

Class Environmental Assessment to Provide Additional Sanitary Sewage Capacity to Cannington

Public Information Centre No. 1



Service Excellence for our Communities

Land Acknowledgement



We are currently located on land which has long served as a site of meeting and exchange among the Mississauga Peoples, and is the traditional and treaty territory of the Mississaugas of Scugog Island First Nation. We honour, recognize and respect this nation and Indigenous Peoples as the traditional stewards of the lands and waters on which we meet today.

Why are we here?



To learn about the **Municipal Class Environmental Assessment Process** being followed for this project

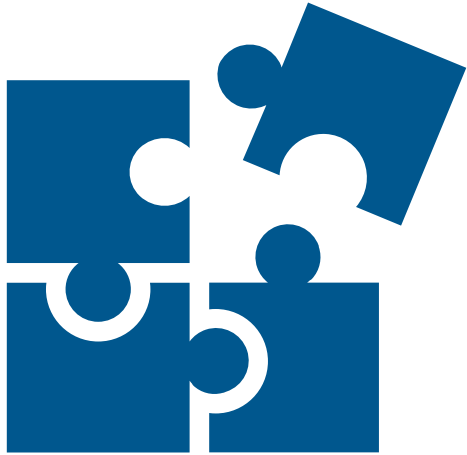


To review the results of the activities completed to date and the **Solutions being recommended**



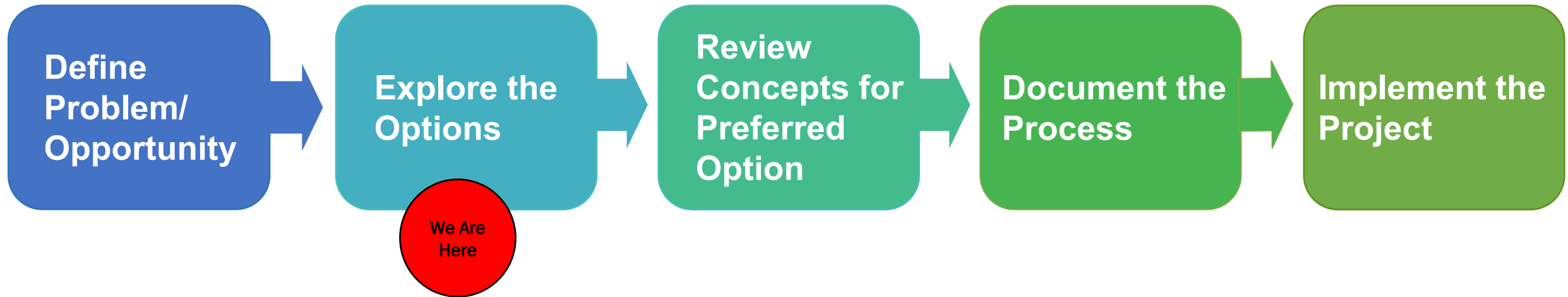
To outline how you can provide **Your Feedback** on the information presented and **Stay Informed and Involved.**

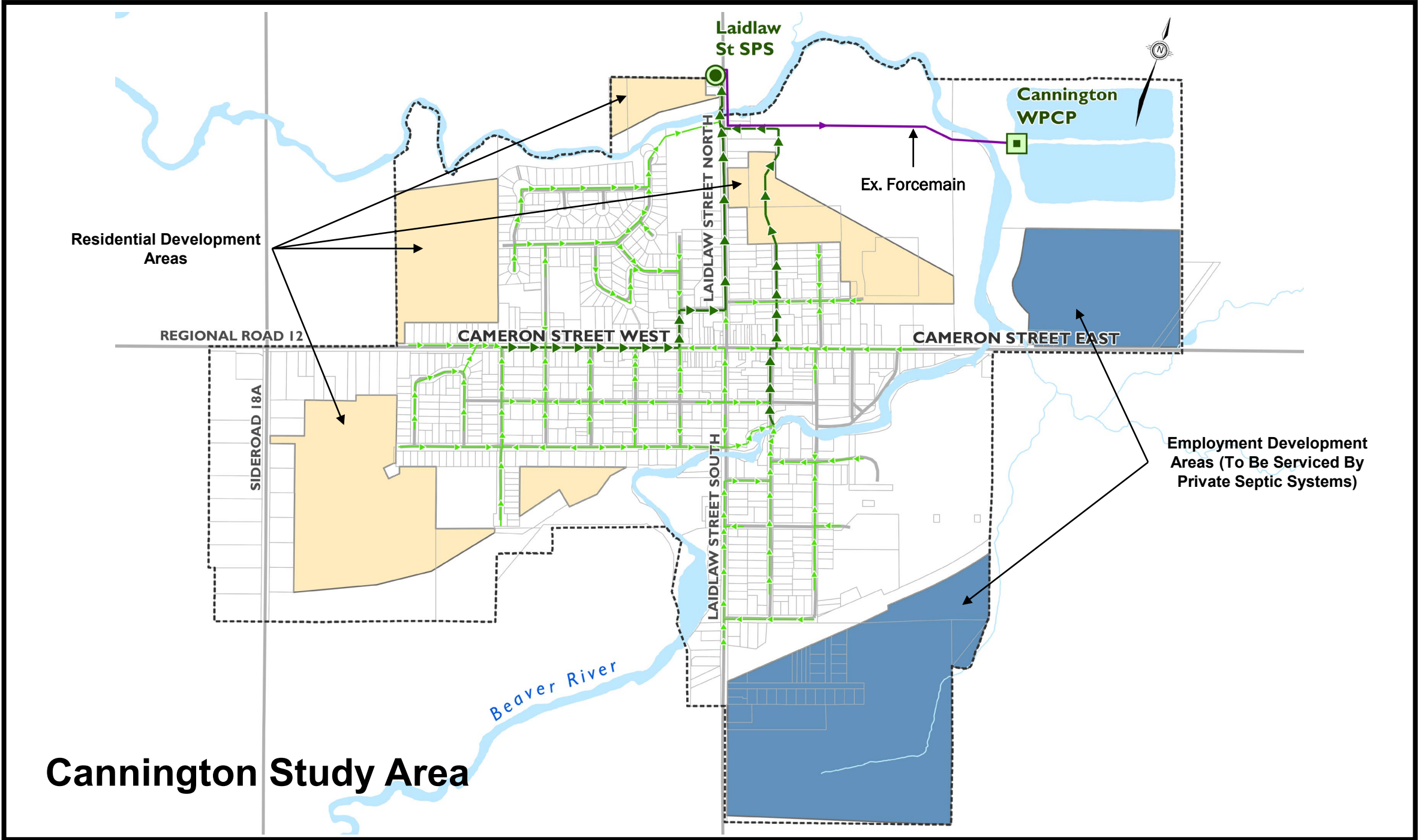
What is the Purpose of the Study?



To identify the preferred solution to provide wastewater servicing in Cannington to 2031 and beyond.

The Municipal Class EA Process





Cannington Study Area

Residential Development Areas

REGIONAL ROAD 12

SIDEROAD 18A

CAMERON STREET WEST

CAMERON STREET EAST

LIDLAW STREET NORTH

LIDLAW STREET SOUTH

Laidlaw St SPS

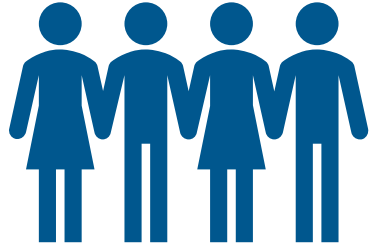
Cannington WPCP

Ex. Forcemain

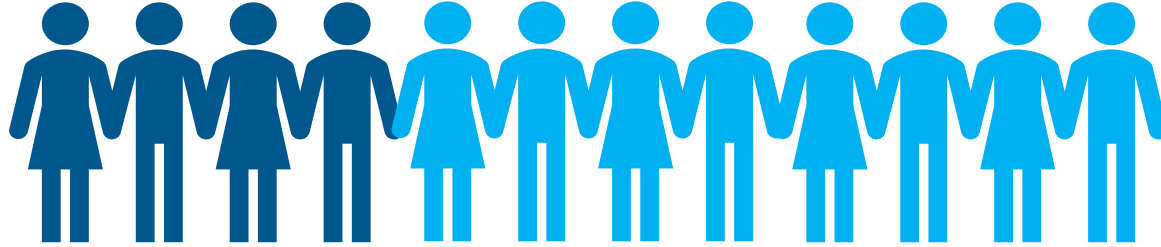
Employment Development Areas (To Be Serviced By Private Septic Systems)

Beaver River

Future Population Estimates

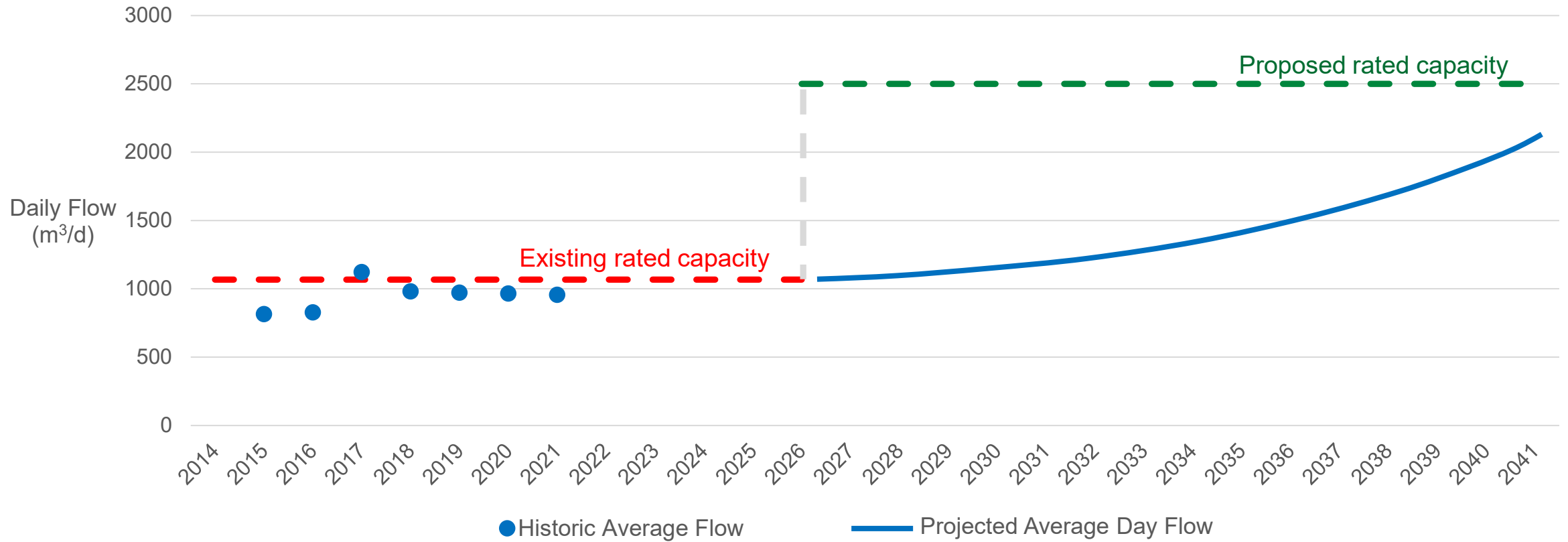


2020
Existing Population



Ultimate Buildout
Proposed Population (~3X Existing)

Projected Flow for Cannington WPCP



Problem/Opportunity Statement



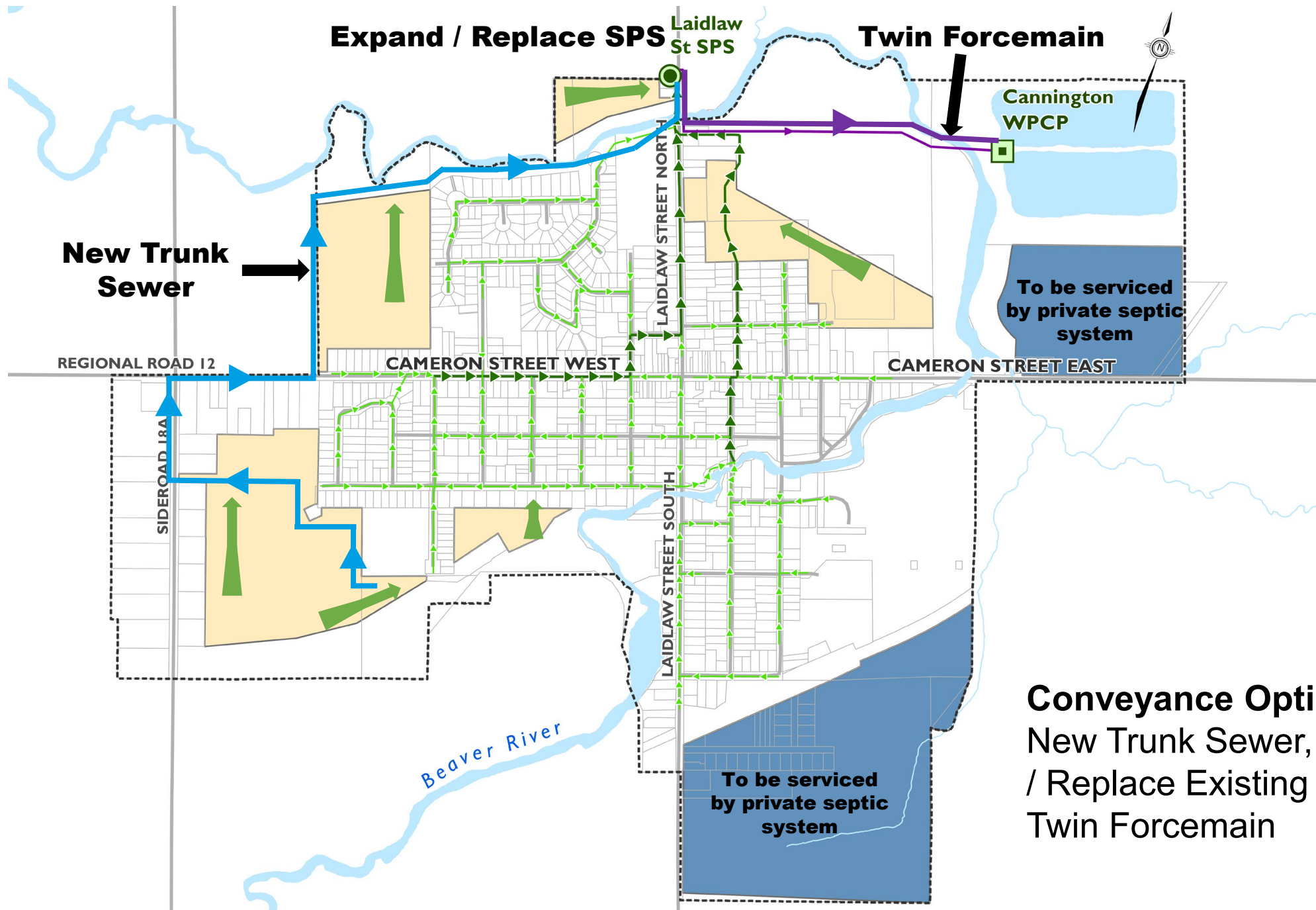
Infrastructure improvements and expansion are required for the Cannington wastewater servicing system to provide additional capacity to support growth forecasts within the existing urban boundary, up to the ultimate build-out.

Study Breakdown

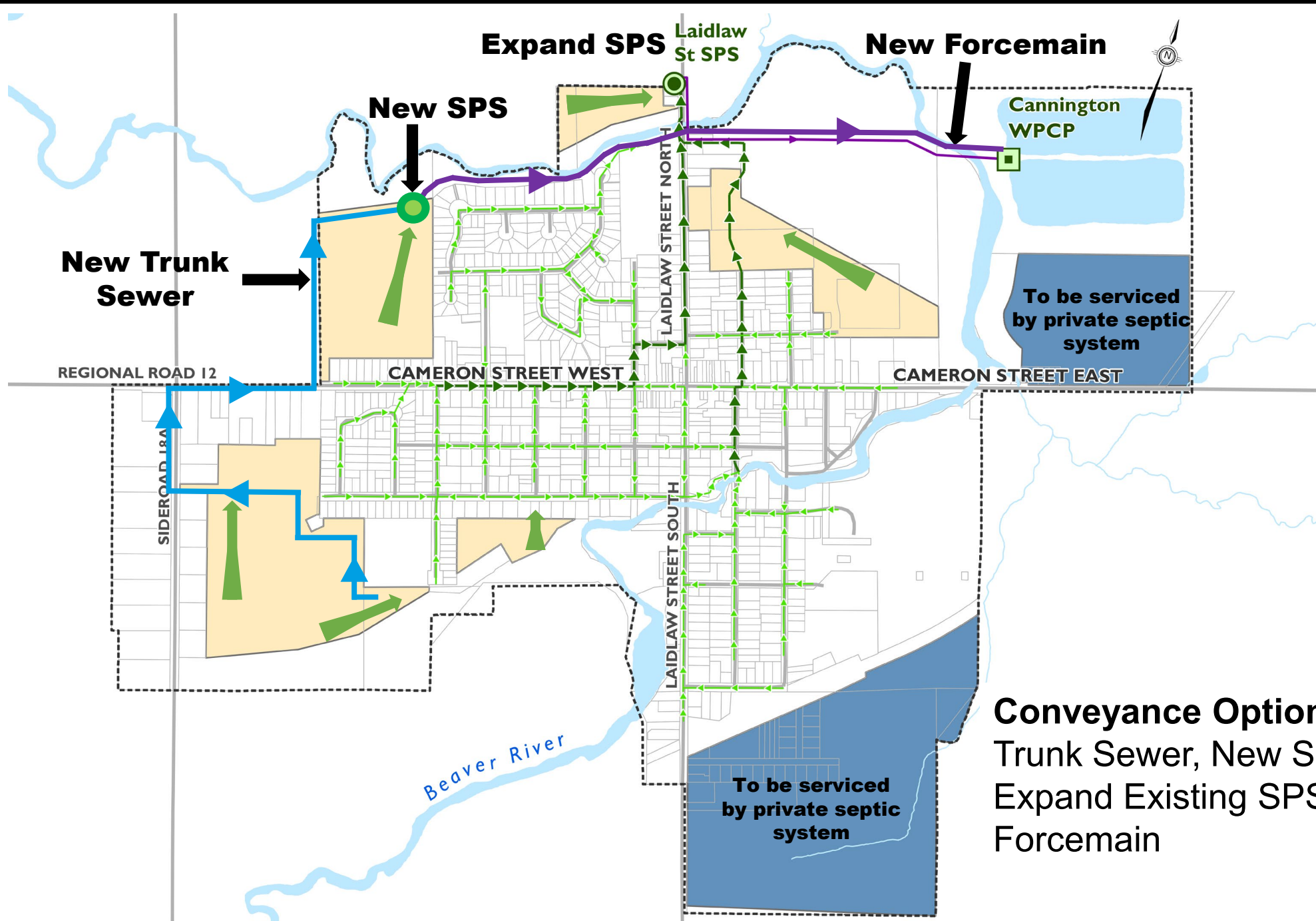


The Class EA study for Cannington needs to address two questions:

- 1) How do we convey wastewater flows?
- 2) How do we treat the wastewater flows?



Conveyance Option 1
 New Trunk Sewer, Expand / Replace Existing SPS, Twin Forcemain



Expand SPS

Laidlaw St SPS

New Forcemain

New SPS

Cannington WPCP

New Trunk Sewer

To be serviced by private septic system

REGIONAL ROAD 12

CAMERON STREET WEST

CAMERON STREET EAST

SIDEROAD 18A

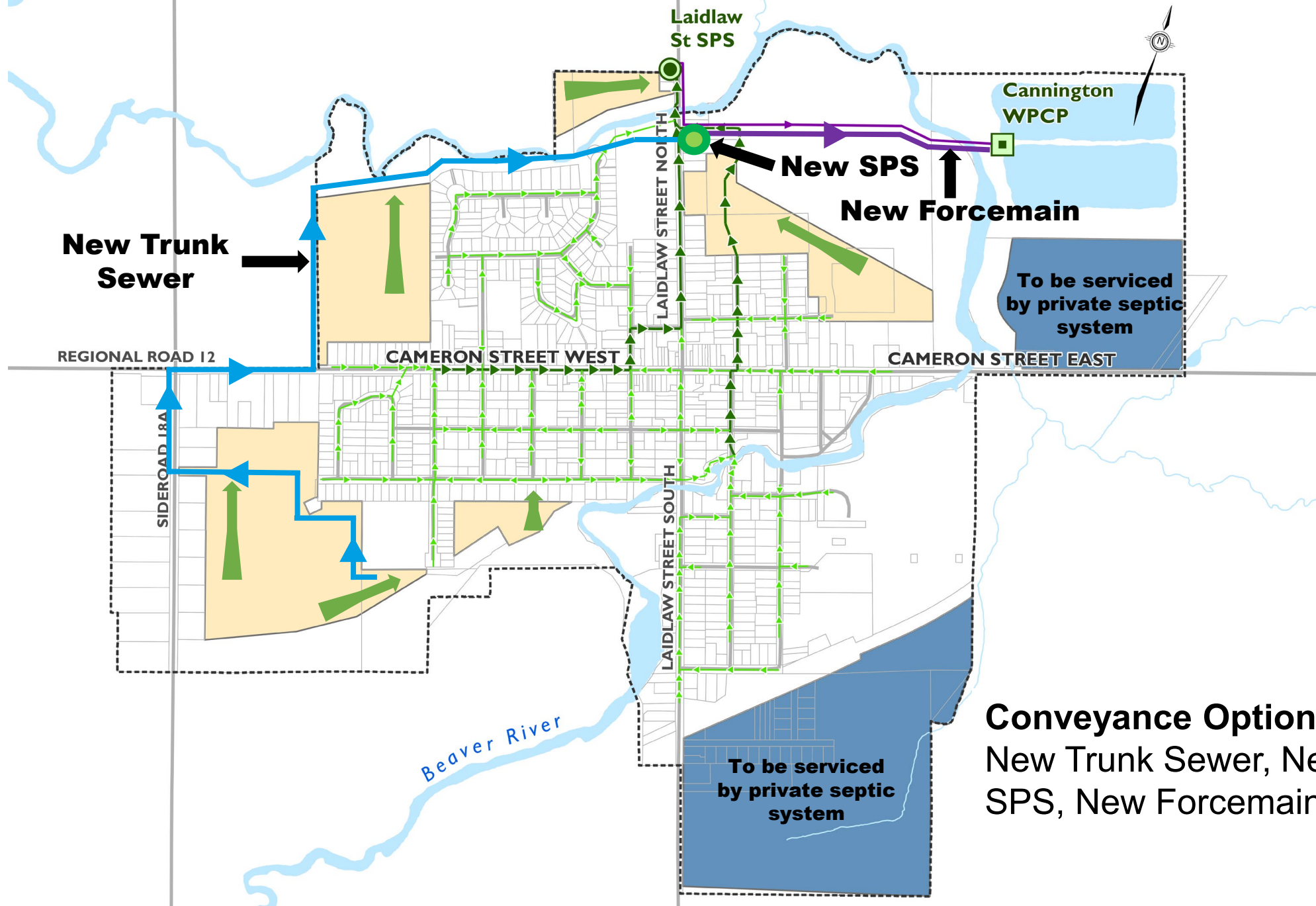
LIDLAW STREET NORTH

LIDLAW STREET SOUTH

Beaver River

To be serviced by private septic system

Conveyance Option 2 New Trunk Sewer, New SPS and Expand Existing SPS, New Forcemain



Conveyance Option 3
New Trunk Sewer, New SPS, New Forcemain

Next Steps for Evaluation of Conveyance Alternatives

We need to determine the following:

1. Evaluate the conveyance options to identify the **preferred solution**.
2. Identify **preferred site** for pumping station[s] and confirm **preferred alignment** of sewers and forcemains.
3. Confirm **property acquisition** requirements.

Study Breakdown (Continued)

The Class EA study for Cannington needs to address two questions:

- 1) How do we convey wastewater flows?
- 2) How do we treat the wastewater flows?

How do we select the preferred option to treat flows?

Does this option provide the ability to **meet long-term capacity needs**?

Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?

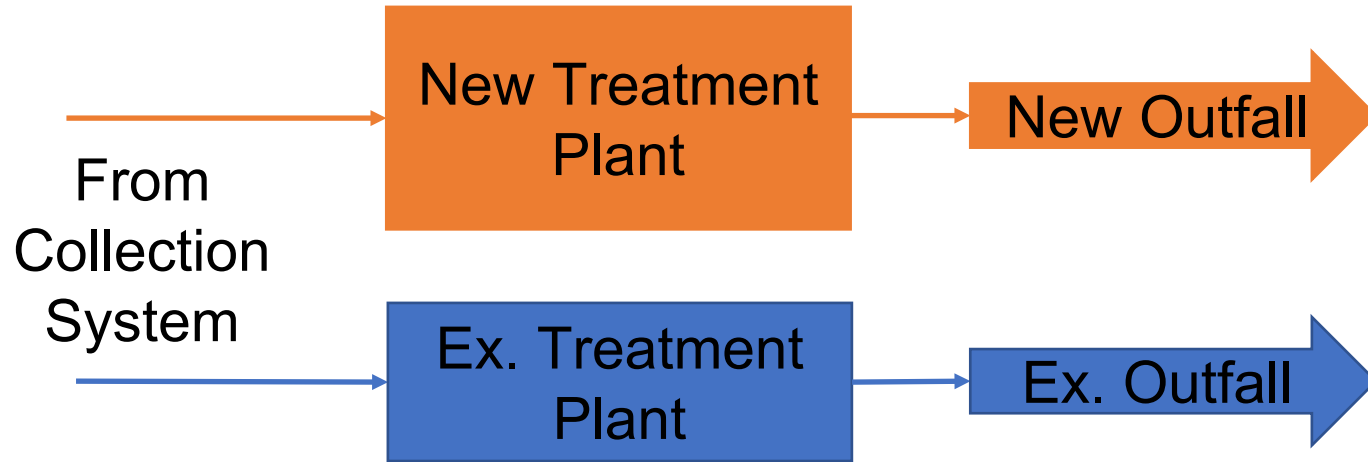
Does the option **efficiently use existing infrastructure**?

Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?

Treatment Option 1

New WPCP, Keep Existing WPCP



Does this option have ability to **meet long-term capacity needs**?



Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?



Does the option **efficiently use existing infrastructure**?



Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

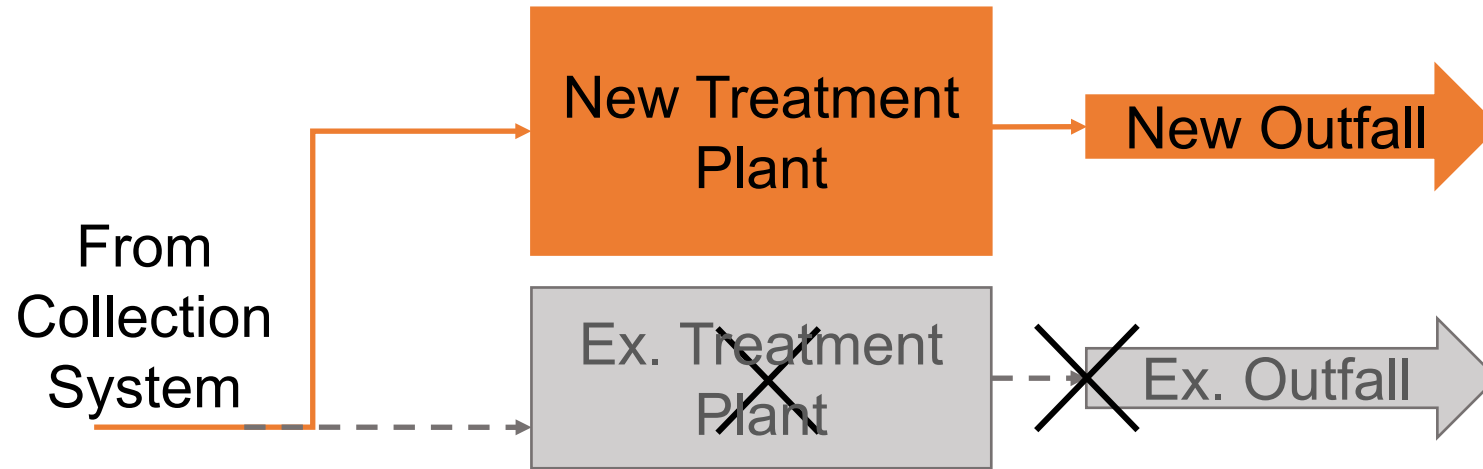


Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?



Treatment Option 2

New WPCP, Decommission Existing WPCP



Does this option have ability to **meet long-term capacity needs**?



Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?



Does the option **efficiently use existing infrastructure**?



Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

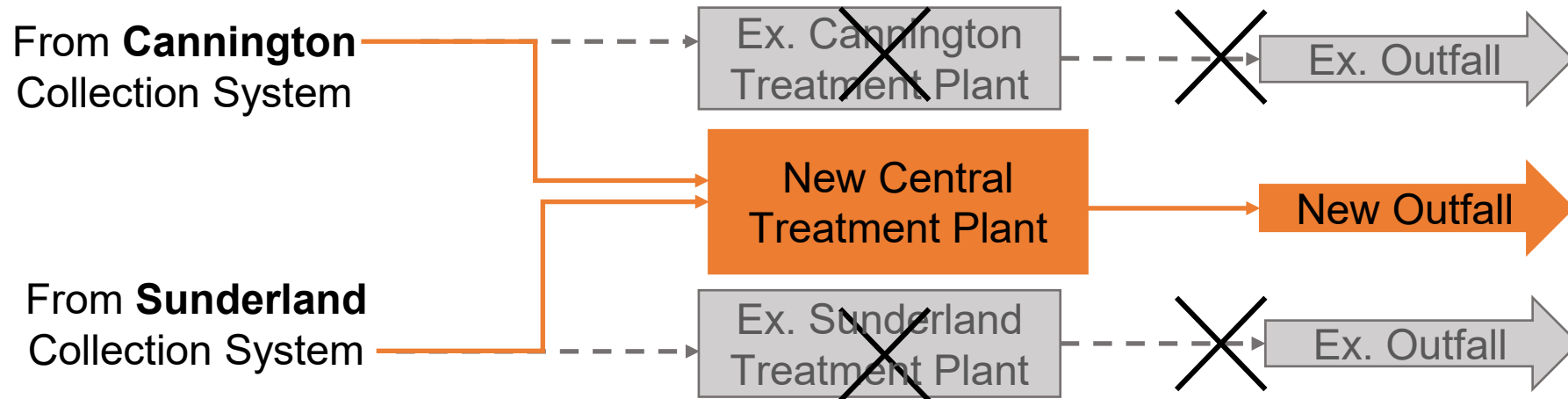


Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?



Treatment Option 3

New Central WPCP, Decommission Existing WPCPs



Does this option have ability to **meet long-term capacity needs**?



Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?



Does the option **efficiently use existing infrastructure**?



Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

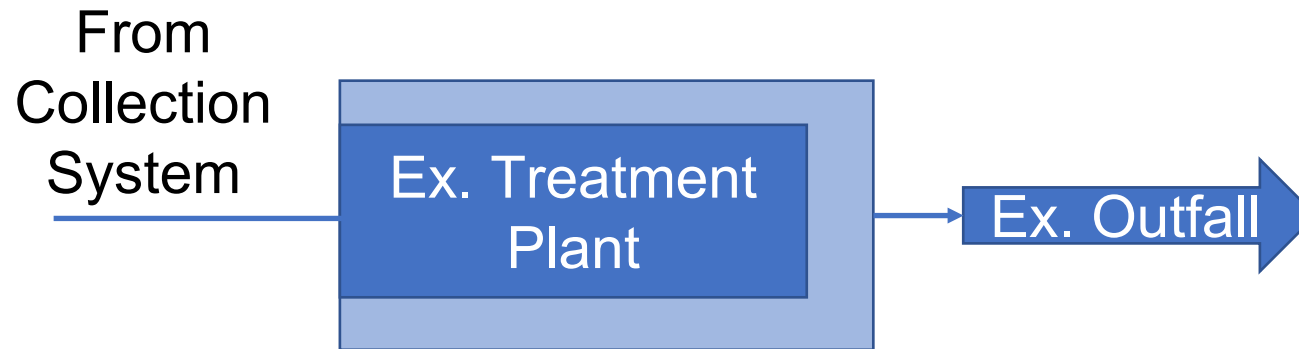


Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?



Treatment Option 4

Expand Existing WPCP



Does this option have ability to **meet long-term capacity needs**?



Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?



Does the option **efficiently use existing infrastructure**?



Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?



Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?



How do we Treat Flows? Comparison of Options

Preferred

	Option 1 – New WPCP, Keep Existing WPCP	Option 2 – New WPCP, Decommission Existing WPCP	Option 3 – New Central WPCP, Decommission Existing WPCPs	Option 4 – Expand Existing WPCP
Does this option have ability to meet long-term capacity needs ?	✓	✓	✓	✓
Does this option allow the discharge to consistently meet effluent quality objectives and discharge policies under existing and projected load conditions?	✓	✓	✓	✓
Does the option efficiently use existing infrastructure ?	✗	✗	✗	✓
Is this option compatible with existing treatment processes and operational practices , such that implementation will not significantly impact existing operations ?	✗	✗	✗	✓
Can the servicing strategy be implemented without major disruption to current sanitary sewage servicing?	✓	✓	✓	✓

Next Steps for Evaluation of Treatment Alternatives

We need to determine the following:

1. What are the **treatment objectives**?
2. What is the preferred **expansion strategy**?
3. What is the preferred **treatment technology**?
4. What is the preferred **design concept**?

What are the Treatment Objectives for Cannington WPCP?

- An **Assimilative Capacity Study** of the Beaver River was completed to determine the treatment requirements for the Cannington WPCP.
- The Cannington WPCP will require upgrades to accommodate the higher flows and will need to meet more stringent treatment requirements:
 - Stricter **Ammonia** Treatment Objectives
 - Stricter **Total Phosphorus** Treatment Objectives

What are the Treatment Objectives for Cannington WPCP? (Continued)

Parameter	Proposed Objectives	Proposed Limits
CBOD₅ (mg/L)	5	10
Suspended Solids (mg/L)	5	10
Total Ammonia Nitrogen (TAN) (mg/L)	1.0 (Jul 1 – Aug 31) 4.0 (Sep 1 – Nov 30) 7.0 (Dec 1 – Apr 30) 6.0 (May 1 – Jun 30)	1.5 (Jul 1 – Aug 31) 5.5 (Sep 1 – Nov 30) 8.9 (Dec 1 – Apr 30) 7.7 (May 1 – Jun 30)
TP (mg/L)	0.06	0.08
<i>E. coli</i> (number/100 mL)	100	200
pH	N/A	6.5 – 8.5

How Can we Expand the Existing Plant?

- **Facultative Lagoon System:** Add more lagoons
- **Mechanical Treatment System:** Construct a mechanical plant
- **Aerated Lagoon (Hybrid) System:** Install mechanical equipment in existing lagoons

Difference Between Facultative, Mechanical, and Aerated Systems

Facultative Lagoon

- Natural process (passive)
- Larger footprint
- Simple operations
- Seasonal discharge
- Typical for smaller communities

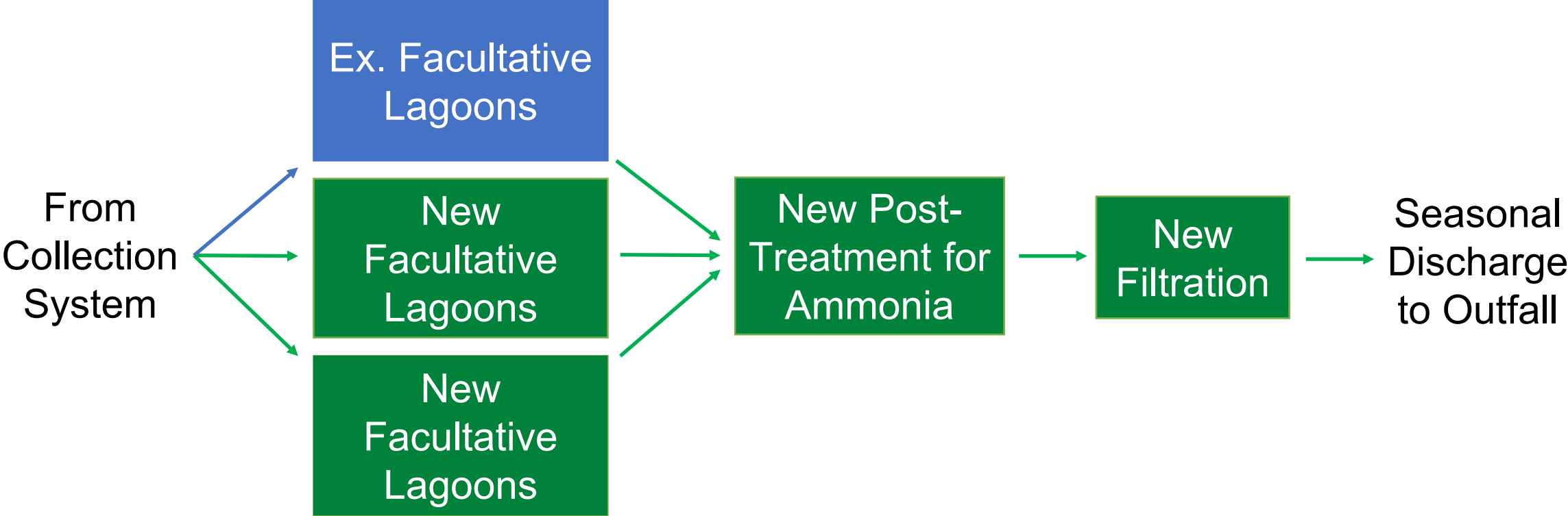
Mechanical WPCP

- Mechanical process
- Smaller footprint
- More operationally complex
- Continuous discharge
- Typical for larger communities

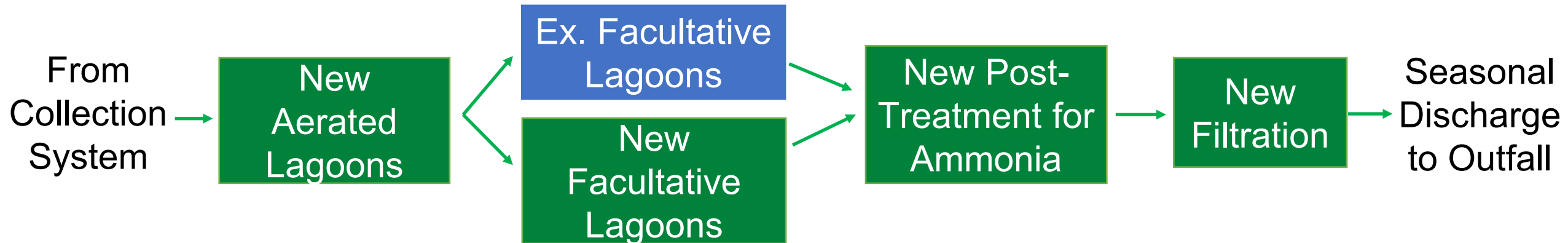
Aerated Lagoon

- Combination of natural and mechanical processes
- Smaller footprint than lagoon system, larger footprint than mechanical system
- Similar operations to mechanical system
- Continuous discharge
- Good option to expand existing lagoon facilities

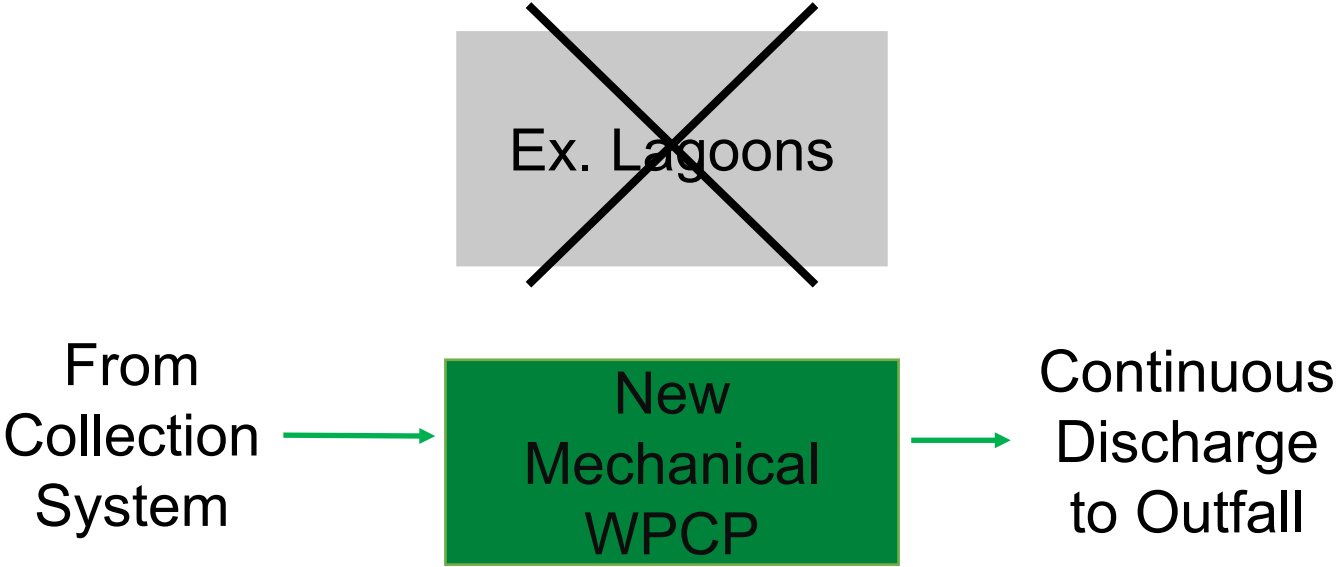
Expansion Strategy 1 – New Lagoons, Post-Treatment and Filtration with Seasonal Discharge



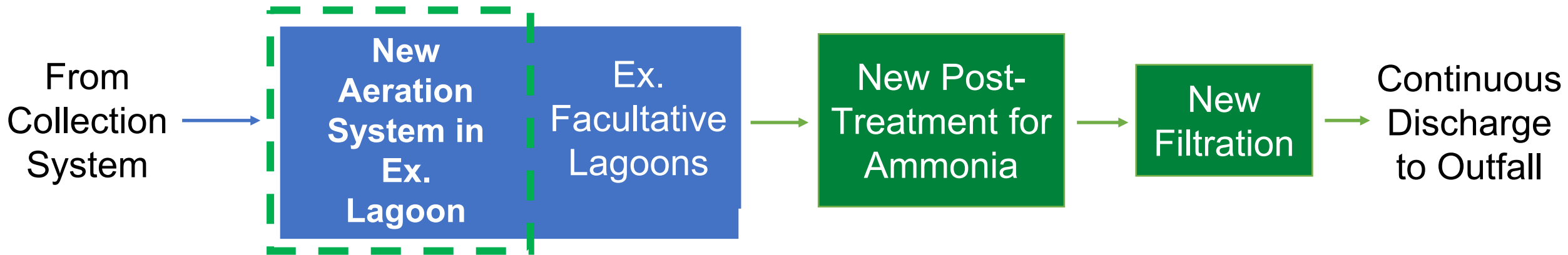
Expansion Strategy 2 – New Aerated Lagoons, Post-Treatment and Filtration with Seasonal Discharge



Expansion Strategy 3 – New Mechanical Plant with Continuous Discharge



Expansion Strategy 4 – Retrofit Existing Lagoons w/ Aeration, Post-Treatment and Filtration with Continuous Discharge



How do we select the preferred expansion strategy?

Does this option provide the ability to **meet long-term capacity needs**?

Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?

Does the option **efficiently use existing infrastructure**?

Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?

Comparison of Expansion Strategies

Preferred

Strategy 1 –
New Lagoons,
Post-Treatment &
Filtration w/
Seasonal
Discharge

Strategy 2 –
New Aerated
Lagoons, Post-
Treatment &
Filtration w/
Seasonal Discharge

Strategy 3 –
New Mechanical
Plant w/
Continuous
Discharge

Strategy 4 –
Retrofit Ex. Lagoons
w/ Aeration, Post-
Treatment & Filtration
w/ Continuous
Discharge

Does this option have ability to **meet long-term capacity needs**?



Does this option allow the discharge to consistently **meet effluent quality objectives and discharge policies** under existing and projected load conditions?



Does the option **efficiently use existing infrastructure**?



Is this option **compatible with existing treatment processes and operational practices**, such that implementation will **not significantly impact existing operations**?

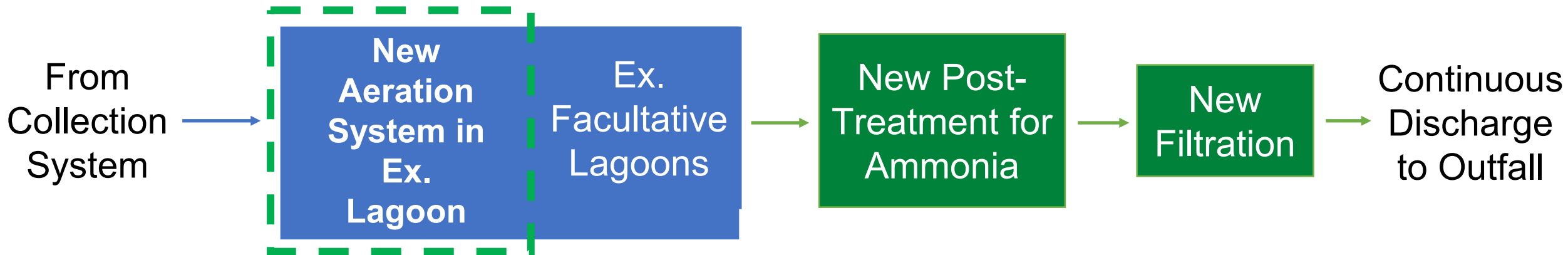


Can the servicing strategy be implemented **without major disruption** to current sanitary sewage servicing?

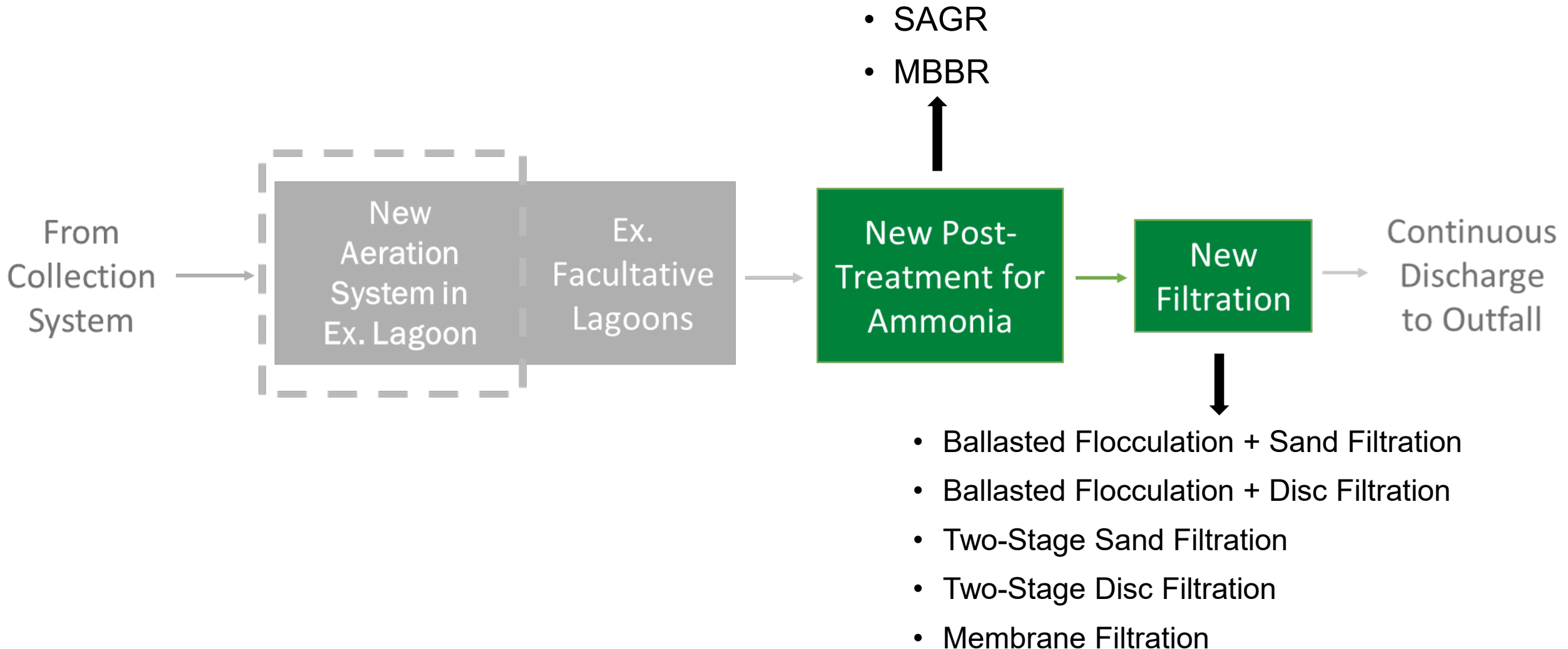


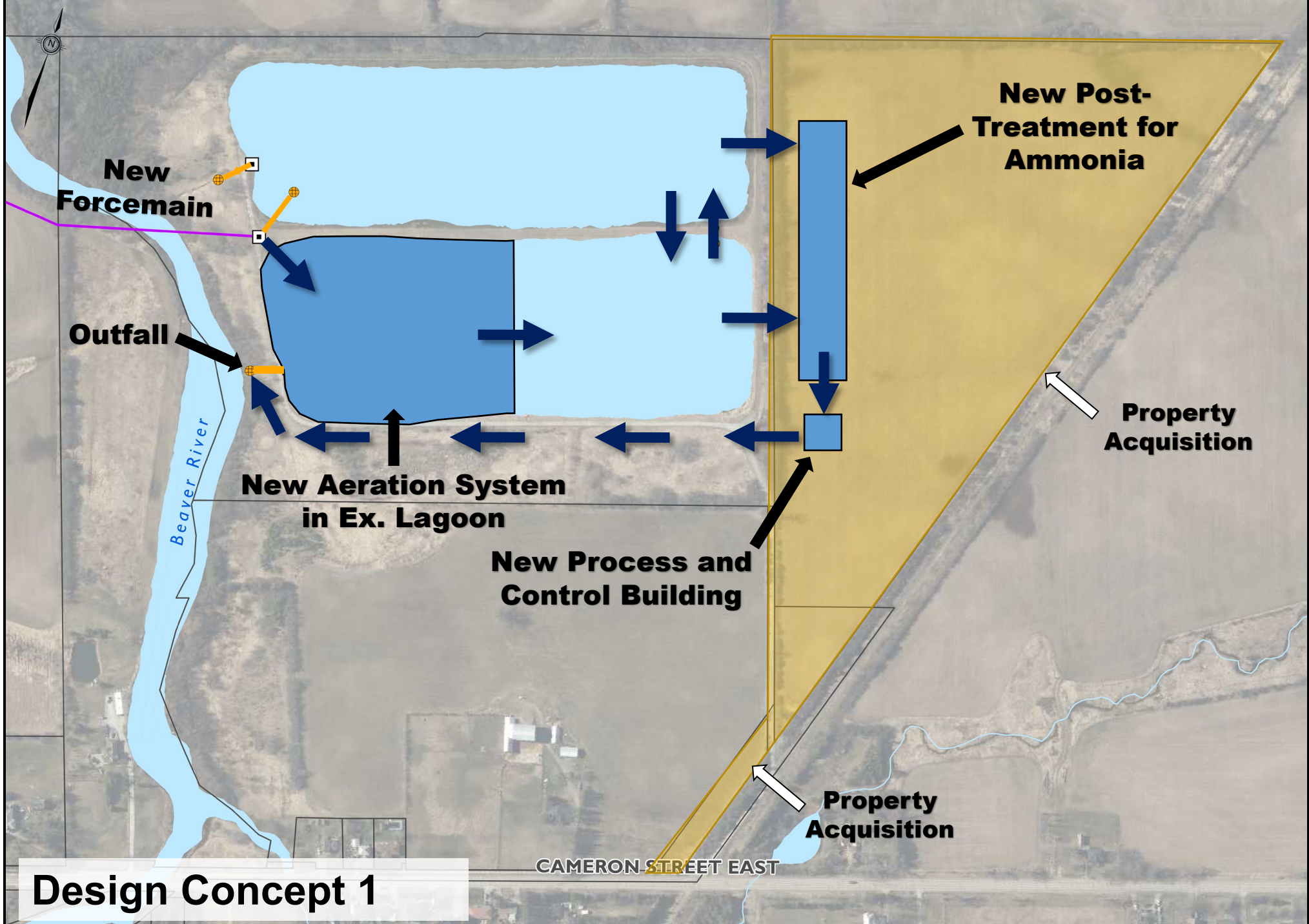
Preferred Expansion Strategy

Retrofit existing lagoons with aeration, post-treatment and filtration;
convert to continuous discharge.



Treatment Technology Options





Design Concept 1

BROCK CONCESSION ROAD 13

SIDEROAD 18

LIDLAW STREET NORTH

YORK STREET

MCKAY STREET

CAMERON STREET EAST

REGIONAL ROAD 12

New Forcemain

Outfall

New Aeration System in Ex. Lagoon

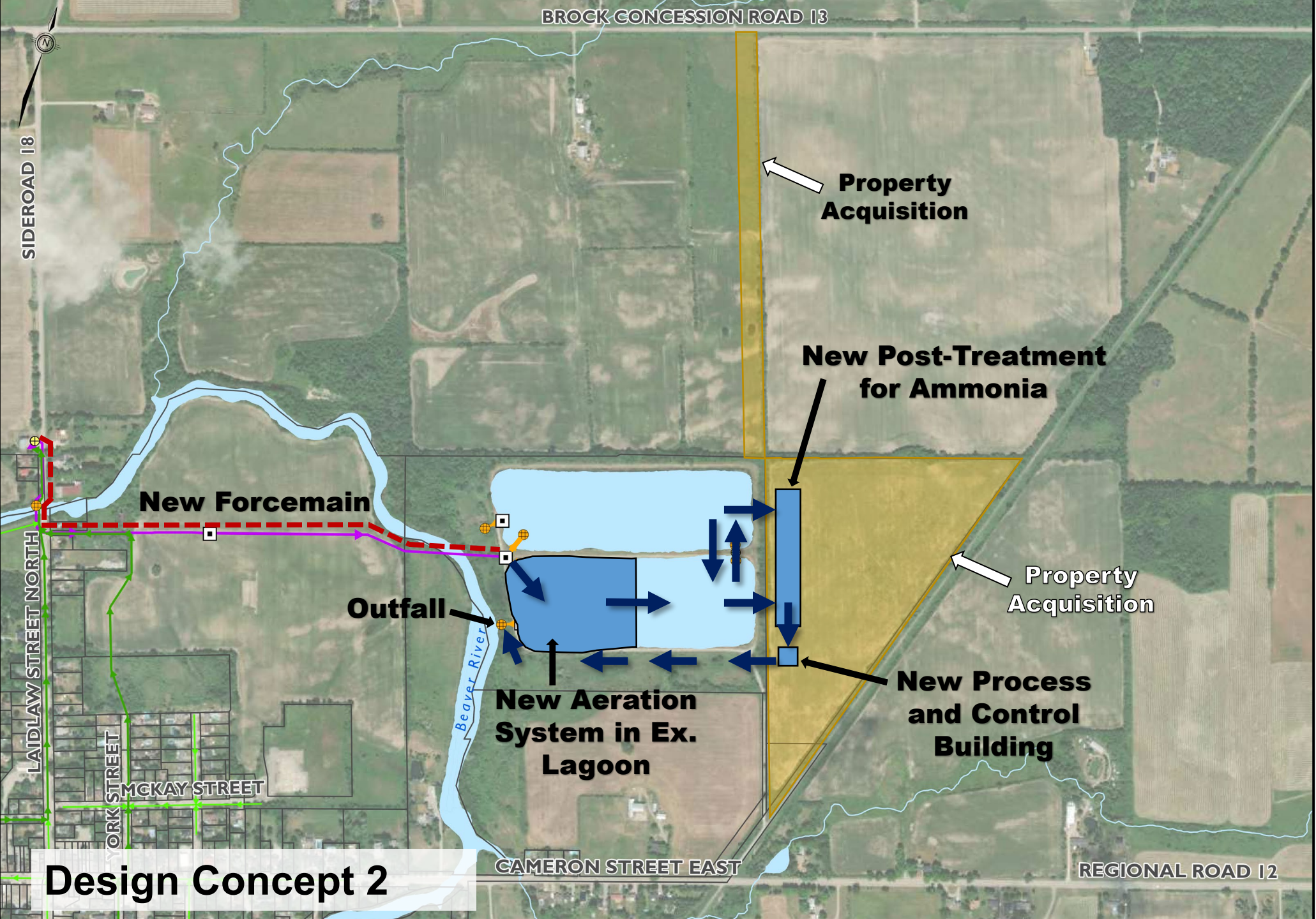
New Post-Treatment for Ammonia

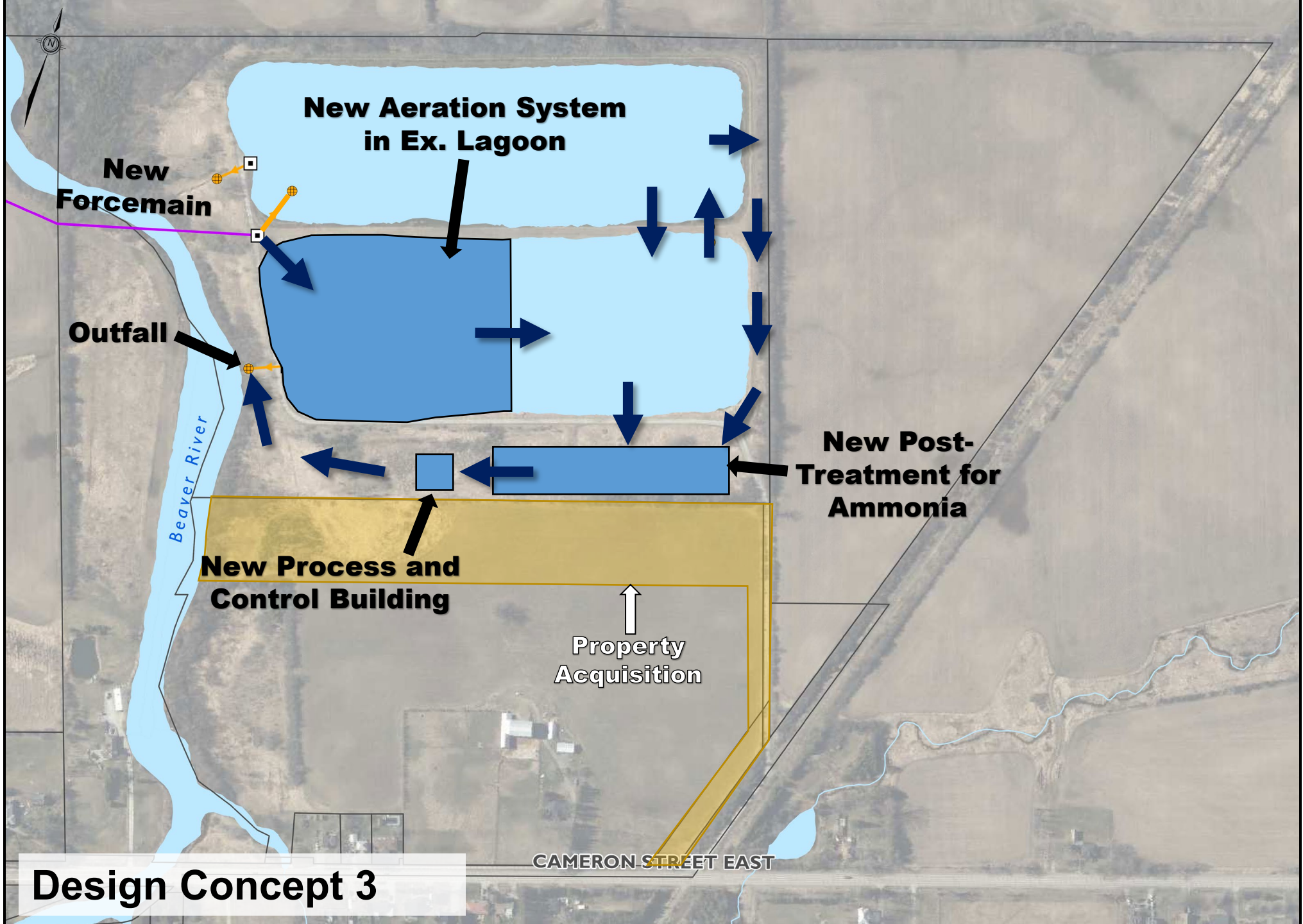
New Process and Control Building

Property Acquisition

Property Acquisition

Design Concept 2





Design Concept 3

BROCK CONCESSION ROAD 13

SIDEROAD 18

LIDLAW STREET NORTH

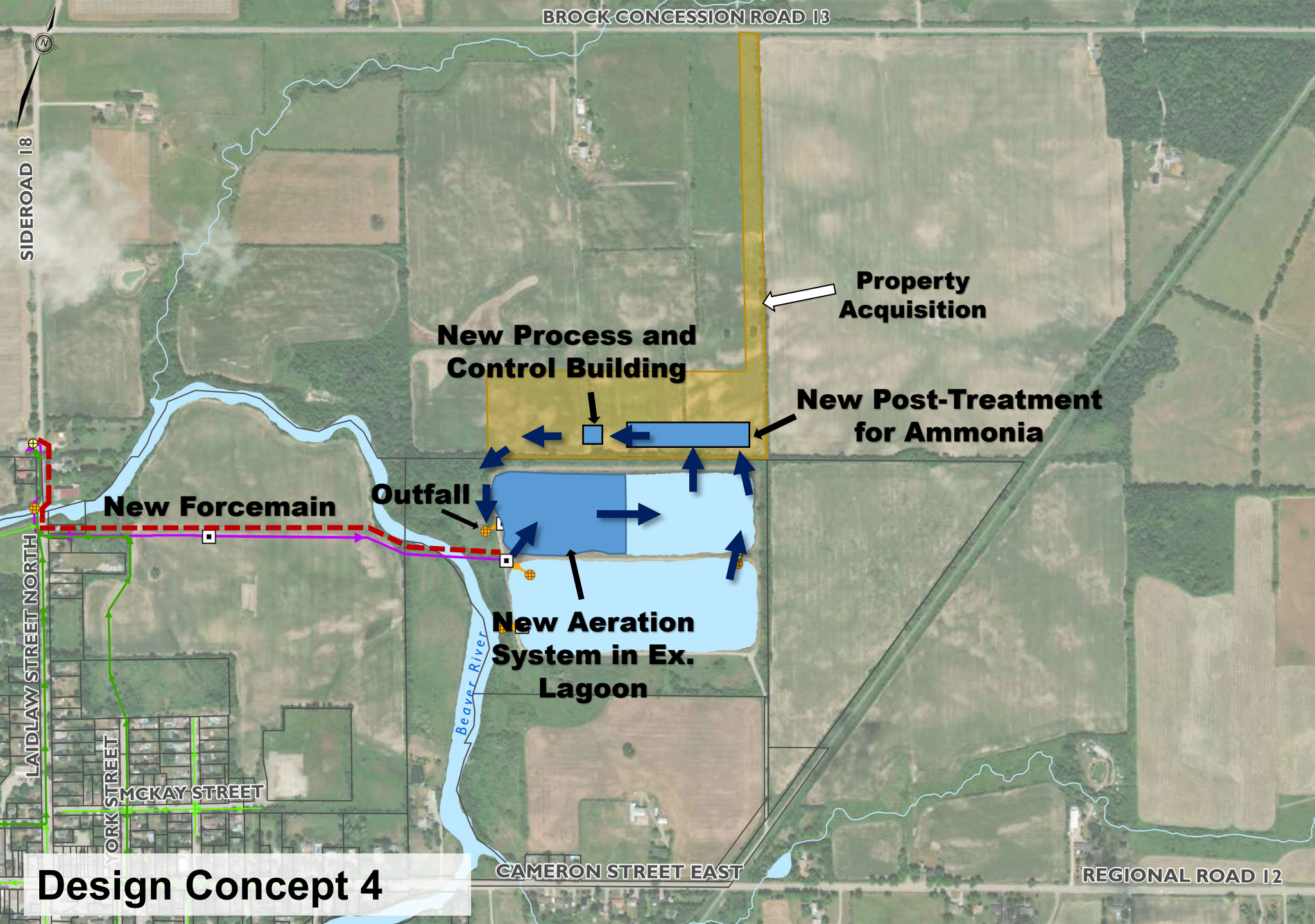
YORK STREET

MCKAY STREET

CAMERON STREET EAST

REGIONAL ROAD 12

Design Concept 4



New Process and Control Building

Property Acquisition

New Post-Treatment for Ammonia

New Forcemain

Outfall

New Aeration System in Ex. Lagoon

Beaver River

Envision

The **Envision** framework from the Institute for Sustainable Infrastructure will be used to evaluate the options.



ENVISION™



QUALITY OF LIFE

13 Credits

Purpose
Wellbeing
Community



LEADERSHIP

10 Credits

Collaboration
Management
Planning



RESOURCE ALLOCATION

14 Credits

Materials
Energy
Water



NATURAL WORLD

15 Credits

Siting
Land + Water
Biodiversity



CLIMATE AND RISK

8 Credits

Emissions
Resilience

Thank you for Participating

Stay Involved!

Please email your Questions and Comments to Kelly.Murphy@durham.ca
Provide your responses by March 31, 2023.

For more information about this project, please visit our website:
durham.ca/BrockSewageCapacity