

Welcome!



Kingston Regional Biosolids & Biogas Facility

Public Drop In Session
March 28, 2023

Purpose of Drop In Session

**At this Drop In Session,
you will have the opportunity to:**

- Learn about how biosolids from the wastewater treatment plants and Green Bin organics are currently managed
- Learn about the proposed facility and location
- Learn how this project support's Kingston's commitment to climate leadership
- Complete a survey about the Project
- Provide input and remain informed



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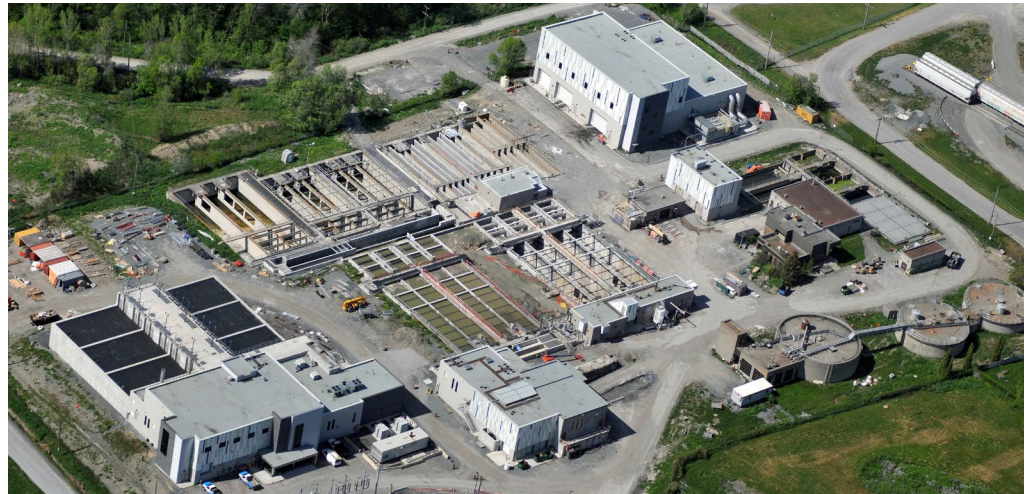
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Biosolids and Source Separated Organics (SSO)



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

- Biosolids are currently processed at one of two wastewater treatment plants operated by Utilities Kingston, one of which requires solids train upgrades to meet future needs.



Source-Separated Organics (SSO) are the food and organic wastes that are currently accepted in the City's Green Bin program

- Examples are food waste, paper towels and tissues and paper plates.
- SSO collected at the curbside are currently processed into compost by a private company hired by the City.



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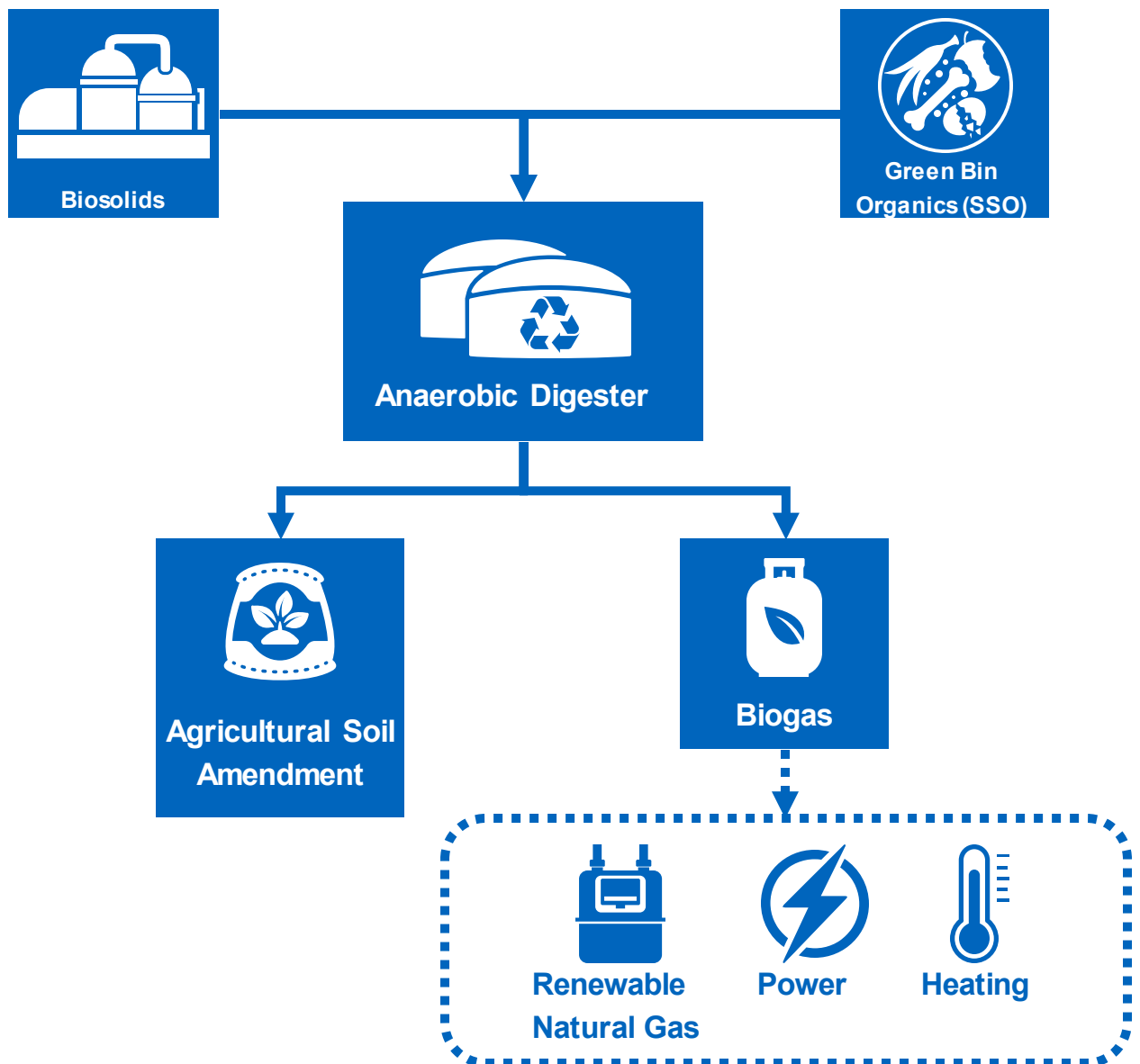


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What is Anaerobic Digestion (AD)?

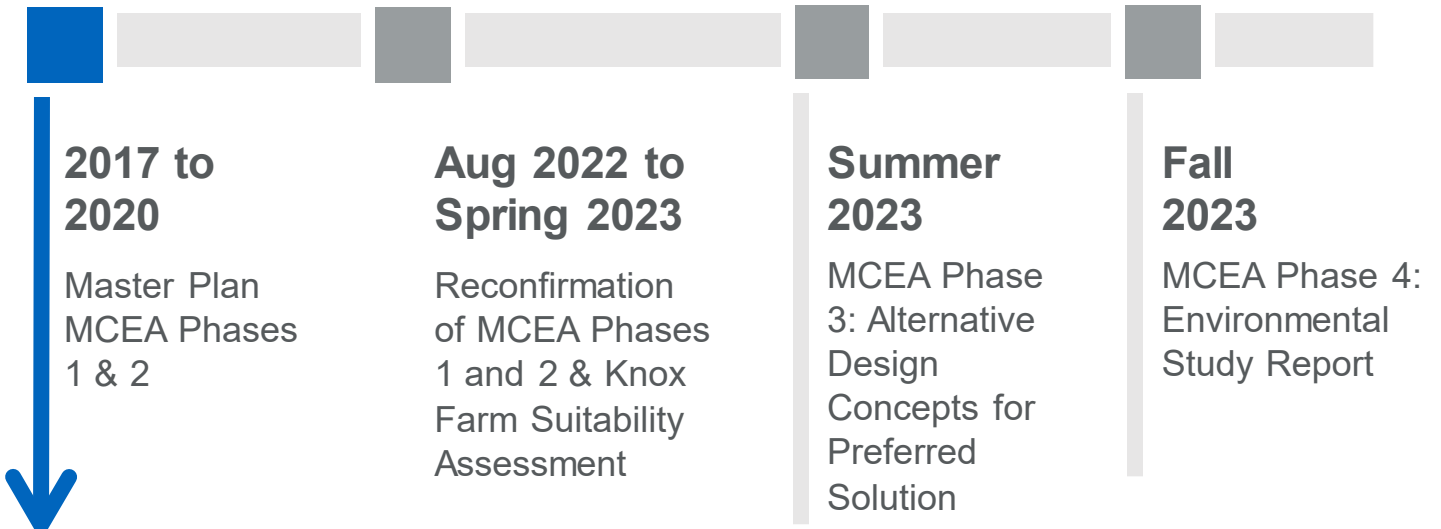
Anaerobic Digestion (AD) technology uses microorganisms to break down organic waste in the absence of oxygen

- The benefits of AD include:
 - Reduction in the volume of organics
 - Production of an organic nutrient-rich fertilizer
 - Production of biogas - a renewable energy source that can be used in place of petroleum natural gas



Master Plan Overview

Master Plan For Enhanced Biosolids Management And Biogas Utilization (2020)



Master Plan Purpose:

- Review long-term approach to biosolids management at all WWTPs.
- Address the need to increase capacity to handle sludge produced by the Cataraqui Bay wastewater treatment plant.
- Consider co-digestion of biosolids with SSO (or Green Bin materials) collected by the City and generated by the industrial, commercial and institutional (IC&I) sector as a future management approach.

The Master Plan followed Approach 1 of the Municipal Class Environmental Assessment (MCEA) process and included Phases 1 and 2:

- Phase 1: Development of the following Problem/Opportunity Statement:
- Phase 2: Development of Alternative Solutions and a Preferred Alternative

The following Alternative Solutions were considered:

- Alternative 1 - Do Nothing
- Alternative 2 - Optimize Infrastructure at Cataraqui Bay
- Alternative 3 - Optimize Infrastructure at Ravensview
- Alternative 4 - Incorporate SSO at Cataraqui Bay
- **Alternative 5 - Integrate Processing of Biosolids and SSO at Knox Farm (PREFERRED ALTERNATIVE)**

A new facility was proposed to accommodate future volumes of organic material and necessary upgrades to the existing wastewater treatment plants. The City-owned Knox Farm property was considered as a potential site for a facility to manage the City's organic wastes as well as additional organic wastes from other customers within and outside of the City to maximize biogas production and to benefit from the resulting Greenhouse Gas emission reductions.

Utilities Kingston is now reviewing the Master Plan recommendation, including completing a detailed assessment of the Knox Farm property to see if it is suitable for the proposed facility.



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Current Project Work Completed



1 Reconfirmation of Phases 1 and 2 of the Master Plan

2 Assessment of Knox Farm for the proposed Facility

Phase 1

Problem / Opportunity Statement

The Master Plan identified the following opportunity that UK would address:

UK is presently positioned to address both the enhancement of the management of the biosolids generated at the Cataraqui Bay and Ravensview WWTPs, and to consider the introduction of the codigestion of these solids streams with waste organics both collected by the City and generated by the IC&I sector. This opportunity has arisen, in part, from the developments in Ontario regarding:

- The consideration of wastes as resources within the context of a circular economy;
- The increased interest in the province for the more effective management of waste organics with the objective of eliminating the landfilling of these materials; and
- The identification of opportunities for the generation and utilization of RNG thereby reducing the City's carbon footprint.

The Master Plan described the Undertaking as:

The enhancement of the production of biogas through enhancements to the biosolids processing trains at the City's two WWTPs, and including the possible codigestion of the biosolids and waste organics both collected by the City as SSO and generated by facilities in the IC&I sector.

Reconfirmed Problem/Opportunity

The above still holds true plus the additional opportunity of using an existing City-owned site (Knox Farm) for the potential development of a regional Facility that receives organic waste from local businesses, institutions and neighbouring municipalities in addition to managing City-generated organic wastes.



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Current Project Work Completed



1 Reconfirmation of Phases 1 and 2 of the Master Plan

2 Assessment of Knox Farm for the proposed Facility

Phase 2 Preferred Solution Reconfirmation

Dillon reconfirmed the alternatives presented in the Master Plan and provided additional considerations regarding Alternative 5, which included future expansion capabilities, updated cost estimates, and consideration of additional resources.

Did You Know?

This project aligns with the City of Kingston and Utilities Kingston's Strategic Plans to demonstrate leadership on climate action. Converting organics into renewable natural gas helps reduce greenhouse emissions City-wide.



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Current Project Work Completed



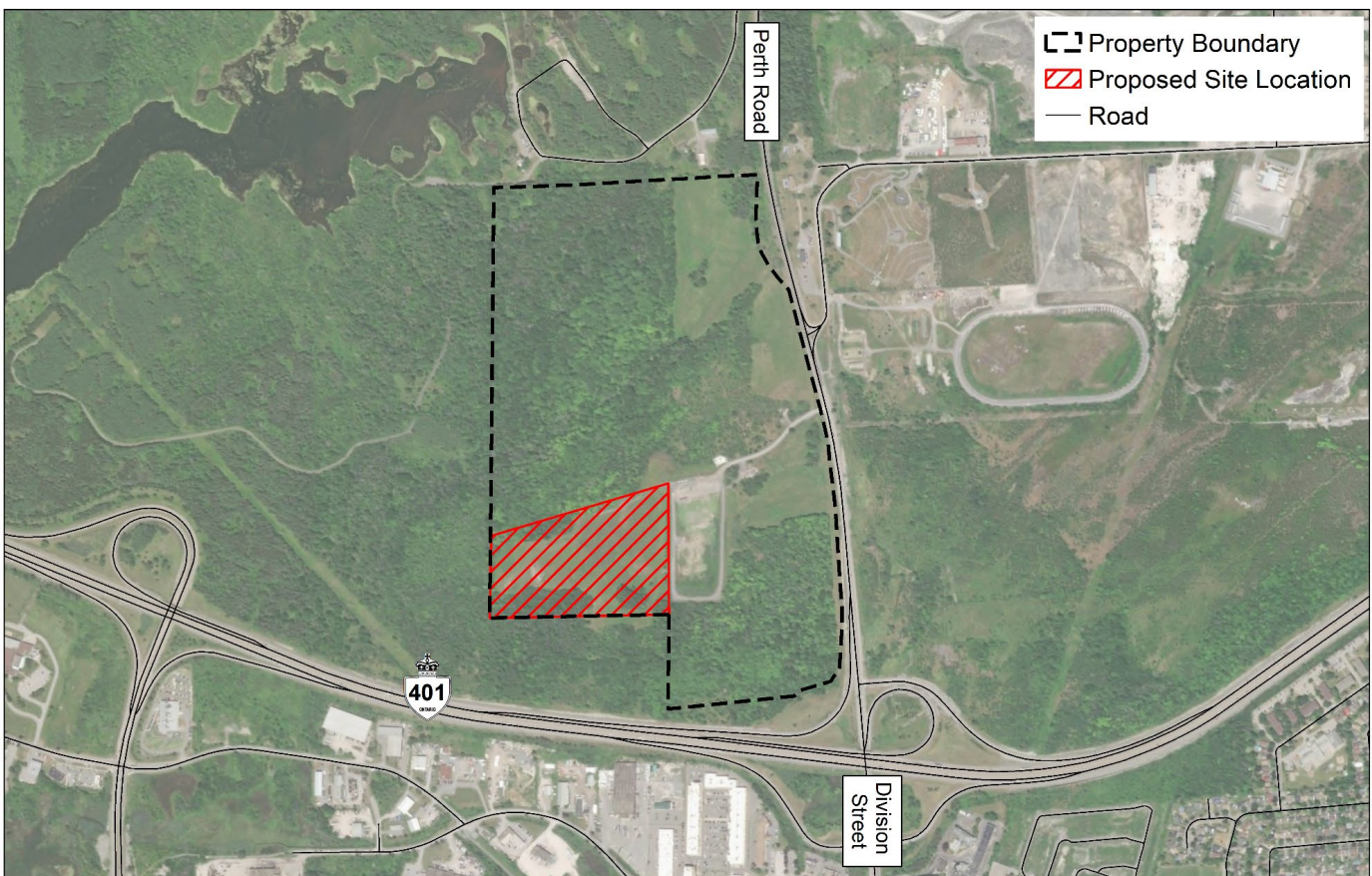
1 Reconfirmation of Phases 1 and 2 of the Master Plan

2 Assessment of Knox Farm for the proposed Facility

Suitability Assessment of Knox Farm

About Knox Farm:

- Municipally-owned 75 hectare property and vacant site.
- Located off Perth Road, north of Highway 401 and Division Street in the City of Kingston.
- South of Little Cataraqui Creek Conservation Area and the Cataraqui Region Conservation Authority.
- Outside of the City of Kingston's Urban Boundary.
- The proposed site location is approximately 9.3 hectares which was formerly used for sediment dewatering ponds (now decommissioned).
- The area east of the proposed site location is used by the City for seasonal snow storage.



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Summary of Technical Assessments of Knox Farm



Technical Discipline		Summary	
Land Use			An amendment to the Official Plan and/or Zoning Bylaw may be required
Air Quality			No concerns identified
Archaeology			A Stage 2 Archaeology Assessment is required before facility development
Cultural Heritage			No concerns identified
Hydrogeology			A karst assessment is required by a karst specialist
Natural Environment			No concerns identified
Noise			No concerns identified
Site Servicing			Additional options for water and wastewater management to be considered
Stormwater Management			No concerns identified
Traffic			No concerns identified



no concerns identified



additional investigation required



major barrier identified

No major barriers were identified for Knox Farm as a potential location for the proposed facility



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Suitability Assessment of Knox Farm



An important milestone of the current project work was to assess the Knox Farm property to determine if it is a suitable site for the proposed Facility. A number of technical assessments were completed and are summarized here. The findings will support the next steps of the project, as appropriate.

Technical Discipline	Overview of Assessment	Findings
Land Use 	<p>Municipal and provincial policies were reviewed. The Proposed Site Location is located in lands designated in Kingston’s Official Plan as Open Space, Rural and Environmental Protection Area (EPA). Neighbouring land uses are Rural and EPA. Based on the City’s Zoning Bylaw, the Proposed Site Location is within the EPA Zone and a slim section of the General Rural Area Zone.</p>	<p>Amendments to the Official Plan and/or Zoning Bylaw may be required.</p>
Air Quality 	<p>The assessment looked at background air quality data, predominant wind speed and direction and nearby sensitive receptors (e.g., nearby residential dwellings, businesses, and the Little Cataraqui Creek Conservation Authority Trail).</p>	<p>The findings indicate there are no specific concerns with the proposed location with respect to air quality and odour.</p>
Archaeology 	<p>A Stage 1 archaeological assessment was conducted by Archaeological Research Associates Ltd. The geography, history, previous archaeological fieldwork and current condition of Knox Farm was reviewed and a property inspection was completed.</p>	<p>There are areas of archaeological potential and areas of no archaeological potential on Knox Farm. Areas of archaeological potential that could be impacted by the project will require a Stage 2 archaeological assessment.</p>



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Suitability Assessment of Knox Farm





Technical Discipline	Overview of Assessment	Findings
Cultural Heritage 	<p>A Cultural Heritage Assessment Report was completed by Archaeological Research Associates Ltd. A review of current legislation and policy was completed as well as completing historical research, consultation with the City, and a field survey.</p>	<p>No cultural heritage resources were identified within the assessed area and no concerns with the proposed Facility.</p>
Hydrogeology 	<p>The hydrogeological assessment included a review of geology and groundwater information, drilling to assess the soil stratigraphy and installation of monitoring wells to assess existing groundwater conditions.</p> <p>According to the Source Protection Atlas (MECP), the Proposed Site Location is located within the Cataraqui Source Protection Area and is identified to be within a Significant Groundwater Recharge Area and a Highly Vulnerable Area. The City of Kingston Official Plan indicates the site is on a potential/inferred karst topography.</p>	<p>The shallow groundwater quality and the soil quality are not anticipated to impact the development of the proposed Facility with best management practices in place to minimize the risk to groundwater.</p> <p>Further studies are needed to determine if surface karst formations exist and confirm the suitability of groundwater supply.</p>



Suitability Assessment of Knox Farm






Technical Discipline	Overview of Assessment	Findings
<p>Natural Environment</p> 	<p>A desktop review of mapping, aerial imagery and other background information was conducted to screen the potential for natural heritage features and species-at-risk (SAR) habitat. A preliminary field investigation was completed to verify the desktop findings and see if there were additional features and habitat observed.</p> <p>The majority of the Proposed Site Location contained areas of low constraint, generally indicating a suitable location. Several confirmed and potentially sensitive natural heritage features indicate the majority of Knox Farm contains areas of medium constraint including within the boundaries of and adjacent to the Proposed Site Location.</p>	<p>Additional studies to determine the presence / absence of SAR, SAR habitat and Significant Wildlife Habitat within and adjacent to the Proposed Site Location are recommended. An environmental impact assessment may be required.</p>
<p>Noise</p> 	<p>The potential for impact of the Facility on the acoustic environment in the Knox Farm area was evaluated by completing a D-6 Compatibility Assessment. A Background Noise Assessment confirmed that the ambient (background) noise environment in the area is best characterized as having qualities of a Class 1 area - where the background noise is dominated by human activity.</p>	<p>The Knox Farm location is considered suitable from a noise perspective.</p>



Suitability Assessment of Knox Farm



Technical Discipline	Overview of Assessment	Findings
<p>Site Servicing</p> 	<p>A review of potential site servicing options was completed that considered the site grading, utilities and storm sewer, sanitary and water servicing.</p>	<p>Due to the location of the site outside of the City’s urban boundary, servicing opportunities other than municipal infrastructure will be required. Water and wastewater servicing through trucking may be feasible depending on the volumes required for the proposed Facility.</p> <p>Utility servicing is not expected to be an issue and the existing grading is not expected to negatively impact the Facility.</p>
<p>Stormwater Management</p> 	<p>A preliminary examination of the existing topographic and hydrologic characteristics of the site was completed. Background information was reviewed and a site visit was completed to understand overall site grading and drainage.</p> <p>Available information indicates that the Proposed Site Location has undergone significant alteration in the past – initially for agricultural purposes, then a dredgate management facility together with the continued use of the adjacent lands at the City’s snow management facility.</p>	<p>The assessment did not identify significant issues or constraints within the Proposed Site Location that impacts the suitability of the site.</p> <p>A hydrology assessment and a stormwater management servicing strategy will be completed to identify and mitigate potential impacts on surface water resources.</p>
<p>Traffic</p> 	<p>The existing road network, traffic volumes, pedestrian and cycling activity and intersection operations were assessed to determine the potential impact the Facility would have. An initial review of potential site access options was completed.</p>	<p>The total forecast traffic volumes accessing the site have not yet been confirmed; however, the road network is capable of accommodating additional traffic volumes. The location of the site access will be finalized in future stages of the project.</p>



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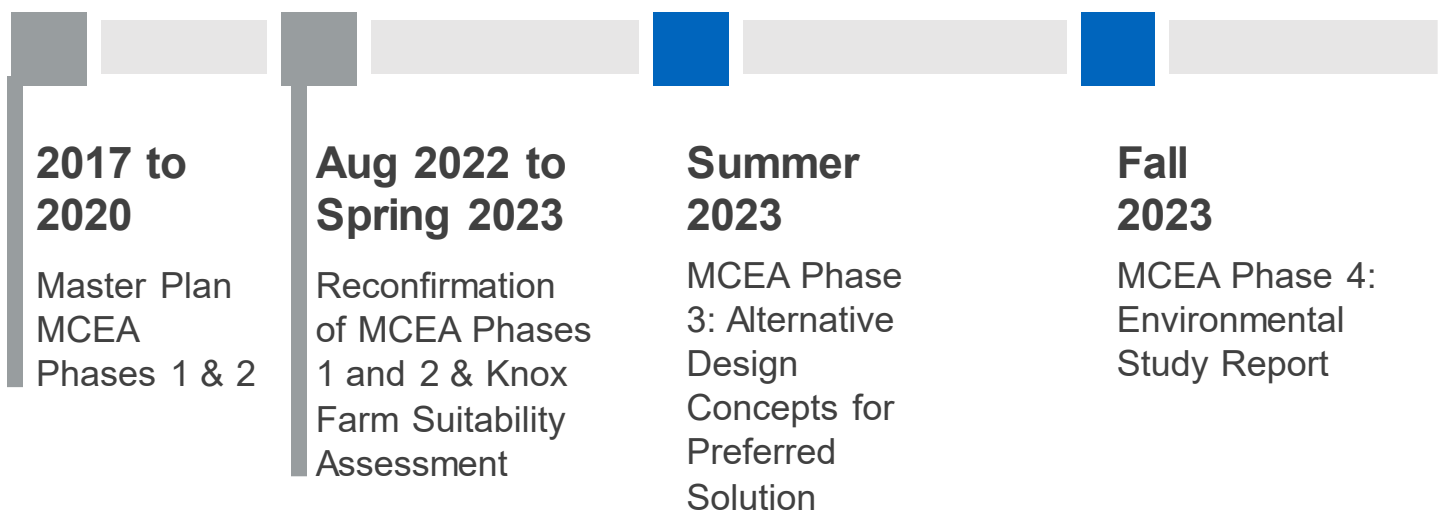


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Next Steps



- Engaging with anaerobic digestion technology vendors to inform them of the Project and seek feedback on the ability to develop the proposed Facility on Knox Farm.
- If evaluation of the proposed facility at Knox Farm continues, the MCEA process will be formally initiated and will include Phases 3 and 4 of the MCEA.
- Phase 3 will involve developing two different Facility design concepts.
- Technical assessments will be completed to estimate the potential impacts of the Facility and ways to reduce potential impacts.
- A second Public Drop-In Session will be held.
- The MCEA will be documented in the Environmental Study Report which will be available for public review for 30 days.



MCEA Phase 5: Project Implementation (targeting 2025 – 2030)



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Stay Informed



Get Involved!



Ask Questions:

- Go to our project website: [Kingston Regional Biosolids and Biogas Facility Website](#)
- Send an email to join our project contact list for the anticipated next phase of the project: ukbiogasfacility@dillon.ca

Fill the Survey!

[Survey Link](#)

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