



THE CORPORATION OF THE TOWNSHIP OF HORTON
TRANSPORTATION & ENVIRONMENTAL SERVICES

March 2nd, 2022
 8:30 a.m.
 Via Zoom

NOTE: This meeting will be sparsely attended, due to social distancing protocols that have been recommended by the federal and provincial governments. Members of Council, Committee, and Staff will call in to the meeting and take part via video conference. Members of the Public, Media and other staff are requested not to attend. Please contact the CAO/Clerk if you have any questions or require additional information.

1. Call to Order & Roll Call
2. Declaration of Pecuniary Interest
3. Delegation – Municipal Solutions at Food Cycle Science **PG.2**
4. Minutes from Previous Meeting:
 - i. January 13th, 2022 **PG.28**
5. Phase 2 LFS Expansion Feasibility **PG.30**
6. Horton & Admaston/Bromley Boundary Road Agreements **PG.57**
7. New/Other Business
8. Next Meeting:
 - i. April 6th, at 8:30 a.m.
9. Adjournment

RETURN TO AGENDA



FOODCYCLER™ MUNICIPAL SOLUTIONS



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ABOUT US

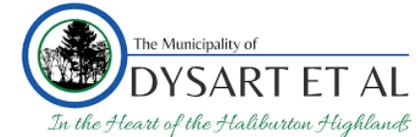
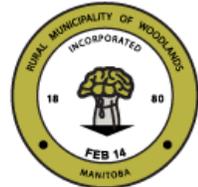
- Canadian company based out of Ottawa, ON
- Founded in Cornwall in 2011 – Company is 100% focused on Food Waste Diversion Solutions
- Products available in North America through FoodCycler Municipal / Vitamix and internationally through network of distributors & OEM partners
- Semi-finalists in Impact Canada's *Food Waste Reduction Challenge*
- Selected as one of the 2021 Deloitte Fast 50 CleanTech award winners
- # 81 on Globe & Mail's Canada's Top Growing Companies for 2021



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TRUSTED CANADIAN SOLUTION

FROM COAST TO COAST TO COAST



Thirty-Three Canadian Municipal Partners
... and counting!

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THE PROBLEM – FOOD WASTE

- **63%** of food waste is avoidable
- Household waste is composed of **25-50%** organic waste
- Food waste weight is up to **90%** liquid mass (which is heavy)
- The average Canadian household spends **\$1,766** on food that is wasted each year
- Each year food waste in Canada is responsible for **56.6 Million tonnes of CO2** equivalent of GHG



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MUNICIPAL IMPACT

WASTE MANAGEMENT IS A MUNICIPAL RESPONSIBILITY

LANDFILL + WASTE COSTS

- ~**25-50%** of household waste is organic waste
- Landfills are filling up fast, creating cost and environmental issues
- Hauling and disposal services are a major cost factor and environmental contributor

ENVIRONMENT

- Landfilled organic waste produces methane, which is **25 times** more harmful than CO₂
- 1 tonne of food waste is equivalent to 1 car on the road for one year



COMMUNITY

Food in the garbage:

- More frequent collection or trips to the disposal site
- Unpleasant odours
- Animals, pests & other visitors



Removing food waste from garbage:

- Volume is reduced by up to 50%
- Less frequent collection, fewer trips to disposal site, save on bag tags
- Keeps odours out, makes garbage much less “interesting” for animals

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HAVEN'T WE SOLVED THIS ALREADY?



GREEN BINS

- Preferred solution for **larger cities** where **dense housing** and large processing facilities generate **economies of scale**
- **Contamination** is an ongoing challenge
- GHG emissions from curbside collection
- **Safety** concerns from additional trucks on the road



BACKYARD COMPOST

- **Cost-effective** but can be **labor-intensive** also
- May attract pests/animals or create unpleasant **odors**
- Most users **do not compost in winter** or inclement weather
- **Adoption rates are relatively low and stagnant**



LANDFILL

- **Easiest solution** and often perceived as the most cost-effective in the short term
- Waste is typically **out of sight and out of mind** for consumers
- High levels of GHG emissions, particularly **methane**
- Long-term **environmental hazard** requires monitoring / maintenance

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THE SOLUTION

IN THREE SIMPLE STEPS



1. Add waste to bucket

2. Add bucket to unit

3. Press Start. That's it!



The resulting by-product can be used in many applications.

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Vegetable &
Fruit Scraps



Starches



Dairy Products



Tea bags & Coffee
grinds



Nut shells, nuts
& seeds



Meat, poultry
& fish

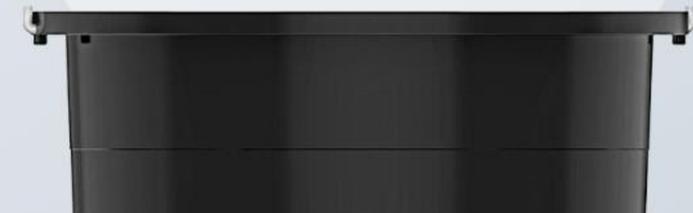


Fish & Poultry
Bones



Egg shells

8



90% FOOD WASTE REDUCTION

1 KG (2.5L) of wet,
smelly food waste

100 G of dry, sterile &
odorless soil amendment

4-8 HOURS + 0.8 kWh
<10 cents / cycle



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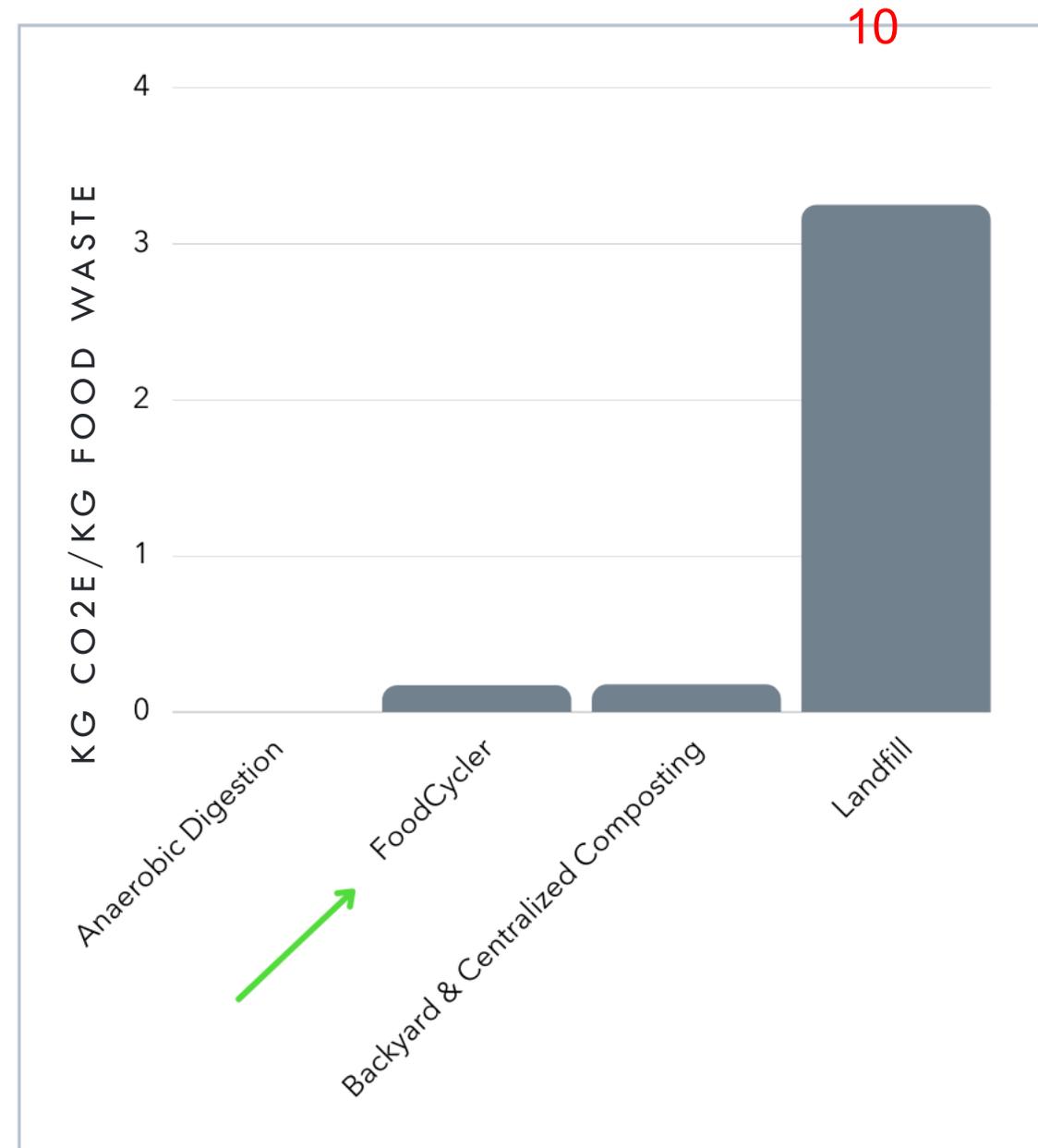
IMPACT

ENVIRONMENT

FOODCYCLER IS COMPARABLE TO:

- Central composting (with no transportation emissions)
- Backyard composting (if done correctly)
- **FoodCycler offers >95% reduction in CO2E vs. sending food waste to landfill**

Source: Based on carbon intensity of power grid = 0.08 kg/kWh in Ontario
**Incorrect backyard composting can lead to methane gases and odours



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IMPACT ECONOMIC

EXAMPLE OF
IMPACT ON
WASTE
MANAGEMENT
OPERATING
COSTS



+



+



=

**\$170 – \$250
/TONNE**

HAULING FEE

TRANSFER STATION
OPERATION

DISPOSAL FEE



=

**< \$120
/TONNE**

NO TRANSPORTATION OR PROCESSING

* FoodCycler is a locked-in price not subject to wage increases, fuel surcharges or fee hikes

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IMPACT

REGULATORY + SOCIAL PRESSURE

THE TIME IS NOW

- Constituents want **solutions** to reduce their environmental impact
- Waste is perceived as a government problem and **regulations** are coming
- Food waste is “low-hanging fruit” to achieving higher **diversion** and addressing the environmental impact of waste



"I've received a number of positive messages from residents saying, "sign me up, where can I get mine." I'm 100 per cent in favor of it."

– Deputy Mayor Lyle Warden, (South Glengarry ON)

"We were extremely happy with this program and loved that it made us aware of our daily waste."

– Pilot participant in South Glengarry

"It's a great tool to reduce household waste. Appreciate that the municipality is being innovative and piloting different solutions."

– Pilot participant in Hornepayne

"It alleviates a lot of the concerns that people might have with backyard composting. The time commitment, the location, pests and animals and everything like that."

– Kylie Hissa, Strategic Initiatives Officer (Kenora, ON)

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THE FOODCYCLER PILOTS



>1200 Households

14 Municipalities have completed their pilot projects with overwhelmingly positive results.

Net New Diversion



Each participating household is estimated to divert between 300-400 kg of food waste annually.



“WOULD YOU RECOMMEND FOODCYCLER?”

>90% Yes

<1% No.

The rest are undecided or need more time.

★★★★☆ 4.6

Average overall user experience rating.

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PILOT PROGRAM

12 WEEKS FROM START TO FINISH

PILOT TIMELINE

START

Residents purchase FoodCycler at a subsidized rate from Municipal Office (or other designated location)

12 WEEKS

Participants use the unit for a period of 12 weeks.

Number of cycles per week are tracked to estimate total diversion achieved.

END

Participants fill out an exit survey, providing their review of the program and any other feedback.

Survey results used to evaluate program success.

NEXT STEPS

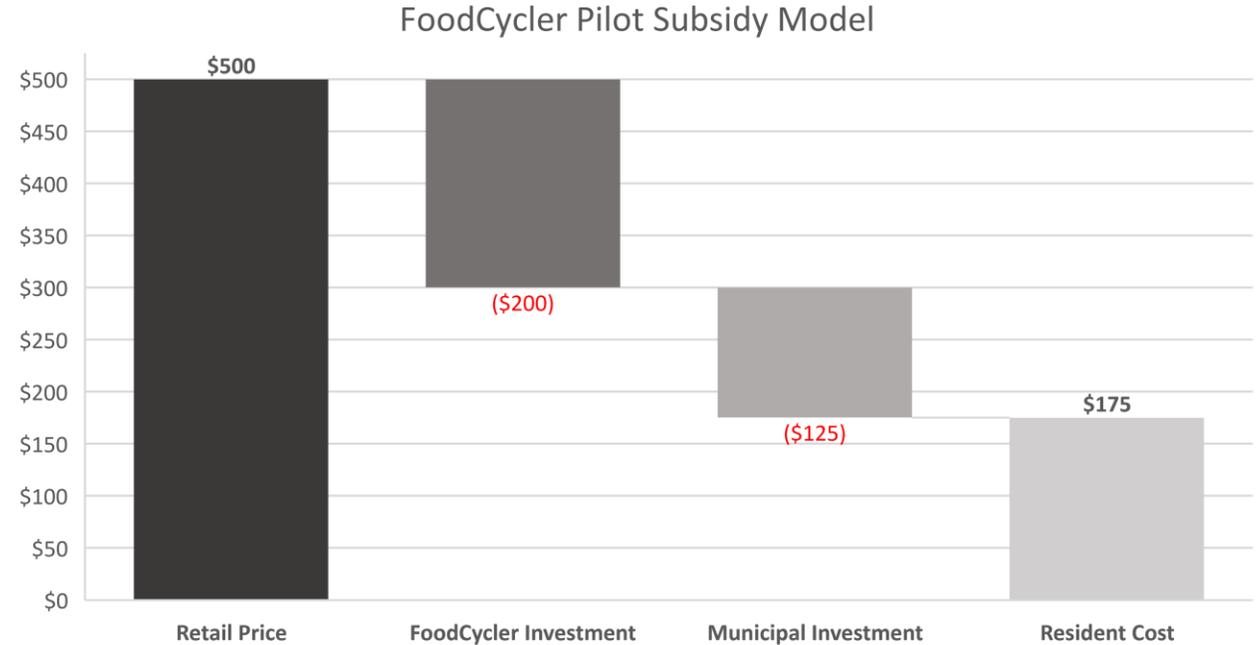
Full program design and implementation.

Many grants available, including **FCM's Green Municipal Fund!**



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SUBSIDIZED PILOT PROGRAM OPTION 1



Municipality Population	Pilot Scope	Municipal Investment
<2500 residents	50 households	\$6,250
2500 – 10,000 residents	100 households	\$12,500
>10,000 residents	200 households	\$25,000

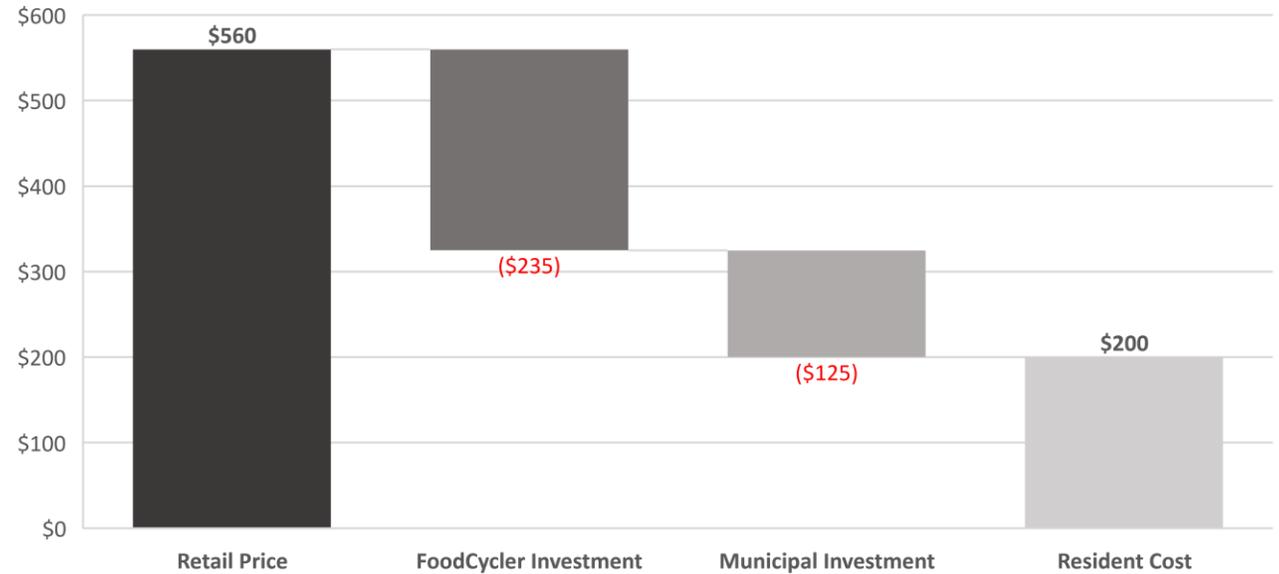
- Plus shipping costs and applicable taxes

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SUBSIDIZED PILOT PROGRAM OPTION 2 (BUNDLE)



FoodCycler Pilot Subsidy Model



Municipality Population	Pilot Scope	Municipal Investment
<2500 residents	50 households	\$6,250
2500 – 10,000 residents	100 households	\$12,500
>10,000 residents	200 households	\$25,000

- Plus shipping costs and applicable taxes

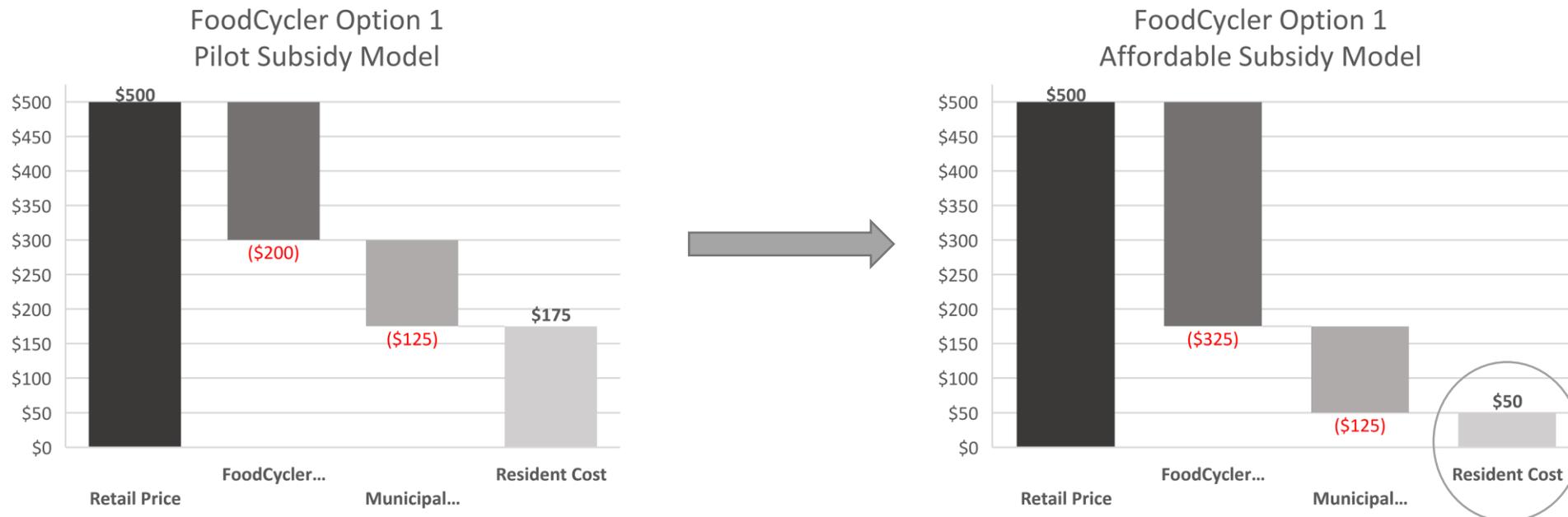
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OPTIONAL AFFORDABLE ADD-ON

GET 10% MORE UNITS

FoodCycler believes that food waste diversion solutions should be available to all Canadians, no matter where you live or whether you can afford it.

Municipalities now have the option to provide low-cost FoodCyclers to those who cannot access the program at full price.



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THANK YOU!
ANY QUESTIONS?

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FAQ

THE FOODCYCLER™

What is a Foodcycler™?

The FoodCycler™ is a closed-loop indoor compost alternative, which speeds up the natural decomposition process through aerobic digestion of waste. The unit dries and grinds food waste into a dry, odourless, nutrient-dense by-product that is significantly reduced in weight and volume from its unprocessed state. The end product is free from bacteria, and weed seeds and food-borne pathogens are eliminated in the process.

What is the power usage for the FoodCycler™?

Each cycle consumes approximately 0.8 kWh, which is equivalent to having a desktop computer running for the same amount of time as the cycle. Dependent on where you live, the regular use of the FoodCycler™ should not cost you more than \$2-\$4 per month.

How long will my FoodCycler last?

The FoodCycler™'s average life span is estimated to be at least 6-7 years when operated following all instructions (depending on the usage). FoodCyclers™ have been in production since 2014 and the vast majority of them are still fully functioning. In addition, FCS offer a 1-year standard manufacturer's warranty starting on the date of delivery of all FoodCycler™ units to our municipal partners. Extended warranties may also be purchased at additional cost.

What's the mechanism of breakdown?

The FoodCycler has a heating application that runs for several hours to heat and sterilize the food waste. Once the heating is completed, the grinding function is activated which completely grinds the food waste. The unit dries and grinds food waste into a dry, odourless, nutrient-dense by-product that is significantly reduced in weight and volume from its unprocessed state (~90%). The end product is free from bacteria, and weed seeds and food-borne pathogens are eliminated in the process.

How does my FoodCycler reduce greenhouse gas emissions?

The FoodCycler™ is comparable in CO₂e emissions to central composting (before transportation emissions) and backyard composting (if done correctly). FoodCycler™ offers a >95% reduction in CO₂e compared to sending food waste to landfill.

How often do I need to replace the filter? Where can I buy them?

The carbon filters last anywhere from 3 to 6 months with regular use. The filter light sensor is a guide only - the best indication of whether your filters require replacement is odour. The FoodCycler™ requires a set of filters to function. The municipal retail price is at \$22.12+taxes included for a set of filters. The filters can also be purchased on vitamix.com, retailing at approximately \$29.95+taxes.

The filters are composed of PP5 plastic and therefore can be recycled. First, however, you will need to carefully prise off the top of the filter and empty out the carbon powder contained within. This powder is safe and can be put in the garbage, compost pile, or directly in your garden. Refillable filters are coming soon.

Does the FoodCycler come in different sizes or volumes?

As today, we only offer one model of FoodCycler™. The unit has a 2.5L bucket capacity. An extra bucket may be purchased to collect food waste when the bucket is in use which can effectively “double your capacity”. Each machine typically can run two cycles per day when alternating buckets. FCS is planning to release a new model sometimes in 2022 with a larger capacity.

FCS is proactively working to expand and explore options to accommodate bigger households and potentially small businesses, so that community members may access these technologies at a size that suits their needs.

What can I do with the by-products?

There are many uses for your FoodCycler™'s byproducts. Please refer to the FoodCycler Municipal Pilot Program Resident Guide for more information.

Do you have any questions about the mechanisms of the FoodCycler™?

Visit <https://www.foodcyclers.com/faq> for more information or contact us at info@foodcyclers.com.

THE FOODCYCLER PILOT PROGRAM

What happens if the municipality can't sell the units ordered?

FCS will offer support at the marketing and promotional level to help ensure the visibility of the Pilot Program in your community. We will send you marketing materials, including a 1-page flyer, a resident guide and any graphics to help support marketing efforts.

Based on our experience, we have confidence that the units will be sold. However, we do understand that this can be a concern and for this reason, we do have a buy-back clause in place if the units are not sold (plus a small restocking fee of 25\$/unit and shipping fee).

Which pilot scope is recommended for my municipality?

We recommend municipalities to choose their pilot scope based on their municipality's population (see chart below).

Municipality Population	Pilot Scope	Municipal Investment*
<2500 residents	50 households	\$6,250 + shipping
2500 – 10,000 residents	100 households	\$12,500 + shipping
>10,000 residents	200 households	\$25,000 + shipping

Please note that these are suggestions based on our experience. FCS is open to explore other program sizes or adjust the subsidy amount that is tailored to your needs and/or budget.

**HST not included*

What is the difference between the retail pricing vs. the municipal pricing?

The FoodCycler Impact Canada pilot program is built using a subsidy model where FCS provides a discount to municipalities that are purchasing FoodCyclers. We then ask the municipality to subsidize the cost by \$125 per unit (plus shipping). Using this model, the resident has the opportunity to purchase a \$500 FoodCycler at a discounted price of \$175. Residents can keep the FoodCycler after the 12-week pilot.

What the optional add-ons?

On top of the regular FoodCycler kit (see the slide *Option 1* of the presentation), we are also introducing a new bundled package that includes not just the FoodCycler, but enough spare filters to last the average user an entire year (see the slide *Option 2* of the presentation). In this bundle, the municipal contribution remains the same, but the resident will benefit from getting \$60 worth of filters for only \$25 more. This bundle was created based on feedback from our past pilot programs where residents expressed that they valued being able to buy discounted filters conveniently and locally, rather than online at full price.

The affordable add-on options was created because we are aware that the \$175 or \$200 will be appealing to many, but not affordable for everyone. We strongly believe food waste diversion solutions should be available to all Canadians, and to show that we are serious, municipalities will have the option to top up your order by 10% more units for only \$175 each, which we would ask you to make available to members of your community for only \$50. This is intended for low-income households, community housings, group homes, or non-profit organizations, or anyone who could genuinely benefit from an affordable option.

What are available after the subsidies have been exhausted?

We are open to exploring additional funding opportunities with our potential partners.

How many municipalities are currently involved in the Pilot Program?

We are working with 33 Canadian municipalities across 7 provinces/territories. FCS is currently seeking additional implementation partners to be part of this program which comes with direct investment into your community to offset the cost of the program.

FAQ

LE FOODCYCLER

Qu'est-ce qu'un FoodCycler™ ?

Le FoodCycler™ est une alternative de compostage intérieur en circuit fermé, qui accélère le processus naturel de décomposition par digestion aérobie des déchets. L'appareil sèche et broie les déchets alimentaires en un sous-produit sec, inodore et dense en nutriments, dont le poids et le volume sont considérablement réduits par rapport à leur état non traité. Le produit final est exempt de bactéries, et les graines de mauvaises herbes et les agents pathogènes d'origine alimentaire sont éliminés au cours du processus.

Quel est l'utilisation du pouvoir du FoodCycler™?

Chaque cycle consomme environ 0.8 kWh, qui est l'équivalent d'avoir un ordinateur portable qui fonctionne pour le même montant de temps. Selon l'endroit où vous habitez, l'utilisation du FoodCycler™ ne devraient pas vous coutez plus que 2.00\$ à 4.00\$ par mois.

Combien d'années durera mon FoodCycler™ ?

En suivant les directives de marche et selon la fréquence d'utilisation, l'espérance de vie du FoodCycler est estimé d'être environ 6 à 7 ans. Le FoodCycler™ est en production depuis 2014 et la grande majorité dont encore en pleine marche. En plus, FCS offre un garanti standard du fabricant d'un an qui commence dès la date de l'arrivée de vos FoodCyclers. Nous offrons aussi des garantis prolongé en supplément.

Quel est le mécanisme de la décomposition des déchets?

Afin de décomposer les déchets, le FoodCycler™ chauffe et broie le matériel organique jusqu'à ce que le produit soit complètement broyée et stérile. L'unité sèche et broie ces déchets dans un produit final sans odeur, stérile et plein de nutriments qui est réduit en poids et volume.

Comment est-ce que mon FoodCycler™ réduit les émissions de gaz à effet de serre?

Le FoodCycler™ est comparable aux émissions de CO₂ associé avec le compostage central (avant les émissions du transport par camionnage) et le compostage domestique

(s'il est bien fait). Le FoodCycler™ réduit les émissions de CO₂ par plus de 95% comparé à envoyer les déchets alimentaires aux sites d'enfouissement.

Comment souvent dois-je remplacer les filtres? Où puis-je les acheter?

Les filtres à charbon durent de 3 à 6 mois avec usage régulier. Le capteur de lumière est seulement une suggestion. Le meilleur indice qu'il est temps de changer les filtres est lorsque vous remarqué une odeur. Le FoodCycler nécessite une paire de filtre pour fonctionner. Le prix pour une paire de filtre offert aux municipalités est de 22.12\$ plus taxes. Les filtres peuvent aussi être acheter sur www.vitamix.com pour un prix de 29.95\$ plus taxes.

Les filtres sont faits avec le plastique PP5 qui veut dire qu'ils peuvent être recycle. Avant de les recycler, vous devez, avec attention, enlever le haut des filtres et vider la poudre à charbon qui se trouve à l'intérieur. Cette poudre n'est pas nocive et peut être remis dans votre tas de compost ou bien directement dans votre jardin. Nous sortons avec des filtres rechargeables bientôt.

Est-ce que le FoodCycler vient dans différentes tailles ou volumes?

Aujourd'hui, nous offrons un modèle du FoodCycler. Notre unité comprend une chaudière de 2.5 litres. Une chaudière de plus peut être achetée afin de collectionner plus de déchets alimentaires à la fois. Ceci peut effectivement « doubler » votre capacité. Habituellement, chaque machine peut faire deux cycles par jours quand deux chaudières sont utilisées. FCS planifie sortir un nouveau modèle cette année avec une plus grande capacité.

Que puis-je faire avec le produit final?

Il y a plusieurs façons d'utiliser le produit final du FoodCycler. Pour plus d'information, s'il vous plait faire référence au *guide de projet pilote FoodCycler pour résidents*.

Avez-vous plus de questions à propos du mécanisme du FoodCycler?

S'il vous plait visitez <https://www.foodcycler.com/faq> pour plus d'information ou rejoint nous à info@foodcycler.com.

LE PROGRAMME PILOTE FOODCYCLER

Qu'arrive-t-il si la municipalité ne vend pas tous les FoodCycler achetés?

FCS offrira du support avec le marketing pour s'assurer que les gens dans votre communauté ont la chance à apprendre du programme.

D'après notre expérience, nous avons confiance que les FoodCyclers seront vendus. Pourtant, nous comprenons vos inquiétudes et pour cette raison, nous avons intégré une clause qui nous permet de racheter les unités s'ils ne sont pas vendus (en plus d'un frais de restockage de 25.00\$ par unité et un frais d'expédition).

Quelle sorte de portée est recommandé pour le projet pilote de ma municipalité?

Nous recommandons aux municipalités de choisir une portée pour leur projet pilote basée sur leur population.

Population de la municipalité	Portée du projet pilote	Investment par la municipalité*
<2500 résidents	50 maisons	6,250\$ + frais d'expédition
2500 – 10,000 résidents	100 maisons	12,500\$ + frais d'expédition
>10,000 résidents	200 maisons	25,000\$ + frais d'expédition

*S.V.P. notez que ce tableau comporte des **suggestions basées sur nos expériences**. FCS est ouvert d'esprit d'explorer d'autre grandeur de programmes ou d'ajuster le montant subventionné afin de rencontrer vos demandes et budgets.*

**HST non-inclus*

Quelle est la différence entre le prix régulier (sans projet pilote) et le prix pour municipalité?

Le programme pilote FoodCycler est créé à l'aide d'un modèle de subvention ou FCS offre un rabais aux municipalités qui achètent des FoodCyclers. Nous demandons ensuite à la municipalité de subventionner le cout de 125\$ par unité (plus les frais d'expéditions). En utilisant ce modèle, les résidents peuvent acheter un Foodcycler de 500\$ a un prix réduit de 175\$. Les résidents peuvent garder le FoodCycler a la fin du programme pilote et continuer à détourner leurs déchets alimentaires.

Que sont les options complémentaires ?

En plus du kit FoodCycler habituel (veuillez consulter la diapositive de présentation - *Option 1*), nous introduisons un nouvel ensemble qui comprend non seulement le FoodCycler, mais suffisamment de filtres de rechange pour durer une année entière pour l'utilisateur moyen (veuillez consulter la diapositive de présentation - *Option 2*). Dans cet ensemble, la contribution municipale demeure la même, mais les résidents peuvent acheter 60\$ de filtres pour seulement 25\$. Cet ensemble a été créé sur la base des commentaires de nos précédents programmes pilotes où les résidents ont exprimé qu'ils appréciaient de pouvoir acheter des filtres à prix réduit de manière pratique et locale, plutôt qu'en ligne au prix fort.

Les options abordables ont été créées parce que nous sommes conscients que les 175 \$ ou 200 \$ seront attrayants pour beaucoup, mais pas abordables pour tous les membres de la communauté. Nous croyons fermement que les solutions de réacheminement des déchets alimentaires devraient être disponibles pour tous les Canadiens, et pour montrer que nous sommes sérieux, les municipalités auront la possibilité d'augmenter leur commande de 10 % d'unités supplémentaires pour seulement 175 \$ chacune (plutôt que 300\$). Ensuite, nous vous demandons de mettre à disposition aux membres de votre communauté pour seulement 50 \$. Ceci est destiné aux ménages à faible revenu, aux logements communautaires, aux foyers de groupe ou aux organisations à but non lucratif, ou à toute personne qui pourrait réellement bénéficier d'une option abordable.

Quelles sont les possibilités après l'épuisement des subventions ?

Nous sommes ouverts à explorer des opportunités de financement supplémentaires avec nos partenaires potentiels. Le projet pilote FoodCycler respecte les critères exigés par le Fonds municipal vert (FMV) de la Fédération canadienne des municipalités (FCM). Nous fournissons un soutien pour une demande de cette subvention. D'autres subventions financières à explorer sont l'Initiative pour la croissance lignes directrices, Agriculture et Agroalimentaire Canada: Défi de réduction du gaspillage alimentaires et le Projet pilote CNRC.

Combien de municipalités sont impliquées dans le programme pilote FoodCycler ?

Actuellement, nous travaillons avec 33 municipalités canadiennes dans 7 provinces/territoires. FCS recherche actuellement des partenaires de mise en œuvre

pour faire partie de ce programme qui s'accompagne d'un investissement direct dans votre communauté pour compenser le coût du programme.

THE CORPORATION OF THE TOWNSHIP OF HORTON

TES Committee MeetingJanuary 13th, 2022

8:30 a.m.

There was a meeting of the Transportation and Environmental Services Committee held in the Municipal Council Chambers on Thursday January 13th, 2022. Present was Chair Tom Webster, Councillor Lane Cleroux, Mayor David Bennett, Public Advisory Members, Murray Humphries, Rick Lester, and Tyler Anderson. Staff present was Public Works Manager, Adam Knapp, and Executive Assistant Nichole Dubeau—Recording Secretary.

1. CALL TO ORDER

Chair Webster called the meeting to order at 8:32 a.m.

2. DECLARATION OF PECUNIARY INTEREST

There was no declaration of pecuniary interest.

3. MINUTES FROM PREVIOUS MEETING:

- December 1st, 2021

Moved by Tyler Anderson

Seconded by Murray Humphries

THAT the Committee approve the December 1st, 2021 Minutes.

Carried

4. 2022 BLUE BOX STEWARDSHIP FUNDING

Public Works Manager Adam Knapp reviewed the report.

5. GREEN AND INCLUSIVE COMMUNITY BUILDING PROGRAM

Public Works Manager Adam Knapp reviewed the report. Committee agreed to move forward with the RFP and grant application.

Moved by Rick Lester

Seconded by Murray Humphries

THAT the TES Committee recommend to Council to issue a Request for Proposal to have an external consulting firm conduct an energy audit and RETScreen assessments of the Community Center and Rink Change rooms and complete a detailed design to gain a minimum of 10% improvement in energy efficient retrofits and upgrades then complete the application to the Green and Inclusive Community Buildings Grant Program as class B project readiness for funding to complete the project;

AND THAT the Request for Proposal be issued once the 2022 budget is ratified;

FURTHER THAT funding estimated at \$45,000 for the Request for Proposal items be funded through Recreation Reserves.

Carried

6. JOHNSTON ROAD ENGINEERING REVIEW

Public Works Manager Adam Knapp reviewed the report. He is to get a price for a road profile review and bring it back to the committee for further discussion.

7. BOUNDARY ROAD AND COST SHARING AGREEMENTS

Public Works Manager Adam Knapp reviewed the report.

8. THOMPSONHILL DETAILED DESIGN

Public Works Manager Adam Knapp reviewed the report. There was committee discussion regarding some of the streets becoming one-way. Mr. Knapp is to contact Jp2g Consultants to see about the possibility of some of the streets in question being two-way and bring back for Committee discussion.

RETURN TO AGENDA

9. NEW/OTHER BUSINESS

There was no new business.

11. NEXT MEETING DATE

- i. February 2nd, 2022 at 8:30 a.m.

12. ADJOURNMENT

Chair Webster declared the meeting adjourned at 9:24 a.m.

CHAIR Tom Webster

PUBLIC WORKS MGR Adam Knapp



Township of Horton
COUNCIL / COMMITTEE REPORT

Title: Phase 2 Landfill Expansion Feasibility	Date:	March 2nd, 2022
	Council/Committee:	TES Committee
	Author:	Adam Knapp, Public Works Manager
	Department:	Public Works

RECOMMENDATIONS:

THAT the TES Committee agree with Staff recommendation to proceed with phase 2 of the expansion feasibility per the conclusions and recommendations of the Ministry of Environment Conservation and a Parks.

FURTHER THAT funding for Phase 2 of the Expansion Feasibility study in the amount of \$11,565.55 including HST be allocated from Environmental Reserves.

BACKGROUND:

JP2G Consultants Inc submitted a proposed expansion plan to the MECP in late 2021 and the Ministry has responded that they have no fundamental concerns that would prohibit the site from being considered for expansion but noted 6 key recommendations as shown in the attached draft MECP response letter. The MECP has requested that the Township respond by April 30th, 2022. JP2G has included their responses in bold lettering in the draft letter and has supplied the Township with an upset cost to proceed with phase 2 of the expansion study per the MECP's recommendations.

To accommodate the additional well monitoring requested by the MECP the Township will need to increase Landfill Engineering Fees in the annual budget by \$4,550. This line item will be adjusted in 2023 and any additional costs associated with the increased testing at this time shall be considered part of the feasibility study and funded through Environmental Reserves requested.

Staff notes a typographical error in the 2019/2020 biennial monitoring report which stated that the landfill had 20 years of remaining capacity when it has 10 years of remaining years of life capacity, estimated to be at capacity in 2032.

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

- \$11,565.55 for Phase 2 Expansion Feasibility study from Environmental Reserves Funds.
- In 2023 +\$4,550 in Engineering Fees for a total of \$20,641.50 including HST yearly for revised ECA monitoring compliance.

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ATTACHMENTS:

DRAFT MECP response letter
Phase 2 Expansion Feasibility Work Plan
LFS Yearly Additional Well Monitoring Costs

CONSULTATIONS:

Kevin Mooder, JP2G – MCIP, RPP
Andrea Sare, JP2G – Environmental Technician

Prepared by: Adam Knapp, Public Works Manager

Reviewed by: Hope Dillabough, CAO/Clerk



Jp2g No. 20-6128B

February 4, 2022 DRAFT

Ministry of the Environment, Conservation and Parks
2430 Don Reid Drive
Ottawa, ON K1H 1E1

Attention: Thandeka Ponalo
Sr Environmental Officer

Re: **Horton Landfill Site**
Expansion Feasibility Assessment
ECA No. A412505

Dear Thandeka:

We acknowledge receipt of the Shawn Trimper memorandum dated December 13, 2021 which contains comments on the 2019-2020 Biennial Monitoring Report (BMR) dated April 2021 and the Jp2g letter for the expansion feasibility study dated September 9, 2021. A copy is included as **Attachment 1**.

The conclusions and recommendations regarding the 2019/2020 BMR will be addressed in the 2021/2022 BMR dated April 2023. Of note however, is that the projected lifespan of the site based on a current annual landfilling rate of approximately 2000m³ is 10 to 11 years, as stated in the Jp2g letter, not as stated in the BMR at 20 years. We look forward to the ministry's surface water specialist and air quality analyst comments which will assist in the determination of all approval requirements for the expansion.

The following conclusions and recommendations from the memo have been reproduced for convenience, and our response is provided in bold.

1. I have no fundamental concerns that would prohibit the site from being considered for expansion. The site is currently interpreted to be in compliance with Guideline B-7. As indicated by Jp2g, it would need to be demonstrated that the site would be expected to maintain compliance with Guideline B-7 following a proposed expansion. Given that the waste mound is expanding toward the southeastern property boundary, it should also be demonstrated that leachate migration toward this property boundary is not a concern.

We could investigate the feasibility of adding monitoring well 91-5 into the sampling program, to assess any landfill leachate migration towards the southeasterly property limit. It hasn't been sampled since 1995.

2. Groundwater conditions are not well understood in the proposed expansion area. As noted by the ministry surface water reviewer, available imagery indicates that this area may contain surface water features and potentially shallow groundwater. Additional assessment should be completed in the proposed expansion area to verify/support the proposed base elevation. An appropriate design must ensure that waste is placed at least 1 meter above the high groundwater table.

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The proposed expansion area does contain seasonal drainage swales and evidence of a high groundwater table. The drawing entitled 2021 Expansion Design notes that a base elevation of 161m be established with clean fill prior to landfilling. Jp2g conducted test pits in the proposed expansion area on August 20, 2020 during a week of fairly constant rain. The locations are shown on the revised 2022 Expansion Design Drawing.

The following summarizes the results:

	Ground	Water level
TP1	160.79	159.86
TP2	158.85	158.50
TP3	159.10	158.00
TP4	159.80	159.21
TP5	159.85	159.31

Furthermore, upon further review of the available groundwater level measurements at G93-3 it ranged from 159.95m to 160.20m. The base elevation should be raised to 161.5m.

3. As noted above, I have some concerns with the currently approved groundwater monitoring program. Those monitoring changes proposed by Jp2g related to the potential expansion address some but not all of my concerns. I offer the following comments related to the groundwater monitoring program:
 - a) I am supportive of increasing the monitoring frequency to annual; however, I recommend that this frequency be applied at all monitoring wells. I note that opening medium/large landfills typically require groundwater monitoring to be completed twice per year; however, I would support an annual monitoring frequency at a minimum.

The current monitoring program is based on the ECA No. A412505 as amended under Notice No. 1 dated June 3, 2015 which approved biennial (every 2 years) monitoring and reporting. This program was approved for an operating landfilling site with a total site capacity of 120,020m³, based on an expansion of 39,900m³ in 2011. The current expansion proposal of 39,973m³ would result in a site of just under 160,000m³ which has been in operation since 1977 and has been monitored since the early 1990s.

Based on available files we have a copy of the Steve Burns Ottawa District Manager letter dated September 12, 2014 in response to the Township's letters May 24, 2013 and February 5, 2014 request to reduce the monitoring program. TSS Groundwater October 28, 2013 and TSS Surface water November 11, 2013, approved the program. Copies of the Ministry correspondence is included in Attachment 2.

The Jp2g initial proposal was to conduct annual monitoring at the nine (9) key monitoring wells which provided data for the background, leachate and boundary compliance locations, while the remaining 12 monitoring wells listed in Schedule B of the ECA would be sampled biennially. We would agree to annual sampling of the 21 monitoring wells in consideration of your following comments.

- b) Jp2g is recommending that additional monitoring wells (trigger and compliance locations) be sampled for more robust surveillance parameter list; however, it is my recommendation that all monitoring wells be sampled for more robust parameter list moving forward. Based on the existing data it is apparent that the limited routine parameter list is no longer appropriate and greatly limit the ability to assess leachate impacts.

The more robust parameter “surveillance” list developed by Golder includes the parameters in Schedule 5, Column 1 (Landfill Standards, 1993) + strontium and hardness. We would agree to analyze the 21 monitoring wells based on this parameter list until any increasing or decreasing trends are identified. In the future perhaps some wells could be analyzed for the Schedule 5, Column 2 parameters + strontium and hardness for consistency.

- c) I recommend that the more robust surveillance parameter list (with the exception of mercury and VOCs) be assessed at all monitoring wells during the next groundwater sampling event. This monitoring will provide a more fulsome assessment of the distribution of all leachate indicator parameters at the site which is required to support a proposed expansion of the site and the development of an appropriate monitoring program.

We did not request this but would agree to delete mercury (Hg) and the VOCs listed in Column 1 of Schedule 5 (Landfill Standards, 1993) from the annual analysis. Please refer to our response to 3(d) and (e) for further discussion.

- d) I would be supportive of removing VOCs from the surveillance parameter list and requiring VOC sampling to be completed at a limited number of monitoring wells (the leachate monitoring well and a few additional monitoring wells to demonstrate the attenuation the VOCs) and at a reduced frequency (perhaps every 2 to 3 years). However, I also recommend that the VOC analysis include a much more robust list of VOCs.

The regular analysis of the VOCs (Schedule 5 Column 1) at the site was initiated in 2011 including wells 91-A4, G93-1 and G93-7B. Concentrations at the leachate well G93-7B have never exceeded ODWS until a benzene concentration of 1.6 ug/L result during the April 2020 and June 2021 events, no MDLs have ever been exceeded at the other 2 wells. We propose to continue VOC analysis at G93-7B. We would support the comprehensive analysis of VOCs every 3 years at the background well and monitoring wells which have already indicated a level of impact which include G93-7B, 91-A2, 91-A4, G93-6A, G96-9A/B/C, G96-11A/B, and G96-14A/B.

- e) I would be supportive of removing mercury from the list of surveillance parameters and only requiring its analysis in leachate. If mercury were detected in leachate at concentrations of potential concern in the future additional monitoring could be considered at that time.

The regular analysis of mercury (Hg) at the site was initiated in 2011, concentrations at the leachate well G93-7B and wells 91-A4 and G93-1 have never exceeded the detection limit of 0.0001 mg/L. We will include mercury in the analysis of the leachate well G93-7B.

- f) I am not opposed to removing and decommissioning redundant monitoring wells from the groundwater monitoring program; however, I recommend that reductions be considered once the impacts associated with the proposed expansion are more fully understood and the current distribution of all leachate indicators are better understood (as recommended above).

Recommendations for well decommissioning will be determined in consultation with MECP.

- (g) I note that the existing leachate monitoring well is located immediately downgradient of the area of historical waste placement areas and not the proposed expansion area. As such, consideration should be given as to whether an additional leachate monitoring well is required in proximity to the proposed expansion area.

Monitoring wells 91-A2, G93-6A, G96-14A and B are located downgradient of the historical trench disposal in the proposed expansion area and the expansion area. They should be sufficient to monitor the leachate quality as a result of the expansion.

- (h) Notwithstanding the above, I note that it is likely premature to provide a definitive monitoring program associated with a possible expansion until the predicted impacts are formally assessed and better understood.

Agreed the monitoring program to be included in an amended ECA will be defined in consultation with MECP. Please confirm that the Ministry is not requiring predictive modelling to support the expansion, but rather the review of historical leachate trends and the results of the monitoring program developed as a result of this consultation.

4. From a technical perspective, I have no objection to reducing the frequency of sampling at the Barr Well; however, it is my opinion that annual sampling may be a more appropriate frequency and I would also recommend that the parameters analyzed be increased to the more comprehensive list. It is my understanding that the sampling of this well is completed as a result of negotiations with the property owner at the time the site was purchased (this should be confirmed), and as such, I recommend that the owner of the Barr Well be consulted with respect to any reductions in monitoring at this well.

Jp2g has been providing monitoring results to Mr Barr since 2017. The owner does not live on the property, so we obtain permission for access to sample through a relative. We have unsuccessfully tried to reach Mr. Barr by mail to discuss the historical results and the proposal to reduce the sampling.

5. I have no objection to removing the soak pit from the ECA. This contingency action is not expected to be required and could be reconsidered in the future as part of a contingency plan if necessary.

We agree that the soak pit may never be required, but as the design is in the ECA in the event it was required as a contingency it could be implemented without additional review cost.

6. The ministry's regional groundwater unit should continue to be consulted with respect to a potential expansion of the site as additional information and assessment results are provided.

We would be pleased to discuss our response and will be providing the analysis in the Biennial Monitoring Report.

Yours truly,
Jp2g Consultants Inc.
Engineers • Planners • Project Managers



Kevin Mooder, MCIP RPP
Principal | Environmental Services

KM/jlp

ATTACHMENT 1

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**Ministry of the
Environment,
Conservation and Parks**
Eastern Region
1259 Gardiners Road, Unit 3
Kingston ON K7P 3J6
Phone: 613.549.4000
or 1.800.267.0974

**Ministère de l'Environnement,
de la Protection de la nature
et des Parcs**
Région de l'Est
1259, rue Gardiners, unité 3
Kingston (Ontario) K7P 3J6
Tél: 613 549-4000
ou 1 800 267-0974



MEMORANDUM

December 13, 2021

TO: Thandeka Ponalo
Senior Environmental Officer
Ottawa District Office
Eastern Region

FROM: Shawn Trimper
Hydrogeologist
Technical Support Section
Eastern Region

RE: 2019-2020 Biennial Monitoring Report & 2021 Expansion
Feasibility Assessment
Horton Waste Disposal Site
Lot 17, Concession 6, Geographic Township of Horton
County of Renfrew
Environmental Compliance Approval No. A412505

The Ministry of the Environment, Conservation, and Parks (MECP) Belleville Area Office (KDO) provided the following documents:

- Report titled "Horton Landfill Site, Environmental Approval No. A412505, 2019-2020 Biennial Report" prepared by Jp2g Consultants Inc. (Jp2g) and dated April 2021.
- Technical letter titled "Horton Landfill Site, Township of Horton, ECA No. A412505, Expansion Feasibility Study" prepared by Jp2g and dated September 9, 2021.

I have reviewed the aforementioned documents. The following sections generally provide a summary of the information and conclusions provided in the reports. My conclusions and recommendations are provided in the final and appropriately named section of this memorandum.

Environmental Compliance Approval (ECA)

The Horton Waste Disposal Site (WDS) is an operating site authorised by ECA No. A412505. The site is located on Lot 17, Concession 6, Geographic Township of Horton and is owned and operated by the Corporation of the Township of Horton (the township). The site is currently approved for the operation of a 2.5 hectare landfilling area within a total site area of 20.24 hectares. The site is licensed for the disposal of non-hazardous solid municipal waste. Previous volumetric expansions of the site were approved in 1998 and 2011 which allowed for volumetric expansions of 36,100 cubic metres and 39,900 cubic metres, respectively. The currently approved volumetric

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capacity is 120,020 cubic metres (excluding final cover). The 2019/2020 Biennial Monitoring Report (BMR) indicates that the site has 20 years of remaining capacity to 2032 (there appears to be an issue with these values as they do not agree). It is understood that the landfill has been in operation since 1976. The site is a natural attenuation site. Landfilling is currently being conducted using the “area fill” method; however, it is understood that landfilling was historically completed on the site using the “trench and fill” method. It is reported that final cover has been applied to the western portion of the waste mound; however, this area is not identified in the provided figures.

Physical Setting

The Horton WDS is located approximately 5 kilometres (km) north of the Town of Renfrew at 2082 Eady Road. The site is located in a rural area with sparse residential and agricultural land uses present in the area. Aggregate pits are also common in the surrounding area.

The site is bordered by Eady Road to the southwest, a large wetland complex to the northeast, and wooded lands to the southeast and northwest. The topography on the site slopes distinctively toward the northeast; however, to the south of the site topography slopes toward the southeast. The wetlands are reported to form the head waters of Barr Creek which forms just east of the site. Barr Creek flows toward the east and discharges to the Ottawa River approximately 2 kilometres east of the site. A second unnamed tributary is located south of the site and also flows toward the east and discharges to the Ottawa River.

Geology

The overburden deposits on the site are reported to consist of a surficial granular layer (consisting of fill, topsoil, silty sand, sandy silt, sand, and sand and gravel) and an underlying clay layer (consisting of silty clay and clayey silt). A till unit has also been identified on the site underlying the clay unit and overlying the bedrock. The thickness of the surficial granular layer is greatest on the northwest portion of the site and thins toward the east. The top of the clay layer also slopes from west to east.

Bedrock outcrops are reported to exist to the south/southeast of the site and the bedrock surface is reported to decline in elevation toward the north-northwest. Bedrock has not been investigated at the site and its composition is not reported.

Hydrogeology

The hydrogeological characteristics of the site are generally reported as follows:

- The shallow granular layer is the primary aquifer present on the site.
- Groundwater flow within the surficial granular layer is generally toward the east
- Groundwater flow within the surficial granular layer is expected to be controlled by the topography of the site and the top of the clay layer.
- The hydraulic conductivity of the surficial granular layer was historically investigated and found to range from approximately 2.6×10^{-5} to 1.5×10^{-3} centimetres/second (cm/s).

- The horizontal hydraulic gradient in the surficial granular layer was previously estimated to be 0.025 metres/metre.
- The groundwater velocity in the surficial granular layer was previously estimated to range from approximately 0.2 to 11 centimetres/day, corresponding to a travel time from the landfill to the downgradient site boundary (a distance of approximately 325 metres) ranging from 10 to 500 years.
- Vertical gradients were not discussed in the current report; however, previously assessments have found that the fill area is a recharge area and the down-gradient (eastern) portion of the site is a discharge area.

Groundwater Monitoring Program

The current groundwater monitoring network consists of thirteen (13) groundwater monitoring wells, of which four (4) are bi-level monitoring wells and two (2) are tri-level monitoring wells. The monitoring wells are intended to monitor leachate and background and downgradient groundwater quality. The monitoring wells are completed in the shallow, intermediate, and deep overburden.

The current groundwater monitoring program identifies monitoring wells as either routine or surveillance monitors. Routine monitors are sampled for a robust list of parameters as outlined in the ECA. Surveillance monitors are sampled for a limited list of parameters. The number of monitors identified as routine and surveillance monitors are eighteen (18) and three (3), respectively.

The ECA was amended in 2015 (Notice 2) to allow for a reduction in the monitoring and reporting frequency. Groundwater level measurement and sampling is currently required to be completed every two (2) years in the spring. The reporting frequency is every two (2) years.

No changes to the groundwater monitoring program have been recommended by Jp2g in the 2019/2020 BMR.

Background Groundwater Quality

Background groundwater quality is assessed using monitoring well G93-1. This well is located to the west of Eady Road and is interpreted to be located upgradient and unimpacted by the landfill. Background concentrations of all parameters analysed are typically very low and below the Ontario Drinking Water Standards (ODWS).

Leachate

Leachate quality is currently assessed at monitoring well G93-7B, located immediately downgradient (east) of the waste mound. Chloride was previously identified as the primary leachate indicator parameter due to it being elevated in leachate and naturally low in background groundwater and readily mobile in groundwater.

Jp2g indicates that dissolved organic carbon (DOC), iron, manganese, and total dissolved solids (TDS) are elevated at G93-7B and typically exceed the ODWS. The

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following additional parameters are also reported to be elevated in leachate: barium, boron, hardness, potassium, and strontium.

An assessment of trends in selected leachate indicator parameter concentrations is provided in the 2019/2020 BMR. The findings indicate that most parameter concentrations are generally stable, with the exception of concentrations of TDS which are increasing.

Down-gradient Groundwater Quality

Groundwater quality is assessed downgradient of the waste mound using the existing monitoring well network.

Jp2G indicates that leachate impacts are present immediately downgradient of the site in the central portion and attenuate toward the property boundaries with no leachate impacts interested to exist in those monitoring wells located closest to the sites property boundaries. Leachate impacts are well delineated and are interpreted to be contained on the site.

The following ODWS exceedances were reported during 2020 at monitoring wells located in the central portion of the site:

91-4A: DOC, iron, manganese, and TDS
 91-A2: hardness, manganese, TDS
 93-6A: hardness, manganese, TDS
 G96-14A: iron, manganese
 G96-14B: manganese
 G96-11A: manganese
 G96-11B: iron, manganese
 G96-9A: manganese

The following ODWS exceedances were reported during 2020 at monitoring wells located along the periphery of the site (trigger and compliance monitors):

G96-10C: manganese
 G96-12: manganese

Volatile Organic Compounds (VOCs)

VOC sampling is required to be completed at surveillance monitoring well locations G93-1 (background), 93-7B (leachate), and 91-A4 (downgradient) every two (2) years. Those VOCs to be sampled are benzene, 1,4-dichlorobenzene (1,4-DCB), dichloromethane, toluene, and vinyl chloride (VC) as outlined in the ECA.

VOC sampling was completed during the spring of 2020 as per the requirements of the ECA. The following parameters were detected:

G93-1 (background): none
 93-7B (leachate): benzene (1.6 mg/L), 1,4-DCB (0.5mg/L), VC (0.2mg/L)
 91-A4 (downgradient): none

All VOC concentrations were below applicable ODWS. The results indicate that relatively low concentrations of VOCs are generally present in leachate but appear to be attenuated in proximity to the waste mound. The 2020 results are generally similar to previous years, with the exception that VC was detected for the first time in 2020 (detected at the detection limit).

Domestic Well Sampling

The nearest residential property is located immediately northwest of the site at 2126 Eady Road. This property is interpreted to be located upgradient or cross-gradient of the site and is not expected to be at risk due to the operations at the site.

The nearest downgradient residence is located approximately 1 kilometre east of the site at 183 Jim Barr Road. The domestic well on this property is referred to as the “Barr Well” and is included in the groundwater monitoring program. It is understood that inclusion of this well in the monitoring program was a condition of the previous purchase of the site. The ECA requires this well to be sampled in the spring and fall for the “routine groundwater parameters”. The construction details of the Barr Well are not provided in the report.

The Barr Well was sampled in the spring and fall of 2019 and 2020 in accordance with the requirements of the ECA. All parameters analysed were below the ODWs and concentrations are generally stable and consistent with previous years. The Barr well is not interpreted to be impacted by landfilling activities on the site.

Regulatory Evaluation

Reasonable Use Guideline B-7 applies to all operating WDS and those WDS closed after 1986, thus Guideline B-7 applies to the Horton WDS.

Jp2g provided a Guideline B-7 assessment in the 2019/2020 BMR. Reasonable Use Limits (RUL) were calculated using background groundwater quality data for what Jp2g indicates are the key indicator parameters (barium, boron, chloride, hardness, manganese, TDS). Groundwater quality at monitoring wells G93-5 (A/B), G96-8 (A/B), G96-10 (A/B/C), G96-12, G96-13 which are located downgradient of the site and closest to the property boundaries were compared to the RULs.

The concentrations of the following parameters exceeded the RUL in 2020:

G96-10C: manganese
G96-12: manganese

Jp2g indicates that the concentrations of manganese and are generally stable and the concentrations of chloride are both stable and relatively low, and therefore concludes that the manganese concentrations identified are not related to landfill operations at the site, and the site is in compliance with Guideline B-7.

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Trigger Mechanisms and Contingency Plans

Groundwater trigger mechanisms were previously established for the site and are included in the existing ECA as condition 78. Trigger locations include the compliance monitoring wells (as discussed above) as well as additional “early warning monitoring wells”. The “early warning monitoring wells” are G96-10 (A/B/C) and have been designated as such based on their location approximately 65 metres from the property boundary (whereas compliance monitoring wells are much closer). Trigger values are set at 75 percent of the RUL at compliance monitoring wells and 100 percent of the RUL at the “early warning” monitoring wells. All leachate indicator parameters are to be included in the assessment.

The contingency actions required in the event that a trigger value is exceeded at a trigger location are outlined in condition 79 of the ECA. The required contingency action generally consists of confirmatory sampling, investigation of the cause of the trigger exceedance, and development and implementation of a contingency action plan.

A groundwater trigger assessment was provided in the 2019/2020 BMR. Jp2g has completed the assessment using the median of the last 10 samples collected at each trigger location to determine if a trigger exceedance is occurring. Jp2g reports the following trigger exceedances in 2019/2020:

G96-8A: TDS
G96-8B: TDS
G96-12: manganese

Jp2g indicates that there are no appreciable increasing trends in TDS or chloride at G96-8A or G96-8B, and therefore conclude that the landfill is not adversely influencing the TDS values at the site. Jp2g indicates that manganese concentrations at G96-12 are not currently increasing and given that chloride concentrations are also low and stable, the elevated manganese at this location may be naturally occurring. No contingency actions are recommended in the BMR.

Groundwater – Surface Water Interactions

Leachate impacted groundwater is expected to migrate within the shallow granular layer toward the wetland feature located in proximity to the site’s northeastern boundary where it has the potential to discharge and impair surface water. Shallow groundwater monitors located in proximity to surface water (i.e. in proximity to the eastern property boundary) are used in addition to conventional surface water monitoring, to assess whether leachate impacted groundwater is present and has the potential to impair surface water. Only very minor leachate impacts are currently identified in shallow groundwater monitoring wells located in proximity to the eastern property boundary. However, if leachate impacts increase/expand in the future there is a potential for leachate impacted groundwater to discharge to and impair surface water to the east of the site.

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Landfill Gas

Landfill gas related requirements are outlined in conditions 80 and 81 of the ECA with the monitoring requirements outlined in Schedule D of the ECA.

Landfill gas monitoring was completed on seven occasions per year during 2019 and 2020 at gas probes GW11-1 and GW11-2. Additional landfill gas monitoring was also completed in the onsite attendants shed (commencing June 2019) and storage garage (commencing December 2019). It is understood that the additional monitoring in buildings was completed in response to comments provided by the ministry's regional air quality analyst. It is reported that all landfill gas measurements were 0% of the lower explosive limit of methane at all locations.

Expansion Feasibility Study

It is understood that the technical letter is intended to provide general details of a possible site expansion for the purpose of obtaining initial feedback from the ministry. The proposed expansion would increase the size of the currently approved fill area from 2.5 hectares to approximately 3.38 hectares and increase the volumetric capacity by 39,973 cubic metres to a total of 159,993 cubic metres. It is reported that the base of the expansion area will need to be raised to an elevation of 161 metres to ensure a one metre separation between deposited waste and the high groundwater table and will require 6,430 cubic metres of clean fill. Given that the proposed expansion is <40,000 cubic metres it is reported that the expansion would be exempt from the Environmental Assessment Act.

Jp2g indicates that the site is currently in compliance with the regulatory and ECA requirements pertaining to groundwater, surface water, and landfill gas. The letter notes that the expansion application will need to be accompanied by supporting documentation that demonstrates the site has an adequate contaminant attenuation zone. It is also reported that the application will seek to amend other aspects of the current ECA including: updating the groundwater and surface water monitoring programs, reducing landfill gas monitoring, making changes to the waste transfer conditions, and removing the existing soak pit design.

Jp2g has proposed the following changes to the groundwater monitoring program in association with the proposed expansion:

- Increase the monitoring frequency at selected monitoring wells from every two years to once per year and also increase the parameters analysed at these wells to the more robust "surveillance" parameter list. All other monitoring wells are to be sampled every two years, with the exception of G93-6A, 91-A2, G96-11A, and G96-11B which are proposed to be removed from the monitoring program and decommissioned.
- Reduce the frequency of sampling at the Barr Well from twice per year to once every two years.

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Conclusions and Recommendations

I provide the following conclusions and recommendations regarding the 2019/2020 BMR for your consideration:

- The Horton WDS is an operating natural attenuation landfill site.
- The BMR indicates that the remaining lifespan of the site is 20 years; however, it appears that an error was made when calculating this value. Based on the provided details it appears that the site has a remaining lifespan of 10 to 12 years. Future reports should ensure that the remaining capacity and lifespan are clearly and accurately reported.
- It is reported that final cover has been applied to the western portion of the waste mound; however, it is not clear where this has occurred. Future reports should identify the area of final cover on an appropriate figure.
- The groundwater monitoring and sampling completed in 2019 and 2020 are in general accordance with the requirements of the ECA.
- Future monitoring reports should provide an assessment and discussion of vertical gradients.
- The assessment of background groundwater quality at the site is sufficient.
- The assessment of leachate quality at the site is generally sufficient.
- I generally agree with the interpretations related to leachate impacts provided by Jp2G with some minor exceptions. Leachate impacts currently appear to be generally well delineated and primarily contained on the site. The presence of minor leachate impacts are currently difficult to determine in those monitoring wells sampled for only the routine parameter list.
- I generally agree with the interpretation that the site is currently in compliance with Guideline B-7. However, the presence of minor leachate impacts are currently difficult to determine in those monitoring wells sampled for only the routine parameter list.
- I am generally satisfied with the existing groundwater triggers, with the exception that not all leachate indicator parameters are sampled at trigger monitoring wells and included in the assessment.
- I generally agree with the interpretation that contingency actions are not currently required at the site based on the approved trigger mechanisms. However, I note that only selected leachate parameters are monitored at the trigger monitoring wells.
- I agree that the Bar Well does not appear to be impacted by the landfill operations.

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- I have concerns with the current groundwater monitoring program. My primary concern relates to the limited list of parameters currently required to be analysed at most monitoring wells at the site. I also have concerns with the monitoring frequency. I have provided comments below with respect to the groundwater monitoring program as it relates to the potential expansion of the site. If the expansion of the site is not pursued the adequacy of the existing monitoring program should be reassessed.
- Leachate impacts in groundwater do not currently extend to the surface water features located east of the site (or are very minor), and as such, leachate impacted groundwater is not currently expected to pose a risk to surface water features as a result of groundwater discharge.
- A ministry surface water specialist should continue to be consulted with respect to the management and protection of surface water on and surrounding the site.
- The ministry's regional air quality analyst and/or a ministry waste approval engineer should be consulted with respect to landfill gas monitoring requirements associated with the site.

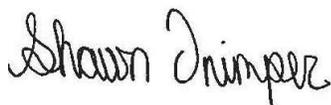
I provide the following conclusions and recommendations regarding the Expansion Feasibility Assessment for your consideration:

- I have no fundamental concerns that would prohibit the site from being considered for expansion. The site is currently interpreted to be in compliance with Guideline B-7. As indicated by Jp2g, it would need to be demonstrated that the site would be expected to maintain compliance with Guideline B-7 following a proposed expansion. Given that the waste mound is expanding toward the southeastern property boundary, it should also be demonstrated that leachate migration toward this property boundary is not a concern.
- Groundwater conditions are not well understood in the proposed expansion area. As noted by the ministry surface water reviewer, available imagery indicates that this area may contain surface water features and potentially shallow groundwater. Additional assessment should be completed in the proposed expansion area to verify/support the proposed base elevation. An appropriate design must ensure that waste is placed at least 1 metre above the high groundwater table.
- As noted above, I have some concerns with the currently approved groundwater monitoring program. Those monitoring changes proposed by Jp2g related to the potential expansion address some but not all of my concerns. I offer the following comments related to the groundwater monitoring program:
 - I am supportive of increasing the monitoring frequency to annual; however, I recommend that this frequency be applied at all monitoring wells. I note that operating medium/large landfills typically require groundwater monitoring to be completed twice per year; however, I would support an annual monitoring frequency at a minimum.

- Jp2g is recommending that additional monitoring wells (trigger and compliance locations) be sampled for the more robust surveillance parameter list; however, it is my recommendation that all monitoring wells be sampled for the more robust parameter list moving forward. Based on the existing data it is apparent that the limited routine parameter list is no longer appropriate and greatly limit the ability to assess leachate impacts.
- I recommend that the more robust surveillance parameter list (with the exception of mercury and VOCs) be assessed at all monitoring wells during the next groundwater sampling event. This monitoring will to provide a more fulsome assessment of the distribution of all leachate indicator parameters at the site which is required to support a proposed expansion of the site and the development of an appropriate monitoring program.
- I would be supportive of removing VOCs from the surveillance parameter list and requiring VOC sampling to be completed at a limited number of monitoring wells (the leachate monitoring well and a few additional monitoring wells to demonstrate the attenuation of VOCs) and at a reduced frequency (perhaps every 2 to 3 years). However, I also recommend that the VOC analysis include a much more robust list of VOCs.
- I would be supportive of removing mercury from the list of surveillance parameters and only requiring its analysis in leachate. If mercury were detected in leachate at concentrations of potential concern in the future additional monitoring could be considered at that time.
- I am not opposed to removing and decommissioning redundant monitoring wells from the groundwater monitoring program; however, I recommend that reductions be considered once the impacts associated with the proposed expansion are more fully understood and the current distribution of all leachate indicators are better understood (as recommended above).
- I note that the existing leachate monitoring well is located immediately downgradient of the area of historical waste placement areas and not the proposed expansion area. As such, consideration should be given as to whether an additional leachate monitoring well is required in proximity to the proposed expansion area.
- Notwithstanding the above, I note that it is likely premature to provide a definitive monitoring program associated with a possible expansion until the predicted impacts are formally assessed and better understood.

RETURN TO AGENDA

- From a technical perspective, I have no objection to reducing the frequency of sampling at the Barr Well; however it is my opinion that annual sampling may be a more appropriate frequency and I would also recommend that the parameters analysed be increased to the more comprehensive list. It is my understanding that the sampling of this well is completed as a result of negotiations with the property owner at the time the site was purchased (this should be confirmed), and as such, I recommend that the owner of the Barr Well be consulted with respect to any reductions in monitoring at this well.
- I have no objection to removing the soak pit from the ECA. This contingency action is not expected to be required and could be reconsidered in the future as part of a contingency plan if necessary.
- The ministry's regional groundwater unit should continue to be consulted with respect to a potential expansion of the site as additional information and assessment results are provided.



Shawn Trimper, P.Eng.
SAT

ec: Victor Castro
Emily Tieu
Sarah Baxter

c: File GW RE HO 01 02 C6 (Horton WDS; ECA No. A412505)
ECHO Review No. 1-76136875

ATTACHMENT 2

RETURN TO AGENDA

Ministry of the Environment

P.O. Box 22032
Kingston, Ontario
K7M 8S5
613/549-4000 or 1-800/267-0974
Fax: 613/548-6908

Ministère de l'Environnement

C.P. 22032
Kingston (Ontario)
K7M 8S5
613/549-4000 ou 1-800/267-0974
Fax: 613/548-6908



M E M O R A N D U M

October 28, 2013

TO: Emily Tieu
Sr. Environmental Officer
Ottawa District Office
Eastern Region

FROM: Bob Holland
Hydrogeologist
Water Resources Unit
Technical Support Section
Eastern Region

RE: Horton Landfill Site – A412505
Water and Gas Monitoring Frequency Change
Lot 17, Concession 6, Township of Horton
Hydrogeological Assessment

I have completed my review of the May 24, 2013 letter from the Township of Horton requesting that water and gas monitoring be changed from annual to bi-annual since the site has been in conformance with Ministry Guideline B-7 since monitoring started in 1993. Based on this conformance record, I agree with this request as the nature and extent of groundwater impact is known and is predictable. This request is in keeping with MOE Policy stated on Page 4-151 of the *Guidance Manual for Landfill Sites Receiving Municipal Waste, November 1993* which allows for semi-annual monitoring for a “medium landfill”.

I generally agree that gas monitoring at the property boundary can be reduced to bi-annual with concurrence from an Approvals Branch - Waste Engineer.

I understand the Surface Water Unit is also reviewing this request.

Thank you for providing me with an opportunity to comment on this matter.

Original signed by

Robert Holland, P.Geo.
RWH/gl

c: Frank Crossley/GW RE HO C4 01 02
Bob Holland

RETURN TO AGENDA



COMMENT / MEMORANDUM TO FILE

Memo Details

Date:	2013/11/19
Module	Technical Support Main Document Reference Number: 0475-98DRVH
Client:	The Corporation of the Township of Horton Client Number: 7207-5ZXK2E
Site(s):	Horton Township Waste Disposal Site Site Number: 3312-6CJHSN
Subject:	Horton WDS Surface Water monitoring
Created by:	Victor Castro
File Storage Number:	SI RE HO EA 610

Hi Tara,

I reviewed a letter dated May 24, 2013 from the Township of Horton requesting that the surface water monitoring and reporting schedule be revised to a bi-annual basis (IDS Task 8365-98DQG8).

I have no objections with this change.

Can you please pass these comments along to the Environmental Officer responsible for the Horton WDS in Emily's absence.

Thanks

Victor Castro

Ministry of the Environment
and Climate Change
Ottawa District Office
2430 Don Reid Drive, Suite 103
Ottawa Ontario
K1H 1E1
613-521-3450 or 1-800-860-2195
Fax: 613-521-5437

Ministère de l'Environnement et de
l'Action en matière de changement climatique
Bureau du district d'Ottawa
2430, promenade Don Reid, Unité 103
Ottawa (Ontario)
K1H 1E1
613-521-3450 ou 1-800-860-2195
Télé: 613-521-5437



September 12, 2014

Janet Collins
Public Works Manager
Township of Horton
2253 Johnston Road, R.R. 5
Renfrew ON K7V 3Z8

Dear Ms. Collins:

**Re: Proposed Reductions to Monitoring Program
Horton Landfill Site, ECA A412505
2028 Eady Road, Township of Horton, Ontario**

This letter is in response to the letters, dated May 24, 2013 and February 5, 2014, requesting approval to reduce the frequency of groundwater, surface water and landfill gas monitoring and reporting at the Horton Landfill Site from annual to bi-annual.

The groundwater and surface water units of the Ministry of the Environment and Climate Change's Eastern Region Technical Support Section completed their review of your request. Based on Technical Support's recommendations, in accordance with Condition 77(1) of ECA A412505, I accept the proposed change to the frequency of groundwater and surface water monitoring and reporting from annual to bi-annual.

At this time, however, I am unable to support a reduction in the landfill gas monitoring and reporting frequency from annual to bi-annual because the request has not been supported by sufficient technical rationale. In the future, if technical justifications can be demonstrated in a supporting document, the proposal to reduce the monitoring and reporting frequency of landfill gas will be considered at that time.

Please note that Condition 77(2) of the ECA required that within fourteen (14) days of receiving this written correspondence confirming my agreement with the proposed changes to the monitoring program, the Owner shall forward a letter identifying the proposed changes and a copy of the correspondences from me and all other correspondences and responses related to the changes to the monitoring program, to the Director requesting the ECA be amended to approve the proposed changes to the monitoring plan prior to implementation.

If you have any questions, please contact me at 613-521-3450 ext. 224 or Emily Tieu at ext. 235.

Yours truly,

A handwritten signature in black ink, appearing to read "Steve Burns".

Steve Burns
Ottawa District Manager

SB/ET;jdv

cc : Mackie McLaren, CAO/Clerk, Township of Horton
Kris Marentette, Golder Associates Ltd.

RETURN TO AGENDA



Jp2g No. 20-6128B

September 14, 2021
Revised February 11, 2022

Township of Horton
2253 Johnston Road
RR5
Renfrew, ON K7V 3Z8

Attention: Adam Knapp
Public Works Manager

**Re: Horton Landfill Site
Expansion Feasibility Phase 2
2022 Work Plan**

Dear Adam:

Further to our September 14, 2021 work plan for both 2022 compliance monitoring and reporting and the Expansion Feasibility, and our meeting February 10, 2022, we are pleased to describe tasks and an estimate of probable costs to continue the Expansion Feasibility Study.

The Expansion Feasibility Study letters were filed with MECP and Mr. Barr on September 9, 2021. Based on the response to date we propose the following:

1. Project Management
Involves client liaison, QA/QC document production, billing, and cost control.
2. Upgrade Expansion Concept Plan
Jp2g will make any changes pending MECP comments. Propose a \$500.00 budget allowance.
3. Modified Water Quality Monitoring Program
The existing monitoring program was reviewed to assess groundwater and surface water conditions to identify information gaps to be addressed to support an expansion, and where feasible condense the program to accurately address impacts from the landfill site.

The September 9, 2021 submission to MECP suggested that monitoring wells G93-1, G93-5B, G93-7B, G96-8B, G96-9B/C, G96-10C, G96-12 & G96-13 were to be sampled on an annual basis for the full set of parameters 'Surveillance' (Column 1 of Schedule 5 Landfill Standards, 1993 + strontium + hardness). This increase in sampling frequency and analysis of additional parameters is to establish a more comprehensive data set to support the proposed landfill expansion. Pending MECP comment we proposed that monitoring wells 93-6A, 91-A2 and 96-11A/B may be decommissioned.

Upon receipt of the Groundwater Reviewer comments dated December 13, 2021 the Ministry requests that 21 monitoring wells be sampled annually for the full suite of parameters (not including VOC and mercury analysis) except in the leachate well. The result is an \$185.00 increase in the original modified monitoring budget dated September 9, 2021 of \$4,550 as noted below.

4. Upgrade the Landfill Gas Wells
The 2021 installation of landfill gas monitoring equipment included vapour plug caps and port adaptors. Pressure gauges will be used to measure subsurface pressure at the dedicated gas monitoring wells GW11-1, GW11-2 and wells G93-6A and 91-A3 (for comparative purposes). Under the current program the GW wells are to be monitored 8 times a year, the others will be monitored annually as access in winter conditions is difficult. No additional Jp2g cost for this task.

5. MECP Consultation
We would hope to receive additional MECP comments on the Expansion Feasibility Study dated September 9, 2021 in 2022 involving the Surface Water or Gas Analyst review of the latest monitoring report in consideration of the expansion proposal. These comments will be addressed under the landfill compliance budget. We have proposed a revised budget allowance to respond to the Groundwater review to reflect actual costs.

6. Barr Consultation
It is understood the Township is in contact with Mr Barr to obtain written approval to sample once per year. No Jp2g cost for this task.

2022 Work Plan

Task	Cost (HST Excluded)
1. Project Management	\$1,500.00
2. Upgrade Concept Plan	\$500.00
3. Modified Monitoring Program	\$4,735.00*
4. Upgrade Gas Wells	\$0.00
5. MECP Consultation	\$3,500.00
6. Barr Consultation	\$0.00
Sub-Total	\$10,235.00

* The landfill site compliance monitoring cost of wells (incl. Barr) and surface water (incl Barr creek) is \$3605 and \$1190 respectively, which is included in Project No 17-6022F.

Yours very truly,
Jp2g Consultants Inc.
 Engineers • Planners • Project Managers



Kevin Mooder, MCIP, RPP
 Principal | Environmental Services



Andrea Sare, C.Tech., EP
 Environmental Technician

KM



Jp2g No. 20-6128B

February 4, 2022

Township of Horton
2253 Johnston Road
RR5
Renfrew, ON K7V 3Z8

Attention: Adam Knapp
Public Works Manager

**Re: Horton Expansion
Feasibility Assessment**

Dear Adam:

Further to receipt of the MECP TSS Groundwater memo dated December 13, 2021, from you on January 4, 2022, attached find our draft response. For discussion, we provide the following cost estimates based on the various water monitoring scenarios described in our response. This does not include the cost of landfill gas monitoring which is required 8 times per year.

Current ECA Program \$3,000/year

- 21 monitoring wells (spring) and 2 surface water (spring & fall) every 2 years \$3605 = \$1805/year
- includes 3 groundwater surveillance and 18 routine analyses, 2 surface water surveillance analysis
- Barr well and creek (spring & fall) per year = \$1190/year
- includes 1 groundwater routine analysis, and 1 surface water routine analysis

Jp2g (September 14, 2021 Proposal) 2022 Program \$7,550/year

- Same as above approx. \$3000/year
- Additional 9 monitoring wells (spring) = \$4,550/year
- includes groundwater 9 surveillance analysis

MECP TSS Groundwater Request (December 13, 2021) \$7,735/year

- Annually 21 monitoring wells (spring) and 2 surface water (spring & fall) every year
- includes groundwater 21 surveillance (not including VOC analysis except for the leachate well), surface water 2 surveillance analysis
- Barr well and creek once per year
- includes 1 groundwater surveillance (not including VOC analysis), 1 surface water surveillance analysis
- Does not include comprehensive VOC analysis every 2 to 3 years number of wells to be confirmed
- Requires Barr approval for once per year sampling
- Surface water comments pending

Jp2g Response to Township Comments

- Cost difference between our monitoring proposal and the MECP request is estimated to be \$185/year, however the comprehensive analysis of volatile organic compounds (VOCs) every 2-3 years will increase the costs during those years. We have requested confirmation from MECP on the location and number of well for this additional analysis.
- We have not received any response to our September 9, 2021 letter to Mr Barr asking permission to reduce the sampling of the well and creek to once per year, which was resent to his Cochrane address. We request Township assistance in this regard.
- The Groundwater reviewer has agreed to remove the soak pit. This feature in our opinion is unnecessary as the surface water naturally percolates into the shallow groundwater flow from the landfilling area. We can suggest that it remain. The Surface Water reviewer may provide comments in this regard.
- Jp2g has equipped the 2 dedicated gas monitoring wells and 2 others to record methane levels and any pressure in the wells. We may need another year of monitoring to support a reduction of the program pending further MECP comments

Yours very truly,

Jp2g Consultants Inc.

ENGINEERS • PLANNERS • PROJECT MANAGERS



Kevin Mooder, MCIP, RPP
Principal | Environmental
Services

Encl.



Township of Horton
COUNCIL / COMMITTEE REPORT

Title: Horton and Admaston Boundary Road Agreements	Date:	March 2 2022
	Council/Committee:	TES Committee
	Author:	Adam Knapp, Public Works Manager
	Department:	Public Works

RECOMMENDATIONS:

THAT the TES committee agree with Staff's recommendation and recommend to Council that the Township of Horton enter into an agreement with the Township of Admaston Bromley regulating the maintenance and repair of the boundary highways as displayed in Schedule A, Schedule B and Schedule C over which they have joint jurisdiction in accordance with the Municipal Act, 2001, (S.O. 2001, C.25) Section 29 Boundary Lines, as amended;

BACKGROUND:

The TES Committee and Staff of Horton Township and Admaston Bromley Township have been working toward these agreements since late 2021. Through ample negotiation and effort on both sides Staff believe we have come to mutually beneficial agreements, as displayed in the attached schedules, that shall continue to ensure a strong working relationship between both Municipalities.

ALTERNATIVES:

N/A

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

Schedule A - Golf Course Road
Schedule B - McBride Road
Schedule C - Blackburn Road

CONSULTATIONS:

Hope Dillabough CAO/Clerk – Horton Twp
Jennifer Charkavi CAO/Clerk - Admaston Bromley
Mitchel Ferguson Deputy Clerk/Treasurer - Admaston Bromley
Steve Vesinski – Acting Road Supervisor – Admaston Bromley

Prepared by: Adam Knapp, Public Works Manager

Reviewed by: Hope Dillabough, CAO/Clerk

RETURN TO AGENDA

**Schedule "A" to By-Law 2022-xx
GOLF COURSE ROAD**

This Agreement made in duplicate this ____ day of _____, 2022

BETWEEN:

The Corporation of the Township of Horton
hereinafter called "Horton" of the first part

AND

The Corporation of the Township of Admaston/Bromley
hereinafter called "Admaston/Bromley" of the second part

WHEREAS Horton and Admaston/Bromley are desirous to enter into an agreement regulating the maintenance and repair of the boundary highways known as Golf Course Road, over which they have joint jurisdiction in accordance with the Municipal Act, 2001, (S.O. 2001, C.25) Section 29 Boundary Lines, as amended;

AND WHEREAS Section 29.1(1) of the Municipal Act RSO 2001 states that if municipalities having joint jurisdiction over a boundary line highway enter into an agreement under which each municipality agrees to keep any part of the highway in repair for its whole width and to indemnify the other municipality from any loss or damage arising from the lack of repair for that part, the agreement and a copy of the by-law authorizing the agreement may be registered in the proper land registry office for the area in which the highway is located.

AND WHEREAS pursuant to subsection 29.1(2) of the Municipal Act, RSO 2001, If municipalities enter into an agreement under subsection (1), each municipality has jurisdiction over that part of the highway that it has agreed to keep in repair and is liable for any damages that arise from failure to keep the highway in repair and the other municipality is relieved from all liability in respect of the repair of that part.

AND WHEREAS Ontario Regulation 239/02 as amended from time to time and made pursuant to the Municipal Act has set Minimum Maintenance Standards for Municipal Highways to which the highways covered by this Agreement are to be maintained

NOW THEREFORE in consideration of the covenants contained herein and for good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto agree each with the other as follows:

1. All new entrances shall be installed under the supervision of the respective Municipality's Public Works Department. Each applicant shall be responsible for obtaining a proper entrance permit from the respective Municipality.
2. It is understood by both parties that Admaston/Bromley shall be responsible for the routine maintenance of the width of the boundary road allowance to 1123 Golf Course Road (last driveway), while Horton shall be responsible for the routine maintenance of the width of the boundary road allowance from the entrance of the Renfrew Gold Club to the gate at the Aggregate Pit. It is understood that Horton may contract a third party to maintain the width of the boundary road allowance from the entrance of the Renfrew Golf Club to the gate of the Aggregate Pit. The Municipalities agree that the value of the respective routine maintenance for the road as identified in Appendix A will be approximately equal and logistically practical. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
3. It is understood by both parties that Horton shall be responsible for the repair of the width of the boundary road allowance for Golf Course Road for a term of 25 (twenty-five) years as the road reconstructed in 2022 was a cost sharing agreement that saw a significant improvement to the boundary road and the new

RETURN TO AGENDA

reconstructed Golf Course Road is to last 25 (twenty-five) to 30 (thirty) years. Horton shall be responsible for the repair of Golf Course Road until 2047.

4. Any works for which cost sharing is being sought shall not be undertaken until such time as the works and funding are approved by each Municipality.
5. Routine Maintenance includes – snow removal, sanding, grass cutting, brushing patching, sign maintenance, replacement of culverts outside of planned Capital, emergency repairs and road patrols. A copy of each Road Patrol Report shall be available upon request.
6. The Parties hereto agree that should emergency works, or action be required due to a compromise of the highways and bridges set out in Appendix A by others, the party hereto first notified of the compromise of the highway or bridge by emergency services (police, fire, etc.) shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the emergency work. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
7. If the construction is a result of development and population growth, the developing Municipality may undertake, cause, or permit to be undertaken such construction on the following terms:
 - a) The developing Municipality shall give the other Municipality at least eight (8) weeks written notice prior to the commencement of such construction.
 - b) The other Municipality shall bear none of the costs relating directly to such construction.
8. Should any of the highways or bridges included in Appendix A be obstructed (water over the road, tree fall, downed hydro lines, etc.) in any manner that affects public safety, the party hereto first notified of the obstruction of the highway or bridge by emergency services (police, fire, etc.) or after becoming aware of the obstruction by other means, shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the removal of the obstruction and/or close the road to traffic and pedestrians. If the obstruction is minor either Municipality may remove the obstruction as a courtesy but must notify the other Municipality of the removal. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
9. TOARC payments from production at the proposed aggregate pit on Golf Course Road shall be placed in a Reserve Account by Horton for the eventual reconstruction of Golf Course Road in 2047 or used for any repairs required to keep the road at the standard required. The Township of Horton shall retain 10% of the TOARC payments annually for administrative costs. Horton shall send annual statements to Admaston/Bromley of this reserve account.
10. Horton shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Admaston/Bromley as an additional insured and Horton shall provide a certificate of such insurance coverage to Admaston/Bromley throughout the term of this agreement and any renewal thereof and further provide Admaston/Bromley within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.
11. Admaston/Bromley shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental

insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Horton as an additional insured and Admaston/Bromley shall provide a certificate of such insurance coverage to Horton throughout the term of this agreement and any renewal thereof and further provide Horton within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.

12. The Parties shall maintain and keep in full force and effect at its own expense a Standard Form Automobile Liability Insurance that complies with all requirements of the current legislation of the Province of Ontario, having an inclusive limit of not less than ten million dollars (\$10,000,000) per occurrence for Third Party Liability in respect of the use or operation of vehicles owned, operated or leased by Parties.
13. The Parties insurance shall be primary coverage and not additional to and shall not seek contribution from any other insurance policies available to the Parties.
14. This agreement shall be in force for a period of ten (10) years from _____, 2022 to _____, 2032 and may be renewed for another period not to exceed ten (10) years by resolution of the Councils of both Corporations as found necessary and it may be amended or changed by resolution of the Councils of both Corporations, as mutually agreed upon.
15. In the event that either party receives a Statement of Claim, Notice of Claim or other information regarding a pending or possible claim by a third party with respect to liability for failure to keep the highway in repair or for damages or injuries sustained relating thereto, such party shall immediately notify the other party in writing of such claim or Notice of Claim. In the event that a legal proceeding is commenced by a third party, each of the Parties to this Agreement shall provide for its own legal representation as it sees fit.
16. Each of the parties hereby undertake to save harmless and agree to indemnify the other against all claims and demands for damage, losses, costs, charges and expenses which the other municipality may sustain, incur, or be liable for arising from the lack of repair of any portion of any of the highways for which the Municipality has assumed sole responsibility under this agreement.

IN WITNESS WHEREOF both Corporations have hereunto affixed their Corporate Seals duly attested by the hands of their proper signing officers in that behalf.

SIGNED, SEALED AND DELIVERED

THE TOWNSHIP OF HORTON

PER:

David Bennett, Mayor

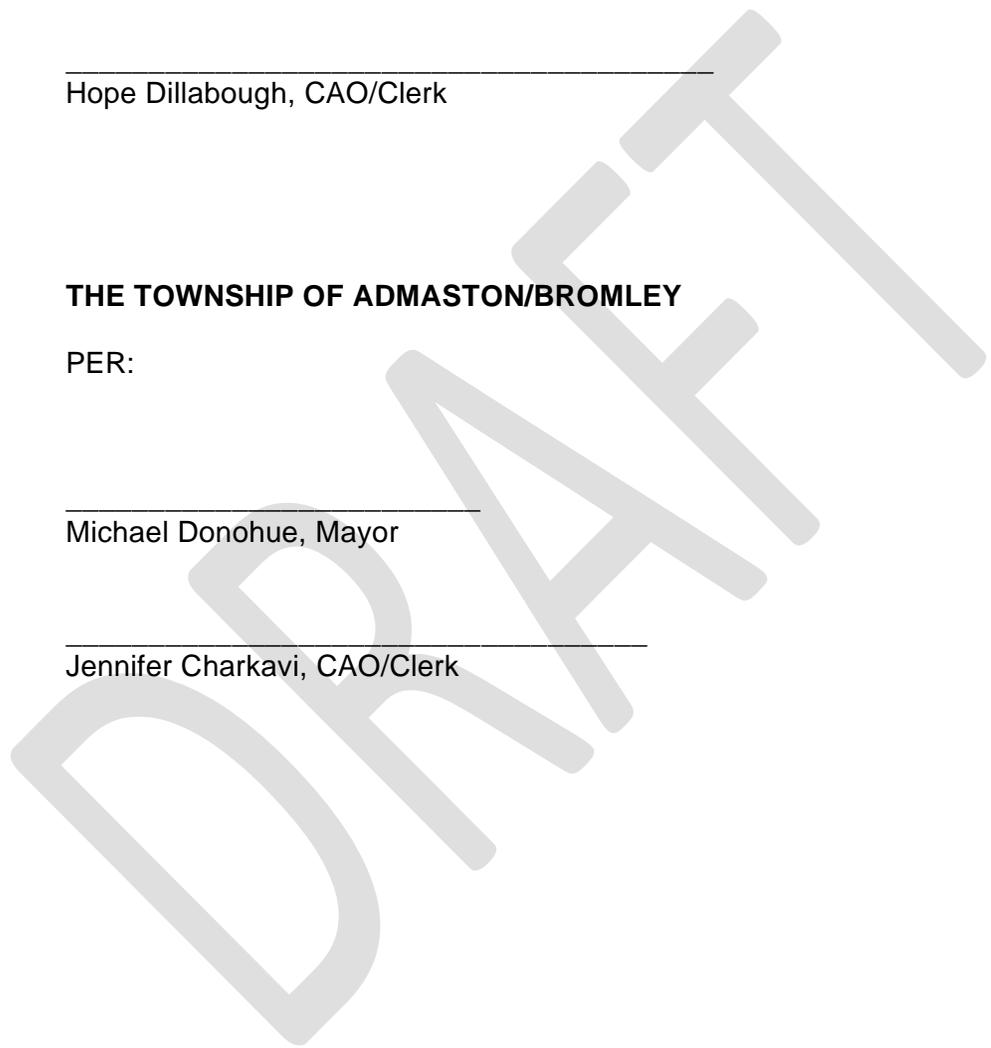
Hope Dillabough, CAO/Clerk

THE TOWNSHIP OF ADMASTON/BROMLEY

PER:

Michael Donohue, Mayor

Jennifer Charkavi, CAO/Clerk





Appendix A

TOWNSHIP	OPEN / UNOPENED	MAINTAINED / NOT MAINTAINED	ROAD	FROM	TO	DISTANCE
See Map #1 Golf Course Road Allowance A						
Horton	Unopened	Not Maintained at this time	Golf Course Road Allowance between Admaston Bromley and Horton	Highway 60 Lat: 45.50556 N Long: 76.75154 W	Golf Course Road Lat: 45.51013 N Long: 76.75714 W	1 km
See Map # 1B Golf Course Road Allowance B						
Horton	Unopened	Not Maintained at this time	Golf Course Road Allowance Between Admaston Bromley and Horton	Golf Course Road Lat: 45.51359 N Long: 76.76146 W	Admaston/Bromley Municipal Boundary Lat: 45.52810 N Long: 76.77970 W	4.5 km
See Map # 1C Golf Course Road						
Admaston/ Bromley	Opened	Maintained	Golf Course Road	Highway 60 Lat: 45.50782 N Long: 76.75964 W	Golf Course Road Lat: 45.51284 N Long: 76.76041 W	700 m
Map's Source: https://renfrewcounty.geocortex.com/Html5Viewer/Index.html?viewer=GisViewer#						

RETURN TO AGENDA

Map #1 Golf Course Road Allowance A



Map # 1B Golf Course Road Allowance B



Map # 1C Golf Course Road



DRAFT

**Schedule "B" to By-Law 2022-xx
McBRIDE ROAD**

This Agreement made in duplicate this ____ day of _____, 2022

BETWEEN:

The Corporation of the Township of Horton
hereinafter called "Horton" of the first part

AND

The Corporation of the Township of Admaston/Bromley
hereinafter called "Admaston/Bromley" of the second part

WHEREAS Horton and Admaston/Bromley are desirous to enter into an agreement regulating the maintenance and repair of the boundary highways over which they have joint jurisdiction in accordance with the Municipal Act, 2001, (S.O. 2001, C.25) Section 29 Boundary Lines, as amended;

AND WHEREAS Section 29.1(1) of the Municipal Act RSO 2001 states that if municipalities having joint jurisdiction over a boundary line highway enter into an agreement under which each municipality agrees to keep any part of the highway in repair for its whole width and to indemnify the other municipality from any loss or damage arising from the lack of repair for that part, the agreement and a copy of the by-law authorizing the agreement may be registered in the proper land registry office for the area in which the highway is located.

AND WHEREAS pursuant to subsection 29.1(2) of the Municipal Act, RSO 2001, If municipalities enter into an agreement under subsection (1), each municipality has jurisdiction over that part of the highway that it has agreed to keep in repair and is liable for any damages that arise from failure to keep the highway in repair and the other municipality is relieved from all liability in respect of the repair of that part.

AND WHEREAS Ontario Regulation 239/02 as amended from time to time and made pursuant to the Municipal Act has set Minimum Maintenance Standards for Municipal Highways to which the highways covered by this Agreement are to be maintained

NOW THEREFORE in consideration of the covenants contained herein and for good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto agree each with the other as follows:

1. All new entrances shall be installed under the supervision of the respective Municipality's Public Works Department. Each applicant shall be responsible for obtaining a proper entrance permit from the respective Municipality.
2. It is understood by both parties that the maintaining Municipality shall be responsible for repairs and maintenance of the entire width of the boundary road allowance. The Municipalities agree that the value of the respective routine maintenance and repair for the road as identified in Appendix A and B will be approximately equal and logistically practical. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
3. Any works for which cost sharing is being sought shall not be undertaken until such time as the works and funding are approved by each Municipality.

RETURN TO AGENDA

4. It shall be Horton's responsibility to maintain and keep in good repair those portions of the highway forming the boundary line between the Township of Admaston/Bromley and the Township of Horton identified in Appendix A.
 - a) Maintenance includes – snow removal, sanding, grass cutting, brushing, patching, sign maintenance, replacement of culverts outside of planned Capital, emergency repairs and road patrols. A copy of each Road Patrol Report shall be available upon request.
5. Prior to any planned Capital Improvements, on the McBride Road, the Municipality proposing the work will notify the other Municipality one year in advance of the work to allow for appropriate Council budget approvals. Notwithstanding that all efforts will be made to reach an agreement on a mutually beneficial Capital Improvement, if one Municipality does not agree to proceed with a project, the project will not proceed.
6. Capital includes additional granular, preventative road deterioration treatments, complete road reconstruction and replacement of all necessary infrastructure.
7. Each Municipality shall aspire to plan Capital works, in line with their respective Capital Roads Rehabilitation Forecasting Plan and communicate said plan with the other Municipality when a Boundary Road is added.
8. Should a capital project be required, both municipalities will meet to develop a draft agreement for the capital project.
9. The Parties hereto agree that should emergency works, or action be required due to a compromise of the highways and bridges set out in Appendix A, the party hereto first notified of the compromise of the highway or bridge by emergency services (police, fire, etc.) shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the emergency work. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
10. If the construction is a result of development and population growth, the developing Municipality may undertake, cause, or permit to be undertaken such construction on the following terms:
 - a) The developing Municipality shall give the other Municipality at least eight (8) weeks written notice prior to the commencement of such construction.
 - b) The other Municipality shall bear none of the costs relating directly to such construction.
11. Should any of the highways or bridges included in Appendix A be obstructed (water over the road, tree fall, downed hydro lines, etc.) in any manner that affects public safety, the party hereto first notified of the obstruction of the highway or bridge by emergency services (police, fire, etc.) or after becoming aware of the obstruction by other means, shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the removal of the obstruction and/or close the road to traffic and pedestrians. If the obstruction is minor either Municipality may remove the obstruction as a courtesy but must notify the other Municipality of the removal. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
12. Horton shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Admaston/Bromley as an additional

insured and Horton shall provide a certificate of such insurance coverage to Admaston/Bromley throughout the term of this agreement and any renewal thereof and further provide Admaston/Bromley within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.

13. Admaston/Bromley shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Horton as an additional insured and Admaston/Bromley shall provide a certificate of such insurance coverage to Horton throughout the term of this agreement and any renewal thereof and further provide Horton within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.
14. The Parties shall maintain and keep in full force and effect at its own expense a Standard Form Automobile Liability Insurance that complies with all requirements of the current legislation of the Province of Ontario, having an inclusive limit of not less than ten million dollars (\$10,000,000) per occurrence for Third Party Liability in respect of the use or operation of vehicles owned, operated or leased by Parties.
15. The Parties insurance shall be primary coverage and not additional to and shall not seek contribution from any other insurance policies available to the Parties.
16. This agreement shall be in force for a period of ten (10) years from _____, 2022 to _____, 2032 and may be renewed for another period not to exceed ten (10) years by resolution of the Councils of both Corporations as found necessary and it may be amended or changed by resolution of the Councils of both Corporations, as mutually agreed upon.
17. In the event that either party receives a Statement of Claim, Notice of Claim or other information regarding a pending or possible claim by a third party with respect to liability for failure to keep the highway in repair or for damages or injuries sustained relating thereto, such party shall immediately notify the other party in writing of such claim or Notice of Claim. In the event that a legal proceeding is commenced by a third party, each of the Parties to this Agreement shall provide for its own legal representation as it sees fit.
18. Each of the parties hereby undertake to save harmless and agree to indemnify the other against all claims and demands for damage, losses, costs, charges and expenses which the other municipality may sustain, incur, or be liable for arising from the lack of repair of any portion of any of the highways for which the Municipality has assumed sole responsibility under this agreement.

IN WITNESS WHEREOF both Corporations have hereunto affixed their Corporate Seals duly attested by the hands of their proper signing officers in that behalf.

SIGNED, SEALED AND DELIVERED

THE TOWNSHIP OF HORTON

PER:

David Bennett, Mayor

Hope Dillabough, CAO/Clerk

THE TOWNSHIP OF ADMASTON/BROMLEY

PER:

Michael Donohue, Mayor

Jennifer Charkavi, CAO/Clerk



Appendix A

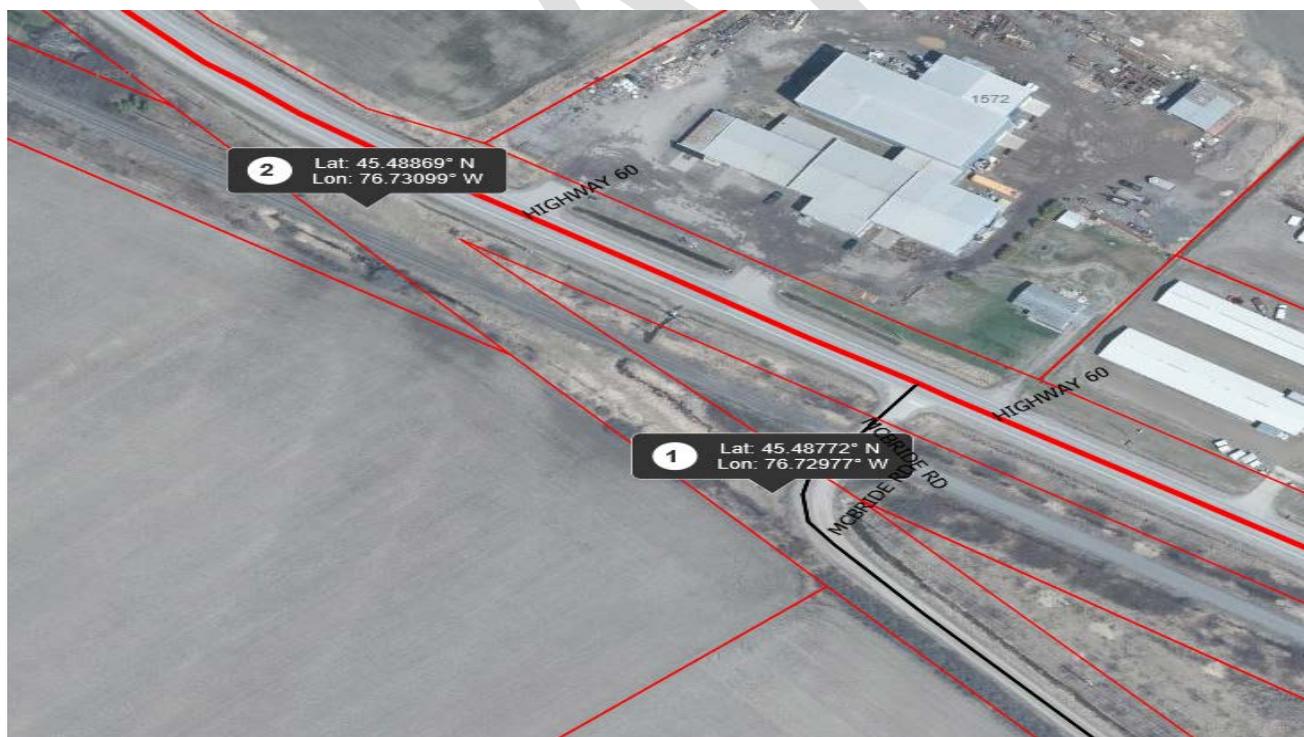
TOWNSHIP	OPEN / UNOPENED	MAINTAINED / NOT MAINTAINED	ROAD	FROM	TO	Length of Road
See Map # 1 McBride Road						
HORTON	Opened	Maintained	McBride Road	The Bonnechere River High Water Mark Lat: 45.47422 N Long: 76.71271 W	Highway 60 Lat: 45.48796 N Long: 76.72946 W	2.0 km
See Map #1B McBride Road Allowance						
HORTON	Unopened	Not Maintained	McBride Road Allowance Between Admaston/Bromley and Horton	McBride Road Lat: 45.48772 N Long: 76.72977 W	Highway 60 Lat: 45.48869 N Long: 76.73099 W	190 m
Map Source: https://renfrewcounty.geocortex.com/Html5Viewer/Index.html?viewer=GisViewer#						
ADMASTON/ BROMLEY			Not Maintained			0 m

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Map # 1 McBride Road



Map # 1B McBride Road Allowance



**Schedule "C" to By-Law 2022-xx
BLACKBURN ROAD**

This Agreement made in duplicate this ____ day of _____, 2022

BETWEEN:

The Corporation of the Township of Horton
hereinafter called "Horton" of the first part

AND

The Corporation of the Township of Admaston/Bromley
hereinafter called "Admaston/Bromley" of the second part

WHEREAS Horton and Admaston/Bromley are desirous to enter into an agreement regulating the maintenance and repair of the boundary highways over which they have joint jurisdiction in accordance with the Municipal Act, 2001, (S.O. 2001, C.25) Section 29 Boundary Lines, as amended;

AND WHEREAS Section 29.1(1) of the Municipal Act RSO 2001 states that if municipalities having joint jurisdiction over a boundary line highway enter into an agreement under which each municipality agrees to keep any part of the highway in repair for its whole width and to indemnify the other municipality from any loss or damage arising from the lack of repair for that part, the agreement and a copy of the by-law authorizing the agreement may be registered in the proper land registry office for the area in which the highway is located.

AND WHEREAS pursuant to subsection 29.1(2) of the Municipal Act, RSO 2001, If municipalities enter into an agreement under subsection (1), each municipality has jurisdiction over that part of the highway that it has agreed to keep in repair and is liable for any damages that arise from failure to keep the highway in repair and the other municipality is relieved from all liability in respect of the repair of that part.

AND WHEREAS Ontario Regulation 239/02 as amended from time to time and made pursuant to the Municipal Act has set Minimum Maintenance Standards for Municipal Highways to which the highways covered by this Agreement are to be maintained

NOW THEREFORE in consideration of the covenants contained herein and for good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto agree each with the other as follows:

1. All new entrances shall be installed under the supervision of the respective Municipality's Public Works Department. Each applicant shall be responsible for obtaining a proper entrance permit from the respective Municipality.
2. It is understood by both parties that the maintaining Municipality shall be responsible for repairs and maintenance of the entire width of the boundary road allowance. The Municipalities agree that the value of the respective routine maintenance and repair for the road as identified in Appendix A will be approximately equal and logistically practical. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
3. Any works for which cost sharing is being sought shall not be undertaken until such time as the works and funding are approved by each Municipality.

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4. It shall be Horton's responsibility to maintain and keep in good repair those portions of the highway forming the boundary line between the Township of Admaston/Bromley and the Township of Horton identified in Appendix A.
 - a) Maintenance includes – snow removal, sanding, grass cutting, brushing patching, sign maintenance, replacement of culverts outside of planned Capital, emergency repairs and road patrols. A copy of each Road Patrol Report shall be available upon request.
5. It shall be Admaston/Bromley's responsibility to maintain and keep in good repair those portions of the highway forming the boundary line between the Township of Admaston/Bromley and the Township of Horton identified in Appendix A.
 - a) Maintenance includes – snow removal, sanding, grass cutting, brushing patching, sign maintenance, replacement of culverts outside of planned Capital, emergency repairs and road patrols. A copy of each Road Patrol Report shall be available upon request.
6. Prior to any planned Capital Improvements, on the Boundary Road, the Municipality proposing the work will notify the other Municipality one year in advance of the work to allow for appropriate Council budget approvals of equal shared costs. Notwithstanding that all efforts will be made to reach an agreement on a mutually beneficial Capital Improvement, if one Municipality does not agree to proceed with a project, the project will not proceed.
7. Capital includes additional granular, preventative road deterioration treatments, complete road reconstruction and replacement of all necessary infrastructure.
8. Each Municipality shall aspire to plan Capital works, in line with their respective Capital Roads Rehabilitation Forecasting Plan and communicate said plan with the other Municipality when a Boundary Road is added.
9. Should a capital project be required, both municipalities will meet to develop a draft agreement for the capital project.
10. The Parties hereto agree that should emergency works, or action be required due to a compromise of the highways and bridges set out in Appendix A, the party hereto first notified of the compromise of the highway or bridge by emergency services (police, fire, etc.) shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the emergency work. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.
11. If the construction is a result of development and population growth, the developing Municipality may undertake, cause, or permit to be undertaken such construction on the following terms:
 - a) The developing Municipality shall give the other Municipality at least eight (8) weeks written notice prior to the commencement of such construction.
 - b) The other Municipality shall bear none of the costs relating directly to such construction.
12. Should any of the highways or bridges included in Appendix A be obstructed (water over the road, tree fall, downed hydro lines, etc.) in any manner that affects public safety, the party hereto first notified of the obstruction of the highway or bridge by emergency services (police, fire, etc.) or after becoming aware of the obstruction by other means, shall, without delay make the area safe, notify the Municipality assigned the Boundary Road and stay on site until they arrive so that they may undertake the removal of the obstruction and/or close the road to traffic and pedestrians. If the obstruction is minor either Municipality may remove the obstruction as a courtesy but must notify the other Municipality of the removal. By performing these respective works no invoicing or exchange of funds shall occur by either Municipality for costs incurred.

13. Horton shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Admaston/Bromley as an additional insured and Horton shall provide a certificate of such insurance coverage to Admaston/Bromley throughout the term of this agreement and any renewal thereof and further provide Admaston/Bromley within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.
14. Admaston/Bromley shall maintain and keep in full force and effect at its own expense a policy of general public liability, property damage and environmental insurance with respect to its obligation for the maintenance of the highways and bridges set out in Appendix A hereto protecting against claims for personal injury, death and property damage resulting from failure to repair or maintain the said highways and bridges in which the limits shall be not less than twenty million dollars (\$20,000,000) in respect of injury or death of a single person, for each occurrence and not less than twenty million dollars (\$20,000,000) in respect of property damage. The policy shall name Horton as an additional insured and Admaston/Bromley shall provide a certificate of such insurance coverage to Horton throughout the term of this agreement and any renewal thereof and further provide Horton within 30 days prior written notice of any cancellation or material change in risk which could diminish the aforesaid coverage.
15. The Parties shall maintain and keep in full force and effect at its own expense a Standard Form Automobile Liability Insurance that complies with all requirements of the current legislation of the Province of Ontario, having an inclusive limit of not less than ten million dollars (\$10,000,000) per occurrence for Third Party Liability in respect of the use or operation of vehicles owned, operated or leased by Parties.
16. The Parties insurance shall be primary coverage and not additional to and shall not seek contribution from any other insurance policies available to the Parties.
17. This agreement shall be in force for a period of ten (10) years from _____, 2022 to _____, 2032 and may be renewed for another period not to exceed ten (10) years by resolution of the Councils of both Corporations as found necessary and it may be amended or changed by resolution of the Councils of both Corporations, as mutually agreed upon.
18. In the event that either party receives a Statement of Claim, Notice of Claim or other information regarding a pending or possible claim by a third party with respect to liability for failure to keep the highway in repair or for damages or injuries sustained relating thereto, such party shall immediately notify the other party in writing of such claim or Notice of Claim. In the event that a legal proceeding is commenced by a third party, each of the Parties to this Agreement shall provide for its own legal representation as it sees fit.
19. Each of the parties hereby undertake to save harmless and agree to indemnify the other against all claims and demands for damage, losses, costs, charges and expenses which the other municipality may sustain, incur, or be liable for arising from the lack of repair of any portion of any of the highways for which the Municipality has assumed sole responsibility under this agreement.

IN WITNESS WHEREOF both Corporations have hereunto affixed their Corporate Seals duly attested by the hands of their proper signing officers in that behalf.

SIGNED, SEALED AND DELIVERED

THE TOWNSHIP OF HORTON

PER:

David Bennett, Mayor

Hope Dillabough, CAO/Clerk

THE TOWNSHIP OF ADMASTON/BROMLEY

PER:

Michael Donohue, Mayor

Jennifer Charkavi, CAO/Clerk



Appendix A

	OPEN / UNOPENED	MAINTAINED / NOT MAINTAINED	ROAD	FROM	TO	DISTANCE
See Map # 1 Blackburn Road and Allowance (West)						
HORTON	Opened	Maintained	Blackburn Road	Pucker Street Lat: 45.44738 N Long: 76.67957 W	Blackburn Road Dead End (West) Lat: 45.44785 N Long: 76.68012 W	7 m
HORTON	Unopened	Not Maintained	Blackburn Road Allowance between Admaston Bromley and Horton	Blackburn Road Dead End (West) Lat: 45.44785 N Long: 76.68012 W	Town of Renfrew Boundary Lat: 45.45139 N Long: 76.68442 W	110 m
ADMASTON/ BROMLEY	Unopened	Not Maintained	Blackburn Road Allowance between Admaston Bromley and Horton	Admaston/Bromley Municipal Boundary Lat: 45.43607 N Long: 76.66297 W	Blackburn Road Lat: 45.44278 N Long: 76*67329 W	130 m
ADMASTON/ BROMLEY	Opened	Maintained	Blackburn Road	Blackburn Road Lat: 45.44278 N Long: 76.67329 W	Pucker Street Lat: 45.44728 N Long: 76.67936 W	650 m
Map Source: https://renfrewcounty.geocortex.com/Html5Viewer/Index.html?viewer=GisViewer#						

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Map # 1 Blackburn Road and Allowance (West)



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Map # 2 Blackburn Road and Allowance



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