Appendix D – Presentation Slides

Water and Wastewater Servicing in the Nobleton Community

Municipal Class Environmental Assessment Study

Online Open House No. 2

Wednesday, November 25th, 2020
Online Sessions: 10 to 11 a.m.; 2 to 3 p.m.; and 7 to 8 p.m.

York Region

Project Background

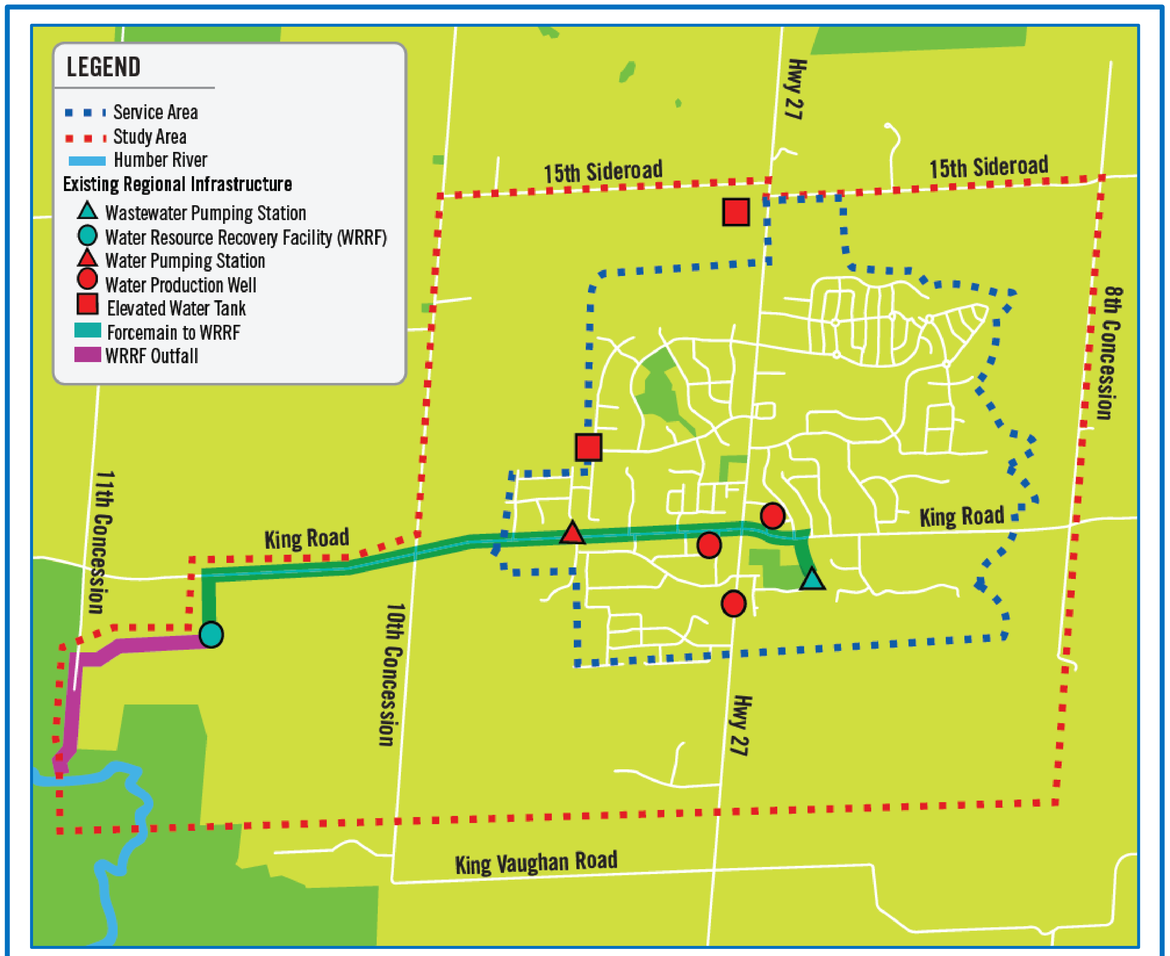
Problem/Opportunity Statement for this Municipal Class Environmental Assessment (Class EA) Study

- To identify **long-term water and wastewater servicing solutions** to support forecasted growth in Nobleton to 2041 while **optimizing the use of existing Regional infrastructure.**

Purpose of this Open House

- Present the **alternatives considered**
- Share the **evaluation of alternatives**
- Share the **recommended solutions**
- **Obtain your input**

We want to hear from you!



Study Area and Service Area

Service Area: *Community of Nobleton boundary including current and planned service areas*

Study Area: *All serviced area plus an assessment of potentially impacted lands due to new infrastructure requirements*

Schedule C Municipal Class Environmental Assessment Study Process

Before EA Technical Studies

Phase 1 Problem or Opportunity

- Identify the problem or opportunity
- **Conduct public consultation**

Public Open House #1 February 2019

Phase 2 Alternative Solutions

- Identify and evaluate alternative solutions to problem
- **Conduct public consultation**
- Select recommended solution

Online Open House #2

We are here

Phase 3 Alternative Designs

- Identify and evaluate alternative designs for the recommended solution
- **Conduct public consultation**
- Select preferred design

Open House #3

Phase 4 Environmental Study Report

- Complete Environmental Study Report
- Post report for 30 day public and agency review period

Public Review Period

Project Timeline

Stay informed throughout the study process by visiting the York Region EA Website (**york.ca/nobletonea**).

We are here

November 2018
Notice of Commencement

February 2019
Open House #1

November 2020
Open House #2

Summer 2021
Open House #3

Winter 2021
Environmental Study Report & Notice of Study Completion

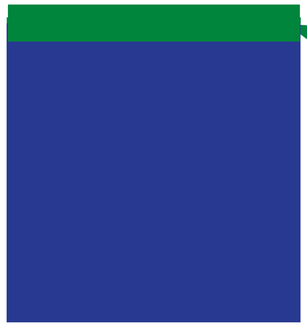
Nobleton Water System: Needs Assessment

STORAGE

Current Storage
3,845 m³

to

Target Storage
3,917 m³



Minor increase in storage required to meet growth

GROUNDWATER SUPPLY

Current Supply
51.6 L/s

to

Target Supply
89.5 L/s

Significant increase in supply required to meet growth

Nobleton Wastewater System: Needs Assessment

WATER RESOURCE RECOVERY FACILITY (WRRF)

FLOW TRANSFER (PUMP STATION & PIPES)

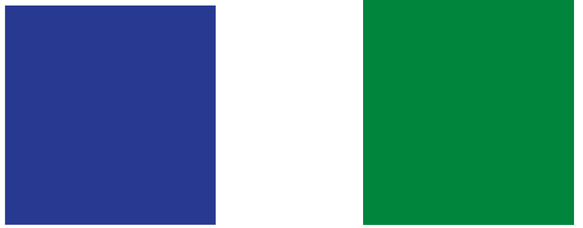
HUMBER RIVER (RECEIVING WATER)

Average Day Flow

2,925 m^3/d to 3,996 m^3/d

Peak Flow

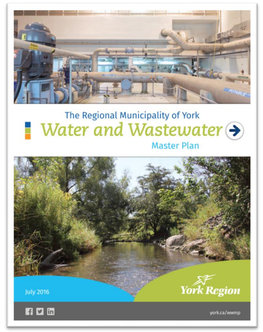
9,177 m^3/d to 25,174 m^3/d



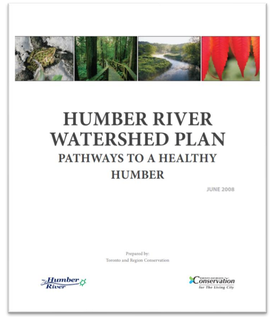
Plans for Consideration

This Class EA must also consider input from various existing documents.

Places to Grow

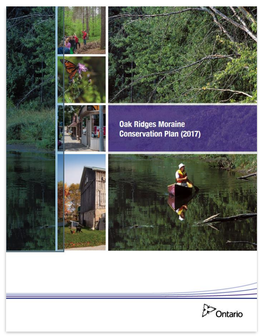


York Region's 2016 Water and Wastewater Master Plan

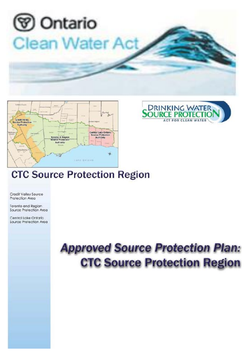


Humber River Watershed Plan

King Township Official Plan (Draft)

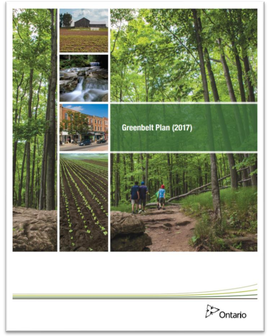


Oak Ridges Moraine Conservation Plan

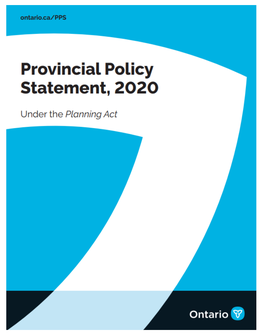


Clean Water Act / Source Protection Plan

York Region's 2010 Official Plan



Greenbelt Plan



Provincial Policy Statement

Technical Studies

Natural Environment Impact Assessment

- Identification of natural features (wetlands, forests, species at risk, etc.)

Hydrogeological Assessment

- Review of groundwater conditions in the Study Area (existing wells, groundwater levels, etc.)

Cultural Heritage Resource Assessment

- Review of cultural heritage resources in the Study Area

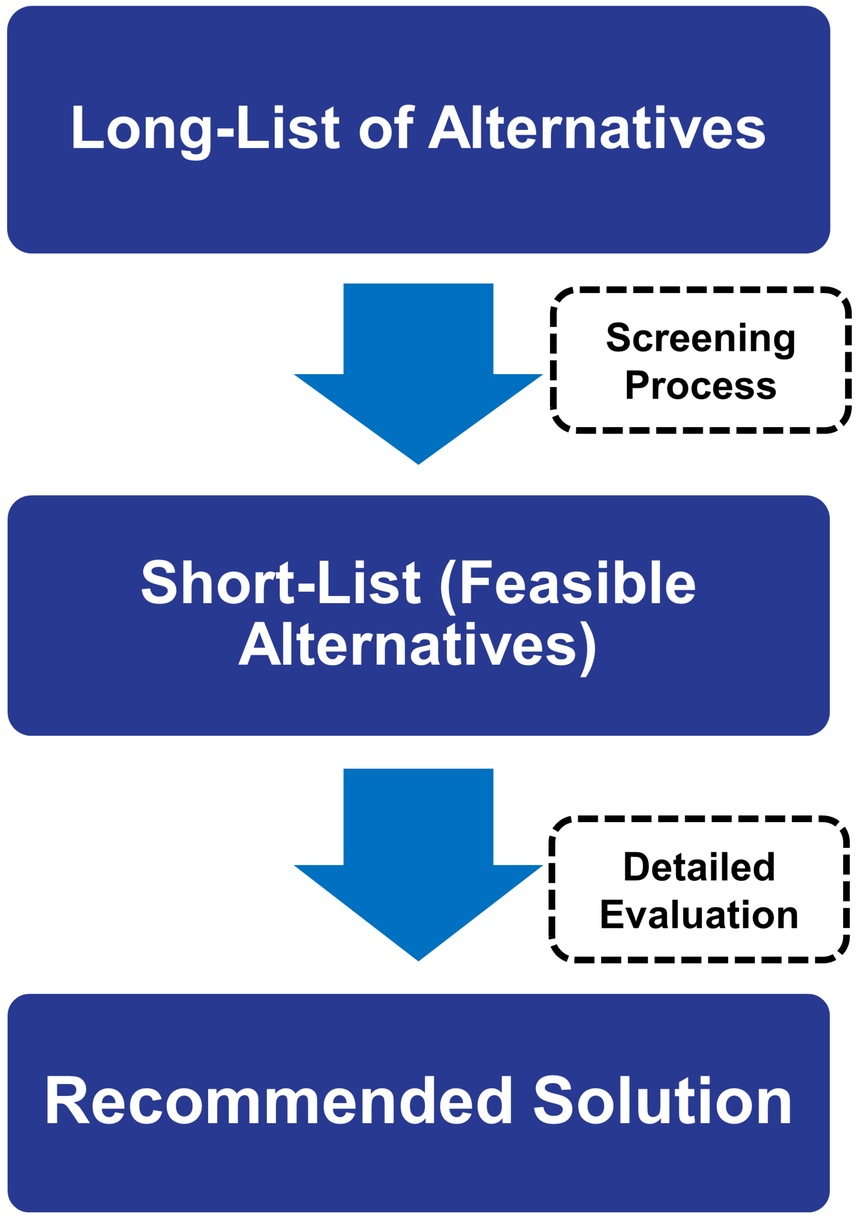
Archaeological Assessment

- Review of potential archaeological resources in the Study Area

Geotechnical Assessment

- Assessment of subsurface soil conditions

Evaluation Process



Screening Long-List of Alternative Water Supply Solutions

Solutions Considered to Address Water Supply Needs	Long-List of Alternative Water Supply Solutions Screening Summary	Screening Status
1. Do Nothing - Permit Growth Without Increasing Capacity	▪ Unable to provide supply to meet forecasted growth ▪ Carried forward for comparative purposes only	**Fail**
2. Limit Growth Up To Existing Capacity	▪ Unable to provide supply to meet forecasted growth	**Fail**
3. Encourage Water Conservation To Reduce Usage	▪ Unable to provide supply to meet forecasted growth ▪ Recommended conservation be carried forward as separate ongoing program to help reduce water supply needs	**Fail**
4. Increase Capacity of Existing Wells (Well #2, #3 and/or #5)	▪ Unable to increase capacity enough to provide enough supply to meet forecasted growth	**Fail**
5. Increase Capacity of Existing Well #2 and Add a New Production Well	▪ Able to provide supply to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**
6. Increase Capacity with Two New Production Wells	▪ Able to provide supply to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**
7. Develop a Blended System with the Addition of a Lake-Based Water Supply Connection to the Existing Wells	▪ Able to provide supply to meet forecasted growth ▪ Carried forward conditionally. The province's long-term plan, A Place to Grow, only allows the addition of a lake-based supply connection if well supply cannot meet the necessary quality or quantity requirements.	**Conditional Pass**
8. New Water Supply Source from Humber River	▪ Unable to provide sufficient supply from Humber River to meet forecasted growth	**Fail**

Short-List of Alternative Water Supply Solutions

Three alternatives passed the screening process and were selected for detailed evaluation:

1) Supply Alternative A

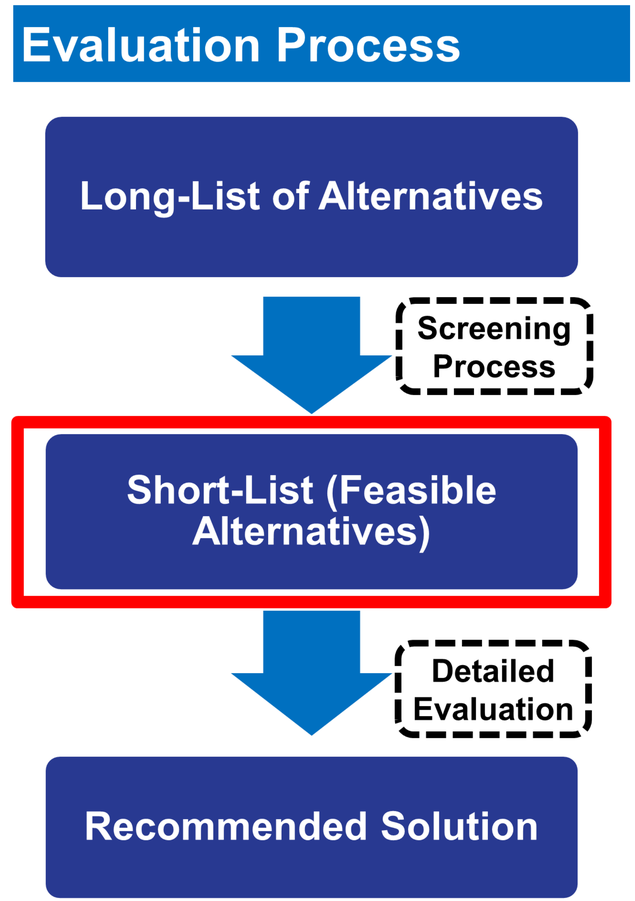
- Increase Capacity of Existing Well #2 and Add a New Production Well

2) Supply Alternative B

- Increase Capacity with Two New Production Wells

3) Supply Alternative C

- Develop a Blended System with the Addition of a Lake-Based Water Supply Connection to the Existing Wells



Water Supply Alternatives (Well Sites Considered)

Eight potential new well sites were narrowed down to two, Site F and Site H. Sites were narrowed down to those that would provide the best potential groundwater supply, make the most sense logistically, be simplest to implement and best meet all applicable policies and regulations. This led to the following water supply sub-alternatives:

1) Supply Alternative A1:

- Increase Capacity at Existing Well #2
- Add New Well at Site F

2) Supply Alternative A2:

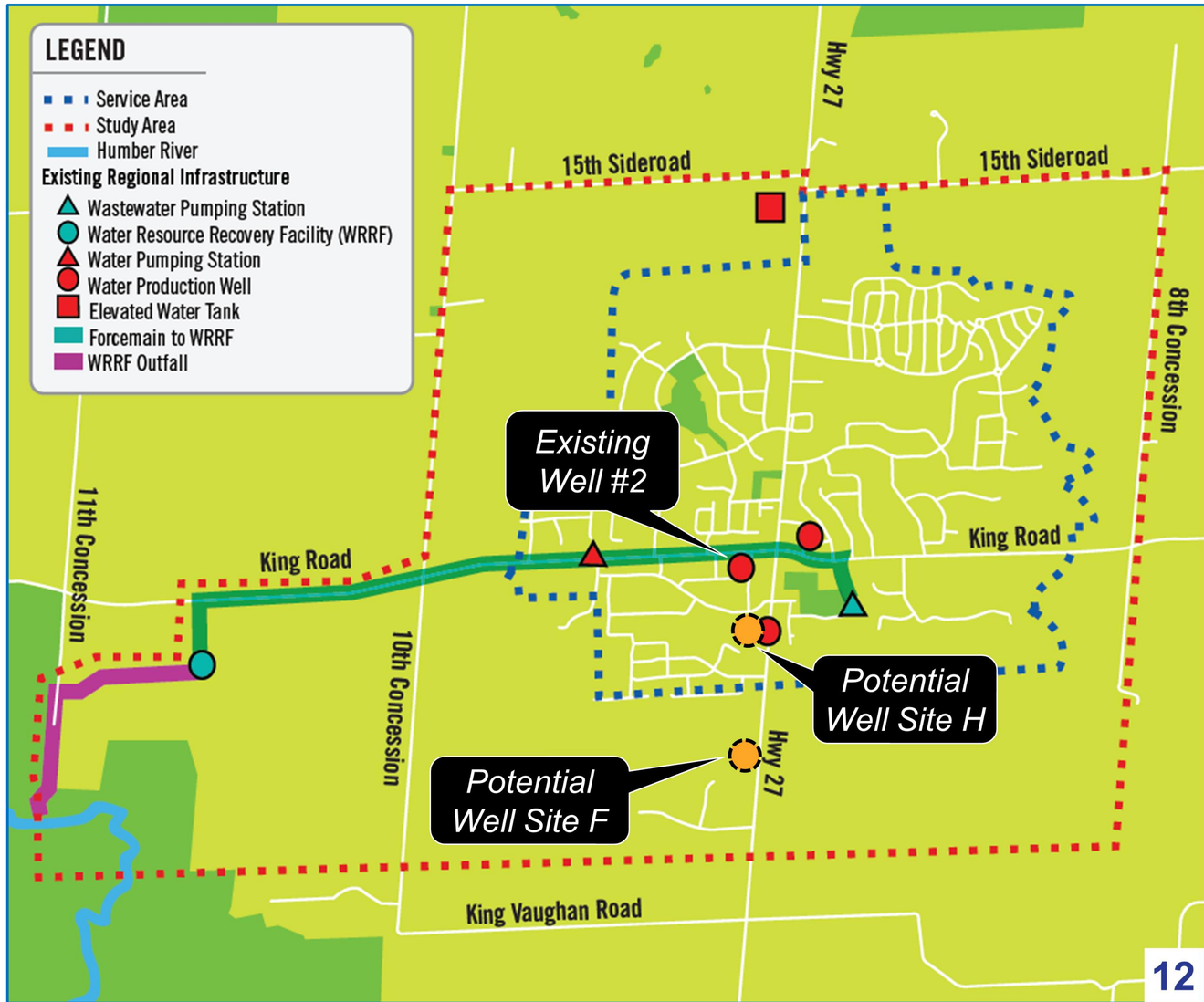
- Increase Capacity at Existing Well #2
- Add New Well at Site H

3) Supply Alternative B:

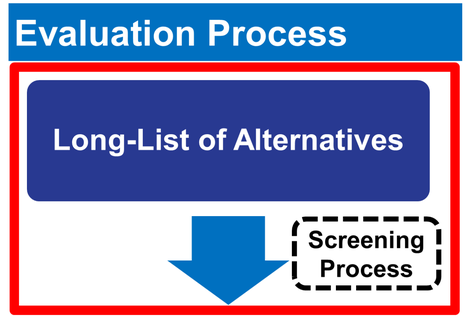
- Add New Well at Site F
- Add New Well at Site H

4) Supply Alternative C:

- No change to wells
- Add Lake-Based Supply



Screening Long-List of Alternative Water Storage Solutions



Solutions Considered to Address Water Supply Needs	Long-List of Alternative Water Supply Solutions Screening Summary	Screening Status
1. Do Nothing - Permit Growth Without Increasing Capacity	▪ Unable to provide storage capacity to meet forecasted growth ▪ Carried forward for comparative purposes only	**Fail**
2. Limit Growth Up To Existing Capacity	▪ Unable to provide storage capacity to meet forecasted growth	**Fail**
3. Encourage Water Conservation To Reduce Usage	▪ Unable to provide storage capacity to meet forecasted growth ▪ Recommended conservation be carried forward as part of overall servicing strategy	**Fail**
4. Modify Existing Design Guidelines' Storage Requirements	▪ Does not meet existing Design Guidelines and there is not enough evidence to support modification of Guidelines	**Fail**
5. New Storage Facility (Replace Existing Nobleton South Elevated Tank Storage Facility With Bigger Storage Facility)	▪ Able to provide storage capacity to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**
6. Increase Overall Well Supply to Avoid New Storage	▪ Able to provide storage capacity to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**

Short-List of Alternative Water Storage Solutions

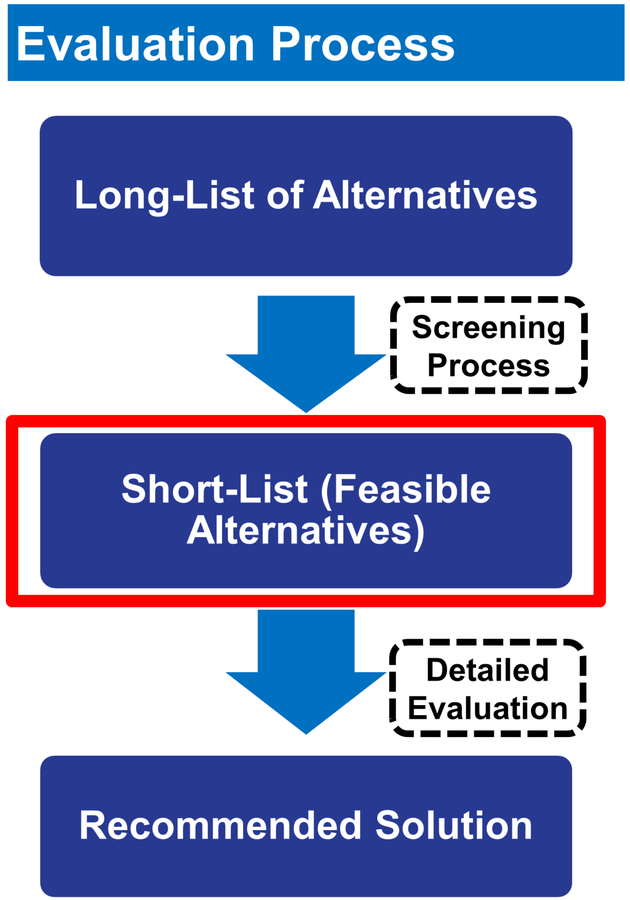
Two alternatives passed the screening process and were selected for detailed evaluation:

1) Storage Alternative A

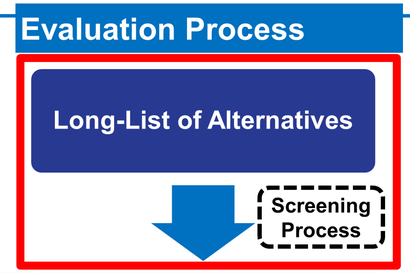
- Add New Storage Facility (Replace Existing Nobleton South Elevated Tank Storage Facility With Bigger Storage Facility)

2) Storage Alternative B

- Increase Overall Well Supply to Avoid New Storage



Screening Long-List of Alternative Wastewater Servicing Solutions



Solutions Considered to Address Water Supply Needs	Long-List of Alternative Water Supply Solutions Screening Summary	Screening Status
1. Do Nothing - Permit Growth Without Increasing Capacity	▪ Unable to provide wastewater capacity to meet forecasted growth ▪ Carried forward for comparative purposes only	**Fail**
2. Limit Growth Up To Existing Capacity	▪ Unable to provide wastewater capacity to meet forecasted growth	**Fail**
3. Reduce Inflow and Infiltration	▪ Unable to provide wastewater capacity to meet forecasted growth ▪ Recommended inflow/infiltration reduction be carried forward as part of overall servicing strategy to help reduce future infrastructure requirements	**Fail**
4. Expand and Upgrade the Existing Janet Avenue Pumping Station, Forcemain and Nobleton Water Resource Recovery Facility (WRRF) and Outfall	▪ Able to provide wastewater capacity to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**
5. Construct a New Pumping Station, Forcemain and New Water Resource Recovery Facility (WRRF) and Outfall	▪ Able to provide wastewater capacity to meet forecasted growth while meeting existing and proposed regulations, plans and policies	**Pass**
6. Convey Additional Flows to Neighbouring Water Resource Recovery Facilities	▪ Able to provide wastewater capacity to meet forecasted growth ▪ Does not meet requirements of Greenbelt Plan and inconsistent with recommendations of York Region Water and Wastewater Master Plan	**Fail**
7. Convey All Flows to Lake-based Treatment Systems	▪ Able to provide wastewater capacity to meet forecasted growth ▪ Does not meet requirements of Greenbelt Plan and inconsistent with recommendations of York Region Water and Wastewater Master Plan	**Fail**
8. Maintain Existing and Convey Additional Flows to Lake-based Treatment Facilities	▪ Able to provide wastewater capacity to meet forecasted growth ▪ Does not meet requirements of Greenbelt Plan and inconsistent with recommendations of York Region Water and Wastewater Master Plan	**Fail**

Short-List of Alternative Wastewater Servicing Solutions

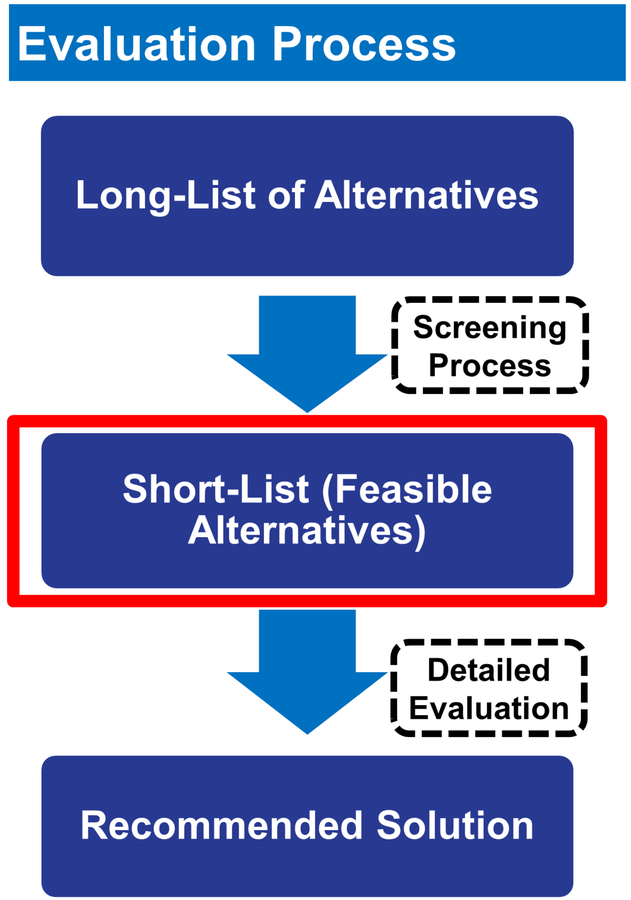
Two alternatives passed the screening process and were selected for detailed evaluation:

1) Wastewater Servicing Alternative A

- Expand and Upgrade the Existing Janet Avenue Pumping Station, Forcemain and Nobleton Water Resource Recovery Facility (WRRF) and outfall

2) Wastewater Servicing Alternative B

- Construct a New Pumping Station, Forcemain and New Water Resource Recovery Facility (WRRF) and outfall



Alternative Solutions Evaluation Criteria

When evaluating possible water and wastewater servicing solutions, a broad range of criteria were considered. Criteria were refined based on feedback obtained during Open House #1.

Natural Environment

- Aquatic Vegetation and Wildlife
- Terrestrial Vegetation and Wildlife
- Groundwater Resources
- Surface Water Resources
- Greenhouse Gas Emissions

Social & Cultural

- Short-term Community Impacts
- Long-term Community Impact
- Archaeological Sites
- Cultural/Heritage Features

Jurisdictional / Regulatory

- Land Requirements
- Ability to Accommodate Potential Future Regulatory Changes
- Permits and Approval

Technical

- Constructability
- Redundancy of Supply/Service
- Resilience to Climate Change
- Operations and Maintenance Requirements
- Adaptability to Existing Infrastructure
- Maximizing Use of Existing Infrastructure

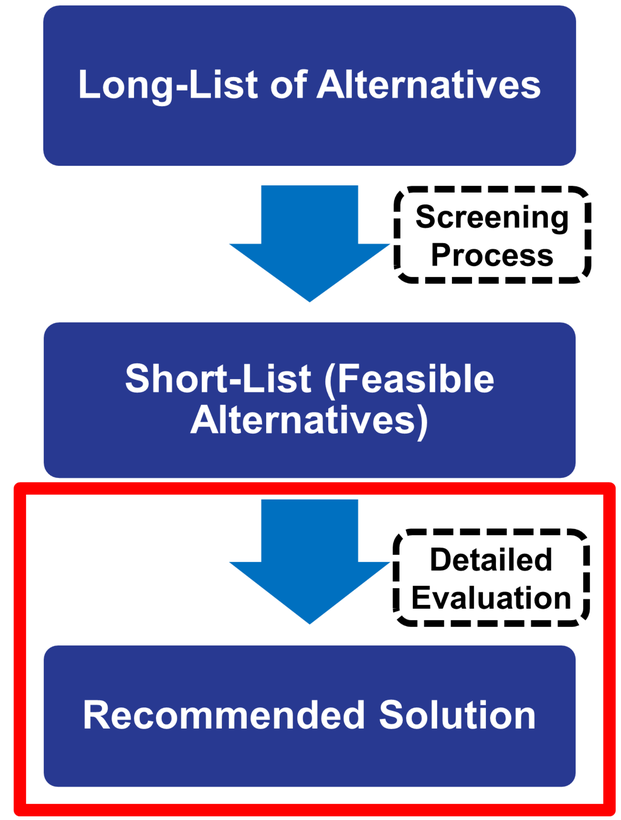
Economic

- Capital Cost
- Lifecycle Cost
- Land Acquisition Cost

Water Supply Alternatives Detailed Evaluation

Evaluation Category	Do Nothing Permit Growth Without Increasing Capacity	Supply A1: Increase Capacity of Existing Well #2 in Combination with New Production Well at Site F	Supply A2: Increase Capacity of Existing Well #2 in Combination with New Production Well at Site H	Supply B: Increase Capacity with Two New Production Wells	Supply C: Develop Blended System with Addition of Lake-Based Connection to Existing Wells
Natural Environment	🟢	🟡	🟡	🟡	🔴
Social & Cultural	🟢	🟡	🟢	🟡	🔴
Jurisdictional /Regulatory	🟡	🟡	🟢	🟡	🔴
Technical	🔴	🟡	🟢	🟡	🔴
Economic	🟢	🟡	🟢	🟡	🔴
Overall Rank	Not Applicable	2	**1**	3	4

Evaluation Process



Scoring Description

- 🟢 Low Impact / Most Preferred
- 🟡 Moderate Impact
- 🔴 Most Impact / Least Preferred

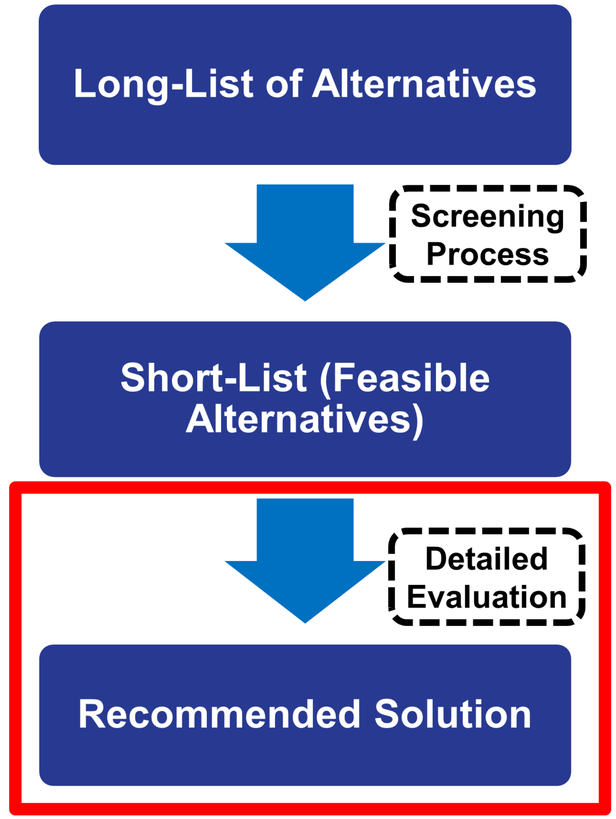
Water Supply Alternatives Detailed Evaluation: Summary of Evaluation

Evaluation Category	Summary of Evaluation
Natural Environment	▪ A1, A2 and B will have low/moderate impact to vegetation and wildlife and moderate greenhouse gas emissions ▪ C will have moderate to significant impact to vegetation and wildlife and high greenhouse gas emissions ▪ A1, A2 or B will have greater impact to groundwater resources than C, but not considered significantly greater
Social & Cultural	▪ All will have some short-term impacts during construction (increased traffic, noise, dust), C will have the greatest ▪ A1, B and C will have short-term impacts on traffic along Highway 27, C will have the most significant impacts ▪ A1, A2 and B have moderate long-term community impacts (water aesthetics, requires wellhead protection areas) ▪ A1, A2 and B have no impact on cultural or heritage features, C has some risk of impact
Jurisdictional /Regulatory	▪ All can accommodate potential future changes in drinking water quality requirements ▪ C crosses Greenbelt Plan's "Protected Countryside" making approvals difficult ▪ A1, B and C require land acquisition
Technical	▪ C provides best system redundancy (two sources) but requires the most construction and all new infrastructure ▪ A1, A2 and B will provide the required system redundancy ▪ A1 and A2 maximize use of existing Well Site #2, A2 also maximizes facility at Well Site #5 ▪ A1 and A2 require least operations and maintenance resources, B requires more (2 sites), C requires most (new water supply system)
Economic	▪ A2 has the lowest capital cost, A1 and B are moderate and C has the highest capital cost ▪ A1 and A2 have lowest overall total lifecycle cost, B is moderate and C is the highest ▪ A1, B and C all require land acquisition cost

Water Supply Alternatives Detailed Evaluation: Highest Ranked Alternative - Alternative A2

Evaluation Category	Summary of Evaluation
Natural Environment	A2 (along with A1 and B) ranked highest overall as they have least impact to aquatic/terrestrial vegetation and wildlife, surface water and groundwater resources and greenhouse gas emissions overall.
Social & Cultural	A2 ranked highest overall as construction is confined to existing sites, minimizing short- and long-term impacts, and has no impact to cultural or heritage features.
Jurisdictional /Regulatory	A2 ranked highest overall as it can accommodate potential future changes in drinking water quality requirements, is less challenging to approve than C and does not require land acquisition.
Technical	A2 ranked highest overall as it requires the least amount of construction, maximizing use of existing sites and facilities, minimizes the additional operations and maintenance resources required and avoids traffic impacts to Highway 27 during construction.
Economic	A2 ranked highest overall as it has no land acquisition cost, lowest capital cost and lowest overall lifecycle cost
Overall	**A2 ranked highest overall, ranking 1st in 4 of the 5 evaluation categories and tied with A1 and B in the 5th category.**

Evaluation Process



Water Storage Alternatives Detailed Evaluation

Evaluation Category	Do Nothing: Permit Growth Without Increasing Capacity	Storage A: New Storage Facility (Replace Existing Nobleton South Elevated Tank Storage Facility With Bigger Storage Facility)	Storage B: Increase Overall Well Supply to Avoid New Storage
Natural Environment	🟢	🟢	🟢
Social & Cultural	🟢	🟢	🟢
Jurisdictional /Regulatory	🟡	🟡	🟢
Technical	🔴	🟡	🟢
Economic	🟢	🔴	🟡
Overall Rank	Not Applicable	2	**1**

Evaluation Process

- Long-List of Alternatives
- ↓ Screening Process
- Short-List (Feasible Alternatives)
- ↓ Detailed Evaluation
- Recommended Solution

Scoring Description

- 🟢 Low Impact / Most Preferred
- 🟡 Moderate Impact
- 🔴 Most Impact / Least Preferred

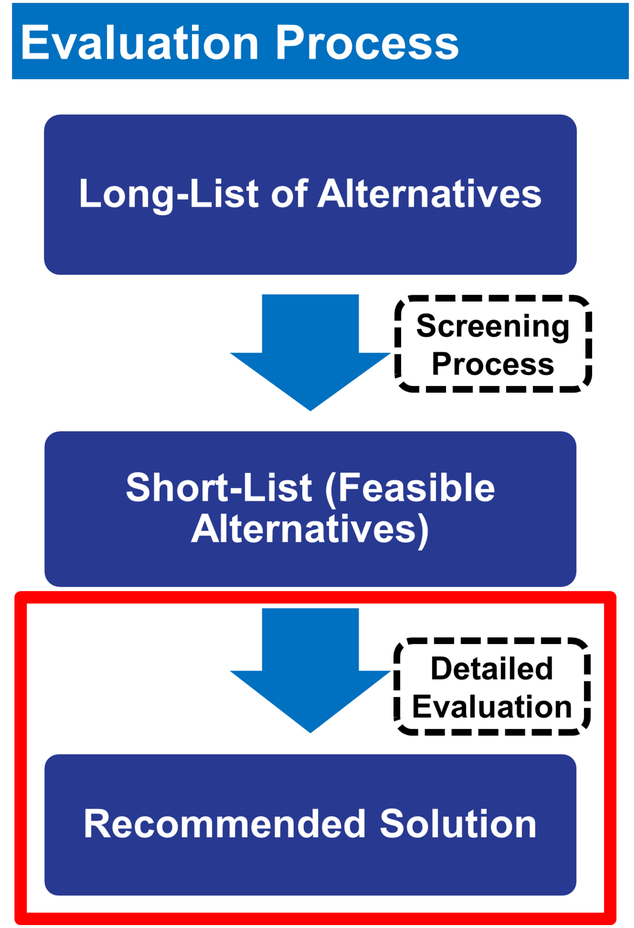
Water Storage Alternatives Detailed Evaluation: Summary of Evaluation

Evaluation Category	Summary of Evaluation
Natural Environment	▪ A and B will have low or no significant impact to vegetation and wildlife, and surface water resources and greenhouse gas emissions ▪ B will require minimally greater use of groundwater resources than A (increase overall well supply versus new storage) but neither has significant impact on existing resources
Social & Cultural	▪ Both will have some short-term impacts during construction (increased traffic, noise, dust), A will have greater impact due to construction of new storage facility ▪ Neither will have significant long-term community impacts or impact to cultural or heritage features
Jurisdictional /Regulatory	▪ Both can accommodate potential future changes in drinking water quality requirements ▪ A requires more approvals than B ▪ A may require some land acquisition
Technical	▪ A requires the most construction ▪ Both provide redundancy, through greater storage (A) and greater supply (B) ▪ Neither has significant impact to operations and maintenance resources required ▪ B maximizes use of existing infrastructure whereas A replaces existing functional storage facility
Economic	▪ A has higher capital and lifecycle cost than B ▪ A may require some land acquisition costs

Water Storage Alternatives Detailed Evaluation: Highest Ranked Alternative - Alternative B

Evaluation Category	Summary of Evaluation
Natural Environment	B and A ranked equally, as neither has significant impact on aquatic/terrestrial vegetation and wildlife, surface water and groundwater resources, or greenhouse gas emissions.
Social & Cultural	B and A ranked equally, with B being marginally better than A due to short-term impacts associated with construction of new tank. Overall, A and B have similarly minimal Social & Cultural impacts.
Jurisdictional /Regulatory	B ranked highest overall with no additional land acquisition and fewer approval requirements.
Technical	B ranked highest overall due to its ability to maximize the use of existing infrastructure while avoiding unnecessary new assets. This results in less construction, minimizing potential impacts.
Economic	B ranked highest overall due to its lower capital, lifecycle and land acquisition costs. B maximizes investment in existing infrastructure (storage facility) while only marginally increasing cost of well supply.
Overall	**B ranked highest overall, ranking 1st in 3 of the 5 evaluation categories and ranking equally to A in the two other categories.**

Evaluation Process



Recommended Water Servicing Solutions

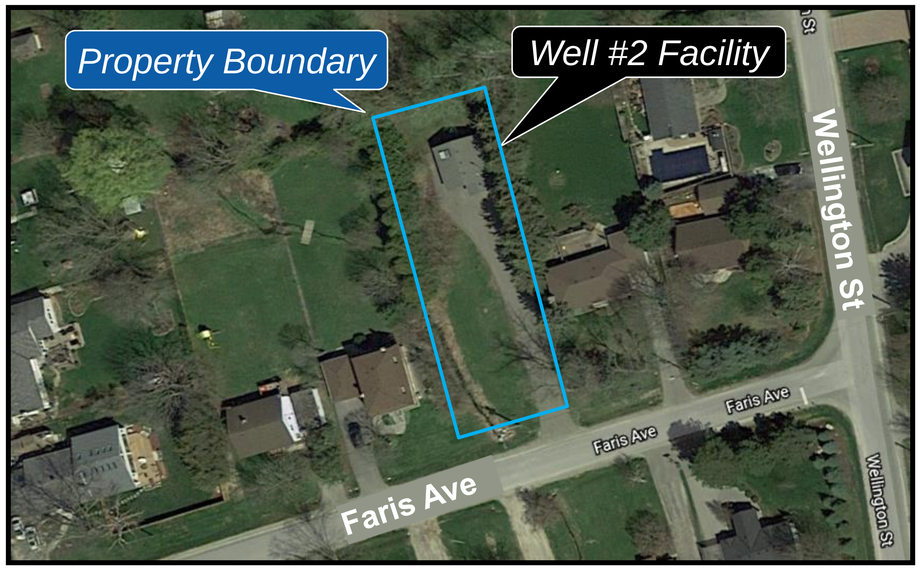
Evaluation has identified the recommended water supply and storage solutions

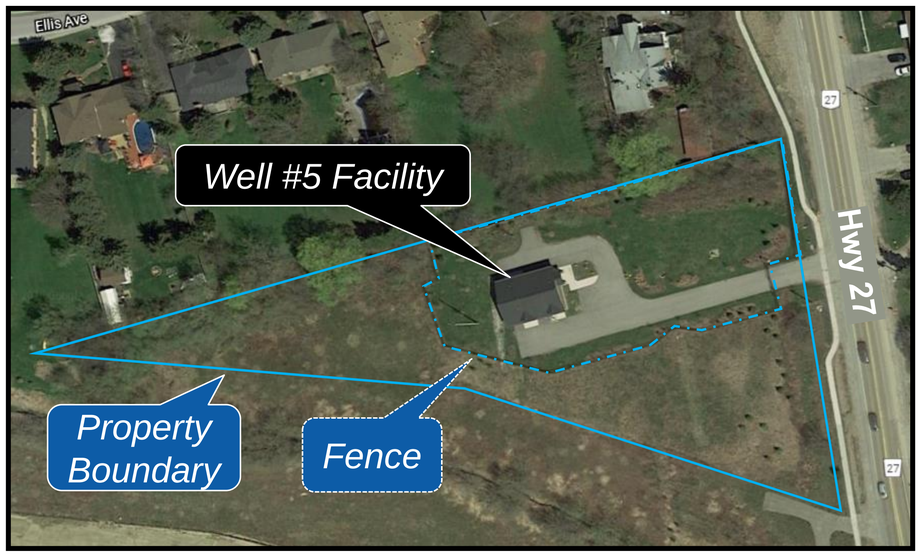
Water Supply Alternative A2

- Increase Capacity at Existing Well #2
  - Upgrades to facility to be confined to existing site
- Add New Well Supply at Site H
  - Located on same site as Existing Well #5

Water Storage Alternative B

- Increase Overall Well Supply to Avoid New Storage





Wastewater Alternatives Detailed Evaluation

Evaluation Category	Do Nothing: Permit Growth Without Increasing Capacity	Wastewater A: Expand and Upgrade the Existing Janet Avenue Pumping Station, Forcemain and Nobleton WRRF and Outfall	Wastewater B: Construct a New Pumping Station, Forcemain and WRRF and Outfall
Natural Environment	🟢	🟢	🟡
Social & Cultural	🟢	🟢	🟡
Jurisdictional /Regulatory	🟡	🟢	🟡
Technical	🔴	🟡	🔴
Economic	🟢	🟢	🟡
Overall Rank	Not Applicable	**1**	2

Evaluation Process

- Long-List of Alternatives
- ↓ Screening Process
- Short-List (Feasible Alternatives)
- ↓ Detailed Evaluation
- Recommended Solution

Scoring Description

- 🟢 Low Impact / Most Preferred
- 🟡 Moderate Impact
- 🔴 Most Impact / Least Preferred

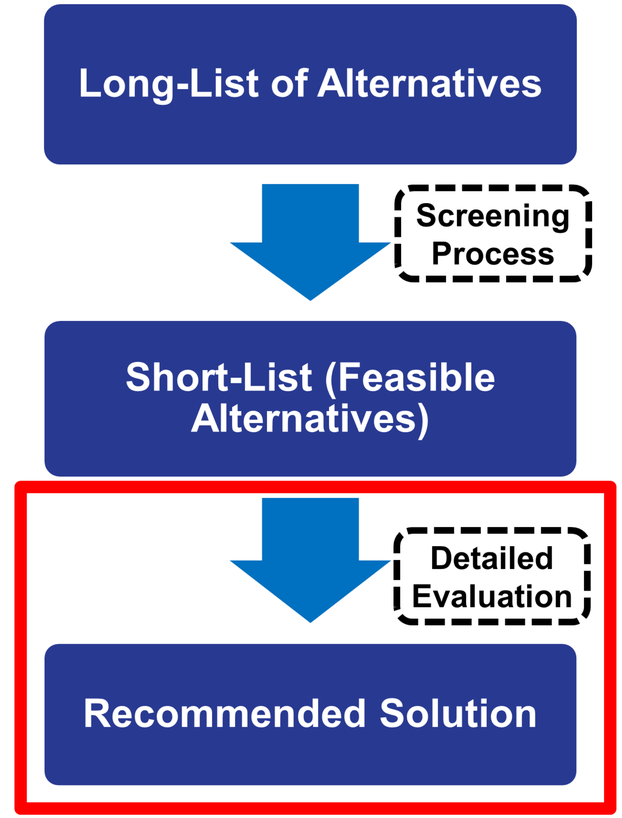
Wastewater Alternatives Detailed Evaluation: Summary of Evaluation

Evaluation Category	Summary of Evaluation
Natural Environment	▪ A is expected to have least impact to vegetation and wildlife as expansion is limited to existing sites and facilities ▪ Neither A or B is expected to impact groundwater resources ▪ A and B could impact surface water resources (discharge to Humber River) but design will mitigate impacts ▪ B will have greater impact on greenhouse gas emissions (operating two new facilities) than A (upgraded facilities)
Social & Cultural	▪ A will have moderate short-term impacts during construction (increased traffic, noise, dust), B will have greater impact ▪ A will have some long-term community impacts (e.g. increase in local traffic for sludge haulage), B will have greater impact (two new facilities) ▪ B requires further investigation on impact to archeological sites and cultural/heritage features
Jurisdictional /Regulatory	▪ Both can accommodate potential future changes in drinking water quality requirements ▪ B requires land acquisition for new facilities, A may require limited additional land ▪ B requires extensive new permits/approvals, A requires some amended and additional permits/approval
Technical	▪ A requires moderate amounts of construction to upgrade/expand, B requires more to build new infrastructure ▪ B provides greater redundancy than A (new facilities and infrastructure vs expanded) ▪ B requires greater additional operations and maintenance resources (expanded facilities require less additional operations and maintenance) ▪ A maximizes use of existing Water Resource Recovery Facility (WRRF) and Pumping Station, B does not
Economic	▪ A has moderate capital, operations and maintenance, lifecycle and land acquisition costs overall ▪ B has high capital, operations and maintenance, lifecyle and land acquisition costs overall

Wastewater Alternatives Detailed Evaluation: Highest Ranked Alternative - Alternative A

Evaluation Category	Summary of Evaluation
Natural Environment	A ranked highest overall as impacts are limited to upgraded existing sites, mitigating impacts to aquatic/terrestrial vegetation and wildlife, as well as greenhouse gas emissions.
Social & Cultural	A ranked highest overall as impacts are limited to upgraded existing sites. This mitigates short-term construction impacts and minimizes potential impacts to archeological sites and cultural/heritage features. No significant long-term impacts expected.
Jurisdictional /Regulatory	A ranked highest as it requires limited land acquisition and fewer permits/approvals.
Technical	A ranked highest overall due to its ability to maximize the use of existing infrastructure and limit additional operations and maintenance resource requirements.
Economic	A ranked highest overall due to its lower capital, lifecycle and land acquisition costs.
Overall	**A ranked highest overall, ranking 1st in 5 of the 5 evaluation categories.**

Evaluation Process



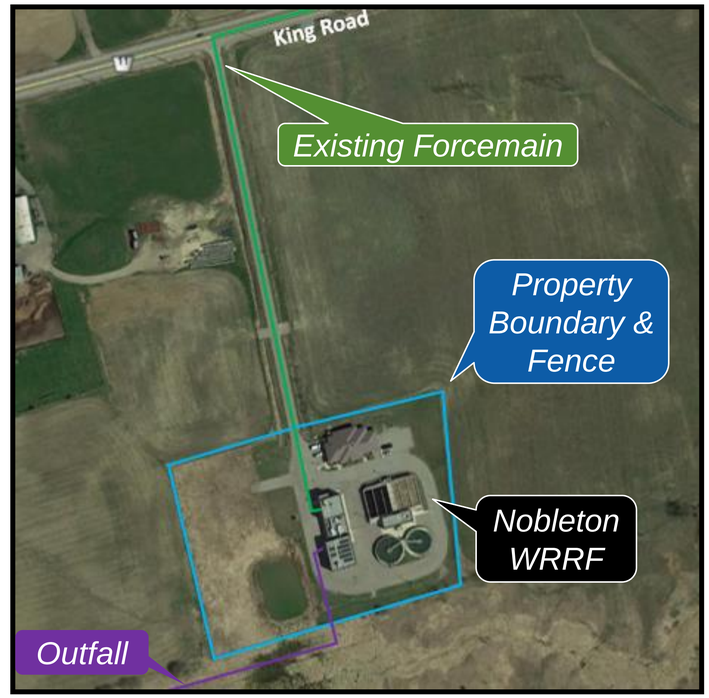
Recommended Wastewater Servicing Solution

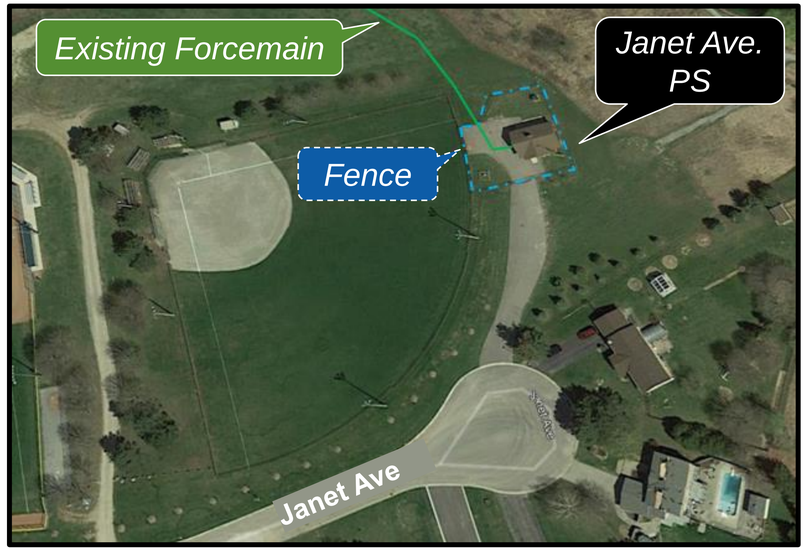
Evaluation has identified the recommended wastewater servicing solution

Wastewater Servicing Alternative A

- Expand and Upgrade the Existing Nobleton Water Resource Recovery Facility (WRRF) and outfall
  - Facility upgrades to be confined to existing site

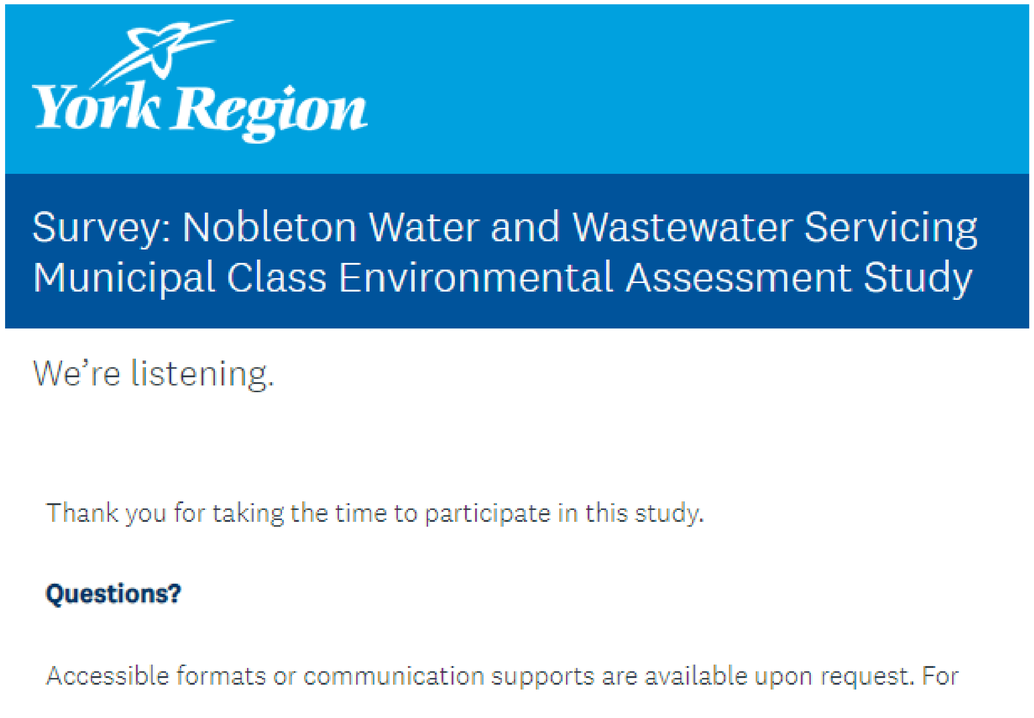
- Expand and Upgrade the Existing Janet Avenue Pumping Station and forcemain
  - Located on same site as existing Janet Avenue Pumping Station
  - Forcemain to be twinned or replaced from Janet Pumping Station to Nobleton WRRF





What's Next? Share your thoughts – we're listening.

- To provide your feedback, complete the survey. Survey can be accessed at **york.ca/nobletonea.**
- Stay informed and sign up for project updates by visiting our project webpage **york.ca/nobletonea.**
- Please complete the survey by **Friday December 11th, 2020.**


York Region

Survey: Nobleton Water and Wastewater Servicing Municipal Class Environmental Assessment Study

We're listening.

Thank you for taking the time to participate in this study.

Questions?

Accessible formats or communication supports are available upon request. For

What's Next? Share your thoughts – we're listening.

Please contact us if you are unable to access the online survey.

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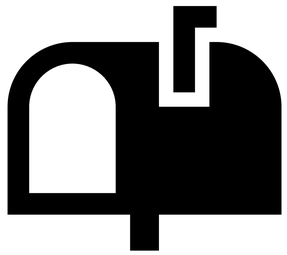

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