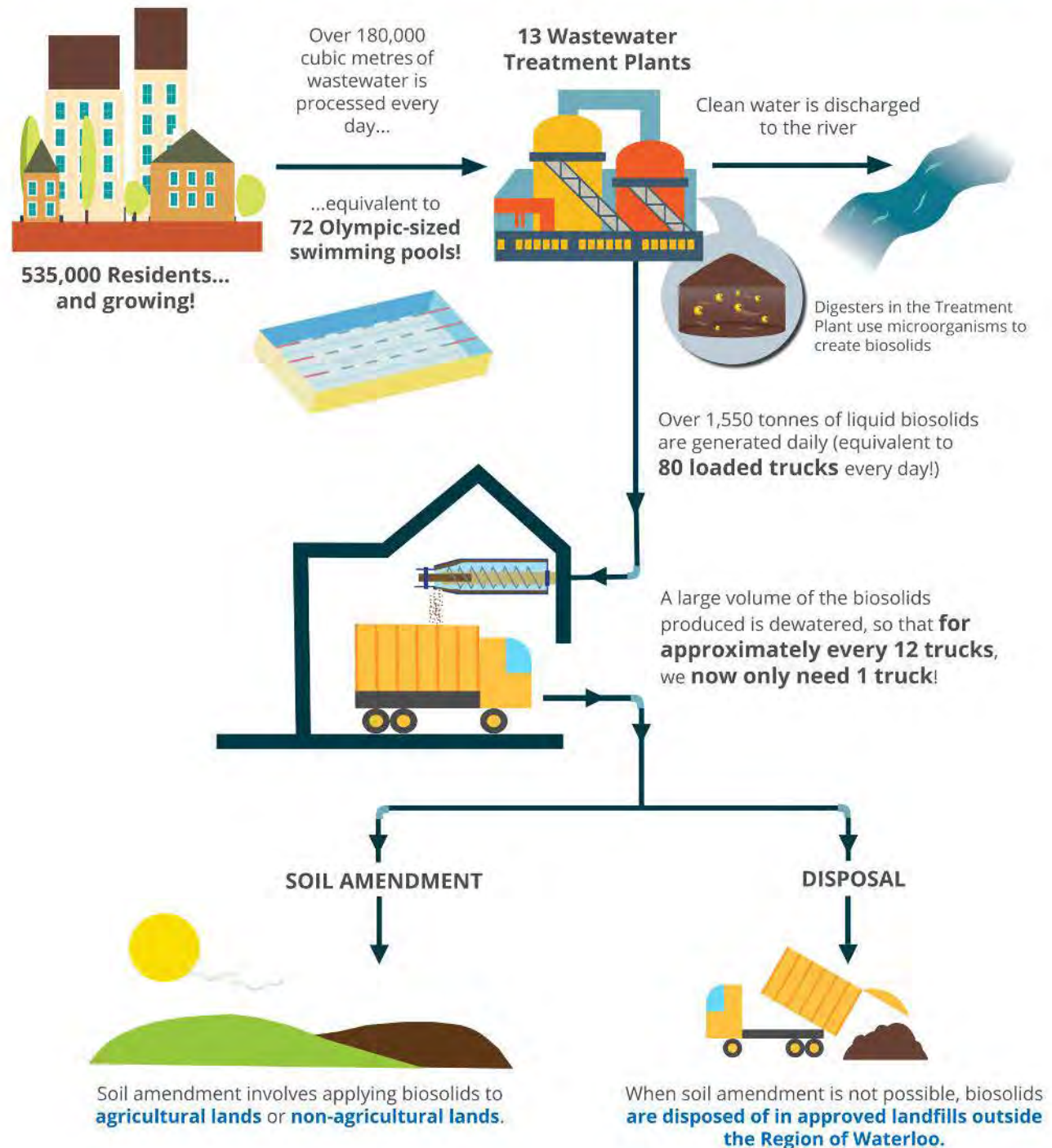
BIOSOLIDS

Strategy



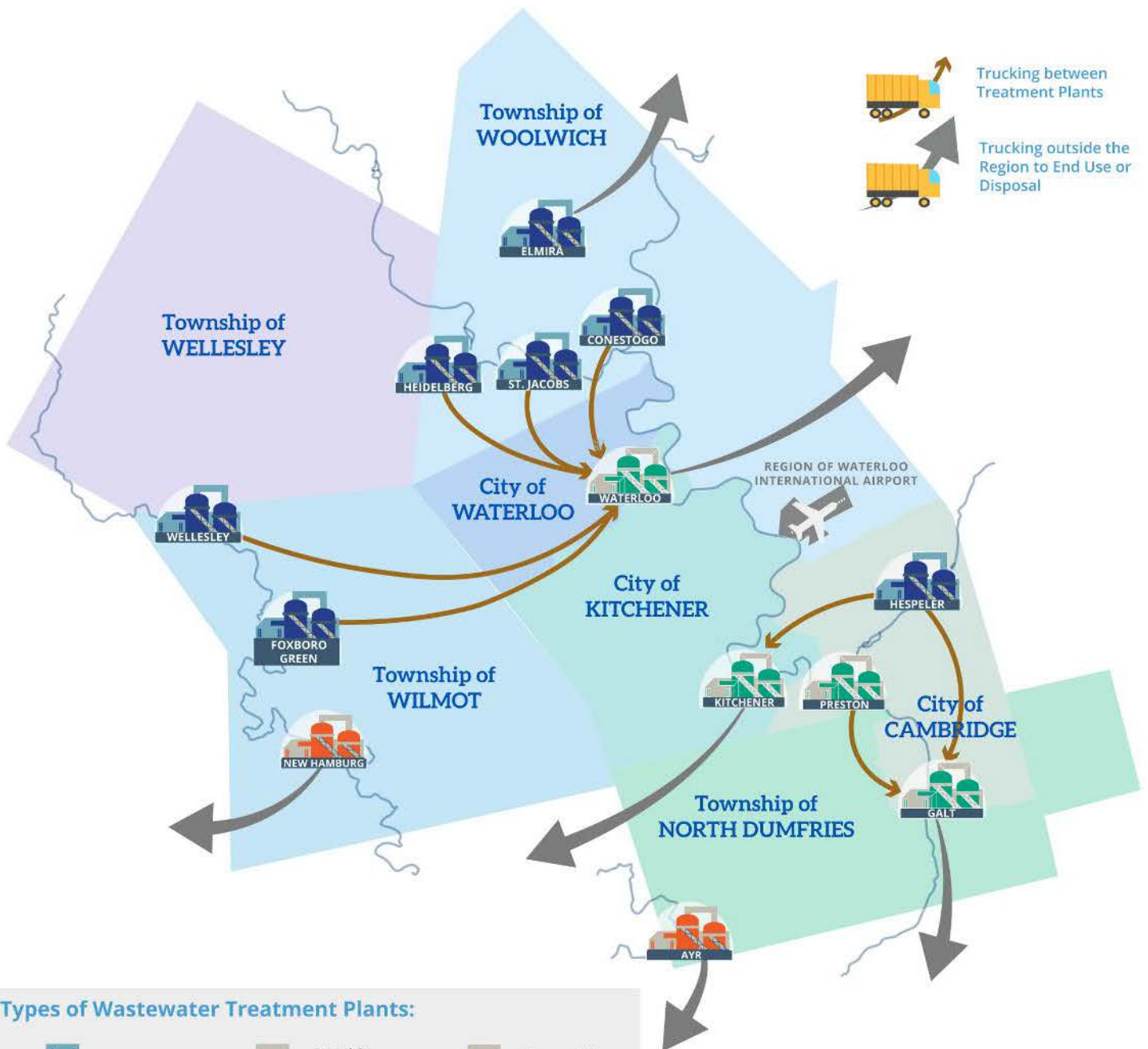
Biosolids in Waterloo Region Today

Here is a summary of how biosolids are managed in the Region today:



How are Biosolids Trucked in the Region Today?

Trucking is an important part of biosolids management in the Region today. There are two types of trips: those between wastewater treatment plants for further processing, and trips out of the Region for end use or disposal of processed biosolids.



Types of Wastewater Treatment Plants:



No Biosolids Digestion

Biosolids are processed at another plant



Aerobic Digestion of Biosolids

Biosolids created in presence of air



Anaerobic Digestion of Biosolids

Biosolids created in absence of air

Why do we Need a Biosolids Strategy?

Here are a few of the main reasons why a strategy is essential for our community.



Biosolids must be managed according to environmental and social constraints.



To plan for emergencies, risk, and mid- to long-term biosolids storage needs.



Updates to regulations can restrict how we use biosolids.



As the Region grows, there will be additional demand for biosolids management.



The Region should consider opportunities for innovation.



As costs continue to rise, it is important to consider the best value to the Region.

Addressing these aligns with the Region's 2015-2018 Strategic Focus.

Roadmap to a Strategy



A Made-in-the-Region Solution

How was feedback used to make decisions?

1. Community input on issues that matter



2. Understanding the themes and creating the project objectives



3. Developing the evaluation criteria and indicators



4. Presenting the evaluation results for discussion



Key stakeholders in the consultation process

Groups that play a key role in providing input, feedback, and direction on the Biosolids Strategy include:

- Community members
- Elected officials
- Regulatory bodies
- Technical experts
- Academic advisors
- Aboriginal communities
- Community-based organizations
- Business and industry experts
- Agricultural groups
- Environmental and scientific experts
- Municipal staff

Developing a Biosolids Strategy Alternative

There are three components that make up a biosolids strategy alternative.



A. Solids Preparation/Modification

Technologies to prepare organic material to become biosolids and reduce volume.



B. Biosolids Processing and Storage

Core technologies to create biosolids from the organic solids separated from our wastewater.

A key consideration is the storage of biosolids, as discussed on Panel #9.



C. Biosolids End Uses and Disposal

End use and disposal options can include:

- Agricultural Soil Amendment
- Non-Agricultural Soil Amendment
- Energy Recovery
- Landfill

Wastewater collected from around the Region is treated at one of the Region's 13 wastewater treatment plants.

Treated water meeting Provincial standards is returned to a nearby water body

Processed biosolids are transported for storage, end use or disposal.

How do Biosolids get Stored?

The Region currently does not have storage facilities for biosolids.

There are TWO key types of storage needed:

1. Operational Storage: More Immediate Need

- Provides security during short-term emergencies
- Located at or near existing treatment plants, to hold approximately 10-days' worth of dewatered biosolids
- Holds material awaiting final processing or end use/disposal

2. Product Storage: Future Long-Term Need

- Provides security during the winter season
- Located along with a new processing facility to hold approximately 4 months' worth of processed biosolids
- Holds material awaiting transportation to the final end use or disposal destination.

In the future, the way we store biosolids will depend on how much water is in the material.

The type of processing can reduce or increase the quantity of liquid by different amounts. However, reducing the amount of biosolids has been a key part of the Region's management approach to date.

Depending on how much liquid the biosolids contains, the volume of material would vary, and so would the type of **product storage** needed!

Types of Storage Facilities

Outdoor Facility

If more than 75% liquid



For very wet material, an outdoor facility could be used such as a tank with a flexible covering or lagoon with protective berms and liners to prevent biosolids from leaking out.

Indoor Facility

If less than 75% Liquid



For drier material, an indoor facility could be used such as a barn or tension-fabric storage unit.

How Were Alternatives Evaluated?



Work collaboratively to find solutions

The process of identifying and implementing the Preferred Strategy brings together the issues that matter to the community and integrates them into decision-making



Build on existing infrastructure

The Region has significant investment in infrastructure and a strategy that maximizes this investment is preferred

- Compatibility with existing Regional wastewater and biosolids processing infrastructure
- Level of new supporting municipal infrastructure required (e.g. roads, power and water services, etc.)?
- Potential for aligning with other municipal initiatives in future
- Flexibility in adapting to changing government regulations, policies and market demands, and population growth



Protect the natural environment

The preferred strategy should minimize impacts to the environment and surroundings

- Environmental effects of the facility and end uses
- Energy balance and potential to recover energy
- Adaptability to climate change impacts
- Level of greenhouse gas emissions produced
- Risk of landfilling of final product



Minimize and manage operational risk

The preferred strategy should allow the Region to provide continual, uninterrupted biosolids management service to the public

- Impacts of disruption to biosolids management services, processing, maintenance, and labour supply
- Potential for volume reduction of final product
- Impacts of disruption to quality of biosolids product



Protect quality of life

The existing quality of life for citizens should be maintained when planning for biosolids infrastructure

- Management of odour
- Management of dust from process or trucking
- Management of noise
- Management of visual effects
- Management of trucking
- Potential impacts to source water protection
- Potential to manage processing, end uses and/or disposal within Waterloo Region



Protect health and safety

The preferred strategy should limit health and safety risks to workers and the public

- Relative health risks posed to the public
- Relative health risks posed to workers
- Reduction or elimination of undesirable components in the biosolids
- Potential nature of an accident or adverse event



Be cost effective and provide value

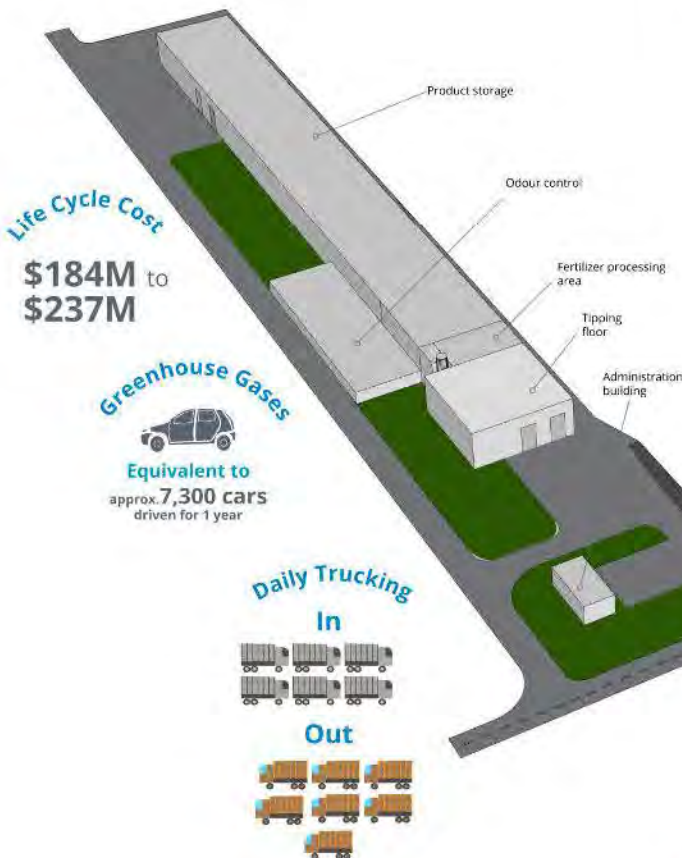
The cost of the preferred strategy must be reasonable to the Region, both now and in the future

- Relative life cycle cost
- Potential to apply for carbon credits
- Local economic benefit
- Value of end product
- Potential for leadership in the area of biosolids management

Alternative #1: Produce Fertilizer

This alternative would make a fertilizer product. Different technologies can produce fertilizer products with slightly varying volumes. The focus will be on technologies that reduce the volume of biosolids, such as stabilization or hydrolysis. The facility would have space to store 4 months' of processed biosolids. This alternative could be built as either a single large centralized facility (Option A) or four smaller decentralized facilities (Option B).

OPTION A: Centralized Facility



OPTION B: Multiple Decentralized Facilities (Only 1 Facility Shown)



Evaluating the Alternative Summary of Results



- Some alignment with current Regional infrastructure, with some flexibility to adapt to future change
- May result in some increased volume in final biosolids product
- Low potential to align with other Regional Management initiatives
- Option A allows for better utilization of existing infrastructure



- Identified potential risks of contamination to the surrounding environment (air, water, groundwater) that can be mitigated
- Option B may have greater environmental effects depending on the locations of the facilities
- Fairly high greenhouse gas emissions



- Good operational flexibility to manage risks related to disruptions in ability to process or manage biosolids.



- Potential impacts to the surrounding community resulting from odour and trucking.
- Noise, dust, and other nuisances can be well managed



- Well established management of any potential health and safety concerns for workers and the public
- Limited levels of risk with respect to adverse events

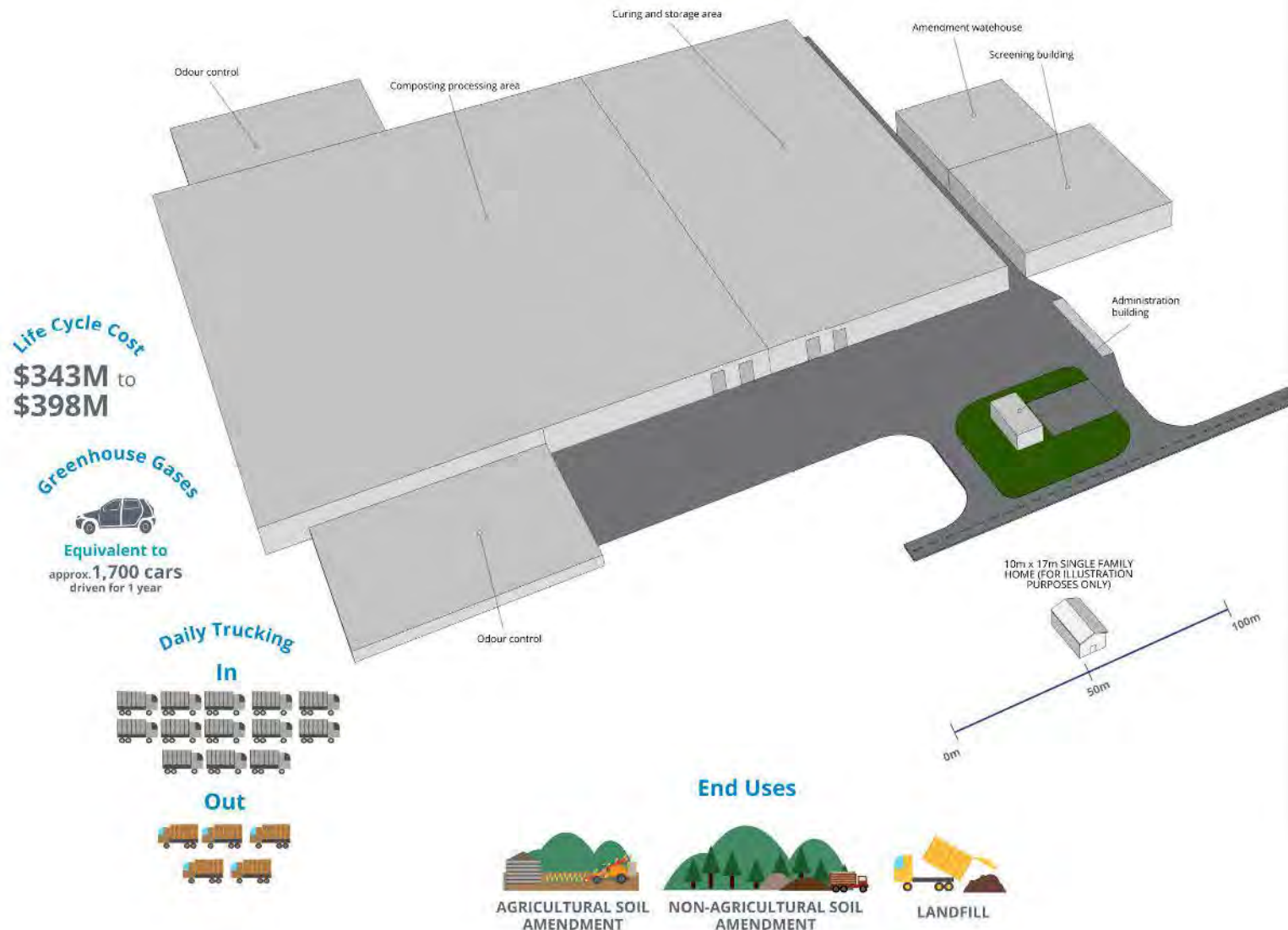


- Relatively high life cycle cost to implement and operate as a result of the facility size, with a higher cost associated with Option B
- Fertilizer product may be sold to generate revenue for the Region

Alternative #2: Produce Compost

This alternative would transform biosolids into a Category A compost that consists of 25% biosolids mixed with another organic material such as wood chips. Different technologies can produce compost products with slightly varying volumes. The facility would have a compost processing and curing area. The facility would have space to store 4 months' of compost product.

Centralized Facility



Evaluating the Alternative Summary of Results



- Alignment with current Regional infrastructure, with some flexibility to adapt to future change
- Large volume of final compost product, requiring significant storage space
- Potential to align with other Regional management initiatives
- Limited new processing infrastructure needed



- Identified potential risks of contamination to the surrounding environment (air, water, groundwater) that can be mitigated
- Potential positive benefits in moisture and organic matter addition to soil where compost is applied
- Low levels of greenhouse gas emissions



- Large facility footprint required resulting in challenges to siting the facility



- Potential impacts to the surrounding community resulting from odour and trucking.
- Noise, dust, and other nuisances can be well managed



- Potential for some flammability risk of the compost product
- Limited levels of risk with respect to adverse events



- Life cycle cost could range significantly depending on processing system
- Compost product may be sold to generate revenue for the Region

Alternative #3: Produce Dried, Low-Volume Fertilizer

This alternative would add further drying to the Region's current biosolids management process to substantially reduce the total amount of product. The product is a fertilizer that could be used as a fuel in certain applications. The facility would have space to store 4 months' of fertilizer product.

OPTION B: Multiple Decentralized Facilities (Only 1 Facility Shown)

OPTION A: Centralized Facility



End Uses



Evaluating the Alternative Summary of Results



- Alignment with current Regional infrastructure, with some flexibility to adapt to future change
- Potential to align with other Regional management initiatives



- Identified potential risks of contamination to the surrounding environment (air, water, groundwater) that can be mitigated
- Option B may have greater effects and be more impacted by climate change depending on siting
- Fairly high levels of greenhouse gas emissions



- Operational flexibility to manage risks related to disruptions in ability to process or manage biosolids



- Greater potential impacts to the surrounding community resulting from odour and trucking
- Noise, dust, and other nuisances can be well managed



- More sophisticated technical process, requiring greater operating skill
- Limited levels of risk with respect to adverse events



- Life cycle cost is reasonable
- Dry fertilizer product may be sold to generate revenue for the Region

Alternative #4: Thermal Reduction to Ash

This alternative would reduce the current digested and dewatered biosolids to ash for use as an industrial input such as in the making of cement, or disposal in landfill. A limited amount of storage would be needed for this alternative. In the Region of Waterloo, there is no current industrial use for the ash so the product would likely be landfilled.

Evaluating the Alternative Summary of Results



- Alignment with current Regional infrastructure, with some flexibility to adapt to future change
- Potential to align with other Regional management initiatives in the future



- Identified potential risks of contamination to the surrounding environment (air, water, groundwater) that can be mitigated
- High level of energy demand and greenhouse gas emissions
- End product goes directly to landfill



- Low volume of end product that is easy to manage



- Lower impacts to the surrounding community resulting from odour and trucking.
- Noise, dust, and other nuisances can be well managed



- More sophisticated technical process, requiring greater operating skill
- Limited levels of risk with respect to adverse events



- Life cycle cost is reasonable
- Final ash product does not have market value and would have a cost associated with landfilling.

Life Cycle Cost
\$271M

Greenhouse Gases



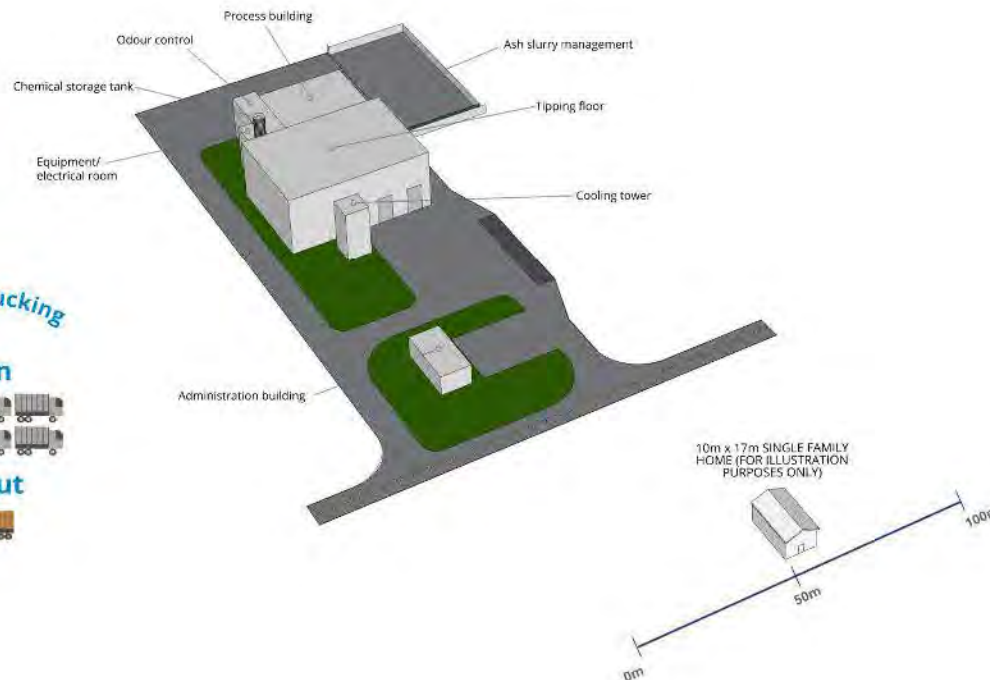
Equivalent to
approx. 6,000 cars
driven for 1 year

Daily Trucking

In



Out



End Uses



LANDFILL

Overall Evaluation Summary

OBJECTIVE

Align with existing infrastructure



Alternative #1: Produce Fertilizer

Centralized

Decentralized



Alternative #2: Produce Compost



Alternative #3: Produce Dried Low Volume Fertilizer

Centralized

Decentralized



Alternative #1: Thermal Reduction to Ash



Protect the natural environment



Protect health and safety



Minimize and manage operational risk



Protect quality of life



Be cost effective and provide value



What is the Process to Implement the Strategy?

The Region's current biosolids management approach can be continued into the next decade, provided that contingency storage is constructed as soon as possible.

The Biosolids Strategy would be updated around 2025 to confirm that the Preferred Strategy is still the best route forward.

Completion of the
Region's Biosolids
Strategy + Council
Adoption

Continue with current or similar approach to biosolids management

2018

2028

2049



Operational (10-day) storage
added for contingency
purposes at or near three main
wastewater treatment plants



Update Biosolids
Strategy



Pending results of updated Biosolids
Strategy, commence detailed planning
for Preferred Strategy



Implement & operate
Preferred Strategy

By-the-numbers Consultation Summary



Upcoming Schedule

EARLY 2018

- Presentation of the Draft Biosolids Strategy to Region Council
- 30-Day Public review period for the Draft Biosolids Strategy document and pop-up events across the Region.

SPRING 2018

- Finalization of the Biosolids Strategy

How You Can Help...

Give us your feedback on the project objectives, evaluation criteria, and strategy alternatives, to help us as we develop the short list of alternatives.



Ask questions today



Fill out the survey here or online



Sign up for our contact list



Visit www.regionofwaterloo.ca/biosolids

Join the conversation on Facebook and Twitter....



www.facebook.com/ROWWaterServices



[@RegionWaterloo](https://twitter.com/RegionWaterloo)

And if you have questions or comments, please do not hesitate to contact:

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Senior Project Engineer

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Email: kyajima@regionofwaterloo.ca

Meeting Minutes

Region of Waterloo

Biosolids Strategy

Minutes of Stakeholder Committee Meeting 1: June 22, 2016, 6:00pm – 8:00pm
150 Frederick Street, Kitchener – Room 110

Attendees:

Committee Members

- Albert Mansour
- Andy Clipsham
- Anthony Polischuk
- Bob Burt
- Catherine Shields
- Constance Walker
- Craig McLeman
- David Brattan
- Donald (Don) Hoekstra
- Louis Silcox
- Matthew Day
- Patrick McElligott
- Robert (Bob) Miller
- Robert Musselman
- Roland Cober
- Vince Pellegrino
- Hank VanVeen

Committee Members Absent

- Beverly Hale
- Neil Ritchie
- Reuben Scholtens
- Sarah Wolfe
- Wayne Caldwell

Region of Waterloo

- Kaoru Yajima (Project Manager)
- Jorge Cavalcante
- Nancy Kodousek

Dillon Consulting Limited

- Bill Allison (Project Manager)
- Karla Kolli
- Morgan Boyco

Facilitator

- Ron Brecher

Observers

- One (1) observer present

Attachments:

- Meeting Agenda
- Presentation Slides
- Region of Waterloo Conflict of Interest Policy

Goals of the Meeting:

- Meet the group
- Get acquainted with the project history and progress to date
- Discuss key issues that matter
- Provide feedback on project engagement and outreach approach

Key Discussion Points

1. Welcome and Introductions (Region of Waterloo – Kaoru Yajima; Ron Brecher – Facilitator)

- Kaoru provided a welcome, introduction to the materials provided to each Committee member (binder of project information), and introduced Ron Brecher as the meeting’s facilitator.
- Ron outlined his role as facilitator of the meeting, highlighted the meeting dos and don’ts, ensured attendees that the Region values and would like to encourage the diversity of opinions in the room, and emphasized that this is the first step in a process that is “forward focused” – the Region would like the Committee to provide advice that will help with planning for the future.
- Region staff and consultants in the room then provided introductions.
- Ron outlined the meeting agenda, the goals of the meeting (listed above), and introduced the first discussion exercise.

2. Small Group Discussion (led by Ron Brecher)

- Attendees were given 10 minutes to discuss two questions at their tables: 1) Come up with a definition of biosolids; and 2) What do members of the community generally *think* biosolids are (highlight understanding, perceptions and attitudes).
- Each table was asked to identify a spokesperson and report back on the results of their conversations. Some results from each table included:

What is your group’s definition of biosolids?

- Everything that finds its way into the sanitary sewer system (all solids, everything you deal with through the sewage system).
- Semisolid residue of wastewater treatment, anywhere between slurry and sludge and cake.
- Most people at the table didn’t know; guessed that it was processed organic matter.
- Dried up organic matter from sewers.

What do members of the community generally think biosolids are?

- Don’t think members of the community understand at all what that word means (it’s a recent word); most people would say it’s “just poop”.
- If the public thought of anything, it would be sewage sludge, they would have a negative impression.
- The stuff that’s flushed down your toilet; it stinks; there would be concern about effects, toxins, possible negative impacts on the environment.
- Human excrement, sludge, green bin waste, yuck, wouldn’t want it in their back yard (NIMBYism), disease-carrying.

- In summary, Ron indicated that the Committee has identified slightly different interpretations of the term and possibly a negative public perception of biosolids.

3. Part 1: Committee Orientation and Project Overview (led by Kaoru Yajima)

- Kaoru described how the Committee will work, introduced the Terms of Reference, reviewed the Project structure, and outlined an expectation that Committee members will communicate out to their respective networks.
- Kaoru provided the Project team's working definition of biosolids, recognizing that biosolids are a complicated subject and that the team has tried to come up with a definition that is free of jargon: Biosolids are, "A nutrient-rich, organic material that is the by-product of wastewater treatment."
- A Committee member questioned why the term "nutrient-rich" was added. Kaoru indicated that biosolids do contain nitrogen and phosphorous.
- A Committee member commented that we know that there are materials in biosolids that are not so good and questioned whether we should modify the definition to include mention of those negative elements as well. Kaoru indicated that, yes, these other materials are there, but that research is finding that these substances are found in very small amounts and we have to question whether they have an effect. Ron summarized that the current definition seems to have some value-laden words (positive value) that do not reflect the full definition of the material. What's there is true, but not complete and perhaps more balance in the definition is needed.
- Kaoru went on to outline what the Biosolids Strategy is all about, highlighting the continued growth in the Region as an important driver. He detailed the evolution of biosolids management in the Region since 2003.
- A Committee member wondered if there has been work done in this since 2003, why so many people are still unaware and why is there still uncertainty about the definition of biosolids on the part of the Region. The Region replied that master plans are very high level processes. The Region tries to reach out, but people don't get engaged until it impacts them directly. Also, there is a challenge of making the language used interesting/accessible to people. For the current Biosolids Strategy, the Region is trying to engage people/attract interest and take a different approach to better engage the public.
- Kaoru shows two samples of biosolids (liquid biosolids after the digestion process and the more solid cake form after the dewatering process)
- Kaoru highlights that we are not looking for a facility site as part of this process.
- A Committee member questioned whether this project would discuss site characteristics. Kaoru responded that, yes, it will.
- A Committee member questioned who will decide the site? Kaoru responded that after the strategy is approved, the Region will move to the next phase, a Class Environmental Assessment process, wherein there will be further public engagement. The Region will build on previous engagement activities and the current Committee membership will absolutely have an opportunity to participate in that process.
- A Committee member questioned whether the goal is to have one preferred alternative or a shortlist? Kaoru answered this by outlining the Project Process.

4. Part 2: Tell Us Your Thoughts (led by Karla Kolli – Dillon Consulting)

- Karla stated that the Project team is doing all the things it can to broaden the spectrum of people who are engaged with and understand the Project.
- Karla introduced the seven key themes from consultations to-date.

5. Small Group Discussion (led by Ron Brecher)

- Ron introduced the next group discussion activity. The team was looking for input from the Committee on where the priorities are, related to the seven key themes outlined by Karla. Ron indicated that the team was expecting there to be differences. He asked the Committee members to discuss in their groups what three issues they think are the most important and why.
- Some results of this discussion are outlined below, including the top three priorities (numbered) and the reasons why (in brackets):
 - 1. Public health and safety (it is the measuring stick, must be considered first and foremost).
 - 2. Infrastructure needs, evaluation of existing infrastructure and compatibility (we need to consider the limitations of existing infrastructure, minimize costs, use what we have, and consider the public perception that will question why we need to change; we will need to communicate why we are considering something new).
 - 3. Resiliency, technology (we must consider the full life cycle of equipment to 2051; consider technology's ability to adapt).
 - 1. Public perception (if public has proper understanding of what the project is about, they will be more receptive to the proposed solution).
 - 2. Public health and safety (important; covers off some of the interdependencies between other issues; public safety must include all safety aspects).
 - 3. Resource (potential use of biosolids in agriculture or other applications; could be a resource used in other areas).
 - 1. The entire grouping of health and safety. 2. Quality of life. 3. Environment. However, what might be important for people will depend on the preferred strategy proposed. It is difficult for people to choose the issues that matter when they don't have the context.
 - (Not ranked) 1. Public perception of alternatives (important that people take up ownership/responsibility; we need to find a way to talk about it). 2. Seeing biosolids as a resource (benefits for agriculture, energy source; maximize value). 3. Preservation of environment (do something that benefits the environment). Finding the balance between these factors is the challenge.
 - Additional ideas for issues that matter: Considering the "environmental lifecycle" and the "carbon cycle".
- Ron summarized the commentary from the discussions: public health and safety, community perception, environment, and quality of life are all of great importance. However, there was a sense that it is too premature to rank importance.

6. What We Have Heard So Far and Key Concerns (led by Karla Kolli)

- Karla outlined some of the key highlights from what we have heard so far. A Committee member commented that we need to move away from not only talking about the potential of one facility, but ensure we consider solutions with multiple facilities as well.

- Another Committee member questioned whether we should have youth representation on the committee.

7. Our Consultation Approach (led by Karla Kolli)

- Karla outlined the diversity of ways the Project team has been reaching out to the community. The Project team will continue to give these opportunities throughout and at key phases of the project.
- A Committee member questioned how does the press get a hold of information? There was a suggestion that press releases get issued regularly. Bill Allison highlighted that the Project will have articles in the Region's EnviroNews and that a couple articles have appeared in the Record newspaper as well.
- The Committee members offered other thoughts on how to engage residents of the Region, including the use of Instagram, engaging with university students, putting video ads into movie theatres, and working with university professors to integrate the Biosolids Strategy into 4th year university classes.
- A Committee member questioned how many Stakeholder Committee meetings there would be. When Kaoru indicated that there were 4-5 meetings planned over the duration of the study, some Committee members indicated that there should be more. The Region confirmed that it is open to increasing the number of meetings if it is warranted, but needs to be when Region has sufficient material to present.

8. Next Steps and Close (led by Kaoru Yajima)

- Kaoru reviewed the next steps, indicated that the next Stakeholder Committee meeting would take place in the Fall, focusing on criteria.

Region of Waterloo

Biosolids Strategy

Minutes of Stakeholder Committee Meeting 2: February 8 2017, 6:00pm –
8:00pm

150 Frederick Street, Kitchener – Room 110

Attendees:

Committee Members

- Bob Burt
- Donald (Don) Hoekstra
- Louis Silcox
- Robert (Bob) Miller
- Robert Musselman
- Roland Cober
- Vince Pellegrino
- Michelle Grodzki
- Beverly Hale
- Hank VanVeen
- Sarah Wolfe
- Eden Cameron

Committee Members Absent

- Neil Ritchie
- Reuben Scholtens
- Wayne Caldwell
- Andy Clipsham
- Anthony Polischuk
- Matthew Day
- Patrick McElligott
- Catherine Shields
- Constance Walker
- Craig McLeman

Region of Waterloo

- Kaoru Yajima (Project Manager)
- Jorge Cavalcante
- Nancy Kodousek

Facilitator

- Ron Brecher

Observers

- Robert Milligan

Dillon Consulting Limited

- Bill Allison (Project Manager)
- Karla Kolli
- Morgan Boyco
- Mike Thomson
- Zahra Jaffer

Attachments:

- Meeting Agenda
- Presentation Slides
- Discussion Package
- Handouts

Goals of the Meeting:

- Provide a progress update on the project
- Discuss current technical work
- Provide an outline of the upcoming engagement cycle and gain feedback on the materials and approach

Key Discussion Points

1. Welcome and Introductions (Region of Waterloo – Kaoru Yajima; Ron Brecher – Facilitator)

- Ron opened the meeting and noted the goals of the meeting with respect to collecting feedback from the committee on the decision making criteria and strategy alternatives.
- The rules for observers and participants were recapped.

2. Administrative items

Confirm previous meeting minutes

- Committee members were asked to provide any comments on the notes from Meeting #1 by February 15th.

Progress update: Key Items

- The project team has developed education materials including a colouring book and teacher activity sheets for 5th grade curriculum to be used as tools in developing community knowledge on the topic of biosolids management.
- Two new student members welcomed to the committee following feedback on this item from the last meeting.

Project review

- Kaoru provided a brief overview of the wastewater treatment and biosolids management process in the Region.
- Bill provided an overview of the three components of a strategy and the process to getting to a preferred strategy.

3. Current Technical Work

- Karla described how the objectives inform the decision making process and the importance of engagement to the process
- This section of the presentation walked the group through the minimum performance thresholds which are used as screening criteria – any alternative considered would need to pass by answering yes to all the questions on the list of minimum performance thresholds.

Discussion

In breakout groups the committee considered if there were any criteria that were missed and if the criteria made sense. Key comments included:

- The criteria seem to tie back to the objectives.
- The 5 objectives that have performance thresholds attached seem appropriate but there is some ambiguity in how the questions are framed, the team may need to be more specific about the meaning of the terms used in the questions e.g. quality of life
- Thoughts for Step 2 evaluation:
 - i. Should the concept of a net zero solution be considered?
 - ii. Opportunities for funding depending on the type of solution proposed e.g. Guelph
- New climate policy is relevant and could be captured, for example by using market forces to guide decision making – the team could consider introducing a new question specifically relating to net energy.
- Wider discussion suggested that alternatives shouldn't be screened out purely on the basis of energy balance, as it is more of a question of marketability of the product.
- Agriculture is not on the list of items so maybe the 'provide value' item should be brought forward as an additional performance threshold as a screening item and then further explored in the detailed evaluation.
- Ideas for alternative titles: Screening Criteria, Screening Questions, Initial performance threshold, initial performance questions, initial performance requirements.

Presenting the Options

Mike provided an overview of the approach to developing the strategies in terms of research and due diligence and how the alternatives were packaged.

- A Request for Information to technology vendors was issued last fall to gain further insight into the latest developments in the biosolids industry.
- An infographic was shown to illustrate how key information would be conveyed to the public.

Discussion

In breakout groups the committee considered the presentation of the alternatives and how clarity could be improved. Key comments included:

- There are some words in the matrices around end use etc. which may need to be defined for the public.
- The graphics could be improved to convey more detail e.g. show the truck on a road.
- Think about the emotions that might be evoked by the words and images e.g. energy produced, opportunities vs. end uses, using a truck which might seem negative to some.

- Many people will be quick to interpret information negatively so be as neutral as possible.
- Better explanation for some terms may be needed e.g. fertilizer instead of agriculture use
- Some people are listeners, others are graphics oriented so having someone there to answer questions by the boards is crucial.
- On the end use item in the matrix, the symbol looks like a garbage truck, should be changed to convey something more general or neutral. Make it a cool looking truck if it has to be there.
- The word disposal is very negative and would be associated with garbage
- Suggestion to try and show the volume or magnitude of material trucked if that is needed. The project team explained that it would be premature at this stage to represent the volume of material involved for each alternative.
- Could have a follow up session at the PCCs to provide more detail for those who want it.
- Maybe use the overall 3 buckets graphic for each of the alternatives to provide a sense of space and volume as well.
- In the list of end uses, agriculture has a very specific connotation, as does farming, crop, etc. so perhaps soil enhancement/soil amendment/soil enrichment would be a better term.
- There's only a few non-agriculture possibilities, perhaps these should also be listed
- Opportunity for innovation is missing from the description, should add an icon or something to indicate the potential for that.

4. Our Consultation Approach (led by Morgan Boyco)

- Morgan presented a number of the techniques the team is considering for the next round of consultation and the rationale behind integrating a range of opportunities to engage or participate

Discussion

In breakout groups the committee considered the Stage 3 consultation approach and ways to improve engagement. Key comments included:

- Important to have a speaker that is engaging but also correct on the message e.g. distancing biosolids from 'poop'.
- Make it easy for people with children to bring them – family friendly events.
- Mothers are a major audience group that often gets missed – figure out how to get them engaged.
- Make sure venues are transit friendly.
- Use buses/park benches/movie previews to get the message out.
- Use animations and video to get information out.
- Use humour to get attention at the initial level e.g. Herman Comic
- Using a draw could be something related to the Region's services e.g. water efficiency kit
- Reuse existing videos and cut them back if needed.
- Use the pop up tool and go to where the community is to capture that audience e.g. Children's Groundwater Festival.
- Use champions on the committee to get out to some of the community groups/clubs/organizations etc.

- Build a series of case studies about where biosolids have ended up and share them online.
- Needs to be some call to action so use tools to have people get engaged in an actionable way.
- Get a high profile name to attract an audience e.g. Carl Zehr.
- Offer a prize for attendance/participation.

5. Next Steps and Close (led by Kaoru Yajima)

- Kaoru reviewed the next steps, indicated that the next Stakeholder Committee meeting would take place in the spring, focusing on the short list and detailed evaluation criteria.
- Additional ideas on venues for the three PCC events should be forwarded to Kaoru by email.
- Any edits to the minutes of Meeting #1 distributed by email to be provided to Kaoru by February 15th.

Region of Waterloo

Biosolids Strategy

Notes of Stakeholder Committee Meeting 3 + Public Workshop: June 21, 2017,
5:00pm – 8:00pm

Region of Waterloo, 99 Regina Street S., Room 508

Attendees:

Committee Members

- Donald (Don) Hoekstra
- Andy Clipsham
- Neil Ritchie
- Catherine Shields
- Michelle Grodzki
- Grahame Farquhar
- Bob Burt
- Patrick McElligott
- Anthony Polischuk
- Roland Cober
- Vince Pellegrino
- Eden Cameron
- Robert Musselman
- Craig McLeman
- Beverly Hale
- Robert (Bob) Miller

Region of Waterloo

- Kaoru Yajima (Project Manager)
- Jorge Cavalcante
- Nancy Kodousek

Facilitator

- Ron Brecher

Committee Members Absent

- Reuben Scholtens
- Wayne Caldwell
- Matthew Day
- Constance Walker
- Louis Silcox
- Hank VanVeen
- Sarah Wolfe

Dillon Consulting Limited

- Bill Allison (Project Manager)
- Karla Kolli
- Morgan Boyco
- Mike Thomson
- Zahra Jaffer
- Linda Li

Members of the Public

- Brandon Moffat
- Paul Wilson
- Kim Rideout
- Phillip Wu
- Karine David
- Bob Bauer
- Marie Bauer

Attachments:

- Meeting Agenda
- Presentation Slides
- Workbook

Goals of the Meeting:

- Provide a progress update on the project.
- Gather input on the short list of alternatives and the detailed criteria for evaluating the short list.

Key Discussion Points

1. Welcome, Introductions, and Project Update (Region of Waterloo – Kaoru Yajima; Ron Brecher – Facilitator)

- Ron opened the meeting and noted the goals of the meeting with respect to collecting feedback from the committee on the decision making criteria and strategy alternatives.
- Kaoru provided an overview of the project and a brief explanation of the key drivers for the Strategy.
- As population increases in the Region, current strategies will need to change based on legislation changes, economic trends, operational risks, and innovations.
- Three key considerations for the Strategy from the Region's perspective:
 1. Need for volume reduction and storage;
 2. Suitability of applying biosolids to land;
 3. Operational risk management and allow for new opportunities.

2. Project Technical Review and Short List (Dillon Consulting – Mike Thomson)

- Mike provided an overview of the current biosolids management process in the Region. He also explained the process used to develop a long list of eight alternatives for managing biosolids into the future, and then shorten that list using a series of 'Minimum Performance Questions', designed to identify alternatives that would work in the Region of Waterloo.
- A set of four alternatives have been shortlisted:
 - i. Produce fertilizer from biosolids.
 - ii. Produce compost from biosolids.
 - iii. Produce dry fertilizer pellets from biosolids.
 - iv. Thermal reduction of biosolids to ash.

3. Q&A

Q: Where does green bin waste go?

A: Green bin materials are currently collected and then processed at a Guelph compost facility. Biosolids team will make sure to communicate with the solid waste team when developing the biosolids strategy.

Q: Why is agricultural land application using biosolids allowed only once every 5 years?

A: The Province controls the application of biosolids under the category of 'Non-Agricultural Source Material (NASM)'. The rate is designed to meet nutrient requirements of the crop, based on the nitrogen cycle and phosphorous content of the soil.

Q: How long will it take to reach the capacity in land reclamation in Sudbury?

A: Land application in Sudbury presents some uncertainty with respect to the long term future. Currently the sites in Sudbury that are receiving biosolids have indicated that they could continue to accommodate the volume received for another 10 to 20 years. From a regulatory perspective, they would likely have a permit that will require renewal at some point.

Q: Does the ash from thermal reduction go into landfills?

A: The ash would go to an approved landfill or for industrial use such as mixing it in with cement.

Q: Was the public consulted in the evaluation of the long list and development of the short list of alternatives?

A: Through public consultation events and an online survey, input from the community on the Minimum Performance Questions was gathered which were used to evaluate the long list.

Q: What is the number of trucks going to Sudbury for land reclamation currently?

A: On average, a couple of trucks a day

4. Discussion Question #1 (Whole Group) – Is the process to short list the alternatives clear?

- The group indicated general agreement that the short list is clear and the process for arriving at the short list made sense.

5. Discussion Question #2 (Breakout Groups) – What should be considered when comparing short list strategies?

The Workshop attendees broke up into five groups arranged based on the Project Objectives, to discuss the criteria associated with each of the Objectives. Each group was assigned a facilitator from the project team (Region and Dillon Consulting). A summary of the feedback received is provided below.

Breakout Group: Align with Existing infrastructure

- How compatible is the alternative with existing Regional wastewater and biosolids processing infrastructure?
 - Can it be done onsite within the footprint of current wastewater treatment plants?
- How much new supporting municipal infrastructure is required (e.g. roads, power and water services, etc.)?
 - Consider if the design of the facility could produce potential for carbon credits, and how that affects costs and the technologies being evaluated.
- Can the alternative solve other municipal needs?
 - Confirm with other Region servicing departments if there is any potential for synergies in planning for waste management.

- How vulnerable is the alternative to changing government regulations, policies and market demands?
 - Consider if it is important for the infrastructure to be sited within the Region and be responsible for our own needs.
- Does the alternative allow us to accommodate future population growth?
 - Important that the alternative be adaptable to a growing population.

Breakout Group: Protect Health and Safety

- Does the alternative provide opportunities to lower health and safety risks to the public?
 - Key considerations that should be assessed under this criteria:
 - Air quality
 - Groundwater protection
 - Contaminant such as heavy metals
 - Pharmaceuticals and personal care products
- What are the relative health risks posed to workers for each alternative?
 - Key considerations that should be assessed under this criteria:
 - WHMIS
 - Need to consider potential for fire and fire coverage
 - Complex facilities tend to have more employees, which could result in greater health and safety risks for workers
- Does the alternative improve the quality of biosolids to reduce potential health and safety risks compared to the existing approach?
 - Integrate any current studies on rural impacts into the assessment of quality of biosolids and health and safety.
- Does the alternative meet industry best practices for protecting health and safety?
 - Consider whether the best practices are designed to meet the most up-to-date tests possible.
- Other criteria and comments
 - Address population growth under this objective with respect to how it could affect health and safety.
 - Consider odour impacts under this objective.

Breakout Group: Protect Quality of Life

- How will odour impacts be reduced?
 - Consider any other air quality issues that have health impacts
- How will visual impacts be reduced?
 - Consider a minimum buffer for any new facilities
- How will trucking impacts be reduced?
 - If we accept biosolids for processing from other jurisdictions, it will increase trucking within the Region.
- Other criteria and comments

- o Consider property value impacts as a result of implementation of the alternative
- o The Strategy should note the need to confirm that zoning is up-to-date when siting any new facility
- o Groundwater contamination in non-serviced areas (well water quality) - Private well owners may experience different impacts to water quality/groundwater quality as their water does not come through the same treatment process as those on a municipal system.

Breakout Group: Protect the Natural Environment

- What are the environmental effects of the alternative (on air quality, surface water quality, groundwater quality, soil, etc.)?
 - o Key considerations that should be assessed under this criteria:
 - Footprint of the site
 - Storage
 - Species impact
 - Soil contaminants
 - Pharmaceuticals and PCPs
- Does the alternative use energy or generate energy?
 - o Can heat capture be integrated as a means of energy recovery?
 - o Will the buildings themselves be built to sustainability standards?
 - o Will facilities achieve net zero energy consumption?
- Is the alternative adaptable to climate change impacts?
 - o Consider how rainfall events would affect end use options and also run-off of biosolids into water bodies/storm sewers
 - o Consider how storage needs would be impacted by climate change – for example the need for more storage as a contingency in the event of severe weather events.
- Other criteria and comments
 - o Will there be an estimate of the confidence in the assessment based on data sources and criteria?
 - o Species impact should be considered as well at the Regional scale and guidance integrated into the Strategy for when a facility is to be sited in the future.

Breakout Group: Minimize and Manage Operational Risk

- How do the end use or disposal options affect the risk of disruption to biosolids management services?
 - o Reliability of end use is key.
 - o The distance to and type of end user or market would be a factor in the risk of the management approach.
 - o Consider how the rate of production of biosolids matches with end users' ability to absorb the material.
 - o Control of the supply of product would be important to ensure the long term sustainability of the approach

- o Planning for contingencies is key to allow for emergencies and unpredictable events that may disrupt the approach.
- Do the trucking requirements affect the risk to the biosolids production process?
 - o Environmental factors (GHG, Air quality) should be assessed as part of the trucking needs assessment.
 - o Weather and access to roads could present elements of risk.
 - o A spill of biosolids as the result of a trucking accident could affect local municipalities – the risk of this or ways to mitigate the risk should be assessed.
- Can any new storage or other facility that is needed for the alternative be built in Waterloo Region to help lower operational risk?
 - o Consider if storage facilities could be built on the property of the end use receiver or outside the Region.
- How complex is the alternative?
 - o Elements of complexity that should be assessed include:
 - Recruitment and training needs associated with implementation of the alternative.
 - Risk associated with more processing infrastructure.

6. Report Back (Led by Ron Brecher)

- The facilitator for each group provided a summary of the key points raised in the breakout discussions.
- Additional feedback for the criteria under each objective was collected from the room at large as part of the reporting back.
- It was noted that there is some overlap in the criteria across objectives – this is because the objectives based approach allows for a single issue to be examined through a variety of lenses. The various components of the evaluation will be brought together in the end to form a cohesive narrative that explains how each alternative compares against all of the objectives set out for the Strategy.
- Final comments received from the group:
 - i. This is a very exciting project of great interest to the community
 - ii. The Strategy development process is on the right track, look forward to the future and seeing the outcome
 - iii. It is important to have people understand how the Region reached the answer – clarity in the evaluation is crucial.

7. Wrap-up and Thank You (Bill Allison and Kaoru Yajima)

- Bill reviewed the next steps in the project process, with a number of ‘pop-up’ events and an online survey which are opportunities for the wider community to provide feedback.
- Additional feedback from the Committee and attendees on the alternatives to be provided to Kaoru by July 31st, 2017 for consideration in the evaluation.



REGION OF WATERLOO
Biosolids Strategy
Stakeholder Committee
Meeting #4

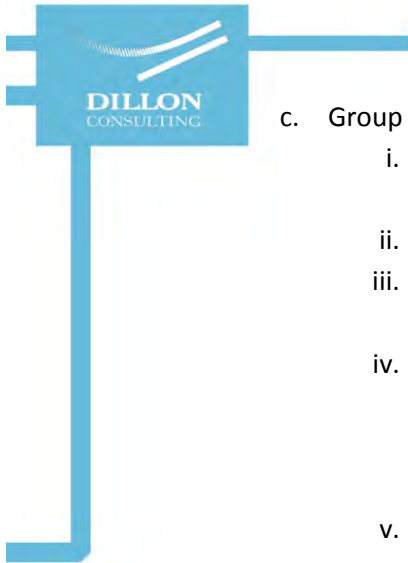


Draft Notes – Agenda Item #4

Thursday November 16th, 2017; 5:00 pm to 7:30 pm
Region of Waterloo, 150 Frederick St. Kitchener

Tour of the Upcoming PCC Boards

- a. Group 1 questions:
 - i. What is the quantity in cubic metres of 10 days' worth of storage?
 - ii. Why are there different trucking numbers for centralized and decentralized?
(NB: asked by both groups)
 - iii. RE: Schematics – Could the facilities be underground or multiple levels?
 - iv. What is the difference between compost and fertilizer? (NB: suggestion to do a brief overview of the differences between each of the alternatives – Biosolids 101)
 - v. What are the amendments necessary for compost?
 - vi. What do lifecycle costs include? (NB: suggestion to better explain what lifecycle means)
 - vii. Is there a value for the fertilizer? Is this reflected in the lifecycle costs? Could it be?
 - viii. Did the size of the facility make it the evaluation criteria?
- b. Group 1 comments:
 - i. Better clarity about what biosolids are – this is not human waste.
 - ii. One stakeholder member suggested that the use of Olympic size swimming pools might be tricky for some people to relate to, suggested use of a more relatable comparator like a stadium.
 - iii. One member suggested that the biggest concern for the public when they come for the PCC will be groundwater protection.
 - iv. Stakeholder raised a concern that 4 months is not enough storage. He would suggest aiming for 8 months.
 - v. Suggestion to include some verbiage about who made the evaluation and developed the summary (for transparency)
 - vi. Consider how the description of end products is framed; using the term 'higher quality' for products of the alternatives might suggest that there is a lower level of safety related to the current approach



- c. Group 2 questions:
- i. If there is only 10 days' worth of storage being proposed for the future, what happens in the winter currently?
 - ii. How many trucks are going to Sudbury?
 - iii. Is there enough local agricultural demand to handle the products produced by the biosolids processing?
 - iv. Why are the trucking quantities higher for decentralized versus centralized? What is the metric as to why trucking is twice as high for Alternative 1 vs Alternative 3? (NB: outline trucks coming in with biosolids for processing, amendments, etc. and out with the end-use products)
 - v. Is there an advantage to decentralizing the facility? Would it be better to have it closer to the end user (i.e. Farmers)?
 - vi. Were tipping fees included in the analysis?
 - vii. RE: Environment - Why are there double arrows up in Alternative 3 and one neutral for Alternative 2? For both, the description on the alt panels seems to be generally positive. (NB: maybe more description on the panel about the amendments that need to be shipped in for Alt 2 and the footprint of this alternative)
- d. Group 2 comments:
- i. Confused about storage and how that works. Better explanation of storage needs and limitations.
 - ii. Suggestion to break down the "Why we need a strategy" board into positives and negatives (as opposed to grouping all six components together). Also suggested to break it down to only two subsections (not six) to make it clearer. He believes the most important point is that KW is growing and cannot keep up with current system. Needs to be better articulated, perhaps as 'needs' vs. 'opportunities'.
 - iii. Have not heard any discussion on sustainability. In stakeholder's opinion, it should be made clearer that currently everything is shipped out of KW and nothing is kept in the region. Suggestion that under these alternatives, the waste could stay in in the Region and would not be going into landfill or to Sudbury.
 - iv. Possibly provide more stats on distance biosolids are currently travelling and how the alternatives could reduce that.

Consultation Approach + Discussion

- Market value of the end product as well as soil nutrient benefits would be an item that people would be interested in
- Make sure we are clear that the public is coming to the meetings understanding that this is a WHAT process and not WHERE or WHEN

Region of Waterloo

Biosolids Strategy

Notes of Project Technical Advisory Committee Meeting 2: June 2nd, 2017, 2:30pm
– 4:30pm

150 Frederick Street, Kitchener – Room 110

Attendees:

Committee

- o Kaoru Yajima (Project Manager)
- o Nancy Kodousek
- o José Bicudo
- o Jorge Cavalcante
- o Donna Serrati
- o Joanne Ing
- o Mark Anderson
- o James Pickering
- o Adam Lauder
- o Michelle Sergi
- o Connie Bogosat

Dillon Consulting Limited

- o Justine Giancola
- o Karla Kolli
- o Mike Thomson
- o Zahra Jaffer

Facilitator

- o Ron Brecher

Purpose of Meeting:

To provide an update on technical work completed over spring 2017, discuss the criteria for analysing the short list of alternatives, and discuss the upcoming round of public consultation sessions for Stage 4 of the project.

Key Discussion Points

1. Welcome and Introductions (Ron Brecher)

- Ron led a round of introductions for all present.

2. Project Update (Region of Waterloo)

- Region provided an overview of the process and intended outcome of the Biosolids Strategy.
- The Strategy aims to answer questions about the needs of the Region and develop a set of alternatives to meet those needs; once the preferred alternatives is established, questions including the need for a site will be answered as part of subsequent projects.
- The project kicked off in 2015 with a Launch Event featuring Bob McDonald. The project team has worked to bring the community along in the decision-making process through

community events and online surveys. There has been a big education component of the project to talk to citizens about what they think is important for the Strategy to consider.

- Over fall 2016 and early winter 2017, the team developed a long list of alternatives that can be used to manage biosolids, based on a review of the North American context and proven technologies. This long list was then combined with some Minimum Performance Questions to develop a short-list of viable alternatives for the Region.

3. Project Technical Review (Dillon Consulting Limited)

- Dillon provided an overview of the current management process that processes biosolids in the Region. It is important to note the magnitude of the Region's investment to date in dewatering equipment to reduce the volume of biosolids needing to be transported.
- Last fall, through the Region's Finance Department, the Region carried out an RFI (Request for Information) process to ask vendors to provide information on their biosolids processing technologies. The responses showcased the various technology options that are available on the market, and that information was built into the technical work to develop a long list of alternatives.
- Dillon provided an overview of the Minimum Performance Questions (MPQ) that were used to determine which alternatives would be suitable for the Region. The MPQ's align with the project objectives and were developed with feedback received from the community on the issues that matter. An alternative was required to meet all MPQ's in order to proceed to the short list.
- Storage is a critical piece of a sustainable strategy going forward, as the Region currently has a just-in-time approach in place (consisting of approximately 3 days' worth of storage capacity) which does not provide enough contingency planning support to meet current and future needs.
- Cost was not considered as a factor in creating the short list, but will be a part of the detailed evaluation of the short listed alternatives in the upcoming phase of technical work.

4. Results of Long List Evaluation (Dillon Consulting Limited)

- Dillon presented an overview of the long list of alternatives for biosolids management.
- The first two alternatives were allowed to move forward in the short term, but would not be stand-alone alternatives in the long term. Alternatives #7 and #8 were eliminated as they did not meet all the Minimum Performance Questions.
- It was noted that while Alternative #8 (Landfilling all biosolids) is not a preferred management approach, it may be necessary to hold landfilling as a contingency disposal option when other end use options are not available.
- Question: Would it be possible to not use the digestors and go straight to Alternative #7 and recover energy from biosolids?
 - There are one or two plants in the Province that do that, but given the investments in digester technology and equipment made by the Region to date, it would not be

appropriate to go down that path, particularly since there is considerable life span remaining in the installed infrastructure.

5. Discussion of Short List Evaluation Criteria (Dillon Consulting Limited)

- Dillon presented the objectives for the project and the corresponding criteria that were developed that will be applied to the short-listed alternatives.

Discussion of Criteria

- General comments/questions:
 - The number of questions under each objective seems to suggest that some of the objectives are more important than others – need to balance this so as not to bias the public in terms of apparent importance of some objectives vs. others.
- *Build on existing infrastructure*
 - Question: What will the metrics be for evaluation of this objective?
 - Dillon explained that the metrics will primarily be cost and residual life span, along with impact on current operations.
- *Protect the natural environment*
 - Comment: Some of the questions seem to be quite interlinked/consider rolling them up into one overall criteria
 - Phrasing of the questions need to be consistent especially with the use of words like 'benefits' or 'impacts'
 - Question: Is there a need to include a question on water quality specifically?
 - Dillon explained that this question is being considered in the environmental benefits question which will delve into air quality, soil quality, groundwater quality, water body quality, and so on.
 - It is expected that none of the alternatives will change the impact to water quality since that is a factor of the water treatment process that takes place before water is released to the environment.
 - Add in brackets what the particular environmental parameters are that are being included in the environmental question as this is too broad on its own.
- *Minimize and manage operational risk*
 - Add the word 'operational' before 'risk' wherever it appears because otherwise 'risk' may be interpreted as relating to a health and safety risk.
 - Are there any nearby municipalities that have facilities that could be included in the strategy in terms of transferring management to those facilities?
 - The Strategy scope is to develop a made-in-the-Region solution that allows the Region to maintain greater control; transferring management out of the Region would potentially produce greater operational risk if a receiving facility were to no longer accept the biosolids being sent there.
 - What's the size and character of any site(s) required?

- At this point in the Biosolids Strategy, the long list, this has not been established. General features of an alternative will be provided in the next stage which is an evaluation of the short-listed alternatives.
- It was noted that storage will be a key part of the strategy. Not having a storage facility is risky over the long term, however it was also acknowledged that it may be difficult to site the larger it is.
- *Protect Quality of life*
 - Add trucking and traffic to the list – quantity of trucking and effect on local traffic
 - Dillon noted that the alternatives would measure against the current approach in terms of current trucking as a baseline, with detail on whether an alternative reduces the number of trucks and what the contents are of the trucks.
 - Consider breaking down the list - being more pointed and specific about the impacts that are being evaluated would be useful.
 - Add siting characteristics of each alternative because people will want to know if based on the technologies the facility could be placed in an urban or agricultural area.
- *Protect health and safety*
 - Consider adding trucking considerations in this list because there is a perception that it is human waste that is being trucked down the street and people want to know what the health risk is to their families.
- *Be cost effective and provide value*
 - Ron explained that innovation is a theme that has come up before, but the word 'innovation' does not refer to new or emerging technologies but rather whether or not the alternative offers an opportunity for the Region to add value to the strategy.
 - Question: Does not seem like innovation on its own is very important – do we need this criteria?
 - Region noted that this question will likely be split to separate innovation from providing value to the Region.

6. Outline of Upcoming Public Engagement and Next Steps (Dillon Consulting Limited)

- The next round of consultation will wrap up in early July. Consultation for the short list evaluation is scheduled for Fall 2017

7. Final Questions/Comments (Ron Brecher)

- The communication materials and presentation look very appealing and are easy to follow.
- Criteria to be slightly refined to improve consistency and make them as easy to understand.

ACTIONS

- Committee to share any additional comments on the criteria with the Region by end of July 2017.

Region of Waterloo

Biosolids Strategy

Minutes of Project Technical Advisory Committee Meeting #3: October 13th, 2017,

2:30pm – 4:00pm

150 Frederick Street, Kitchener – Room 110

Attendees:

Region of Waterloo

- o Kaoru Yajima (Project Manager)
- o Nancy Kodousek
- o Trevor Brown
- o Adam Lauder
- o Adam Ripper
- o Margaret Parkin
- o Dominika Celmer-Repin
- o Donna Serrati
- o Jane Mitchell
- o Shilling Yip
- o Lisa Williamson
- o Sandra Cooke
- o Steve Allen

Dillon Consulting Limited

- o Bill Allison (Project Manager)
- o Karla Kolli
- o Bram Bontje
- o Sabrina Stanlake
- o Zahra Jaffer

Facilitator

- o Ron Brecher

Purpose of Meeting:

To provide an update on technical work completed over summer 2017, discuss the evaluation of the short listed alternatives and implementation approach, and discuss the upcoming round of public consultation sessions for Stage 5 of the project.

Key Discussion Points

1. Confirmation of Previous Meeting Minutes and Project Update (Region of Waterloo)

- No follow-up items were identified from the previous meeting minutes
- An overview was provided of the project process to date and reminder of how the alternatives were short-listed.
- Update provided on the range of consultation activities conducted to date and the number of people engaged through these avenues.
- The issues that matter were grouped into seven main categories that were used to develop the project objectives, with the individual issues used as a basis for the

evaluation criteria. Public engagement has been the backbone of the decision-making process

- The selection of alternatives started with a long list of 8 alternatives that were short listed using minimum performance questions to create a short list of 4 alternatives
- Summer activities involved the detailed evaluation and some public consultation to confirm the short listed alternatives
- A range of engagement tools and channels were used to reach a broader spectrum of the community through online and community based 'pop-up' events at local festivals and community events across the Region.

2. Evaluation Approach (Dillon Consulting)

- The 7 Objectives for the Project were used to develop detailed evaluation criteria. An example of the evaluation matrix was shown to illustrate how indicators were identified for each criteria, which were then applied to each of the short-listed alternatives.
- A detailed numerical scoring system was not used. Our approach was an objective led methodology
- The team developed criteria and indicators for each Objective integrated with feedback from stakeholders
- The evaluation is being completed at qualitative and quantitative levels with both types of indicators
- The scale used to judge the performance of a given alternative ranges from 'not well aligned' to 'very well aligned'

3. Four Short Listed Alternatives + Evaluation Results (Dillon Consulting)

- Four alternatives were short listed for detailed evaluation, two of which were also assessed in terms of performance of a centralized (single facility) layout or decentralized (four facilities located at or adjacent to existing WWTPs across the Region) layout. The decentralized layout considers one facility in each of Kitchener, Waterloo, and Cambridge (to be located at or in close proximity to an existing wastewater treatment plant), with a fourth one to be located in one of the Townships, possibly at or adjacent to the Ayr WWTP.
- The four alternatives each produce a particular type of product some of which has a beneficial market value. The four alternatives, numbered consistently from the long list in the previous consultation round are:
 - Alternative #3: Produce Fertilizer - Canadian Food Inspection Agency – certified fertilizer product
 - Centralized Layout
 - Decentralized Layout
 - Alternative #4: Produce Compost - Compost Class A category, with only 25% by weight biosolids and the remainder consisting of an organic added amendment
 - Alternative #5: Produce Dry, Low-Volume Fertilizer - Much drier fertilizer product

- Centralized Layout
- Decentralized Layout
- Alternative #6: Thermal Reduction to Ash - which does not produce a usable product and essentially results in disposal of the biosolids
- Key differentiators were selected to highlight the difference between alternatives
- All alternatives include a 10-day storage facility for biosolids coming out of the current process as it awaits the final processing step. The second type of storage included is 4-months of storage for processed biosolids coming out of the last step in processing. This is to hold biosolids awaiting transport to its ultimate end use or disposal destination.
- For the decentralized layouts, available space at existing facilities or adjacent to existing sites would be considered to reduce disturbance to new neighbourhoods. A centralized facility would be located in an appropriately zoned area.

Discussion of the Evaluation Results:

- It was noted that the 'approximate' (~) symbol on each of the summary slides was not clear, should be changed to spell out the word 'approximately'
- Question: What do the GHG Emissions calculation include?
 - Answer: GHG emissions show the amount of emissions as a result of running the processing facility for a year and includes all trucking associated with getting unprocessed biosolids to the facility and then out of the facility to the end use or disposal location.
- Question: Is there an end use product out of the four alternatives that has more value?
 - Answer: From a financial perspective the CFIA (Canadian Food Inspection Agency) fertilizer product from Alternative 3 or 5 would be more attractive because it is required by law to be sold, cannot be given away.
 - Stakeholders had advised that the decision should not be based on whether there is a market value for the product. Thus market value is not one of criteria used to evaluate the alternatives.
- Question: For the Non-agricultural soil amendment end use, what does this involve?
 - Answer: This end use option currently involves transport of processed biosolids to Sudbury for reclamation of former mine tailings ponds.
- Question: Why are there more trucks shown on the decentralized layout options?
 - It should be noted that there is a difference in trucking between centralized and decentralized layout options due to the type of material that is being received at a facility – in a decentralized scenario, more dewatering may be done at the new receiver facility thus resulting in a larger number of trucks as the volume of biosolids before dewatering is higher. In a centralized scenario, more dewatering would be done at the existing wastewater treatment plants before being transferred for final processing.

4. Developing the Strategy

- Technologies in the preferred alternative(s) will be revisited at the time of implementation to ensure that the latest and most effective technologies are considered
- A number of risks could trigger the choice to move forward with implementation. A number of these are outside of the Region's control (external).
- In addition there are two main focus areas in the current system: the need for operational storage of biosolids and the continuation of biosolids haulage arrangements similar to the current approach.
- Question: Are any shifts in regulatory scheme predicted that may cause concern?
 - Answer: Not at this time. However, the Region should closely follow whether the Province implements an organics ban in landfills and whether or not that would include biosolids, which is the Region's contingency plan.
- It is possible to continue with the Region's current approach beyond 2030 (provided operational storage and haulage can be confirmed). However, the biosolids strategy should be updated in a future year to confirm.
- Question: In implementing a decentralized option, would all 4 facilities be needed at the same time?
 - Answer: Not necessarily – the Region could build the facilities sequentially, thus the roll-out of the preferred Strategy could be phased.

5. Stage 5 Consultation Approach

- As part of the next round of consultation, the team will be closing the feedback loop with the community – showing the revised criteria and providing some feedback on how the input received from the community was used
- Suggestion: The team will need to take the feedback received in previous surveys and bring back the themes and answer to how they were integrated into the evaluation
- Question: Is it possible to gauge whether awareness has increased of biosolids in the community? Would like to think that things have improved since the start of the project
 - Answer: The Region is considering whether this can be done through a survey

6. Next Steps (Dillon Consulting Limited)

- Slides from the presentation will be provided to the Committee to provide any additional feedback.
- Next round of public consultation taking place December 5th, 7th, and 14th
- The team is also creating a summary booklet to provide as a primer on the Strategy.



APPENDIX L:

Comments Register

Content Guide

Appendix L

- **Comments Received via Surveys:**
 - o Survey #1 Results and Comments
 - o Survey #2 Results and Comments
 - o Survey #3 Results and Comments
 - o Survey #4 Results and Comments
- **Comments Received via Event Feedback Forms**
 - o Launch Event Comments (November 17, 2015)
 - o Public Workshop Comments (June 21, 2017)
 - o Stage 5 Public Open House, Kitchener (December 5, 2017)

SURVEY #1

Biosolids Opinion Survey - Region of Waterloo Fall 2015									
Respondents:		211 displayed, 211 total			Status:		Closed		
Launched Date:		11/16/2015			Closed Date:		02/05/2016		
1. Do you recall hearing about the Region's previous Biosolids planning?									
						Response Total	Response Percent	Points	Avg
Yes						36	61%	n/a	n/a
No						23	39%	n/a	n/a
Total Respondents						59			
(skipped this question)						152			
2. Rate how aware you were of the Region's previous Biosolids Plan. On the scale below, 1 means 'not at all aware' and 7 means 'very aware' of the previous Biosolids Program.									
	1	2	3	4	5	6	7	Response Total	Response Average
Awareness	22.03% (13)	16.95% (10)	16.95% (10)	10.17% (6)	11.86% (7)	10.17% (6)	11.86% (7)	59	3.51
Total Respondents						59			
(skipped this question)						152			
3. How would you rate the likely results of the Region's biosolids planning efforts?									
						Response Total	Response Percent	Points	Avg
Excellent						5	9%	n/a	n/a
Good						18	31%	n/a	n/a
Neutral						9	16%	n/a	n/a
Fair						1	2%	n/a	n/a
Poor						4	7%	n/a	n/a
Not Enough Information						21	36%	n/a	n/a
at This Time to Decide									
Total Respondents						58		100%	
(skipped this question)						153			
4. Do you agree that biosolids have financial value for the Region and for taxpayers as a source of fertilizer or energy?									
						Response Total	Response Percent	Points	Avg
Strongly Agree						19	34%	n/a	n/a
Agree						20	36%	n/a	n/a
Neutral						5	9%	n/a	n/a
Disagree						2	4%	n/a	n/a
Strongly Disagree						4	7%	n/a	n/a
Not Enough Information						6	11%	n/a	n/a
at This Time to Decide									
Total Respondents						56		100%	
(skipped this question)						155			
5. To what extent do you believe that processing biosolids effectively removes undesirable content, for example bacteria, and makes them safe?									
						Response Total	Response Percent	Points	Avg
Very Effective						15	27%	n/a	n/a
Effective						19	35%	n/a	n/a
Neutral						6	11%	n/a	n/a
Ineffective						3	5%	n/a	n/a
Very Ineffective						2	4%	n/a	n/a

Not Enough Information at This Time to Decide		10	18%	n/a	n/a
		Total Respondents	55	100%	
		(skipped this question)	156		
6. If you were provided with more detailed information, how likely would you be to change your mind about biosolids?					
		Response Total	Response Percent	Points	Avg
Very Likely		2	4%	n/a	n/a
Likely		25	45%	n/a	n/a
Neutral		17	31%	n/a	n/a
Unlikely		8	15%	n/a	n/a
Very Unlikely		3	5%	n/a	n/a
		Total Respondents	55	100%	
		(skipped this question)	156		
7. Please rank your level of concern for noise, odour, and traffic.					
	Very Concerned	Some Concern	Little Concern	Response Total	Points Avg
Noise	40.74% (22)	38.89% (21)	20.37% (11)	54	n/a n/a
Odour	59.26% (32)	33.33% (18)	7.41% (4)	54	n/a n/a
Traffic	31.48% (17)	46.3% (25)	22.22% (12)	54	n/a n/a
		Total Respondents	54		
		(skipped this question)	157		
8. If there is another item you might be concerned about other than noise, odour, or traffic, please list it in the box below.					
		Total Respondents	32		
		(skipped this question)	179		
9. If you lived near a new biosolids facility what suggestions would you have for the Region?					
		Total Respondents	36		
		(skipped this question)	175		
10. Using biosolids locally protects the environment and air quality compared with trucking long distances for processing, other uses, or disposal.					
		Response Total	Response Percent	Points	Avg
Strongly Agree		17	32%	n/a	n/a
Agree		17	32%	n/a	n/a
Neutral		11	21%	n/a	n/a
Disagree		1	2%	n/a	n/a
Strongly Disagree		2	4%	n/a	n/a
Not Enough Information at This Time to Decide		5	9%	n/a	n/a
		Total Respondents	53	100%	
		(skipped this question)	158		
11. Using biosolids locally increases noise and odour in neighbourhoods around a biosolids facility.					
		Response Total	Response Percent	Points	Avg
Strongly Agree		5	9%	n/a	n/a
Agree		8	15%	n/a	n/a
Neutral		11	21%	n/a	n/a
Disagree		18	34%	n/a	n/a
Strongly Disagree		1	2%	n/a	n/a

This Time to Decide					
		Total Respondents	53	100%	
		(skipped this question)		158	
12. Using biosolids locally lowers costs for taxpayers because the Region can sell or use the biosolids instead of paying to truck them away.					
		Response	Response		
		Total	Percent	Points	Avg
Strongly Agree		7	13%	n/a	n/a
Agree		22	42%	n/a	n/a
Neutral		8	15%	n/a	n/a
Disagree		3	6%	n/a	n/a
Strongly Disagree		4	8%	n/a	n/a
Not Enough Information		9	17%	n/a	n/a
at This Time to Decide					
		Total Respondents	53	100%	
		(skipped this question)		158	
13. Using biosolids locally is a bad idea. We should get other communities to use our biosolids.					
		Response	Response		
		Total	Percent	Points	Avg
Strongly Agree		0	0%	n/a	n/a
Agree		1	2%	n/a	n/a
Neutral		10	19%	n/a	n/a
Disagree		10	19%	n/a	n/a
Strongly Disagree		23	43%	n/a	n/a
Not Enough Information		9	17%	n/a	n/a
at This Time to Decide					
		Total Respondents	53	100%	
		(skipped this question)		158	
14. Please select up to three (3) types of people you believe should be on the stakeholder committee.					
		Response	Response		
		Total	Percent	Points	Avg
Scientists/University Professors		27	51%	n/a	n/a
Local Government Employees		9	17%	n/a	n/a
Ratepayers Group		14	26%	n/a	n/a
Environmental Advocacy Groups		21	40%	n/a	n/a
Elected Officials		9	17%	n/a	n/a
Business Owners		4	8%	n/a	n/a
All of the Above		18	34%	n/a	n/a
None of the Above		2	4%	n/a	n/a
Other, please specify		14	26%	n/a	n/a
		Total Respondents	53		
		(skipped this question)		158	
15. Suppose you wanted to receive information from the Region about its biosolids plans. Please choose your two (2) preferred methods to receive that information.					
		Response	Response		
		Total	Percent	Points	Avg
The Region's Website		18	34%	n/a	n/a
Social Media		3	6%	n/a	n/a
Email		31	58%	n/a	n/a
Direct Mail		7	13%	n/a	n/a
Newspaper		5	9%	n/a	n/a

Television		1	2%	n/a	n/a
Radio		2	4%	n/a	n/a
Public Meetings		15	28%	n/a	n/a
All of the Above		11	21%	n/a	n/a
None of the Above		0	0%	n/a	n/a
Other, please specify		2	4%	n/a	n/a
view					

Total Respondents	53
(skipped this question)	158

16. Please indicate the city or township where you currently reside.

	Response Total	Response Percent	Points	Avg
Cambridge	11	21%	n/a	n/a
Kitchener	14	27%	n/a	n/a
Waterloo	11	21%	n/a	n/a
Township of North Dumfries	6	12%	n/a	n/a
Township of Wellesley	0	0%	n/a	n/a
Township of Woolwich	2	4%	n/a	n/a
Township of Wilmot	3	6%	n/a	n/a
Outside the Region of Waterloo	5	10%	n/a	n/a

Total Respondents	52	100%
(skipped this question)	159	

17. Please indicate the highest level of education you completed. (optional)

	Response Total	Response Percent	Points	Avg
Elementary school	1	2%	n/a	n/a
High school	2	4%	n/a	n/a
Apprenticeship or trade certification	2	4%	n/a	n/a
Community college	8	16%	n/a	n/a
University - one degree	18	36%	n/a	n/a
University - more than one degree	19	38%	n/a	n/a

Total Respondents	50	100%
(skipped this question)	161	

18. For statistical purposes, please use the slider to select the year in which you were born.

Total Respondents	52
(skipped this question)	159

19. Please indicate your gender. (optional)

	Response Total	Response Percent	Points	Avg
Male	31	70%	n/a	n/a
Female	12	27%	n/a	n/a
Other	1	2%	n/a	n/a

Total Respondents	44	100%
(skipped this question)	167	

20. If you have any other brief comments, please type them into the box below. For more detailed comments, please provide them directly to the project team in paper or email format. Thank you.

Total Respondents	23
(skipped this question)	188

SURVEY #2

Planning for a Sustainable Biosolids Strategy in Waterloo Region

What issues matter most to you?

All Registered Responses sorted chronologically

As of April 11, 2018, 6:11 PM



Engage Region of Waterloo is not a certified voting system or ballot box. As with any public comment process, participation in Engage Region of Waterloo is voluntary. The responses in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

Planning for a Sustainable Biosolids Strategy in Waterloo Region

What issues matter most to you?

As of April 11, 2018, 6:11 PM, this forum had:

Attendees:	614
Registered Responses:	67
All Responses:	340
Hours of Public Comment:	17.0

This topic started on May 30, 2016, 4:21 PM.

This topic ended on October 3, 2016, 9:48 AM.

Planning for a Sustainable Biosolids Strategy in Waterloo Region

What issues matter most to you?

Responses

You have 10 dots to distribute between the issues. Add more dots to the issues you believe matter most (see the diagram below for some of the factors that make up these issues).

		%	Count
Quality of Life		15.9%	105
Health and Safety		19.5%	129
Community Impacts and Values		8.9%	59
Infrastructure Needs		11.2%	74
Environment		26.5%	175
Economic Impact		6.8%	45
Logistics (Management of Biosolids)		10.0%	66

Quality of Life

		%	Count
Containing odour		45.2%	149
Reducing noise		17.3%	57
Lessening truck traffic		24.5%	81
Limiting visual impacts		12.1%	40

Health and Safety

		%	Count
Ensuring worker health and safety		40.6%	134
Ensuring public health and safety		58.5%	193

Planning for a Sustainable Biosolids Strategy in Waterloo Region

What issues matter most to you?

Community Impact and Values

		%	Count
Taking into account community acceptance the of proposed solutions		29.7%	98
Addressing needs of the agricultural community		41.2%	136
Considering public perception of using waste as a resource		28.2%	93

Infrastructure Needs

		%	Count
Making the best use of existing infrastructure		23.1%	75
Building the right infrastructure		39.4%	128
Considering the ability for infrastructure to change and adapt to future needs		37.2%	121

Environment

		%	Count
Considering the contribution to climate change		13.0%	43
Level of energy consumption		9.1%	30
Considering pharmaceuticals and other contaminants in wastewater and biosolids		24.5%	81
Prioritizing using waste as a resource		13.9%	46
Preserving habitat and biodiversity		15.8%	52

Planning for a Sustainable Biosolids Strategy in Waterloo Region

What issues matter most to you?

		%	Count
Protecting wetlands and groundwater		23.3%	77

Economic Impact

		%	Count
Consideration of capital, maintenance and operations costs		38.8%	126
Job creation potential		24.0%	78
Factoring in the re-sale value of biosolids as source of energy or fertilizer		35.4%	115

Biosolids Management Logistics

		%	Count
Biosolids transportation considerations		23.9%	79
Biosolids storage considerations		23.0%	76
Finding suitable locations for biosolids use and disposal		50.9%	168

**Are there any other issues that matter that should be considered in the decision making process?
Please explain.**

See Summary Table on next page for responses.

Biosolids Strategy Survey #1: Biosolids Opinion Survey

Comments Received to Open-ended Question

Comment	Response/Action
thanks for backing and planning this process with more education i felt people were not informed the last time and a few horror stories were told .	Comment noted
Thanks for back tracking on earlier decision. I believe education of some up those up in arms is needed	Comment noted
Thanks for inviting me. I actually have some experience with biosolid systems... my engineering company has been working on one in Florida for several years (troubleshooting it since their capacity was way down when they started it up.) One thing that is important...hire a good engineering company who knows how to write specifications that have performance guarantees in them that actually have TEETH!	Comment noted
Get on with an option, dalying too long. Try a strategy with multiple options, minimize risk	Comment noted, input carried forward to issues that matter
combining the biosolids with an enegery from waste facility might be a win win win proposition addressing landfill capacity, electrivity supply and stp wqaste residue removal	Comment noted, input carried forward to issues that matter
more public education and engagement	Comment noted, input carried forward to issues that matter
dont [REDACTED] with our [REDACTED]	Comment noted
good effort in using a public forum to invite public input	Comment noted
We need a sustainable solution regardless of business interests or costs. This requires leaders with the guts to stand up and take meaningful action. Our parents' generation left us with a huge problem, our generation is turning a blind eye and the next generation will pay the price unless we fix this.	Comment noted
nice show...could have used more directional signage to theatre	Comment noted, carried forward for future events

Biosolids Strategy Survey #1: Biosolids Opinion Survey

Comments Received to Open-ended Question

Comment	Response/Action
School talks are a great ideal. Not just about BioSolid. Teach them the entire process. They have been taught about what happens to their garbage, now teach them about poop.	Comment noted, carried forward to education materials.
ELHI kids should be made more aware of what our water resources mean to us including the cost to their parents.	Comment noted, carried forward to education materials.
I feel that there a lack of understanding of the issues by the general public. Those attending and interested in forums and education sessions are already aware of some of the problems and are interested in solution finding. How to we get these other people on board in their understanding and willingness to become part of the solution? It is the same with water conservation, recycling, green bin use and reduction of waste. Why do people listen more to marketing of advertisers saying they need xyz product than to resource managers they're paying to make their quality of life greater? As a society we avoid a user pay system but I think when targets are set, use of a resource beyond those reasonable targets should pay. Most of the time it just takes the formation of a new habit in the home and workplace.	Comment noted
This study should not only consider the biosolids produced, but also the biogas. It is another energy source that can be captured and utilized for other purposes like power generation and heating.	Comment noted, Region currently implementing co-generation
Numerous European countries burn biosolids for power generation. Since we have a company in Cambridge who is associated with this we should pursue this. It will reduce biosolids and provide electricity at the same time.	Comment noted, input carried forward to issues that matter
The Region should always look for ways to save taxpayers money and support its local businesses and create jobs for Canadians first and foremost. Do not look elsewhere for solutions that are right here and proven in our own community.	Comment noted, input carried forward to issues that matter
Please also consider the benefits that this project may have on the local economy	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #1: Biosolids Opinion Survey

Comments Received to Open-ended Question

Comment	Response/Action
can we use this as a base as we build our roads under our asphalt??	Comment noted, input carried forward to issues that matter
The survey and information leading up to it is biased. As an example, you noted that In front of a full house at the Region Museum theatre... , a full house is only 100 people and most were councilors etc, not other residents of Waterloo Region which consists of over 500,000 residents, that is 0.02%. That is actually a very poor turnout. The region did a terrible job of informing residents of the information session and secondly is now misleading the residents into thinking that it was well attended. Bob did a great job but the region did not do a good job of explaining the situation in Waterloo Region.I would appreciate an explanation as to why we can not have transparency here.Even the posters were misleading people with statements like, the organic material is used for fertilizer and the clean water is put back in the river. No mention about the pharmaceuticals, heavy metals etc and where that ends up.I was dissapointed.	Comment noted
crop farmers need to be involved since its on our land that we apply nutriates to	Comment noted, input carried forward to issues that matter
The biosolids plant should be in an area away from homes and not near protected ground water.	Comment noted, input carried forward to issues that matter
The previous biosolids plan was not well thought out: financially, technically nor consultations with various groups. I hope a better job is done this time around.	Comment noted

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
Bio solids can poison your land with high concentrations of heavy metals and super resistant bacteria. Read the book 'the Big Necessity ' by Rose George. Do Not Do This.	Comment noted, input carried forward to issues that matter
NIMBYism and public misconception can really skew a project. We NEED to get this done without making it political.	Comment noted
I'm worried about the heavy metals and other contaminants in biosolids when used as a fertilizer on farmers' fields. I do not know if the biosolids are regularly and appropriately analyzed to ensure that they are safe for food production.	Comment noted, input carried forward to issues that matter
Do not incinerate. Beneficial reuse using a Class A biosolid or CFIA fertilizer needs to be a priority.	Comment noted, input carried forward to issues that matter
\$\$\$\$\$\$\$\$\$ HOW MUCH IS THIS GOING TO COST ME !!	Comment noted, input carried forward to issues that matter
Potential energy and heat that can be generated from biosolids.	Comment noted, input carried forward to issues that matter
Public education about current procedures. I was surprised to learn trucking sludge was a major concern; however to my knowledge this already occurs through Cambridge and other cities.	Comment noted, input carried forward to issues that matter
Region failed on Green bins, should focus on backyard composting, it was successful before, cheaper, has less pollution, less trucks involved	Comment noted
long term positive benefits of making a good decision (one that is environmentally sustainable and also acceptable to the public) outweigh short term higher costs, from my perspective. Engaging the public so they better understand their role in making biosolids more environmentally safe (proper disposal of things - not down the toilet!) will be key	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
The location of the plant or other facility is of primary importance.	Comment noted, input carried forward to issues that matter
The type of chemicals that are being consumed (the chemicals in the biosolids) in the wastewater treatment plant - is this what should be going to the waste-water treatment plants - ie. look at Cambridge and the number of leaching wells around the dump.	
Doing what is right not what is most accepted or cheapest.	Comment noted, input carried forward to issues that matter
How will it affect taxes? What would be the avg. cost per year on residents/home owners/businesses over how many years?	Comment noted, input carried forward to issues that matter
Environment should be number one. And health and safety a close second. The rest is optional.	Comment noted, input carried forward to issues that matter
Nutrient reuse to decrease petroleum based fertilizer use.	Comment noted, input carried forward to issues that matter
Placement of waste sites	Comment noted, input carried forward to issues that matter
It shouldn't be near residential areas rural areas are more suitable	Comment noted, input carried forward to issues that matter
Expanding the possibilities of further uses of biosolids...Use in green space to augment plant and tree growth to reduce or even make biosolids carbon negative	Comment noted, input carried forward to issues that matter
Depending on how you plan to compile the responses, you may find a bias in the answers as certain sections had more options with the same amount of dots. This could easily lead to one section (such as environmental) suffer from a perceived lack of concern where there are more issues than dots.	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
Ensuring effluent is as clean as if not cleaner than when it entered the facility. Researching ways to lessen the impact of pharmaceuticals. Better education of what is safe to flush and what isn't. For example, more awareness on the issues caused by 'flushable' wipes.	Comment noted, input carried forward to issues that matter
Can alternatives be considered? Such as composing toilets an having agency come to empty them and use for compose for farms? We use too much water..... We flush too much down the toilet... Pharmacy drugs in water a huge problem...this is bigger issues than u can handle. People in canada are over medicated. ..as we treat symptoms not prevent illness. That too needs to change	Comment noted, input carried forward to issues that matter
You can make money off it. Do it!	Comment noted, input carried forward to issues that matter
Biosolids are not suitable for use in agricultural applications. The toxins that exist in sewage system bioaccumulate over time.	Comment noted, input carried forward to issues that matter
I read the book 'The big Necessity', which outlined some serious concerns about spreading concentrated heavy metals, biohazardous materials, and unquantifiable s**t (literally). I have friends that are farmers that have similar concerns, and don't want to poison their land forever, just to get free fertilizer.	Comment noted, input carried forward to issues that matter
If water and bio solids are a resource, then using them in a way that benefits the community that produces them.	Comment noted, input carried forward to issues that matter
Dump all waste in Brantford	Comment noted
Use it locally. No need to transport outside of the city. Each city should utilize their own biosolids.	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
It was unfortunate that there were so many options for environment and not enough dots where other items had only 3 options so you could use more dots... Just remember - not all dots are equal!	Comment noted, input carried forward to issues that matter
I think community impact should be an aspect, but definitely not the main aspect. We need long term thinking of what is going to be best for the environment in a sustainable way.	
Cambridge is appropriate location	Comment noted
research different ways biosolids can be adapted to use them in an environmentally and economically sound manner. Fertilizer, fuel, etc.	Comment noted, input carried forward to issues that matter
Quality of life in the Region, and environmental impacts on our water sources are major considerations. Utilizing bio solids as a resource, there are many options, pick one that is sustainable and move it forward. The Region has staff that are educated in this field, utilize the human resources that we have to make an educated decision on the best management strategy.	Comment noted, input carried forward to issues that matter
Issues should not be looked at in isolation. Understanding use as energy potential is likely to reduce other impacts. Environmental impacts listed here are too narrow. Either total environmental impact is prioritized or not; you can't score wetlands and water conservation differently from emissions	Comment noted, input carried forward to issues that matter
Why if the level of service is being reduced do taxes continue to rise?	Comment noted
This is kind of silly; all these things must be considered. Sometimes there aren't even enough dots to be distributed.	Comment noted
There is a noticeable foal smell in the waste treatment plant near where travel that needs to be taken care of. I believe that waste treatment plant is overburdened.	Comment noted, input carried forward to issues that matter
I believe the public is unaware of the need to deal with biosolids and education should be considered	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
is there any thought on investigating the possibilities of combining several technologies that would convert biosolids to heat -- use for electricity generation -- for heating greenhouses -- yadda yadda	Comment noted, input carried forward to issues that matter
Need to look at biosolids as a energy producer. Many places in Europe burn biosolids in an environmentally responsible way to produce energy. This would be a win win for all. We need to start thinking out of the box and not this is the way we have done things in the past and it worked then so it will work now.	Comment noted, input carried forward to issues that matter
sustainable approach that considers how technology will impact program in the future	Comment noted, input carried forward to issues that matter
I feel like expert opinions should be weighed and valued more than the general public's random opinions about this important subject matter. I don't know much about this topic, but would like to trust that the Region is hiring experts who will properly advise and make recommendations. It's lovely that you are asking for public input, but let's allow the experts to drive these processes.	Comment noted, input carried forward to issues that matter
You seem to be pushing land application over the greener Waste to Energy route. Why not eliminate the toxins by pyrolysis gasification rather than spread them on farms - and get energy back into the grid?! More scientists join outcry against land-applied sewer sludge (aka biosolids) See - http://bit.ly/20Dz4U5 and http://bit.ly/1sb2qOP	Comment noted, input carried forward to issues that matter
Ground water ground water ground water! Please use the Clean Water Act, then the ROP Source protection policies first (above all others) when looking for a location. Safe drinking water should come in this regional decision.	Comment noted, input carried forward to issues that matter
Doing the right thing despite NIMBYism should be the priority. Nobody is going to want this thing in their back yard, you'll never find a suitable location without pissing someone off. The priorities should be on finding the right location, properly managing it, and doing so in an environmentally responsible manner.	Comment noted, input carried forward to issues that matter

Biosolids Strategy Survey #2: Planning for a Sustainable Biosolids Strategy

Comments Received to Open-ended Question

Comment	Response/Action
As a resident of Cambridge, it's important that we do not feel that we were selected as the location just because Waterloo complained more loudly. The decision should be primarily fact based, not emotional, since it is likely that you will be unable to please everyone. Also, are you looking at supporting a local option - Lystek?	Comment noted
Your team should try to focus on the benefits to the community rather than the negatives to help communicate your message about biosolids. [REDACTED]	Comment noted

SURVEY #3

The Future of Biosolids Management in Waterloo Region

How will we make a decision?

All Registered Responses sorted chronologically

As of April 11, 2018, 6:16 PM



Engage Region of Waterloo is not a certified voting system or ballot box. As with any public comment process, participation in Engage Region of Waterloo is voluntary. The responses in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

The Future of Biosolids Management in Waterloo Region

How will we make a decision?

As of April 11, 2018, 6:16 PM, this forum had:

Attendees:	233
Registered Responses:	36
All Responses:	78
Hours of Public Comment:	3.9

This topic started on March 16, 2017, 1:50 PM.

This topic ended on April 27, 2017, 8:45 AM.

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comments Received to Open-ended Question: Are there any objectives not listed that we should consider?

Comment	Action/Response
No the overall guiding principles are thorough and cover all the information arenas.	Comment noted
Our world, collectively, has a problem with energy. Energy is what makes and breaks nations; it is the catalyst of peace and war alike. We've had a problem with energy since we first started comparing our tribe's caves and deciding our neighbour's was better, warmer, and we had to have them. Wars between nations, like commerce, is over power in more ways then one. I am practical in my concerns about how we as a society, as a tribe of nations, can address the fundamental issues of humanity that every civilization is built upon, the basic needs of our modern life: 1. Fire 2. Water 3. Food 4. Shelter This is a proposal to initiate a public works project that could, eventually, involve all levels of Canadian government, many new industries in the marketplace, and many nations of the world. This initiative proposes to construct an integrated group of machines that will manufacture products that provide the basic necessities of life; energy, water, and habitat. Some of these products are those already provided to an average municipal civilian population in Canada, some are not. The project involves construction of an industrial operation that will integrate a wide variety of existing municipal, provincial, and federally-managed products and services into a cohesive, automated process: 1. Electricity generation using a Canadian-designed Integral Molten Salt Reactor 2. Potable water production using high temperature distillation of urban waste water 3. Sterile planting soil production from municipal organic and human waste 4. Reclamation of building materials from recycled municipal landfill 5. Production of vegetable planting trays for food banks and soup kitchens. 6. Production of portable, modular, adaptable habitat systems for human dwelling. The initiative will provide a foundation of knowledge that can be applied to the same	Comments noted

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
operations of other municipalities. This initiative contains elements of an existing policy proposal being put forth in the Ontario Ministry of the Environment and Climate Change, Environmental Registry #012-9356. The execution of this initiative presents a situation where federal government authority over the nuclear aspect of the project, provincial authority over electricity, municipal authority over waste management, and city authority over energy and water supplies would engage in a cooperative environment for the benefit of the civilian population, on an understanding that the individual mandates of the organizations ultimately exist for the good of the nation, as a whole. If all governments work for the people, this initiative should provide a means to prove it. The Molten Salt Reactor: A Safer Nuclear Energy One objective of this initiative will be to obtain technical information on how molten salt reactors can be applied to existing municipal operations, to reduce or eliminate municipal pollution in all forms. Carbon-free electricity generation, and high-temperature industrial heat processes are the two primary products available from a molten salt reactor. Industrial process heat, through a temperature range from 550°C-1000°C, is provided in a variable capacity through the molten salt reactor's heat-exchange process. The molten salt heat exchange process can be used in manufacturing a variety of products used by municipal populations: _ Grid load-capable electricity generated with super-critical CO2 turbine systems _ Sterile water distillation of municipal waste water and storm water supplies _ Carbon-free waste solids incineration for fertilizer _ Large-scale melting of recycled plastics, aluminum, and light metals for re-use Molten salt reactors are expected to extract 200 times more energy than water reactors from the same uranium, by using an improved fission process. With fuel cost 200 times lower than conventional nuclear power, this roughly translates to around 99.5% reduction in cost per unit of electricity generated. Integral molten salt reactors, such as that designed by Terrestrial Energy in Oakville, will also consume existing spent nuclear fuel rods. Instead of being a national financial burden, the recycling abilities of a molten salt reactor makes nuclear waste a valued energy commodity. Effectively, the uranium to run a molten salt reactor could prove to	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
be cheaper than free; instead of spending money to store it as waste, we consume it in an MSR as fuel. Private Sector Opportunities Adapting MSR to Industrial Applications Municipal operations are dependent on infrastructure products from many private sectors. The MSR process opens new opportunities for industry to work with this new fluid, thermal power in their industrial processing applications. Conventional industrial processes will be adapting to use the MSR process as a heat source directly, as opposed to manufacturing heat from electricity, or fossil fuel. One example where high thermal heat is required is the distillation of petroleum from fossil fuels. The Alberta Oil Sands is an ideal example where molten salt reactors, with their intense heat generation, could be used for in-situ carbon-neutral bitumen distillation. Established markets with existing products using carbon-based industrial heat will have an incentive to develop processes that take advantage of the new MSR process. Since the MSR is expected to be eventually developed into a modular form, they will be purchased for a multitude of private and public-sector industrial applications. This initiative could be the incentive for commercial development within close proximity of the MSR, including the production of MSR products by the manufacturer themselves. Water Purification: High Temperature Thermal Distillation using 'Junk Heat' The distillation of water involves boiling at temperatures of 100-140 degrees Celsius, the extreme range of heat available from molten salt makes the energy needs for this operation almost a trivial cost consideration. There are three significant types of distillation technologies in the market, all of which rely on heat generation. These existing systems will be provided an ideal opportunity for adapting to work with the high temperatures available from the MSR process. The repository of fresh water created can also act as a final radiator for waste heat from the MSR process, allowing it to thermally disperse residual heat from the piping to the atmosphere. MSR Process Heat to Melt Municipal Recycled Plastics and Metals Conventional municipal waste recycling involves grinding plastics down to suit the melting and repackaging process. Using the principles of steel recycling, the grinding of plastics waste could be eliminated through the use of a large-scale crucibles, heated through the MSR process.	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
Melting most polymers requires an average 200 degree Celsius temperature, available as a residual by-product from the MSR process. This process can be used to prepare materials for immediate use, or to pelletize and bag for later use. Die casting aluminum, and aluminum injection molding techniques can make use of a stand-by molten metal supply. Melting aluminum scrap at 660 degrees Celsius can also be performed with the thermal heat capabilities of the MSR process. In an integrated recycle-manufacturing process, a continuous supply of ready-available molten materials would be available, on tap, for immediate use for die casting, injection molding, blow molding, or the other product manufacturing techniques. High-Temperature Sterilization Recycles Sewage Sludge into Soil A by-product of distilling waste water is the accumulation of sewage sludge; the solids of human waste can be reduced to sterile fertilizer through the use of 400-900 degree Celsius heat, available from the MSR process. Sewage sludge incinerators that use fossil fuel or electricity as a heat source already exist in the market. With the adaptation of the MSR, these existing technologies can be reengineered to use the extreme thermal heat of molten salt, eliminating the need for carbon based fuels. The ability for a community to recycle and re-use the sum total of it's local resources is what will sustain the environment around them. Ecological remediation becomes an inherent benefit to the overall objectives of the initiative, by design. Within the context of this article, it is assumed the volume of recyclable materials already manufactured for a determinate amount of time as to justify the life cycle of the infrastructure proposed. With the premise that virtually unlimited materials can be re-claimed by this process, it is conceivable that the subsequent construction of habitats for civilian purposes could be achieved in a cost-efficient manner. Modular Habitats Manufactured With Reclaimed Materials, Build To Suit Most people in our modern society are able to maintain their own existence; the world is awash in opportunity for one and all to determine what they achieve in life. Fate, however, can be fickle. This initiative's objectives are not limited to economic or ecological; cost-efficient municipal operations and remediation of the natural environment are important in themselves. These cost savings, in turn, will provide opportunities for improving other	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
public services, such as our social services. Social housing necessities for an average municipality vary as widely as the communities themselves. This initiative can provide a significant volume of building materials for use in the manufacture of prefabricated, modular habitat systems. _ Define a building / engineering specification for shipping container housing _ Portable, modular habitat systems manufactured from recycled materials _ Modular barracks – National Defense, disaster relief, civilian dwellings _ Modular electrical, water / waste water, HVAC, digital, communication systems _ Modular medical, laundry, office / meeting spaces _ Agricultural applications: recycled plastic planting trays, manufactured soil A group of standard design specifications, created and approved in accordance with laws would be created by the initiative, for the purpose of constructing modular habitats that would fit within the confines of standard inter-modal shipping containers. These designs, if the property of the government, could be a standard design specification for any manufacturing group, public or private. In effect, the manufacturing could be operated within a traditional industrial setting, anywhere. Use Inter-Model Shipping Containers as a Framework for Modular Housing Shipping containers worldwide have standard volume capacities; habitats would use the load-bearing capabilities of the containers, and be engineered to work within the varying internal space. A significant design goal is one that provides the ability to assemble containers for extended occupancy. The habitat is designed to optionally incorporate modules that contain the basic functionality of a human dwelling: _ Integral bed frames; singular and bunk, ambulatory / medical _ Shelving and storage _ Electricity, Heating / Ventilation/ Air Conditioning, medical vacuum / O2 _ Personal Hygiene: integrated toilet, shower, cabinets, vanity, sink _ Food services; refrigeration, drinking water, simple cooking, counter, sink As a single housing unit populated with no modules, the habitat would at least maintain a basic personal tent functionality with adequate floor, ventilation, drainage and egress. All designs would scale to accommodate high-volume civilian or military applications: _ large-capacity barracks _ cafeteria-scale food services	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
_ large-scale shower and toilet facilities, for example. By designing with individual through organizational accommodation in mind, the designs would be scale-able to suit the application. Larger habitats would use multiple containers that assemble to form larger, weather-tight spaces. The prefabricated, internal components of the habitat would comprise of individual walls, closet enclosures, bed frames, shelving units, seating units, shower enclosures, toilet modules, sinks, etc. These components would be designed in a fashion so that many combinations of modules can assemble within a habitat structure. This permits maximum customization of the habitats for a given application. Components would assemble together by incorporating a design concept from the popular toy Lego; interlocking components at the top and bottom of their respective assemblies, forming a rigid structure within a fabricated framework. Here is an opportunity for an icon of the global toy industry to participate in an international, ecological 'save-the-earth' promotion. Cross-industry public relations opportunities abound. Students and Seniors Provide both a Wealth of Knowledge, and Wisdom Every community has a wealth of retired citizens; inside each a lifetime's worth of knowledge, experience, and wisdom to pass on to the next generation. This initiative would provide an opportunity for retired professionals to engage in a practical, substantive manner in which to share their expertise; a project of significance that will exist to benefit their community, and world as a whole. A predominant disadvantage of civilians 50 years of age and older is their general lack of technological skills. In the case of retired professionals, the computers and software available today are considerably more complex then what was in use during their careers. Students of today are generally not burdened with technological impairment; rather their quest to better understand their respective trades and disciplines is their deficiency. With this initiative, college and university students would be in a position to teach technological literacy to the experts of their respective trades, while the experts are sharing knowledge with the students. The goal is to create a collaborative environment for students and retired professionals in the trades the initiative will require. The elders act as mentors, educators, and potentially	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
apprentice supervisors for the students engaging in the initiative. The initiative would be tasked to engage the general public, and make use of the expertise and knowledge of those who wish to participate as civilian consultants. Retired professionals in many industries can provide insight in their respective fields of expertise. With the freedom to choose their own level of engagement, the initiative could compensate in turn by managing some services that volunteers may use: transit for seniors, nutrition, medical services, and other social services. The modular habitats developed must conform to the needs of geriatric and handicapped persons; the elder-oriented nature of the initiative's overall operation should prove to ensure these aspects of the habitat design are taken into account. Considerations for the Initiative's Human Resources Public collaboration is a primary knowledge resource, and as such the initiative's operations facility would need to be highly visible, and available as a public space for educational purposes. The machinery being created by the initiative is expected to be mostly automated, so the computer software development will require significant office space. Lodging accommodations can provide multiple benefits in many aspects of the initiative. Providing technologists with a living-work environment for short-term projects helps them focus on objectives in critical situations. Crash space or lodging for software coders, engineers, and other groups should also be a consideration. General accommodations may also be needed for special guests of the initiative, including visiting engineering groups, and the elders who are contributing to the initiative. One potential site in the Region of Waterloo is 102 Fountain Street South, Cambridge. This is the site of the Preston Springs Hotel, currently abandoned. The facility is in need of renovation, which provides a real-world laboratory for implementation of the technologies being developed by the initiative. This facility can act as an implementation test site and public showcase for the modular housing products developed by the initiative. Manufacturing and Fabrication Facilities: Integration of Assemblies and Machinery The manufacturing of the machinery may require facilities, but it is expected the initiative	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
strives to out source near-100% of all manufacturing to the private sector. It would seem likely, however, some fabrication and manufacturing work space will be required to perform general maintenance or fabrication related to the initiative. Should the need arise, one potential location for manufacturing, fabrication, and industrial operations is 360 Montrose Street, North in Cambridge. It is an adequate size for fabrication, and large heavy machinery. The opportunities for post-secondary students to learn and apply knowledge may prove the justification of expanding beyond an initial fabrication facility. For this reason, the space for development work and fabrication may expand to include school campuses. An example of where such a research and development facility might be located is Conestoga College. Conestoga is already renowned in electrical, mechanical, and computer engineering; state-of-the-art nuclear sciences and the advanced industrial development would be a logical addition to the campus. Opportunities for Education and Science: Employment: Blue Collar / White Collar: ·Design/Engineering/Construction ·Integrated Molten Salt Reactor (IMSR) - Terrestrial Energy ·Nuclear Desalination ·Upgrades to Municipal water systems ·Maintenance of the physical infrastructure ongoing; never ceasing ·Thermal / Chemical processes ·Desalination ·Hydrocarbon reclamation ·Carbon sequestering ·Super-critical CO2 electric turbines Education ·Chemical Engineering ·Mechanical Engineering ·Nuclear Operations ·Ecological Conservation Agriculture: ·'Vertical' greenhouse farming	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
·'Stadium' fish farming National defense _ Mobile power & water for remote border and wilderness deployment I moved to Cambridge with my parents when I was 9, and I've been here ever since. I spent 15 years in the manufacturing sector building engineering and office automation software that was specialized for large, custom fabrication. Back at the turn of the century this factory's production and it's technology was moved to Ohio. I spent a couple of years teaching certification-level computer sciences at Conestoga. Since then I've built hundreds of computers, fixed thousands more, and integrated a lot of factory shop floors. In the process, I've helped a lot of folks in the Cambridge area get a better understanding of the technology around them; teaching computers and volunteering services for charities, and the like. I've been around here all my life, and not planning on going anywhere, anytime soon. When I was a kid I could take a drink from any stream or body of water around and I knew it was safe. Now, we filter our on-demand, on-tap municipally supplied water, if it's available, with conditioners and reverse osmosis just to get a drink of something fairly clean. I can't imagine what a glass of water from the Grand River would do to me, now. When my dad would be going to the local garbage dump it used to be a special occasion for a kid; you could wander around the place and find all kinds of neat things thrown away by others. Forty years later, I've come to realize that same mountain of juvenile joy was in fact a stack of ready-made plastic, metal, and fuel. A pile of money worth mining, and every city across the planet is sitting on one. I belong to a nation that is driven to respect the rights of individuals to live their lives as they see fit, in so long as one's will is not inflicted against others. I see these liberties bestowed and upheld in a vastly great many issues that face our humanity, and without them our nation would not be the among the leaders of the world community that we are. I observe, with great interest, how our laws expect the liberties of the individual to provide the individual with the means to fend for themselves, and when they do not the individual is classed as a burden upon society, financial or otherwise. The social fabric of a society is the energy that drives the nation and should never be under-utilized. I am a citizen of the only 21st Century we get, and as such I would rather be remembered	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
as part of those who saw the precipice of an approaching cataclysm, and chose to fight against reaching the edge.	
I think you've got them all.	Comment noted
working with other municipalities and province	Comment noted
Educate Communities on responsible wastewater disposal	Comment noted
No, i think all objectives are covered above	Comment noted
Mitigating any uncalled for events/occurrences related to personal health safety and naturally-enriched environment: In terms of the second objective, we need to significantly upgrade not only the drinking safety taps for water but also the sewage pipe filters within the infrastructure we have. That way, we can minimize any significant impact, thereby reducing any health risks in relation to biosolid material hence mitigating them through the most effective means hammering the issue right down to the very core. It'd also be the least disruptive by it being thoroughly transparent as well. By taking such measures, we prevent the possibility for any leakage of the persistent biosolid materials that come through which then crushes pollution in the process. This re-ensures and affirms that none of the bad parts of such materials that go through the filtering process cannot re-enter our waters. Upgrading our taps and filters is the most effective yet heavily efficient and most sustainable way to protect our environment and ourselves. We need to be able to re-use the good parts of such materials and be able to transfer them without impacting the environment, we also need to be able to filter out all the bad stuff which cannot be re-used which means it would also not be able to be re-processed.	Comment noted, carried forward to evaluation criteria
inherent to the cost effectiveness is the need to consider the use of brownfield and greyfield sites to build facilities which may treat/store the biosolids, to make an efficient use of land rather than put these types of facilities on greenfield site or productive farmland. Also protection of source water (also inherent to the protection of the natural environment and protection of health and safety	Comment noted, carried forward to evaluation criteria
looks inclusive	Comment noted
Longevity and scaleability as the region grows	Comment noted, carried forward to

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
	evaluation criteria
This might be included under building on existing infrastructure, but Waterloo Region has a great green bin program, which also produces organic solid waste. Shipping that waste to Guelph seems, well, wasteful. We should think about creating an integrated system where biosolids from sewage and biowaste from the green bins can be treated together.	Comment noted, carried forward to evaluation criteria
Turning waste into a resource (power, nutrients, etc.)	Comment noted, carried forward to evaluation criteria
Keep all inputs and outputs within the community.	Comment noted, carried forward to evaluation criteria
No, all above objectives appear to span critical areas.	Comment noted
looks like all bases are covered..	Comment noted
Not that I can think of.	Comment noted
a) Possible consideration: the preferred strategy must include courses of action for risk mitigation in the case of system failures. I think this is covered, though, in Operational Risk with "continual, uninterrupted service." b) I assume *measurable* project objectives, such as number of years for which the strategy will be viable given projected population growth, or expected budgetary needs, will be given with specific strategy options.	Comment noted, carried forward to evaluation criteria
Ensure alignment with population growth strategies for the region, both in terms of absolute population size and planned areas targeted for development.	Comment noted, carried forward to evaluation criteria
Can't think of any	Comment noted
No	Comment noted
cost	Comment noted
You neglected to say why this change is necessary. Why is the current system in play no longer viable? Yes. all of your aims/concerns are of importance.	Comment noted
None that I can think of	Comment noted
no	Comment noted
Not that I can think of	Comment noted

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Comment	Action/Response
The scientific case by experts AGAINST spreading biosolids on agricultural land or in forests needs to be fairly and properly heard by all, as just happened at the two day for and against Scientific Biosolids Forum held by 5 First Nations at Thompson Rivers University in Kamloops, British Columbia. Guest speakers opposed to sewage spreading included Dr. David Lewis, Dr. Richard Honour, Dr. Tom Maler, and myself.	Comment noted

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

The following comments were received related to the Minimum Performance Questions used to screen the long list of alternatives for biosolids management. These comments were carried forward for consideration.

Agree with MPQs	BUILD ON EXISTING INFRASTRUCTURE	Any MPQs to add
	If not, why	
Yes	I agree with the first question. We don't want changes to existing infrastructure but I disagree that what needs to be put in place has to be a technology with a long track record. If we are trying to be innovative we have to innovate.	
Yes		Consider adding something regarding innovation.
No	There is a need to define what the existing infrastructure is and what the commercially proven technology.	
Yes		Not only should it be compatible with current infrastructure, however, would it really meet the needs of our requirements and futureproof the Region as well?
No	In addition to the above, shouldn't we be striving for better more inovative solutions? The Region of Waterloo used to be a leader in such things	
Yes		Is exiting infrastructure worth keeping in the first place?
No	For a region as innovative as this one, we need a technically proven technology, but not a commercially proven technology. We should expect it to be plausibly used at the scale needed for this region.	
Yes	It needs to be reasonably compatible. However, if a new solution has much better outcomes in other categories, it may be reasonable to re-work some of the existing infrastructure to suit.	
Yes		Have you considered odour in the surrounding community?
Yes		Will it handle projected population growth in the Region?
No	The second question (about using proven technology) is not about existing infrastructure; it makes more sense in for the final objective: "Be cost effective and provide value"	
Yes		Is the solution financially feasible to attain.
Yes		Are there any new technologies that provide better long term outcomes even though they aren't fully compatible with the Region's existing wastewater treatment

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	BUILD ON EXISTING INFRASTRUCTURE	
	If not, why	Any MPQs to add
		infrastructure?
Yes		Can we take advantage of existing facilities in adjacent regions, or could a new facility built here be shared with other regions?
Yes		Actually, what I would like to know is what is wrong with the current approach? What are its shortcomings?
Yes	more time needs to be put into this more as it needs to be expanded to consider existing conditions of lands (not all land is the same)	is it needed? e.g. does the landfill already have organic cover available, or is it needed to enhance land that has been depleted of organic matter (heavily pesticide sprayed fields)
Yes		Yes. The project would be better if there was a mention of some form of feedback loops, during the process, but more especially, at the end of the project, with the purpose being to ensure quality, and that the performance was meeting and/or exceeding stated requirements.
No	The community should not dismiss newer technologies that might embody more risk but also greater benefit.	
Yes		Is it safe for the surrounding communities?
No	Anaerobic digesters are unnecessary and more costly to operate than high temperature gasifier technologies that beneficially use the biogas produced as fuel while destroying all harmful pathogens and chemical compounds in sewage sludge. Such biogas technology is now in its third generation of development, so much improved over the earlier experimental models. It needs to be evaluated on its engineering principles and its effectiveness in safely eliminating all the pathogens and toxic chemicals over the relatively short term that it has been operational, not ruled out of consideration because it is too new! And while gasification has the potential to actually save money compared to land spreading, such consideration is secondary to the need for a technology that can effectively eliminate the very real threat to human and animal health from spreading municipal sewage with all its pathogens and toxic chemicals in the environment.	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	PROTECT THE NATURAL ENVIRONMENT	
	If not, why	Any MPQs to add
Yes		What if environmental protections change? Why just go for the bare minimum?
Yes		If an issue were to occur how would it effect the environment?
Yes		No opinion
Yes	There is a need to define what the current regulations are.	
Yes		Does it meet the regional plan for growth and use of land?
Yes		Yes - concerning ways to go beyond and exceed minimum environmental regulations, for the long-term.
Yes		Will it continue to meet environmental goals throughout the life of the plant, and stand up to potential future regulations. Is there any further adaptive reuse that can be generated to avoid landfill
No	It should exceed current environmental regulations and be a leader in the field	Does it improve on current environmental performance and exceed environmental regulations?
Yes		In addition to such persistent regulations and requirements, pertaining to as such, are there any new standards we can possibly implement to maximize operational performance?
No	Same as above, inovative, instead of meeting, how about beating/exceeding/higher performing?	
Yes		Current regulations should be the mininum. Look to go beyond the mininum.
Yes		Is it capable of meeting potential future requirements? (ie. Does it exceed current requirements)
No	Is it best practice - rather than just meeting regulations	fits with best practice for environmental stewardship
Yes		Will it improve environmental quality in a measurable way (eg reduce greenhouse gas emissions or reduce waste in waterways)?

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	PROTECT THE NATURAL ENVIRONMENT	
	If not, why	Any MPQs to add
Yes		The Region should be striving to go beyond the current environmental regulations because they are in an industry leader position.
Yes		Is it compatible with the Region's existing Environmental Strategy?
No	Project should exceed, not just meet, current environmental regulations.	
Yes		Does it reduce net greenhouse gas emissions?
Yes		Does it satisfy good environmental stewardship, in the event that the regulations are lacking
Yes		Is it possible to consult with nature-preserving organizations to come up with more guidelines and ideas?
No	I'd prefer to see "Does it exceed current environmental regulations...". Let's do better than just meeting current environmental regulations. We are stewards of our Regions environment and need to do everything we can to protect it now. Also keep in mind that regulations are likely to change, so if we exceed the current regulations, this mitigates the risk of future re-work.	
Yes		It would be great to see if we could go beyond minimum regulations, provided provided value for the additional cost
Yes		How much long term testing has been done to ensure that at a later date there are no regrets because over time a solution turns out to be unsafe to the environment.
Yes		Does it consider long term environmental effects and sustainability?
Yes		Is the solution scalable as population grows without compromising environmental protections or becoming cost

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	PROTECT THE NATURAL ENVIRONMENT	
	If not, why	Any MPQs to add
		ineffective?
Yes		Is the long-term impact neutral? Meeting current regulations could still lead to long-term impacts. What about projected future environment - will current regulations still be 'current' in future?
No	Should exceed current environmental regulations.	
No	please expand to consider impact in surrounding land	please consider things like impact on groundwater and surface water off-site (not all sludge will remain in one place)
Yes		Can we improve and go beyond CURRENT regulations?
No	Regulations alone are not sufficient as they might lag current scientific understanding. U of W has a strong Faculty of Environment and they could be engaged to go beyond the regulations.	Should meet the regulations of world-leading municipalities and emerging scientific understanding.
Yes		Is there an impact to the natural environment outside the Region?
No	We should not be aiming for the bare minimum. Our region is committed to sustainability and should have a minimum performance question that reflect that reality	Does the system minimize cumulative impact on the surrounding environment and align with the region's sustainability plans?
Yes		You should look at the transportation impact of the different locations - we are trying to reduce carbon footprint. Where is the shorter, more direct location for the biosolid processing (from source to processing to final use)

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	PROTECT HEALTH AND SAFETY	Any MPQs to add
	If not, why	
Yes		Consider meeting more than just the minimum guidelines.
Yes		No opinion
Yes	Again, the current regulations need to be defined.	
Yes		Does it have the potential to fall short of health and safety regulations, or cause a risk?
Yes		Are there any measures we can take as a Region to make sure that there are no 'twists and ties' or 'loopholes/gaps' in relation to persistently recurring biowaste material throughput?
Yes		Is it capable of meeting potential future requirements?
No	Current best practices may be inadequate in the long term. We should at least meet current best practices, but we might exceed them. Alignment might tie use too much to current practices.	Instead: Do we align with or improve upon current best practices in the field of biosolids management?
No	First needs clarification: health and safety regulations for whom? Biosolids workers? The public (those inputting into the system)? Others doing work on waste transport systems (e.g. sewers)?	Does it have a strategy for tracking incidents, reviewing new regulations and incorporating future best practices?
Yes		Are there concerns for future health and safety - long term exposures to something...
Yes		Is the long-term impact neutral? Meeting current regulations could still lead to long-term impacts.
No	Is the current minimum being reviewed to ensure its still relevant and suitable for our generation?	

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	MINIMIZE AND MANAGE OPERATIONAL RISK If not, why	Any MPQs to add
No	'Necessary elements of implementation' need to be defined.	
Yes		Not only will we need to create pre-measures as per our own caution, however, if current storage space does not permit for such added solution, would we be willing to, as a Region, extend parts of our waste facilities to accomodate such requirements instead of having to increase costs massively by creating new localized facilities which are specifically purposed for such relevant storage biowaste?
Yes	would suggest "Are the storage requirements permitted in the Region"	if no to previous response "What would be required to meet storage requirements"
No	What is meant by control? This seems overly vague and can be interpreted in different ways. And politically, it seems that permitting requirements are open to political negotiation. Is this more about jurisdiction (region vs. province) than about risk?	
Yes		Can the Region effectively mitigate any new ongoing operational risks introduced by the changes?
No	Again are the current storage requirements adequate for this generation or should amendments be made.	
Yes		Safety review re: water treatment chemical mix up that happened? How can we prevent such things for happening when using chemicals that are treating our water system (and keep our neighbourhoods safe).

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Agree with MPQs	PROTECT QUALITY OF LIFE	Any MPQs to add
	If not, why	
Yes		What exactly does quality of life mean?
No	And flora and fauna	
Yes		Does it align with future development of the area
Yes		Regardless of where it is built, would we be able to allocate a separate proper space of the region where it would not be found to be 'intruding' in everyone's interpersonal space?
No	It may not be possible to build something like this and protect quality of life for all. Minimization of disruption may need to be considered.	
No	Should enhance quality of life- not just protect the status quo	
No	This question is very vague.	
Yes		predictions of future environmental concerns might be considered, for Each objective
Yes		What about quality of life for other living things - animals, trees, plants, fish.
No	this question needs to be more clear, e.g. what aspects of quality of life are we protecting? please list them.	
Yes		Does it protect the quality of those outside the Region?
Yes		How will trucking material to and from the site affect the area?
Yes		Not biosolid related but what about our river water and the issue of piping water from lake that was explored. Citizens using salt to treat water in home, buying bottled water for home/work = because we all know the river water flows away from Elmira area and issues still remain. Even if it is ground water..... That creates waste for our landfills (bottles) and salt water from treatments.

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Yes/No What should the questions be?	
Yes	Is it cost effective? Does it provide value?
Yes	Will a focus on cost or will this budget limit the opportunity for reuse or environmental stewardship. Are we spending enough money to be environmental, or is a high infrastructure cost and development outweighing environmental gains
Yes	Are those most directly affected meaningfully included throughout the policy and implementation processes including monitoring? Are there a diversity of stakeholders represented at the table?
Yes	Be creative and maximize innovation while reducing risk and costs.
Yes	High quality of life, safety and environmental leadership may not always be "cost effective"
Yes	Are there opportunities for the community to provide feedback on issues? Is a communication plan regarding progress in place?
Yes	"Cost effective" is very vague. I'd like a better or more concise definition of cost effective.
Yes	Not questions, but Cost Effectiveness and Value need to be defined more clearly.
Yes	Is the process one that consults with the citizens of the region widely?
Yes	Does the Region give the public input into the decision making process once a short-list of alternatives are selected? Does the chosen biosolids management strategy embody the Waste-to-Resource methods of the future? (Recovering energy and nutrients from biosolids will be the focus of the future)
Yes	"Work collaboratively" does not need further clarification. "Be cost effective and provide value" should be separated. "Be cost effective", in my opinion, means that the project should be financially neutral - neither costing or generating money. "Provide value" sounds like the project should be generating income. I do NOT think that these projects should be evaluated based on whether they generate income - that is much lower priority than many of the other considerations (such as safety and environmental impact).
Yes	Is it financially sustainable relative to alternatives?
	Consult with other organizations, such as First Nations. Compare data from other countries' with similar programs.
Yes	don't know
Yes	Keep per capita costs in line with what they are at present
Yes	Is there a contemplated charge for the use of biosolids to enhance the productivity of agricultural land?
Yes	Are the initial implementation and planned maintenance costs in line with what the Region can cover without huge tax increases and given other services infrastructure budgetary needs?
Yes	See above comment; using proven technologies that will last a long time should be in "Be cost effective and provide value." Working

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

Work collaboratively to find solutions | Be cost effective and provide value.

These two project objectives do not have Minimum Performance Questions associated with them. Do you think they should?

Yes/No	What should the questions be?
	collaboratively should require reaching out to several potential collaborators, or as a minimum remaining in open communication with the public to keep potential options coming
Yes	How can the community remain involved in decisions. Can we keep work local, eg. Local truckers, builders etc. How do we ensure a budget is accurate and adhered to - think of rim park. Can the solution handle continual city growth.
Yes	Work collaboratively - how are other municipalities/countries managing biosolids effectively, and how can we implement those strategies?
Yes	Does the cost benefit analysis demonstrate an overall positive net benefit, both in terms of qualitative impact on various areas of the region and expected dollar cost? Is the expected net dollar cost/value least sensitive to key costing assumptions?
Yes	To work collaboratively you need at least over 50% support. Projects should require a budget.
Yes	Specific goals (what is meant by value? some goal amount) could be added later with more research
Yes	Are all the stakeholders affected by the policies considered when making decisions. How is cost effective and add value determined?
Yes	need to know costs ec.
Yes	please expand to indicate what costs you mean, e.g. are you considering full-costs, are you considering external and internal costs? Also, please consider economies of scale by partnering with surrounding municipalities
Yes	I would like to see a question for cost effectiveness but I can't think of one specifically.
Yes	Does the plan make sense to a majority of third party experts (Academic researchers, practitioners, etc...) in this field?, Considering long-term and extensive costs (maintenance, clean-up, etc..) and benefits (improved yield from remediated soils, etc...), does the plan offer net benefits in most areas?
Yes	Can the alternatives be satisfied within the existing regional budget?
Yes	is the proposed solution accepted by the impacted communities? Does the proposed solution drive cost-effectiveness over the long term?
	In the end, no community should feel that they were selected just to keep the other community happy.
Yes	Water treatment and water source

Biosolids Strategy Survey #3: The Future of Biosolids Management in Waterloo Region

The following comments were received as general comments

Comment	Action/Response
Note, in the video spelling mistake Treatement (extra e) at 0:34 sec., voice is very computerized and inflection goes up at end of sentences, at 1:00 uses sounds like uzez. Otherwise, very well done and clear. Has this been graded for readability to make accessible to the general public?	Comment noted
I'd particularly like to see solutions that do not lead to biosolids being used as fertilizer.	Comment noted
Thanks for this great event!	Comment noted
I found this survey difficult to answer as many of the statements were rather broad and vague.	Comment noted
more than one alternative that makes sense for a particular region or group could be implemented.. not just one..	Comment noted
Keep up with the communication to citizens in the Region, as the strategy process moves along and after a strategy is implemented. Though not elegant, having a clear, clean, safe, cost effective biosolids solution is something we should be proud of, like our laudable waste and recycling programs!	Comment noted
I was quite surprised to see an article in the Record indicating that Region staff have already identified a preferred alternative, while this survey introduction is telling us you aren't at that stage yet. I truly hope this public input stage is genuine and not just for show.	Comment noted
If our Regional Government has truly hired knowledgeable staff in their waste management department I feel they should know the best route to take. Hopefully a better decision will be made over the catastrophic one that was made to handle our compostable matter that cost the taxpayers dearly.	Comment noted
please make sure that this important stage of the project is through. Are you consulting surrounding municipalities? are you consulting the landfill staff? are you involving universities (not only Waterloo) like Guelph who are probably research innovator ways to benefit from sludge? Are you looking at innovative site alternatives?	Comment noted
The Region of Waterloo should look at the success Milwaukee had with Miloganite; a waste water treatment byproduct used for fertilizer.	Comment noted
Why wasn't Lystek a consideration?	Comment noted

SURVEY #4

Moving Towards a Biosolids Strategy for the Region

How Will We Evaluate the Short List of Biosolids Management Alternatives?

All Registered Responses sorted chronologically

As of April 11, 2018, 6:23 PM



Engage Region of Waterloo is not a certified voting system or ballot box. As with any public comment process, participation in Engage Region of Waterloo is voluntary. The responses in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

Moving Towards a Biosolids Strategy for the Region

How Will We Evaluate the Short List of Biosolids Management Alternatives?

As of April 11, 2018, 6:23 PM, this forum had:

Attendees:	101
Registered Responses:	12
All Responses:	26
Hours of Public Comment:	1.3

This topic started on June 9, 2017, 9:29 AM.

This topic ended on August 21, 2017, 3:18 PM.

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Do you have any comments on the strategies that have been short listed?

Comment	Action/Response
Producing Fertilizer makes sense - whether pellet or other approach	Comment noted
Prefer to see the material be used as a soil amendment/fertilizer. Biosolids are a resource not a waste. Thermal reduction/incineration provides no benefit to the environment and it wastes what should be seen as a resource. The focus for the four alternative provided seems to be on minimizing the volume of biosolids. I would suggest you focus on an option that produces the highest quality biosolids possible, volume reduction while important should be not be the first priority. While volume reduction may relate to \$ saved in management of the material. A higher quality biosolids will have a larger impact on soil. Improved soil quality will in turn provide benefits in GHG reduction, soil water holding capacity, crop yields, biodiversity within the soil. These things may be hard to put a \$ figure to but they are essential for a sustainable future.	Comment noted
I prefer the first two as they require less energy to drying or incinerating and result in a usable product. I don't have enough information to distinguish the 2. The third choice would rank above incineration.	Comment noted
I think that thermal reduction of biosolids should only be used as a last resort. Doing so contributes to greenhouse gas production, and on the surface appears to be a waste of energy. My favourite solutions are those that require the least amount of energy (namely, compost). However, I can see the benefits of fertilizer production if that reduces the need for fossil-fuel-derived fertilizers.	Comment noted
Methane digester. Burn methane and solids to produce electricity. None of the above options make any sense.	Comment noted
I'm guessing the Thermal Reduction won't go over well with the general public.	Comment noted

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Comment	Action/Response
I would prefer a method that kept the minerals and other positive outcomes from biosolids if pharmaceutical outcomes were removed.	Comment noted
If it is economically feasible, it seems to me it would make sense to make something useful from the biosolids and not just turn it to ash and pt it in the landfill.	Comment noted
If the biosolids are used to produce fertilizer, compost or fertilizer pellets, we would like to be assured that pharmaceuticals and other chemicals have been removed or neutralized. No smell, please!	Comment noted, carried forward to implementation recommendations
Other than burning to ash, the proposals could be reasonable, depending on realistic costs and benefits, smell and discharge into the neighbourhoods, etc - which isn't mentioned on this page.	Comment noted
It would be preferred to make biosolids with the least amount of energy for the most return, let's say "BTU's consumes per \$ of sales".	Comment noted
They are nice in concept but I'm sure there are devils in the details	Comment noted

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Work collaboratively with the community to find solutions. There are no criteria for this objective. Any alternative selected for the Biosolids Strategy would involve community engagement and consultation. Are there any specific criteria you would suggest for this objective?

Comment	Action/Response
better educating the population about composting	Comment noted
have more compost boxes in downtown buildings, streets	Comment noted
have more compost boxes in events	Comment noted
Set a statistical target for public participation	Comment noted
Fit the needs of all community sectors, agricultural, residential, commercial...	Comment noted
no comment - being done	Comment noted
make presentations to Councils	Comment noted
Produce energy	Comment noted
Do not pay to truck material outside of Waterloo Region	Comment noted
No extra cost to residents"	Comment noted
Public forums	Comment noted
Online forums or voting	Comment noted
Community feedback is good needs to be balanced against the need for a sound strategy.	Comment noted

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Comment	Action/Response
"Have open public sessions two times a year to discuss the strategy solutions.	Comment noted
Sessions have to be time-limited and guided by facilitators.	Comment noted
Stakeholder groups should be represented."	Comment noted
Yes. A solution that would not use toxic bi-products to be spread onto our fields. You cannot control what people put down the toilets and drains.	Comment noted
work with the community to determine key criteria - cost, smell, noise, etc for evaluating alternatives	Comment noted
Make concerted efforts to engage the townships in solution-building and implementation to the degree they have the capacity to do so	Comment noted
Seek perspectives/insights of academic community	Comment noted
Consultation of industry experts and communities who have implemented the various options"	Comment noted
The designers need to do more	Comment noted

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Align with existing infrastructure: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
Does the alternative allow us to accommodate future technological developments - e.g. microbial fuel cell technology?	Comment noted, carried forward to implementation recommendations
Is the end product (eg compost) provided by any other departments (eg waste management), and can facilities be shared?	Comment noted, integrated into criteria
Will it cost millions of taxpayer dollars when we're already overpaying for the LR	Comment noted
If the end products were sold, where would the revenue go?	Comment noted, integrated into criteria
no	Comment noted
Does the alternative mesh well with alternatives being considered by neighbouring communities?	Comment noted
Is there an opportunity to join with other communities in seeking funding support for this alternative?"	Comment noted, carried forward to implementation recommendations
Are there any hazards in shipping any required materials in or the products out	Comment noted, integrated into criteria
would the project be revenue neutral?	Comment noted, integrated into criteria
How might the infrastructure disrupt or damage existing infrastructure or site/environmental features?	Comment noted, integrated into criteria
Does it fit with global warming? eg: the region becomes a desert or more likely a tornado alley	Comment noted, integrated into criteria, climate change evaluation conducted

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Protect and enhance the natural environment: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
How can companies be encouraged to do more composting	Comment noted
Does the alternative use innovative technology that supports the Canadian economy	Comment noted, integrated into criteria
What quality of biosolids does the process produce?	Comment noted, integrated into criteria
Is the alternative 'closed' to Waterloo Region, or transfer effects downstream or downwind? You can't just send it away; there is no away. We all live downstream.	Comment noted, integrated into criteria
Does the alternative provide an end-product that can replace other fossil-fuel-derived products?	Comment noted, integrated into criteria
Does the alternative provide an end-product that can replace a more energy-intensive product?	Comment noted, integrated into criteria
Carbon is not pollution!	Comment noted
What % diversion does the alternative achieve?	Comment noted, integrated into criteria
Can pharmaceuticals be removed ?	Comment noted, integrated into criteria
"How will the biosolid be tested for its safety and security?	Comment noted, integrated into criteria
Who will have oversight over the process?"	Comment noted
Are there any hazards in shipping any required materials in or the products out	Comment noted, integrated into criteria
re greenhouse gas, what is the breakdown and impact of the range of emissions?	Comment noted, integrated into criteria

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Comment	Action/Response
What is the lifecycle impact of the production and use of the alternative material (i.e. from production to use, including distribution, transport, etc.)	Comment noted, integrated into criteria
Would this alternative impact important plant and animal species?	Comment noted, integrated into criteria
Does the alternative release heat above ambient temperature?	Comment noted, integrated into criteria

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Protect health and safety: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
What liabilities to health and safety are inherent in the alternative?	Comment noted, integrated into criteria
What are the relative pollution levels of the alternative processes, especially with respect to airborne pollution?	Comment noted, integrated into criteria
Odour and damage to public spaces	Comment noted, integrated into criteria
Can pharmaceuticals be removed?	Comment noted, integrated into criteria
Who will have final say on whether a workplace practice is safe?	Comment noted
What controls are required to ensure safety in the manufacturing process? In disposal of byproducts? In shipping products.	Comment noted, integrated into criteria

Minimize and manage operational risk: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
Are there land-use compatibility issues that should be considered for siting the facility?	Comment noted, carried forward to implementation recommendations
no	Comment noted
Who will be affected nearby the biosolids production area and along the route where biosolids will be transported?	Comment noted, integrated into criteria
Biosolids should be managed at the treatment facility. Liquid waste should not be trucked away to be treated elsewhere.	Comment noted
How can we gauge the NIMBY effect to actually move forward vs the politics of indecision?	Comment noted
Is the human capital available to operate the facility in Waterloo Region if local operation is chosen?	Comment noted, integrated into criteria

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Protect quality of life: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
Potential population impact metrics from odour, traffic	Comment noted, integrated into criteria
How might the alternative encourage or support environmental stewardship and education? Can it be an asset to 'quality of life' too?	Comment noted
How will other fugitive emissions such as dust be reduced?	Comment noted, integrated into criteria
Will the project create jobs?	Comment noted, integrated into criteria
no	Comment noted
Staff should be protected from the processes.	Comment noted, integrated into criteria

Biosolids Strategy Survey #4: How Will We Evaluate the Short List of Biosolids Management Alternatives? Survey Responses

Be cost effective and provide value: Are there any additional criteria you would suggest for this objective?

Comment	Action/Response
What are the costs - financial, moral, environmental, ethical etc. of doing less then the optimum?	Comment noted, integrated into criteria
Would the biosolids product created be offered for free or at a discount to regional residents?	Comment noted, integrated into criteria
This is an opportunity for the region to make money. Do nothing if there is a net cost compared to current system.	Comment noted
no	Comment noted
Is the assessment of value going to be limited to economic value, or will it include an assessment of quality of life (human or other life)?	Comment noted, integrated into criteria
This whole survey has been propaganda. It is not for concerned citizens. It is proven that Biosolids create cancers in animals and humans. Ask a local Flamborough resident about the effects on ground waters. They will warn against biosolids.	Comment noted
How much will any longer term storage or disposal cost	Comment noted, integrated into criteria
please see earlier questions on the cost / benefit analysis	Comment noted, integrated into criteria
There is no value in being a leader	Comment noted
Effective and cheap is great	Comment noted

Biosolids Strategy Event Feedback: Summary of Comments Received

Launch Event, Kitchener – Waterloo Region Museum: November 17th, 2015

Feedback Received from Comment Forms

Comment	Action/Response
Should have been a presentation by the Region also.	Comment noted.
Incorporating the use of greywater into the plan would be good.	Comment noted.
Very engaging lecture, dynamic speaker.	Comment noted.
Disappointing – one of the poorest public information meetings I have been to – and I have gone to a lot of them.	Comment noted.
Excellent presentation but not very engaging with respect to Region issues.	Comment noted, detail on Region issues provided in subsequent sessions.
There needs to be a lot more education, not only about future options but also about current processes so that everyone in the Region is aware.	Comment noted, education materials program developed for the Strategy.
Knowledgeable speaker able and willing to answer the audience's questions.	Comment noted.
Bob MacDonald's final comments were most important to me: as a society, we waste a lot of water, energy, heat, etc. I hope that not only will the Biosolids Strategy address these waste issues, but help reduce the costs as well. I hope that technologies can be developed which are Canadian and can be sold elsewhere.	Comment noted.
A great introduction to the Biosolids Strategy for our Region. Much food for thought at the presentation. Bob MacDonald reminded us of how we need to be better stewards of our earth.	Comment noted.
As a launch it was just fine. Light on specifics but I realize there is much more to come. I was originally involved as the 1 st attempt to deal with biosolids and the Region saw fit to stop! Start over! And do it right and that's all we ask. Thank you.	Comment noted.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
More information on biosolids treatment options used in other locales in North America. Science used in these treatments – educational only! Well done, very open format. Thank you.	Comment noted.
Fun to listen to, but we will have to wait and see.	Comment noted.
Is it human waste that is problematic or other 'stuff' in the system – soaps, detergents, oils, etc.? Are pharmaceuticals an issue? What about micro beads?	Comment noted, carried forward to criteria for consideration.
Speaker is a draw but I was expecting a bit more education on the systems, how it works, what the main issues are. Education to those who are in the disinterested mainstream is key. How do we normalize what needs to be done at source, and increase individuals accountability?	Comment noted.
Great start/kickoff for providing info to the public. Looking forward to hearing more in depth about the project information.	Comment noted.
Would have liked a better technical synopsis at beginning.	Comment noted.
Went very well. Kept everyone interested and engaged...as for the format I would've like to hear more about the process but that was most likely due to the context of the event. Friendly staff and inviting atmosphere.	Comment noted.
More info that this stage is about the problem and future meetings will present options, pros and cons.	Comment noted.
Great!	Comment noted.
Thanks for bringing Bob MacDonald here to discuss the topic.	Comment noted.
Are we reinventing the wheel here? What is the approach of other communities i.e. Hamilton or Toronto?	Comment noted, lessons from other municipalities integrated into developing the Strategy.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
Grey water toilets	Comment noted.
It was reasonably interesting but I would have liked more technical details about water treatment solutions.	Comment noted.
Very informative. Thank you. Please continue public meetings and consultation throughout the strategy planning process.	Comment noted.
Bob was an excellent speaker. I am encouraged at the community involvement approach to this issue.	Comment noted.
Inspiring!	Comment noted.
Helpful to speak with the representatives. Information boards should have contained more detail. Filled out the survey already.	Comment noted.
Venue was excellent, but could have been a little larger to accommodate interest.	Comment noted.
Please bring in CBC's 'The Debaters' when we get to the next phase of the public information process.	Comment noted.
Good start!	Comment noted.
Bob MacDonald was wonderful. Use all scientific data known to develop best practices and stringent monitoring.	Comment noted.
No possible solutions offered. Would like a focus on greewater use in residential and industrial purposes. Let's see some separation of storm and sanitary. Biosolids could be burned? More public education regarding NOT flushing anything other than sh** down the toilets. Education regarding why/how we treat water. Thanks.	Comment noted, education materials program developed for the Strategy.
Well organized. Information available – good. People to talk to – good. Need to consider energy from	Comment noted, project duration

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
waste. The length of the study/strategy at 4 years is too long. When added to an implementation period it will be 8-10 years before new plant/process(es) are in place and operational. Need to be publicized, publicize, get stakeholder involvement and input! Be innovative – become a leader in the latest technology(ies) application. Set an example. When will Phase 1 be completed – in 2016?	shortened to 3 years.

Biosolids Strategy Event Feedback: Summary of Comments Received

Public Workshop and Stakeholder Committee Meeting #3: June 21, 2017

Feedback received at the workshop was obtained at 'stations' with theme areas associated with the project objectives.

Comment	Action/Response
Align with Existing infrastructure Objective - How compatible is the alternative with existing Regional wastewater and biosolids processing infrastructure? Can it be done onsite within the footprint of current wastewater treatment plants? - Consider if the design of the facility could produce potential for carbon credits, and how that affects costs and the technologies being evaluated. - Can the alternative solve other municipal needs? Confirm with other Region servicing departments if there is any potential for synergies in planning for waste management. - Consider if it is important for the infrastructure to be sited within the Region and be responsible for our own needs. - Important that the alternative be adaptable to a growing population.	Input carried forward to detailed evaluation criteria.
Protect Health and Safety Objective - Does the alternative provide opportunities to lower health and safety risks to the public? Key considerations that should be assessed under this criteria: - Air quality - Groundwater protection - Contaminant such as heavy metals - Pharmaceuticals and personal care products - What are the relative health risks posed to workers for each alternative? Key considerations that should be assessed under this criteria: - WHMIS	Input carried forward to detailed evaluation criteria.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
• Need to consider potential for fire and fire coverage • Complex facilities will have more employees, resulting in greater health and safety risks for workers • Does the alternative improve the quality of biosolids to reduce potential health and safety risks compared to the existing approach? • Integrate any current studies on rural impacts into the assessment of quality of biosolids and health and safety. • Does the alternative meet industry best practices for protecting health and safety? Consider whether the best practices are designed to meet the most up-to-date tests possible. • Other criteria and comments: • Address population growth under this objective with respect to how it could affect health and safety. • Consider odour impacts under this objective.	
Protect Quality of Life Objective • How will odour impacts be reduced? Consider any other air quality issues that have health impacts • How will visual impacts be reduced? Consider a minimum buffer for any new facilities • How will trucking impacts be reduced? If we accept biosolids for processing from other jurisdictions, it will increase trucking within the Region. • Other criteria and comments - o Consider property value impacts as a result of implementation of the alternative - o The Strategy should note the need to confirm that zoning is up-to-date when siting	Input carried forward to detailed evaluation criteria.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
any new facility o Groundwater contamination in non-serviced areas (well water quality) - Private well owners may experience different impacts to water quality/groundwater quality as their water does not come through the same treatment process as those on a municipal system.	
Protect the Natural Environment • What are the environmental effects of the alternative (on air quality, surface water quality, groundwater quality, soil, etc.)? Key considerations that should be assessed under this criteria: - o Footprint of the site - o Storage - o Species impact - o Soil contaminants - o Pharmaceuticals and PCPs • Does the alternative use energy or generate energy? - o Can heat capture be integrated as a means of energy recovery? - o Will the buildings themselves be built to sustainability standards? - o Will facilities achieve net zero energy consumption? • Is the alternative adaptable to climate change impacts? Consider how rainfall events would affect end use options and also run-off of biosolids into water bodies/storm sewers • Consider how storage needs would be impacted by climate change – for example the need for more storage as a contingency in the event of severe weather events. • Other criteria and comments - o Will there be an estimate of the confidence in the assessment based on data sources	Input carried forward to detailed evaluation criteria.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
and criteria? o Species impact should be considered as well at the Regional scale and guidance integrated into the Strategy for when a facility is to be sited in the future.	
Minimize and Manage Operational Risk • How do the end use or disposal options affect the risk of disruption to biosolids management services? Reliability of end use is key. • The distance to and type of end user or market would be a factor in the risk of the management approach - Consider how the rate of production of biosolids matches with end users' ability to absorb the material. • Control of the supply of product would be important to ensure the long term sustainability of the approach • Planning for contingencies is key to allow for emergencies and unpredictable events that may disrupt the approach. • Do the trucking requirements affect the risk to the biosolids production process? Environmental factors (GHG, Air quality) should be assessed as part of the trucking needs assessment. • Weather and access to roads could present elements of risk. • A spill of biosolids as the result of a trucking accident could affect local municipalities – the risk of this or ways to mitigate the risk should be assessed. • Can any new storage or other facility that is needed for the alternative be built in Waterloo Region to help lower operational risk? • Consider if storage facilities could be built on the property of the end use receiver or outside	Input carried forward to detailed evaluation criteria.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
the Region for example in Oxford County. • How complex is the alternative? Elements of complexity that should be assessed include: - o Recruitment and training needs associated with implementation of the alternative. - o Risk associated with more processing infrastructure.	
• Final comments received from the Workshop participants: - o This is a very exciting project of great interest to the community - o The Strategy development process is on the right track, look forward to the future and seeing the outcome - o It is important to have people understand how the Region reached the answer – clarity in the evaluation is crucial. - o I suggest being very prepared to defend the choice to eliminate ‘energy recovery’ option. That just sounds like a good thing to do. Need to point out other options would have some recovery (biogas) - o Well run event, good content, good food - o Would have liked the last alternative to have survived (the reasons it was killed are ok with me) but... - o No additional comments on the evaluation approach or criteria – seem well thought out - o There are many people who don’t know your work is being done. The final report could shock a lot of them.	Input carried forward to detailed evaluation criteria/noted for planning of future events.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
- o Well organized, we have come a long way. More input to the stakeholders from Dillon would be appreciated. - o Think more about the future generations that will have to deal with what we decide to adopt as the alternative. - o Excellent format – I learned a lot about something fairly alien to me piquing my interest, starting ideas and further connecting/networking/involvement in this subject in the community. - o Well rounded process – very integrative. - o This integrative community input approach is very comprehensive covering all facets/variables in this decision making process - o This community meeting involving the public is so important to encourage ideas from all walks of life. Thank you! - o I thought the event was very well organized, and a positive experience. Lots of opportunities for questions, comments and engagement. Information was presented very clearly and all individuals involved very very engaged. - o I look forward to meeting again at the next stakeholder meeting and learning more about the Master Plan and the evaluation approach. - o Good collaborative environment. - o The criteria used to shortlist should be made clear to the greater public – understanding why a decision was made. - o Very informative and well organized. Thanks for letting us participate.	Input carried forward to detailed evaluation criteria/noted for planning of future events.

Biosolids Strategy Event Feedback: Summary of Comments Received

Comment	Action/Response
o Don't be too narrow minded with that you want as a final product. Be able to adjust depending on demand, So far pellets seem to be the most versatile product.	

Stage 5 Public Consultation Event, Kitchener – Waterloo Region Museum: December 5th, 2017

Feedback Received from Comment Forms

Comment	Action/Response
I appreciate the openness of the process the teams have gone through. I would encourage a target audience of school kids, service clubs, public events – can you get to 6,000? That's still 1% of people in the Region.	Comment noted.

Stage 5 Public Consultation Event, Kitchener – Waterloo Region Museum: December 5th, 2017

Feedback Received from Attendees

Comment	Action/Response
The evaluation summary board is beneficial, easier to digest the information	Comment noted.
The preferred alternative is clearly Alternative 3, performs well against the objectives	Comment noted.
Would have thought that Alternative 2 would be the best performer but can see why it is not based on the size and cost	Comment noted.
Appreciate the perspective offered by the scale sized facility, especially the inclusion of the house for scale/improved understanding of size	Comment noted.

Biosolids Strategy Event Feedback: Summary of Comments Received

Stage 5 Public Consultation Event, Waterloo – Waterloo Memorial Recreation Complex: December 7th, 2017

Feedback Received from Attendees

Comment	Action/Response
Thinking about the contrast to Europe, where cities have their own biosolids management system	Comment noted.
Was unsure what the format of the event would be – drop in vs. formal presentation, need to show up at 5:00pm exactly for the start of the event vs. come and go anytime within the 2.5 hour period	Comment noted.
Contingency during construction should be factored in consciously	Comment noted.
Don't want to be putting money into this processing facility if the end product will have the same likelihood of going to landfill (if end-use benefits aren't realized)	Comment noted.
Currently living near the landfill, and was very concerned about co-locating the biosolids facility near the landfill because of odour, noise, truck traffic – therefore we objected to it. Did not want any more noise, any more trucks	
Chemical, metals, paint, cleaning products that end up in the wastewater and then in the biosolids products will get absorbed by plants when land applied	
Makes sense for the preferred alternative to be Alternative 3	

Stage 5 Public Consultation Event, Waterloo – Waterloo Memorial Recreation Complex: December 7th, 2017

Feedback Received from Attendees

Comment	Action/Response
Understand why Alternative 3 performs well against the objectives	Comment noted.
Don't think there is a reason to wait on implementation – should move forward if the preferred alternative has been identified	Comment noted.



APPENDIX M:

Correspondence Register

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Nov 10, 2015	Email – Incoming, Cambridge Environmental Advisory Committee Representative	The Cambridge Environmental Advisory Committee is interested in participating in the Biosolids Strategy. They have provided comments in the past to the Region on the Biosolids Master Plan and the Heat Drying Facility EA. At their meeting next Wednesday, they will be appointing a subcommittee that will participate in your public engagement process. I will send you their names and e-mail addresses to add to the mailing list once they are appointed. Thanks.	Early this month, we had mailed a notice about the Region's Biosolids Strategy's Launch Event to CEAC. Yesterday, the mail was sent back with a 'return to sender' notice. I think the addressee may have been dated so my apologies for this. Moving forward, 1) I'd like to advise the CEAC subcommittee of the upcoming Launch Event through our website: www.regionofwaterloo.ca/biosolids (**note that although seating in the theatre is now full for the presentation at 7pm, we are arranging for extra seating and projection onto a screen. Also, the open house is open to anyone from 6 to 9pm.) and 2) that when the subcommittee members are known, that you can let me know who they are so we can contact them for future notices regarding the Biosolids Strategy. If you have any questions, please do not hesitate to contact me. Thanks, Kaoru
Nov 12, 2015	Email – Incoming, Community Member	I have read the links to your plans to update the Biosolids Master Plan, and can find no mention of the opposition to the spreading of sewage sludge biosolids as fertilizer. The problems of most concern are: 1) the pathogens in the finished sludge biosolids from sick people and hospitals and mortuaries and	Thank you for your interest and submitting comments on the Region's Biosolids Strategy, a study that will look at the future of the Region's biosolids. As we discussed on the phone last week, the Biosolids Strategy is just getting started. Also, a key part of the Biosolids Strategy is to receive input from the public and therefore, your comments are

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		laboratories and slaughterhouses. Class B biosolids are permitted to contain up to 2 million e-coli per 1/2 cup, as markers for all the other disease causing bacteria, viruses, parasites, and dementia causing prions in sewage. The proposed heat treatment facility that will pasteurize the biosolids to greatly reduce pathogens to make Class A sludge will not inactivate prions, nor will it prevent explosive regrowth of pathogens during storage or after spreading on fields. 2) the sludge is about 40% by dry weight composed of an estimated 100,000 chemicals from households, institutions, industry, and garbage dump leachate. Calling chemical wastes "organic" that include known carcinogens like dioxins and PBEs and flame retardant PBDEs may be scientifically correct because they contain carbon atoms. However the public understands "organic" to mean the absence of such harmful man-made chemicals, so this is totally misleading! Moreover the sludge contains metals and other inorganic chemicals which are not being mentioned at all! 3)When Class B sludge is spread on corn fields at the rate for nitrogen, there is 4 times more phosphorus than the corn plants can use. When disked into the ground 10% remains on top. Since corn fields require some 10 tonnes of the sludge per acre, 1 tonne of sludge per acre is available to be eroded, contributing to chemicals like	welcomed; they will become part of the public file. If you have any further questions, please do not hesitate to contact me. Regards, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		pharmaceuticals in drinking water, and the phosphorus run-off contributing to the algae that are poisoning Lakes Erie and Ontario. http://unpublishedottawa.com/letter/1856/urgent-request-renew-sewage-spreading-ban-ottawa	
Nov 18, 2015	Email – Incoming, Infrastructure Ontario	Please remove IO from your circulation list, with respect to this project, if MEDEI owned lands are not anticipated to be impacted. In addition, in the future, please send only electronic copies of notices for any projects impacting IO managed lands to: Keith.Noronha@infrastructureontario.ca	Letter acknowledged and contact list modified accordingly.
Dec 02, 2015	Email – Incoming Canada Environmental Assessment Agency	If you believe the project is not subject to a federal environmental assessment, and do not submit a project description, we kindly request that you remove the Agency from your distribution list.	Thank you for your letter regarding the Region's Biosolids Strategy Study. We will review the referenced material and take action as necessary.
Dec 07, 2015	Email – Incoming, New Credit First Nation	I have forwarded this email to the appropriate department: Dept of consultation and accommodation. Mark.laforme@newcreditfirstnation.com or fawn.sault@newcreditfirstnation.com	Contact list modified accordingly.

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jan 07, 2016	Email – Incoming, Ministry of Environment and Climate Change	Hello Kaoru, Happy New Year. So, I was wondering about this project and your invitation to attend on the 20th.... Is this going to proceed as an EA under the MEA Class EA?	Hello Barbara, Happy New Year to you as well! All the best in 2016. For this project, it will be undertaken as a master plan under the Municipal Class EA process. We will meet the minimum requirements under the process, however given the potential for greater stakeholder interest in the project, the Region felt it necessary to take an enhanced approach to communications and engagement. The meeting on January 20 one of the ways we identified for enhanced engagement. It is to receive input on the project charter from municipal and agency stakeholders. Typically, master plans do not require a charter creation but we felt that stakeholders should be informed that we are undertaking this master plan, and that they have an opportunity at an early stage to provide input. I hope you or someone from your office would be able to attend this meeting, and future meetings as well, to provide input along the way. Regards, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jan 08, 2016	Email – Incoming, Municipal Councillor	Kaoru, [REDACTED] and I want to thank you for the invitation to be part of the biosolids strategy study. At this time we would prefer to be kept informed of the progress of this initiative through the distribution of any meeting minutes or other correspondence. Should an issue arise that may impact Wilmot we may wish to attend a future meeting or provide written comments. Thanks	
Jan 11, 2016	Voicemail Message – Incoming, Community Member	Request for link to Launch Event materials and discussion about potential Science Fair activities	Hi [REDACTED], Thank you for your message yesterday. I just left you a voice mail, but as a follow-up here is the project web address for the Biosolids Strategy project: http://www.regionofwaterloo.ca/biosolids There you will find some introductory information related to the project and near the bottom of the page a link to download the information panels from the Launch Event. Please feel free to give me a call at my desk to discuss your ideas for involving your science fair group in the project. Also, you may want to contact Kaoru Yajima at the Region of Waterloo who is the Project Manager for this process. I have cc'd him on this email. He would be the one you should speak with about organizing someone to talk to the students as well as for any tours of facilities. Cheers, Morgan

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jan 22, 2016	Email – Incoming, Grand River Conservation Authority	Hi Kaoru, Upon reflection of the meeting, I thought that you may gain value if you had a soil scientist or someone from OMAFRA at the table. Also, the committee may benefit from reading the latest CWN report on municipal biosolids prepared by Lynda McCarthy from Ryerson. Just some thoughts, Good kick-off meeting.	
Jan 28, 2016	Email – Incoming, Community Member	Hi Morgan I do hope you take up the idea of asking the kids to suggest aspects of the ‘education’ component of the strategy. I can tell you lots of stories where kids have done ‘real’ work that was first rate. And you may interest some of them in considering a career in planning too.	We will definitely be considering how we can best do something with your group this spring. It was a great idea to have the kids work with us on the education materials. We'll be in touch in the next couple weeks to discuss further. Cheers, Morgan
Feb 01, 2016	Phone Call/ Teleconference, Community Member	Outlined concerns and research regarding impacts to human health and the environment from land applied biosolids. Also discussed the setting up of the project Stakeholder Committee, application process, and criteria for selection.	Acknowledged concerns about land application, explained current state of legislation and regulation. Also provided information on the function of the Stakeholder Committee and selection criteria (looking to the degree of enthusiasm with the topic, that they can commit to the entire duration, and the representation be close to the sector breakdown (and geographical breakdown for the public at large) as possible).

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jun 02, 2016	Email – Incoming, Community Member	"Of possible interest.... [News Article]"	
Jun 06, 2016	Email – Incoming, Community Member	Hi Kaoru, I received your contact from your colleagues at the Region of Waterloo Biosolids exhibit at EcoFest last month. I was quite interested in learning how you team is informing residents of the various waste and environmental initiatives in the Region. I recently started a company, [REDACTED], to help organizations better communicate the impact of their initiatives to stakeholders through custom and pre-made solutions for infographics and analytics. I was wondering if we could have a call later this week or the next to understand how your organization is communicating its impact. As a new entrepreneur, I am constantly seeking to learn how different organizations approach this difficult challenge and getting input from someone on the ground would be invaluable. Looking forward to speaking with you.	Would be happy to discuss with you.

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jun 22, 2016	Email – Incoming, Community Member	Good Morning Kaoru, Hope your day is going well! It was such a pleasure to meet you and your colleague at the Strawberry Festival on the weekend. I really appreciate the information you provided regarding the educational programs offered by the Region of Waterloo. I spoke to the teachers at our school, [REDACTED] [REDACTED] They are very interested in participating in both the school visit program as well as the Groundwater Festival. Some information that may be useful: a) Our numbers are small, so I wasn't sure if we would be eligible for a school visit. As of now, we have approximately 2 Grade 8 students, 1 Grade 9 student and 3 Grade 10 students. We have one science teacher who covers science for these students. At present, we don't have any grade 5/6 students. b) Regarding the Groundwater Festival- is this program geared to certain age groups or would we be eligible to have our Grades 1-10 participate in this event? At your convenience, would you be able to provide me with the contact person for this program? Thank you for all you do to educate!	Yes, I recall our discussion at the festival. Thanks for following up. I must have misheard you and apologize but I didn't realize you were talking about grade 8, 9 and 10 students. The groundwater festival is more for the grade 2-5 students, as it aligns well with the curriculum I believe. As I mentioned though, I'm not the best person to talk to regarding these initiatives so I'll go down to speak with the appropriate staff who will get back to you later this week or early next week, hopefully with something that might be more age-appropriate. If you don't hear anything, just then let me know – they're quite helpful so if they don't respond, it usually means they are just too busy. (just so you know, I'll be vacationing starting next Tuesday but will follow up when I return) Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Jul 31, 2016	Email – Incoming, Stakeholder Committee Member	Hi Kaoru, I hope all is well and you are enjoying the long weekend. Thank-you for the minutes. I was wondering if there is a possibility that the Region could provide members of the stakeholder committee and possibly residents of Waterloo Region a guided tour of one of the bigger wastewater management facilities. Could also use it as a backdrop to get more community feedback and provide information to the community in terms of the work that your group is doing to develop a future strategy. The 6 part video's were a great idea and I hope they will continue to be accessible on the website. They could also be part of the tour if there is a location where people could watch maybe one or two of them possibly before taking the tour. What do you think?	That's certainly a good idea. It was something the team had discussed holding during the biosolids strategy. There are some logistics that need looking into in order to arrange a facility tour, things like safety and transportation, so some time to plan will be needed, but I'll be sure to look into it some more. Thanks, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Aug 23, 2016	Email – Incoming, Water Canada Magazine	Hi Karla, Karol Yajima from the Region of Waterloo gave me your contact information, as I am working on a story for Water Canada magazine about the region's Biosolids Strategy with an emphasis on the public engagement. I am wondering if you would be willing to share your thoughts on the approach taken, what makes it innovative, what level of success you anticipate for the process. Please let me know if you would be willing to email me or plan a phone call in the next few weeks. The week after next would be my preference, as next week I am in production. Best regards, Katherine	Hi [REDACTED] Karou mentioned that you might be in touch. We have been doing lots of great engagement for the Biosolids project and would be pleased to share our thoughts. Let me know if you prefer email, phone or both. It sounds like you are available for a call the week of August 29th. Let me know if you have a preferred date/time in mind. Cheers Karla
Oct 05, 2016	Email – Incoming, Community Member	Good afternoon, Biosolids are spread by Barrie's Lake and the Cruickston Creek Headwaters Provincially Significant Wetlands and Environmentally Sensitive Policy Areas in the designated Environmentally Sensitive Landscape, including in the Protected Drinking Water Area. Suggestions: 1. Increase buffers from Provincially Significant Wetlands and Environmentally Sensitive Policy Areas. 2. Increase buffers from private wells. Test for impact	Thanks for sending on your suggestions. The Region will look into the matter and follow up with a response. In the meanwhile, if you would like to add anything further or had any questions, please do not hesitate to contact us again.

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		on water quality. 3. Do not allow biosolids to be spread in Protected Drinking Water Areas. 4. Increase buffers from Protected Drinking Water Areas. 5. Require the informed and written consent of the actual landowner who may not be aware that the farmer farming their land is spreading biosolids. 6. Require inspections of the buffers from the spreading of biosolids to include inspections of the buffer distance between PSWs and planted crops. 7. Require inspections and water testing of the wetlands before and after the spreading of biosolids. 8. Adjacent property owners should receive written notice of the spreading of biosolids. 9. Inform the public of a contact number for concerns over spreading of biosolids which is also active on weekends. 10. Determine the impact of biosolids on turtle nests and take appropriate action regarding buffers. Please see attached photo of biosolids being spread beside Barrie's Lake PSW, ESPA 57 and in the Protected Drinking Water Area. Thank you,	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Oct 06, 2016	Email – Incoming, Community Member	Hello Kaoru, Thank you for your reply. We have provided the attached document in 2013 given to us by the biosolids company to show the subject area. We are not filing a complaint, we are providing comments on biosolids as suggested to the public by the Region of Waterloo. The biosolids plan may have been approved, however, these Provincially Significant Wetlands and Drinking Water Protection Areas require greater protection, increased buffers and monitoring. May I ask: Do you know how often biosolids can be spread on crops? Do you know what the buffer should be from crops to Provincially Significant Wetlands? What number do residents call to report concerns about the spreading of biosolids? Thank you,	Understood about the comments. We'll make them part of the record. Still, we were looking into who the spreader in the photo was – could you perhaps let us know when it was taken? Was it recently? And, we will get back to you with a response to your questions, Thanks,
Oct 06, 2016	Email – Incoming, Community Member	Hi Kaoru, This particular application took place in October 2013. I have attached scans of the three documents given to us by [REDACTED]	The Region has looked into the questions you asked and provides responses below. <u>Do you know how often biosolids can be spread on crops?</u> There are no regulatory restrictions on how often

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		We were informed by the M.O.E. that not all sites are inspected. This site was inspected due to reported concerns. - We suggest that all sites beside Provincially Significant Wetlands should be inspected, including the staked off area prior to spreading. - We suggest stronger regulations about spreading when rain is in the forecast to prevent runoff to Provincially Significant Wetlands. We ask the Region to consider the cumulative impact of development and farming around Provincially Significant Wetlands such as Barrie's Lake and the Cruickston Creek Headwaters including subdivision stormwater, chlorides, pesticides etc. when determining the appropriate buffers for applications of biosolids. The site was inspected by the M.O.E. and staff stated that application of NASM was being completed in accordance with the NASM Approval and the Nutrient Management Regulations. We ask the Region to consider stronger regulations to protect our few remaining wetlands. Please let me know if you require any additional information. Thank you,	material can be applied. There are many factors that can affect the frequency such as amount of nutrients in the material, amount of heavy metals in the material, type of crop and rotation, phosphorus levels already in the soil and the rate of the previous application. <u>Do you know what the buffer should be from crops to Provincially Significant Wetlands?</u> Wetlands are treated the same as surface water in the regulation and a 20m setback, regardless of the material, must be maintained. <u>What number do residents call to report concerns about the spreading of biosolids</u> As the Ministry of Environment and Climate Change (MOECC) is the agency that enforces the regulations for the spreading of biosolids, should a resident have a concern they should contact the MOECC Spills Action Centre at 1-800-268-6060. So your comments become part of the record, I will include them as part of the project file for the Biosolids Strategy. Regards, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Oct 24, 2016	Email – Outgoing to follow up on phone call received from Biosolids Industry Vendor	Requesting details on how vendors can provide information on services	Thanks for the phone call today. As mentioned, the Biosolids Strategy is planning to issue a Request for Information, likely early fall. Through this process, vendors can provide input to the study on what technologies are available. Here is a link to the project website that provides information on the Biosolids Strategy so far: www.regionofwaterloo.ca/biosolids Dillon Consulting Ltd. is the consultant assisting the Region undertake the Strategy. Regards, Kaoru
Dec 14, 2016	Email – Incoming, Community Member	Hello Kaoru, Hope the Biosolids project has been progressing well this time. I was looking forward to the next strategy meeting in the fall — in which I am allowed to be an observer and not a participant. But I received no communication from you except when my wife & I ran into you in downtown Kitchener a few months ago where you indicated a fall meeting was on-track . Was there a delay or ? Now let me briefly put my improving mind to work a	Thanks for your message. It's good to hear that you are recovering well. We are still working on technical content and plan to meet with the stakeholder committee in the upcoming months. We'll let you and the stakeholder committee know of when that will be.

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		little on some RMW current municipal technology challenges. In RMW & all levels of government around the world “outsiders” are formally & informally used for advice on projects. But what to do when no sufficiently viable project design is found despite the intense efforts of elected officials, staff, consultants and “outsiders”? Then committed but very relevantly-varied innovators in the field — as new employees, consultants, or “outsiders” (where unrestrained creativity sometimes produces the best unique ideas analogous to Einstein in a patent office) — should be sought who are able to create/find the unique ideas necessary for complex project success. The ultra-complex Cambridge LRT project is a prime example of staff and consultants needing such very varied input (Ashby’s Law of Requisite Variety applied to projects would say that the creation of a successful project design would require the inherent variety of the project team and involved others to at least match the variety required by project —assuming the project boundaries are sufficient.]) As my health further improves I will more & more create/find unique ideas for the sustainably cost-effective on-going design of these innovative projects: Cambridge (KW) LRT, Zero-pollution solid waste	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		processes that produce clean energy & new material inputs; Zero-pollution sewage treatment & biosolids processes that produce clean energy & new material inputs (fertilizer out); Zero-pollution (eg. no dangerous chlorine or ammonia gas releasable into community air) water treatment processes that could produce health-enhancing (toxic-chemical-free, optimal mixture of highly absorbable minerals, ...) drinking water. Key RMW officials surely recognize that our success in attracting and keeping innovative people and organizations depends also on the degree to which we can create World-leading municipal technologies about which stories can be told around a Global culture..	
Feb 08, 2017	Email – Incoming, Stakeholder Committee Member	Hi Zahra, Possible title for this stage: “Initial Performance Indicators” Initial suggests that this is only the first stage. Performance has a positive connotation and suggests we are aiming high. Indicators is a nice generic term that allows us to do a Yes/No evaluation. The seven objectives — if they are to be used for public information; I missed whether that was the case — need to be conceptually linked by an overarching objective. There are logical and strategic intentions behind this suggestion. Logically, an	I’m very happy that you made the effort to participate, so not just the kids. I appreciate the feedback and we’ll be in touch at the next stage of the process. Regards, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		overarching objective pulls everything together and gives them meaning. Strategically, they provide a broader, positive context for what the Region is trying to do and subtle “hero project” opportunities for people who might get involved. (Or, at the very least, not object to the plan). The overarching objective I suggest is something like... is this strategy “In the best interest of future generations?” This allows us to answer the seven sub objectives by Yes/No. If we can answer yes, then we can say that we’ve met the overarching objective. Win. See my earlier email about research on Terror Management Theory and how people respond to environmental issues, decisions. Core take away for messaging and efforts is that we want to Reduce reminders of human “animalness” (poop, vulnerability, death etc) Increase all opportunities/roles for “hero projects” where people can be social recognized, be part of a larger movement, generate self esteem, protect the interests of their community and children in to the future etc. Someone (missed his name) at our table took my more specific comments about wording/graphics etc. Emphasis on creating roles and identifying social network hubs, not just distributing information. That’s all from me I think. Thank you very much for	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		allowing me to be a part of this process.	
Feb 17, 2017	Email – Incoming, Stakeholder Committee Member	Hi I'm sorry I didn't think of this sooner. It's a natural. Tomorrow (Monday) a team from the science fair is participating in the Westvale-Waterloo Optimist Club's Plunger Plop at the Knights of Columbus Hall on Dearborn Place, in Waterloo.. It's like curling, only we're tossing plungers at toilets. I don't know how many teams they have registered. I tried to register for the similar event in Alma, north of Elora. Registration was set for 8:00 a.m. on a Saturday morning in the black of January, a month before the actual activity. I arrived at 7:00 and was too late! All 56 team spots were taken! That's 224 people! The first people showed up at 4:30 a.m. to guarantee a spot. I don't think the Waterloo event has quite the following yet, but perhaps you can look ahead to next year. Or. I imagine you could arrange to use the Alma clubs equipment (rent?) for fun at public events. If you're interested, the Alma club's organizer is a friend of mine who will be at the science fair in April. I imagine you won't see this until Tuesday. I'll try to take some pictures.	Thanks for letting me know – please keep me updated. On a separate note, could you tell me if we are permitted to take photos at the Engineering & Science Fair? Do the contestants agree to have photos taken in their application form? Thanks, Kaoru

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Mar 20, 2017	Email – Incoming, Community Member	Kaoru and who else this my concern: I have received bulletin #6. It states you have 8 plans. In order to have a more meaningful discussion, I suggest you make these plans public. This way the citizens can inform themselves with the information and study same. I'd also like to know the estimated cost of each plan along with your suggested pros and cons of same. Awaiting your reply.	Thank you for your feedback. As part of this particular round of consultation, we are only introducing the eight strategy alternatives. The eight strategy alternatives are shown on the presentation panels on our website – see panels 10 and 11. http://www.regionofwaterloo.ca/en/aboutTheEnvironment/resources/WaterServices/Wastewater/WS2017MarchBiosolidsStrategyPCC3BoardsLiteVersion.PDF The public will be asked if there are others before moving on to evaluation in the next round of consultation. Also for public input are Minimum Performance Questions - see panel 12. These questions were developed to help evaluate the eight alternatives to create a short list. Following this round of public consultation will be evaluation to form the short list. To be short listed, they must pass the minimum performance questions. Note that although cost is identified as a criteria, it will be used to evaluate only the short listed alternatives. The public will be asked to comment on the short listing in late spring/early summer 2017. Once the short list of strategy alternatives is created,

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
			the public will be invited to view specific details of each alternative, including costs, in order to evaluate them and determine the preferred alternative strategy. This consultation would occur in late fall 2017/early winter 2018. A snapshot of the overall process described above can be found on panel 6. If you have any further questions, please do not hesitate to contact me. Regards, Kaoru
Mar 20, 2017	Email - Incoming	Kaoru, I'm surprised and actually disappointed with your reply. I'd like to think, "cost and the life of an alternative" are fundamental in considering any alternative. I really do not understand the Region's thinking, leaving out these 2 most important principles!	Thank you for reviewing the materials and providing your comments. We will certainly take these into consideration as the study moves forward. Regards, Kaoru
Mar 21, 2017	Email - Incoming, Community Member	Kaoru, Our Kitchener Tax Watch Team and supporters will be keeping an eye on this project as it progresses through its various stages.	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Mar 27, 2017	Email – Incoming, Community Member	Surely we can look to other regions for tried and tested solutions. There is a facility in Dundalk and several projects in California, already managing their biosolid waste. Is putting raw, untreated material onto our crop growing fields the right thing to do??? Please do not waste our money trying to reinvent the wheel... look at other current success stories!	The Biosolids Strategy is considering how other municipalities manage their biosolids as a reference tool as well we are looking at all available technologies which are appropriate for the Region of Waterloo. Thank you for submitting your comments.
Mar 28, 2017	Email – Incoming, Stakeholder Committee Member	Dear All, In case you haven't heard of this group. Great example of how mortality reminders (note their use of skull/crossbones, human health/death imagery, extinction language etc) and visceral impact. https://www.biosolidsbc.com/ Superb case study for Terror Management Theory and environment issues. I don't have the data (yet) but I'd wager that this type of campaign messaging would be very compelling for many outside of the more thoughtful/informed populations (i.e., general public). How to counter-balance this type of messaging will be a key challenge.	
Mar 28, 2017	Email – Incoming, Community Member	Your attempts to sell the idea of using biosolids begins with the lie - perpetuated by the sludge industry and government - that sewer sludge aka biosolids is just poop. This is far from true. Please read what independent scientists have to say on this issue - Three Informed Views on Sewer Sludge (aka Biosolids)	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		Dr. Caroline Snyder - "Land-applied municipal sewage sludge (biosolids) is a highly complex and unpredictable mixture of biological and chemical pollutants. Biosolids generated in our large industrialized urban centers is very likely the most pollutant- rich waste mixture of the 21st century." Dr. Marilyn Cameron - "We are concerned that farmers are not being provided adequate information about biosolids and the negative impacts that its use could have on your soils, groundwat...er and surface water sources, livestock health, and property values. Farmers will be the ones left paying the price for any damaged land, contaminated water, or human, wildlife and livestock illnesses, etc. Farmers may also suffer losses resulting from lack of consumer confidence in local foods" Dr. Richard Honour - ""Few in any governments appreciate that nearly all chronic diseases are caused by long-term exposure to low levels of environmental contaminants and pollutants. We should be trying to minimize this exposure, not amplifying it. It is time to end land disposal of Toxic Sewer sludge, and look at cleaner, greener alternatives - gasification / pyrolysis." Let's get on the right side of history, and use this waste resource to make energy. It is time to stop covering Mother Earth with our cities' toxic sewage.	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		And see this link for a great overview of the issues - http://bit.ly/2kehQIP by Dr. Thomas Maler Scientists against "biosolids" - See - Canadian- http://bit.ly/1sb2qOP UK- http://www.wte-ltd.co.uk/sewage_sludge_biosolids.html US- http://cwmi.css.cornell.edu/case.pdf The Green Alternative - The answer is gasification / pyrolysis ...not simply dispersing this toxic waste on farms and forests - see - http://www.phgenergy.com/case-study/lebanon-tenn and see - https://www.youtube.com/watch?v=vcq_soCc6dc and see - http://www.cbc.ca/.../plasma-gasification-alberta... and see - https://www.youtube.com/watch?v=RUDyKpOyYa4 lets get energy out of this resource AND rid the environment of these toxins.	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Apr 04, 2017	Email – Incoming, Community Member	Dear Madam or Sir, Following the news article, I had two questions. We live in [REDACTED] and I wondered if a bad odour is produced from the production of the fertilizers and if so how far away would one smell the odour? Secondly if some people have been ill with some diseases, would these affect the fertilizers in such a way that if used by farmers or city gardens that we could contract illnesses from grown foods? Bring these up at your meetings, and I read the paper and will follow up on future meetings about the biosolids. Thank you,	Regarding your first question, there are a number of technologies available to produce fertilizer out of biosolids. Some technologies are outdoors and have the potential to produce odour while others are indoors and do not. Through surveys, the public has told us that the public values a good quality of life, thus as we move further into the study, emphasis will be placed on evaluating strategies that use technologies that do not release odour. Regarding your second question, there are Provincial Regulations in place to ensure that biosolids are extensively treated to guard against the transfer of any disease before applying on agricultural fields. In the scenario where the Study recommends that fertilizer is produced, the requirements of the Canadian Food and Inspection Agency must also be met. I thank you for forwarding your questions and look forward to meeting you in our future meetings. If you are available, our next meeting is at the Waterloo Memorial Recreation Complex, 101 Father David Bauer Drive, on April 12 from 6:00 - 9:00 p.m. Regards, Kaoru Yajima

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
Apr 10, 2017	Email – Incoming, Stakeholder Committee Member	Hi Kaoru and Morgan et al I just read the story about the Strategy in last week's New Hamburg Independent. I noted the 186 million liter average was written as 186,000 cubic metres. When I started teaching, students in grades 4 and 5 were expected to perform calculations in the thousands and millions. But they did them without understanding (and for a few years without calculators). So I developed activities with concrete materials so they knew what a thousand or a million looked like. (I used beans and rice and holes in ceiling tile and bricks and salt grains etc.) I still have my roll of a million little squares, 2mm x 2mm. I made one for a history prof at UW with 6 million dots so when he taught about the holocaust, he could try to personalize each dot as somebody's mother or father or son or daughter. When he unrolled this roll, students were dumbfounded. It goes on and on*. Any way, we don't have an Olympic-sized swimming pool in the Region, so there likely aren't 10 people who know how big one is, let alone 72. At Bingemans, I counted the ceiling tile and did some quick math. The room you were in would hold about 1,500,000 litres; the entire ballroom about 6 million. So, if I haven't goofed, on average the region is treating enough waste water to fill that room about every 11 minutes.	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		Or, the capacity of the Roger's Centre is 1.6 million cubic meters. The Region's waste water would fill it in less than 9 days. Each day would add about 11 metres (It's 100 meters/310 feet to the roof). I don't know what row that would be in the first day. But more people in the Region have been to the Rogers Centre than have been in an empty Olympic-sized pool.	

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
May 10, 2017	Email – Incoming, Stakeholder Committee Member	Today I was watching episode 5 (of 7) of a BBC series “Seven Wonders of the Industrial Age.” This episode dealt with the ‘invention’ of the sewers in London, England. (almost worth getting Netflix to watch There are at least 4 items of note. 1. The sewers were ovoid-shaped so even during low-flow periods, they would flow (narrow end at the bottom). 2. They were a ‘mistake’. They were meant to remove the stench from the city as it was believed the cholera outbreaks came from the miasma, the putrid air, not the contaminated water people were drinking 3. The engineer of the project took years to win approval . He was Joseph Bazalgette. That’s not a last name one sees often. I’d only noticed it once before, at the Bomber Command of Canada Museum in Nanton Alberta. Ian Bazalgette was Alberta’s only recipient of the Victoria Cross while flying fro the RAF. He’s the great-grandson of Joseph Bazalgette. 4. Best line of the program, “If it’s all working as it should, no one will even think about it.”	Interesting information – I’ve heard that last line before referenced to out-of-sight infrastructure before. It’s so true. Have a great day!
Nov 20, 2017	Email – Incoming, Stakeholder Committee Member	Hi Kaoru I have a few comments from the meeting: 1. There is no Olympic size swimming pool in the region and I’ll bet very few people have ever seen one, or filled one up with a hose. Suggesting 72 of them	Thanks for your comments. I’ll share them with the team. For your first comment, I’ll work with Dillon to see if there is a more tangible comparison that can be provided. For the second comment, yes the Region’s plants discharge treated water into the Grand River (or Speed or Nith Rivers which are tributaries to the

Date	Method+ Source	Stakeholder Comment	Project Team Comment/Action
		doesn't help – it just says 'a lot'. One of my fun things as a teacher was making big numbers accessible. The '180,000 cubic metres' could be the capacity of 2,500 backyard swimming pools, 3 hours summer time flow of the Grand River, or would fill the Rogers Centre to the roof in only 9 days. 2. Is the Grand River an underlying assumption, given the locations of the waste water treatment plants? Does GRCA have something to say about that? I realize much of the treated water is being returned to the river. What does the groundwater supplement mean for the river, if anything? When the biosolids are dewatered, does that water recirculate back to the waste water treatment plant? I'm guessing it does, but making that explicit could be reassuring. In the discussions it just 'disappeared' as our focus was on the biosolid cake.	Grand). We didn't get too much into it as a project because it is part of the liquid train which is a different focus than the biosolids, but the Region works very closely with the GRCA through the Region's intensive water quality monitoring program. The GRCA has also participated in the Biosolids Strategy as an agency stakeholder and was supportive of the study's direction and slides. Since the GRCA's mandate is to look at the overall watershed, they should be able to provide a better interpretation of groundwater discharging into surface water. Although it doesn't answer your question completely, I do notice they did a water budget of the watershed and you may want to take a look here https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/Grand_Reports_WaterBudget_2009.pdf You assumption about the dewatering process is correct. The water is recirculated back into the head of the plant for treatment. I appreciate your enthusiasm in the project and hope to talk to you again soon, perhaps at one of the upcoming PCC's. Regards, Kaoru

November 18th 2015

To whom it may concern,

Thank you for circulating Infrastructure Ontario (IO) on your Notice. Infrastructure Ontario is the strategic manager of the provincial government's real estate with a mandate of maintaining and optimizing value of the portfolio while ensuring real estate decisions reflect public policy objectives of the government.

As you may be aware, *IO is responsible for managing property that is owned by Her Majesty the Queen in Right of Ontario as represented by the Minister of Economic Development, Employment and Infrastructure (MEDEI) formerly known as the Ministry of Infrastructure (MOI).* There is a potential that IO manages lands fall within your study area. As a result, your proposal may impact IO managed properties and/or the activities of tenants present on IO-managed properties. In order to determine if IO property is within your study area, IO requires that the proponent of the project conduct a title search by reviewing parcel register(s) for adjoining lands, to determine the extent of ownership by MEDEI or its predecessor's ownership (listed below). Please contact IO if any ownership of provincial government lands are known to occur within your study area and are proposed to be impacted. IO managed land can ***include within the title but is not limited to*** variations of the following: Her Majesty the Queen/King, OLC, ORC, Public Works, Hydro One, PIR, MGS, MBS, MOI, MTO, MNR and MEI*. Please ensure that a copy of your notice is also sent to the ministry/agency on title. As an example, if the study area includes a Provincial Park, then MNR is to also to be circulated notices related to your project.

IO obligates proponents to complete all due diligence for any realty activity on IO managed lands and this should be incorporated into all project timelines.

Potential Negative Impacts to IO Tenants and Lands

General Impacts

Negative environmental impacts associated with the project design and construction, such as the potential for dewatering, dust, noise and vibration impacts, impacts to natural heritage features/habitat and functions, etc should be avoided and/or appropriately mitigated in accordance with applicable regulations best practices as well as Ministry of Natural Resources and Forestry (MNRF) and Ministry of the Environment and Climate Change (MOECC) standards. Avoidance and mitigation options that characterize baseline conditions and quantify the potential impacts should be present as part of the EA project file. Details of appropriate mitigation, contingency plans and triggers for implementing contingency plans should also be present.

Impacts to Land holdings

Negative impacts to land holdings, such as the taking of developable parcels of IO managed land or fragmentation of utility or transportation corridors, should be avoided. If the potential for such impacts is present as part of this undertaking, you should contact the undersigned to discuss these issues at the earliest possible stage of your study.

If takings are suggested as part of any alternative, these should be appropriately mapped and quantified within the EA report documentation. In addition, details of appropriate mitigation and or next steps related to compensation for any required takings should be present. IO requests circulation of the draft EA report prior to finalization if potential impacts to IO-managed lands are present as part of this study.

Impacts to Cultural Heritage

Should the proposed activities impact cultural heritage features on IO managed lands, a request to examine cultural heritage features, which can include cultural landscapes, built heritage, and archaeological potential and/or sites, could be required. If the potential for such impacts is present as part of this undertaking, you should contact the undersigned to discuss these issues at the earliest possible stage of your study.

Potential Triggers Related to MEDEI's Class EA

IO is required to follow the MOI Public Work Class Environmental Assessment Process (PW Class EA). The PW Class EA applies to a wide range of realty and planning activities including leasing or letting, planning approvals, disposition, granting of easements, demolition and property maintenance/repair. For details on the PW Class EA please visit the Environment and Heritage page of our website found at

<http://www.infrastructureontario.ca/Templates/Buildings.aspx?id=2147490336&langtype=1033>

Please note that completion of any EA process does not provide an approval for MEDEI's Class EA obligations. Class EA processes are developed and in place to assess undertakings associated with different types of projects. For example, assessing the impacts of disposing of land from the public portfolio is significantly different then assessing the best location for a proposed road.

IO is providing this information so that adequate timelines and project budgets can consider MEDEI's regulatory requirements associated with a proposed realty activity in support of a project. Some due diligence processes and studies can be streamlined. For example, prior to any disposition of land, at minimum a Phase I Environmental Site Assessment and a Stage I Archaeological Assessment and the MEDEI Category B Environmental Assessment should be undertaken. Deficiencies in any of these requirements could result in substantial project delays and increased project costs.

In summary, the purchase of MEDEI-owned/IO-managed lands or disposal of rights and responsibilities (e.g. easement) for IO-managed lands triggers the application of the MEDEI Class EA. If any of these realty activities affecting IO-managed lands are being proposed as part of any alternative, please contact the Sales, Easements and Acquisitions Group through IO's main line (Phone: 416-327-3937, Toll Free: 1-877-863-9672), and also contact the undersigned at your earliest convenience to discuss next steps.

Specific Comments

Please remove IO from your circulation list, with respect to this project, if MEDEI owned lands are not anticipated to be impacted. In addition, in the future, please send only **electronic copies of notices** for any projects impacting IO managed lands to:
Keith.Noronha@infrastructureontario.ca

Thank you for the opportunity to provide initial comments on this undertaking. If you have any questions I can be reached at the contacts below.

Sincerely,

Lisa Myslicki

Environmental Advisor, Environmental Management
Infrastructure Ontario
1 Dundas Street West,
Suite 2000, Toronto, Ontario
M5G 2L5
(416) 212-3768
lisa.myslicki@infrastructureontario.ca

* Below are the acronyms for agencies/ministries listed in the above letter

OLC	Ontario Lands Corporation
ORC	Ontario Realty Corporation
PIR	Public Infrastructure and Renewal
MGS	Ministry of Government Services
MBS	Management Board and Secretariat
MOI	Ministry of Infrastructure
MTO	Ministry of Transportation
MNR	Ministry of Natural Resources
MEI	Ministry of Energy and Infrastructure



Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale

55 St. Clair Avenue East,
Room 907
Toronto ON M4T 1M2

55, avenue St. Clair Est,
pièce 907
Toronto ON M4T 1M2

November 25, 2015

Sent by e-mail

Mr. Kaoru Yajima
Region of Waterloo
150 Frederick Street, 7th Floor,
Kitchener ON, N2G 4J3
kyajima@regionofwaterloo.ca

Dear Mr. Yajima:

Re: Information on the *Canadian Environmental Assessment Act, 2012*

Thank you for your correspondence received regarding the Region of Waterloo Biosolids Strategy.

The *Canadian Environmental Assessment Act, 2012* (CEAA 2012) focuses federal environmental reviews on projects that have the potential to cause significant adverse environmental effects in areas of federal jurisdiction and applies to physical activities described in the *Regulations Designating Physical Activities* (the Regulations). Based on the information provided, your project does not appear to be described in the Regulations. **Kindly review the Regulations to confirm applicability to the proposed project.**

If you believe the project is not subject to a federal environmental assessment, and do not submit a project description, we kindly request that you remove the Agency from your distribution list.

If you have questions, please get in touch with our office through the switchboard at 416-952-1576. The attachment that follows provides web links to useful legislation, regulation, and guidance documents.

Sincerely,

Anjala Puvananathan
Director, Ontario Region
Canadian Environmental Assessment Agency

Attachment – Useful Legislation, Regulation, and Guidance Documents

Attachment – Useful Legislation, Regulation, and Guidance Documents

For more information on CEAA 2012, please access the following links on the Canadian Environmental Assessment Agency's (the Agency) website:

Overview of CEAA 2012

<http://www.ceaa.gc.ca/default.asp?lang=En&n=16254939-1>

Regulations Designating Physical Activities, and
Prescribed Information for a Description of a Designated Project Regulations

<http://www.ceaa.gc.ca/default.asp?lang=En&n=9EC7CAD2-1>

If your project is in a federally designated wildlife area or migratory bird sanctuary please check section 1 of the Regulations, which details the designated projects specific to those locations.

If it appears that CEAA 2012 may apply to your proposed project, you must provide the Agency with a description of the proposed project. Please see the link below to the Agency's guide to preparing a project description.

Guide to Preparing a Description of a Designated Project

[http://www.ceaa.gc.ca/63D3D025-2236-49C9-A169-DD89A36DA0E6/Guide to Preparing a Description of a Designated Project under CEAA 2012.pdf](http://www.ceaa.gc.ca/63D3D025-2236-49C9-A169-DD89A36DA0E6/Guide%20to%20Preparing%20a%20Description%20of%20a%20Designated%20Project%20under%20CEAA%202012.pdf)



**Community Development
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File Number: E13(2).02.01.37

January 25, 2018

Mr. Kaoru Yajima
Sr. Project Engineer
Region of Waterloo
150 Frederick Street, 7th Floor
Kitchener ON N2G 4J3

sent by e-mail only to:
KYajima@regionofwaterloo.ca

Dear Mr. Yajima:

RE: Biosolids Strategy Public Consultation Centre No. 2

Please be advised that at the January 24, 2018 meeting of the Cambridge Environmental Advisory Committee, the following recommendation was adopted:

THAT the Cambridge Environmental Advisory Committee forward Report No. CEAC-01-18 as its comments on the Biosolids Strategy as presented at Public Consultation Centre No. 2 on December 14, 2017, to the Project Manager.

Please find the subject report attached, and please do not hesitate to contact me if you have any questions.

Yours truly,

Kathy Padgett, MES (Pl.)
Senior Planner – Environment

KP/kp
Attach.

Meeting Date: 01/24/2018

Report #: CEAC-01-2018

To: Cambridge Environmental Advisory Committee
(CEAC)

Report Date: 01/04/2018

Report Author: Kathy Padgett, Senior Planner – Environment on
behalf of the Biosolids Strategy Subcommittee

Department: Community Development

Division: Planning Services

Report Title: Biosolids Strategy Public Consultation Centre No. 2

File No: E13(2).02.01.37

Ward No: All

RECOMMENDATION(S)

THAT the Cambridge Environmental Advisory Committee forward Report No. CEAC-01-18 as its comments on the Biosolids Strategy as presented at Public Consultation Centre No. 2 on December 14, 2017, to the Project Manager.

SUMMARY

- The Region of Waterloo provides biosolids management services to protect public health and the environment. As the Region grows the volume of biosolids to be managed will increase.
- At Public Consultation Centre No. 2, Alternative #3 to Produce Dried, Low-Volume Fertilizer, was identified as the Preferred Strategy for managing biosolids.
- The Cambridge Environmental Advisory Committee is providing comments to the Project Manager on the information presented at Public Consultation Centre No. 2.

BACKGROUND

Biosolids are a by-product of wastewater (sewage) treatment. When possible, the Region's biosolids are spread on agricultural land as a fertilizer. When this is not possible due to weather, it is disposed of in landfills. In 2011, the Region completed the Biosolids Master Plan Update. That study identified that a centralized biosolids heat drying facility using waste energy was the preferred technology for managing biosolids up to 2041. Following up on that, the Region initiated a Class Environmental Assessment in 2012 to identify the preferred site for the new heat drying facility. There was significant community opposition to the preliminary recommended site for the new facility (the Cambridge Waste Management Centre at the easterly end of Savage Drive), and the project was cancelled.

In 2015, Region Council approved the commencement of the Biosolids Master Plan study to develop the Region's long-term Biosolids Strategy over a four year period, to be completed in 2019. A key part of the strategy development is communicating and engaging all stakeholders throughout the process.

ANALYSIS

Strategic Alignment:

PLACE: To take care of, celebrate and share the great features in Cambridge that we love and mean the most to us.

Goal #4 - Environment and Rivers

Objective 4.1 Ensure that sustainability principles are a part of city decision-making processes.

Existing Policy/By-Law:

The Region is undertaking this study in accordance with the requirement for Master Plans under the Municipal Class Environmental Assessment process.

Financial Impact:

The public consultation activities are covered under the Region's 2015 Ten Year Wastewater Capital Forecast.

Public Input:

A Biosolids Launch Event was held on November 17, 2015 to provide an opportunity for the community to learn what biosolids are, where biosolids come from, what happens to them currently, and why a strategy is needed.

Public Consultation Centre (PCC) No. 1 was held on March 23, 2017 at Cambridge City Hall to outline the eight technologies that will be assessed through the Class Environmental Assessment process along with the proposed evaluation criteria. The Committee did not provide comments at this time.

PCC No. 2 was held on December 14, 2017 at Cambridge City Hall. Committee members Brad Hall and Alison Fraser were in attendance. The purpose of PCC No. 2 was to evaluate the short listed strategies using the Evaluation Criteria. This evaluation process identified Alternative #3 (Produce Dried, Low-Volume Fertilizer) as the Preferred Strategy. The Region's current biosolids management approach can be continued into the next decade, provided that contingency storage is constructed as soon as possible. The Biosolids Strategy is proposed to be updated around 2025 to confirm that the Preferred Strategy is still the best route forward.

Internal/External Consultation:

To assist and receive input for the Biosolids Strategy, a Steering Committee, Planning and Technical Advisory Committee and Stakeholder Committee were established in the fall/winter 2015.

The Steering Committee is formed of Regional staff from various departments, along with Regional Councillors. Their main role is to help guide the Strategy by receiving periodic updates and providing future direction.

The Planning and Technical Advisory Committee is comprised of staff with respective expertise from the local municipalities, ministries, and the Grand River Conservation Authority. Their main role is to review and comment on the planning and technical aspects of the Strategy.

The Stakeholder Committee is made up of members of the public and various organizations from multiple sectors within the community. Cambridge Environmental Advisory Committee Chairperson Craig McLeman sits on this committee.

Comments/Analysis:

At Public Consultation Centre (PCC) No. 2, Alternative #3 to Produce Dried, Low-Volume Fertilizer at a centralized location, was identified as the Preferred Strategy for managing biosolids, with a decentralized location identified as the second Preferred Strategy. The evaluation summary (Attachment No. 1) provided at the PCC identifies this strategy as clearly meeting the evaluation criteria: build on existing infrastructure; protect the natural environment; minimize and manage operational risk; protect quality of life, and be cost effective.

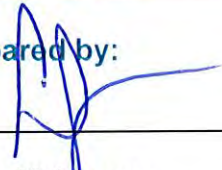
The Cambridge Environmental Advisory Committee provides the following comments:

- What is the level of greenhouse gas emissions produced from the current biosolids management approach? It would be worthwhile to make a comparison to the current approach and not only between the proposed strategies.
- In the future, if a facility to produce dried, low-volume fertilizer is pursued, a robust public consultation process should be undertaken to determine its location.

The Cambridge Environmental Advisory Committee is of the opinion that all options were thoughtfully reviewed and are supportive of Alternative #3 as the Preferred Strategy.

SIGNATURE

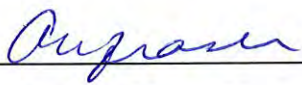
Prepared by:



Craig McLeman
CEAC Chairperson



Brad Hall
CEAC Vice-Chairperson

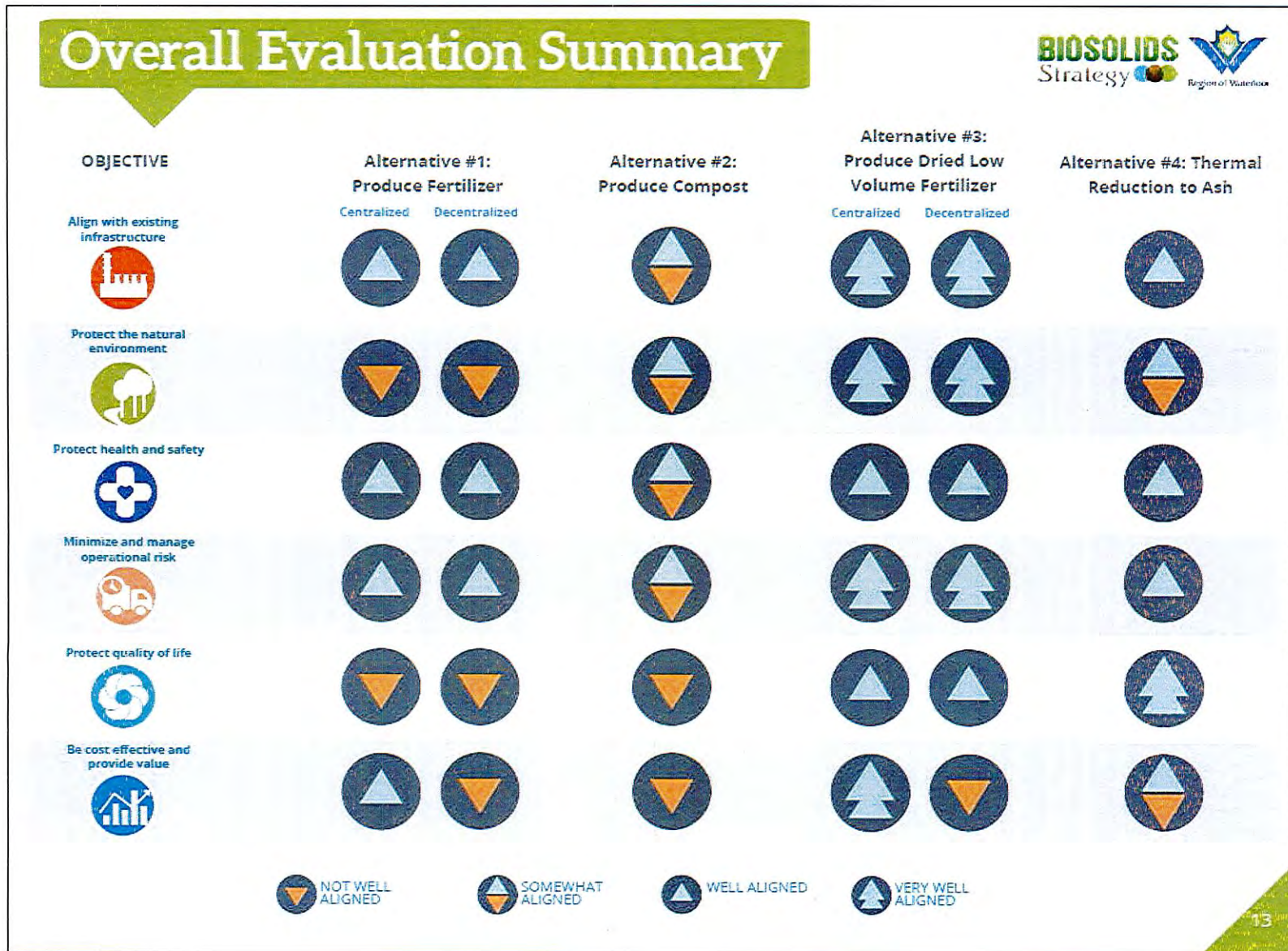


Alison Fraser
CEAC Member

ATTACHMENTS

Attachment No. 1 – Overall Evaluation Summary

Overall Evaluation Summary





APPENDIX N:

News Articles

Content Guide

Appendix N

- News Articles on the Biosolids Strategy



Public to have say on Waterloo Region biosolids plan

News Jul 02, 2015 by [Paige Desmond](/waterlooregion-author/paige-desmond/F828A210-82ED-4865-AF51-F278C97A49C2/) (<mailto:pdesmond@therecord.com>) [Waterloo Region Record](mailto:pdesmond@therecord.com)

WATERLOO REGION — About one-third of the region's budget to decide what to do with truckloads of biosolids will be spent consulting the public.

As part of a \$1.4-million consultant contract for the biosolids master plan, awarded last week, more than \$450,000 is earmarked for communication and public engagement.

A total of 21 public sessions will be held — seven each in Cambridge, Kitchener and Waterloo.

"I don't know if it's overkill, but it certainly is above and beyond what we normally do," Coun. Tom Galloway said.

Story continues below▼

Biosolids are what's left after waste water is treated. The equivalent of about 18 Olympic-sized swimming pools of it is produced monthly in the Region of Waterloo. It is trucked out of the region by a private contractor to landfills or farmers' fields in neighbouring municipalities. That cost about \$4.7 million in 2014.

Plans for a heat-drying facility in Cambridge went awry in 2013 after major public pushback.

Residents were enraged when they found out about the region's plans to locate the project at the Savage Drive Waste Management Centre, and raised questions about odour, traffic and a perceived lack of public consultation.

Citizens in Cambridge said they weren't consulted.

With the new consultation, politicians hope that doesn't happen again.

"Nobody can claim next time around that they didn't know, even though we did advertise extensively last time," Regional chair Ken Seiling said.

Story continues below▼

The consultant is expected to spend up to four years leading a review of options to deal with biosolids and completing the public consultation, with a final report expected in 2019.

That's about double the time such a process would normally take and is due, in part, to the public consultation goals.

"These kinds of facilities are not easily located and there's all kinds of rumours and things that go around . . . and I think we learned from the last process that you really have to cross your Ts and dot your Is with the information and make sure people have no reason to say they didn't have the correct information," Galloway said.

Among the communication improvements planned for this time around are a project charter to clearly outline the process, new ways to get information out such as social media and more clear, less technical information for the public to consider.

The consultant is expected to start work in July, but the exact timing for public consultation is not yet available.

Biosolids master plans were completed in 2003 and 2011, which lead to the recommendation for a heat-drying facility.

Property near the regional landfill in Waterloo was originally shortlisted for the biosolids facility, but also faced public pushback in part motivating the decision to build the plant in Cambridge, staff said at the time.

pdesmond@therecord.com (<mailto:pdesmond@therecord.com>) , Twitter: @DesmondRecord

by [Paige Desmond](/waterlooregion-author/Paige-Desmond/f828a210-82ed-4865-af51-f278c97a49c2/)

Paige Desmond covers Waterloo City Hall and can be reached via (<https://twitter.com/DesmondRecord>)

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The **R**ecord.com

Region starts biosolids conversation

News Oct 12, 2015 by [Paige Desmond \(/waterlooregion-author/paige-desmond/F828A210-82ED-4865-AF51-F278C97A49C2/\)](#) <mailto:pdesmond@therecord.com> Waterloo Region Record

WATERLOO REGION — Prepare to hear more about biosolids than you probably ever wanted to.

The Region of Waterloo kicks off a wide-reaching engagement campaign on the cakelike material Nov. 17 in an attempt to educate the public ahead of a decision on how to deal with the material.

It's a response to the angry public pushback it received in 2013 when plans for a biosolids heat-processing facility in Cambridge were announced.

Many members of the public said they weren't consulted or informed of the plans for a facility at the Savage Drive Waste Management Centre. They worried about traffic and odour.

Story continues below▼

"I don't think anybody at the end of the day is going to be able to say they didn't know about it . . . but it won't prevent, when we have to pick a location, people raising concerns about it," said Coun. Tom Galloway.

He chairs the committee which oversees water and wastewater.

Biosolids are what's left after waste water is treated. The equivalent of about 18 Olympic-sized swimming pools of it is produced monthly in the Region of Waterloo.

The region wants to craft a plan to deal with the material.

Currently, it is trucked out of the region by a private contractor to landfills or farmers' fields in neighbouring municipalities. In 2014, that came at a cost of about \$4.7 million.

A decision on what to do isn't expected for a few years but officials want to start talking now.

Story continues below▼

"Part of the start of it is getting people to understand what biosolids are, which I think is really one of the issues," said Thomas Schmidt, commissioner of transportation and environmental services.

While neither Kitchener nor Waterloo residents were pleased to be shortlisted for a biosolids plant in 2013, Schmidt said the location will be in part guided by the technology that's chosen to deal with it.

"Technology may push you to certain locations," he said.

The region hosts a launch for the biosolids management strategy Nov. 17 at the Waterloo Region Museum on Huron Road.

Science journalist Bob McDonald, also the star of an educational video on the topic produced by the region, will be the guest speaker.

A household phone survey of 500 people to find out how much local residents know about biosolids was completed in September. An online survey starts Nov. 17.

As part of a \$1.4-million consultant contract for the biosolids master plan, awarded in June, more than \$450,000 is earmarked for communication and public engagement.

A total of 21 public sessions will be held — seven each in Cambridge, Kitchener and Waterloo.

"I think we're ready but to predict there won't be any issues is a bit utopian," Galloway said.

To register for the launch and hear McDonald speak, or to read background research on the project, visit <http://www.regionofwaterloo.ca/en/aboutTheEnvironment/Bio-Solids.asp> (<http://www.regionofwaterloo.ca/en/aboutTheEnvironment/Bio-Solids.asp>)

pdesmond@therecord.com (<mailto:pdesmond@therecord.com>) , Twitter: @DesmondRecord

by [Paige Desmond \(/waterlooregion-author/Paige-Desmond/f828a210-82ed-4865-af51-f278c97a49c2/\)](#)



Region's biosolids strategy kicks off with public education event

News Oct 14, 2015 by [Melissa Murray](/kitchener-on-author/melissa-murray/2140D05C-D01C-46A5-9FD8-3891BB64E80D/) [/kitchener-on-author/melissa-murray/2140D05C-D01C-46A5-9FD8-3891BB64E80D/](mailto:mmurray@metroland.com) [✉](mailto:mmurray@metroland.com)
[Kitchener Post](mailto:mmurray@metroland.com)

Regional councillors are hopeful an enhanced engagement plan for its biosolids strategy will take the stink out of the process.

Last week, regional councillors received a report about the public engagement process that includes a kickoff event at the Waterloo Region Museum on Nov. 17 with science journalist Bob McDonald.

"Some people claimed last time that the process flew under the radar. This will hopefully put to rest some of those concerns, but it doesn't prevent people complaining about the process because they don't like the outcome," Coun. Tom Galloway, who chairs the planning and works committee meeting, said.

Galloway said there were some gaps in the communications process last time around.

Story continues below▼

"They did have the ability to say the engagement process was not robust, but this one is particularly robust and people won't be able to point to that," he said.

The region's plans to create a drying facility were thwarted in 2013 after residents from Cambridge opposed the location for the plant and complained about the process.

Coun. Sean Strickland said this strategy is vastly improved compared to last time around.

"I think what's key is the educational piece. This is not a particularly glamorous subject, but we need to be realistic about dealing with our own waste," Strickland said.

"Still there will be some people we will be unable to reach, but that's the role of government to reach as many people as possible."

This time, the strategy is starting from scratch and staff will look at different technologies and, if necessary, locations for a plant.

Story continues below▼

Biosolids are what's left after water is removed from waste. Daily, the region sends between five and seven truckloads of biosolids to be used on local farms as fertilizer. The rest is either stored or brought to the landfill.

The previous strategy suggested the region build a heat-drying facility that further dewater the product, to a point where it can be sold as fertilizer.

"It's incumbent on us to let the process unfold before we start taking positions," Galloway said. "Fundamentally, we need to find a way to deal with our own waste and I don't believe shipping it down the highway is sustainable," he said.

There was also a telephone survey conducted last month. About 500 people completed the survey that asked about residents' opinions and knowledge of biosolids.

The communications plan will also include newspaper articles, public events, facility tours, project newsletters, online engagement, public consultation centres and a strategy notification list.

The launch event is scheduled for Nov. 17 at the Waterloo Region Museum. The event is open to the public, but residents are asked to preregister for the speaker.

by [Melissa Murray](/kitchener-on-author/Melissa-Murray/2140d05c-d01c-46a5-9fd8-3891bb64e80d/) [/kitchener-on-author/Melissa-Murray/2140d05c-d01c-46a5-9fd8-3891bb64e80d/](mailto:mmurray@metroland.com)

Melissa Murray is a former reporter with the Ottawa West News.

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Poop plan starting from scratch

News Oct 21, 2015 by [Ray Martin \(/cambridge-on-author/ray-martin/4C516360-5414-4F69-AB12-5ED42842C786/\)](/cambridge-on-author/ray-martin/4C516360-5414-4F69-AB12-5ED42842C786/)  <mailto:rmartin@cambridgetimes.ca>) Cambridge Times

NORTH DUMFRIES — A group of North Dumfries residents got the straight poop on Waterloo Region's plans to create a new biosolids master plan last Thursday (Oct. 15).

About 20 people braved the heavy rains to pack the Clyde-Scott Women's Institute Hall in North Dumfries to hear from regional officials about the new plan.

"We're just starting work on a new biosolids strategy for the region," explained Nancy Kodousek, Waterloo Region's director of water services.

Nodousek said the region is starting from scratch to develop its new strategy and will be examining a variety of new technologies as it develops its new biosolids master plan during the next four years.

Story continues below▼

Waterloo Region processes more than 180 million litres of wastewater per day at 13 wastewater treatment plants. Once the water is treated, the remaining solids need to be dewatered and dealt with.

That boils down to between five and seven truckloads of biosolids material that needs to be dealt with on a daily basis.

Currently, the waste is being trucked outside the region to be treated and spread on fields that have been specially licensed by the province.

It is anticipated the population of Waterloo Region will grow by 30 per cent during the next 30 years.

"We will be looking at all the options to come up with a solution that best suits the community," said biosolids manager Kaoru Yajima. "This is a new look forward."

Waterloo Region in 2011 had developed a master plan for biosolids, which proposed that a plant be built at the Cambridge landfill site off Savage Drive to burn off the waste.

Story continues below▼

Residents of Cambridge and North Dumfries solidly rejected that plan and regional councillors sent its staff back to the drawing board.

"We want to make sure we get it right this time," Kodousek told the meeting.

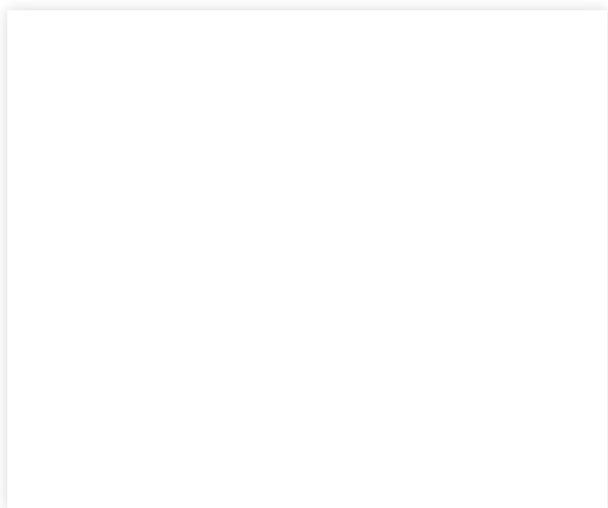
North Dumfries residents and the township had already formed an informal biosolids group after the region introduced its last biosolids master plan.

Members of that group were invited by regional staff to apply to be on the steering committee for the new master plan.

by [Ray Martin \(/cambridge-on-author/Ray-Martin/4c516360-5414-4f69-ab12-5ed42842c786/\)](/cambridge-on-author/Ray-Martin/4c516360-5414-4f69-ab12-5ed42842c786/)

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Tags: [News \(/cambridge-on-news/\)](/cambridge-on-news/)



Biogas is viable option while biosolids are not

Opinion Nov 02, 2016 Waterloo Chronicle

Biogas, yes. Biosolids, no.

Regarding the Chronicle's recent article about Waterloo biogas proposal, gas from biosolids — whether Class B, Class A, or pellets — to produce a renewable non-fossil fuel source of heat and energy is certainly safer, more sustainable, and more beneficial, than spreading this contaminated waste mixture on land.

Consider this: Every industry, business, metal plating shop, hospital, nuclear power plant, laundry and dry cleaning shop connected to a sewer can pipe its hazardous chemicals and radioactive waste into sewage treatment plants.

These plants are not designed to produce fertilizer. They are designed to remove the contaminated solids from the wastewater that is returned to the environment.

The better the process works, the dirtier the sludge.

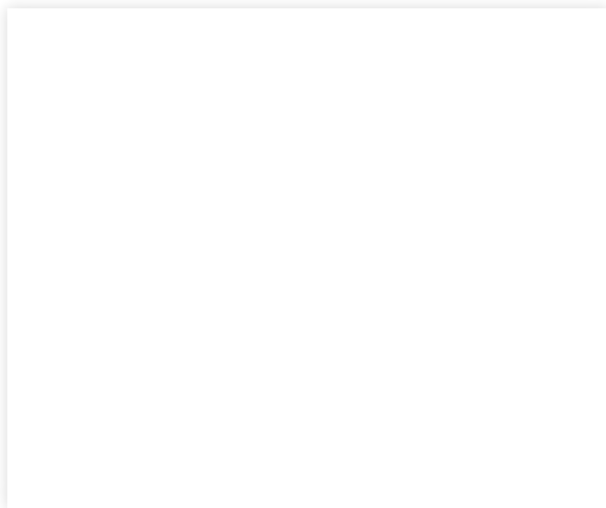
Worse, processing sludge to reduce indicator pathogens causes more robust superbugs to evolve, which then end up transferring their antibiotic resistance to formerly healthy soil microorganisms.

In addition, all sludge and sludge products contain toxic metals and thousands of man-made chemical compounds, of which only a handful are regulated.

Caroline Snyder, PhD

Emeritus Professor,

Rochester Institute of Technology





Region to harness power from biosolids process

News Nov 08, 2015 by [Paige Desmond \(/waterlooregion-author/paige-desmond/F828A210-82ED-4865-AF51-F278C97A49C2/\)](#) [\(mailto:pdesmond@therecord.com\)](#) [Waterloo Region Record](#)

WATERLOO REGION — About 1,400 kilowatts of power could be generated using the gas from biosolids in Waterloo Region in 2020, saving millions of dollars in electricity costs.

The move will harness energy that's currently being wasted, reduce costs and could reduce greenhouse gas emissions.

"From the region's perspective, it costs us millions of dollars in electricity bills to treat sewage and so, if we're able to reduce that operating cost, that's a win for all taxpayers," Coun. Sean Strickland said.

Politicians voted last week to pursue what's called combined heat power and cogeneration at the Galt, Kitchener and Waterloo wastewater treatment plants.

Story continues below▼

The process uses gas from the treatment of biosolids to create electrical energy and recover waste heat from the treatment process.

Biosolids are what's left after waste water is treated. The equivalent of about 18 Olympic-sized swimming pools of it is produced monthly in the region.

Right now, the region harnesses some heat from the treatment of biosolids for boilers used in the process. Extra gas is burned off into the atmosphere.

Instead of getting rid of that extra gas, the region will take advantage of a program being offered by the Ontario Ministry of Energy that covers up to 40 per cent of the capital cost of building infrastructure for heat recovery and cogeneration projects.

Electricity represents 25 per cent of the costs of wastewater treatment — a cost of \$3.6 million last year — and 70 per cent of the total electrical energy used regionwide for wastewater treatment.

Staff estimate between 40 and 60 per cent of the energy used at each plant could be generated.

Story continues below▼

"It's a positive that there's a process or a form to utilize something that is waste per se," said Coun. Karl Kiefer.

To meet the province's eligibility requirements, the facilities must be running by Dec. 31, 2020.

The cash available from the province for each facility will be calculated based on the first year of the projected energy production of the facility. Each facility will have to meet 80 per cent of that target for 10 years.

Feasibility assessments are expected to be complete by year's end.

The region will also need renewable energy approval for the sites from the Ministry of Environment and Climate Change.

The region operates 13 wastewater treatment facilities, which separate liquids and solids. The liquids are treated to a provincially-mandated standard and sent back into the Grand River. The solids are processed into biosolids.

But merely saying the word "biosolids" in this region can get a negative response after controversy the last couple years.

Kiefer said that's to be expected.

"I'm very much aware of the situation and I think what needs to happen ... is there needs to be a little more education done in terms of the residents and the taxpayers as to what's going on and what's gone on," he said.

In 2013, when plans for a biosolids heat-processing facility in Cambridge were announced, residents pushed back hard.

That's been put off and an extensive public input and education process is underway.

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by [Paige Desmond \(/waterlooregion-author/Paige-Desmond/f828a210-82ed-4865-af51-f278c97a49c2/\)](#)

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Kitchener city councillor Sarah Marsh was on hand to hear CBC Radio's Quirk & Quarks host Bob McDonald speak at the Waterloo Region Museum November 17.

QUIRKS & QUARKS HOST BOB MCDONALD

Region of Waterloo starts biosolids discussion with an entertaining examination of human waste

by Helen Hall
Kitchener Citizen
December 3, 2015

The Region of Waterloo wants you to start thinking about your 'poop', and in particular, where it goes after it leaves your house.

To start the conversation, the Region invited Bob McDonald to the Waterloo Region Museum in Kitchener on November 17 to talk about the planet earth, its water, and the effect of wastewater on both.

The region is beginning a four year biosolids strategy study. Biosolids are the solids that remain after the water has been drained from wastewater that comes from homes. The region currently has 13 treatment plants that treat the wastewater and, after treatment, the remaining biosolids are disposed of in landfills or distributed to farms for fertilizers. The biosolids strategy will determine how the region will deal with biosolids in the future.

McDonald is a science reporter and the host of the show Quirks & Quarks on CBC radio. He is the author of four best-selling science books, and has eight honorary doctorates from Canadian universities.

"Water is as old as the earth itself," McDonald told a crowd at the Waterloo Region Museum. Water is not created, but is recycled through the environment when rain and snow melt, evaporate, then turn into rain and snow again.

Therefore, he said with a smile, "when you drink a glass of water, it has probably been through a dinosaur, and possibly through someone you know."

Because of this, he stressed the importance of protecting the earth's water. "It's miracle, miracle stuff." McDonald gave a brief history on how mankind has dealt with disposing of human waste, in his cheekily entitled presentation "10,000 Years of Poop."

McDonald said that human waste was not a problem when humans were hunters and gatherers. It didn't accumulate in one place because humans moved around.

Ten thousand years ago, during the neolithic era, humans created tools to be used for agriculture and began farming, so they no longer needed to travel to find food. Farms fed more than one family, and people started staying in one spot - and so did their waste. Today, some cities have over a million people, "creating a lot of poop."

McDonald said drawings from 1700 BC show that the Romans built commodes that emptied into sewers that drained into rivers, lakes and seas.

"Once it was out of sight, it was out of mind," McDonald said.

However, people drank from those rivers, too. Soon, there were many deaths from sickness and plagues, that we now know were caused by the human waste in the water.

McDonald said that once humans started having better sanitation and treating our waste, our life expectancy increased. However, there are still many parts of the world without proper water treatment.

McDonald said that even today in Canada, not all communities treat their waste. His home of Victoria, British Columbia is just building its first wastewater treatment plant.

"They've always just flushed it out to sea," he said.

In 2000, seven people died and 2,300 became ill in Walkerton, when its groundwater supply was contaminated with e. coli bacteria from farm runoff that contained animal waste. Staff did not properly test and treat the water before it entered the town's water supply.

Although a photograph of the earth looks like there is a lot of water to share, McDonald said very little is drinkable. He said 90 percent of the world's water is salty. Of the remaining 10 percent, 90 percent is frozen, and much of the remainder is too far underground or located in the stems and leaves of plants.

"About .003 percent of all the water in the world is drinkable for seven billion people," McDonald said. "And that's what we are pooping in."

Canada is fortunate to be the home of 20 percent of the world's drinkable water, because of the great number of rivers and lakes in the country.

"We have a responsibility to take care of it," McDonald said.

McDonald talked about humanity's search for other livable planets in the universe. So far, none have been found that can sustain human life.

"All the planets we know of will kill you," he said. "The universe is a violent and deadly place, and this little oasis we live on is all we have."

McDonald didn't offer any answers as to how the region should handle its biosolids or wastewater in the future, but said he just wanted to start a discussion. "I'm a proponent of public education."

"Let's be smart. We went to the moon. We talk to people on the other side of the world from a device that can fit in our pockets," he said. "We have to stop giving our garbage to the future."



APPENDIX O:

Biosolids Educational Materials

Content Guide

Appendix O

- Biosolids Process Poster
- Pull-up Banner
- Colouring Book
- Teacher Education Materials
- Biosolids Strategy YouTube Video Links

Where Does Our Wastewater Go?



BIO SOLIDS
Strategy

Agricultural Land Application of Biosolids
Biosolids contains things plants need to grow, like nitrogen and phosphorus, so it can be used as a fertilizer for crops.

Tailings Pond at Abandoned Mines
Biosolids can be applied to old tailings ponds to rehabilitate the land and restore valuable organics and nutrients.

Landfill
Biosolids can be disposed of at the landfill.

START

Screening
Screens filter out trash in the wastewater.

Primary Treatment
Some solids in the wastewater that get through to this stage settle to the bottom of a tank. Dissolved organics in the wastewater sewage flows to the next treatment step.

UV Disinfection
Ultraviolet lights shine through the water to disinfect it, killing microscopic bugs from the treatment plant.

Network of Underground Collection Pipes

Pump Station
Moves wastewater when it can no longer flow on its own.

The Grand River Watershed
Treated wastewater that meets Provincial standards is returned to the Grand, Speed and Nith rivers.

Blower Building
Blowers force air into the bottom of the secondary treatment tanks, where it bubbles up to provide oxygen to microscopic bugs.

Secondary Treatment
Microscopic bugs in an aeration tank clean the water by eating the dissolved organics. The next tank allows them to settle out.

Transport Truck
Biosolids products are transported from the Region's wastewater treatment plants for use on agricultural land, or mine tailings pond reclamation, and disposal in regulated landfills.

Digester
Settled material is processed through an anaerobic digester that contains more microscopic bugs (but these ones don't need air). The left over material is called Biosolids. The anaerobic digesters also produce methane – a renewable source of energy.

Biogas
Biogas is a fuel generated in digesters that is mainly methane (like natural gas), and carbon dioxide. The Biogas is collected and currently used as fuel to heat the digesters.

Dewatering
Biosolids still suspended in water are spun like a giant salad spinner in a centrifuge, squeezing out more water to reduce volume, making it easier to transport. The Biosolids now resemble a soil called a cake.

Davis

Pull-up Banner for Public Events

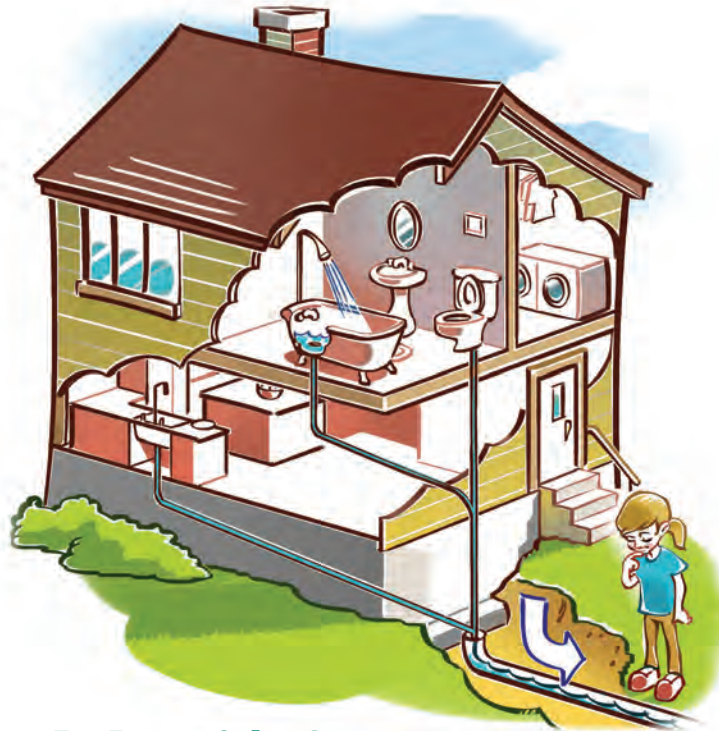


Region of Waterloo

BIOSOLIDS Strategy

Shower. Brush. Wash. Bathe. Flush.

Where Does It Go?



Be Part of the Strategy.

Join the Conversation Today!

www.regionofwaterloo.ca/biosolids



www.facebook.com/ROWWaterServices

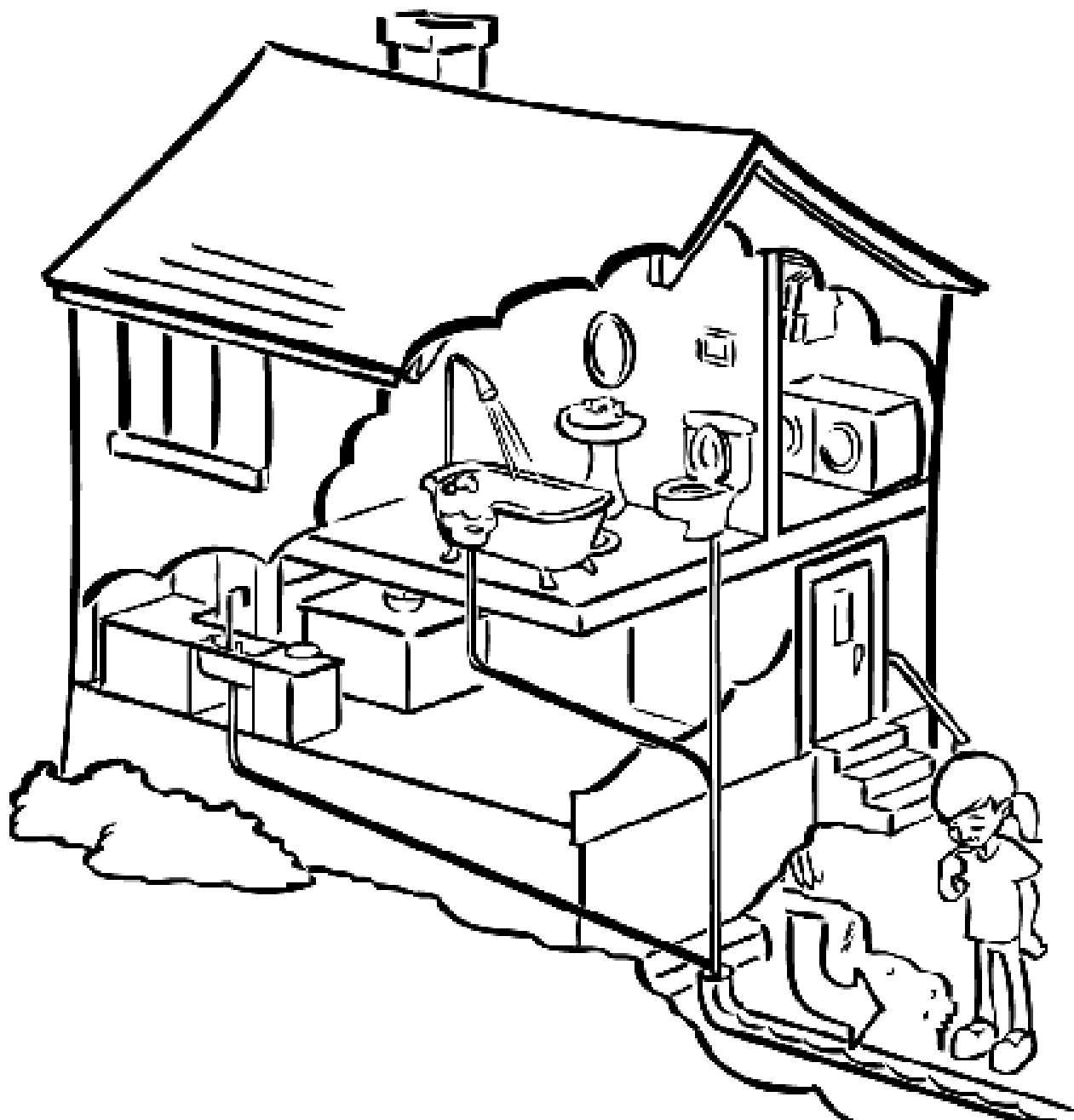


@RegionWaterloo

BLEED AREA
– will not be visible –

Biosolids Colouring Book

The Region is embarking on a multi-year process to develop a new Biosolids Strategy and we need everyone to be involved to help identify the best possible solutions.



Visit:
www.regionofwaterloo.ca/biosolids

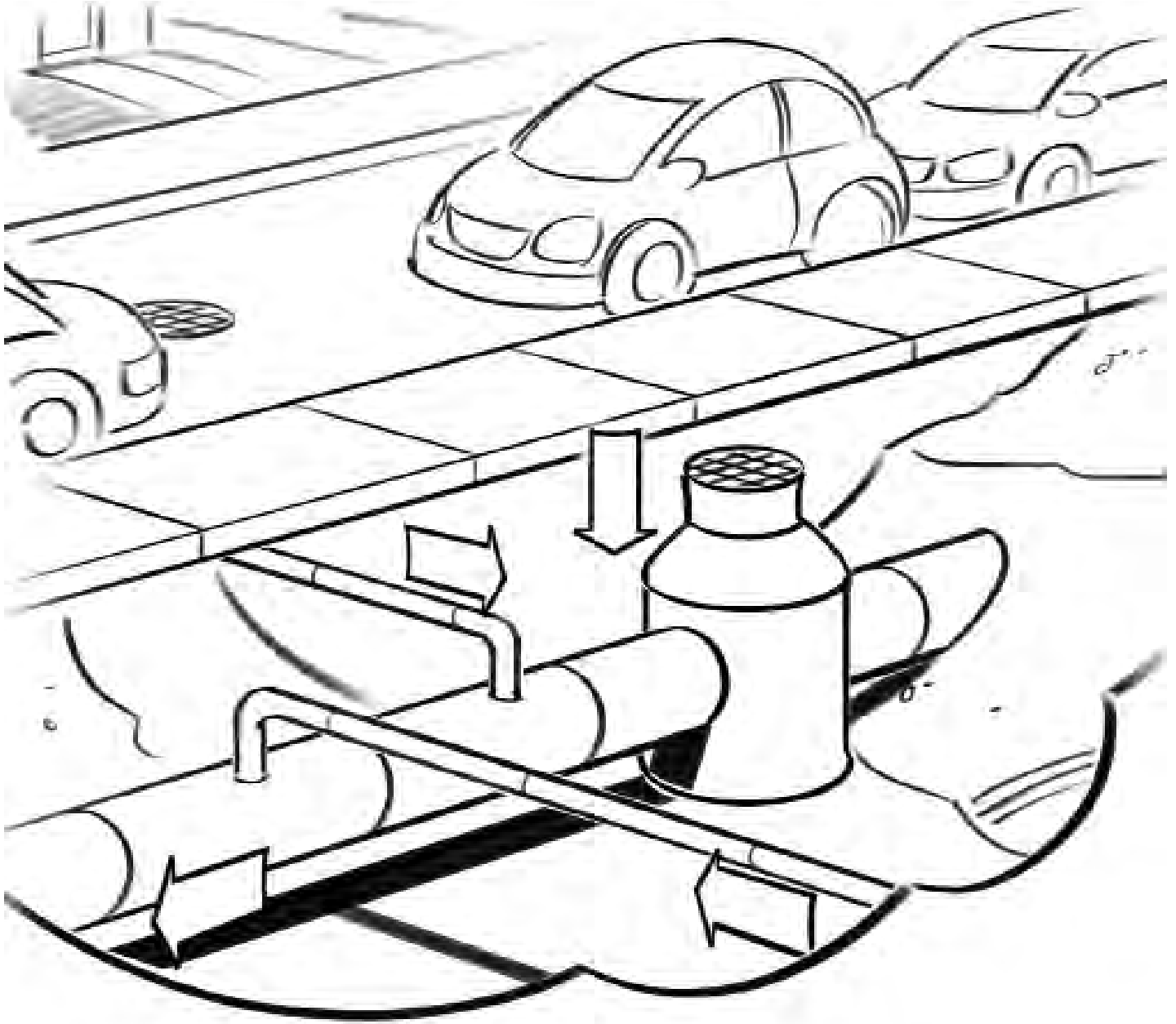
BIOSOLIDS
Strategy



Where Does Our Wastewater Go?

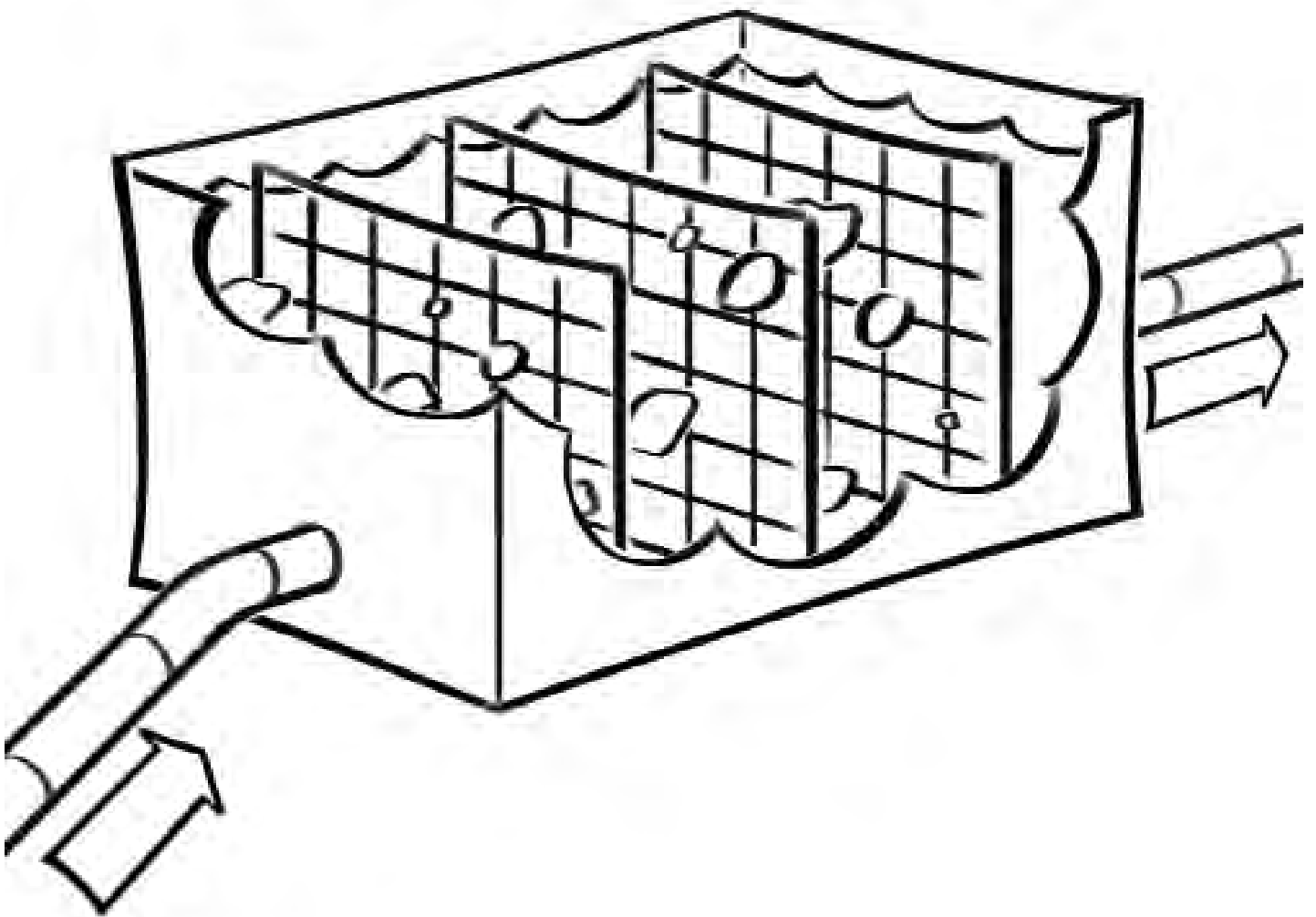


Network of Underground Collection Pipes



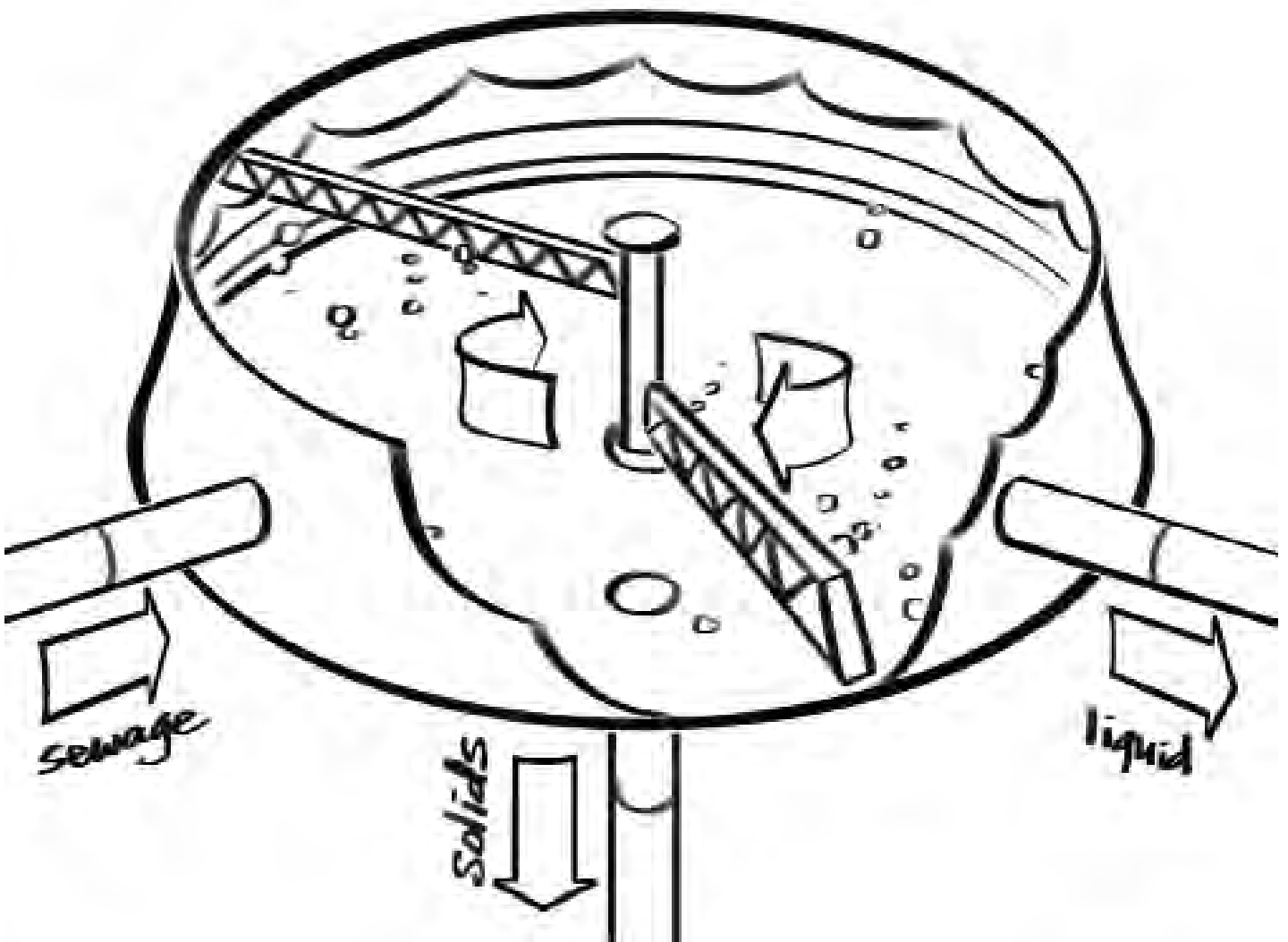
Screening

Screens that filter out the trash in the sewage.



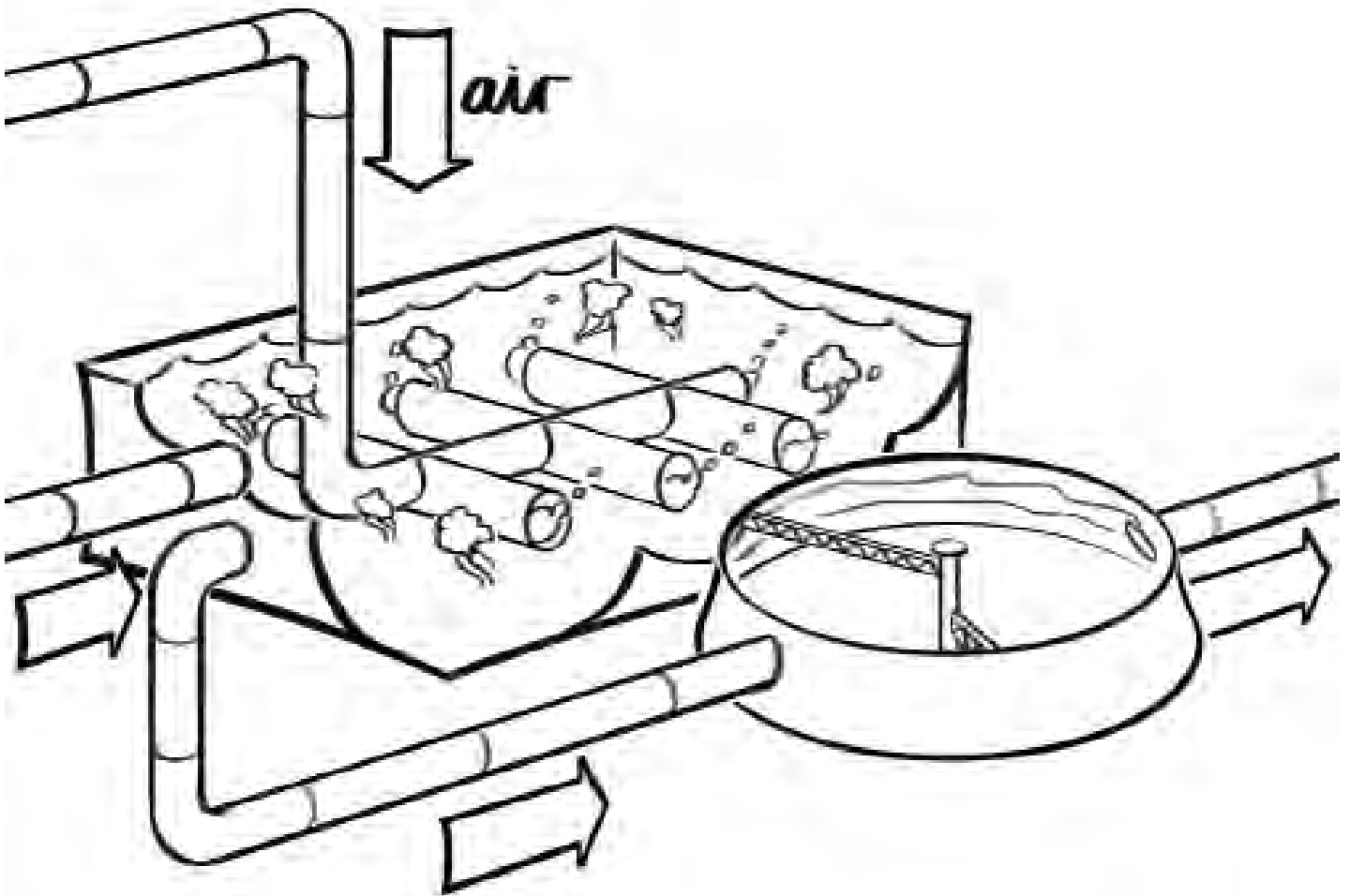
Primary Treatment

Some solid wastes that get through to this stage settle to the bottom of a tank. Dissolved organic matter in the wastewater overflows to the next treatment step.



Secondary Treatment

Nature takes over! Microscopic bugs in an aeration tank clean the water by eating the dissolved organic matter. Since they need to breathe, they are fed bubbles of air. The next tank allows them to settle out.

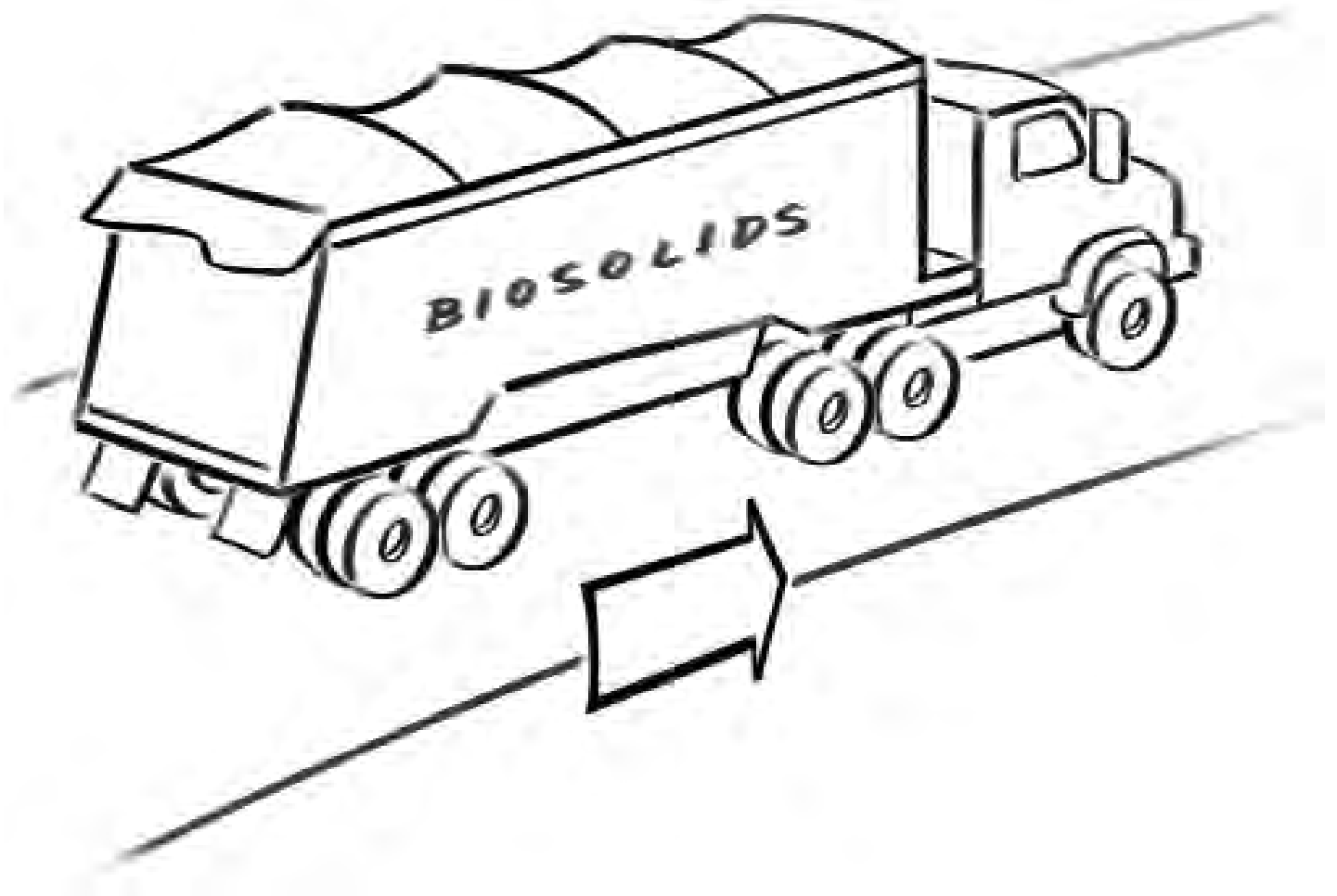


The Grand River Watershed

The Grand, Speed and Nith rivers need to be protected. Treated wastewater that meets standards is returned here.

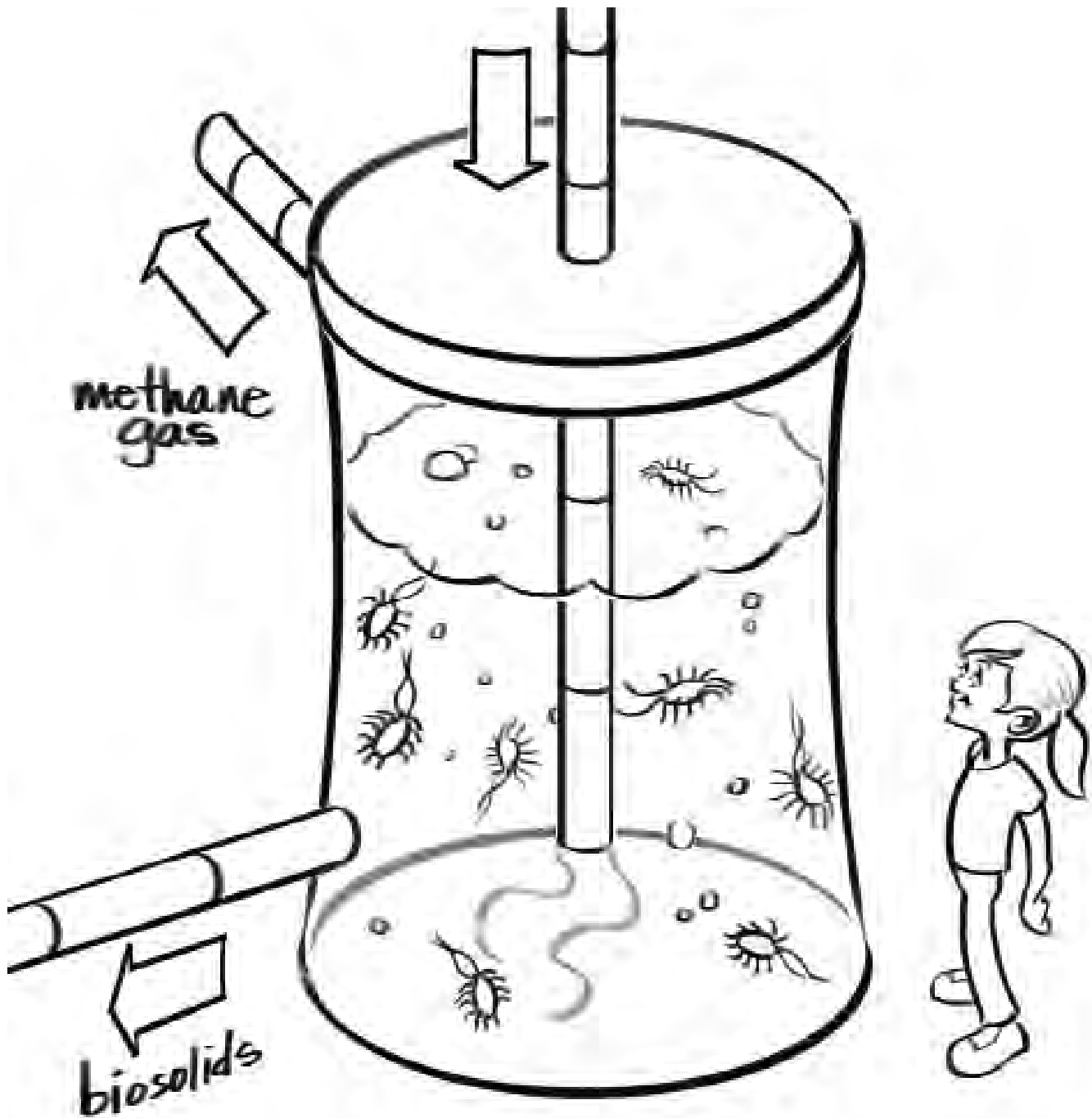


Transport Truck - Biosolids



Digester

Settled material needs treatment too. Most of the Region's settled material is processed through an anaerobic digester that contains more microscopic bugs (but these ones don't need air). The left over material is called Biosolids! The anaerobic digesters also produce methane - a renewable source of energy.





[@RegionWaterloo](https://twitter.com/RegionWaterloo)



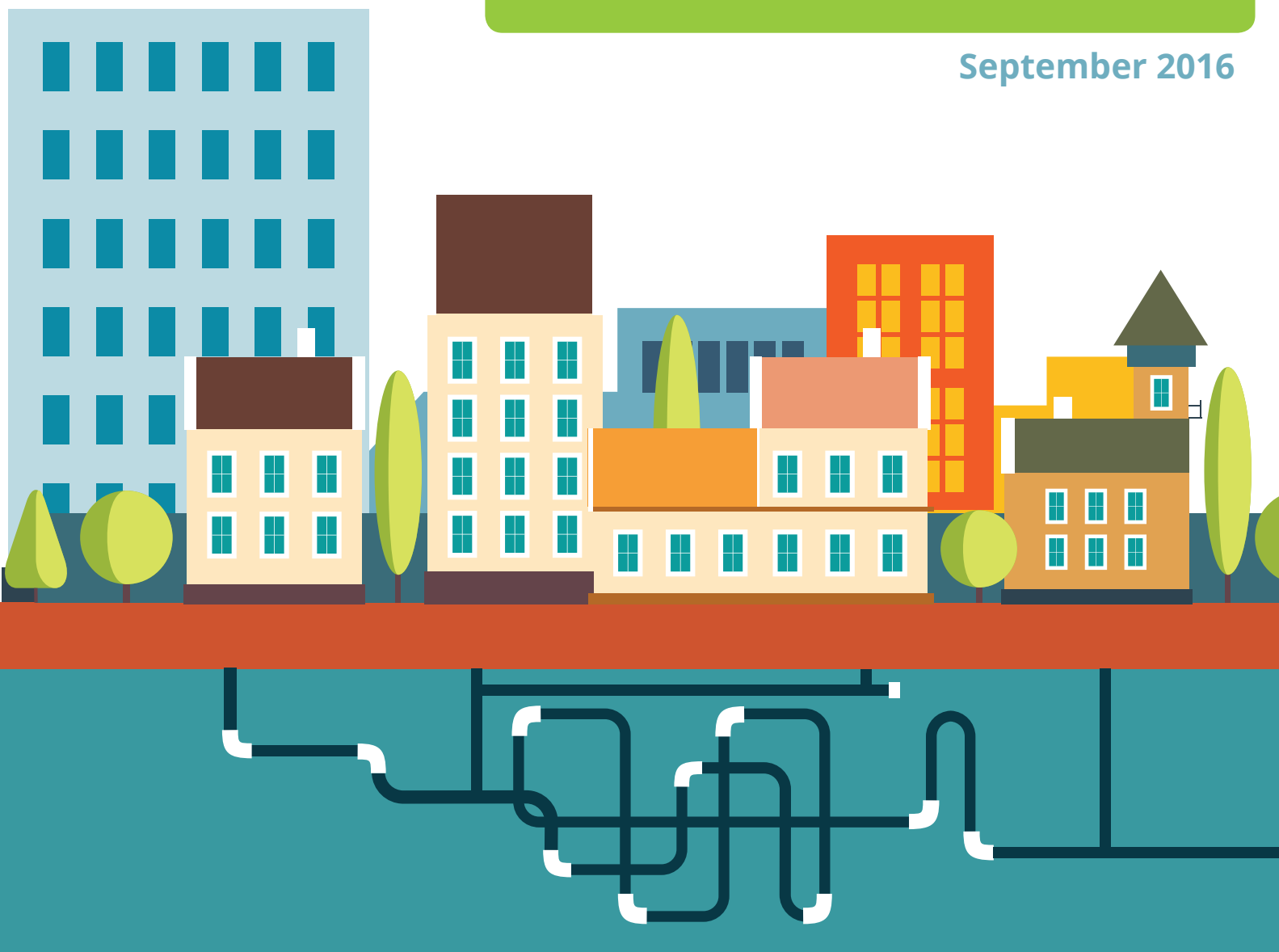
facebook.com/ROWWaterlooServices



Region of Waterloo Biosolids Strategy

Teacher Resource
GRADE 4 LESSON ACTIVITY:
WE ARE ALL CONNECTED

September 2016





Grade 4 Ontario Curriculum Link: Science and Technology - Habitats and Communities

BIG IDEA: Interrelationships

Goal:

To have students understand all the living things that depend on clean water, and how humans, plants, and the environment are all connected.

Materials:

- Large piece of blank paper (one for each student)
- Drawing materials (pencils or pencil crayons)
- Large piece of chart paper (for teacher)
- Sharpie markers

Introduction:

Ask students to draw a picture of a river on a piece of paper in front of them, and a picture beside the river of an animal, a plant, and any other living things they think might depend on the river. After students have finished their drawing, bring their attention to the blackboard or chart paper where you have also drawn a river. Ask students to share what they have drawn and add it to the large class picture the teacher has drawn. The teacher asks students:

- How does this animal depend on the river?
- How does this tree depend on the river?
- How does this person depend on the river?
- Is clean water important for living things?

Next, the teacher draws a picture of a house close by the river and draws pipes leading from the house to the river. The teacher asks students:

- What places in a house might water flow from to pipes (sink, toilet, dishwasher, washing machine)?
- Is water clean when it leaves the pipes from your house or other people's houses?
- What types of things might be in the wastewater coming from houses? Should this water go directly into the river? How might it affect the animals and trees that need the water from our waterways?

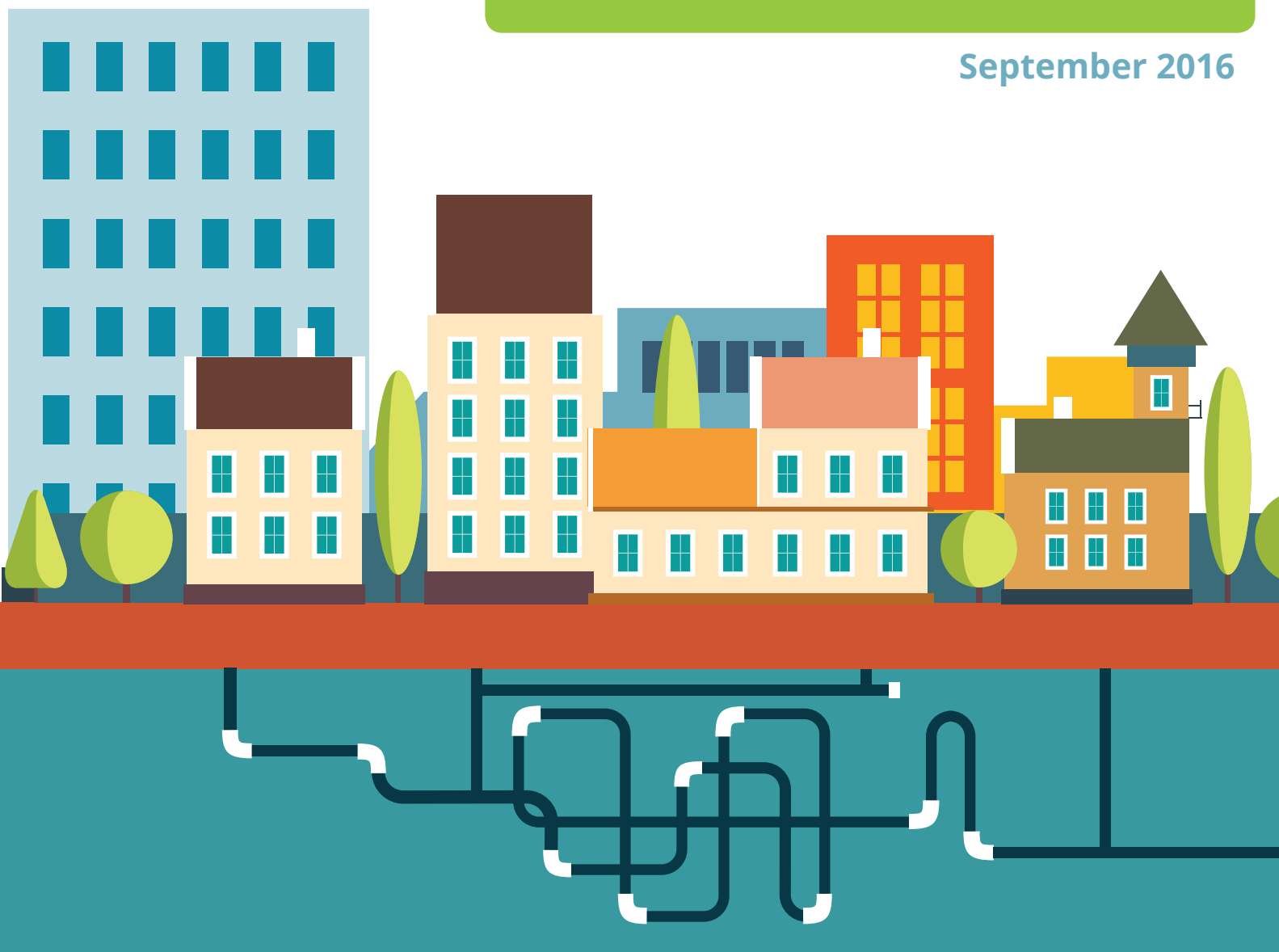
The teacher then draws a building between the river and house and labels it "Wastewater Treatment Plant". The teacher explains to students that it is here that dirty water from buildings called "wastewater" is treated so that we can have access to clean drinking and bathing water, and that our rivers and lakes are healthy for animals, fish, trees and people.

The teacher then asks students to make a list of things that they think CAN go into our sinks, toilets, and drains, and a list of things that CANNOT. Then ask students to come up with one idea for how they might be able to help people in their families or own homes to be more environmentally friendly with our water system. They can try their idea out at home that night and share with the class the following week how their families responded and if they saw a positive change. Could we help the whole school make these changes? How?

Region of Waterloo Biosolids Strategy

Teacher Resource
GRADE 4 LESSON ACTIVITY:
THE STORY OF WASTEWATER

September 2016





Grade 4 Ontario Curriculum Link: Science and Technology - Habitats and Communities

BIG IDEA: Interrelationships

Goal:

Students watch both Biosolids Strategy videos created by the Region of Waterloo:

- VIDEO 1: <https://youtu.be/F6eD83Zuptk>
- VIDEO 2: <https://youtu.be/EN1xngSa3mE>

Students will write and use their artistic skills to colour and bring to life the illustrations on the wastewater management process.

Materials:

- Chart paper and markers (for teacher)
- Projector, SmartBoard, or computer (with audio) for showing YouTube video
- 2 copies of each of the Region of Waterloo's wastewater treatment process illustration handout cards (attached)

Introduction:

Teacher begins discussion with students regarding water use in our homes.

Teacher asks: "Does anyone know what happens to water once it goes down the sink or is flushed down the toilet? We have all heard and know a little about the water cycle in nature, but have you ever thought about the 'urban' water cycle that tells the story of what happens to water in towns, cities, and our own homes? What are some of the things that go down the drain in our homes? Is it always just water? Who can share some of the 'story' of urban wastewater?"

Method:

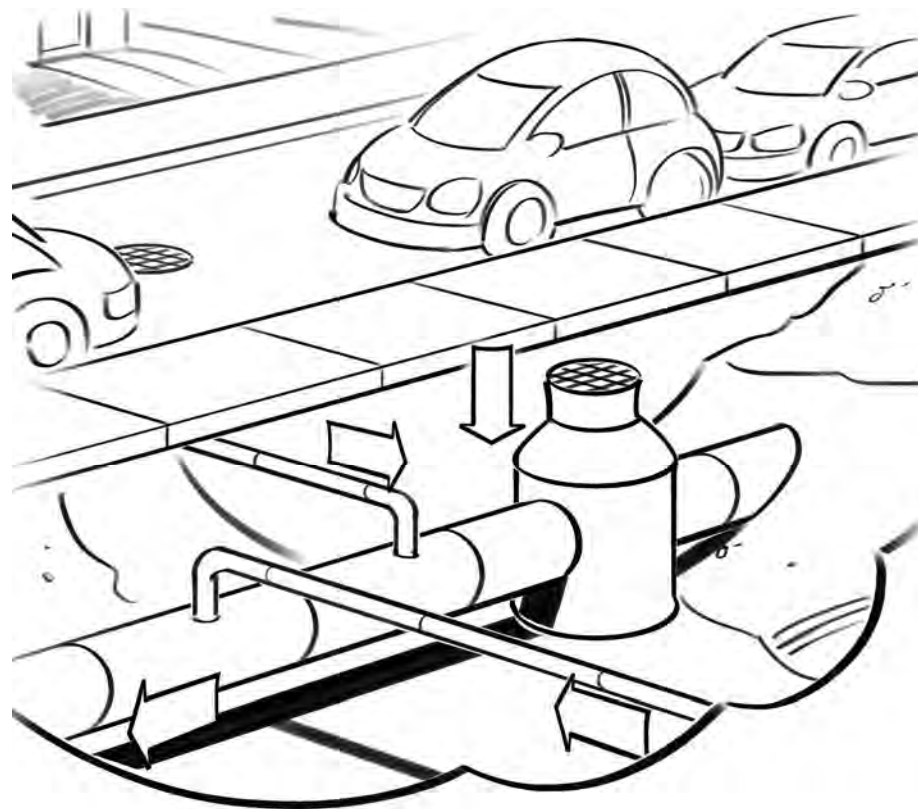
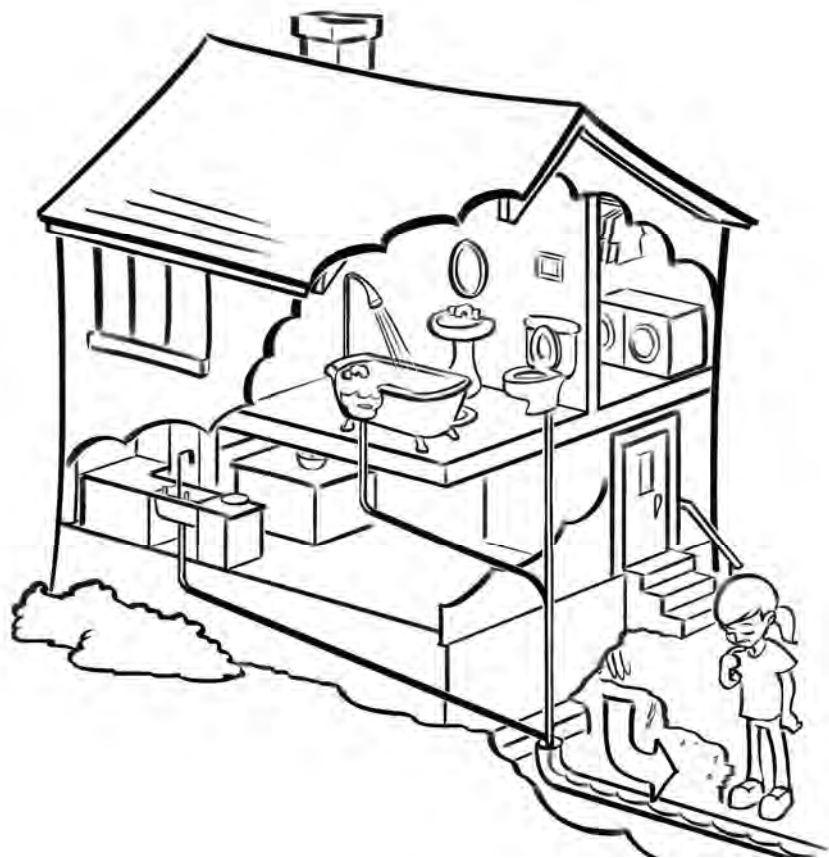
As discussion about water in our home takes place, the teacher records students' ideas and helps students add on to each other's theories. Most likely children will say that water gets "treated" and teacher can ask for more detail and then say, "We are going to watch a couple of short videos today to learn about what actually happens to water and all the stuff that goes down the drain in our homes."

Teacher plays the videos created by the Region of Waterloo. The videos can be played two times; once for enjoyment and twice for understanding.

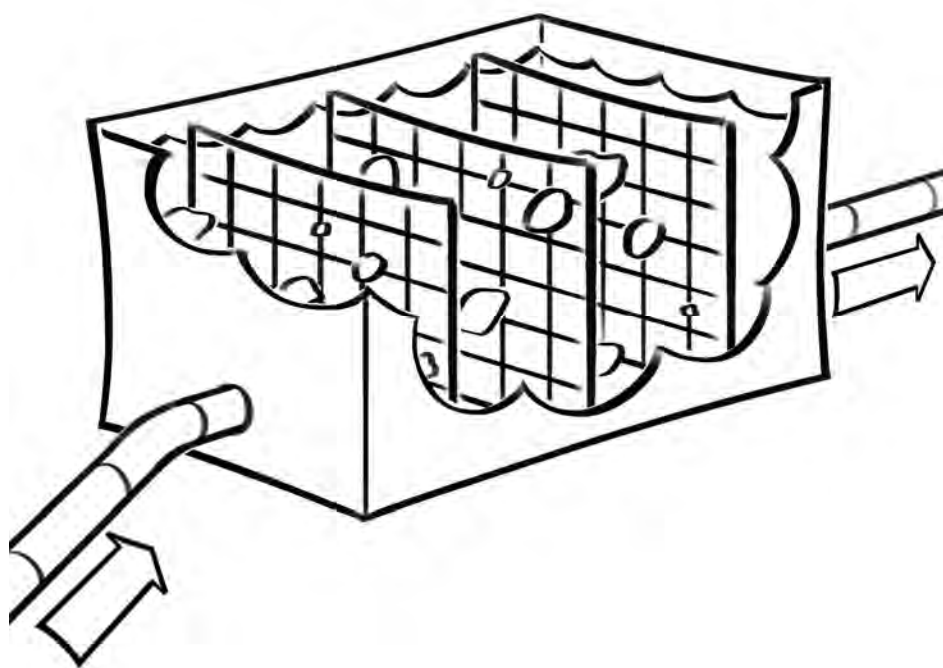
Teacher then puts students into pairs, and hands out one of the wastewater treatment process illustration to each pair (attached). The student's job is to work together and put into their own words what is happening in that illustration, and to colour and decorate the illustration. For a typical class of 30-32 students, each set of illustrations will likely be handed out twice so that the class can make two books in total on the wastewater treatment process. Once created, the class will read the books all together to solidify their understanding of the whole process, and then share with a class in a younger grade. This is to promote environmental activism in the students and to spread awareness about the importance of protecting nature through the water in our own homes.

Your House

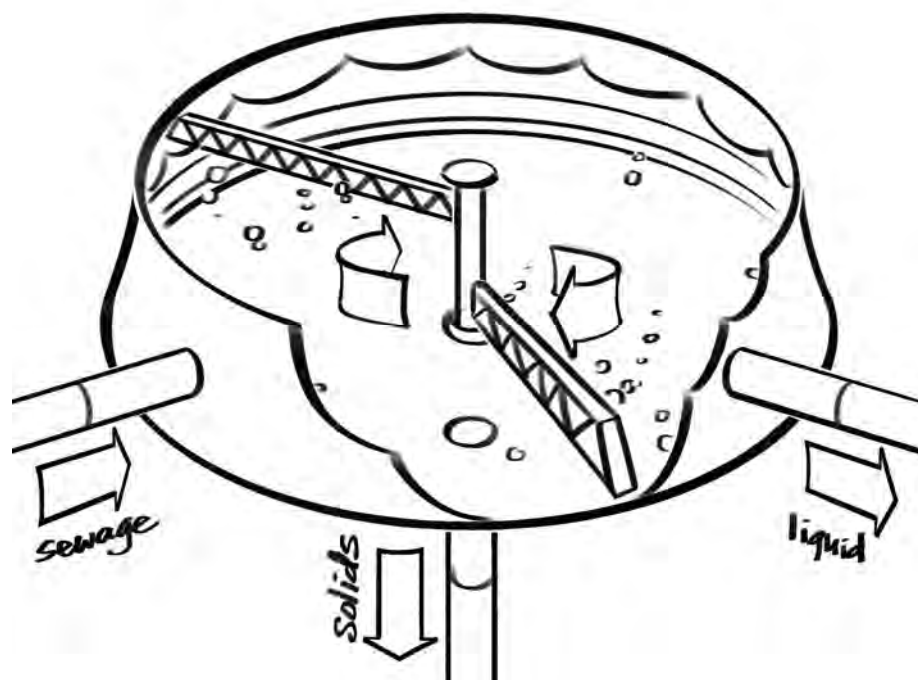
Underground Collection Pipes



Screening

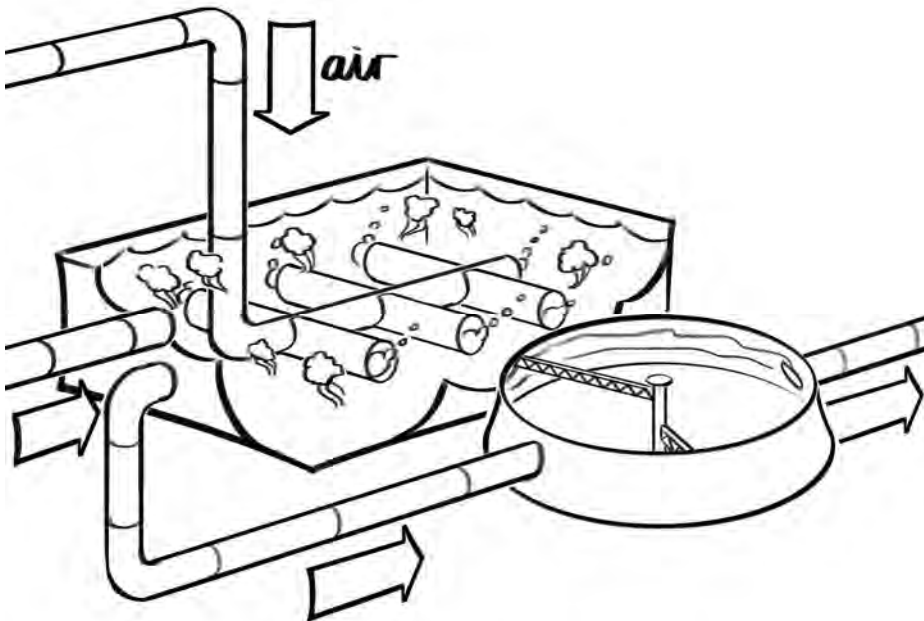


Primary Treatment

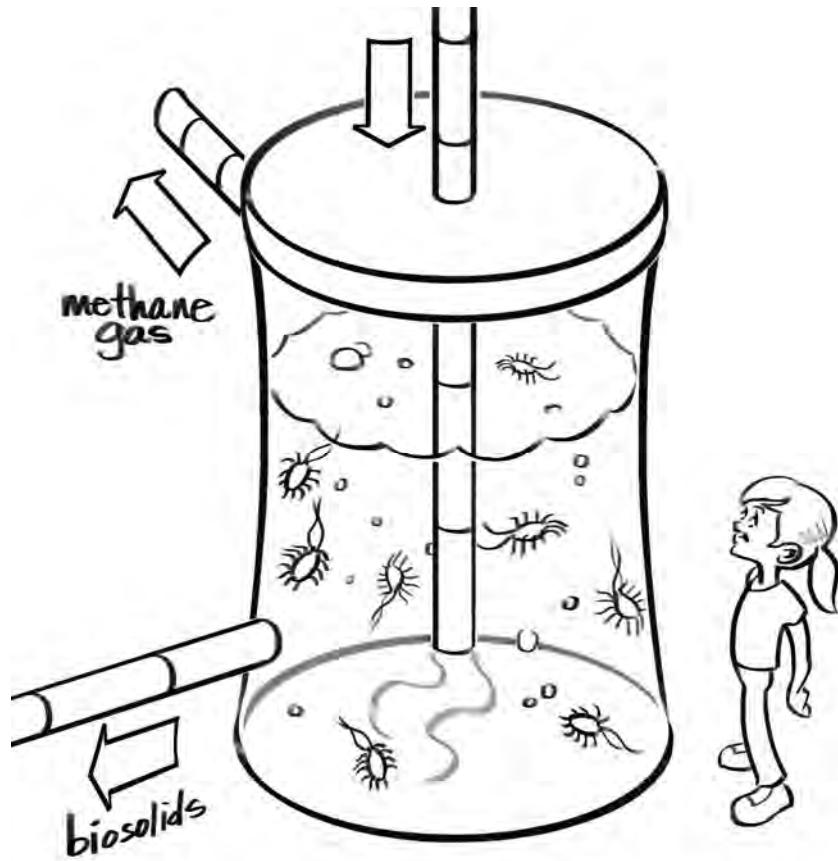


Secondary Treatment

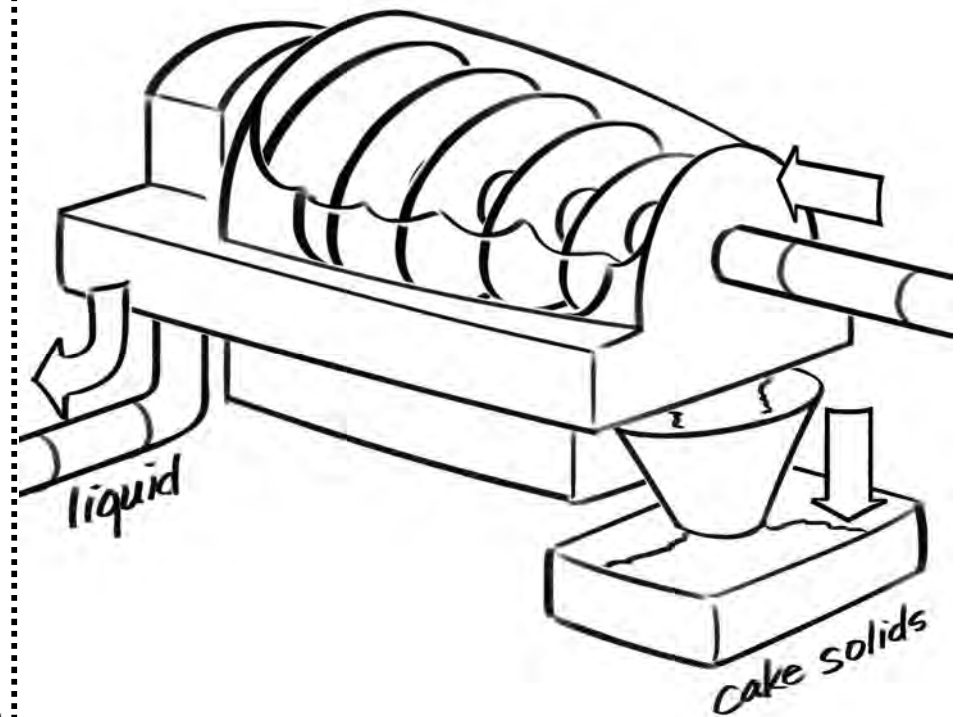
The Grand River Watershed



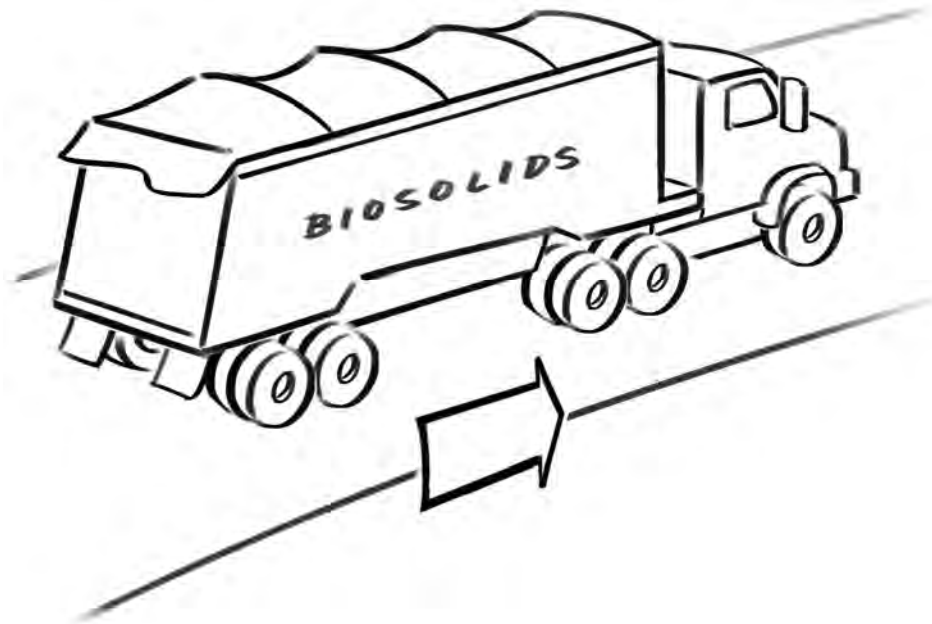
Digester



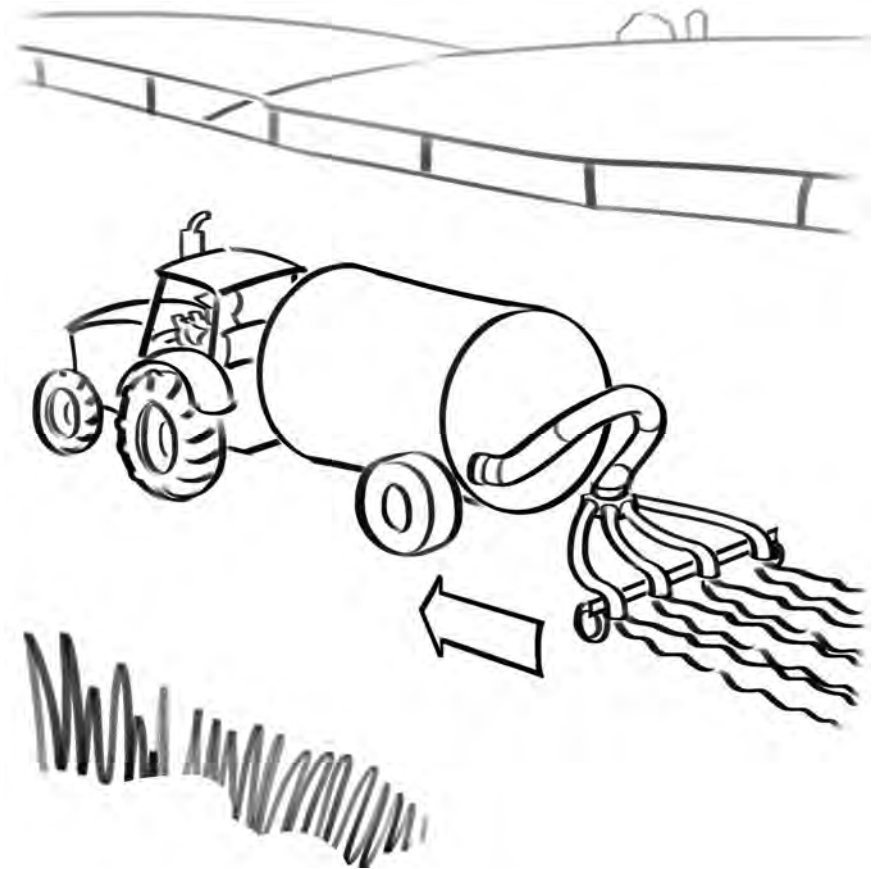
Dewatering



Transport Truck - Biosolids



Agricultural Land Application of Biosolids



Rehabilitating Abandoned Mines

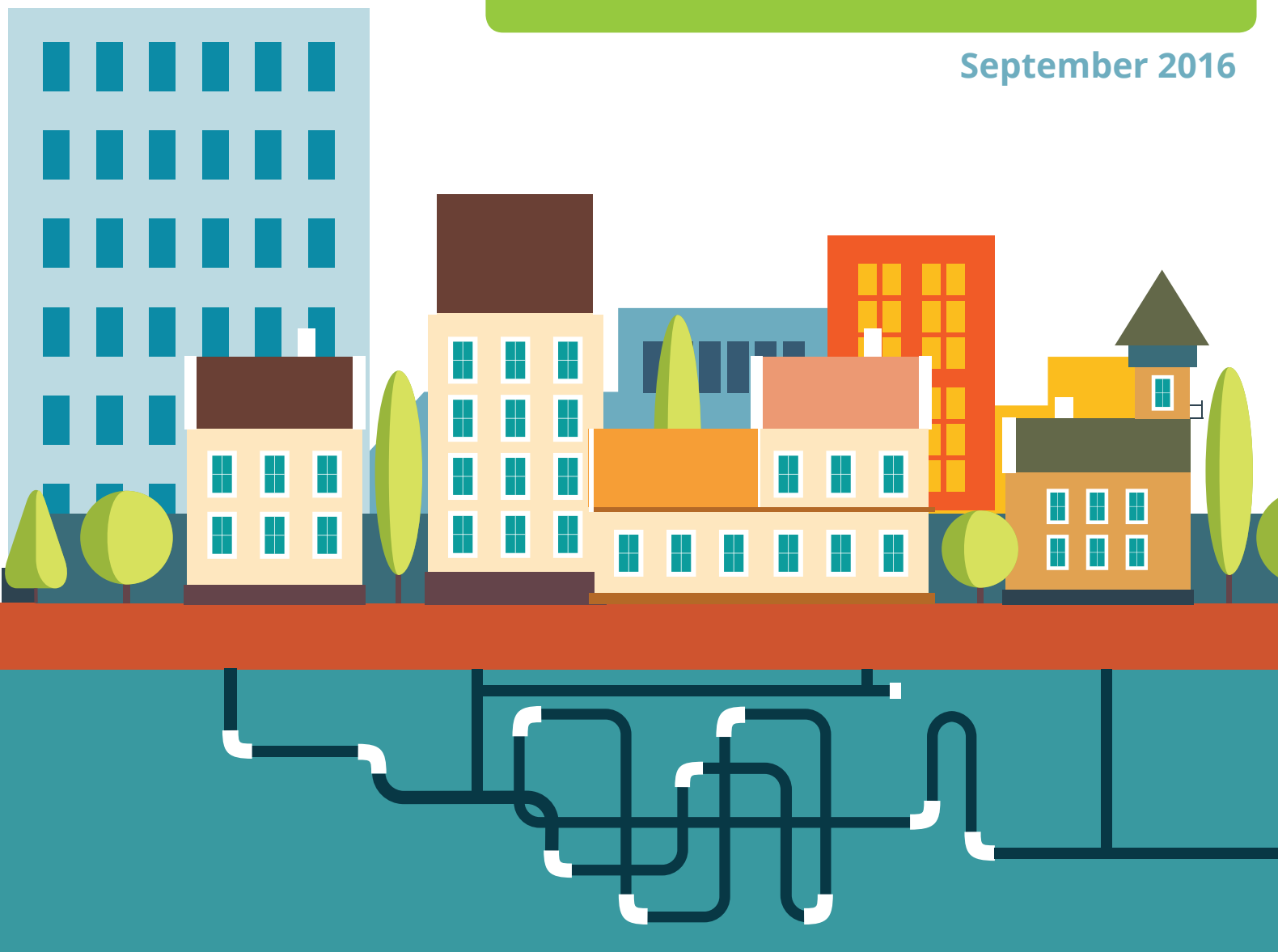
Landfill

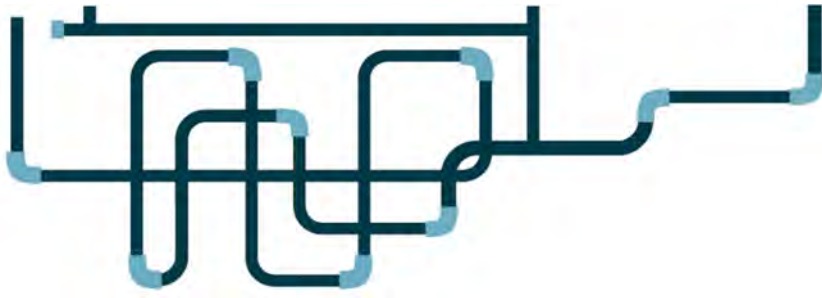


Region of Waterloo Biosolids Strategy

Teacher Resource
GRADE 5 LESSON ACTIVITY:
HOW CLEAN IS YOUR WATER?

September 2016





Grade 5 Ontario Curriculum Link: Science and Technology - Conservation of Energy and Resources

BIG IDEA: Environmentalism

Goal:

To have students understand the complexities of wastewater management and the importance of protecting water from contamination.

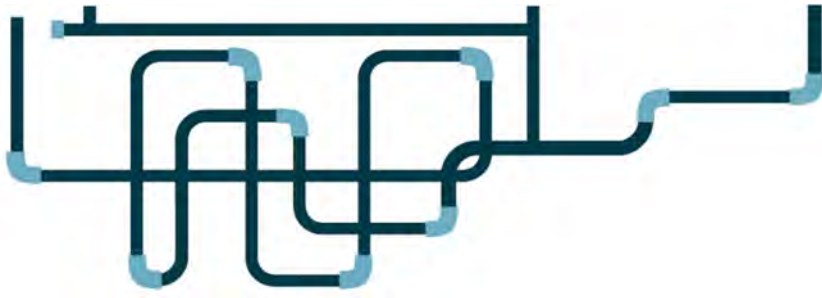
Materials:

- 2L pop bottle (one for each group of students)
- Masking tape
- Scissors
- Absorbent cotton
- Gravel
- Sand
- Metal screening
- Coffee filters
- 2 large pails of dirty water (mixed with dish soap, dirt, paper towel, plastic packaging, dental floss, and a small toy, like a toy car or piece of Lego)
- Print-outs of Region of Waterloo biosolids process illustrations/descriptions

Introduction:

Take students outside and show them a large pail of dirty water. It will be dark in colour from dirt, and have soap residue and other debris (e.g., toy, dental floss, packaging, etc.)

Tell students that this is what wastewater looks like, and that this could be a pail of water collected from any person's pipes leaving their house.



What items do they notice in the water? Should people put these items down their drains and into their toilets? Why or why not? Be sure to note that it makes the job of the wastewater plant operators much more difficult if they have to handle larger items like toys or things like plastic packaging and dental floss or even “flushable” wipes. These items **SHOULD NOT** be flushed down the toilet.

Ask students if they think the water is suitable to drink. Why or why not? What would make the water suitable to drink? Explain to students that this is what water that comes out of our water source might look like if it hadn't gone through a wastewater treatment facility. We are lucky to have these facilities because otherwise water that comes out our taps would be unclean and could make us sick!

Method:

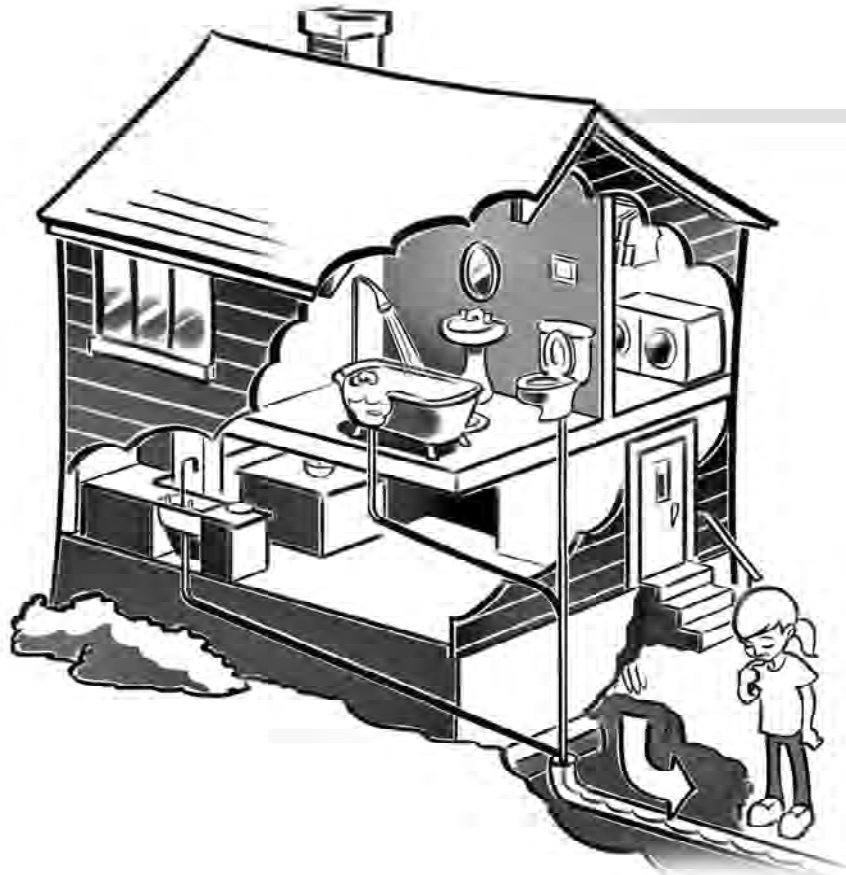
Provide each student group (divide them into 4 students per group) with a 2L pop bottle with lid cut off (edges covered in tape), and then different filtration materials (e.g., absorbent cotton, gravel, sand, metal screening, coffee filters, activated charcoal, etc.) The students' job is to run different experiments with the dirty water and filtration materials and see what material or combination of materials filter out the solids and clean the water most effectively. Which materials/tools worked the best? Which materials didn't work at all? What was left over in the water after your best filtration experiment?

Debrief:

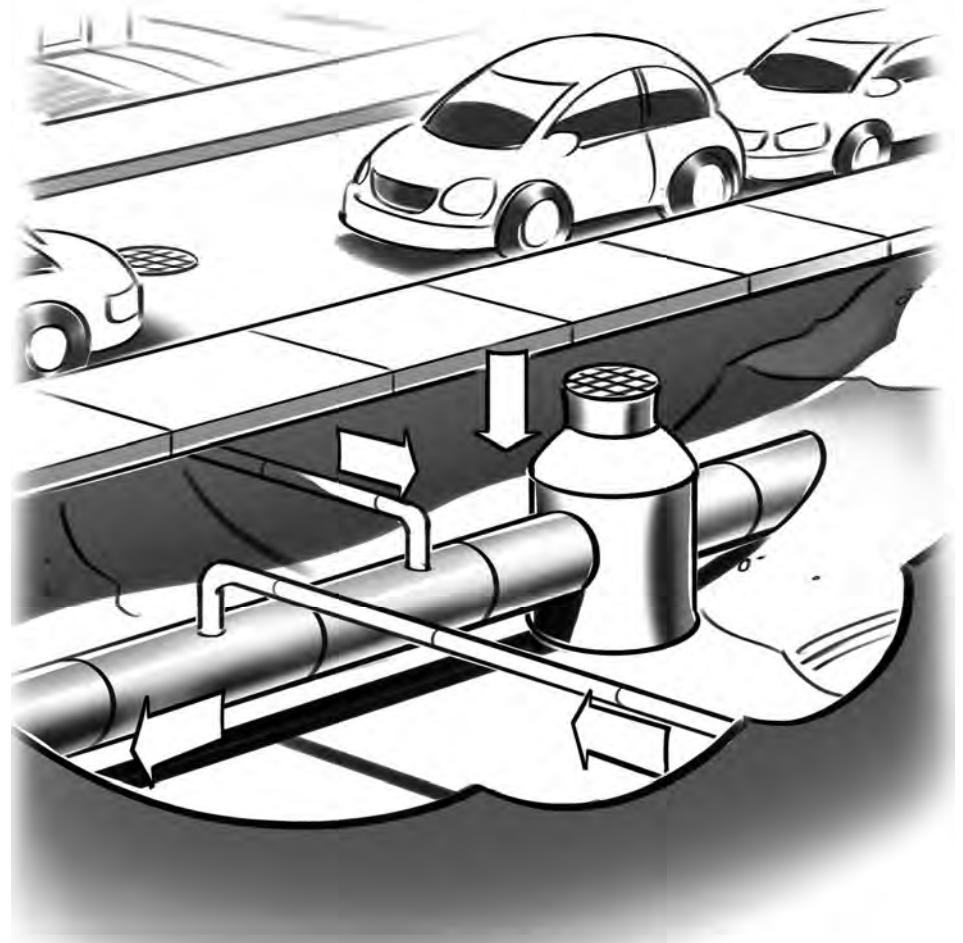
Write down students' ideas on the blackboard or Smartboard. Most students will have noticed that the large metal filters were able to get rid of most of the waste items like floss, plastic packaging, paper towel, and small toys. After this, the finer filter, the coffee filter, was able to catch dirt, and some soap residue, but that the water still was not drinkable or appropriate to return to the environment. These are two of the first and important steps in wastewater treatment, but there are many others.

Hand out Region of Waterloo biosolids process illustrations and descriptions for students to read. This will help learn about the full process, and understand in detail the steps to returning wastewater to the environment and, ultimately, back to our homes as fresh water and drinking water.

Where Does Our Wastewater Go?

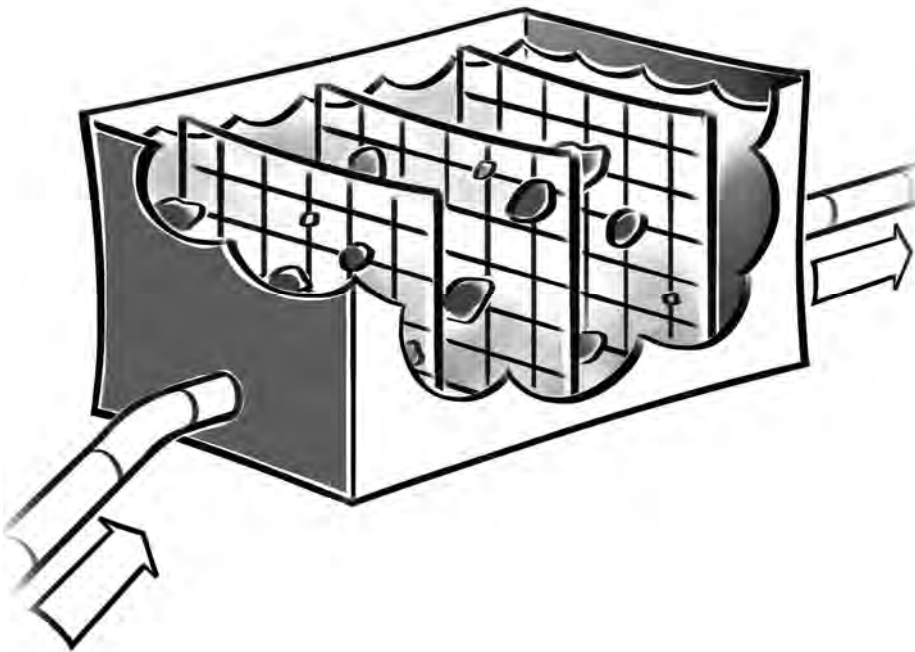


Network of Underground Collection Pipes



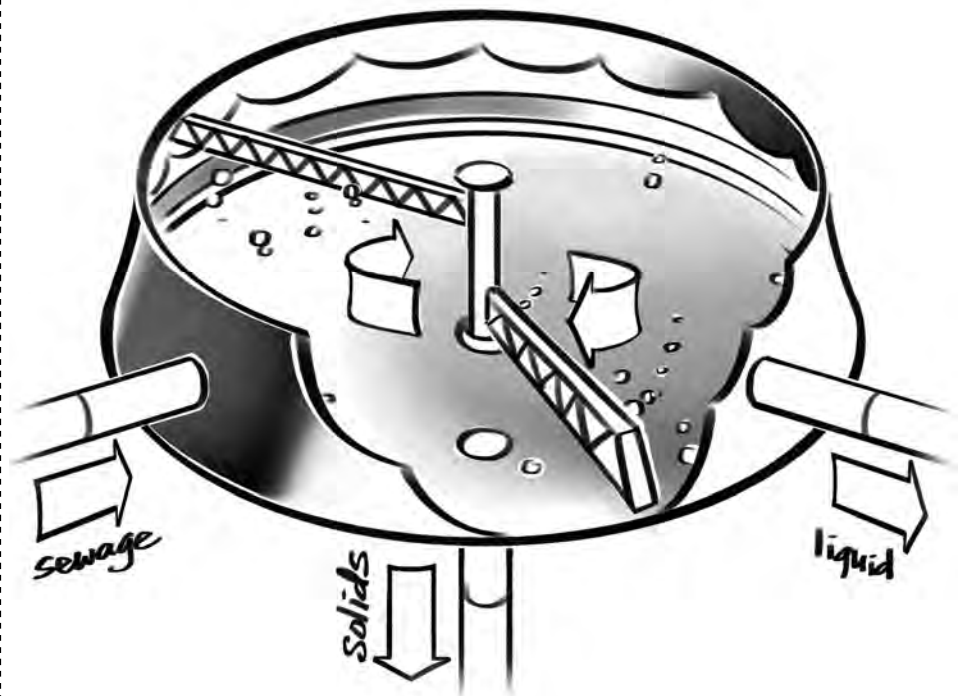
Screening

Screens that filter out trash in the sewage.



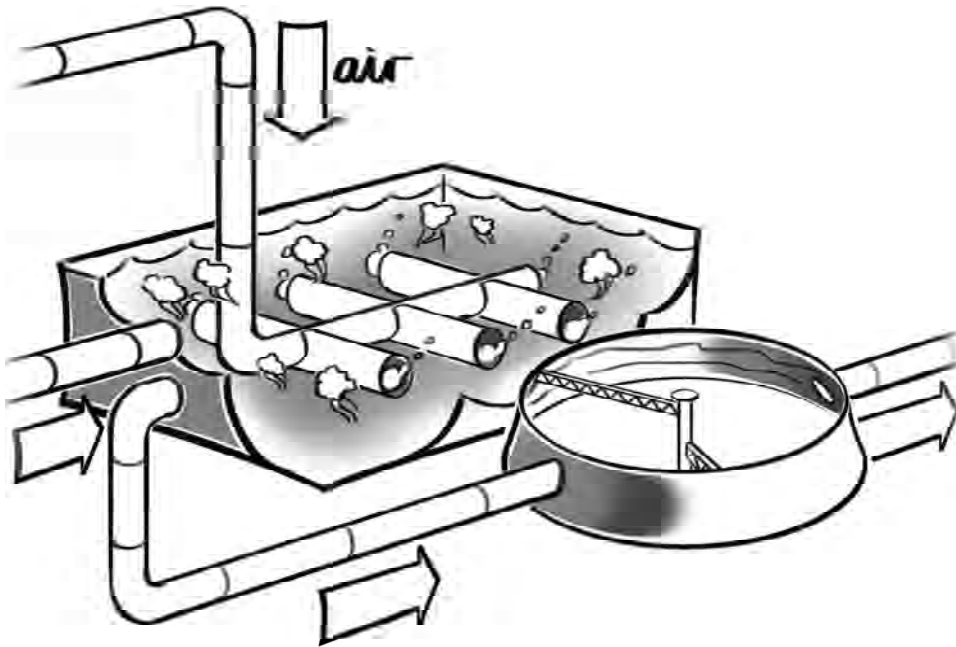
Primary Treatment

Some solid wastes that get through to this stage settle to the bottom of a tank. Dissolved organic matter in the wastewater overflows to the next treatment step.



Secondary Treatment

Nature takes over! Microscopic bugs in an aeration tank clean the water by eating the dissolved organic matter. Since they need to breathe, they are fed bubbles of air. The next tank allows them to settle out. At this point, the treated water goes back to the river while the solids begin a new process.



The Grand River Watershed

The Grand, Speed and Nith rivers need to be protected. At this point, treated wastewater that meets standards is returned here.

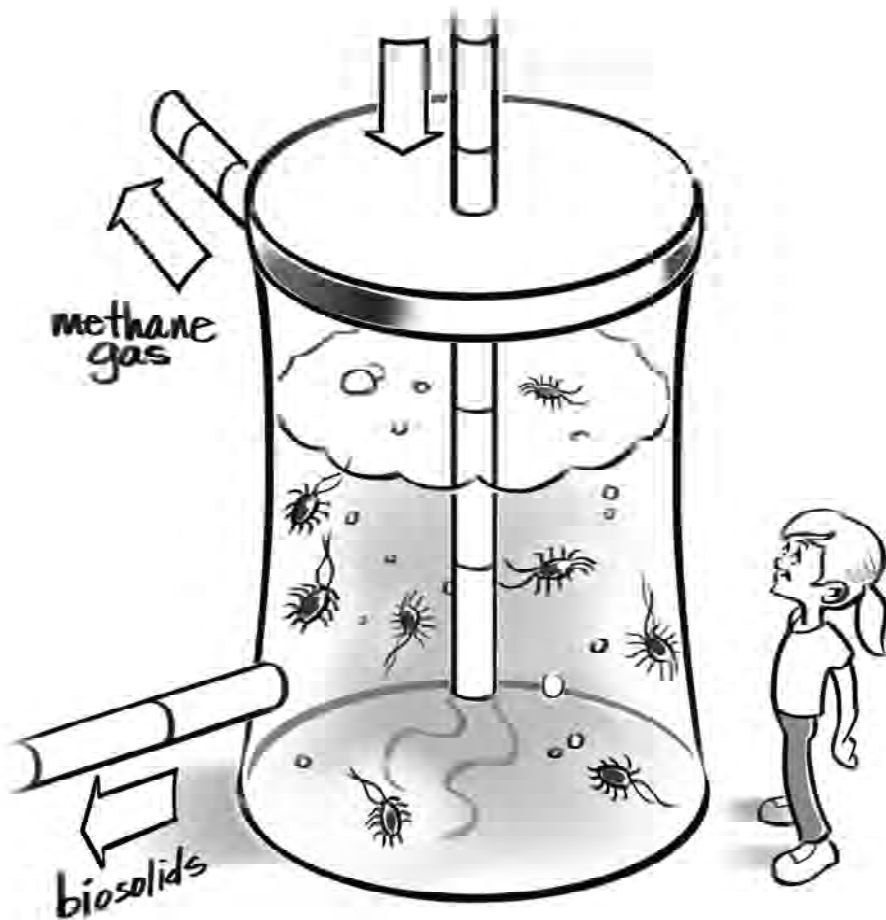


Digester

This is where the final process for the solids begins.

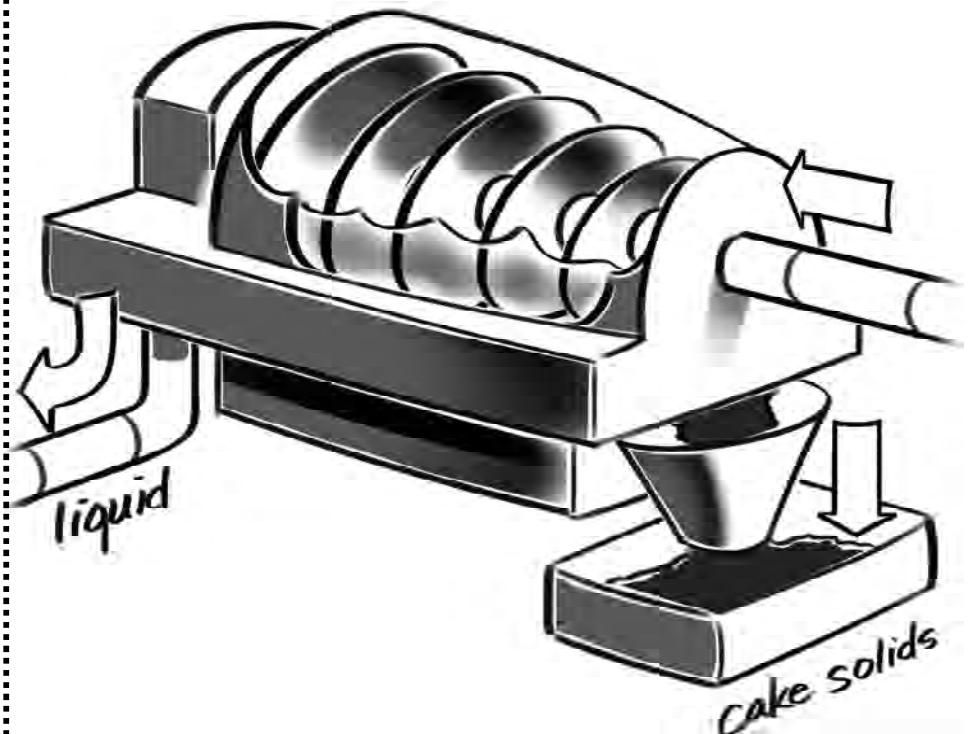
Settled material needs treatment too. Most of the

Region's settled material is processed through an anaerobic digester that contains more microscopic bugs (but these ones don't need air). The left over material is called Biosolids! The anaerobic digesters also produce methane - a renewable source of energy.

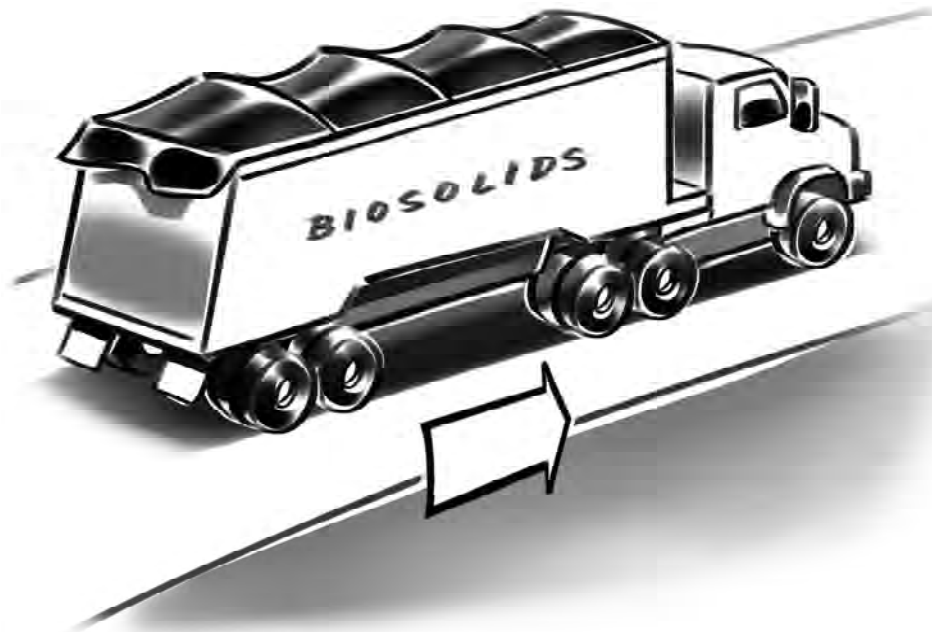


Dewatering

Biosolids still suspended in water are spun in a machine called a centrifuge. It works like a giant salad spinner, squeezing out excess water to reduce volume, making it easier to transport. The biosolids now resemble a solid called a cake.



Transport Truck - Biosolids



Agricultural Land Application of Biosolids

Biosolids contains things plants need to grow, like nitrogen and phosphorus, so it can be used as a fertilizer for crops.



Tailings Pond at Abandoned Mines

Biosolids can be applied to old mining ponds to rehabilitate the land and restore valuable organics and nutrients.



Landfill

Biosolids can be disposed of at the garbage dump.



Biosolids Strategy Video Links

- **Let's Talk about Biosolids**
 - o <https://www.youtube.com/watch?v=F6eD83Zuptk>
- **Region of Waterloo Biosolids**
 - o <https://www.youtube.com/watch?v=EN1xngSa3mE>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 1 – June 2016**
 - o <https://www.youtube.com/watch?v=0BKwIP0-tm4>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 2 – June 2016**
 - o <https://www.youtube.com/watch?v=je5QMIQd-vQ>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 3 – June 2016**
 - o <https://www.youtube.com/watch?v=nxh34IPm3TY>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 4 – June 2016**
 - o <https://www.youtube.com/watch?v=rW89xr-mnek>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 5 – June 2016**
 - o <https://www.youtube.com/watch?v=P04VdQmajFU>
- **Region of Waterloo Biosolids Strategy Webinar Recording Part 6 – June 2016**
 - o <https://www.youtube.com/watch?v=jT68uhSXkgs>
- **Waterloo Region Biosolids Strategy: Deciding on Future Options**
 - o <https://www.youtube.com/watch?v=D13rAtPzg8I>



APPENDIX P:

Vendor Request for Information Forms



Expression of Interest – EOI2016-06
Request For Information and Expression of Interest for the
Development of Region of Waterloo's Biosolids Strategy

Introduction to Expression of Interest:

The Region of Waterloo is presently developing its Biosolids Strategy. To assist with development of the Strategy, the Region is seeking information submittal input through this Request for Information (RFI) from Respondents who have an interest. This request for information is not associated with any immediate procurement opportunities. The Biosolids Strategy, once fully complete and approved, will lay out the means and methods by which biosolids will be dealt with in the Region to the year 2051. The Strategy may identify future environmental assessment and procurement opportunities for the management of biosolids.

Depending on the responses received to the questions posed in this Document, the Region may request interested parties to clarify their responses further through questions and/or meetings. The information received from interested parties will assist the Region in the completion of the Biosolids Strategy and may be used in the evaluations of alternative technologies, practices and strategies throughout the process.

The Submissions are intended as information to the Region only. Neither the receipt nor review of a Submission, nor the seeking of clarification, shall oblige the Region to enter into a contract with any interested party, or shall oblige the Region to use information provided.

The Region's acceptance and/or use of information provided in a Submission shall not be considered to create contractual relations with any respondent or interested party

If subsequent competitive procurement processes are initiated in respect of the Biosolids Strategy, the Region is under no obligation to advise any interested parties which responded to this Document.

The Region's Biosolids Strategy is in the development phase. Any information contained in this Document regarding the development of the Strategy is subject to change without notice.

Respondents should not rely upon information contained in this Document when developing submissions to any future procurement processes which may occur with respect to Biosolids in the Region of Waterloo.

Required Components for Expression of Interest Submission:

Closing Date and Time

Proponents shall be solely responsible for the delivery of their expression of interest in the manner and time prescribed herein.

Three (3) hard copies and one (1) Physical media USB of your Expression of Interest for EOI2016-06 **Region of Waterloo Biosolids Strategy** will be received until **2:00:59 p.m. on Wednesday October 12, 2016** at The Region of Waterloo, Procurement Office, Reception Desk, 4th Floor, and 150 Frederick Street, Kitchener, Ontario N2G 4J3.

The time of 2:00:59 p.m. will be determined based on the wall clock located at The Region of Waterloo, Procurement Office, Reception Desk, 4th Floor, 150 Frederick Street, Kitchener, Ontario N2G 4J3. Proposals received at 2:01:00 p.m. or later will be deemed to be late and non-compliant.

Expression of Interest shall be enclosed with the envelope template provided affixed securely to the front of the envelope.

Designated Official

Questions, clarifications, or interpretations regarding this Request for this Expression of Interest shall be requested in writing and shall only be directed to:

Joanne Markovic, Materials Analyst/Senior Buyer, Procurement,
at JMarkovic@regionofwaterloo.ca

The deadline for questions is Wednesday October 5, 2016 at 4:00 pm. Any questions received after this time will not be addressed.

EOI Documents

Only documents posted on the Region's website are to be considered the "official" documents. The Region accepts no responsibility for the accuracy of information found on other websites. EOI documents are only published on the Region's website at <https://bids.regionofwaterloo.ca>.

Addenda

- (a) If a proponent finds discrepancies in or omissions from the EOI Documents, or if they are in doubt as to their meaning, the respondent shall notify the Region.
- (b) The Region reserves the right, for any reason, to issue addenda to the proponents at any time prior to bid closing. Addenda issued during the bidding period shall be allowed for by the proponent in submitting the EOI.

- (c) Any information or changes to the requirements for this EOI opportunity will be posted on the Region's website <https://bids.regionofwaterloo.ca> in the form of an addendum. All addenda posted prior to the closing date shall be considered part of the contract documents. When an addendum is issued, the Region will attempt to send a notification email to all registered plan takers with a link to the addendum. The Region makes no promise or guarantees that addenda will be delivered by any means to any respondent nor is the Region responsible for computer malfunctions or delays, therefore, it is the respondent's sole responsibility to check the website for any addenda prior to the EOI closing. By submitting a proposal, the proponent acknowledges and agrees that they have checked the website and that their bid incorporates all addenda.
- (d) No addenda will be issued within 48 hours of the closing date except to extend or cancel the bid.

Costs Incurred by Interested Parties

Each interested party will not be compensated for this submission and the Region shall not, under any circumstances, be responsible for any costs incurred by in the preparation of the Expression of Interest Submission.

Freedom of Information

Upon receipt of Submissions, along with all correspondence, documentation and information provided to the Region in response to this Request for Information, or obtained by the Region from interested parties in connection with this Document, shall become the property of the Region.

The proponent acknowledges that any bid submitted shall become a record belonging to the Region and therefore is subject to the *Municipal Freedom of Information and Protection of Privacy Act*. This provincial law gives individuals, businesses and other organizations a legal right to request records held by the Region, subject to specific limitations. The proponent should be aware that it is possible that any records provided to the Region, including but not limited to, pricing, technical specifications, drawings, plans, audio-visual materials or information about staff, parties to the bid or suppliers could be requested under this law. **If the proponent believes that all or part of the proposal should be protected from release, the relevant parts should be clearly marked as confidential.** Please note that this will not automatically protect the submission from release, but it will assist the Region in making a determination on release if a request is made. The identity of all proponents, as well as total proposal prices, may be available to the public under the Region's Purchasing By-law.

Expression of Interest Format

Review of expression of interest is made easier when proponents respond in a similar manner. The following format and sequence should be followed in order to provide consistency in proponent response and ensure each proposal receives full consideration. All expression of interest shall be on 8.5" X 11" paper with a minimum font size of 11. All pages should be consecutively numbered.

The expression of interest must not exceed 30 pages in length (excluding appendices which are limited to 30 pages) and must contain, at a minimum the following components:

The forms attached (**Appendix 1**) is divided into four sections with the opportunity to provide details related to three representative examples of each technology. We understand that some organizations offer multiple technologies, and we anticipate that a copy of the attached form will be presented for each technology.

Vendor Information is anticipated to be the same for all technologies presented by a single organization.

Technical Contact Information requested is specific to each technology such that follow-up clarifications can occur. Multiple versions may be required given multiple technology options presented.

Technology Group is divided into technology categories and sub-groups within each category representing the building blocks of a Biosolids Strategy.

Summary of Operating Facilities provides an opportunity to present information with respect to facilities implemented around the world and, more specifically, within the Ontario regulatory framework.

Project Examples (up to three (3)) for each technology presented are requested. A set of example projects is requested for each technology response.

It is requested that information be provided by returning a digital copy of this fillable form for each technology group such that it can be efficiently aggregated by the project team. Each section of the form can be reset independently to reduce the need to re-input data that is common between technology groups. Supplementary materials to augment the information provided in this fillable form are welcomed including:

- Technology marketing information sheets or presentations;
- Technology specifications sheets;
- Process flow diagrams;
- Mass balances;
- Energy Balances; and
- Other salient materials

The project team appreciates the time taken to provide this information to support the inclusion of the most up-to-date information in the planning process.

1. Form 1: Overview
 - Vendor Information
 - Technology Technical contact Information
 - Technology Type
 - Summary of Operating Facilities
2. Form 2: Project 1
3. Form 3: Project 2
4. Form 4: Project 3

Repeat Above for Each Technology Type

5. Electronic Copy of Submission (USB memory stick)

Background

The Region of Waterloo Biosolids Strategy was initiated in 2015 to develop an approach to manage biosolids in Waterloo Region to the year 2051. The strategy will take a critical look at current practices, and consider available and relevant technologies for processing biosolids. Alternatives will be evaluated against a range of criteria to develop a management strategy for the Region. Additional information is available at the project website (<http://www.regionofwaterloo.ca/Biosolids/>).

Waterloo Region currently operates 13 wastewater treatment plants (WWTPs). The three largest facilities Kitchener, Waterloo and Galt WWTPs are currently processing flow rates from 35 to 70 MLD. Four more facilities, Preston, Hespeler, Elmira and New Hamburg WWTPs are considered medium-sized currently processing flow rates from 10 to 21 MLD. The remaining six facilities, Ayr, Conestogo, Foxboro Green, Heidelberg, St. Jacobs, and Wellesley WWTPs are considered small, currently processing flow rates < 5 MLD.

The Region of Waterloo's current management approach for biosolids is dependent on the size of the treatment plant and the related solids processing infrastructure. The majority of biosolids in the Region are handled at four facilities with anaerobic digesters: Kitchener, Waterloo, Galt and Preston WWTPs. For the facilities that do not have anaerobic digesters, the largest producer of biosolids is the Hespeler WWTP, where sludge is aerated and then sent to the Kitchener and Galt WWTPs for re-processing. The Conestogo, Heidelberg, St. Jacobs, and Wellesley WWTPs transfer sludge to the Waterloo facility for reprocessing.

The Region recently retained a consultant to implement cogeneration facilities to produce electricity from biogas produced at the Waterloo, Galt and Kitchener WWTPs, with a target start-up date in 2020.

Digested biosolids are dewatered at the Manitou Drive facility which serves the Kitchener WWTP, Galt WWTP with also serves the Preston WWTP and the Waterloo WWTP where centrifuges produce dewatered cake at approximately 25% total solids. In 2015, Manitou Drive, Waterloo and Galt WWTPs produced 3760, 1880, and 2190 tonnes of dry solids of dewatered cake respectively.

Ayr and New Hamburg WWTPs have aerobic digesters and biosolids storage capacity in lagoons. In 2015, approximately 300 tonnes of dry solids were land applied from the lagoons at the Ayr and New Hamburg WWTPs as liquid biosolids with average total solids content of 5% and 2% respectively.

In 2015, approximately 300 dry tonnes of solids were collected at the Elmira WWTP, dewatered by centrifuge and landfilled.

Use of biosolids is currently prioritized ahead of disposal and in 2015, 45% of the biosolids produced were land applied, 15% were used for mine tailings pond reclamation, and the remaining 40% were sent to appropriately-licensed landfills. Biosolids produced in the Region

consistently meet the quality requirements under the Nutrient Management Act as a Category 3 NASM.

The technologies assessed as part of the Biosolids Strategy are anticipated to further enhance the quality of the Region's biosolids, decrease the mass requiring management, and / or provide access to new use and disposal alternatives. Strategies will consider implementing technology with capacity to process individual facility biosolids production, or groups of facilities including a Region-wide approach. The Biosolids Strategy developed through this project will build upon the existing infrastructure to further process the biosolids products described above and to provide a plan for stable management over the planning period. A parallel wastewater treatment master planning effort is occurring that would consider technologies integrated into the existing digestion and dewatering infrastructure.

Purpose

As part of the Region of Waterloo Biosolids Strategy planning process, this Request for Information is provided to technology vendors in an effort to engage this key stakeholder group and collect information that can be used to thoroughly characterize the appropriateness and maturity of technology, and to provide examples of commercially available, proven technology that would serve the needs of the Region of Waterloo. In general terms, the information to be collected includes:

- Information about the technology provider including contact information;
- Number and location of relevant installations;
- Inputs (e.g. energy and chemistry);
- Outputs (e.g. energy, products and residuals);
- Performance data; and
- Capital and operating costs.

The information collected will be aggregated into technology categories and incorporated into technical memoranda being prepared to support the development of the Strategy. Information specific to any single vendor will not be presented; however, the names of technology providers may be provided as examples in each technology category. Installation-specific capital and operating costs will not be presented in technical memoranda. Cost information will be used with literature data and other factors that affect the overall cost of strategies to develop an estimate of the net present value for short-listed alternatives for comparison purposes.

Appendix 1

(Separate Attachment)

Form 1: Overview

Form 2: Project 1

Form 3: Project 2

Form 4: Project 3

SUBMITTED BY

Name: _____

Address: _____

REGION OF WATERLOO
150 FREDERICK STREET, 4TH FLOOR
KITCHENER, ONTARIO
N2G 4J3

IMPORTANT:

Bids are to be dropped off at the
Procurement & Supply Services Counter,
150 Frederick Street, 4th Floor, Kitchener, ON.
Submissions received in Procurement & Supply
Services after the closing time will NOT be
accepted. The onus is on the respondent to
ensure that the bid is received in the proper
location and before the closing time.

CONTRACT NUMBER:	<u>EOI 2016-06</u>
CONTRACT NAME:	<u>Region of Waterloo's Biosolids Strategy</u>
CLOSING DATE:	<u>Wednesday, October 12, 2016</u>
CLOSING TIME:	<u>2:00:59 P.M.</u>

Vendor Information

Vendor Name :

Headquarters Address :

Location(s) World Wide :

Locations(s) Ontario :

Technology Technical Contact Information

Contact Name

Contact Email

Contact Phone Number

Technology Type

Category (choose 1 for each technology type submission)

Storage

Thickening

Stabilization

Conditioning/Priming

Drying

Thermal Reduction

Other

Technology Group

Summary of Operating Facilities

Number of Operating Facilities

Worldwide

Europe

US

Canada

Ontario

Capacity

Min Capacity Installed and Operating

tonnes of dry solids / year

Max Capacity Installed and Operating

tonnes of dry solids / year

Min Capacity Offered

tonnes of dry solids / year

Max Capacity Offered

tonnes of dry solids / year

Project 1

Location

Facility Type

Capital Cost

Total Project Cost USD

Operating Cost

Total Annual USD

Capacity

dry tonnes

Technology Footprint

m²

Area of Site

Ha

Construction Completion Date

Year

Operating Start Date

Year

Project Description

Project 1 (Continued)

Natural Gas Demand

Electrical Energy Peak Demand

Energy Generated

Electrical Energy Generated

Peak demand - Nm³

Nm³ / dry tonne

Nm³ / year

Material Inputs

(e.g. Primary Sludge, Secondary Sludge, Digestate, Dewatered Cake, Organic Solids Waste, Other Biomass, etc.)

Peak demand - kW

kWh / dry tonne

kWh / year

Peak capacity - kW

Annual production - kWh / year

Chemical Inputs

Peak capacity - kW

Annual production - kWh / year

Chemical Name, Concentration, Amount Used / Dry Tonne, Other Relevant Information

End / By-Product Generated

Please Describe the End Products and By-Products and Select All that Apply

NASM as defined by NAM O.Reg 267/03
Fertilizer or Supplemental as defined by Fertilizer Reg. C.R.C., c. 666
US EPA Class A Biosolids
US EPA Class B Biosolids
Category A Compost
Electricity
Biogas
Renewable Natural Gas
Other Product with Fuel Value
Other Organic Product / Soil Ammendment
Residual Requiring Disposal
Other End Product

Project 2

Location

Facility Type

Capital Cost

Total Project Cost USD

Operating Cost

Total Annual USD

Capacity

dry tonnes

Technology Footprint

m²

Area of Site

Ha

Construction Completion Date

Year

Operating Start Date

Year

Project Description

Project 2 (Continued)

Natural Gas Demand

Electrical Energy Peak Demand

Energy Generated

Electrical Energy Generated

Peak demand - Nm³

Nm³ / dry tonne

Nm³ / year

Material Inputs

(e.g. Primary Sludge, Secondary Sludge, Digestate, Dewatered Cake, Organic Solids Waste, Other Biomass, etc.)

Peak demand - kW

kWh / dry tonne

kWh / year

Peak capacity - kW

Annual production - kWh / year

Chemical Inputs

Peak capacity - kW

Annual production - kWh / year

Chemical Name, Concentration, Amount Used / Dry Tonne, Other Relevant Information

End / By-Product Generated

Please Describe the End Products and By-Products and Select All that Apply

NASM as defined by NAM O.Reg 267/03
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US EPA Class A Biosolids
US EPA Class B Biosolids
Category A Compost
Electricity
Biogas
Renewable Natural Gas
Other Product with Fuel Value
Other Organic Product / Soil Ammendment
Residual Requiring Disposal
Other End Product

Project 3

Location

Facility Type

Capital Cost

Total Project Cost USD

Operating Cost

Total Annual USD

Capacity

dry tonnes

Technology Footprint

m²

Area of Site

Ha

Construction Completion Date

Year

Operating Start Date

Year

Project Description

Project 3 (Continued)

Natural Gas Demand

Electrical Energy Peak Demand

Energy Generated

Electrical Energy Generated

Material Inputs

Chemical Inputs

End / By-Product Generated