New Alliston Production Well Class Environmental Assessment Study
Town of New Tecumseth
Online Public Information Centre Presentation Transcript
September 30, 2020

Slide 1 – Title Slide

Hello and welcome to the Public Information Centre for the New Alliston Production Well Class Environmental Assessment Study (Class EA). Thank you for joining this online meeting. My name is Ivy Nool and I will be presenting on behalf of CIMA+ and the Town of New Tecumseth (The Town). CIMA+ is the consultant selected by the Town to complete the Class Environmental Assessment Study for this project, also referred to as a Class EA study.

Slide 2 – Why are we Here?

Public consultation and engagement are integral to Municipal Class EA studies. Accordingly, this Public Information Centre, referred to as a PIC, is being held to provide the public with opportunities to learn more about the Municipal Class Environmental Assessment Process that has been followed for this project. We will review the results of the activities completed to date, the preliminary preferred solution being recommended, and outline how you can provide your feedback on the information presented and stay informed and involved.

This video presentation will describe the key activities, results and recommendations being made by this Class EA study. Comments, questions or general feedback can be provided by emailing the Project team members listed on the project website.

Slide 3 – What is the Purpose of this Class Environmental Assessment Study?

The purpose of this Class EA study is to:

- To determine the preferred water supply servicing solution to increase the existing groundwater supply capacity, in order to meet the projected water demands for the Municipality to horizon year 2031; and,
- To select a recommended solution that minimizes impacts on the natural and socio-cultural environments and has regards to technical, operational and financial implications.

Slide 4 - Overview of the Municipal Class EA Process and Consultation

The Municipal Class EA Process in this study incorporates four successive phases:

Phase 1 involved identification of the problem/opportunity statement. A Notice of Commencement was issued in March 2018 advising the start of the project.

Phase 2 involved completion of a groundwater exploration program that took place between 2018 and 2019, preliminary hydrogeological testing completed in 2020, development and evaluation of alternative solutions, identification of the preliminary preferred recommended solution, and Public Consultation. We are currently in the last stages of Phase 2, where consultation with the public takes place to solicit comments and input. Phase 2 concludes with confirmation of the preliminary preferred solution being recommended, after input and comments received from this online PIC are considered.

After completion of Phases 1 & 2, a Class EA Report will be prepared to document the decision-making process, findings and recommendations of the study. The Class EA Report will be made available for public review. A Notice of Completion will be issued to advise that the Class EA Report has been posted on the Project Webpage for public record for the set duration of time. The Notice of Completion is planned to be issued by Fall 2020.

Following approval of recommendations outlined in the Class EA Report, the project will proceed to the final phase of the study, which involves Detailed Design and Construction.

Slide 5 – Project Background – Town of New Tecumseth Master Plan

The primary source of supply to the Alliston Drinking Water System is a single transmission watermain from the Town of Collingwood and complemented by seven municipal groundwater wells in Alliston. The single transmission main from the Town of Collingwood introduces concerns about the security of supply.

The 2016 Water Supply, Distribution and Storage Master Plan identified the preferred water servicing strategy to accommodate the current and long-term growth needs in the Municipality to horizon year 2031.

Increasing the existing groundwater supply capacity was identified as one of the highest priorities of the servicing approach in the 2016 Master Plan, to address supply security concerns and to accommodate planned growth.

The graphic in this slide corresponds to the cover page of the 2016 Water Supply, Distribution and Storage Master Plan document, prepared by the Town in 2016.

Slide 6 – Existing Alliston Drinking Water System

The Alliston Drinking Water System supplies drinking water to the communities of Alliston and Beeton.

The Alliston Drinking Water System is serviced primarily by a transmission main from the Town of Collingwood and supplemented by a municipal groundwater system. The groundwater system consists of:

- Seven (7) groundwater wells, including Well No.1, 4, 5, 6, 7, 8 and Hillcrest well. However, the existing Hillcrest well is currently not operational.
- Four in-ground reservoirs and Booster Pumping Stations, including the Parsons Road Reservoir and Booster Pumping Station, the Mowder Boulevard Reservoir and Booster Pumping Stations, the McKelvey Reservoir and Booster Pumping Stations, and the Springs Reservoir,
- The Alliston Elevated Water Storage Tank; and,
- The Earl Rowe Park re-chlorination facility.

Slide 7 – Supply Capacity Requirements

The total supply capacity of the existing drinking water system is 39,976 m^3/day. This includes existing capacity from the existing Alliston and Tottenham municipal supply wells, and the projected allocation from the Town of Collingwood supply pipeline to 2030.

The Town of New Tecumseth has an existing agreement with the Townships of Clearview and Essa for a supply capacity allocation of 750 m^3/day. This agreed allocation results in a reduction of the available supply capacity to 39,226 m^3/day. Based on the planning projections and water demands for the Municipality, an additional water supply of approximately 3,900 m^3/day is needed to meet the water demands for the existing serviced population and the projected growth.

This Class EA study will identify the preferred water supply servicing solution in a way that is reliable, sustainable and environmentally and financially responsible.

The table in this slide shows how the supply capacity in the system is calculated, accounting for existing supply sources and the supply agreement to the Townships of Clearview and Essa.

The graphic in this slide shows the system supply capacity versus the projected supply requirements between 2018 and 2031, and shows graphically, the projected water supply deficit of approximately 3,900 m^3/day, in the Town to meet the projected water demands of approved growth to 2031.

Slide 8 – Selecting the Preferred Water Supply Solution – The Process

A systematic evaluation process was used in the selection of the preliminary preferred water supply solution. The evaluation process includes 3 sequential steps:

Step 1. Identify and Screen Alternative Servicing Solutions. Available alternative solutions were identified and screened based on the potential to provide the supply capacity requirements and implementation viability. Alternatives that were not considered feasible were eliminated. The results of this first step identified “Construction of new production wells” as the most viable alternative solution to carry forward for detailed evaluation.

Step 2. Develop and Evaluate Feasible Alternative Solutions. A groundwater exploration program was undertaken to find new supply wells. Two (2) sites were identified as potential locations for new wells, and preliminary testing was completed at both sites. Based on the results of the preliminary testing, four (4) implementation options were developed. The implementation options were further assessed and subjected to a detailed evaluation that included natural environmental, technical and operational, socio-cultural, and economic considerations. The implementation option with the overall best score is being recommended as the preliminary preferred water supply servicing solution for this Class EA Study.

Step 3. Select and Recommend the Preliminary Preferred Solution. This is the final step in the selection process which entails confirmation of the recommended preliminary preferred water supply solution with input from the public and review agencies.

Slide 9 – Selecting the Preferred Water Supply Solution – Detailed Evaluation Criteria

Detailed Evaluation Criteria were developed and used in the assessment of the four (4) implementation options. Four (4) main criteria categories were identified to include Socio-cultural considerations, Natural Environmental, Technical and Operational considerations and Economics. Due to the nature of this project and the implementation options under consideration, the natural environmental and technical and operational categories were each assigned a weighting factor of 30% within the evaluation scheme. The socio-cultural and economic categories were each assigned a weighing factor of 20% within the evaluation scheme.

Specific factors were considered within each of the four (4) criteria categories.

Factors related to the Socio-cultural criteria included Public Health and Safety, Public Perception, Construction Impacts, Aesthetic and Operational Impacts, Land Use and Property Acquisition.

Factors related to the Natural Environmental criteria included Water Quality/ Quantity, Water Resources, Natural Environmental Features and Regulated Areas,

Archaeological and Cultural Heritage Resources, Climate Change, and Source Water Protection.

Factors related to the Technical & Operational criteria included System Security, Ease of Implementation, Operational Complexity, System Redundancy and Flexibility, and Regulatory Approvals.

Finally, cost per m^3 of water produced based on life cycle costs derived from capital, installation and operation and maintenance costs, were considered as part of the Economic criteria.

Slide 10 – Groundwater Exploration and Testing Program – Key Findings

Consistent with the recommendations of the 2016 Master Plan, a groundwater exploration and testing program was completed to identify suitable locations for new production supply wells within the project study area.

A total of 19 test drilling sites were identified and ranked in order of drilling sequence. The overall geographic location of each site is shown on an aerial map in this slide. The sites proposed for drilling were prioritized based on potential yield, water quality, proximity to sensitive features, accessibility, need for property acquisition, constructability and integration, and protection to the natural environment.

The groundwater exploration program was planned to proceed as a phased approach. Phases 1 and 2 were completed between 2018 and 2019 and involved the drilling of 13 test holes and implementation of 5 monitoring wells and 1 test well. Well performance tests, and water sample analysis revealed unfavorable aquifer conditions in all test wells.

The findings of the groundwater exploration program recommended to further explore the existing Hillcrest municipal well (which is currently not operational) and a Test Well previously drilled in 1993. The test well, referred to as TW1-93, is located at the Community Living Association for South Simcoe property, referred to herein as the CLASS site.

Step testing at the existing Hillcrest well and Test Well TW1-93, at the CLASS site, were carried out as Phase 3 in 2020. Some pictures taken during the step testing at both the sites are presented on this slide.

The Hillcrest well is 62 years old and has not been supplying to the Alliston Drinking Water system due to pressure constraints. This well has a valid Permit to Take Water for 821 m^3/day. The step testing at this well confirmed well yield and water quality. A new production well on site could potentially produce approximately 1,640 m^3/day or the equivalent to 19 Litres/second.

The Test Well TW1-93 on CLASS site is 27 years old and was developed as a test well. The step testing confirmed well yield and acceptable water quality. A new production

well in the vicinity could potentially produce approximately 1,295 m^3/day or the equivalent to 15 Litres/second.

The findings and recommendations of the groundwater exploration and testing program were considered during the assessment of alternative supply options evaluated in this Class EA study.

Slide 11 – List of Servicing Alternatives and Screening Results

The water servicing alternatives considered in Step 1 of the selection process included:

1. Do Nothing,
2. Limit Growth,
3. Reduce Water Demands Through Conservation Measures,

4.a) Construct New Groundwater Production Well at New Site,

4.b) Construct New Groundwater Production Well at Existing Site,

4.c) Connect to an Existing Water System (for example, potential connection to systems in the City of Barrie, the Town of Innisfil or the Town of Bradford West Gwillimbury),

5. Increase Town of Collingwood Pipeline Supply Capacity,

6. Expand, Upgrade, Optimize Existing Groundwater System; and,

7. Construct a New Surface Water Treatment System.

The preliminary screening identified Alternative 4.a) – Construct New Groundwater Production Well at a New Site, and Alternative 4.b) Construct New Groundwater Production Well at an Existing Site to be short-listed and to be carried forward for further evaluation.

The Reduce Water Demands and the Optimize the Existing Groundwater System alternatives on their own, cannot provide the required supply servicing needs, so they are not recommended as a stand-alone solution but can be considered in combination with the preferred solution.

Similarly, the Increase the Town of Collingwood Pipeline Supply Capacity alternative is not recommended as a stand-alone solution since it does not address the current concerns with the security of supply, but can be considered in combination with the preferred solution and discussions with the Town of Collingwood.

The other alternatives were eliminated from further consideration as they failed to provide the future supply servicing needs, and the increased complexity and economics when compared to the other alternative solutions.

Slide 12 – Implementation Options to Short-listed Alternatives

The results from Preliminary Screening and the Groundwater Exploration and Testing Program identified 2 Alternatives for further exploration, which include:

- Construct new groundwater production well at a New Site (the TW1-93 Site); and,
- Construct new groundwater production well at the Existing Site (the Hillcrest Site)

The overall geographic location of both Hillcrest and CLASS (TW1-93) Sites is shown on an aerial map in this slide.

Four (4) potential options were developed for the implementation of the short-listed alternative solutions. Since there is an existing permitted municipal production well at the Hillcrest site, some implementation options include to continue using the existing supply well, with the necessary upgrades.

Conceptual layouts developed for each implementation option are presented in the next four (4) slides.

Slide 13 – Option 1a: Use Existing Hillcrest well and Retrofit Existing Building

Aerial map for Option 1a at the Hillcrest site is presented, showing the preliminary conceptual layout developed for the option.

A preliminary conceptual layout of the key proposed infrastructure required for Option 1a is presented to show the overall location of the existing pump house and treatment facility, existing in-ground reservoir, existing watermain, as well as an approximate footprint and location of the required infrastructure for the option.

The key components for Option 1a include, using the existing Hillcrest well and replacing the well pump; expansion of the existing treatment building to accommodate the required new electrical equipment; upgrading the existing pumping and treatment equipment; installation of a new chlorine contact chamber; removal of the existing underground reservoir; and, installation of a new emergency standby generator.

Slide 14 - Option 1b: Use Existing Hillcrest well and New Treatment Building

Aerial map for Option 1b at the Hillcrest site is presented, showing the preliminary conceptual layout developed for the option.

A preliminary conceptual layout of the key proposed infrastructure required for Option 1b is presented to show the overall location of the existing pump house and treatment facility, existing in-ground reservoir, existing watermain, as well as an approximate footprint and location of the required infrastructure for the option.

The key components for Option 1b include, using the existing Hillcrest well and replacing the well pump; removal of the existing treatment facility, building a new treatment facility onsite, installation of a new chlorine contact chamber; removal of the existing underground reservoir; installation of a new emergency standby generator; and, installation of new watermain connections from the distribution system on George Street to the new building.

Slide 15 – Option 2: Use Existing Hillcrest Well, New Treatment Building and Additional New Production Well onsite

Aerial map for Option 2 at the Hillcrest site is presented, showing the preliminary conceptual layout developed for the option.

A preliminary conceptual layout of the key proposed infrastructure required for Option 2 is presented to show the overall location of the existing pump house and treatment facility, existing in-ground reservoir, existing watermain, as well as an approximate footprint and location of the required infrastructure for the option.

The key components for Option 2 include, using existing Hillcrest well and replacing the well pump; development of a new production well onsite; removal of the existing treatment facility; building a new treatment facility; installation of a new chlorine contact chamber; removal of the existing underground reservoir, installation of a new emergency standby generator; and, installation of new watermain connections from the distribution system on George Street to the new building. The exact location of the new production well will be confirmed during detailed design.

Slide 16 - Option 3 – New Well (adjacent to TW1-93 on CLASS Site) and New Treatment Building

Aerial map for Option 3, adjacent to the CLASS site is presented, showing the preliminary conceptual layout developed for the option.

A preliminary conceptual layout of the key proposed infrastructure required for Option 3 is presented to show the overall location of the existing pumping station to the west of Church Street South and the approximate footprint and location of the required infrastructure for the option.

The key components for Option 3 include, development of new production well on municipally owned land, to be located adjacent to existing Test Well TW1-93, building a new treatment facility on a separate site; installation of a new chlorine contact chamber; installation of a new emergency standby generator; and installation of new watermain connections from the distribution system on Church Street South to the new building. The proposed site for the new building is currently a municipal site, housing a pumping station and related equipment. The exact location of the new production well will be confirmed during detailed design.

Slide 17 – Detailed Evaluation Results

The four (4) implementation options were further evaluated on a comparative basis and based on a set of specific considerations within the Natural Environmental, Technical & Operational, Socio-Cultural, and Economic criteria. Each of the primary evaluation categories was further subdivided into specific considerations or criteria, as previously discussed in Slide 9.

This slide shows the detailed evaluation results of the implementation options developed for the short-listed alternatives from the preliminary screening. Each option under evaluation was assigned a score from 1 to 5, with the higher score of 5 given to the better performing options. Total scores were calculated with consideration to the individual scores assigned for each category and the respective weighting factors. The total score achieved by each option is shown.

The detailed evaluation results show that Option 2 achieved the highest score of 89 out of 100. Option 2 provides the highest additional supply needs and the lowest costs for each m^3 of treated water (based on the life cycle cost and estimated potential pumping capacity of 19 Litres per second). There are some anticipated short-term impacts on sensitive receptors from dust, noise, vibration due to construction of the new treatment building and production well onsite; however, available mitigation measures will be implemented to reduce or minimize such impacts.

Please review the detailed evaluation of each option presented on this slide. Feel free to contact the project team if you have any questions, comments or suggestions related to this aspect.

Slide 18 – Preliminary Preferred Solution – Option 2

Based on the detailed evaluation results, Option 2 - Use the Existing Hillcrest Well, Build a New Treatment Building and a New Production Well onsite obtained the highest score and is being recommended as the Preliminary Preferred Solution.

There are some key advantages associated with the implementation of this option, which include the following:

- The new production well, to be developed at the Hillcrest site, is expected to contribute about 40% of the projected water supply deficit. The exact location of the new production well will be identified during the detailed design.
- This option provides the lowest overall cost per m^3 of treated water.
- The existing Hillcrest well in addition to the new production well will provide redundancy in supply, with each of the wells acting as a back up well.

- The new infrastructure will provide treatment and operational flexibility, while the configuration and layout of the new treatment facility will provide safe clearances for access, operation and maintenance activities.

- The new treatment building will be designed to improve the aesthetic appearance of existing building, either by traditional construction methods or by installation of a prefabricated facility. The preferred construction method will be determined during the detailed design stage.

The graphic in this slide shows the aerial map of the Hillcrest site with a preliminary conceptual layout of the existing and the proposed new infrastructure for the preliminary preferred solution, Option 2.

Slide 19 – Overview of Mitigation Measures

As with any other construction project, the Town recognizes that there will be impacts to the environment as a result of the proposed works. Health and safety are a priority to the Town, and all construction activities will adhere to strict safety guidelines.

Mitigation measures will be implemented to reduce and/or minimize the anticipated impacts from the project. Temporary measures, including construction walls or fencing around construction areas, will be undertaken during construction for safety and to minimize potential short-term construction impacts. Visual disturbances will be mitigated through the architectural design of the new treatment facility and landscape improvements. Communication and notification to area residents and adjacent property owners will be carried out in advance of construction.

Consultation and coordination with pertinent regulatory agencies will be undertaken to secure Permit to Take Water for new production well at the Hillcrest site. Coordination with utility providers will be maintained for the necessary relocation of existing Hydro pole onsite and other required electrical upgrades.

Please review the anticipated impacts and mitigation measures on these slides. Feel free to contact the project team if you have any questions, comments or suggestions related to this aspect.

Slide 20 – Proposed Project Implementation

The anticipated project timeline for the Class EA Study and implementation of the preferred water supply servicing solution includes:

- Planning (Environmental Assessment) to be completed by Q3/Q4 of 2020

- Detailed design and approvals to be completed by Q1/Q2 of 2021

- Construction to be completed by Q3/Q4 of 2021

Slide 21 – Thank you for Participating! Please Stay Engaged

The next steps for the Project Team will be to:

- Review and consider public input received during this Public Information Centre
- Confirm the preferred recommended solution to increase the groundwater supply capacity for the Alliston Drinking Water System
- Prepare the Class EA Report documenting the decision-making process and recommendations
- Issue the Notice of Study Completion
- File the Class EA Report on the public record for a public review.

We encourage you to review all PIC material available on our webpage: www.newtecumseth.ca/newproductionwell.

Please submit any Questions, Comments or Suggestions that you may have by email as listed on this slide, on or before Friday, October 23rd, 2020.

On behalf of the entire Project Team, thank you for your interest in this Project and for participating in this online PIC.