

Appendix F

Consultation Summary Report



Water Supply Master Plan Update

Engagement Summary Report

City of Guelph

60612820

July 2022

Water Supply Master Plan Update -Engagement Summary Report

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Water Supply Master Plan Update -Engagement Summary Report

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Water Supply Master Plan Update -Engagement Summary Report

Executive Summary

The City of Guelph (City) is updating its 2014 Council-approved Water Supply Master Plan to define how Guelph will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2051¹. The Water Supply Master Plan Update follows the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment process and will be co-ordinated with the City's future Official Plan update.

Reviewing the existing water supply system is an opportunity to discuss with Guelph and the surrounding communities how best to work with this vital supply so that the City continues to provide a responsible level of service into the future.

This report provides an overview of engagement activities and summarizes feedback received during Phase 1 and Phase 2 of the Water Supply Master Plan Update.

Phase 1

Phase 1 engagement took place between October 2019 and March 2020 and included

- newspaper advertising and electronic mailings to inform people about the start of the Water Supply Master Plan Update and the first community open house;
- a project website to provide useful information, including links to the previous 2014 Water Supply Master Plan Update, contact information and invitations to online and in-person engagement opportunities;
- online engagement through the City's online community engagement site, Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list, social media and a monthly Have Your Say newsletter;
- establishment of a Community Liaison Group to advise and provide feedback to the Project Team throughout the process;

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^{1.} As of August 2020, Ontario has consulted on a proposed amendment to A Place to Grow: Growth Plan for the Greater Golden Horseshoe that extended the 2041 planning horizon to 2051.

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- a municipal and agency workshop to provide crucial inputs from a government and approval agency perspective;
- one community open house (with two time slots) to introduce the Water Supply Master Plan Update, giving community members an opportunity to discuss the project with a unique knowledge holder from the Project Team, and provide comments;
- one stakeholder meeting with Guelph Wellington Development
 Association and Guelph and District Home Builder's Association; and
- co-ordination with other related master plan updates (i.e., Water and Wastewater Servicing Master Plan, Wastewater and Biosolids Master Plan, Stormwater Master Plan and the Municipal Comprehensive Review / Official Plan Update).

Topics covered and presented to the community during Phase 1 engagement included

- an overview of why the Water Supply Master Plan is being updated, including a draft problem and opportunity statement;
- an overview of the Municipal Class Environmental Assessment process, including a timeline of major milestones;
- the Water Supply Master Plan Update steps including forecast of future population and water needs, assess existing water supply capacity, develop and evaluate water supply alternatives and update the Water Supply Master Plan);
- the personhood of water as it is understood in the worldview of Indigenous Peoples residing in the Guelph area;
- a closer look at Guelph's current groundwater supply system;
- estimates of our future water supply requirements i.e., how Guelph's population is expected to grow by 2041² and the water supply it will need;
- challenges related to the City's water supply, including water security, climate change and extreme weather events, contaminated sites and surface water quantity and quality;

^{2.} Population projections changed in the middle of the project to 2051 (30 years). In August 2020, the Province of Ontario provided updated population forecasts for the City of Guelph to 2051.

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- proposed water supply alternative solutions being considered and / or updated, including demand management, efficiency and water reuse programs, groundwater sources in and outside of the city, local surface water sources, and do nothing;
- evaluation criteria and how the proposed alternative solutions will be evaluated, including public health and safety, natural environment, social and cultural resources, economic and financial considerations, legal / jurisdictional considerations and technological considerations;
- other water-related master planning projects that are currently underway at the City; and
- ways to get involved and contact information.

Guided by a series of engagement questions, the community provided their input to the project. Key themes that emerged from the feedback included

- prioritizing conservation;
- protecting the natural environment;
- managing growth and development;
- controlling groundwater impacts from large water users;
- monitoring emerging contaminants;
- limiting impacts to aquatic and terrestrial wildlife; and
- valuing the agency of water.

Phase 2

Phase 2 engagement took place between March 2020 and October 2021 and included

- updating the project website to provide useful information, including links to the previous 2014 Water Supply Master Plan Update, contact information and invitations to online and in-person engagement opportunities, and details regarding the second open house;
- online engagement through Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list and social media;
- the second and third Community Liaison Group workshops to continue updating interested stakeholders and collecting feedback;

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- the second municipal and agency workshop to provide crucial inputs from a government and approval agency perspective;
- newspaper advertising and electronic mailings to invite participation in the second community open house;
- the second community open house (held virtually) to provide an update on work completed to date for the Water Supply Master Plan Update, giving community members an opportunity to discuss the project with the Project Team and provide comments;
- one meeting with Mississaugas of the Credit First Nation;
- one meeting with Six Nations of the Grand River;
- meetings held with the Councils of the Township of Puslinch and Township of Guelph Eramosa; and
- co-ordination with other related master plan updates (i.e., Water and Wastewater Servicing Master Plan, Wastewater and Biosolids Master Plan, Stormwater Master Plan and the Municipal Comprehensive Review / Official Plan Update).

Topics covered and presented to the community during Phase 2 engagement included

- a review of Phase 1 topics;
- a detailed review of Guelph's existing water supply (namely the 25 production wells, the Arkell Spring Grounds and the Eramosa River intake and recharge system);
- reviewing the water supply requirements to accommodate the 2051 population and water demand projection based on average day demand, maximum day demand and system redundancy;
- a detailed assessment of the water supply alternatives (water conservation, efficiency and water reuse programs; optimizing and expanding on existing groundwater systems; establishing new surface water supply sources; and limiting population growth / doing nothing); and
- the preliminary results of the water supply alternatives evaluation.

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Public and agency input was focused on the preferred alternatives based off of the preliminary evaluation. Key themes that emerged from the feedback included

- enhancing conservation efforts and options including water taking limitations, grey water usage, increased water recycling programs, and addressing non-revenue water leakage;
- concerns regarding the viability of returning wells impacted by contamination to service, and related safety precautions;
- the need for ongoing protection of water quality throughout the revitalization of the Dolime Quarry;
- the recommendation to consider climate change impacts in the assessment of water supply alternatives;
- general support for the preferred alternative, with some questions and concerns regarding the implementation timelines and the prioritization of the water supply alternatives; and
- jurisdictional concerns regarding source protection and the installation of wells outside of the City of Guelph and the need for ongoing cooperation and consultation efforts with surrounding Townships to ensure any water taking is reasonable, fairly considered and, where appropriate, fairly compensated.

After input was received, the Water Supply Master Plan Update report was drafted and included an implementation strategy for a water supply plan that meets the future needs of the community, including estimated timelines and budget.

90-Day Review

The 90-day public review took place between January 10, 2022 and April 10, 2022 and included

- updating the project website to provide latest updates, access to the Draft Final Water Supply Master Plan, relevant resources and contact information;
- online engagement through Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list and social media;
- newspaper advertising and electronic mailings to invite participation in the review period;

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- four meetings with the representatives from the Township of Puslinch, Township of Guelph/Eramosa and County of Wellington; and
- a meeting with Ministry of the Environment, Conservation and Parks.

Topics addressed during the 90-day review included

- reviewing and discussing the Draft Final Water Supply Master Plan update report;
- ensuring adequate water supply for the City and adjacent Townships;
- ensuring enough water to allow for growth both within the City and the Townships, including allowances for population growth and new industry and employment opportunity considerations;
- reviewing required approvals for water taking by industries;
- ensuring key areas where water might be taken are/will be protected, at both new and existing wellheads;
- clarification of when Wellhead Protection Area modeling should be performed;
- the recommendation to continue utilizing and improving conservation, efficiency and demand management programs to meet and surpass targets;
- the recommendation to consider climate change specifically as it impacts agriculture;
- jurisdictional concerns regarding source protection and the installation of wells outside of the City of Guelph; and
- continuing cooperation and consultation efforts with surrounding Townships/County and establishment of a regional water management framework.

Next steps

The final Master Plan was updated to incorporate the comments that were received during the review period. The report was considered by the Committee of the Whole on June 13, 2022 and approved by Council on June 27, 2022. The final report was then posted to the City website.

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- Wellington Source Water Protection Comments
- RJ Burnside and Associates Comment Memorandum
- Harden Environmental Services Comment Memorandum
- City Response to Wellington County, Puslinch Township and Guelph Eramosa Township - Cover Letter
- City Response to Wellington County, Puslinch Township and Guelph Eramosa Township - Memorandum

90-Day WSMP review documentation

- Hydro One Review Comments
- Wellington Federation of Agriculture Review Comments
- Ministry of the Environment, Conservation and Parks Review Comments
- City Response to the Ministry of the Environment,
 Conservation and Parks Cover Letter
- City Response to Ministry of the Environment,
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- Ministry of Heritage, Sport, Tourism and Culture Industries Review Comments
- Township of Puslinch Resolution April 2022
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- Response to Township of Puslinch Cover Letter
- Response to Township of Puslinch Memorandum
- Township of Guelph / Eramosa Review Comments
- Township of Guelph/Eramosa Resolution April 2022
- City Response to Township of Guelph / Eramosa Cover Letter
- City Response to Township of Guelph / Eramosa -Memorandum

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Appendix B. Notices of commencement and completion

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- Guelph Wellington Development Association and Guelph and District Home Builders' Association minutes
- Our Community, Our Water open house display board
- Water Conservation and Efficiency Public Advisory Committee 2020 presentation
- Water Conservation and Efficiency Public Advisory Committee 2020 minutes
- Water Conservation and Efficiency Public Advisory Committee 2021 presentation
- Water Conservation and Efficiency Public Advisory Committee 2021 minutes
- Township of Puslinch presentation 2019
- Township of Puslinch Council presentation 2021
- Township of Puslinch Council resolution 2021

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- Township of Guelph/Eramosa Council presentation 2021
- Township of Guelph/Eramosa Council resolution 2021
- County, Township, and City Meeting #1 Meeting Minutes
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- County, Township, and City Meeting #2 Wellington County Official Plan Review Presentation
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- Six Nations of the Grand River meeting #1 minutes

1. Overview

The City is updating its Council-approved Water Supply Master Plan, from 2014, to define how Guelph will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2051. Reviewing the existing water supply system is an opportunity to discuss with Guelph and the surrounding communities how best to work with this vital supply so that the City continues to provide a responsible level of service.

As currently proposed, the updated Water Supply Master Plan will provide short-term, mid-term and long-term water supply options to ensure the City can continue to meet the needs of Guelph's growing population. When the updated Water Supply Master Plan is reviewed by the Guelph community and Council, constraints and opportunities related to the existing water supply system will have been identified. There will also be an evaluation and prioritization of individual projects to increase the capacity of the City's existing system. The Water Supply Master Plan Update follows the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment in accordance with Approach #1 of the Master Plan Process described in the Municipal Class Environmental Assessment Manual (amended in 2015) by the Municipal Engineers Association. The Water Supply Master Plan Update will be updated at approximately five-year intervals. This Update, initiated in 2019, will be co-ordinated with the City's future Official Plan update and will contain plans for development of individual projects consisting of Schedule A, B and C Class Environmental Assessment activities.

Community input is an essential part of the Water Supply Master Plan Update process. People care about where their water comes from, and they want to see a safe and sustainable supply maintained for present and future generations, and residents, councils, agencies, stakeholders and Indigenous Peoples from Guelph and the surrounding Townships and County were engaged throughout the project. This report provides a summary of the engagement process and the feedback received for the Water Supply Master Plan Update.

With this in mind, Phase 1 engagement activities included

 newspaper advertising and electronic mailing to inform people about the start of the Water Supply Master Plan Update;

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- a project website to provide useful information, including links to the previous 2014 Water Supply Master Plan Update, contact information and invitations to online and in-person engagement opportunities;
- online engagement through the City's online community engagement site, Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list, social media and a monthly Have Your Say newsletter;
- establishment of an inclusive and diverse Community Liaison Group to advise and provide feedback to the Project Team throughout the process;
- a municipal and agency workshop to provide crucial inputs from a government and approval agency perspective;
- electronic mailing, newspaper and community-wide advertising about the first community open house;
- one community open house (with two time slots) to introduce the Water Supply Master Plan Update, giving community members an opportunity to discuss the project with experts and provide comments;
- one stakeholder meeting with Guelph Wellington Development Association and Guelph and District Home Builder's Association; and
- co-ordination with other related master plan updates (i.e., Water and Wastewater Servicing Master Plan, Wastewater and Biosolids Master Plan, Stormwater Master Plan and the Municipal Comprehensive Review / Official Plan Update).

Phase 2 engagement activities included

- continued update of the project website to provide useful information, including links to key documents, contact information and invitations to online engagement opportunities;
- online engagement through the City's online community engagement site, Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list, social media and a monthly Have Your Say newsletter;
- the second and third Community Liaison Group workshops to continue updating interested stakeholders and collecting feedback;

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- a second municipal and agency workshop to share an update of the project, and collect additional inputs from the government and approval agency perspective;
- two meetings with the Water Conservation and Efficiency Public Advisory Committee
- one meeting with Mississaugas of the Credit First Nation;
- one meeting with Six Nations of the Grand River;
- meetings held with Councils of the Township of Puslinch and Township of Guelph Eramosa; and
- co-ordination other related master plan updates (i.e., Water and Wastewater Servicing Master Plan, Wastewater and Biosolids Master Plan, Stormwater Master Plan and the Municipal Comprehensive Review / Official Plan Update).

90-day review engagement activities included

- updating the project website to provide latest updates, access to the Draft Final Water Supply Master Plan, relevant resources and contact information;
- online engagement through Have Your Say Guelph, linked through the project website and promoted via the electronic mailing list and social media;
- newspaper advertising and electronic mailings to invite participation in the review period;
- four meetings with the representatives from the Township of Puslinch, Township of Guelph/Eramosa and County of Wellington; and
- a meeting with Ministry of the Environment, Conservation and Parks.

1.1 Approach to public engagement

At the start of the project, a community engagement and communications plan was developed to guide the implementation of the engagement process for the Water Supply Master Plan Update consistent with the Municipal Class EA process and the City's Community Engagement Framework.

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The City's Community Engagement Framework (<u>guelph.ca/plans-and-strategies/community-engagement-framework/</u>) is referenced in the plan, and the Water Supply Master Plan Update aims to embrace the guiding principles for community engagement outlined in the framework including inclusive, early involvement, access to decision making, coordinated approach, transparent and accountable, open and timely communication, mutual trust and respect, evaluation and continuous improvement.

As the project progressed, a virtual approach to engagement was adopted to provide a safe and convenient forum for the Project Team, participants, and stakeholders during the COVID-19 pandemic.

1.2 Engagement and communication goals

During the development and implementation of the 2021 Water Supply Master Plan Update, the Project Team set out with engagement and communication goals to

- engage the Guelph community to develop a shared vision for managing the City's water supply;
- generate a broad awareness of the Water Supply Master Plan and opportunities for participation;
- obtain an understanding of the community's aspirations and concerns relating to water management;
- keep key stakeholders informed of Water Supply Master Plan activities, and communicate in a timely and clear manner; and
- affirm the City's commitment to community engagement and open planning processes and demonstrate the impact of engagement efforts on the Master Plan Update and the Class Environmental Assessment process.

1.3 Engagement and communication objectives

Engagement and communication objectives were also established to

 ensure diverse opportunities for local municipalities, Indigenous Peoples, government agencies, non-governmental organizations, institutions, businesses, community groups / associations, and residents to participate;

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- educate community members and groups about the study why it's important, what's included, how key elements relate to stakeholders, the process that will be followed and how decisions will be made;
- inform and educate stakeholders about the 2021 Water Supply Master Plan Update, and any related studies or initiatives like the Tier 3 Water Budget and Water Quantity Risk Assessment, the Outdoor Water Use By-law Update, Water Efficiency Strategy, the "Our Community, Our Water" (the Dolime Quarry Revitalization plan), and the Clean Water Act Source Protection Plan;
- develop plain language communication materials that support the goals of the project and encourage participation;
- consider all feedback provided and document that it has been considered during the development of water supply alternatives by the Project Team; and
- meet the consultation requirements of the Municipal Class Environmental Assessment for Master Plans.

1.4 Presentation materials

Clear, easy-to-understand and engaging materials (including notices, presentations for the Community Liaison Group, agency workshops and the virtual community open house, display boards, survey, a web page and Have Your Say online community engagement site) were developed for the public for Phases 1 and 2. During the 90 day review period an overview of the draft final WSMP update report was presented to select stakeholders.

The topics addressed during Phase 1 included

- an overview of why the Water Supply Master Plan is being updated, including a draft problem and opportunity statement;
- an overview of the Municipal Class Environmental Assessment process, including a timeline of major milestones;
- the Water Supply Master Plan Update steps including forecast of future population and water needs, assess existing water supply capacity, develop and evaluate water supply alternatives and update the Water Supply Master Plan;
- the personhood of water as it is understood in the Indigenous worldview of Indigenous Peoples in the Guelph community;

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- a closer look at Guelph's current groundwater supply system;
- estimates of our future water supply requirements i.e., how Guelph's population is expected to grow by 2051 and the water supply it will need;
- challenges related to the City's water supply, including water security, climate change and extreme weather events, contaminated sites and surface water effects;
- proposed water supply alternative solutions being considered and / or updated, including demand management / efficiency programs, groundwater sources in and outside of the city, local surface water sources, and do nothing;
- evaluation criteria and how the proposed alternative solutions will be evaluated, including natural environment, social and cultural (including archeological) resources, economic and financial considerations, legal / jurisdictional considerations and technological considerations;
- other water-related master planning projects that are currently underway at the City; and
- ways to build authentic, long-standing, community-based relationships by reaching out.

The topics addressed in Phase 2 included

- review of Phase 1 topics;
- a detailed review of Guelph's existing water supply (namely the 25 production wells, the Arkell Spring Grounds and the Eramosa River intake and recharge system);
- reviewing the water supply requirements to accommodate the 2051 population forecast based on population and water demand projection based on average day demand, maximum day demand and system security of supply (i.e., system redundancy);
- a detailed assessment of the water supply alternatives (water conservation and demand management / water reuse programs; optimizing and expanding on existing groundwater systems; establishing new surface water supply sources; and limiting population growth / doing nothing); and
- preliminary evaluation of the water supply alternatives and results.

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The topics addressed through presentations during the 90 day review included

 an overview of the Water Supply Master Plan update report including water supply requirements, a detailed assessment of the water supply alternatives, and the preferred supply alternatives and results.

1.5 Engagement topics

The Project Team identified key engagement topics related to Phases 1 and 2 of the Water Supply Master Plan. Stakeholders and the public were invited to provide their input and feedback to these engagement topics through the various engagement tools and activities. During the 90 day review period, the engagement topics were identified according to the received review comments.

Phase 1 engagement focused on gathering feedback and input into

- changes or additions to the draft problem and opportunities statement;
- unique challenges that Guelph faces and should be considered regarding our water supply;
- additional water supply alternatives that should be considered; and
- additional evaluation criteria that should be included.

Phase 2 engagement focused on gathering feedback and input into

- results of the technical work including the future population targets, water supply demand forecasts, and the existing water supply capacity assessment;
- results of the technical assessment and preliminary evaluation of the water supply alternatives, including additional factors or considerations that are missing; and
- prioritization and public acceptance of the preliminary preferred water supply alternatives.

90-day public review engagement focused on gathering feedback and input into

- ensuring adequate water supply for the City and adjacent Townships;
- ensuring enough water to allow for growth both within the City and the Townships, including allowances for population growth and new industry and employment opportunity considerations;

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- reviewing required approvals for water taking by industries;
- ensuring key areas where water might be taken are/will be protected, at both new and existing wellheads;
- clarification of when Wellhead Protection Area Modeling should be performed;
- the recommendation to continue utilizing and improving conservation, efficiency and demand management programs to meet and surpass targets;
- the recommendation to consider climate change specifically as it impacts agriculture;
- jurisdictional concerns regarding source protection and the installation of wells outside of the City of Guelph; and
- continuing cooperation and consultation efforts with surrounding Townships and establishment of a regional water management framework.

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2. Feedback

2.1 Phase 1 Feedback

2.1.1 Introduction

The feedback received during Phase 1 through the various engagement tools and activities indicates that there is a continued interest from community members and stakeholders about water supply in Guelph. Several themes emerged related to the key engagement topics of this phase, including

- prioritizing conservation;
- protecting the natural environment;
- managing growth and development;
- controlling groundwater impacts from large water users;
- monitoring emerging contaminants;
- limiting impacts to aquatic and terrestrial wildlife; and
- valuing the agency of water.

Each section below includes content that was presented in relation to the consultation questions. All comments and questions received during Phase 1 engagement are summarized in the subsections below and are provided in **Appendix A**.

2.1.2 Draft problem and opportunity statement

The public was invited to comment on any suggested changes or additions to the following draft problem and opportunity statement

The City of Guelph is committed to managing population growth as it continues to develop strategies for ensuring adequate water supply. The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers. The 2014 Water Supply Master Plan confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting these future needs. It is important to update the water demand forecast, the existing water system capacity and the status of ongoing water supply projects and make adjustments to the plan as required. The

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proposed implementation strategy must deliver through to 2051, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.

Comments received about the draft problem and opportunity statement were based on the topics of water supply, conservation, capacity and growth, aquifer recharge, infrastructure, wastewater and other. Summaries of themed responses are outlined below. See all comments received in **Appendix A**.

Water supply:

It was suggested that groundwater cannot be controlled or developed, therefore, the word 'develop' should be removed from the statement or rephrased to water supply infrastructure being developed. Another suggestion was to focus on adequate water supply (without summer restrictions) before population growth.

Conservation:

Individuals noted that watershed protection and conservation efforts should be the main priorities.

Capacity and growth:

Concerns were expressed regarding 2041 as too short of a planning horizon and to first determine the future capacity of water supply before determining how to limit growth.

Aguifer recharge:

One comment suggested recharging aquifers with wetlands, stormwater and treated wastewater.

Infrastructure:

One comment suggested exploring costs of more rapidly upgrading infrastructure to reduce system losses, and another comment suggested building a pipe to a lake.

Wastewater:

One comment suggested including wastewater disposal as part of the Water Supply Master Plan process.

Other:

Several respondents agreed with the draft problem and opportunity statement. One comment suggested declaring that water-taking is not an approved land use.

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2.1.3 Unique challenges

There are a number of unique challenges that Guelph faces and will be taken into consideration during the Water Supply Master Plan Update. These challenges include

- a Tier 3 Water Budget and Local Area Risk Assessment identified the City's water supply as having a 'significant risk level' of not meeting the 2031 water demand under drought conditions;
- whether a 10 per cent 'system redundancy' allowance is sufficient for ensuring security of our water supply;
- understanding impacts from climate change and extreme weather events to our water supply;
- the existing Smallfield and Sacco wells are affected by contaminated sites and may need to be removed from consideration as City water supply options;
- Dolime Quarry a proposal to close the quarry ahead of schedule and transfer water management to the City is under consideration; and
- how surface water baseflows could be impacted if we pump more groundwater.

When asked about whether there are other unique challenges that Guelph faces and should be considered with regard to the water supply, a wide variety of comments were received. The following six themes summarize the responses provided. See all comments received in **Appendix A**.

- Development and growth: Several respondents expressed concerns about developers and impacts of their land use, the impacts of Clair-Maltby developments on Carter 1 and 2 well sites and overpopulation. One comment suggested the City should challenge growth targets set by the provincial government. Another comment expressed concerns that condominium owners may lack understanding about water use and efficiency because water is paid for through condominium fees and they don't see information related to water conservation on bills.
- Industrial and commercial water use: Several respondents expressed concerns about large industrial and commercial water users (e.g., quarries and aggregate pits, breweries bottled water and meat packing companies) and their impacts on local aquifers.

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- **Rates**: One comment suggested mirroring off-peak electricity rates by reducing water usage rates during off-peak hours and implement higher rates during peak times.
- Contamination and treatment: Several respondents were concerned about contaminants entering the water supply, including microplastics, perfluorooctanesulfonic acids, hormones and pharmaceuticals. One respondent was concerned about the increased use of salt during winter and suggested education campaigns for property managers. Another individual questioned the use of adding fluoride and removing calcium from the water supply. One respondent was concerned about offline wells with unknown contaminants and potential impacts to nearby residents. There was also a comment about a potential contaminated groundwater plume and a suggestion to address former industrial waste and garbage dumping sites in addition to ongoing contamination of surrounding rivers.
- **Environmental impacts**: Two respondents wanted to know how climate change may impact the model and one respondent would like to see how aquatic and terrestrial wildlife would be impacted by any of the City's proposals.
- **Other:** One respondent added water-taking from adjacent aquifers (e.g., Erin, Aberfoyle) as an additional unique challenge. Three respondents agreed with the unique challenges listed.

2.1.4 Proposed alternative solutions

The following water supply alternatives were considered in Phase 1 for meeting Guelph's drinking water supply needs.

Demand management, efficiency and water reuse programs

- Maintain commitment to our water conservation initiatives and 2016 Water Efficiency Strategy
- Determine range of realistic goals and cost for implementation
- Develop means to measure for effectiveness

Groundwater sources in and outside of city

- Improve and optimize the existing well supply system
- Restore offline wells with treatment
- Identify new potential water supply areas
- Consider Dolime Quarry as a source of municipal water supply

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Local surface water sources

- Establish feasibility / risks of surface water alternatives including aquifer storage and recovery system
- Assessment areas include: Guelph Lake / Speed River and Eramosa River

Do nothing

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative

Members of the public were asked if any proposed alternative solutions were missed. There were several comments received on the existing proposed alternatives solutions in addition to new suggestions. See all comments received in **Appendix A**.

Additional feedback on the alternative solutions was provided in Phase 2 and is referenced in Section 2.2 below.

Demand management, efficiency and water reuse programs:

A few respondents questioned the need for growth and suggested limiting population increase and challenging growth targets. One respondent suggested revising the 2016 Water Efficiency Strategy to better reflect extreme weather events, infrastructure deficiencies and contamination. Another respondent would like to see more water conservation initiatives and increasing the use of grey water for residential, commercial and industrial water users.

- Groundwater sources in and outside of city: The majority of comments related to groundwater were about Nestle and the impacts of water extraction for bottled water companies. One respondent suggested quantifying the impact of Nestle on the water supply to show financial implications for residents.
- Local surface water sources: There was one suggestion to look at potential sources of water outside of the watershed.
- **Other**: Other proposed alternative solutions included contamination risk management, using stormwater and wastewater to help aquifer restoration, establishing urban rooftop water collection systems and considering how to adapt in the case of extreme floods. Three respondents agreed with the proposed alternative solutions.

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2.1.5 Preliminary Evaluation criteria

The following initial evaluation criteria were put forward as potential criteria to be used to evaluate new drinking water sources in the Water Supply Master Plan Update and were subsequently revised based on feedback received and other technical considerations.

Public health and safety

Ability to meet provincial water quality requirements

Natural environment

- Potential effects to natural environment
- Potential impacts to water resources
- Potential impacts to natural heritage features
- Environmental management planning considerations

Social and cultural resources

- Land use impacts
- Short-term construction impacts
- Potential impacts from operations
- Implications of new / expanded Source Protection areas

Economic and financial considerations

- Estimated capital costs
- Estimated operations and maintenance costs, including energy consumption

Legal / jurisdictional considerations

- Location of facility relative to city boundaries
- Land requirements
- Implementation of Source Protection Policies

Technological considerations

- Ability to implement and meet peak demand
- Constructability, schedule and timing, and maintaining operations during construction
- Water quality
- Allowance for future treatment needs
- Expandability
- Ability to respond to changes in regulations
- Ability to utilize existing infrastructure

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Additional considerations

- Alignment with City 2050 Net Zero Carbon emissions target
- Impacts on Indigenous peoples and values
- Climate adaptability and resiliency

The public were asked if there are additional evaluation criteria that should be considered. There were additions to existing 'natural environment', 'economic and financial considerations' and 'additional considerations' categories. See all comments received in **Appendix A**.

- Natural environment: Comments related to the natural environment include prioritizing the protection of the environment above all else, considering how Clair-Maltby is a recharge area and how development in this area will impact water availability and recharge, and a request to see a breakdown of how any Water Supply Master Plans would impact aquatic and terrestrial wildlife.
- Economic and financial considerations: There were a range of comments related to economic and financial considerations, including the potential creation of local jobs, socio-economic benefits from managing groundwater and forestry and the economic impacts of current and future scenarios of not having water. One respondent asked who will pay for new water supply and treatment in light of new residential developments, and another respondent asked how much it will cost to bring water to Guelph in 2041 if there isn't enough local supply.
- Additional considerations: One respondent suggested listening to and understanding Indigenous People's approach to water. Another respondent added the ability to respond to unpredictable climate events as an important consideration.
- **Other**: One respondent suggested considering long-term groundwater and surface water impacts of any new facility both during operation and after being closed. Two respondents agreed with the evaluation criteria.

Additional feedback on the evaluation criteria was provided in Phase 2 and outlined below in Section 2.2.

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2.1.6 Questions

During Phase 1, questions were received from the general public, both at the in-person community open house and online via the Q&A tool on Have Your Say. Questions related to the Water Supply Master Plan ranged from overall process, timelines and next steps to projected water demands, development and large water users. Several questions were unrelated to the Water Supply Master Plan, including wastewater and stormwater questions. All questions and responses are captured in **Appendix A**.

2.2 Phase 2 Feedback

2.2.1 Introduction

The feedback received during Phase 2 through the various engagement tools and activities indicates that agencies, municipal representatives and interested community members were invested in Guelph's water supply and the work being undertaken. Feedback was generally requested in these three discussion areas

- results of the technical work including the future population targets, water supply demand forecasts, and the existing water supply capacity assessment
- results of the assessment and preliminary evaluation of the water supply alternatives, including additional factors or considerations that are missing
- prioritization and public acceptance of the preliminary preferred water supply alternatives

Each section below includes content that was presented in relation to the consultation topics. All comments and questions received during Phase 2 engagement are summarized in the subsections below and are provided in **Appendix A**.

2.2.2 Future population targets, water supply demand forecasts, and the existing water supply capacity assessment

The Province of Ontario's August 28th, 2020 report **A Place to Grow Growth Plan for the Greater Golden Horseshoe** (P2G) was utilized to

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identify future population growth to 2051 and combined with a review of past water use patterns to quantify the future water supply requirements. The 2051 population is projected to be 203,000 residential and 116,000 employment. Guelph's current water supply is estimated to provide a maximum of approximately 79,000 cubic metres per day, however by 2051 it is anticipated that we will need an additional 26,000 cubic metres per day to meet the needs of the future population.

Stakeholders were invited to comment on the analysis completed regarding the City's population in 2051 and the water supply capacity needed in order to support the anticipated demand. Some of the feedback from participants who attended the open house included

- The uncertainty of future water supply demands and forecasts due to climate change was identified. The potential for decreased rainfall was mentioned with concern for what the water demand would be during a drought, and how farmers might need to increasingly rely on irrigation systems. Another comment identified the possibility of increased rainfall in the future due to climate change.
- The price of water was also questioned in terms of how a change in supply and demand would affect residential prices, and if there was a pricing strategy in place for moderating water usage and encouraging conservation efforts.
- One participant mentioned that the anticipated water taking for 2051 coincides with the actual water taking from 2001, and that over 50 years there was enough water conservation to keep the City well supplied. The City clarified that while the water taking numbers may appear similar, water conservation efforts and programs were responsible for ensuring that the City had enough water at an affordable rate.

Phase 2 largely focused on assessing the potential water supply capacity of the alternatives. Each of the water supply alternatives was evaluated against several criteria to identify potential impacts. The evaluation criteria included: First Nations, Metis, and Inuit Peoples, Technical (ability to achieve demand and reduction), Natural Environment, Built Environment, Social / Cultural Environment, Legal / Jurisdictional, and Financial.

Stakeholders and interested community members provided their feedback on the results of the water supply alternatives assessment and evaluation.

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Water conservation, efficiency and water reuse programs

Four water conservation, efficiency and reuse program scenarios were presented and each forecasted the demand reduction that could be achieved by 2051. Guelph has a history of leveraging strong water conservation efforts in order to reduce water demand requirements. As a result, there were fewer suggestions for this alternative, but the ones provided considered at how these conservation efforts could be enhanced. Feedback included

- Suggestions for enhancing water conservation initiatives included: non-revenue water reduction, grey water usage and incentives for increased usage, water recycling programs, and halting major water taking. While some of these initiatives are currently underway, promoting them to a wider audience and incentivizing them would help to increase conservation efforts.
- Suggestions for stormwater clean up and sewage water recycling practices were also provided.

Groundwater sources

Six categories of potential groundwater projects were shared: optimizing existing operating municipal sources, restoring existing off-line municipal sources, developing existing municipal test wells, installing new wells inside City boundaries, installing new wells outside City boundaries, and installing new Aquifer Storage and Recovery wells inside the City. Some of the feedback on the groundwater alternatives included

- The Dolime Quarry was frequently mentioned during the engagement phase. Some concerns included whether an assimilative capacity study had been conducted as it relates to the City's waste water treatment plant and discharge from the quarry, how the aquifer was being protected and maintained in case dewatering were to stop, and potential impacts to dewatering as a result of annexation.
- The well locations were also a point of interest, including why some locations inside the City, such as the Clair Maltby area, were not selected for well locations.
- Water quality concerns and a recommendation for further study to determine the viability of remediating or adding treatment to the current off-line wells were raised. Water quantity concerns were

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- raised regarding the potential impacts to the baseflow of surrounding waterbodies with restoring offline wells (e.g., impacts to Clythe Creek from restoring and pumping the Clythe well).
- Legal and jurisdictional implications of installing new wells outside of the City (in the surrounding townships) was also brought forth including growth and land use restrictions related to expanded source water protection areas, fair compensation (including for costs related to source water protection policy implementation), potential well interference, water use restrictions and employment opportunities. The Townships were concerned that their water supply would be taken to accommodate Guelph's growing population without fairly and duly consulting the Townships.

Surface water

Guelph Lake was reviewed as a potential source of surface water for direct treatment and distribution and as a potential source for an Aquifer Storage Recovery system to capitalize on peak flow.

 An additional surface water suggestion was to connect to the water supply from the Grand River and Lake Erie.

2.2.3 Prioritization and public acceptance of the preliminary preferred water supply alternatives

Based on the evaluation, a preliminary preferred solution was identified that recommended implementation of all water supply alternatives (except for the 'do nothing' alternative) in the short-, medium- and long-term over a thirty-year period (i.e., between 2021 and 2051) (see Table 1). Stakeholders and interested community members were asked to provide their feedback on the preliminary preferred solution.

No objections to the preliminary preferred solution were raised, however there were some questions and concerns regarding the implementation timelines and the prioritization of the water supply alternatives – particularly for the development of new wells outside of the City. While the townships were generally supportive of the preliminary preferred solution, they were also concerned that developing wells in their jurisdiction for Guelph's use could limit the amount of residential and employment growth in the townships and impose source water protection land use constraints.

Table 1: Preferred Water Supply Alternatives

Alternative	Timeline	Projects
1A – Conservation, Efficiency & Water Reuse	Throughout	Blended Conservation Scenario
2B – Groundwater: Restore Off-line Municipal Wells	Short-term	Clythe Well (completion in 2023)
2B – Groundwater: Restore Off-line Municipal Wells	Mid-term	Lower Road Collector (completion in 2037)
2C/D - Groundwater: Develop Municipal Test Wells	Short-term	 Ironwood/Steffler (completion in 2027) Guelph South (completion in 2028) Dolime Quarry (pumping station component completed to align with Ironwood/ Steffler) Logan/ Fleming (completion in 2030)
2C/D - Groundwater: Develop Municipal Test Wells	Long-term	■ Hauser (completion in 2047)
2F - Groundwater: Arkell Collectors & ASR Wells	Long-term	Arkell ASR (completion in 2045)
2G – Groundwater: Develop New Wells Outside City	Long-term	Guelph North (completion in 2048)

2.2.4 Consultation

Consultation has been a vital part of collecting feedback to inform the Water Supply Master Plan. Various parties were interested in additional engagement sessions and reached out for opportunities to stay informed and involved.

- Several individuals including members of the public, municipal representatives, and interested stakeholders asked how they could remain involved with the project.
- A concern was voiced that there was not enough consultation with the Townships over the course of the project. It should be noted that the City offered several opportunities for engagement to the Townships during the study including providing notices on the Master Plan Update, representation on the Community Liaison Group, participation in the municipal and agency workshops and offers to present to Township Council. The Townships of Puslinch and Guelph/Eramosa opted to invite the Project Team to their respective Council meetings to learn more about the progress and provide feedback. The presentation and corresponding resolutions for the two sessions can be found in **Appendix E**.

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2.2.4.1 Agency and Municipality Workshop #2 - Additional Feedback

Additional feedback about the materials presented at the Agency and Municipality Workshop #2 was received from the County of Wellington, Township of Puslinch and Township of Guelph/Eramosa. This written feedback and the subsequent City response is included in Appendix A.

2.3 90-Day Public Review Feedback

2.3.1 Introduction

The feedback received during the 90-day public review through the various engagement tools and activities indicates that there is continued interest in being involved in the process of updating the Water Supply Master Plan.

Comments were received from Townships, Wellington County, local businesses, organizations, ministries of the provincial government and the public during the 90-Day Review period. Key themes that emerged from the feedback included

- ensuring adequate water supply for the City and adjacent Townships;
- ensuring enough water to allow for growth both within the City and the Townships, including allowances for population growth and new industry and employment opportunity considerations;
- reviewing required approvals for water taking by industries;
- ensuring key areas where water might be taken are/will be protected, at both new and existing wellheads;
- clarification of when Wellhead Protection Area modeling would be completed;
- the recommendation to continue utilizing and improving conservation, efficiency and demand management programs to meet and surpass targets;
- the recommendation to consider climate change specifically as it impacts agriculture;
- jurisdictional concerns regarding source protection and the installation of wells outside of the City of Guelph; and
- continuing cooperation and consultation efforts with surrounding Townships/County and establishment of a regional water management framework.

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2.3.2 Additional feedback on the results of the technical work

During the 90-day review period, the City presented an overview of the draft final WSMP update report to the Ministry of the Environment, Conservation and Parks and the Townships/County. Generally comments related to the presentations discussed the existing water supply capacity and the preferred solutions. The presentations can be found in Appendix E.

Existing Water Supply System Capacity

- The source capacities presented were questioned on a few occasions, noting that the presented numbers seem high. The City explained that the numbers presented represented the maximum capacity of the identified sources. The City also clarified that it likely would not be feasible to pump at the full capacity for an extended period of time and was not anticipating needing to. The City also agreed to continue optimizing all existing production wells to capture the available sustainable yields based on aquifer conditions.
- Clarification was requested about whether leakage estimates and non-revenue water were accounted for. The City confirmed that these were in the water budget but neither amount was significant enough to impact the water demand forecasts.

Preferred Solutions

- Suggestions for alternative water supplies were offered including a Lake Erie pipeline and water sink opportunities in the form of aquifer storage in rural areas. The City noted that the Master Plan is updated every 5 years and there may be opportunities to introduce other alternatives over time. In addition, if a regional water supply alternative (i.e., Great Lakes pipeline) was identified in a future plan, an appropriate planning timeline would be incorporated into the Master Plan process to ensure the source was available when needed. The City noted that the current timeline of alternatives extended far beyond 5 years and that the next Master Plan would be updated based on the results of work undertaken between the completion of this report and the start of the next report.
- Concerns were voiced that consultation should occur before Class Environmental Assessments were conducted for each preferred alternative. The City clarified that Class Environmental Assessments are used to determine the design and evaluate the environmental,

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social and economic factors to determine whether an alternative could be considered and that feasibility studies would need to be undertaken before committing to a full Class Environmental Assessment. The City further confirmed that initiating a Class Environmental Assessment does not mean that a particular water supply alternative was definitely going to proceed, but noted that a Class Environmental Assessment provides more data for the Project team to make an informed decision regarding whether a proposed water supply project has acceptable environmental impacts.

2.3.3 Additional feedback on the implications of Source Water Protection and Township consultation

The City engaged in additional direct consultation with Wellington County and the Townships. Through the 90-Day public review period, three primary concerns regarding Source Water Protection were brought forward.

Implications of Source Water Protection

- The impact of source water protection on potential land use was identified as a key concern. The Townships noted that revised Wellhead Protection Areas are needed to fully understand the implications of adding new water supply sources near and/or outside of the City boundary. The City explained that the WSMP Update includes high-level screening of the water supply alternatives, including consideration of the Source Water Protection implications. At this stage, there is insufficient site-specific field data available to reliably develop future WHPAs for the alternatives (most notably well pumping rates supported by detailed field testing). In addition, each new water supply source will change the WHPAs and subsequent supply sources must consider the cumulative effects on the WHPAs of previous sources. Each new source must determine the WHPAs based on the existing conditions at the time of assessment which, in most cases, may be many years in the future. The WHPAs will be modeled as part of the evaluation of alternatives for the Class EA completed for each water supply project that progresses to this stage. Consultation regarding changes to the WHPAs will occur with the Townships through the public consultation requirements of each Class EA and through the Source Protection requirements under the Clean Water Act.
- Future use of employment lands was also brought forward as a concern. With respect to water taking for industry, the Townships'

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zoning bylaws and the definition of dry industry was discussed in order to determine how applications for new industry are considered. The City described its internal process for how each proposal for water taking for industry would be considered individually and assessed for potential implementation of various conservation methods that may align with business objectives and the City's water supply master plan. Commercial proposals with significant water demand on the City supply system are not typically considered.

Consideration of Growth in the City and Townships

Concerns were expressed regarding the impact of the City's future water supply on the growth potential for the Townships. The Townships are concerned that the development of wells outside of the City boundaries would limit the residential and employment growth potential, and want to ensure that water was not being taken out of the Township unfairly. The City asked the Townships to provide anticipated growth targets (residential and employment) and associated water demand forecasts to incorporate these projections into the demand estimates for future Water Supply Master Plan updates and other modeling projects. The County has committed to providing these estimates for use by the City in the next Water Supply Master Plan Update. It was also noted that previous analysis indicated that sufficient supply is available to support growth in the Townships but that this should be updated to reflect current conditions and future growth projections.

Significant Risk Designation

Wellhead protection areas in the City and Townships were identified as a concern. It was discussed if there is an opportunity to reduce the Significant Quantity Risk Category through the Water Supply Master Plan projects, and prioritize these projects. A suggestion was to reduce the Significant Risk Category either by broadening the area covered by water supply sources, or if that was not possible to work with the constraints and identify how to manage the stress designation. The City re-iterated the focus on developing sustainable sources that capture all of the water available within the City before assessing sustainable sources outside of the City. It was noted that the Significant designation is based on the overall water balance so it is anticipated that adding new groundwater supply sources inside the City would not result in a lower risk designation.

3. Community engagement tools and activities

As part of the communication and engagement strategy for the Water Supply Master Plan Update, a number of activities were undertaken to notify the Guelph and area community, provide up-to-date information, seek input on the current phase of the study and answer any questions or concerns.

3.1 Notifications

3.1.1 Notice of commencement

A formal notice of study commencement was issued on October 31, 2019 to provide an overview of the Water Supply Master Plan Update, an explanation of the master plan process, engagement opportunities and contact information.

Engagement opportunities included joining the Community Liaison Group, attending an open house, reading about progress on the project web page (<u>click here for the City of Guelph's Water Supply Master Plan</u>), joining the electronic mailing list and following the conversation on Facebook (facebook.com/cityofguelph) and Twitter (twitter.com/cityofguelph).

The notice was advertised through

- the project website <u>guelph.ca/plans-and-strategies/water-supply-master-plan/</u>;
- the City's website <u>guelph.ca/2019/10/notice-of-study-commencement/</u>;
- traditional newspapers including the Guelph Mercury Tribune (City news section), Wellington Advertiser and Milton Champion;
- an initial project email list including agencies, municipalities, Indigenous Peoples and the original contact list from the 2014 Water Supply Master Plan mailing list (over 70 recipients during the week of November 28, 2019);
- organic social media posts on Facebook (<u>facebook.com/cityofguelph</u>) and Twitter (twitter.com/cityofguelph); and

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> internal City staff including the Executive team, the Mayor and council, and all Water Services staff and other City Master Plan Project Managers.

The notice of commencement and associated advertisements are included in **Appendix B**.

3.1.2 Invitation to community open house #1

A formal invitation to the first community open house on February 13, 2020 was published on January 23, 2020 and distributed through

- the project website <u>guelph.ca/plans-and-strategies/water-supply-master-plan/</u>;
- the City's website <u>guelph.ca/2020/01/join-us-february-13-for-the-first-water-supply-master-plan-open-house/</u>;
- a project email list (53 recipients on January 30, 2020);
- social media posts on Facebook (<u>facebook.com/cityofguelph</u>) and Twitter (twitter.com/cityofguelph);
- Internal City staff including the Executive team, the Mayor and council, and all Water Services staff and other City Master Plan Project Managers; and
- paid advertisements with
 - Guelph Mercury Tribune (print, September 23, 2021)
 - quelphtoday.com.

The community open house invitation is included in **Appendix C**.

3.1.3 Invitation to community open house #2

A formal invitation to the second community open house on September 29, 2021 was published on September 16, 2021 and distributed through

- the Project website <u>guelph.ca/plans-and-strategies/water-supply-master-plan/;</u>
- the City's website <u>guelph.ca/2021/09/join-us-september-29-to-talk-about-the-future-of-drinking-water-in-guelph/;</u>h
- Have Your Say newsletter list;

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- social media posts on Facebook (<u>facebook.com/cityofguelph</u>) and Twitter (<u>twitter.com/cityofguelph</u>)
 - https://twitter.com/cityofquelph/status/1438500050246774787
 - https://twitter.com/cityofguelph/status/1439937666842337282
 - https://twitter.com/cityofguelph/status/1442867081955868688
 - https://www.facebook.com/permalink.php?story_fbid=101596 80867733156&id=90034568155;
- Internal City staff including the Executive team, the Mayor and council, and all Water Services staff and other City Master Plan Project Managers; and
- paid advertisements with
 - Guelph Mercury Tribune (print, September 23, 2021)
 - quelphtoday.com.

The community open house invitation is included in **Appendix C**.

3.1.4 Notice of Completion

A formal notice of study completion was issued on January 10, 2022 to conclude Phase 2 of the project. The notice was advertised through

- the project website <u>guelph.ca/plans-and-strategies/water-supply-master-plan/</u>;
- the City's website <u>guelph.ca/2022/01/notice-of-study-completion/</u>;
- a traditional newspaper ad in the Guelph Mercury Tribune;
- a project email list including agencies, municipalities, Indigenous Peoples, the original contact list from the 2014 Water Supply Master Plan mailing list and those who have requested to be added to the list through the process; and
- internal City staff including the Executive team, the Mayor and Council, and all Water Services staff and other City Master Plan Project Managers.

In addition, the City Project Manager sent individual emails to the Indigenous communities identified in Section 4, stakeholders at the City, Township and County representatives, and several members of the agencies identified in Section 7. The notice of completion is included in **Appendix B.**

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3.2 Project website

A page on the City's website (click here for the City of Guelph's Water Supply Master Plan) was published in November 2019. The purpose of the web page is to help build awareness for the Water Supply Master Plan Update, share updates and engagement opportunities, as well as useful information. The web page provides an up-to-date source of comprehensive and timely information and is linked to Have Your Say for online engagement. Information found on the web page includes

- notices and latest updates;
- engagement opportunities;
- background and process information;
- resources, including downloads from open houses and the 2014
 Water Supply Master Plan final report;
- mailing list subscription link; and
- contact information.

From the launch to May 27, 2022, the project web page has had 7.949 page views, including 3,396 page views from unique visitors. The average time spent on the web page was more than one minute (1:07).

3.3 Social media

City of Guelph Facebook (<u>facebook.com/cityofguelph</u>) and Twitter (<u>twitter.com/cityofguelph</u>) accounts were used to complement the project web page to reach a larger audience who may otherwise be less engaged in traditional in-person engagement methods, and to share information about the Water Supply Master Plan Update. Social media posts were developed to engage online stakeholders throughout Phases 1 and 2 and helped to invite interested individuals or groups to attend the open houses and take part in online engagement (i.e., the online survey) and provide links to the web page and Have Your Say.

Since the launch there has been five Facebook posts shared organically and combined they reached 10,270 Facebook users. One paid Facebook ad reached 11,500 Facebook users. A total of 11 Tweets have resulted in 22,661 impressions, 30 re-tweets, 22 likes and 32 clicks to the web page.

Social media posts related to the Water Supply Master Plan Update can be found in **Appendix D**.

3.4 Community open house #1

The purpose of the first community open house was to provide an opportunity for the public to share feedback to help inform how the City will manage the water supply as the community grows. It was also an opportunity for the public to share what is important to them for the future so that the City can continue to provide excellent drinking water service to Guelph residents.

Logistics for community open house #1

- Where: Marg MacKinnon Community Room, City Hall, 1 Carden Street
- **When:** February 13, from 2:00 p.m. to 4:00 p.m. and 6:00 p.m. to 8:00 p.m.

Topics presented on twelve display boards included

- the objectives and overview of the Water Supply Master Plan Update;
- the City's current drinking water supply;
- proposed alternatives for meeting our drinking water supply needs;
- proposed criteria and methodology for evaluating new drinking water sources;
- the agency of water/personhood of water/water is life; and
- the next steps as we update the Water Supply Master Plan.

Upon arriving at the open house, attendees were greeted and encouraged to sign-in at the welcome table. A survey was provided for attendees to submit their comments before they left, or they could send in responses via email or complete the online version on Have Your Say. Display boards were situated along the edge of the room with various experts available to answer questions. Printed copies of a map of Guelph Water Services Municipal Wells were available.

The City's water conservation staff also had a booth set-up to answer questions about water conservation and efficiency. Desktop computers were available for attendees to sign-up real-time to the online engagement platform, Have Your Say.

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Seventeen attendees signed in, including several students from a university class. Many City staff stopped by without signing in and some attendees entered through the back door and missed the welcome table. Eight people completed the survey in-person.

Display boards, the survey and map are provided in **Appendix C**. Feedback from the open house is available in Section 2.1 of this report.

3.5 Community open house #2

The purpose of the second open house was for the public and interested stakeholders to learn about and share their thoughts on the potential alternative water supply sources that were identified, the detailed evaluation of the alternatives and the preferred solutions that were identified. The open house was hosted virtually due to the COVID-19 pandemic and restrictions for in-person gathering.

Logistics for community open house #2

■ Where: Online via Microsoft Teams

■ **When:** September 29 from 6:30 p.m. – 8:30 p.m.

Attendees were reminded of the Water Supply Master Plan Update objectives, the challenge and opportunity statement, the municipal class Environmental Assessment process what was it involved in the update. An overview of Phase 1 consultation and engagement was provided, including feedback that was shared. Technical content focused on

- the population forecasted to 2051 and the anticipated demand for water;
- the potential alternative water supply sources that have been identified and the benefits and considerations for why the alternative is being added to the overall solution;
- the detailed evaluation of the alternatives measured against seven evaluation criteria; and
- the preferred solutions.

After the presentation, a question and answer period was held.

Six attendees joined, along with three representatives from AECOM, and four representatives from the City of Guelph.

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At the end of the session, a survey link to Have Your Say was provided for attendees to submit their comments by October 13, 2021.

The presentation and the survey are provided in **Appendix C**. Feedback from the open house is included in Section 2.2 of this report.

3.6 Phase 1 online engagement

During the first phase of the study, online engagement was used to gather public input related to the Water Supply Master Plan Update. Have Your Say, the City of Guelph's online community engagement platform featured a Water Supply Master Plan page so that the public can share ideas and help shape decisions (haveyoursay.guelph.ca/wsmp). The Water Supply Master Plan Update page includes information about the project, an online survey associated with the open house, a Q&A tool available at any time, key dates, project lifecycle, contact information for 'who is listening', document library and a Have Your Say newsletter subscription.

The Have Your Say page was published February 10, 2020. Since being published, the page received 218 total visits. Twenty-three visitors filled out the online survey and one visitor asked a question with the Q&A tool.

February 2020 and March 2020 newsletters were distributed through the entire Have Your Say Guelph subscribers highlighting the community open house #1 and the online survey. The newsletters are available in **Appendix D**.

3.7 Phase 2 online engagement

Online engagement continued to be used to gather public input related to the Water Supply Master Plan Update (https://naveyoursay.guelph.ca/wsmp). The Water Supply Master Plan Update page included updated information about the project, an online survey associated with the second open house, a video recording of the second open house, the results of the survey associated with the first open house, a question and answer tool available at any time, key dates, project lifecycle, contact information for 'who is listening', document library and a Have Your Say email subscription.

Including results from Phase 1, as of October 14, 2021 the online engagement page received 733 total visits. One person filled out the online survey for the second community open house and four people asked a question with the Q&A tool.

4. Indigenous engagement

4.1 First Nations, Métis, Inuit Peoples living in Guelph

There are Indigenous Peoples—First Nations, Métis and Inuit Peoples–living in Guelph who are working with the City and contributing in the development of the Water Supply Master Plan Update. Specifically, through the Community Liaison Group, Indigenous Peoples shared their perspectives on the spirit of water and the importance of respecting the agency of water. This involved conversations during the first Community Liaison Group meeting; contribution at the first open house where Indigenous knowledge on water relations was shared with members of the public; and on-going dialogue with the Water Supply Master Plan Project Team around ways the relationships can be enhanced through working with the diversity of local Indigenous voices, on Water Supply Master Plan Update and other water-related projects and initiatives.

Details regarding meetings held with Indigenous communities regarding the Water Supply Master Plan Update are further outlined below.

4.2 Duty to Consult

The Crown has a legal duty to consult Indigenous Peoples when it has knowledge of potential project impacts on Indigenous or treaty rights. The Crown may delegate procedural aspects of the duty to consult to project proponents, and the Ministry of the Environment, Conservation and Parks has delegated the procedural aspects of rights-based consultation to the City, as noted in a letter dated November 5, 2019.

Ministry of the Environment, Conservation and Parks notified the Project Team of the Indigenous communities to contact regarding the Water Supply Master Plan Update and included Six Nations of the Grand River, Haudenosaunee Confederacy Chiefs Council and Mississaugas of the Credit First Nation. The Project Team is following the steps outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Where the Water Supply Master Plan Update may affect Indigenous and treaty rights, Ministry of the Environment, Conservation and Parks will determine additional consultation-related steps that may be taken.

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These contacts were provided with a formal letter, the notice of commencement and invitation to the workshop with agencies and other municipalities, and the notice and invitation to the first community open house. Follow-up with the communities was conducted by the City to determine if there is any specific consultation format that is preferred in addition to the tools and activities utilized to date. In addition, the City conducted general communication and consultation with the Indigenous communities identified above with the intent to improve relationships with the communities and to share information with respect to the City's Municipal Comprehensive Review and updating of a number of the City Master Plans. These contacts resulted in some meetings to discuss the City's general master planning processes and the Water Supply Master Plan Update in particular.

4.2.1 Six Nations of the Grand River

One meeting and presentation was held with the Six Nations of the Grand River on July 6, 2021. This meeting was for the purpose of providing a briefing of the water-related master plan projects at the City. A presentation was delivered and included the following topics

- overview of the Water Supply Master Plan
- overview of the existing water supply system
- how much water Guelph currently has
- how much water Guelph will need in the future
- water supply alternatives
- overview of engagement conducted to-date

A briefing note was provided to supplement the presentation and the City responded to pre-submitted questions from Six Nations. A meeting summary was also provided.

Following the presentation, there was a question and answer session that provided additional information on the City's water supply, source protection programs and water conservation and efficiency programs.

As an action item from the meeting, the City indicated they would share the draft Water Supply Master Plan report as part of the 90-day review period and prior to being approved by City Council.

All meeting materials are available in **Appendix H.**

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4.2.2 Haudenosaunee Confederacy Chiefs Council

Efforts were made by the City to contact the Haudenosaunee Confederacy Chiefs Council regarding the Water Supply Master Plan Update.

Communications were directed to the Haudenosaunee Confederacy Chiefs Council as noted above to inquire about interest in a one-on-one meeting to discuss the Water Supply Master Plan Update. However, formal contact was not established, and meetings were not conducted.

4.2.3 Mississaugas of the Credit First Nation

As noted above, communications were initiated with the Mississaugas of the Credit First Nation to inquire about interest in a one-on-one meeting to discuss the Water Supply Master Plan Update. A subsequent meeting took place on October 6, 2021.

A presentation was delivered and included the following topics

- overview of the Water Supply Master Plan
- overview of the existing water supply system
- how much water Guelph currently has
- how much water Guelph will need in the future
- water supply alternatives
- overview of engagement conducted to-date

A briefing note was provided to supplement the presentation and a written follow-up to questions regarding conservation and efficiency programs was also provided.

The Mississaugas of the Credit First Nation confirmed that they do not need to review additional materials for the Water Supply Master Plan, however, they did request annual updates on all water-related master plans and would like to be involved in new projects from the outset.

All meeting materials are available in **Appendix H**.

5. Additional stakeholder meetings and presentations

Meetings and presentations with key stakeholders were encouraged during Phase 1 and Phase 2 so that organizations and groups could learn about the Water Supply Master Plan Update and be kept informed on how they might specifically be impacted by updates. Meetings were held predominantly inperson for Phase 1 and virtually for Phase 2.

5.1 Guelph Wellington Development Association and Guelph and District Home Builders' Association

On November 7, 2019, the City Staff Technical Liaison Committee met with the Guelph Wellington Development Association and Guelph and District Home Builders' Association. Dave Belanger from the Water Supply Master Plan team was invited to present an overview of the Water Supply Master Plan Update, including the process for updating the 2014 Water Supply Master Plan.

After the meeting, the Water Supply Master Plan Project Team invited both organizations to participate in the Community Liaison Group.

Meeting minutes and the presentation are available in Appendix E.

5.2 Our community, our water open house

The City hosted a community open house on November 26, 2019 at Holiday Inn regarding a proposed solution between the City and the owners of the Dolime Quarry. The City's concerns about the Dolime Quarry revolve around how operations at the quarry could affect Guelph's drinking water.

The Water Supply Master Plan Project Team was invited to bring an overview display board about the Water Supply Master Plan Update to the open house. The display board is available in **Appendix E.**

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5.3 Water Conservation and Efficiency Public Advisory Committee

On September 16, 2020 and on September 28, 2021 the Water Supply Master Plan team presented at the Water Conservation and Efficiency Public Advisory Committee meeting.

The first presentation discussed the 2014 Water Supply Master Plan Preferred solution, conservation and demand management efforts underway, the 2016 Water Efficiency Strategy, potential enhanced water conservation program successes / challenges and the demands projections for the Water Supply Master Plan Update. The session also provided an opportunity to ask questions and collect feedback.

The second presentation discussed the summary of water supply requirements to 2051, an overview of water supply alternatives, the environmental assessment evaluation criteria, preliminary preferred solution and opportunity for questions and feedback. Feedback generally focused on the following topics

- How climate change is considered in the WSMP
- How sustainability is considered in the WSMP

A copy of the presentation is available in **Appendix E**.

5.4 Township of Puslinch

On December 2, 2019 the City provided an overview presentation of the Water Supply Master Plan Update project to the Township Supervisor of Public Works and Parks. This included an overview of the MCEA process, the draft Problem and Opportunity Statement, a review of the Water Supply Master Plan work plan and the schedule and next steps for the project.

Subsequently, in late 2019 and early 2020, the City offered on several occasions to provide a similar overview presentation to Township Council. Additional offers of meetings and presentations to staff and/or Council on the Water Supply Master Plan Update were provided in mid-2020 (July to September) associated with Water Supply Master Plan field work related to the Guelph South Groundwater Supply Feasibility Project.

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Township of Puslinch identified the Mayor and a Councillor as the designated representatives for the Community Liaison Group. Invitations to the meetings as well as presentations and survey forms were provided to the Mayor and Councillor.

Representatives from Township of Puslinch attended the agency meetings on November 28, 2019 and on September 14, 2021 and, while verbal comments were provided at the meetings, written comments were not provided to the City following the meetings.

On October 13, 2021 the Water Supply Master Plan team met with Township of Puslinch's Council to provide an overview of the project and a shortened version of the presentation that was presented at the second agency and municipality workshop. The agency meeting presentation from September 14, 2021 was sent to Puslinch Council in advance of the meeting. Following the presentation the Project Team responded to questions from Council. Feedback generally focused on the following topics

- concerns about source protection areas and land use constraints particularly with respect to impacts on the Township;
- concerns about potential well interference effects with existing wells particularly with respect to impacts on the Township;
- prioritizing supply within the City before considering sources within Township;

In follow-up to the meeting, Township of Puslinch sent a Council Resolution dated October 13, 2021 to the City (and to the Township of Guelph/Eramosa) which included several requests

- confirming that the City extended the Township's commenting deadline on the Agency and Municipality Workshop #2 presentation slides from October 22, 2021 to November 5, 2021 despite a request for further extension
- Township staff and consultants review the Water Supply Master Plan Update when made available and provide comments at the November 24, 2021 Puslinch Council meeting
- that the City of Guelph Council provide the opportunity for Puslinch Council to provide comments in advance of the draft report being adopted by City of Guelph Council

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- that the City of Guelph Council acknowledge receipt of the Township comments and provide a response
- that the City of Guelph Council authorize the release of the draft report to Puslinch staff in advance of the City of Guelph council meeting

A copy of the presentation and final Council Resolution are available in **Appendix E**. A copy of the meeting minutes can be accessed online at https://puslinch.ca/wp-content/uploads/2020/11/November-3-2021-Council-Agenda.pdf.

City staff responded to Township of Puslinch staff clarifying that feedback from the Township was being sought for content in the agency and municipality workshop #2, not on the draft final Water Supply Master Plan Update. The City extended the timeframe to submit comments on the September 14 agency presentation to November 5, 2021, providing a seven-week commenting period. It was noted that the draft final report, under development at the time of the meeting, will be released for public review and will be accompanied by a formal public review period in early 2022. City staff clarified that it was soliciting comments from the Township in order to incorporate Township feedback into the draft final Water Supply Master Plan report. Formal comments were not received prior to completion of the draft final report; however, subsequent feedback was incorporated into the final report.

5.5 Township of Guelph/Eramosa

The Township of Guelph/Eramosa had representation by a Councillor at all three of the Community Liaison Group meetings, and a Public Works representative at the first Agency / Municipality workshop. Communication was primarily verbal, with email correspondence from a Township of Guelph/ Eramosa citizen seeking additional information after the second CLG meeting.

On October 20, 2021 the Water Supply Master Plan team met with Township of Guelph/Eramosa Council to provide an overview of the project and a shortened version of the presentation that was presented at the second agency and municipality workshop. Following the presentation the Project Team responded to questions from Council. Feedback generally focused on the following topics

 Location of the Logan test well and primary direction of groundwater drawdown

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- Leakage from the City's water distribution network and how it is managed
- The Eramosa River artificial recharge system and opportunities to improve the system efficiency
- How the Guelph Lake alternative could function and details of the GRCA capacity analysis
- The City's experience supporting the installation of residential greywater systems
- Possibility of collaborating on use of Cross-Creek water supply system to help meet future City demands

In a follow-up to the meeting, the Township of Guelph/Eramosa sent a Council Resolution dated October 27, 2021 which included a number of statements and requests

- that the Township of Guelph/Eramosa has concerns with the City of Guelph's November 5, 2021 deadline for comments regarding the Water Supply Master Plan 2021 Update
- that the City of Guelph Council authorize the release of the draft report to Guelph/Eramosa staff in advance of the City of Guelph's council meeting
- that council direct Township staff and Township consultant(s) to review the City of Guelph Water Supply Master Plan Update correspondence and draft report, when available, and to provide comments for Council's consideration at a subsequent Township of Guelph/Eramosa Council meeting
- that the City of Guelph Council provide the opportunity for Guelph/Eramosa Council to provide comments in advance of the draft report being adopted by City of Guelph Council
- that the City of Guelph Council acknowledge receipt of the Township comments and provide a response
- that the resolution be forwarded to the City of Guelph and the Township of Puslinch

A copy of the presentation and final Council Resolution are available in **Appendix E**.

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City staff similarly responded to the Township of Guelph/Eramosa staff clarifying that feedback was being sought for content in the agency and municipality workshop #2, not on the draft final report of the Water Supply Master Plan Update. The City extended the timeframe to submit comments on the September 14 agency presentation to November 5, 2021. It was noted that the draft final report will be released for public review and will be accompanied by a formal public review period in early 2022 which will be to solicit commentary and incorporate feedback from the Township into the draft Water Supply Master Plan report. Formal comments were not received prior to completion of the draft final report; however, subsequent feedback was incorporated into the final report.

6. Community Liaison Group

An aspect of the Water Supply Master Plan Update included consultation with a Community Liaison Group. The purpose of this group was to inform and provide an opportunity for input on specific issues related to the Water Supply Master Plan Update. Three meetings were planned at key milestones

- 1. Introduction of the master plan and gain feedback
- 2. Update on alternative solutions and evaluation criteria and gain feedback
- 3. Present draft master plan update and gain feedback

A Community Liaison Group was created during the 2014 Water Supply Master Plan Update, and this membership was used as a foundation for the 2019 Community Liaison Group membership. Participants from 2014 were invited to take part again, in addition to new groups and the broader community (invited through the Notice of Commencement and direct emails). The Community Liaison Group included members from a wide cross-section of the community

- business/ industry (two members)
- environmental organizations (two members)
- agriculture (one member)
- land development (one member)
- community or social organizations (two members)
- academia (three members)
- the Guelph community-at-large (Guelph) (three members)
- the community-at-large outside of Guelph (two members)
- the Anishinaabe (one member representing the local Indigenous community).

6.1 Meeting #1

The first Community Liaison Group meeting was held in-person on December 4, 2019 to share stakeholder and community ideas and perspectives on the Water Supply Master Plan Update. The purpose of the first Community

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Liaison Group meeting was to review and provide input on key aspects of the Master Plan and the Class Environmental Assessment including

- the objectives and scope of the Master Plan Update;
- issues and opportunities to be addressed;
- alternative solutions to be assessed; and
- the draft evaluation criteria to be applied.

For the first meeting there were 13 participants, along with four City staff and three AECOM consultants. The format of the workshop included a presentation and opportunities for discussion and reflection.

A full meeting summary, in addition to presentation and discussion guide is provided in **Appendix F**.

Responses to questions in the discussion guide are presented in the feedback table in **Appendix A.**

6.2 Meeting #2

The second Community Liaison Group meeting was held virtually on July 27, 2021 to continue sharing stakeholder and community ideas and perspectives on ways to improve the Water Supply Master Plan Update. The purpose of the second Community Liaison Group meeting was to review and provide input on major technical task progress related to the Master Plan and the Class Environmental Assessment, including

- consultation conducted to-date;
- population targets and water supply demand forecasts;
- existing water supply capacity assessment;
- technical assessment of alternatives to-date; and
- environmental assessment evaluation criteria.

For the second meeting there were nine participants, along with three City staff and three AECOM consultants. The format of the workshop included a presentation and opportunities for discussion and reflection.

A full meeting summary and the presentation (including discussion questions) is provided in **Appendix F**.

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6.3 Meeting #3

The third Community Liaison Group meeting was held virtually on September 21, 2021 to provide a final opportunity for sharing stakeholder and community ideas and perspectives on ways to improve the Water Supply Master Plan Update. The purpose of the third Community Liaison Group meeting was to review and provide input on major technical task progress related to the Master Plan and the Class Environmental Assessment, including

- water supply requirements;
- work completed since meeting #2;
- assessment of water supply alternatives; and
- evaluation of water supply alternatives.

For the third meeting there were twelve participants, along with six City staff and three AECOM consultants. The format of the workshop included a presentation and opportunities for discussion and reflection.

A full meeting summary and the presentation (including discussion questions) is provided in **Appendix F**.

7. Agency and municipality workshop

Part of the Water Supply Master Plan Update included two workshops to bring Municipalities and Agencies together, providing a forum to discuss plans for the 2021 Water Supply Master Plan Update and to gather input.

In addition to select City of Guelph staff, organizations that were invited to participate included

- Grand River Conservation Authority;
- Haudenosaunee Confederacy Chiefs Council;
- Ministry of the Environment, Conservation and Parks;
- Ministry or Natural Resources and Forestry;
- Mississaugas of the Credit First Nation;
- Region of Waterloo;
- Six Nations of the Grand River First Nation;
- Town of Milton;
- Township of Centre Wellington;
- Township of Guelph/Eramosa;
- Township of Puslinch;
- Wellington County;
- Wellington Source Water Protection; and
- Wellington-Dufferin-Guelph Public Health.

7.1 Workshop #1

The first workshop was held on November 28, 2019 with 10 participants from six organizations, along with four City staff and four AECOM consultants. The purpose of the first workshop was to review and provide input on key aspects of the Master Plan and the Class Environmental Assessment, including

- the objectives and scope of the Master Plan Update;
- issues and opportunities to be addressed;
- alternative solutions to be assessed; and
- the draft evaluation criteria to be applied.

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The format of the workshop included a presentation and opportunities for discussion and reflection. A full meeting summary, in addition to presentation and discussion guide is provided in in **Appendix G**.

Responses to questions in the discussion guide are presented in the feedback table in **Appendix A.**

7.2 Workshop #2

The second workshop was held virtually on September 14, 2021 with 11 participants from five organizations, along with six City staff and three AECOM consultants. The purpose of the second agency workshop was to gather feedback and concerns from agency and municipality representatives after reviewing progress related to the Master Plan and the Class Environmental Assessment, including

- water supply requirements;
- work completed since meeting #2;
- assessment of water supply alternatives; and
- evaluation of water supply alternatives.

The format of the workshop included a presentation and opportunities for discussion and reflection. A full meeting summary and the presentation (including discussion questions) are provided in **Appendix G**.

8. 90 Day Public Review Period

The draft final Water Supply Master Plan was posted in accordance with the requirements of the Municipal Class Environmental Assessment process for review as of January 10, 2022. The published report was available both online (project webpage and on https://www.haveyoursay.guelph.ca/wsmp) and in person at the main branch of the Guelph Public Library. The draft final report included an executive summary which provided a background to the project, highlighted the challenge and opportunity statement, detailed population and water demand projections and water supply alternatives.

The purpose of the 90 day review was to gather feedback from the public, agencies, municipalities and other stakeholders after reviewing the draft final Waster Supply Master Plan update documents. Received comments can be found in **Appendix A.**

During this time, additional and ongoing engagement was held with the surrounding municipalities and other government agencies as outlined below. This series of meetings are designated numerically as outlined below and were designed to build on the previous consultation and engagement conducted as outlined throughout this report.

8.1 County, Townships and City Meeting #1

The first meeting was held virtually on December 6, 2021 with 10 participants, including three City staff and two AECOM consultants. The purpose of the first meeting was to provide representatives from Wellington County, the Township of Puslinch and the Township of Guelph/Eramosa with additional opportunities to address their questions and concerns. The topics of discussion for this meeting included

- a review and discussion of staff / consultant memos providing comments on the materials presented at Agency and Municipality Workshop #2; and
- a discussion of Township Council comments from October 2021.

A representative of Wellington County Source Protection chaired the meeting and provided a review of the comment memoranda submitted to the Township Councils. The memoranda and the minutes from Meeting #1 are provided in **Appendix E**.

8.2 County, Townships and City Meeting #2

The second meeting was held virtually on January 17, 2022 with 10 participants, including two City staff and two AECOM consultants. The purpose of the second meeting was to continue discussions with representatives from Wellington County, the Township of Puslinch and the Township of Guelph/Eramosa. The topics of discussion for this meeting included

- reviewing the previous meeting's minutes for clarity and acceptance;
- a presentation and discussion of the County of Wellington's Official Plan Amendment which addressed the County's plans for growth; and
- a presentation and discussion of the Water Supply Master Plan Update Report from the City.

A representative of Wellington County Source Protection chaired the meeting, the Manager of Policy Planning presented the County of Wellington's Official Plan Amendment allowing the City to raise comments/questions as required, and the City presented the overview of the draft final Water Supply Master Plan Update and addressed questions from the Townships and County. The presentations and meeting minutes from the session are provided in **Appendix E**.

8.3 County, Townships and City Meeting #3

The third meeting was held virtually on March 11, 2022 with 10 participants, including four City staff and two AECOM consultants. The purpose of the third meeting was to continue discussions with representatives from Wellington County, the Township of Puslinch and the Township of Guelph/Eramosa. The topics of discussion for this meeting included

- reviewing the previous meeting's minutes for clarity and acceptance;
- discussion about the County/Township written comments on the Agency and Municipality Workshop #2, the City's written response, and a discussion of Township Council comments from October 2021 (deferred from Meeting #1); and

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> discussion about the preliminary County/Township questions/ comments on the draft final Water Supply Master Plan update report.

A representative of Wellington County Source Protection chaired the meeting and the team had an open discussion regarding the source water protection concerns based on the previous two meetings. The meeting minutes from the session are provided in **Appendix E**.

8.4 County, Townships and City Meeting #4

The fourth, and final meeting was held virtually on March 30, 2022 with nine participants, including three City staff and two AECOM consultants. The purpose of the final meeting was to address any remaining concerns before Wellington County, the Township of Puslinch and the Township of Guelph/Eramosa submitted comments on the draft final WSMP update report. The topics of discussion for this meeting included

- reviewing the previous meeting's minutes for clarity and acceptance;
- reviewing the timeline to submit comments, and clarifying dates;
- discussing and clarifying any questions related to the Townships / County's comments submitted to-date.

A representative of Wellington County Source Protection chaired the meeting and the team had an open discussion regarding the source protection concerns based on the previous three meetings and documents submitted. The meeting minutes from the session are provided in **Appendix E**.

8.5 Township Council Meetings

The Township of Puslinch held a council meeting on April 13, 2022 and discussed the staff comments on the draft final Water Supply Master Plan update report. The WSMP Update review comments, related Council resolution, and the City's responses can be found in **Appendix E.** A copy of the council meeting minutes can be accessed online at: https://puslinch.ca/calendar/.

The Township of Guelph/Eramosa held a council meeting on April 19, 2022 and discussed the staff comments on the draft final Water Supply Master

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Plan update report. The WSMP Update review comments, related Council resolution, and the City's responses can be found in **Appendix E.** A copy of the council meeting minutes can be accessed online at: https://www.get.on.ca/township-services/committee/mayor-and-council/meetings.

8.6 Ministry of the Environment, Conservation and Parks Meeting

A meeting was held virtually on March 22, 2022 with 20 participants, including five City staff and two AECOM consultants. The purpose of the meeting was to present the draft final Water Supply Master Plan update to staff from the Ministry of the Environment, Conservation and Parks and to provide them with the opportunity to address their questions and concerns. The topics of the presentation for this meeting included

- the objectives and scope of the Master Plan Update;
- issues and opportunities to be addressed;
- population and water supply demand projections;
- existing water supply system capacity;
- assessed alternative solutions;
- the applied evaluation criteria;
- engagement and consultation completed; and
- implementation recommendations.

The format of the meeting included a presentation and opportunities for discussion and reflection. The presentation is provided in **Appendix E.**



Appendix A

Feedback and correspondence tracking

Feedback and correspondence tracking table

Agency and municipality workshop review documentation and City response

- County and Township Review Comments Cover Letter
- Wellington Source Water Protection Comments
- RJ Burnside and Associates Comment Memorandum
- Harden Environmental Services Comment Memorandum
- City Response to Wellington County, Puslinch Township and Guelph Eramosa Township - Cover Letter
- City Response to Wellington County, Puslinch Township and Guelph Eramosa Township - Memorandum

90-Day WSMP review documentation

- Hydro One Review Comments
- Wellington Federation of Agriculture Review Comments
- Ministry of the Environment, Conservation and Parks Review Comments

AECOM

Appendix A

(continued)

- City Response to the Ministry of the Environment, Conservation and Parks – Cover Letter
- City Response to Ministry of the Environment, Conservation and Parks – Memorandum
- Ministry of Heritage, Sport, Tourism and Culture Industries Review Comments
- Township of Puslinch Resolution April 2022
- Township of Puslinch Review Comments
- Response to Township of Puslinch Cover Letter
- Response to Township of Puslinch Memorandum
- Township of Guelph / Eramosa Review Comments
- Township of Guelph/Eramosa Resolution April 2022
- City Response to Township of Guelph / Eramosa – Cover Letter
- City Response to Township of Guelph / Eramosa – Memorandum

AECOM

Appendix A

Feedback and correspondence tracking table

Date	Name	Source	Comment	Response Date	Response	Action Required
12/2/2019	Corinne Taylor, MECP	Email	Thank you for the invitation to the City's Water Supply Master Plan Update meeting last week. After the meeting, I reached out to our surface water specialists and we thought it would be important to highlight to the team the importance of working with your wastewater counterparts on this study (as you discussed at the meeting). Any new water source considerations, especially surface water (Guelph Lake, Eramosa River at Arkell and/or Dolime "lake") in the water supply master plan needs to carefully consider the impact the additional water taking may have on the river and assimilative capacity for the river.		Thank you for attending on Thursday and thank you for your comment. We recognize the concerns regarding impacts on the river and the assimilative capacity of the river that may result from a river water taking (i.e., Speed River or Eramosa River). In the 2014 Water Supply Master Plan, the City worked with the GRCA to assess the feasibility the timing and the rate at which water could be taken from the rivers. GRCA (Dwight Boyd) conducted the flow analyses. An underlying assumption in the flow modelling was "that downstream low flow targets upstream of the Guelph sewage treatment plant were achieved 100% of the time". See the 2014 WSMP, Section 5.4 and Appendix D - https://guelph.ca/wp-content/uploads/2014-Water-Supply-Master-Plan-Update.pdf For the Dolime Quarry, the discharges from the quarry are not used in the assimilative capacity assessments for the City's wastewater treatment plant. This is because the discharge is granted by permit which could end at any time and is variable throughout the year (i.e. lowest flows in the summer). In addition, the assimilative capacity is based on the upstream flows in the Speed River and the quarry dewatering is discharged downstream of the plant. The settlement proposal for Dolime would only move forward if accepted by Council. At present, the strategy is to capture groundwater in the area of the quarry using the existing network of production and test wells in the area of the quarry. We are not considering a direct use of the quarry pond water at this time; however, it may be an option in future plans. This information can be included in the 2019 WSMP update.	N/A
12/3/2019	Corinne Taylor, MECP	Email	I only wanted to highlight the surface water taking from Guelph Lake because back in 2016, I sat in on a meeting with the City and Paul Odom (who was the Surface Water Specialist reviewing Guelph's rerating) and he mention the concern about taking from Guelph Lake and referenced the 2014 Water Master Plan. I didn't want to bring it up at the our meeting during the surface water question because the re-rating meeting was long ago and I didn't remember all of the specifics. I looked up his minutes from that meeting and this was what Paul wrote: If part of the City's planning and EA exercises includes potential removal of additional water from the Eramosa River at Arkell or from the Guelph Lake area, these must be factored into impact assessments as the Table B flows are based on existing withdrawal at Arkell and no sourcing at		We understand. Thank you for the additional information.	N/A

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			Guelph Lake. Any additional withdrawal for municipal water supply will likely equate to a reduction in the dilution capacity of the Speed River at the WPCP discharge. With respect to Dolime, in Jan 2019 the City of Guelph and Dolime gave a presentation to Tech support. It is my understanding that the City mentioned at this meeting it was considering putting in a well to capture additional groundwater at Dolime so that less water would be discharged to the Speed River. Tech Support Surface Water Group identified at this meeting that the impact to the assimilative capacity would have to be assessed. My comments was mostly an FYI since I am not a hydrogeologist or surface water specialist and I was happy to hear that you had a plan in place to work with the wastewater group. I know the City has initiated an assimilative capacity study of the Speed River and are working on it as we speak so I'm sure all of this will be identified and updated with new numbers. Tim has been working hard to get the Wastewater Plant rerated and I know that the rerating of the plant has not been an easy task for the City. I just wanted to stress this comment about surface water so that it is not even harder for the City to move to phase III of their rerating in the future. Just some things to consider.			
1/6/2020	Stan Denhoed	Email	I am having a meeting with the new CAO of the Township of Puslinch and the mayor next week. I will not respond until I speak with them. I understood that the City of Guelph was to have a meeting with the Township (either a presentation to council or meeting with the CAO) to discuss the master plan. Is this meeting still in the works or has it already occurred?	1/6/2020	The Puslinch Mayor and Councillor Bulmer were invited to the Community Liaison Group meeting on December 4 and although Matt (Bulmer) rsvp'ed, they didn't attend the meeting. They were provided similar materials to what you received for the Workshop. We also met with Puslinch staff (Mike Fowler) on December 2 and briefed him on the WSMP. We also sent the Notice of Commencement to the Township. That's the extent of our communications with the Township so far. If, in your meeting, they have more questions/comments, let us know. We could meet with the CAO and/or the Mayor and Council at their convenience if they want.	
1/6/2020	Eric Hodgins, Region of Waterloo	Agency and Municipality Workshop discussion guide (Email)	Q. 12. It is not clear how changes in the WHPA-Q will be considered in the overall selection of alternatives. From the Region of Waterloo's perspective, it would be better to use the water currently being pumped from the Dolime quarry for additional supply rather than develop new supplies in the southwest quadrant as there will be no net increase in the amount of water removed and the latter may move the WHPA-Q further into Waterloo Region. Not increasing the overall amount of taking would also minimize any reduction	1/8/2020	Thank you for the comments on the Water Supply Master Plan. Your comments are consistent with our proposed approach. Let me address the Dolime comment first. It is our intention to develop a groundwater supply option around the Dolime Quarry. We are in the process of developing a settlement pathway that would allow the City to gain control of the dewatering operations at the quarry. Details are provided here -	

Date	Name	Source	Comment	Response Date	Response	Action Required
			in groundwater flow from Guelph toward Cambridge. The evaluation criteria could be broadened to consider impacts to overall water budget and/or increases in potential water quantity policy implementation costs.		water/rolling-out-the-proposed-solution-for-the-dolime-quarry/. While there are lots of challenges to get to a final solution, our approach is to continue dewatering of the quarry to maintain the inward gradients to the quarry to protect water quality but at the same time, try to optimize the water taking around the quarry. We have proposed an operational testing program and a Class EA to confirm how to do this. Our expectation is that we will be able to use existing and new wells to capture most of the water currently pumped from the quarry which may result in additional water supply capacity but the actual amount will be derived from the OTP and the Class EA. The OTP and Class EA will also assess direct use of the dewatering water, although the pumping rate may be low and treatment costs may be high therefore it may be a lower priority water source. We agree that this would be a preferred supply source but we also expect we will need more water than just from around Dolime and we may need to advance a number of water supply projects to meet 2041 demands. This may include a new source in the southwest corner of the City. It is not our intention to specifically define changes to WHPA's as part of the Master Planning process; that level of detail will be reserved for the Class EA process for the individual projects. We will however, assess the impacts of new source protection areas in the Evaluation Criteria. The Tier 3 water budget model, in a general sense, will be used to assess the potential environmental impacts of new sources using the Natural Environment criteria. This modelling work will also consider the impact of individual projects on the total water budget. The Social and Cultural Resources category is intended to capture impacts from land use changes such as the delineation of new WHPA either for quality or quantity. We would expect that new sources would result in new land use constraints on residents and businesses within the areas. Additional costs associated with the new WHPA's or changes to b	
1/9/2020		Email	I wasn't necessarily expecting a direct response from my comments but rather I wanted to make sure that the Region's comments were provided as part of the Master Plan and I was unable to attend the first workshop hosted by the City.	12/31/2021	Noted.	N/A

Date Name	Source	Comment	Response Date	Response	Action Required
		With that being said, I appreciate receiving your response and getting some further information on the City's thought process around looking for new water supplies. I appreciate that the Dolime Quarry is still a challenging issue and may not be sufficiently resolved for the outcomes to be confirmed in the Master Plan. Your approach to dealing with new supply areas seems reasonable and we will see where it all leads to in the end.			
1/9/2020	CLG discussion guide (email)	[What do you think of the City's current water conservation goals and strategies? Are there other goals or strategies that should be considered?] Further monies should be focused on retrofitting the ICI sector to facilitate reductions	12/31/2021	Industrial, commercial and institutional (ICI) conservation and efficiency measures will be included in the 2019 WSMP update.	N/A
1/9/2020	CLG discussion guide (email)	[Would you support a bylaw that regulates new high water demand land uses in the City? Why or why not?] Yes, new development should be required to implement LID practices.	12/31/2021	In accordance with section 4.3.2 of the City of Guelph Official Plan (Water Resource Protection and Conservation), the City actively promotes efficient and sustainable use of water resources in new development and existing built form. This includes reduction in water consumption encouraged by City planning staff consultations and conservation programming through upgrading/retrofitting of existing buildings and facilities. Furthermore, the official plan identifies that the City may require a Water Conservation Efficiency Study in conjunction with new development as well as encourage the implementation of Low Impact Development (LID) and alternate water supply through local development, where appropriate. In assessing the City's ability to meet the servicing needs of new business growth Economic Development and Engineering staff carry out a consultation with business proponents to understand the water servicing and other needs of their proposed operations. Through ongoing consultations City members staff commonly discuss proposed process water use of the proponent versus industry efficiency benchmarks with proponents as well as local water and wastewater user rate forecasts and development charges to servicing capacity to help encourage water efficiency investments in their operations from the time of commencement. Thereafter the City's ability to meet the proponents servicing needs (average day, peak day and fire flow water demands) are technically confirmed by the City's hydraulic water servicing model in the area(s) of the water distribution system where a new business proposal is being considered (a capacity analysis is also undertaken on the wastewater collection system to ensure the proponents servicing needs are met and that there are no adverse impacts on the City's infrastructure). If available servicing capacity does not meet proponent needs this would drive additional consultation on process conservation measures	

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					to be employed should the proposed business location still be desired by the proponent. In City staff's opinion the above noted process helps to effectively allocate and manage available servicing capacity between proponents and a bylaw to regulate this demand is not recommended. The basis for this position is such a bylaw could not be easily administered or enforced without significant capital and operational investments for field technology to limit flow to large consumers as they met their permitted capacity under the bylaw. Furthermore, the presence of such a bylaw may impose competitive disadvantage for the City to retain and attract business due to future uncertainties regarding availability on future servicing availability which would constrain potential for business growth, which would not be present in other Ontario based communities.	
1/9/2020		CLG discussion guide (email)	[What issues, concerns or questions related to water supply should be considered while updating the WSMP?] The issue that under 2031 demand and drought, the designation of Wellhead Protection Area is under significant risk. Look into what year (now to 2031) is the demand under the threshold. Approach government with that year for maximum population.		The WSMP will consider the risks associated with drought and the related mitigation options that the City has developed and evaluated. Future growth target planning will consider the availability of water supply as a critical aspect of the planning process. The Significant Risk designation is for the existing water supply system. The risk can be mitigated by provide new sustainable water supply system(s) in addition to the existing supply capacity.	N/A
1/9/2020		CLG discussion guide (email)	[Is the purpose statement adequate for the WSMP update?] I question whether the last sentence in the second paragraph can be fully fulfilled. How can we ensure that environmental sustainability is not compromised in the year 2040?	12/31/2021	The available science in 2019/2020 will be utilized to evaluate potential environmental sustainability of the preferred solution. The WSMP will map out the detailed field studies that are required to assess the specific environmental concerns related to each water supply project. Each detailed field project will use the science available when the project is implemented and the WSMP will be updated approximately every five years. Through this process, the water supply required to support growth of the City will be developed in an environmentally sustainable manner.	N/A
1/9/2020		CLG discussion guide (email)	[Are there other ways to engage community members you would like to see the City consider?] Presence at community events, locations that are accessible to all demographics (or several that together make-up Guelph's residents and ICI community).	12/31/2021	The City is considering additional engagement opportunities outside of the formal open houses. Some examples include library events and the H20 Go Festival. Unfortunately in-person events have been cancelled in Spring 2020 due to COVID-19. The Have Your Say online engagement platform is available for all demographics to use.	City to consider additional engagement opportunities.
1/9/2020		CLG discussion guide (email)	[What types of information do community members need to be engaged?] Proposed alternatives, evaluation criteria, future growth plans, proposed bylaws.	12/31/2021	Proposed alternatives and evaluation criteria are key questions that we are looking for feedback on from the public. Future growth plans inform population and demand figures in the WSMP update content presented to the public. The growth plans will be updated separately from the WSMP update. Proposed bylaws are not in the scope of this WSMP update.	N/A

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1/9/2020		CLG discussion guide (email)	[Who else needs to be engaged?] Youth (25 and under), new immigrants to Guelph, multiple property owners (multi-use and residential).	12/31/2021	We agree that the opinion of youth and new Canadians would be target audiences to inform different perspectives on water supply. Several students from the University of Guelph attended the community open house #1. We hope to continue to engage these communities and find ways to involve them, including multiple property owners.	
1/9/2020		CLG discussion guide (email)	[How can community members outside of Guelph be properly consulted to evaluate water supply sources outside of the City?] I do not support water supply sources outside of the City.	12/31/2021	Noted.	N/A
1/9/2020		CLG discussion guide (email)	[Do you have concerns regarding any of the alternatives presented? Should any be added or removed from consideration?] For consideration: decentralized stormwater management for non-potable water needs, i.e., industrialized areas. Remove 'outside of the City groundwater sources'.	12/31/202	Grey water reuse options will be considered in the WSMP update. At this time 'outside of the City groundwater sources' will not be removed from consideration but will be evaluated and ranked using the same methodology as the other alternatives presented. The current water supply system derives a significant portion of its water from outside the City (i.e., Arkell Spring Grounds)	N/A
1/9/2020		CLG discussion guide (email)	[New water supply sources may have some environmental impact. For example, long-term groundwater pumping from wells may affect surface water features. In your opinion, is it reasonable to take water to support population growth even if there are environmental impacts? What level of impact is acceptable?] In my opinion it is not reasonable or responsible to support population growth through increased water uptake from wells that would not be able to sustain the drawdown		Noted. The potential environmental impacts associated with each alternative will be evaluated in the WSMP update. The WSMP is to identify sustainable water supply alternatives to minimize environmental impacts to prevent negative or adverse environmental impacts.	N/A
1/9/2020		CLG discussion guide (email)	without a negative environmental impact. [Should water supply sources inside the City be prioritized over those outside City boundaries? Why or why not?] Yes, I consider outside water sources a 'Las Vegas situation' where it isn't sustainable and should not exist. Growth should be limited by the resources available.	12/31/202	Noted. This is consistent with City Council's position to prioritize sources inside the City first. Previous Council direction also promoted sustainable water supply system as a priority over growth. The WSMP is to identify sustainable water supply alternatives to minimize environmental impacts to prevent negative or adverse environmental impacts.	N/A
1/9/2020		CLG discussion guide (email)	[Is it appropriate to consider obtaining water from sources that require treatment to remove contaminants (i.e., natural or industrial), assuming all regulatory standards are met after treatment?] Yes, and could be used solely for non-potable applications.	12/31/202	Noted.	N/A
1/9/2020		CLG discussion guide (email)	[Are the evaluation criteria suitable for this study? Is there anything you would add or change?] I agree with the evaluation criteria.	12/31/2021	Noted.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
1/10/2020	Sonja Strynatka, Grand River Conservation Authority	Agency and Municipality Workshop #1 discussion guide (email)	[Certain City supply wells are pumped at maximum permitted (PTTW) rates during high demand periods or to make up capacity when other supply wells are shut down. On average, these wells pump below the permitted maximum, but the maximum capacity is required to support current and/or future demand. Does well use, in this manner, support PTTW renewal at the established maximum values?] Yes; the permitted maximum is needed to support current demand on an as needed basis for the reasons noted such as high demand periods, for well maintenance where other supply wells are shut down, and for unexpected events such as well contamination. Permitted maximum is also necessary to support future demand. The GRCA supports PTTW renewal at the established maximum values and not reducing these values.	12/31/2021	Noted.	N/A
1/10/2020	Sonja Strynatka, Grand River Conservation Authority	CLG discussion guide (email)	[The City's well system was developed over an 85+ year period and permits were issued for each well based on environmental conditions at the time of construction. In the absence of a demonstrated environmental impact caused by a well, should additional environmental study be required to renew a PTTW?] No; according to the Permit to Take Water Manual (MOE 2005), the renewal of an existing permit for the same or a lessor amount that has had no past interference is classified as a Category 1. Category 1 permit applications are anticipated to have a lower risk of causing adverse environmental impact and therefore do not require additional environmental study. The GRCA supports additional environmental study in cases where an existing permit has a noted past interference.		Noted.	N/A
1/10/2020	Sonja Strynatka, Grand River Conservation Authority	CLG discussion guide (email)	[Three wells in the City's system are impacted by industrial contaminants and off-line. Is it reasonable to assume source remediation may improve water quality for these wells, should the City consider adding treatment to the wells to remove the contaminants, or should the wells be removed from the assessment of existing system capacity?] If remediation or treatment is not feasible in the near term, the impacted wells should be considered for removal from the existing system capacity.		Noted.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
1/10/2020	Sonja Strynatka, Grand River Conservation Authority	CLG discussion guide (email)	[What are the benefits and drawbacks of using the Tier Three Groundwater model for evaluation of the water quantity impacts of source development?] The GRCA supports the continued use of the Tier 3 model for the development of the WSMP. The Tier 3 model represents the best available regional science for the City's groundwater system. Every model has uncertainties and limitations to its use. The GRCA supports the City to use the Tier 3 model to scope potential areas for future municipal well locations. Local field testing and modelling should support establishing well locations and pumping rates. The use of the regional Tier 3 model also allows the City to evaluate potential drawdown impacts within neighbouring Townships such that early engagement with the Townships can be initiated.	12/31/2021	Noted.	N/A
1/10/2020	Sonja Strynatka, Grand River Conservation Authority	CLG discussion guide (email)	[Is there anything else you think is important as we move forward with this process?] The GRCA supports the use of the Tier 3 model as a part of the WSMP, and encourages continued and early engagement with the neighbouring Townships and the community.	12/31/2021	Noted.	N/A
1/13/2020		CLG discussion guide (email)	[What do you think of the City's current water conservation goals and strategies? Are there other goals or strategies that should be considered?] The short and intermediate term goals are reasonable given constraints within the current framework for using potable water supplies for all residential, commercial, industrial and operational water needs, but we are on a critical path for major change to our integrated water and wastewater management strategies. Here is where we must begin with major change - "start over", transformative approach. The total rethink has to do with reducing demand per capita for water consumption through degradation of water quality via wastewater reduction, i.e. replace flushing toilets with dry, compostable toilets that allow removal of toxic / harmful substances in wastewater streams currently not treatable or costly.		The feedback will be considered in the context of the conservation/ efficiency alternative solution and provided to the City's Water Efficiency team for their consideration.	Provide comment to the City's Water Efficiency Supervisor
1/13/2020		CLG discussion guide (email)	[Would you support a bylaw that regulates new high water demand land uses in the City? Why or why not?] Yes, in the short term we have gained insights in current system operational constraints so new water demands must be reviewed - but, I strongly recommend encouraging futuristic views, an eye to the future conditions with government changes to how we use water, reduce wastewater streams		The feedback will be considered in the context of the evaluation of the alternatives (Aquifer Storage and Recovery opportunities) and through coordination with the Wastewater Master Plan project.	N/A

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			and regulate / manage stormwater (road salt and other pollutants avoided by pretreatment) allowing alternative use as re-use or strategic recharge to groundwater for flow system replenishment. We also need to rethink stormwater collection to improve quality (remove salt) before managed aquifer recharge where / when storage exists.			
1/13/2020		CLG discussion guide (email)	should be considered while updating the Water Supply Master Plan]	12/31/2021	The feedback will be considered in the context of the conservation/ efficiency alternative solution and through coordination with the Wastewater Master Plan project.	N/A
			The city already has excellent focus with important ideas for short term improvements, however, delays with consideration of bold changes in the distant future occur if not considered immediately. The major changes to water management, use, and recycling need consideration and agreement now - the new future with no water toilets are possible, fecal waste separation and partial treatment at the source may be essential for human and ecosystem health due to the harmful constituents. Every day decisions now that do not account for different future conditions, delays the much needed changes.			
1/13/2020		CLG discussion guide (email)	[Is the Purpose Statement adequate for the WSMP Update?] Yes, but consider previous comments in that we need a very different approach in the future to meet a net zero carbon target (energy sources and consumption) and accommodate emerging contaminants known and unknown in various water streams (toilet water contaminants, including: viruses, bacteria, chemotherapy drugs and antibiotics as examples) that should be avoided. No flush toilets create 45% more available water, change future infrastructure needs but remove toxins from ecosystem currently impairing health of humans and ecosystems. We can add water availability and reduce impacts significantly.	12/31/2021	Noted.	N/A
1/13/2020		CLG discussion guide (email)	[Are there other ways to engage community members you would like to see the City consider?] It must be more than a select few groups - it has to be a massive communication campaign, beyond the organized special interest groups, but also larger term views are lacking. I believe municipal water and wastewater infrastructure and management plans require a start from scratch perspective to provide a seriously new strategy with prospects for short and intermediate term activities to be assessed and change decisions to be realigned and compatible with the new long range plan.	12/31/2021	The engagement strategy for the WSMP update project includes communication with individuals of the local Indigenous population and wide-spread advertising throughout Guelph as an attempt to reach population sub-groups that are traditionally "hard to reach". We were encouraged to see several university students attend the first project community open house.	

Date	Name	Source	Comment	Response Date	Response	Action Required
1/13/2020		CLG discussion guide (email)	[What types of information do community members need to be engaged?] Information on the broader goals providing guidance and constraints; population growth locally, regionally and globally - how this sets constraints and needs. Carbon zero /neutral - how this relates to water master plan challenges now and in the future. Our biggest threat to humanity will be health, climate / weather variability and direct effect on the water master plan must be articulated. How might this create drivers and guide a very different approach to water use and infrastructure. We need to think big, differently, and engage the youth.	12/31/2021	Noted.	N/A
1/13/2020		CLG discussion guide (email)	[Who else needs to be engaged?] Guelph is a University town and should engage the massive young demographic - we must solicit wild and crazy ideas as part of the brainstorming process. Youth, young and midcareer adults have their future at stake. The experience needs to be captured "what not to do" or how to avoid what we see now as our challenge. Consider an "ounce of prevention is worth a pound of cure" meaning a whole new approach likely implemented for components of system and a few at a time in a logical sequence to reduce costs, carbon and water footprints, etc., rather than small adjustments to the existing approach.		The project team will reach out to you for perspectives on how the student population can best be engaged on this project.	Project team to reach out for further discussion.
1/13/2020		CLG discussion guide (email)	[How can community members outside of Guelph be properly consulted to evaluate water supply sources outside of the City?] Communication needs to be continual, but the community itself must be rallied first as a priority. Guelph is becoming almost too large, too fast to ignore the need for "community connectivity" and the creation of shared values; compatibility alignments locally would be a good forum for discussion.		A comprehensive Engagement Plan has been created for the WSMP update project. This plan will be adjusted as needed to achieve the City's engagement goals.	N/A
1/13/2020		CLG discussion guide (email)	[Do you have concerns regarding any of the alternatives presented? Should any be added or removed from consideration?] At the moment, my concern for our planning is that the solutions that result are too constrained by old-fashioned infrastructure. Regulations, economic incentives and metrics to new progress are essential for change. Our master plan exercise needs to be two-fold, short term improvements but a long-term strategy that boldly addresses our societal needs in a much longer term. So what is missing is the strategy rethink. This cannot be left to politicians.		Although the WSMP project is an update and therefore has similarities to the 2007 and 2014 projects, all aspects will be reevaluated and new and/ or updated alternatives will be assessed where identified.	N/A

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1/13/2020		CLG discussion guide (email)	[New water supply sources may have some environmental impact. For example, long-term groundwater pumping from wells may affect surface water features. In your opinion, is it reasonable to take water to support population growth even if there are environmental impacts? What level of impact is acceptable?] No, one must continue the process of optimization of these systems, including reduction of water use and ecosystem sustainability. Constraints are needed to promote invention and drastic change to achieve positive outcomes, not the negative outcomes eluded to here.		Noted.	N/A
1/13/2020		CLG discussion guide (email)	[Should water supply sources inside the City be prioritized over those outside City boundaries? Why or why not?] A combination of both - the water is recharged both regionally (hence outside boundary takings and is the same source water as internal city takings in many circumstances, but not all) and locally where aquitards and many water supply wells vertically cross-connect facilities near vertical flow, hence recharge within the city to these wells. Overall, closer proximity wells to users makes most sense.	12/31/2021	Noted.	N/A
1/13/2020		CLG discussion guide (email)	[Is it appropriate to consider obtaining water from sources that require treatment to remove contaminants (i.e., natural or industrial), assuming all regulatory standards are met after treatment?] It is absolutely required, more than believed currently and likely more in the future, however this issue has multiple facets. Our second biggest challenge (becoming our biggest challenge in the future) is water quality and our expectation that it should be considered contaminated until verified or proven otherwise. Therefore, it is paramount we think more holistically about the waste streams, removing salts and PAH's from stormwater before being discharged back to the natural surface water or managed recharge to groundwater, as an important example. Remove water softener discharges to sewers and consider alternatives and moving away from septic systems and wastewater for human and animal fecal waste streams. This would provide a more sustainable path to accessing freshwater resources for consumption with natural properties and without minimal pretreatment, but also pursues improved ecosystem health and leads to lower energy consumption. The concepts require avoiding the use of water to convey waste for energy intensive treatment for only a partial list of contaminants.		The feedback will be considered in the context of coordination with the Wastewater Master Plan project. The City will continue to monitor water quality and ensure delivery of supply that is compliant with the standards established by the Ministry of the Environment, Conservation and Parks.	N/A

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1/13/2020		CLG discussion guide (email)	[Are the evaluation criteria suitable for this study? Is there anything you would add or change?] The criteria are suitable but as expressed, not quantifiable enough to guide the process - the attributes are not sufficiently defined that the evaluation can be done transparently or even consistently. This next level of detail is essential for implementation.	12/31/2021	Noted.	N/A
1/21/2020	Kyle Davis, Wellington Source Water Protection	Email	Kyle Davis provided two emails containing information on known land uses in the vicinity of City test wells.	12/31/2021	The information provided will be considered in the evaluation of alternatives.	N/A
2/6/2020	Stan Denhoed, Township of Puslinch	Email	NOTE: this email was sent from the City of Guelph Project of Team to Stan Denhoed Hi Stan. Kathryn Ross/AECOM passed on your message about meeting with Puslinch Township to discuss the Water Supply Master Plan. We are glad to do this. Who would we contact at the Township to set this up? Do you think they would like a meeting (less formal) or a presentation at a Council meeting? passed on your advice for the meeting (see below) but if there is anything else, please send it our way and we will try to cover it off. Let us know and we will try to set something up. Thank you for your help.		NOTE: this response was sent from Stan Denhoed to the City of Guelph Project Team Dave I have added Glenn Schwendinger to this conversation. When Glenn and I met with Mayor Seeley there was interest in having the township Councillors hearing directly from City staff (or their agents) specifically about potential future well development by the City near enough to the municipal boundary to have Well Head Protection Areas extend into the Township. The areas of interest include; what role the Township has in the development of the Water Supply Management Plan, potential land use restrictions within future WHPA's, the potential expansion of the WHPA Q1, when groundwater model updates will occur and Source Protection Plan policies that may restrict future growth of employment lands in the Township. After a presentation by the City, I may be directed by council to provide a formal response. I will leave it up to Glenn to further the conversation in regard to how the Water Supply Management Plan information should be conveyed to the Councillors and mayor.	O2/20/2020 Response to Glenn Schwendinger: Hi Glenn. Let us know what you would like from us. We would be happy to meet with you either in a meeting or at Council. Thank you.
	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] Increasing concentrations of salt parameters in City and County wells.	12/31/2021	Current water quality data and water quality trends are being reviewed.	N/A
	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] New City wells in the County leading to increased County and Township requirements and cost.	12/31/2021	The potential impacts to surrounding municipalities is an element of the evaluation criteria.	N/A

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2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] City's ability to optimize/ maximize water from existing wells/ systems and address water loss (in order to reduce the need for new wells).		Well optimization and non-revenue water will be assessed as part of the technical aspects of the WSMP update.	N/A
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] Tier 3 study/ policy development and how that relates to municipal (City and County) and non-municipal takings.	12/31/2021	The policies under development for the Guelph-Eramosa Wellhead Protection Areas for Water Quantity (WHPA-Q) will be considered as part of the alternative evaluation as will the water quality threat policies.	N/A
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] Existing contaminated sites and status of remediation efforts and impacts to ability of City to bring wells back online.	12/31/2021	Feedback from the Ministry of the Environment, Conservation and Parks (MECP) on existing contaminated sites has been solicited as part of the WSMP update. MECP has primary responsibility for addressing water quality issues associated with contaminated sites.	N/A
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] Guelph Dolime and how its taking interacts with City and other takings and ability for City to bring south Guelph test wells online (i.e., Ironwood, Steffler).	12/31/2021	Both of the noted alternatives will be considered during the WSMP update technical analysis.	N/A
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Concerns or areas of focus] Regarding Logan well, the presence of the existing Nicklin Auto Recyclers should be assessed when evaluating whether this location is appropriate.	12/31/2021	This land use will be included in the evaluation criteria under the water quality and source water protection categories.	N/A
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Consultation] Consultation should include Town of Erin given the presence of the intake protection zone into the Town if the City feels the WSMP will result in increased surface water takings.	12/31/2021	The project team will reach out to Town of Erin staff to see if there is interest in meeting and/or being added to the project mailing list.	Contact Town of Erin.
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Consultation] Consultation should include public meetings, presentations to Township/ County Councils especially GET and Puslinch, newspaper, radio, social media and direct mailings.	12/31/2021	The project team is hosting two community open houses and will consider presenting to surrounding Township and County Council members if they are interested. Project team has offered to provide presentations to Township Councils. Newspaper and social media are being used to advertise the WSMP project. We can consider radio and direct mailings.	Consider expanding project notifications to radio and direct mailings
2/7/2020	Kyle Davis, Wellington Source Water Protection	Agency and Municipality Workshop discussion guide (Email)	[Consultation] There should be a connection between the WSMP and the Tier 3 policies.	12/31/2021	Both water quality and draft water quantity policies will be considered.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	EngagementHQ	How have the projected future water demands been considered with the current and future capacity of the Guelph WWTP? Realistically, it seems unlikely that water reclamation efforts would be implemented fast and vastly enough to keep up with the growing water demand (and consequent increased wastewater production).	2/13/2020	The Water Supply Master Plan is integrated with the Wastewater Master Plan through the water demand forecasts. The water demand forecasts are based on the number of people in Guelph by 2041 and how much water they will use during the same time period. The water demand forecast is used in the Water Supply Master Plan to determine how much new water is needed and when it is needed in the future. Similarly, the water demand forecast is used as an input into the Wastewater Master Plan since most of the water demand ends up as wastewater. The Wastewater Master Plan then identifies alternatives to address the future wastewater treatment requirements as well as improvements and upgrades to ensure that there is existing wastewater treatment capacity when it is needed. The Wastewater Master Plan will be updated in 2020, similarly to the Water Supply Master Plan. Interested persons should watch the City News for more information on the Wastewater Master Plan.	
2/13/2020	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Regarding the following sentence: "The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers." Guelph's water supply is primarily groundwater. You cannot control nor develop this supply, only monitor how your water extraction is affecting groundwater levels over time. If the City continues to promote that our drinking water supply is from groundwater, then it sounds terribly wrong to say you are going to develop that supply when in fact you have no ability to develop a groundwater source. Perhaps you mean to say you will develop and supply water infrastructure.		In this context, 'developing' refers to the City providing the necessary supply of water to the community, not the development of groundwater itself. The City can control the supply of water by managing the facilities and distribution to ensure that it is sustainable.	N/A
2/13/2020	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Sufficient water supply without any summer water restrictions on use, then population growth, not the other way around.	12/31/2021	The summer water restrictions are imposed as part of the Province's Low Water Response Program and, for the City, is coordinated through the Grand River Conservation Authority (https://www.grandriver.ca/en/our-watershed/Low-Water-Response.aspx). It is largely in response to low rainfall and hot weather in the summer in the Grand River Watershed which can result in low flows in rivers and streams and in low levels in some groundwater systems. The City's drinking water sources are mostly from deep, confined bedrock aquifers which are less affected by periodic dry summer conditions. The summer water restrictions are directed at holders of Permits to Take Water which includes the permits for the City's water supply system.	N/A

Date Name	Source	Comment	Response Date	Response	Action Required
				Therefore, the City co-ordinates its Outdoor Water Use Program (https://guelph.ca/living/house-and-home/lawn-and-garden/outdoor-water-use-and-restrictions-in-guelph/) with the Low Water Response Program. When the Provincial Low Water Response Program identifies low water levels based on trends in surface flows and rainfall, the City implements similar outdoor water use restrictions. While the City has adequate water supply capacity during these low level periods, the City reduces it water supply demand, to help preserve the river and stream flows.	
2/13/2020 Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Intensive watershed protection and stringent/ enforced conservation efforts (including banning withdrawal for profit - Nestle) should absolutely be top priorities.	12/31/2021	In accordance with section 4.3.2 of the City of Guelph Official Plan (Water Resource Protection and Conservation), the City actively promotes efficient and sustainable use of water resources in new development and existing built form. This includes reduction in water consumption encouraged by City planning staff consultations and conservation programming through upgrading/retrofitting of existing buildings and facilities. Furthermore, the official plan identifies that the City may require a Water Conservation Efficiency Study in conjunction with new development as well as encourage the implementation of Low Impact Development (LID) and alternate water supply through local development, where appropriate. In assessing the City's ability to meet the servicing needs of new business growth Economic Development and Engineering staff carry out a consultation with business proponents to understand the water servicing and other needs of their proposed operations. Through ongoing consultations City members staff commonly discuss proposed process water use of the proponent versus industry efficiency benchmarks with proponents as well as local water and wastewater user rate forecasts and development charges to servicing capacity to help encourage water efficiency investments in their operations from the time of commencement. Thereafter the City's ability to meet the proponents servicing needs (average day, peak day and fire flow water demands) are technically confirmed by the City's hydraulic water servicing model in the area(s) of the water distribution system where a new business proposal is being considered (a capacity analysis is also undertaken on the wastewater collection system to ensure the proponents servicing needs are met and that there are no adverse impacts on the City's infrastructure). If available servicing capacity does not meet proponent needs this would drive additional consultation on process conservation measures to be employed should the proposed business location still be desired by the proponent.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
					proponents and a by-law to regulate this demand is not recommended. The basis for this position is such a by-law could not be easily administered or enforced without significant capital and operational investments for field technology to limit flow to large consumers as they met their permitted capacity under the by-law. Furthermore, the presence of such a by-law may impose competitive disadvantage for the City to retain and attract business due to future uncertainties regarding availability on future servicing availability which would constrain potential for business growth, which would not be present in other Ontario based communities.	
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Determine what the future capacity of water is and use that as a limit of growth.	12/31/2021	Noted. Determining the future capacity of water and demonstrate how that may limit growth is a potential outcome of the WSMP update.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Just wondering about "2041" date? Is this the most accurate future date with the data available now? It seems we should be planning further into the future. 20 years is a blink!		2041 was selected in order to bring the City Official Plan and the associated Master Plans in line with the Provincial 2041 planning horizon utilized in the Places to Grow document.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] In addition to conservation measures, consider means of recharging aquifer with wetland systems with stormwater as well as treated wastewater.		The Aquifer Storage and Recovery alternative will consider the use of available surface water supply to support groundwater takings. The City, as part of its land development, actively promotes low impact development and "at source" recharge of stormwater.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Could we explore costs of more rapidly upgrading infrastructure to reduce system losses to leakage?	12/31/2021	Yes, reductions to the loss in non-revenue water (water loss from the distribution system) will be considered in the WSMP update.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Build the pipe to one of the lakes.	12/31/2021	As with past City of Guelph WSMPs and as directed by City Council, this update will not consider a Great Lakes pipeline. This approach aligns with City mandate to be locally environmentally sustainable.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Any consideration of water supply MUST also include the disposal of the wastewater. Our sewage output may overwhelm any of the local river flows.	12/31/2021	Consideration of wastewater will be accomplished through coordination with the Wastewater Master Plan project.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] No x4.	12/31/2021	Noted.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Declare that water-taking is not an approved land use within the City of Guelph.		Water taking is regulated by the Province. The City is considering limits on water taking inside the City as part of water quantity policy development.	N/A
	Member of the public	Community open house #1	[Do you have any suggested changes or additions to the draft problem and opportunity statement?] Does residential cover people without fixed residences? Does it cover the land?	12/31/2021	Population projections are based on the number of anticipated residents of Guelph and the number of people employed in Guelph.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Guelph may finally have to get tough with the developers. They bought land as a pure speculation. Their purchase did NOT come with a guarantee of their huge profits.	12/31/2021	Noted.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] These are serious concerns and the required population growth as set out by the Province, should be challenged by the City. We do not have sufficient water to manage population growth.	12/31/2021	This will be evaluated as part of the WSMP.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Clair-Maltby development will impact recharge for carter 1 & 2 well sites.		The Tier 3 groundwater model can be utilized to evaluate future increases or reduction in recharge to the aquifer and it will be used for the WSMP update.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] This concern is specific – but water use and efficiency are a concern to me as a condo owner. My water is paid for through condo fees. Without a monthly bill I worry that residents and tenants don't have the "visual" reminder about water conservation. I'm optimistic that working with condo boards and property managers would be beneficial. More high-rise, high-density housing in our future.		Noted.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Overpopulation.	12/31/2021	Noted.	N/A
	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Local industrial/ commercial water use in the area.	12/31/2021	Noted.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Nestle supplies so few jobs per litre of water that maybe it should be closed down.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Dolime Quarry.	12/31/2021	The future of Dolime Quarry as a potential source of water supply will be considered as part of the WSMP update.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Yes. Guelph should be concerned with the water supply being exploited by Nestle waters. The proximity of this facility to Guelph and their extensive extraction of groundwater cannot be ignored in the years to come, especially as local aquifers become stressed by the growing water demand by the city.		The Tier 3 groundwater model incorporates all of the water takings permitted by the Ministry of the Environment, Conservation and Parks and will be used for the WSMP update. The City's Threat Management Strategy (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx) evaluated the impact of the Nestle water taking on the City's water supply.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Heavy industry consumers of water including Nestle, Cargill and Sleeman Brewery.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Banning Nestle and anyone who would take the water for profit.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Companies extracting water from the water table for sale.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Nestle draws from the area and could have impact here.	12/31/2021	Noted. The City's Threat Management Strategy (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx) evaluated the impact of the Nestle water taking on the City's water supply.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Large companies using up our water.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Similar to off-peak hydro, consider a system of reduced rates during low demand and higher prohibition during times of peak use – for high-use industries that could have their own storage – for swimming pool and other high-volume residential use.		User rates will be evaluated through modeling scenarios.	N/A

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2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] I understand there a contaminated groundwater plume heading this way that might put the Speed River more at risk. Liz Sandals hinted at this once.	12/31/2021	Water quality concerns will be assessed from the perspective of current City wells that are off-line due to contamination and consideration of the impact of future contamination events.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Campaign regarding winter safety salt use. The application of this by property management companies, in particular, and the general public is often overboard. It is being overused as organizations do not want to risk a fall. Mitigating for icy walkways is important of course, but perhaps the responsibility should be placed back on the individual for risk of falling. Winter melts are contaminating our freshwater creeks, rivers and Great Lakes.	12/31/2021	This type of campaign is outside of the project scope. Salt management is an issue considered in the City's Source Protection Program.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] While not our drinking water, all waterways are sources for nonhumans, and need to better respected. Need to address historical (former industrial waste and garbage dump sites) and ongoing (recent sewage leak, PDI industry's trains dumping micro plastics into river) contamination/pollution of our rivers. Eramosa river floodplains are a disaster and reflective of how we care for our environment.		The potential impacts to surface water related to Guelph's water supply will be assessed as part of the WSMP update.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] The water quality related to new and emerging contaminants, including perfluorooctanesulfonic acids, hormones and pharmaceuticals. We don't know what we are drinking today, and it should be monitored and shared with the society. Remedial/ treatment plans should be discussed and implemented if possible.	12/31/2021	The City's water meets all of the water quality standards established by the Ministry of the Environment, Conservation and Parks.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Is the cost of adding fluoride and removing calcium from the water supply less than the extra money spent on dental cleaning, water softeners, supply pipe cleaning, faucet and small appliance replacement? Is there a conflict of interest for the people making this decision?		The WSMP update is focused on the amount of water required to 2041 and the potential sources of this water. The City does not add fluoride to its water supply nor does it remove calcium from the water supply.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Having offline wells with unknown contamination concerns me greatly, especially as someone who lives in the vicinity of two of these wells. I am concerned that this issue has not been adequately addressed by the City in terms of determining current potential risk.		Water quality concerns will be assessed from the perspective of current City wells that are off-line due to contamination and consideration of the impact of future contamination events. MECP is responsible for groundwater contamination associated with contaminated sites.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Contamination.	12/31/2021	Water quality concerns will be assessed from the perspective of current City wells that are off-line due to contamination and consideration of the impact of future contamination events.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] I also wonder how aquatic and land wildlife would be impacted by any of the City's proposals.	12/31/2021	Both of these elements will be considered in the assessment of alternatives.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] How climate change may impact the model.	12/31/2021	Climate change is a consideration included in the WSMP update. The City has completed a study that looks at climate change and water quantity threats (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx).	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Climate change.	12/31/2021	Climate change is a consideration included in the WSMP update. The City has completed a study that looks at climate change and water quantity threats (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx).	
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Water taking from adjacent aquifers as in Erin, Aberfoyle, etc.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] Not that I can think of.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?] No x2.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Please explain to me why growth is so essential. Cancers grow forever, but they KILL the host. I do not see control of water use for things like pools and lawns.	12/31/2021	The City has an obligation to provide sustainable water supply to meet the growth requirements of the Council approved Official Plan. In addition, the province set growth targets for municipalities under the Places to Grow Act. A discussion on population growth is outside of the project scope except as it relates to how much water is required to meet the growth targets set by the province.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Increase our water conservation initiatives and aggressively pursue increasing the use of grey water throughout our city in residential, commercial and industrial settings.		Consideration of wastewater reuse options will be accomplished through coordination with the Wastewater Master Plan project.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Limit demand by limiting population increase.	12/31/2021	This will be assessed in the WSMP update.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Challenge population growth targets so residents do not suffer from water shortage.	12/31/2021	The population targets established by the Province will form the basis of projections completed for the project.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] The water efficiency strategy should be revised to better reflect the climate crisis with increased drought, severe weather events, infrastructure deficiencies, contamination, etc.	12/31/2021	Water conservation and efficiency opportunities will be considered and the WSMP will provide water efficiency goals for the next Water Efficiency Strategy update; however, the Water Efficiency Strategy update is outside of the project scope.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Guelph must consider complications of the water supply impact resulting from the water extraction by Nestle. Guelph should work with surrounding municipalities to stand up against the privatization of local groundwater supplies.		The Tier 3 groundwater model incorporates all of the water takings permitted by the Ministry of the Environment, Conservation and Parks and will be used for the WSMP update. The City's Threat Management Strategy (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx) evaluated the impact of the Nestle water taking on the City's water supply.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Quantify the impact of Nestle – why are the citizens paying to solve an issue likely caused by a corporation that has no local interests?	12/31/2021	The Tier 3 groundwater model incorporates all of the water takings permitted by the Ministry of the Environment, Conservation and Parks and will be used for the WSMP update. The City's Threat Management Strategy (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx) evaluated the impact of the Nestle water taking on the City's water supply.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Stop Nestle.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Potentially surface water sources outside of the watershed.	12/31/2021	At this time surface water options outside of the watershed will not be considered.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] If 'do nothing' is honestly an option, you are fools and we are all doomed.	12/31/2021	Noted. The "do nothing" is a standard for comparison of alternatives in a Class Environmental Assessment process. As in previous WSMP updates, the "do nothing" alternative is not a viable alternative since it does not address the project problem statement.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] I think the City is missing an opportunity to significantly engage with the Indigenous Community and make an effort in terms of how best not only to manage but to love and respect water.	12/31/2021	The City recognizes the significance and importance of water to Guelph's local Indigenous community and is actively engaging Indigenous residents in the development of the WSMP update. Community Liaison Group members representing Guelph's Indigenous population brought their unique perspective to the conversation during the first CLG meeting, provided input to and attended the first open house to speak with members of the public, and have also met with the WSMP project team on different occasions to discuss how the City can better engage and involve the local Indigenous community on this, and other water-related projects. Discussions to find a better path forward for engaging Guelph's Indigenous community are important and will continue into phase 2 of the project.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Ensure water-taking is not approved land use so we never have to worry about Nestle trying to set up in our City.	12/31/2021	Noted.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Contamination risk management.	12/31/2021	Water quality concerns will be assessed from the perspective of current City wells that are off-line due to contamination and consideration of the impact of future contamination events.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Stormwater and wastewater are more efficient of recycling back to aquifer. Stormwater – more on site in-filtration compared to channeling to rivers. Restoration of aquatic (marshes) and terrestrial (fresh) natural system to maximize water retention.		Consideration of wastewater reuse options will be considered through coordination with the Wastewater Master Plan project and via Aquifer Storage and Recovery opportunities. The City, as part of its land development, actively promotes low impact development and "at source" recharge of stormwater.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] No x3.	12/31/2021	Noted.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] Establish urban rooftop water collection systems that are stored in local cisterns. Even the roof of the City's building can collect water – cisterns could be built under streets for common local use. Have a look at that.	12/31/2021	Consideration of wastewater reuse options will be considered through coordination with the Wastewater Master Plan project.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] How to adapt in the case of extreme floods.	12/31/2021	Flooding will be considered from the perspective of impacts related to water supply facilities.	N/A
	Member of the public	Community open house #1 survey	[Did we miss any alternatives?] How to adapt to current pollution to our water by industry.	12/31/2021	Water quality concerns will be assessed from the perspective of current City wells that are off-line due to contamination and consideration of the impact of future contamination events.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Again, this could fall under "Climate Adaptability" but I would like to see a breakdown of how each of the proposals would impact aquatic and land-based wildlife.	12/31/2021	Both of these elements will be considered in the assessment of alternatives.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Remember that Clair-Maltby is the recharge area for three watershed areas. Keep in mind how development on this hydrologically important area will affect water availability movement and recharge.	12/31/2021	Noted. As part of the City Threats Management Strategy (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx), the City has considered potential impacts to its water supply resulting from land development and reductions in groundwater recharge.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] The environment is extremely important in this decision- making process and should not be interfered with nor compromised in any manner.	12/31/2021	The assessment of alternatives completed for the WSMP update will include environmental criteria and field-based technical studies will be completed as part of the Class Environmental Assessment projects required to develop future water supply.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Listen to and understand Indigenous people's approach to water and how to reduce damage and cost of restoration.	12/31/2021	The City is committed to communicating with Indigenous peoples for this project and welcomes feedback on all aspects of the WSMP update.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Ability to respond to unpredictable climate events.	12/31/2021	Drought conditions are particularly important for water supply and these will be evaluated in the WSMP update. The City has completed a study that looks at climate change and water quantity threats (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx).	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] In the new growth of the city who will pay for the new water treatment, supply and waste treatment? The current residents or the new ones who are responsible for the costs?	12/31/2021	Development of new water supply in the City is funded through development charges.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Economic impact and what is the current and future economic impact of not having water.	12/31/2021	Detailed cost estimates will be developed for each water supply project.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] How much will it cost to bring water to Guelph in 2041 if we run out. What will that mean for all of the above?	12/31/2021	Detailed cost estimates will be developed for each water supply project.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] If land, then creation of socioeconomic benefits from managing for groundwater and forestry.	12/31/2021	Noted.	N/A
	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Potential creation of local jobs.	12/31/2021	Noted.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Yes. Long term impacts of any new facility. This includes the long-term impact environmentally to the groundwater and surface level of the site. Long term impact of the site if/ when the facility is eventually closed.	12/31/2021	Use of the groundwater flow model allows for the assessment of potential long-term environmental impacts. Detailed field studies completed as part of Class EAs for the facilities will further refine environmental impact assessments.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] No x2.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1 survey	[Are there additional evaluation criteria we should include?] Stop letting Nestle drain the aquifer.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	Can you explain the master planning process?	12/31/2021	Our WSMP update is completed every five years and follows the Municipal Class Environmental Assessment (EA) process. The process starts phase 1 that focuses on identifying and describing the problem(s) and opportunities statement. Phase 2 identifies and evaluates alternative solutions and establishes the preferred solution. Both phases include agency and public consultation. After phase 2, the WSMP report is updated. After the report, individual projects and conceptual feasibility, including anticipated project triggers and impacts happens. Then individual projects will process in accordance with the remaining class EA requirements. Visit municipalclassea.ca to learn more about the Environmental Assessment process.	N/A
2/13/2020	Member of the public	Community open house #1	Why are there so many WSMP studies?	12/31/2021	The WSMP is updated on an approximate 5-year basis to review progress made by the City, the current status of the City's water supply and update the projections of future water demand.	N/A
2/13/2020	Member of the public	Community open house #1	What are the main water supply sources currently?	12/31/2021	Guelph's water supply system includes production wells primarily installed in the Guelph Gasport bedrock aquifer and the Arkell Spring Grounds collector system: • 25 production wells, 21 wells in continuous operation, four wells offline (due primarily to water quality) • a shallow groundwater system that collects spring water in the Arkell Spring Grounds • a seasonally operated Eramosa River Intake and Recharge system. River water is pumped to an infiltration pond and trench where it is captured by the Arkell subsurface collector system. Availability is subject to river flow conditions (i.e., reduced capacity during summer when river flows are low)	

Date	Name	Source	Comment	Response Date	Response	Action Required
	Member of the public	Community open house #1	What are the offline wells?	12/31/2021	In 2019, there are four wells that are offline, due primarily to water quality concerns. These include: Clythe Creek Well Edinburgh Road Well Smallfield Well Sacco Well	N/A
	Member of the public	Community open house #1	How will future development be considered?	12/31/2021	Future development will be considered by including population projections that consider growth within the City.	N/A
	Member of the public	Community open house #1	How does the wastewater treatment plant handle stormwater?	12/31/2021	This comment is outside of the scope of the WSMP update.	N/A
	Member of the public	Community open house #1	How does the Dolime Quarry fit with the WSMP update?	12/31/2021	A proposal for the future use of the Dolime Quarry lands is currently under consideration by the City. The proposal includes the protection of the quality and quantity of the primary aquifer system utilized by the City for water supply. Alternatives will consider how to potentially capture and treat a portion of the 11,000 m³/day of groundwater that is extracted during quarry operations for City supply.	N/A
	Member of the public	Community open house #1	How does wastewater and stormwater fit with the WSMP update?	12/31/2021	The WSMP update is focused on water supply, i.e., where our water comes from, rather than stormwater and wastewater. There are other master plans related to stormwater and wastewater that might be of interest: https://guelph.ca/plans-and-strategies/water-and-wastewater-servicing-master-plan/ and https://guelph.ca/plans-and-strategies/stormwater-management/	N/A
	Member of the public	Community open house #1	Will there be enough water to meet needs for 2038?	12/31/2021	This will be addressed by the WSMP update.	N/A
	Member of the public	Community open house #1	Where will we get surface water from if we run out of groundwater?	12/31/2021	Surface water options could include Guelph Lake/ Speed River and the Eramosa River.	N/A
	Member of the public	Community open house #1	Are residents drinking wastewater effluent? Does the City monitor pharmaceuticals in the water?	12/31/2021	Guelph residents are not drinking the City's wastewater effluent. The City monitors drinking water quality against the standards established by the Ministry of the Environment, Conservation and Parks.	N/A
	Member of the public	Community open house #1	Are drugs and chemicals filtered out of our drinking water?	12/31/2021	The City treats drinking water to the standards established by the Ministry of the Environment, Conservation and Parks.	N/A
	Member of the public	Community open house #1	How does the Guelph Lake dam work?	12/31/2021	The dam is meant for flood control and not related to water supply. It is operated by the Grand River Conservation Authority.	N/A
	Member of the public	Community open house #1	What are the impacts on wetlands from developments in the south end of Guelph?	12/31/2021	These potential impacts are addressed outside of the WSMP study.	N/A
	Member of the public	Community open house #1	At one point, Guelph used to be a wetland. How can we use this knowledge to inform the WSMP?	12/31/2021	The existing wetlands, as defined by the Grand River Conservation Authority, will be considered when evaluating the water supply alternatives.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
2/13/2020	Member of the public	Community open house #1	Dollar values should be assigned to natural heritage features.	12/31/2021	Noted.	N/A
2/13/2020	Member of the public	Community open house #1	Does the Tier 3 model consider development (paving), droughts and recharge areas?	12/31/2021	Yes, the Tier 3 model has been used to evaluate these factors. The City has completed a study that looks at threats to water quantity including land development, droughts and recharge reduction (https://www.sourcewater.ca/en/source-protection-areas/water-quantity-policy-development-study.aspx).	N/A
2/13/2020	Member of the public	Community open house #1	What is the target liter per day per person?	12/31/2021	The project will not define a target daily water use, rather past water use will be evaluated along with population projections to forecast demand.	N/A
2/13/2020	Member of the public	Community open house #1	What is the timeframe of this project?	12/31/2021	The project started in October 2019 and is expected to be complete by early 2021.	N/A
2/13/2020	Member of the public	Community open house #1	Who are the biggest water users in Guelph?	12/31/2021	The City does not release information with respect to individual water users.	N/A
03/12/2020	Hydro One Networks Inc.	Letter	In our preliminary assessment, we have confirmed that Hydro One has existing high voltage Transmission facilities within your study area (see attached map). At this point in time we do not have enough information about your project to provide you with meaningful input with respect to the impacts that your project may have on our infrastructure. As such, this response does not constitute any sort of approval for your plans and is being sent to you as a courtesy to inform you that we must be consulted on your project. In addition to the existing infrastructure mentioned above, the affected transmission corridor may have provisions for future lines or already contain secondary land uses (i.e. pipelines, watermains, parking, etc.). Please take this into consideration in your planning. Also, we would like to bring to your attention that should (Water Supply Master Plan Update) result in a Hydro One station expansion or transmission line replacement and/or relocation, an environmental assessment (EA) will be required as described under the Class Environmental Assessment for Minor Transmission Facilities (Hydro One, 2016). This EA process would require a minimum of 6 months to be completed and associated costs will be allocated and recovered in accordance with the Transmission System Code. Furthermore, to complete an EA it can take from 6 months (to complete a Class EA Screening Process) to 18 months (to complete a Full Class EA Process) based on the level of assessment required for the EA. In order to achieve speedy completion of the EA, Hydro One will need to rely on studies and/or reports completed as part of the EA for your project.		Thank you very much for providing input to the Water Supply Master Plan (WSMP) update project. The WSMP is a high-level planning project that will not include detailed planning/work at a site level. Therefore, it will not include or immediately trigger EA work such as the example in your letter of replacing/relocating Hydro One infrastructure. The WSMP will identify and outline future studies that are required to implement the preferred solution identified for the WSMP EA. The mapping information that you have provided will be reviewed and considered within the context of evaluating the potential alternatives and identifying future studies required during the implementation phase.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
			Please allow the appropriate lead-time in your project schedule in the event that your proposed development impacts Hydro One infrastructure to the extent that it would require modifications to our infrastructure. In planning, please note that developments should not reduce line clearances or limit access to our facilities at any time in the study area of your Proposal. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage. Be advised that any changes to lot grading and/or drainage within or in proximity to Hydro One transmission corridor lands must be controlled and directed away from the transmission corridor. Please note that the proponent will be held responsible for all costs associated with modification or relocation of Hydro One facilities, as well as any added costs that may be incurred due to increase efforts to maintain our facilities. We reiterate that this message does not constitute any form of approval for your project. Hydro One must be consulted during all stages of your project. Please ensure that all future communications about your project are sent to us electronically to secondarylanduse@hydroone.com			
04/13/2020	Lin Grist, Council of Canadians Guelph Chapter	Email	Many thanks for sending info to the Council of Canadians Guelph I am planning to do an eblast to our membership in May of this year on All Things Water. I wonder if there is a summary of the work that you have completed on the Guelph Water Supply that I could include in the eblast. Could you let me know? Many thanks Lin Grist Council of Canadians Guelph Chapter	04/30/2021	Hi Lin, Thank you for your email and including a section in the newsletter about the City's Water Supply Master Plan update. As part of Phase 1 of the project, the City hosted the first Water Supply Master Plan update community open house in February. The display boards are available for review as a PDF on the project webpage (https://guelph.ca/plans-and-strategies/water-supply-master-plan/). Results from an in-person and online survey associated with information in the display boards will be made available in a Phase 1 Engagement Summary Report in May/ June. We will share a link to the report in our electronic newsletter, the webpage and the interactive engagement project page Have Your Say Guelph (https://www.haveyoursay.guelph.ca/wsmp). The report will also include feedback received from the Community Liaison Group and a workshop held with Agencies and municipalities. We welcome questions, comments and feedback at any time and you can reach the City's Water Supply Program Manager, Dave Belanger, at dave.belanger@guelph.ca or 519-822-1260 extension 2186 or the consultant Project Manager, Matthew Alexander, at matthew.alexander@aecom.com.	

Date	Name	Source	Comment	Response Date	Response	Action Required
05/09/2020	Lin Grist, Council of Canadians Guelph Chapter	Email	Thank you for getting back to me; just so that I am no misunderstanding anything. AECOM is an organization that is helping the staff at city hall who deal with water supply management. Am I correct in assuming that you are not experts in water management, however you have expertise is communicating messages from the city staff to the general public. could you confirm or explain? thank you for the URL I will take a look at it and see if it would be useful to our mailing list. of aobut 300+ We are doing a special eblast on Water issues this month Regards Lin Grist Council of Canadians Guelph Chapter	reta prop Mas Sup Terr proj asso wate This seve Exa hyd	anks for reaching out for clarification. AECOM has been ained by Guelph Water Services through a competitive sposal process to manage the update of the Water Supply ster Plan. AECOM is responsible for developing the Water oply Master Plan update according to the Water Services arms of Reference. This includes the technical aspects of the eject including development of water demand projections, sessments of existing water supply capacity, development of the supply alternatives and creating the update to the WSMP. It is work is being done in collaboration with City staff from weral departments, but primarily from Water Services. It is amples of experts on the AECOM project team include drogeologists, water resource engineers, numerical modellers, ologists and communications specialists.	N/A
09/28/2020		Email	Thanks, Dave for your very comprehensive response. 2051 is coming a lot quicker than we think, and I tend to think in terms of the "very long range". Some point in the not too distance future (2060 – 2080) I still believe the population of Guelph and Waterloo Region is going to grow to the point that well-water and surface water sources will be hard pressed to keep up with the demand. A pipeline from Lake Erie to service this entire area with a population of almost 2 million residents will be a massive financial and time-consuming undertaking. We may not need any of that water for another 30 years, but just initiating the conversation with the senior levels of government and the Six Nations people will take some work and intensive discussions. The construction phase (possibly 10 – 15 years) is a long way off. I presume it's a strong argument for the City to take to the governments that the construction cost for Guelph is prohibitive and is a significant constraint on our growth capacity. Of course, the \$500M cost (2006) is now in excess of \$1B, but with interest rates at 3.5% (conservative number) and amortized over 40 years, that would be a cost per household (80K) of about \$580/household/year, and that doesn't include the offset revenue from industrial uses. But, I understand that's only for the pipeline itself. Regardless, that is not an unreasonable number. Fortuitously, some of those underground caverns that we are currently drawing from may be able to be used for the storage of pipeline water when the time comes. Regards,	on t wate con- serv and com- envi com- with As a Aqui surf whe surf and bac- peri Upd	ank you for your additional comments. We are in agreement the need for advanced and long-term planning for municipal ter supply. The WSMP is updated every five years and, as we nisider growth and the ability of the local water resources to vice it, we will need to have ongoing discussions with local diregional stakeholders, the Province and Indigenous munities on where the water will come from and the vironmental and economic impacts it may have on our munity. We will certainly consider your advice as we continue in the Water Supply Master Plan Update. added information, we are considering a concept called utifer Storage and Recovery (ASR) as part of a Guelph Lake face water option. In this concept, we take water from the river ten there is excess capacity (i.e. spring and fall under high face water flow conditions), treat it to a drinking water quality distorage in our bedrock aquifers. We then bring the water ok to surface when it is needed for high summer demand ciods. Details are in the 2014 Water Supply Master Plan date. anks again.	N/A

Date Name Source	Comment	Response Date	Response	Action Required
Email	I understand that many people in Guelph like the current well-based system of water supply, but it has it's limitations, and few people understand those. Firstly, we are extracting water from deep underground (I think about 600 feet), but it took a very long time for water to permeate that deeply into the soil/rock structure. At the current rate (about 75,000 cubic meters each day) we are removing close to 30 million cubic meters of water from beneath us each year, and I don't know if anyone knows how quickly the system is recharged. It's highly unlikely that the rate of recharge is close to the rate of extraction. People wonder why we hear about "sink holes" swallowing homes and cars. I understand there's a lot of bedrock structure between the surface and the water source, but at some point there will be a failure! Secondly, Guelph water is very hard, and most residents employ water softeners to make the water more usable. It would be interesting to know the amount of salt that ends up in the river because of the use of softening technology; it definitely contributes to a lessened quality of river water as it flows towards Lake Erie. Thirdly, with the population expected to increase by 50% over the next 30 years, the current source of our water will simply be pushed to the limit well before we get close to that population base. Finally, we are taking great pains to protect the areas around the wells so they do not become contaminated and unusable. This is creating an obstacle to gaining better access to Hwy 401 east of the 2 current interchanges. There are 2 feasible alternatives, but neither will be inexpensive. The first is to embark on a water recycling program where we take the discharge from the water treatment facility and purify the water to the point that it meets/exceeds the water quality standards that are required. The problem with this proposal is that if the system should ever fail, there would not likely be an adequate back-up supply without the expense of constructing a massive reservoir c		Hello and thank you for your comments on the City's Water Supply Master Plan. Our team has reviewed your comments and we can provide some additional information in response. The City's water supply is primarily derived from wells in a deep confined bedrock aquifer with well depths of approximately 80 m (262 ft) in the western part of the City and 40 m (131 ft) in the east. In the Arkell Spring Grounds, the City also has a shallow groundwater collection system, which has a seasonal recharge system using Eramosa River water. Additional information on the City's water supply system can be found in the Grand River Source Protection – Approved Assessment Report (June, 2020, Chapter 7) here - https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/GRSPA AR updated S7 City-of-Guelph clean reduced.pdf . The Assessment Report provides information on the recharge of the bedrock aquifer. In general, groundwater travel times to the aquifer are on the order of 2 years to 25 years depending on location. Precipitation recharges the shallow groundwater collection system in the Arkell Spring Grounds in a matter of days to weeks. The average day demand for the City's water supply system was approximately 47,015 m³/day (cubic metres per day) in 2019, 47,449 m³/day in 2018, 46,360 m³/day in 2017 and 46,285 m³/day in 2016. Details are provided in the Water Services annual reports located here - https://www.sourcewater.ca/en/supleph.ca/plans-and-strategies/performance-reporting/ . We have completed a Tier 3 Water Budget and Local Area Risk Assessment that describes in detail the rate of recharge of our bedrock aquifers. This study indicates that we may have difficulties achieving our maximum water supply capacity under future (2038) demand conditions during prolonged	

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			engineering and environmental approach is to construct such pipelines along the river itself (taking some meandering out). It would be designed to supply the needs of about 2.5 million residents, enough to deal with the projected needs of Brantford, Waterloo Region, and southern Wellington County for the next 75 – 100 years. We're probably looking at twin 2 metre diameter pipelines (with the design to include a provision for a 3rd line as the population grows) at the source with reductions as the water comes to the major distribution points. That would require a flow rate of about 1.5 metres/second. Capacity could also be increased by increasing the flow rate but the economics of construction vs. operating costs need to be considered and the design would need to account for the practical pressure limits of such a large diameter pipeline. Such a massive project clearly needs the support and involvement of the Province, the Grand River Conservation Authority, and the Six Nations of the Grand River. It will also take at least 20 years to complete, with the first phase (to Brantford) being serviceable in 10 – 12 years. The key is to start the discussion now so the project can get off the ground before the critical timeframe for the requirement comes. This is especially important for Guelph since we are effectively "at the end of the road". Just my thoughts on the future of Guelph water. Regards,		are paleo-karst features that occurred in prehistoric times and karst formation does not occur today. Water extraction will not result in sink holes in the Guelph area. Information on karst in Ontario can be found here - http://www.geologyontario.mndm.gov.on.ca/mndmfiles/pub/data/imaging/GRS005/karst-map.pdf . We agree that Guelph's groundwater is hard water which means it has a naturally-occurring, high mineral content consisting mostly of calcium and magnesium carbonate. This mineral content is derived from the dolomite bedrock that makes up our water supply aquifers. We also agree that water softening salt is a source of contamination in our surface waters. Salt content is also compounded by road de-icing in the winter months. We are addressing salt as part of our Source Protection Program and additional details are found here - https://guelph.ca/living/environment/water/groundwater/can-help-protect-source-water/source-water-fact-sheet-road-salt/ . Population growth is dictated by the Province of Ontario and the Province has just released population and employment forecasts to 2051 (Environmental Registry of Ontario - https://ero.ontario.ca/notice/019-1680) which will increase Guelph's population to 203,000 and employment to 116,000. As part of our Water Supply Master Plan Update, we are evaluating the water demand for these forecasts and evaluating whether our groundwater supply is sustainable with this additional growth. The WSMP Update will assess sustainable water supply alternatives including groundwater and local surface water sources to meet the provincial growth forecasts. We have delineated wellhead protection areas around our water supply and only the WHPA-Q extends to Highway 401. We are not aware of any water qua	

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				an expensive alternative with costs that are in the range of three to four times more expensive than groundwater sources to achieve potable water quality standards. As part of the WSMP Update, we are likely to look at less expensive water reuse options first such as for non-potable applications (i.e., irrigation, cooling water, etc.) and then consider more complicated treatment options later in the plan to bring wastewater to potable water quality standards. The risk associated with system failure, noted in your email, will	
				be evaluated in the WSMP Update, as it has been in previous master plans. The Firm Capacity of the system will be determined, and the City will continue to plan for sufficient water supply capacity to achieve the projected demand to 2051 with reserve supply and infrastructure to address potential risks such as required system maintenance/repair, a contamination event, drought conditions, etc. The projects required to meet future demand, including reserve supply, will be detailed in the Implementation Plan, within the WSMP Update documentation and this will include the estimated costs associated with the projects.	
				With regards to a Great Lakes pipeline to Lake Erie, the City had considered this alternative as part of the 2006 Water Supply Master Plan. The proposed plan was to tap into a pipeline from Lake Erie proposed by the Region of Waterloo. The Great Lakes pipeline option was generally panned by the public since it was considered to be contrary to the City's water conservation and sustainability programs. The public generally recommended "living within its means" and to rely on local water resources as a method to manage growth. In addition, the Great Lakes pipeline option (capacity of ~175,000 m³/day) had Guelph's portion of the	
				costs (2006) on the order of \$500,000,000 to \$700,000,000 which was considered to be "unaffordable" for a municipality like Guelph. In the end, City Council approved the 2006 Water Supply Master Plan with the exclusion of the Great Lakes pipeline option. We also understand that the Region of Waterloo has extended the timing for its Great Lake pipeline to beyond 2051. Based on the previous direction of Council, the Great Lakes pipeline option was not considered in 2014 nor is it being considered in the current WSMP Update.	
				The current WSMP Update is considering conservation/efficiency programs and groundwater sources inside and outside of the City as well as local surface water sources (i.e. Speed River and Eramosa River). We expect the WSMP to address the water demand to 2041 and potentially to 2051 with the use of surface water sources. As we continue through the WSMP Update, we	

Date Name	Source	Comment	Response Date	Response	Action Required
07/27/2021 Susan McSherry	Email	As a member of Wellington Watchers Board from the DoLime lands, several questions have been raised by WWW's Executive	07/30/2021	would suggest that you check into the project webpage for updates here - https://guelph.ca/plans-and-strategies/water-supply-master-plan/ . Thank you for your comments and we hope this additional information has addressed your email. If you require more information, please contact us. Here's hoping all is well. I copy of your questions regarding Dolime Quarry received in advance of WSMP Community Liaison Group Meeting earlier this week were shared with me for	N/A
		several questions have been raised by WWW's Executive Director and I specific to the DoLime site annexation and water impacts that I'd appreciate any answers you can provide. While unsure whether tonight's meeting will provide any focus on this subject, I thought it best to just send you this email and ask that if the DoLime annexation's impact on the Master Water Plan is not on tonight's agenda, that these questions be forwarded to the City's waterworks division for response. 1. After Dolime closes and the dewatering stops, will there be a difference in the flow of the Speed River? 2. If river flow will change, how will this impact sewage treatment needs? 3. Will there be more water released from Guelph Lake? 4. If more water will be released from Guelph Lake, what are the ecological impacts? 5. What impacts will the development of the Dolime site have on water demands, city well capacity, the aquifer, surrounding wetlands, woodland, eco-systems, parkland, and roadways/infrastructure? 6. What commitment(s), if any, have been made to a Green development at the Dolime site? 7. What timeframe is the City proposing? Appreciate your consideration, See you at 7 p.m. Kind Regards, Susan		response. As requested, I would ask that you please find responses to your questions below: 1. After Dolime closes and the dewatering stops, will there be a difference in the flow of the Speed River? WG - The short answer is, we don't expect so. We expect that a management system to protect local groundwater resources will also require pumping water which would be diverted to the Speed River, and as we complete testing to determine the need for, design and function of a management system and whether there's water available to supplement the City's growing needs, we'll learn more about any changes that could affect water flows in the Speed River, and ensure that our natural habitats are protected. It should be noted that dewatering from the quarry has varied by season, often with no flow to the river in the drier (summer) months, and that the average annual average discharge from the quarry is less than 10 per cent of the river flow through summer, so not a major impact. 2. If river flow will change, how will this impact sewage treatment needs? WG -Changes to the discharge from the quarry will not affect the operation of the City's wastewater treatment plant (WWTP). The assimilative capacity (i.e., the natural ability of waters to dilute and disperse wastes without harm to the aquatic environment) is calculated based on the upstream flows of the river. The discharge from the quarry occurs downstream of the outfall of the WWTP. The assimilative capacity of the river is currently under review by the MECP as part of the ongoing Wastewater Treatment and Biosolids Master Plan. 3. Will there be more water released from Guelph Lake? 4. If more water will be released from Guelph Lake, what are the ecological impacts?	
		Susan		review by the MECP as part of the ongoing Wastewater Treatment and Biosolids Master Plan. 3. Will there be more water released from Guelph Lake? 4. If more water will be released from Guelph Lake, what are the	

Date	Name	Source	Comment	Response Date	Response	Action Required
					Guelph Lake dam. The GRCA controls the release of water as needed to meet the requirements for wastewater treatment plants and municipal water supplies downstream. Given that we don't expect major changes to the river flows based on quarrying dewatering stopping, we also don't expect that the GRCA will need to make any changes to how they manage river flows through the dam. The GRCA is a key stakeholder in all our water supply planning work, including upcoming testing to inform the need for, and design and function of a groundwater protection management system. They will be at the table to review information and	
					provide input as we complete this work, and we will work with all responsible agencies to address any impacts or changes to local waterways should it be necessary.	
					5. What impacts will the development of the Dolime site have on water demands, city well capacity, the aquifer, surrounding wetlands, woodland, eco-systems, parkland, and roadways/infrastructure?	
					WG - At this time, we don't know. This will all be determined through required environmental and servicing studies that will need to take place to inform the development plan. The testing we're doing to assess water supply capacity in the area and what's needed to protect Guelph's drinking water would also inform what kind of development the City can support from a servicing perspective.	
					6. What commitment(s), if any, have been made to a Green development at the Dolime site?	
					WG -The City's Official Plan includes environmental objectives that developments in Guelph must meet. These include reducing development resource impact and future-proofing communities to mitigate the impacts of climate change.	
					The developer also understands the City's, Council's and the community's commitments and vision toward a sustainable future, particularly around water conservation efforts, energy use and our urban forest targets, and these priorities will be considerations throughout the development planning process.	
					7. What timeframe is the City proposing? WG - There's no concrete timeline established at this time as associated timelines are dependent on subsequent Provincial and local planning approvals. The City is submitting the boundary and zoning change requests to the Province and we	
					don't know how quickly they'll make their decision. Following that, as we promised the community when we engaged in 2019, and per Council's direction on the zoning change	

Date Name	Source	Comment	Response Date	Response	Action Required
				request, the developer will be required to follow proper planning procedures, including a block or secondary plan, then site plan approvals and so forth. These steps can take upwards of a year. Rest assured it will take as long as it takes to ensure all proper studies are done, and planning processes followed, including opportunities for community input. Please let us know should you have any further questions. Best regards, Wayne	
07/29/2021 Lin Grist	Email	Thank you for an excellent presentation. Could you please explain why you need to constantly push water into the ponds in the Dolime Quarry and why that Is important for the water supply for Guelph residents? I am planning to send out an eblast on the presentation to the mailing list of: • Council of Canadians Guelph chapter • Guelph Wellington Coalition for Social Justice • Guelph Old City Residents' Association The eblast will go out on Monday August 2 nd	08/03/2021	Hi Lin. Thank you for your questions. The quarry has excavated to the licensed limit of an elevation of approximately 285 m above sea level which is approximately 17 m below the elevation of the Speed River. The quarry excavation has breached the Vinemount Aquitard and therefore the City's water supply aquifer (Gasport Formation) is exposed in the base of the quarry, causing groundwater to flow into the quarry. If the dewatering were to stop, groundwater from the aquifer would fill the quarry. If the dewatering were to stop, the quarry would fill with water. Once the quarry fills, water would flow out of the bottom of the quarry through the breach and flow to our municipal water wells. The water quality of the pond may be similar to surface water and contain bacteria and viruses which could, potentially, contaminate our wells. To protect the water quality of our wells, the proposed concept is to continually pump the quarry pond to maintain the inward flow into the quarry to prevent the outward flow of poor quality water. The water pumped out of the quarry would continue to be discharged to the Speed River. Also, as part of the water management concept, we would optimize the amount of water to be collected by our water supply wells while still maintaining the inward flow to the quarry. All of this will be confirmed in future years through an operational testing program and municipal Class Environmental Assessment. More information on the Dolime Quarry can be found here - https://guelph.ca/living/environment/our-community-our-water/ I hope this answers your questions. If you need more or have other questions, please contact us. Thank you for your interest in our project.	
08/03/2021 Lin Grist	Email	Thanks so much for providing this information, I am afraid I had already sent out the summer eblast, so just gave general information that I knew to be factually correct. One of our who is an expert in the area wrote a piece for the eblast on the quarry as he has a special interest in it	08/03/2021	Hi Lin. Sorry I didn't get this to you in time for your Eblast. If there are more comments or questions that come out of the communication, please pass them along to us. Climate change and the impact on our groundwater resources have been evaluated in our Source Protection program as part of the Tier 3 Water Budget and Water Quantity Risk Assessment. The report is located here -	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
			I would be really interested to know how your planning team are going to include climate change into the predictions to 2051. I am assuming that this will be part of the report which you bring to council Regards Lin Grist		https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/15072-527-Climate-Change-R-2018-11-21-final-V1.0.pdf . In summary, the report predicts that there may be more recharge and more available groundwater in the future resulting from higher winter temperatures (i.e., more freeze/thaw events in winter months resulting in more groundwater recharge). We will continue to evaluate the effects of climate change in our Source Protection Programs and include these evaluations in subsequent updates to the Water Supply Master Plan. Thank you for your help in our project.	
09/23/2021	Kyle Davis, Wellington Source Water Protection	Email	Hi Dave, Separately from my formal requests for Council presentations, I wanted to touch base with you. Regarding formal comments on the Water Supply Master Plan, a deadline of mid-October was discussed, as you can see from the Council meeting timing, we will need longer than mid-October if possible in order to complete our comments and to allow Council to comment. At this point I don't know exactly how long we will need but am thinking likely sometime in November. Also, please advise if there are other draft documents to review beyond the slide decks presented to the agency workshop and CLG. I looked quickly but didn't see a draft WSMP document. I may have missed it. Thanks, Kyle	09/24/2021	Hi Kyle. Thank you for the information. As we indicated at the Agency and Municipality Workshop on September 14, our schedule has us completing our Public Engagement Program in October. This timing is so that we can incorporate public input into our draft report and our Council Report for early November. Is there a way you can get your comments to us in this time period so that we can include them? If we extended receipt of comments to October 22, would that help? The draft report is in preparation, however, the bulk of the report including the water supply alternatives and the alternatives evaluation matrix will be as provided at the Workshop. You will note that the presentation provides the relevant information on the alternatives in summary form including locations, proposed supply capacities and costs, while the evaluation matrix provides the reviews against the evaluation criteria. We would appreciate your help in keeping to our schedule. Please let us know. Thank you.	N/A
09/24/2021		Email	To Whomever: Dave Belanger, Mathew Alexander REFERENCE: Meeting Notice: Join Us September 29 to talk about the future of drinking water in Guelph. All water master planning has done is raise the price of water, sewage and an added stormwater tax slap, to look for more revenue constantly, as the City cries wolf while building more development beyond its pretended capacities. You want water? 1. Then recycle the sewage water rather than dumping it into the Eramosa river with continuous court cases on their way. 2. Collect and use the city stormwater to clean-up and recycle. 3. CONNECT THE EAVESTROUGH OF GUELPH INTO THE STORMWATER SYSTEM reservoirs.		City staff called to discuss his email. General topics discussed included: - The purpose of the WSMP and Places to Grow, how the WSMP links to the Water Efficiency Strategy, which in turn affects our water rates and the amount of water available. - Water rates. Mr. Demonte was primarily interested in storm water ratesvand was directed to engineering to discuss this further. - The water-reuse program we are starting in the City - Storm water treatment and use of this water through collection techniques - The Water Efficiency Strategy and opportunities to contribute ideas	N/A

Date	Name	Source	Comment	Response Response	Action Required
			4. Fix the aging water infrastructures to stop the leakage that the City keeps talking about. 5. Locallize water management within each new subcommunity for #1,2,3,4, since the building of infrastructure cross-connections are becoming too expensive. My present master plan is cutting the city off by harvesting my own water to use and recycle and a future needing for me to look after both my drinking water, sewage and gardening/ cleaning needs. The city infrastructure for water/ sewage/ stormwater is becoming too costly to support with ever-increasing taxes and utility cost increases above the incomes that are not keeping up with the cost of living in a city that is moving towards a third-world dump of squalor for the poor while rich folk live in mansions, with swimming pools. I want to see a Master Plan that reduces the cost of water, sewage and stormwater, based upon the affordable cost of living rather than increasing potential bankruptcy of homeowners, businesses and manufacturers that cannot afford to live in Guelph that cannot manage its water risks reasonably. Thank you for hearing me out and I look forward to a progressive Water Master Plan that uses available untapped resources rather than digging for more wells and increasing the costs of the so-called "service" that is becoming unsustainable, while the unstoppable building nonsense keeps rolling onto the water tables. Instead of oil pipelines, start thinking about water pipelines across communities to harvest flooding opportunities to feed community drought threats, by sharing. Sincerely		
09/23/2021	Kyle Davis, Wellington Source Water Protection	Email	Hi Wayne and Dave, I am just following up on offers that you both have made regarding presenting on the WSMP and SW Quadrant EA to Township Council. Thank you very much for the offer and in discussion with Ian, we would like to invite you or your staff / consultants to present to Guelph / Eramosa Committee of the Whole on October 20 th . The meeting starts at 9:30 am. Please advise if that date would work and how long you feel your presentation would be.	and get back to you to confirm. A presentation in the range of 20 to 30 minutes including questions would be appreciated. We have a lot of information to present but could make it shorter if time does not permit. Our presentation materials will likely be	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
			on this email and can advise on meeting and presentation format, presentation lengths and timing. I will also be emailing separately on behalf of Puslinch. If you have any questions, please do not hesitate to contact us. We are looking forward to your presentation to Council. Thank you, Kyle		Thank you for the invitation and we look forward to presenting to Guelph-Eramosa Township Council.	
09/27/2021	Kyle Davis, Wellington Source Water Protection	Email	Hi Wayne and Dave, I am just following up on offers that you both have made regarding presenting on the WSMP and SW Quadrant EA to Township Council. Thank you very much for the offer and in discussion with Glenn, we would like to invite you or your staff / consultants to present to Puslinch Council on October 13 th . The meeting starts at 10:00 am. Please advise if that date would work and how long you feel your presentation would be. Courtenay Hoytfox, our Clerk, is copied on this email and can advise on meeting and presentation format, presentation lengths and timing. If you have any questions, please do not hesitate to contact us. We are looking forward to your presentation to Council. Thank you, Kyle		Thanks Kyle. Meeting with Puslinch Council and describing the Water Supply Master Plan to the Township is important to us. We will discuss internally and find a way to make this work. I'll get back to you on some details and to confirm. Thank you for the offer.	
09/27/2021		Email	n/a	09/27/2021	Hi Liaison Group meeting last Tuesday and thank you for your input. I wanted to follow up with you on your question of the Dolime Quarry and provide you with a link to the City's project site for Our Community, Our Water - https://guelph.ca/living/environment/our-community-our-water/ This link provides the overview on the Dolime issues, the proposed settlement pathway and the latest updates. I hope that this provides some additional information to you on how we propose to protect our water supply. Feel free to pass this information along to others, as necessary. If you have any additional questions, please send them along and we will try to answer them. Thank you for your interest in the Water Supply Master Plan.	
09/29/2021		Community open house #2	The Clythe well is located right beside Clythe Creek, and Clythe Creek has already a critical low flow difficulty that affects the fishery. There has, to my knowledge, been no assessment of continued pumping from the Clythe well having an effect on the Clythe Creek baseflow. Is their a plan to do an actual on site investigation of the impact of Clythe well pumping on Clythe Creek before it's introduced into the supply system.	09/29/2021	Thanks for the question additional testing associated with the Clythe well and it is a requirement of the current permit to take water. It is an existing well that was previously online and has had a permit since I believe the mid 80s. The project itself did go through a class environmental assessment and we are proceeding with the construction of the treatment system for that well. The permit to take water does require some monitoring both of domestic wells and the impact on the Creek as part of the permits to take water and the monitoring program associated with the permit.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
09/29/2021		Community open house #2	The water taking at Dolime is said to have no requirement and meeting the water treatment plant downstream. Water quality requirements. Is that assessment based on water quality modeling that's been done with the reduced groundwater flows entering the speed up stream of the wastewater treatment plant discharge and with increased wastewater plant discharges? IE. future modeling that would take into account water taking at Dolime and the effect on the water treatment plant outflow. The comment was made that using the Dolime supply as an additional water source restricts the outflow into the Speed River. A very high quality water and the comment was that that wouldn't influence the requirement that the wastewater treatment plant has for water quality and the speed downstream of its discharge point.		Are you referring to the requirements of the quarry operators and their discharge permit? There is an assimilative capacity study that is being completed as part of the wastewater and biosolids master plan. It's in its final stages of completion. Our understanding is that the Dolime discharge has not been used in those assimilative capacity studies because it is granted by permit, and could end at any time when the quarry stopped operating the discharge would end and was therefore not considered. It's my understanding that the assimilative capacity takes into consideration the upstream water quantity and that's what's used to determine the assimilative capacity from the wastewater, not the downstream. It is recognized that while it was occurring, it does have a benefit, because it is perhaps colder as it is a groundwater source and does have some benefit. But it was never considered because it wasn't considered to be a long-term permanent discharge into the river.	N/A
09/29/2021		Community open house #2	In 2001, the average daily pumping was 55,616 meters cubed per day which included the lower article contribution, which is now closed but didn't include several wells that are now open. So in 2001, the system adequately produced 55,600 meters cubed per day. My observation of the predicted demand is that all except the top prediction with no added conservation was below 55,600 in 2051. I pulled up the projections here just as a refresher; for 2051 it was about 68,000 for the average day demand and I believe it's 91,000 for the maximum day demand.		That would have been the demand at that time and the per capita consumptions have been reduced significantly through the conservation programs and our average daily rate is now around 47,000 (m³/day). I think when we completed some of our water budget work it was down around 42,000 cubic meters per day on average. So it is creeping back up as the city continues to grow, but it's significantly less than the demand that we had back in the in the 2000s. Our water supply capacity is a little bit higher than what it was back then. We've added in Arkell 14 and 15 and that increased our water supply capacity. Back in the late 1990s, in the early 2000s we did have some maximum day demands, that were up around the 65,000, so the system has in the past produced a lot more water than it is now. We've never operated the system with all of our wells running at 100% capacity. We'd have no place to put the water, so when we do these calculations of that 79,000 as what we say is our existing capacity, I always like to describe it as all of our treatment operators outstanding at every wellhead and every valve to get the absolute maximum out of that system. It may not be sustainable over a long term, but certainly in the short term, the system is likely to be able to produce that amount of water.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
09/29/2021	Kyle Davis, Wellington Source Water Protection	Email	Thank you Dave. In speaking with Glenn today, please correspond with Courtenay to confirm that you will be available on the 13 th and who the presenters will be. Thank you, Kyle	10/1/2021	Hi Courtenay. This email is to inform you that the Guelph Water Services will attend the Puslinch Council meeting on October 13 to provide a presentation on the City's Water Supply Master Plan Update. Representing Guelph will be Wayne Galliher, Emily Stahl, Scott Cousins and I. Matt Alexander, our consultant from AECOM will also attend. I will deliver the presentation. Could we have 20 minutes plus time for questions? To help facilitate questions and discussion on the WSMP, I have attached the presentation from the WSMP Agency and Municipality Workshop #2 from September 14 in which there were representatives from Puslinch Township. I expect they may have already provided the presentation to your Council. The attached presentation provides much more detail on our project to further inform Council. For the October 13 Council meeting, we will provide a much abbreviated presentation to fit into the allocated time. Please provide us with any further information if necessary. Thank you for this opportunity.	N/A
09/29/2021	Kyle Davis, Wellington Source Water Protection	Email	Hi Dave and Wayne, Thank you for your email Dave and the additional information related to your timelines in getting this to City Council. I have spoken with Ian, Glenn and Aldo about an October 22 nd timeline to provide comments. Given that the October 13 th and October 20 th presentations to our Township Councils will be the first water supply master plan presentation in a number of years, it will not be possible to have written comments by October 22 nd . Staff recommendations to our respective Councils on Oct 13 th and Oct 20 th will be to ask for Council direction for staff to bring back a report and comments to a future meeting of each Council. At this point, we do not know what our Council's comments / direction will be on the 13 th and 20 th and therefore, how much time it will take staff, and possibly Township consultants, to prepare reports in response. It is also likely that staff and Township consultants may wish to meet and consult with City staff / consultants in between Council meetings while our reports are being written. Once we have brought staff reports to a subsequent meeting of our Councils and received Council's comments and endorsement, then the Townships will be in a position to submit formal written comments to the City on the Water Supply Master Plan. This process will take a period of time and is simply not possible to be completed in October. We are looking forward to continuing to work collaboratively with the City and our Townships plan for future growth.	10/1/2021	Hello Kyle. Thank you for your email. Under the strict timing of our ongoing Municipal Comprehensive Review, timing of receipt of the Water Supply Master Plan Update (WSMP) draft final report is locked down with City of Guelph Council and unfortunately we are unable to delay this process. We understand and appreciate the process needs of County and Township staff to interface with their respective Councils. To accommodate this process while respecting project deadlines, the City will extend the comment submission deadline for your municipalities from October 22, 2021 to November 5, 2021 to allow additional time for County/Township input. We have upcoming presentations with GET and Puslinch Councils in the coming weeks and we will use these meetings to solicit feedback, knowing that this feedback is preliminary in nature. Beyond this initial feedback, the WSMP will be posted for a 30 day public feedback period starting in January 2022 at which time we would welcome any additional comments both respective Township Councils may have. Thank you for your help and we look forward to receiving your comments on behalf of Guelph-Eramosa and Puslinch Township Councils. We would encourage you to provide comment as soon as possible so that we can consider your comments in finalizing our Plan and preparing for presentation to our Council. Thank you, Wayne	

Date	Name	Source	Comment	Response Date	Response	Action Required
			There have been a number of very encouraging discussions this summer between the City, Townships and County and we hope discussions on the water supply master plan can continue that trend. We hope that you will be able to adjust your project timelines to accommodate more time for in depth and meaningful discussion leading up to submission of formal comments. I am available to discuss this in more detail if you wish, I look forward to your response. Regards, Kyle			
10/5/2021	Anon	Community open house #2 survey	[Are there any considerations missing from the evaluation of the water conservation and efficiency alternatives or anything you would evaluate differently?] Repair of leaking water mains		The City runs a very successful water main leak detection and repair program that has significantly reduced leakage in the system. The City will continue to operate this program, using new technologies to detect system leaks, where appropriate.	N/A
10/5/2021	Anon	Community open house #2 survey	[Are there any considerations missing from the evaluation of the groundwater alternatives or anything you would evaluate differently?] More study to determine viability of decontaminating affected decommissioned wells		Of the water sourcess off-line for water quality related concerns, one (Clythe Well) will be returned to service in about 2023 and three (Sacco and Smallfield Wells, Lower Road Collector) will be studied to evaluate the possibility of returning these sources to service in the future.	N/A
10/5/2021	Anon	Community open house #2 survey	[Are there any considerations missing from the evaluation of this alternative or anything you would evaluated differently?] Review water available during drought conditions. According to GRCA more precipitation is expected due to climate change		It is anticipated that climate change will affect extreme weather patterns, including increased severe storms and drought conditions. WSMP planning closely evaluates the potential effects of drought conditions as this poses a risk to the water supply system. Although it is recognized that climate change could result in increased groundwater availability at times, the supply capacity planning does not account for this as it is uncertain.	N/A
10/7/2021	Kyle Davis, Wellington Source Water Protection		Hi Wayne, Thank you very much for your response. I've discussed with lan, Glenn and Aldo and in light of your email, Township staff will advise our Councils of the November 5, 2021 commenting timeline and ask for direction to provide preliminary staff / consultant comments by that date, followed by formal comments being submitted to the City once we are able to bring the formal comments back to our Councils at a later date. That being said, our Councils ultimately will decide on the direction they wish our staff and consultants to take regarding provision of comments and timelines and we should have a clear idea of that direction following the Oct 13 th and 20 th meetings. I hope that helps clarify a path forward on comments and we look forward to working with you and your team on this. Regards, Kyle			N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
	Courtenay Hoytfox, Township of Puslinch	Email	Hi Dave, just providing an update on timing for your presentation. 1:30 is the best estimate at this time. Thanks, Kind regards		Hi Courtenay. Thank you for your help yesterday. It is appreciated. We want to include the question and answer portion of the presentation in our community engagement portion of the WSMP report. Can we get this from the video and is it OK to use the video for this purpose? When will the video be posted to your website? Could you also please send us a copy of the final resolution for our records? Thanks again for your help.	
10/14/2021	Glenn Schwendinger, Township of Puslinch	Email	NOTE: This email was sent to Puslinch Township Council from the City of Guelph Project Team Good Morning Glenn and Kyle, Thank you for the opportunity to present to Puslinch Township Council yesterday concerning the City of Guelph Water Supply Master Plan Update (WSMP). As a point of clarification following yesterday's meeting, I just wanted to send a quick note to confirm what the City is seeking feedback on as part of the WSMP schedule at this time as I am concerned there may be a misunderstanding present at this time. At this time, the City is seeking your feedback on information and questions presented at the September 14, 2021 WSMP Agency and Municipal Stakeholder Workshop and not the Water Supply Master Plan draft final report. The Water Supply Master draft final report is currently under development, as Dave discussed at yesterday's presentation, and your feedback on this September 14, 2021 meeting content by November 5th will greatly help to shape this draft document. Beyond this current opportunity for feedback, the draft final Water Supply Master Plan report will be released for public reference in early December 2021 and be accompanied by a formal public review period to solicit stakeholder feedback in accordance with the Municipal Class EA process. Through this process the detailed reports and information of interest discussed at yesterday's Council meeting will be shared with all local stakeholders and we would greatly welcome the respective feedback of Puslinch Council and staff once you have had the opportunity to review the draft final report. Thereafter, the City will document feedback received and related responses in the Water Supply Master Plan final report in accordance with requirements of our EA process. I hope this has helped to clarify the WSMP process and upcoming opportunities for feedback. I would welcome you to give me a call should you have any further questions or		NOTE: This response was sent from Glenn Schwendinger from the Township of Puslinch to the City of Guelph Project Team Hi Wayne Thanks for your message. As you can probably gather form the comments during the discussion yesterday, there is frustration on our part. Yes, we understand that this draft report is being finalized and then will be going out for public comment and that we have the opportunity to comment then as well. The primary concern we have is to simply get a copy of a slide deck (not even a complete report) and asked to have comments compiled in 2 weeks. With all due respect, you have been working on this for years and we re provided 2 weeks. Our primary point is to involve us in the process along the way, not once you have studied and compiled everything and made conclusions from your perspective. Puslinch is not just a commenting body engaged for the interest of the project alone. We are asking to be engaged as the decisions made through this process have significant and permanent impacts on our municipality and our residents and businesses. That is why we asked from what I understand was 2 years ago to be involved in the process as it is ongoing, not 2 weeks before finalizing your report. Interesting comment made during the presentation yesterday was that Guelph said it would not be realistic to receive our comments 2 weeks before you want to finalize your report and present it to you council. I'm glad you appreciate that because that is exactly what you are asking us to do (without any supporting documentation or a report, just a set of slides). The reality is that there perspectives and considerations that we can offer based on the impacts for our community that you may not consider, and these could help improve your work so it is better for all involved, not just Guelph. These impacts and perspectives may even create other scenarios or options that may have been totally missed now because we weren't included during the process. This approach is not a big or unusual ask. This is the process	

Date	Name	Source	Comment	Response Date	Response	Action Required
			like to discuss. Otherwise, we would be pleased to create time to meet at a staff level in the short-term to discuss any questions you may have concerning information shared at the September 14 th meeting should this assist you in forming your comments. Please let me know if this is of interest and we can work to coordinate a time via email. Thank you again and best regards, Wayne		often through the process at various milestones. This is all we are asking Guelph to do as well. We will work to put together some preliminary comments on the slide deck, however we need to take these to our council first which will take place on November 3 rd . Our complete comments will not be able to be provided until we actually have the report to review. Attached for your information is a copy of the resolution passed at yesterday's Council meeting.	
10/18/21	Haudenosaunee Confederacy Chiefs Council	Email	N/A	10/18/21	Dear Haudenosaunee Confederacy Chiefs Council, RE: Guelph Water Supply Master Plan Update – Virtual Meeting It has been some time since we discussed the City of Guelph Water Supply Master Plan Update. Our last correspondence was in June 2020. As a reminder, the goal of the Water Supply Master Plan Update is to review our water supply sources and identify priorities, including sustainable municipal supply options, from now until 2051. Our work for the Project continues, including our desire to engage with Haudenosaunee Confederacy Chiefs Council, the public and those who may be impacted and/or interested in the project. For more information, you can visit our webpage or stay involved with our engagement page. If Haudenosaunee Confederacy Chiefs Council is interested, we would like to offer a virtual project meeting for yourself and other members of Haudenosaunee Confederacy Chiefs Council consultation team. The intent of this meeting would be to re- introduce the project, gain any input and insight your community may have related to water supply in Guelph and answer any questions you may have. If you are interested in meeting, please reply at the contact information below with a preferred date and time. We can set up the meeting using Microsoft Teams or another preferred meeting platform. Also, you are welcome to share any questions or concerns that you may have in advance so we can address them in our meeting. If you have any questions, comments or concerns related to the Water Supply Master Plan or would like to meet virtually to discuss the project, please do not hesitate to contact me at dave.belange@guelph.ca or (519) 822-1260 ext. 2186 or AECOM's Project Manager, Matthew Alexander, at matthew.alexander@aecom.com or (226) 821-4906. Please note that we will also follow up by phone to confirm receipt of this letter and see if you have any questions or comments. Sincerely, Dave Belanger, M.Sc., P.Geo.	N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
10/27/2021	Jenni Spies, Guelph Eramosa Township	Email	Mr. Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager Water Services - Infrastructure, Development and Enterprise City of Guelph, 1 Carden Street, Guelph, ON N1H 3A1 Dave.Belanger@guelph.ca Re: Water Supply Master Plan 2021 Update Dear Mr. Belanger, At the Committee of the Whole meeting held on October 20, 2021, the following resolution was put forward and passed: Be it resolved that the Committee of the Whole of the Township of Guelph/Eramosa has received Guelph Water Services Presentation regarding the Water Supply Master Plan 2021 Update; and That the Committee recommend to Council that a resolution be passed, stating the following: That the Township of Guelph/Eramosa has concerns with the City of Guelph's November 5, 2021, deadline for comments regarding the Water Supply Master Plan 2021 Update; and That Guelph/Eramosa Council request the City of Guelph Council to authorize the release of the draft report to Guelph/Eramosa staff in advance of the City of Guelph Council meeting so that the Township of Guelph/Eramosa may prepare comments; and That Council direct Township staff and Township consultant(s) to review the City of Guelph Water Supply Master Plan Update correspondence and draft report, when available, and to provide comments for Council's consideration at a subsequent Township of Guelph/Eramosa Council meeting; and That the City of Guelph Council permit Guelph/Eramosa Council to provide comments in advance of the draft report being adopted by City of Guelph Council; and That Council acknowledge receipt of the Township comments and that the City of Guelph provide a response to the Township's comments; and That this resolution be forwarded to the City of Guelph and the Township's comments; and That this resolution be forwarded to the City of Guelph and the Township of Puslinch. Please accept this for your information and any necessary action. Sincerely, Jenni Spies, Deputy Clerk			N/A

Date	Name	Source	Comment	Response Date	Response	Action Required
11/26/2021	Kyle Davis, Wellington Source Water Protection	Email	Please see attached cover letter and comments. Regards, Kyle Kyle Davis (he/him) Risk Management Official Email attachments (included below the correspondence tracking table): Cover letter Puslinch Township Comments Memorandum Guelph/Eramosa Towsnship Comments Memorandum Wellington Source Water Protection Comments Memorandum		Hi Kyle. Please find attached a cover letter and our response to comments provided by the County and Townships on the September 14 Agency and Municipality Workshop for the City Water Supply Master Plan Update. Our responses are consistent with our discussions from the December 6, 2021 Meeting #1 as documented in the meeting minutes. If necessary, we could add an agenda item to our next meeting to further discuss the comment and responses. Dave Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager Note: The cover letter and response memo referenced in this email are included below the correspondence tracking table.	
01/20/22	Hydro One	Email	Please see the attached for Hydro One's Response. Hydro One Networks Inc Email attachment (included below the correspondence tracking table): Hydro One Comment Memorandum	01/25/2022	On behalf of the City of Guelph thank you very much for providing input to the Water Supply Master Plan (WSMP) update project. The WSMP is a high-level planning project that does not include detailed planning/work at a site level. Therefore, it does not include or immediately trigger EA work such as the example in your letter of expanding or replacing/relocating Hydro One infrastructure. The WSMP identifies and outlines future studies that are required to implement the preferred solution identified for the WSMP EA. Hydro One will be consulted, as noted in your letter, if any of the projects identified in the WSMP Update report are anticipated to impact Hydro One lands or infrastructure. The timing of the EA projects that will be required to support implementation of the preferred solution have been identified at a high level but specific project start dates are not currently known. Thanks, Matt Matthew Alexander, M.Sc., P.Geo. he, him, his Manager, Hydrogeology	
02/03/2022		Email	Dave: We've discussed this beforehand, so I don't want to take up a lot of your time. I just read through the Executive Summary of the plan. I noted that the projected size of Guelph in 2051 in the report is now lower than what the most recent plan update calls for. I'm disappointed that there has been no mention of the pipeline from Lake Erie alternative, even though it may be a low priority at this time. I believe it's important to open that door in any discussions regarding potable water supply concerns with the communities further down the river (KW, Cambridge, and Brantford in particular). I wouldn't want		Hi	

Date Name S	ource	Comment	Response Date	Response	Action Required
	that the City is although that it especially who will definitely reprovincial government of a long-than the boundaries, but a complication of a long-line of	eft out of any such discussions. The fact is not going to stop growing in 2051, and may be a long way off, time passes quickly, en it comes to such a massive undertaking. It equire the participation of both the federal and ernments, as a well as the municipalities. Trage aquifers in place is a great start, and of may be other developments in the intervening el it's a mistake to completely ignore this as term vision of Guelph. The City and province are focussed on growth within the existing municipal ut there's not a lot of grasp of the of having to enlarge the service capacities a City to accommodate that intense growth. The opposed to "Places to Grow", but it would be that the Province is prepared to do to rebuild supply lines, sanitary lines, electrical perhaps natural gas services and ations, in order to accommodate this intense uses is that we will soon be converting a lot of the built using natural gas heating systems cal heating systems, and hard-wired ations may disappear in the next 15-20		Great Lakes pipeline option was generally panned by the public since it was considered to be contrary to the City's water conservation and sustainability programs. The public generally recommended "living within its means" and to rely on local water resources as a method to manage growth. In addition, the Great Lakes pipeline option (capacity of ~175,000 m3/day) had Guelph's portion of the costs (2006) on the order of \$500,000,000 to \$700,000,000 which was considered to be "unaffordable" for a municipality like Guelph. In the end, City Council approved the 2006 Water Supply Master Plan with the exclusion of the Great Lakes pipeline option. We also understand that the Region of Waterloo has extended the timing for its Great Lake pipeline to beyond 2051. Based on the previous direction of Council, the Great Lakes pipeline option was not considered in 2014 nor is it being considered in the current WSMP Update. We would also note that the current WSMP Update outlines groundwater alternatives and local surface water alternatives to address the water supply demand to 2051 without the need for a Lake Erie pipeline. For your comments on accommodating growth within existing municipal boundaries, we would direct you to the City's Municipal Comprehensive Review (MCR) and the Official Plan (OP) Update (https://guelph.ca/plans-and-strategies/official-plan/official-plan-review-2020-2022/). As noted on the webpage: To bring Guelph's Official Plan into conformity with A Place to Grow, it is necessary to complete a municipal comprehensive review that will determine where and how Guelph will grow to 2051, and plan to achieve the targets for the built-up area, designated greenfield area and downtown, known as the urban growth centre. This work, known as Shaping Guelph, is in progress. We will forward you comments, however, for more information or to submit comments on the MCR and OP Update, we direct you to our Planning Services at plan2051@guelph.ca. Also associated with the MCR and OP Update are a number of other Master Plans	

Date Name	Source	Comment	Response Date	Response	Action Required
02/09/2022	Email	Dave: I understand, but I've been in the real estate business for 24 years, and I know that people do not like change. There is no surprise that the public wants to control the growth of the municipality; that always seems to be an objective of the well established and most vocal elements of the Guelph population, but at some point, a more senior government is going to dictate that the City grow, and it will grow beyond the capability of satisfying the needs from groundwater and local surface water sources. It's only a matter of "when" and not "if". As mentioned, a project of this size will require substantial financial support from those same senior levels of government. My only real points are that it will take a long time to get something of this nature in motion, and I believe it should be noted as a long term "potential", at least to the point of including a brief discussion in the report, if not this time, perhaps in the next review. Of course, the City may also want to consider a requirement in newer developments that we start to employ a dual water system for several uses, a "white water" and a "gray water" system for several uses, a "white water" and a "gray water" system, so the water we extract from underground formations is used as many times as possible. But if we don't start the planning for that soon, it will not be available when the population reaches 250,000 or 400,000. We have an attractive city and we work hard to make it a great place to call home. That's why people want to live here. Actions such as restricting the potable water supply, can only drive the cost of housing and living even higher. Regards,		Hi	
03/02/2022 Janet Harrop WFA	Email / Letter	Hi There: Please see attached comments from the Wellington Federation of Agriculture. Kind Regards Lisa Hern WFA Admin Email attachment (included below the correspondence tracking table): WFA Comment Memorandum	5/4/2022	To: Janet Harrop, President, Wellington Federation of Agriculture (WFA) Thank you for your comments on the City of Guelph's Water Supply Master (WSMP) Plan Update. We appreciate your comments and we will consider your comments as we finalize the WSMP Report. We have prepared responses to your comments for your information and for use in our consultation documentation for the project. We have reproduced each of your comments with our response below. The WFA would ask the following comments be considered during your Master Plan update:	

Date	Name	Source	Comment	Response Date	Response	Action Required
					Agriculture is evolving and adapting efforts to address climate change and economic challenges. Weather extremes highlight the need for flexibility of water holding and changing water usage in agriculture. We agree. The City has considered the effects of climate change.	
					on the City's water supply and the overall water budget for our area as part of our Source Protection Program. Our report is located here - https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/15072-527-Climate-Change-R-2018-11-21-final-V1.0.pdf One of the conclusions of the report says that "climate change does not pose an additional threat to the Guelph – Guelph/Eramosa Township municipal water supply wells due to predicted increase in groundwater	
					recharge. The combination of Global Climate Models and Regional Climate Models suggest that groundwater recharge rates will increase gradually over time." More recharge of precipitation is likely to increase the available groundwater for both water supply and agriculture.	
					 Environmental Assessment Criteria within the Study must include consideration of potential impact on private farm wells and effect on farm surface water quantity and quality. 	
					We agree and it is a consideration in our evaluation criteria. Pumping new municipal wells can affect existing private wells in close proximity. However, new municipal wells will require a Permit to Take Water (PTTW) and conditions of the permit limit effects on existing wells. The City's water taking is not allowed to have a negative effect on wells that were in existence prior to the issuance of the PTTW. Similarly, as a condition of our PTTW with respect to surface water, we are to immediately notify the local District Office of the Ministry of Environment, Conservation and Parks (MECP) if the taking of water is observed to have any significant impact on the surrounding waters. We believe these precautions built into our permits will protect existing, private wells and local surface waters.	
					 The Connected Water Ecosystem identified in the Study recognize the imperative origin of water occurs on agricultural land in the form of natural water capture, filtration and purification 	
					We agree. Again, our Source Protection Program has looked at the total water budget and has developed an accounting of the components of the water cycle as it relates to municipal water supply. The report is located here - https://www.sourcewater.ca/en/source-protection-areas/Guelph-and-Guelph-Eramosa-Tier-3.aspx? mid =1507 . We recognize the importance of maintaining natural recharge across the	

Date	Name	Source	Comment	Response Date	Response	Action Required
					landscape to store water in the subsurface, to purify the water as it passes through the subsurface and to provide water for water supply and natural heritage features. The City is in the process of developing Source Protection policies under the Clean Water Act that are intended to prevent reductions in recharge of groundwater systems. With our Source Protection programs, our Water Supply Master Plan is built on sustaining the natural processes (i.e., water capture, filtration and purification) that support municipal water supply and agriculture. 4. To match requirements with end-uses, any upgrades to existing wells or potential new wells must be located within the City of Guelph limits.	f
					While we agree in concept with this comment, there are limitations on increased water takings within the City's boundaries. Our first preference is to develop new wells inside the City, however, this increases the water quantity stress on the local water budget and, as a result, imposes Source Protection policies on water quantity. These policies, currently under development with Wellington County, the Grand River Conservation Authority and MECP (see - https://www.sourcewater.ca/en/source-protection-areas/Guelph-and-Guelph-Eramosa-Tier-3.aspx? mid =1507), may result in constraints on other water users as required under the Clean Water Act. There are advantages in reducing water quantity stress by developing additional water supply sources outside of the City with the cooperation of the County and surrounding Townships. We will also note that a large portion of the City's water supply is already derived outside of the City from the Arkell Spring Grounds in Puslinch Township.	
					5. In the event of considering water resources outside of the City of Guelph limits, the City of Guelph must work closely with the County of Wellington when identifying water sink opportunities in the form of aquifer storage in the rural zoning to preserve agricultural land and not restrict agricultural uses. We agree. Any new water supply sources will need to be developed working closely with the County of Wellington and the Townships and in consideration of existing water users and existing water resources. The City has put in place, as part of the implementation of the Water Supply Master Plan, regular	
					engagement opportunities with the County and Townships. Thank you again for your input and for participating in this important project. Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager	

Date	Name	Source	Comment	Response Date	Response	Action Required
04/01/2022	Joan Del Villar Cuicas MECP	Email / Letter	Please disregard my previous email. I attached an older version of the memo by mistake. Good afternoon Dave and Matthew, Thank you for circulating the draft report for the City of Guelph Water Supply Master Plan Update for review. MECP provides the attached comments for your consideration. Should you or any members of your project team have any questions regarding the comments, please contact me. Regards, Joan Del Villar Cuicas (she/her) Email attachment (included below the correspondence tracking table): MECP Comment Memorandum		Hi Joan. Thank you for providing comments on the City's Water Supply Master Plan Update Report. We are providing a cover letter and responses to the Ministry's comments. We appreciate the Ministry's comments and hope our responses address the comments and provide more information, where necessary. In preparing the response to your comments, we did have a few questions. We would like to take you up on your offer to contact you on our questions. Here they are: 1. In the Permit to Take Water Unit comments there was reference to: "The Ministry has established thresholds for potentially unacceptable impacts to surface water features resulting from water taking activities". Could please provide details on these established thresholds and any associated references? 2. In the Source Protection Technical comments, there was the statement: "The ministry supports these efforts and recognizes that the Tier 3, the WSMP, and other studies have identified wells where additional assessment is warranted to determine if the well is limiting the modelled hydrogeological capacity". Could the Ministry provide additional feedback on this comment as its meaning is somewhat unclear? Which wells? What do you mean by "limiting the modelled hydrogeological capacity"? 3. In the Source Protection Technical comments, there was the statement: "In addition, to these efforts, the ministry suggests the City expand its working definition of "optimization" to also include consideration of water distribution infrastructure changes. For example, an assessment of where increased interconnection of water sources/distribution system would create opportunities to increase optimization the City's use of regional water resources". The City's distribution system is interconnected to all City sources. This comment is not immediately clear but suggests interconnection to other municipal water resources? The City would welcome formal direction from the Ministry regarding the management of regional water resources. See our response to this comment in the a	

Date	Name	Source	Comment	Response Date	Response	Action Required
					project. We look forward to working with the Ministry in the implementation of the Water Supply Master Plan. Dave Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager Note: The cover letter and response memo referenced in this email are included below the correspondence tracking table.	
04/07/2022	Laura Romero Ministry of Heritage, Tourism and Culture Division	Email	Good morning Matthew, Please find attached the MHSTCI's comments on the above referenced project. Please do not hesitate to contact me should you have any questions or concerns. Kind regards, Laura Email attachment (included below the correspondence tracking table): MHSTCI Comment Memorandum	05/02/2022	Hi Laura, Thank you for providing review comments on the draft final Water Supply Master Plan Update report. We will implement the requested text changes to Tables 6-5 and 6-6 in the final report. The requested edit to Section 7.2.5 of the report cannot be implemented as this section provides a summary of information that was previously presented to the public. The City will take this comment into consideration for future updates to the WSMP. Thanks, Matt	
04/26/2022	Kyle Davis, Wellington Source Water Protection	Email	Dave, Emily and Wayne, As discussed last week, please find attached the formal resolutions from the Townships of Guelph / Eramosa and Puslinch Councils submitting their comments on the draft Guelph Water Supply Master Plan document. Please find attached the following: Resolution from Township of Puslinch 2022-125 dated April 22, 2022 Resolution from Guelph / Eramosa Township 2022-04-19-9.3-CL dated April 19, 2022 Staff Report – Township of Puslinch including Harden Environmental comments from Township Council Agenda Package April 13, 2022 Staff Report – Guelph / Eramosa Township including RJ Burnside comments from Township Council Agenda Package April 19, 2022 I would also encourage you to watch the videos of the respective Council meetings to view our Councillors' comments on these reports and the Guelph Water Supply Master Plan. These comments are not summarized in the attachments, however, the video recorded comments are part of our formal submission to the City on this topic. The Township of Puslinch Council video can be viewed here: https://puslinch.ca/calendar/ and the Guelph / Eramosa Township video can be viewed here: https://www.get.on.ca/township-services/committee/mayorand-council/meetings	04/28/2022	Hi Kyle, Thanks for providing this documentation. I have one comment on your email regarding the meeting videos. If there are any questions or comments stated verbally during the Council meetings that you'd like included in the EA consultation record we will need them submitted in writing. This way AECOM is not interpreting statements that reflect someone's opinion, others that are unrelated to the Master Plan, etc. Ultimately we need to review and document those comments that Council is expecting the City to respond to. Thanks, Matt	

Date	Name	Source	Comment	Response Response	Action Required
			Further, I wished to follow-up to your email regarding the submittal of the City's February 2022 response letter to our Councils. As we discussed, the City's response was referenced in the staff reports identified above and considered in staff and Township consultant comments that are attached. In discussion with our Clerks / CAOs, unless specifically asked for by Council, we do not feel it is necessary to provide our Councils with the City's February 2022 response letter directly as it is referenced and considered in the reports and comments. If in the future the City wished to highlight certain aspects of their responses directly to Council then the City is welcome to delegate and present at those meetings as you have in the past. In regards to your question about the Township of Puslinch's November 2021 resolution, the resolution asked for the City to respond to the Township which we acknowledge that the City did as per your February 2022 response. Also, thank you Dave for your email regarding the Meeting 4 minutes, I will circulate those this week or next. We appreciate the continued effort of the City to engage our municipalities in this project and others. We would suggest one more meeting in May to discuss the attached as we have been requested to report back to Puslinch Council prior to the City Council meeting in June. Please email me to arrange. If you have any further questions, please do not hesitate to contact me. Regards, Kyle Email attachments (included below the correspondence tracking table): Guelph/Eramosa Township Resolution 2022-04-19-9.3-CL Puslinch Township Comments Memorandum Guelph/Eramosa Township Comments Memorandum		
				Hello Ms. Hoytfox. The City of Guelph is delivering a response to comments provided by Puslinch Township on April 26, 2022, on the City's Water Supply Master Plan Update Report. The response addresses Council Resolution 2022-124 wherein Council requested that the City review the comments and provide a response. Our cover letter and response memo to Council is attached. Please provide this information to the Mayor and Council. Please note that the Township's comments and our response will form a component of the record of public consultation prepared for the WSMP Update.	

Date	Name	Source	Comment	Response Date	Response	Action Required
					Thank you for assisting the City in our Water Supply Master Plan Update. Sincerely: Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager Note: The cover letter and response memo referenced in this email are included below the correspondence tracking table.	
				06/08/2022	Hi Kyle. In response to your email below and the Resolution from Guelph / Eramosa Township 2022-04-19-9.3-CL dated April 19, 2022, we are providing a cover letter and response to the Township's comments. Please see the attached. Thank you for assisting the City in the Water Supply Master Plan. We look forward to working with you and the Township in implementing the plan. Dave Dave Belanger, M.Sc., P.Geo. Water Supply Program Manager Note: The cover letter and response memo referenced in this email are included below the correspondence tracking table.	
04/28/2022	Kyle Davis, Wellington Source Water Protection	Email	Thank you Matt for your email. I have discussed your question internally and would like to direct you to the formal minutes for both Council meetings once they are posted. Please note they will be posted through the Townships' websites at the links noted below. I trust that addresses your question, if it does not please do not hesitate to contact me. Regards, Kyle		Suggestions accepted	
05/06/2022	Courtney Hoytfox Township of Puslinch	Email	Good afternoon, Puslinch Council recently met on May 4, 2022 and further discussed the Guelph Water Supply Master Plan. The following was resolved at the meeting: Resolution No. 2021-132: Moved by Councillor Bulmer and Seconded by Councillor Goyda That the Consent Agenda item 6.1.1 listed for MAY 4, 2022 Council meeting be received; and That Council direct staff to request that the City of Guelph include an appendix in the Guelph Water Supply Master Plan of all the large water users (above 50,000 L/day) to better inform residents of how water taking in certain areas is being utilized and that the appendix also include how much water is being taken on a daily and on an annual basis. CARRIED	05/18/ 2022	Thank you for your email. If we understand your request for information coming from Council Resolution 2021-132, you are asking for information on the daily and annual water use of City of Guelph based businesses which consume greater than 50 m³ per day from the municipal drinking water system to be published as part of the Water Supply Master Plan Update. Under the City's Terms of Collections for Water Customer Accounts, individual account consumption is confidential and cannot be freely released. As result the City is unable to publish this information. The City does track this information by customer type (i.e., residential, and industrial/commercial/institutional (ICI)) and it is used, in summary, in support of the Water Supply Master Plan. The Annual Average Day Demand for residential and ICI customers is shown in Figure 3-1 and Table 3-4 in the WSMP Report for the period 2010 to 2019. As shown in the chart and table, the demands have been relatively consistent in this time period with a small decline through to about 2016 and a slight increase in the latter years while population has increased. The chart shows the effects of the City's conservation programs in	

Date	Name	Source	Comment	Response Date	Response	Action Required
			As noted in the Council resolution, can City staff please advise on this request. Staff are hoping to report back to Puslinch Council at the upcoming May 25 meeting. Thanks very much,		keeping on water supply demand low while there are increases in people and employment in the City. The City will continue to use similar information on the distribution of water demand within the City in future updates to the WSMP. For reference Figure 3-1 and Table 3-4 from the 2021 Water Supply Master Plan Update draft report have been provided below: Figure 3-1: AAD Production, Demand, NRW & Population 60,000 120,000 100,00	



Appendix A

Agency and municipality workshop review documentation and City response

- County and Township Review Comments Cover Letter
- Wellington Source Water Protection Comments
- RJ Burnside and Associates Comment Memorandum
- Harden Environmental Services Comment Memorandum
- City Response to Wellington County,
 Puslinch Township and Guelph Eramosa
 Township Cover Letter
- City Response to Wellington County, Puslinch Township and Guelph Eramosa Township - Memorandum



November 26, 2021

Dave Belanger, M.Sc., P. Geo.
Water Supply Program Manager
City of Guelph – Water Services
Via email – dave.belanger@guelph.ca

RE: Cover Letter Regarding Township of Puslinch, Guelph / Eramosa Township and County of Wellington Comments on the City of Guelph Water Supply Master Plan Update - 2021

Dear Dave,

Please find attached three (3) comment memorandums related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments represent formal, written comments on the Guelph Water Supply Master Plan presentations on behalf of the Township of Puslinch, Guelph / Eramosa Township and the County of Wellington.

As we have discussed and as outlined in the attached comments, our Townships and the County have serious concerns with the City of Guelph Water Supply Master Plan Update as presented in September and October 2021. As such, we have made recommendations that we request are responded to, formally and in writing, by the City of Guelph and its consultants. Prior to that response, we appreciate the opportunity to meet on December 6, 2021 to discuss these comments and other comments raised by our Councils. We look forward to the December 6th meeting as being the first of a series of meetings related to this update of the Guelph Water Supply Master Plan and we anticipate providing further written comments as follow-up(s) to the meetings and on the draft report once available

As discussed previously, I am willing to serve as a point of contact to assist with scheduling and logistics related to our Townships and County comments on the Guelph Water Supply Master Plan. Please do not hesitate to call me in this regard. If I am unavailable or if needed, please do not hesitate to contact Ian, Glenn, Aldo or Harry. Discussing our comments and concerns regarding the Guelph Water Supply Master Plan is a priority for our municipalities.



If you require further information, please contact:



Kyle Davis, Risk Management Official 519-846-9691 ext 362 kdavis@centrewellington.ca

Attachments

Wellington Source Water Protection Comments Harden Environmental Memorandum RJ Burnside and Associates Memorandum

C.C.

Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township
Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch
Aldo Salis, Director of Planning, County of Wellington
Harry Niemi, Director Public Works, Guelph / Eramosa Township
Dwight Smikle, Township Hydrogeologist, Guelph / Eramosa Township (RJ Burnside)
Stan Denhoed, Township Hydrogeologist, Township of Puslinch (Harden Environmental)
Wayne Galliher, Division Manager, Water Services, City of Guelph
Emily Stahl, Manager of Technical Services, Water Services, City of Guelph
Scott Cousins, Hydrogeologist, Water Services, City of Guelph
Matt Alexander, Water Supply Master Plan Project Manager, City of Guelph (AECOM)



November 26, 2021

Memorandum

To: Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township
Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch

Aldo Salis, Director of Planning, County of Wellington

From: Kyle Davis, Risk Management Official,

Guelph/Eramosa Township and Township of Puslinch

RE: City of Guelph Water Supply Master Plan Update - 2021

The following comments are related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments are provided in conjunction with comments provided by R J Burnside and Associates and Harden Environmental, the hydrogeologists for Guelph / Eramosa Township and Township of Puslinch respectively. Please note that, at this time, a Water Supply Master Plan report is not available for review.

Wellington Source Water Protection is a partnership of the Wellington County municipalities and these comments are on behalf of the Township of Guelph / Eramosa, Township of Puslinch and County of Wellington. These comments should not be construed as a hydrogeological, engineering, ecological or technical review. These comments are strictly provided in regards to consultation and engagement process and our municipalities' role in implementing the Clean Water Act and municipal source water protection. For hydrogeological, engineering and / or technical review comments, please see the Burnside and Harden memorandums.

Comments

1. The Township of Puslinch, Guelph / Eramosa Township and the County of Wellington must be brought into the City's water supply projects early and often. Similar comments from our municipalities were made during the 2014 Water Supply Master Plan update and during the Guelph / Guelph – Eramosa Tier 3 Water Budget Study that was completed in 2017. It is the City's responsibility to engage the Townships and County on their projects. The Townships and County are key stakeholders in the City of Guelph water supply planning process and their input or comments should not have been absent for a period of 20 months while key project decisions were made in this Water Supply



Master Plan update. The Townships and County should be some of the first stakeholders the City contacts and there should be continuous contact throughout the process.

Recommendation:

Going forward, it is recommended the following be established:

- a) High level meetings, at either a quarterly or semi-annual frequency, organized between City, Township and County staff to identify and update key projects planned or occurring between our municipalities. Part of the purpose of these meetings will also be to ensure more frequent, project specific meetings are happening where required.
- b) That the City set up regular meetings, frequency to be determined based on the project schedule, on the Southwest Guelph Class Environmental Assessment and on the Guelph Water Supply Master Plan. These meetings would be with Township and County staff / consultants.
- 2. The lack of Township and County input has a direct connection to the selection of preferred alternatives in the Water Supply Master Plan. The City's response to our 2014 Water Supply Master Plan comments was that the City will prioritize wells within the City boundaries first. In this draft update, new municipal wells within the City boundaries were not carried forward into the preferred alternatives as a modelling exercise showed there was too much projected interference with existing municipal wells. This has a direct impact on other alternatives ranking higher, including City test wells and proposed new wells located in the County. This is an example where earlier engagement with the Township and County staff, while the modelling work was ongoing, was necessary to at least understand the rationale behind this decision and to also provide any additional information or data that may result in a different conclusion and decision. Based on the previous City response and the first agency workshop in 2019, staff expected City staff to engage them during this Water Supply Master Plan update process not at the end. Moving forward and outlined in the comment above, we propose a process when planning or modelling work is ongoing near the municipal boundary or within the County, that Township and County staff / consultants are engaged early when there is still time for their comments to be incorporated into the City's results.



On a related note, the lack of proposed alternatives within the southeast quadrant of the City (the Clair – Maltby area) appears to be a gap. It is understood that this is a major recharge area and it is understood through conversations, that there are technical reasons for this exclusion. However, given the proximity of this area to the County and given that fewer new wells in the City directly results in proposing other wells in the County, consultation should have occurred early in the process regarding this point so our technical staff could review the rationale and provide input towards this decision.

It is understood that the preferred alternatives build on one another and cumulatively represent how the City will meet the projected water needs. The Townships and County request further information, in the form of the draft Water Supply Master Plan report and meetings, on the rationale behind the selection of the preferred alternatives. In particular, it is noted that water conservation and municipal system optimization, including reduction of line loss / leakage and increasing capacity of existing municipal wells closer to permitted values, serve as the first alternatives to be implemented. Therefore, it is important to understand and review the data and rationale underpinning each of the preferred alternatives as an increase in water availability through the initial preferred alternatives will reduce the likelihood or need of the later preferred alternatives (ie new wells in the County or Townships).

Overall, the Townships and County request a meeting to discuss and understand the City's decision-making process to identify and rank the preferred alternatives and whether additional information is available that may affect that identification and ranking.

Recommendation:

It is recommended that a meeting be held in December 2021 with City staff and consultants and Township / County staff and consultants to review these comments and the attached Burnside and Harden comments and discuss incorporation into this Water Supply Master Plan update. It is understood that City staff have initiated organizing this meeting already and it is tentatively scheduled for early December 2021. Follow-up meetings should be scheduled following the initial December 2021 meeting.

3. As discussed in the Harden and Burnside memorandums, water supply planning should not be completed in isolation. The Township of Puslinch, Guelph / Eramosa Township



and the County of Wellington host the City's Arkell Spring Grounds, the Eramosa River intake plus a number of current and proposed City municipal wells. Additional current and proposed wells within the City are also very close to the municipal boundaries. As a result, the City of Guelph wellhead protection areas and intake protection zones extend kilometres into the Townships and County and encompass thousands of County properties. Both the City and the County are subject to growth projections from the Province that will result in more population and more water usage. This Master Plan update is in direct response to those 2051 growth projections for the City. Given the interconnected nature of the groundwater systems in this area, water supply planning in the City, County and Townships should also be interconnected and consider the growth projections and current / projected water usage in all the municipalities utilizing the groundwater system whether through private or municipal systems.

The Guelph Water Supply Master Plan assesses the City's needs in a vacuum. There does not appear to be much consideration or incorporation of County or Township growth projections or even current municipal wells. On some maps in the presentations, the existing Guelph / Eramosa Township municipal wells are not shown. In another map presented to Guelph / Eramosa Council, a decommissioned municipal well in Guelph / Eramosa Township is shown. In both instances, this is in the general area where the City has proposed a preferred alternative of a new City of Guelph municipal well (Guelph North). Examples such as these, demonstrate why increased coordination and engagement is needed.

Recommendation

In the December meeting referenced in comment 2 and any follow-up meetings, discussion should include the County of Wellington growth projections and associated water supply.

4. As outlined in the Burnside and Harden memorandums, there are a number of comments requiring response.

Recommendation

In the December meeting referenced in comment 2, that the City of Guelph review, meet to discuss and incorporate Burnside and Harden comments outlined in their respective memorandums.



5. It is understood that the draft Water Supply Master Plan document is being prepared, however, is not available for review at this time.

Recommendation

Our municipalities request sufficient time, at least two to three months, to review this draft document and to provide detailed comments, meet with City staff and consultants, present to our Council(s) and review responses from City staff and consultants

6. Our municipalities have been implementing the Clean Water Act and the Grand River Source Protection Plan since 2016 while planning for implementation began in 2006. We protect the City of Guelph wellhead protection areas and municipal wells / intakes located in the Townships or County including draft wellhead protection areas such as the WHPA-Q. This requires significant work by multiple Township and County departments and is undertaken to protect our much larger neighbour's water supply.

The City's Water Supply Master Plan update has implications for all the wellhead protection areas, intake protection zones and issue contributing areas currently delineated for the City of Guelph municipal drinking water system. At this time, there is insufficient information provided by the City to accurately assess the impact of the preferred alternatives on our source protection implementation efforts.

In the absence of more information at this time, a few general scenarios can be stated. The first scenario is that new City of Guelph municipal wells in the County or close to (within approximately one kilometre) of the municipal boundary will have increased source protection implementation requirements in the County when compared to new municipal wells further within the City boundaries. Similarly, increased water takings from existing City municipal wells in the County or close to the municipal boundary will also have increased source protection implementation requirements. In this regard, it can be expected that the preferred alternatives of Logan, Hauser, Guelph North, Guelph South and Southeast will have increased source protection requirements in the County compared to Ironwood or Steffler. It is worth noting that many of the City's higher ranked preferred alternatives are within or close to the County.



The second scenario is that revised modelling / sampling for existing municipal wells that increases the vulnerability score to a score 10 (red area) or identifies a drinking water issue (ie increasing trends of contaminants above or approaching provincial standards) will increase source protection requirements, potentially substantially. At this time, it is difficult to ascertain, based on the information presented, whether either increased vulnerability scores or delineation of a drinking water issue will occur from the preferred alternatives in the Water Supply Mater Plan. It is unknown whether the draft report will contain a preliminary analysis for each of the preferred alternatives. Although delineation of new wellhead protection areas from the preferred alternatives are separate studies from the Water Supply Master Plan, it is possible to conduct some preliminary analysis to determine whether certain preferred alternatives are more likely to result in increased vulnerability scoring. The delineation of a drinking water issue is unlikely to occur in a new municipal well supply, however, often the re-evaluation of past sampling data occurs concurrently with wellhead protection area revisions, therefore, some initial Drinking Water Issue analysis should also be incorporated into the Water Supply Master Plan update especially where quality concerns may reduce the available quantity of water in existing municipal wells.

The third scenario is related to the draft WHPA-Q (quantity). The draft WHPA-Q (quantity) is already very extensive, however, new municipal wells or new private water takings, either in the City or County, that are close to limit of the draft WHPA-Q may increase its size and therefore increase requirements on additional properties. Since the WHPA-Q already completely covers the City of Guelph any increase to size would result in new properties and increased requirements being outside of the City boundaries. These properties would be in either the County of Wellington, Region of Waterloo or Region of Halton. An alternative result of this scenario is the reduction of the significant risk level in the WHPA-Q to a moderate or low risk level through an updated Tier 3 Risk Assessment process. A reduction of the risk level would lead to the currently draft source protection water quantity policies applying only to future development in a moderate risk level or not applying at all in a low risk level. It is possible that implementation of certain alternatives in the Guelph Water Supply Master Plan could lead to the outcome of reducing risk levels in the WHPA-Q, however, in the current information available on this Guelph Water Supply Master Plan update it is unclear whether this has been considered. In particular, under the optimization alternative it is unclear whether upgrades are proposed at the two existing City of Guelph municipal wells (Queensdale



and Arkell-1) that currently trigger the significant risk level and whether upgrades would reduce the risk level. It is understood that other municipal wells were identified in the Tier 3 study as being at potential risk for water quantity, however, did not trigger the significant risk level in 2017 when the Tier 3 Study was complete. A preliminary analysis should be completed of the impact of the preferred alternatives on the Queensdale and Arkell-1 wells and the other wells identified in the Tier 3 and how that may affect the WHPA-Q risk level.

Lastly, when scenario 2 (increased vulnerability or a drinking water issue) occurs on or near lands designated or zoned for employment, settlement areas and / or other development uses, the source protection implementation requirements often increase substantially due to the land use. In addition, there is often also increased public interest, staff review, consultation and ultimately time and effort related to these properties. This time and effort can be substantial and is not only limited to County / Township source protection staff and includes consultants and staff from Planning, Building staff, Clerk, Water, Engineering and Administration departments.

When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter. Therefore, it is critical that the County and Townships be kept apprised of the City's water supply plans and work collaboratively with us to ensure protection of the resource.



Recommendation

- a) That the City incorporate preliminary analysis of the general scenarios outlined above in their evaluation of preferred alternatives. When completing that analysis, it recommended that the City consults with the Townships and County and that the Townships and County review that analysis.
- b) That the City, Townships and County incorporate discussion of the necessary source protection updates into the meetings discussed in comment 2 and to include the Grand River Conservation Authority when appropriate.

If you require further information, please contact:

Kyle Davis, Risk Management Official 519-846-9691 ext 362

kdavis@centrewellington.ca

Attachments
Harden Environmental Memorandum
RJ Burnside and Associates Memorandum



November 26, 2021

Via: Email

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora, ON NOB 1S0

Dear Mr. Davis:

Re: City of Guelph WSMP Comments Project No.: 300036495.0003

R.J. Burnside & Associates Limited (Burnside) was requested by the Township of Guelph / Eramosa to review the presentation on the City of Guelph's Water Supply Master Plan that was provided at an Agency and Municipality workshop in September 2021. Our review of this presentation is also supported by our attendance at a presentation on the same topic to the Guelph / Eramosa Committee of the Whole on October 20, 2021. Burnside also attended a kick-off meeting for the Southwest Guelph Water Supply Class Environmental Assessment on October 6, 2021.

This letter provides Burnside's comments on the main presentation but also incorporates consistent trends encountered in all presentations.

Location and Context considerations

The presentations are as required focused on the needs of the City of Guelph (COG); however, they consistently lack any form of recognition of the locational context for the City's water supply. The COG's water supply is dependent on supplies flowing from Guelph / Eramosa into the COG. The presentations seem to address the water supply issues as solely a COG issue with little recognition for the contributions from Guelph / Eramosa. For instance, the mapping provided for existing sources does not show the location of the Cross Creek and Huntington wells which are located within the area shown on the associated figure.

The context seems to be one in which the supply to the COG is the focus with no recognition of the existence of other demands and users outside of the COG. We note that currently there are impacts due to the use by the COG that extend the current water quantity WHPA-Q into Guelph / Eramosa. It seems expedient that any analysis of potential impacts should not be restricted to the COG but should consider all areas within the current WHPA-Q. Additionally existing large users in and around the COG should be recognized and included in the discussions to ensure that the water is treated as a shared resource that does not recognize the boundaries placed on maps by municipalities.

Project Objectives and Major Tasks

We suggest that the project objectives be revised to incorporate at a high level the recognition of the shared nature of the water resource with Guelph / Eramosa and other surrounding municipalities. To this end we suggest that the following bullets under the project Objectives and major Tasks be revised to read:

Will review Guelph's water supply demand forecast and existing water supply and discuss with the community (and surrounding municipalities) how to continue to meet the City's needs sustainably, while also sustaining environmental and other demands outside of the City.

When investigating existing and new water supply options we will consider things like *natural environment*, *existing water users*, climate change, water quality and quantity, economic factors, social/cultural environment, and any relevant regulations.

Existing Water Supply Capacity Assessment

The overview of the COG's existing water supply system should acknowledge that the system is dependent on the Guelph-Gasport bedrock aquifer as are a number of surrounding municipalities. It is important to establish that this is a shared resource and is important not only to the COG.

The map of existing water supply wells should include the Cross Creek and Huntington Wells as they are within the area shown and within the WHPA-Q for existing wells.

Water Supply Alternatives- Groundwater Sources

The COG indicates that a number of analyses have been completed or are scheduled to take place. The results of these analyses have implications for Guelph / Eramosa and it will be important that Guelph / Eramosa be kept updated on the progress of these analyses.

It was noted that a review of previous recommendation to replace Glen Collector was screened out through preliminary modelling. It would be informative for Guelph / Eramosa to understand what this modelling showed and what factors were considered for ruling out this option.

Restoration of existing off-line municipal wells was suggested as a potential source for additional capacity. The wells included in this consideration are located on the northeast, northwest and southeast of the COG. It will need to be confirmed that modelling has been completed with these wells running and that the impact to the WHPA-Q on any water users or features within this zone inside Guelph / Eramosa examined.

The development of existing municipal test wells was suggested as a potential source for additional capacity. It is suggested that modelling has occurred based on long-term average pumping. The scenarios included in the pumping should be reviewed and the predicted impacts outlined by the COG. The impact on the existing WHPA-Q should also be provided and any expansions into Guelph / Eramosa outlined.

It is noted that the COG has initiated construction of a new well on the Logan site which is inside Guelph / Eramosa. The following comments are provided specifically regarding this well location.

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Mr. Kyle Davis November 26, 2021

Project No.: 300036495.0003

- The well is located adjacent to a site of potential contamination. The overburden is thin (about 4 m) and the well may also be under the influence of surface water. These considerations suggest that this well may be high risk for contamination.
- The well is located adjacent to a water course and may be influenced by surface water.
 Pumping from the well may impact surface water and therefore surface water impacts will need to be considered as part of an evaluation of well performance.
- Additional monitoring wells that look at shallow impacts will be necessary on the Logan site.
- Guelph Lakes Golf Course has a well that it uses for irrigation. It will be important to monitor that well for potential impacts during any pumping test at the Logan site.
- None of the wells associated with the former Eastview Landfill are included in the monitoring program. It is important to confirm that no impacts from the former landfill are anticipated.
- Due to location, potential for impacts and new trends in water quality, analysis of samples from Logan should consider the impacts of per- and poly-fluoroalkyl substances (PFAS).

We note that Guelph / Eramosa should be kept abreast of all studies and proposed works at this site.

The COG has indicated that the Southwest Guelph Water Supply EA has been initiated. The study is intended to also evaluate the impact of management of the Dolime Quarry Pond level on water resources in the area. Based on materials provided and our attendance at the kick-off meeting for the Southwest Guelph Water Supply EA we are not aware of any monitoring that is proposed in Guelph / Eramosa to understand the impacts of any of the proposed changes in water use in this area. It is our position that the impacts within Guelph / Eramosa should be considered in a similar manner to those inside the COG and that Guelph / Eramosa should be kept abreast of potential impacts.

The presentation suggests that the installation of wells outside COG boundaries would provide additional capacity. This recommendation is couched on the premise that the addition of new wells within the COG has been examined. Information provided at the presentation indicated that modelling that was completed suggested that new locations within the city would not result in new water but would instead move water around from already existing sources. This is an important principle that seeks to preserve existing users. We are supportive of this principle being used but note that it should also apply to sources within Guelph / Eramosa. It is in this context that the omission of the Cross Creek and Huntington Wells seems more problematic. We note that a new supply is proposed for North Guelph, in the vicinity of Cross Creek and Huntington. We recommend that similar modelling as occurred to rule out new wells inside the COG be undertaken to ensure that a new well in this area does not result in reduced capacity at either Cross Creek or Huntington. The following comments are provided on the Guelph North proposed new well:

- Rationale for selecting this location indicates that there is limited local groundwater use. We
 note that municipal wells at Cross Creek and Huntington are located in this area, so while
 there are a limited number of domestic wells, the municipal supply wells are critically
 important to Guelph/Eramosa and the importance of maintaining the capacity at these
 existing sources cannot be overstated.
- The presentation suggests that the selected location is close to an area of high transmissivity within the aquifer. Guelph/Eramosa should be provided with a copy of the documentation supporting this determination and any mapping showing the location.

Mr. Kyle Davis November 26, 2021

Project No.: 300036495.0003

 We note that there is an existing well located on the St. Ignatius property that was tested at 300 IGPM. This well is a bit further away from the Guelph / Eramosa wells and suggests that supplies may be available in other areas further away from the Guelph / Eramosa wells.

Surface Water Alternatives Assessment

Surface water reliability is noted as a concern for both the Guelph Lake and Eramosa River locations. Traditionally surface water reliability has been augmented by increasing storage and storing water during the spring when it is available for use when it is required. This principle is similar to that suggested for the Aquifer Storage and Recovery. Surface water storage has numerous advantages over aquifer storage. It is not clear whether an evaluation of surface storage options has been included along with the analysis of aquifer storage and recovery.

The aquifer storage and recovery modelled results indicate a very large are of influence that extends out into Guelph / Eramosa. More information on this zone needs to be provided including the magnitude of the water level increase that is expected. Impacts to water quality should also be provided and details on any risks to the aquifer from this proposal should be provided.

Conclusions

The water resources of the Guelph / Eramosa and COG area are a shared resource that is utilized by residents and industries within both municipalities. It is important that the management of the resource by the COG recognize this fact and seek to include the existing uses within the township in any further analysis or studies. Recognition of the use by the township also includes considerations for future use.

The COG should seek to keep Guelph / Eramosa abreast of studies and findings as they occur and not later in the process which gives the township the opportunity to be involved from the outset and to provide comments that may be useful at the appropriate times versus at the end of the process.

Numerous alternatives have been presented and it would be helpful for the COG to provide further information and clarifications as outlined above to allow Guelph / Eramosa to fully understand the implications of the proposals.

It is important to note that at current levels of water taking the overall WHPA-Q for the COG extends into the Townships of Guelph/Eramosa and Puslinch. This water taking is therefore having an impact and the associated source protection vulnerable areas extend into the townships. The townships on the other hand are required to manage and protect water resources for use inside the COG. It should be noted that even when water taking is restricted to inside the COG boundary, there are impacts that need to be addressed by the townships. It should therefore be recognized that changes to water taking within the COG may have external implications and the townships should be made away and kept aware as major stakeholders in the WSMP process as any decisions taken will likely have impacts that extend past COG boundaries.

November 26, 2021 Project No.: 300036495.0003

Yours truly,

R.J. Burnside & Associates Limited

Dwight Smikle

Senior Hydrogeologist

DS:js

cc: Harry Niemi, Guelph/ Eramosa (enc.) (Via: Email)

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RJB Comments 26/11/2021 1:16 PM



Harden Environmental Services Ltd. 4622 Nassagaweya-Puslinch Townline Road Moffat, Ontario, L0P 1J0

Phone: (519) 826-0099 Fax: (519) 826-9099

Groundwater Studies

Geochemistry

Phase I / II

Regional Flow Studies

Contaminant Investigations

OMB Hearings

Water Quality Sampling

Monitoring

Groundwater Protection

Studies

Groundwater Modelling

Groundwater Mapping

File: 0505

November 26, 2021

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora ON NOB 1SO

Attention: Kyle Davis

Dear Mr. Davis:

Re: City of Guelph Water Supply Master Plan

Harden Environmental is pleased to provide comments on the City of Guelph Water Supply Master Plan. We attended a meeting on September 14, 2021 and therein viewed a presentation summarizing the Master Plan. No other documents were made available to us for review. We have both general comments and comments specific to the presentation.

General Comments

The City of Guelph relies on groundwater resources for residential, industrial, commercial and institutional use within their municipal boundaries. The majority of the groundwater supply is sourced from outside of the municipal boundaries, specifically the County of Wellington. The Official Plan (OP) of The County of Wellington recognizes the Well Head Protection Areas that extend from the City of Guelph (and Arkell Well Field in Puslinch Township) and thereby offer protection for the underlying groundwater resource. The County of Wellington also has significant groundwater and surface water resource protection policies in the OP that benefit the source areas of City of Guelph municipal wells. For example, the OP includes protective policies for the Paris and Galt Moraines, two glacial features that are identified as Significant Groundwater Recharge Areas. In addition to providing groundwater to local streams, wetlands and water supply in the Townships, these features also supply water to the City of Guelph. These are examples of the efforts that the County of Wellington and Townships benefit the City of Guelph.

The City of Guelph Water Supply Master Plan should thus recognize that its supply is more than infrastructure that delivers the necessary volume of water

Guelph Water Supply Master Plan November 26, 2021 Page 2

and should recognize the implications of the taking on groundwater and surface water resources in Wellington County.

Any increase in the City of Guelph Water Supply comes with an impact to the groundwater or surface water resources of the County of Wellington. This is realized as an expansion of the Well Head Protection Areas (quantity and quality) into the County. This is realized as increased diversion of groundwater or surface water from features within the County or decreased release of water to downstream or downgradient users. Depending on the outcome of Source Water Protection policies and priority of use policy issued by the Province, an increase in groundwater or surface water taking by the City of Guelph, Region of Waterloo or City of Hamilton could also be realized as a reduction in water taking in the County should the water taking in the County be deemed to interfere with taking for municipal drinking water. As a minimum, there will be changes in groundwater levels and increased WHPAs (quantity and quality) that have land use implications that are dictated by the Risk Management Plan associated with that Well Head Protection Area. In this way, the Townships and the County have a significant interest in the future use of groundwater and surface water by the City of Guelph, Region of Waterloo and the City of Hamilton.

For these reasons, the County and Townships are very interested in ongoing dialogue with the City of Guelph. The groundwater and surface water resources are not confined to municipal boundaries, thus the development/implementation of plans and policies for their use should also not be restricted to within the municipal boundary. We are recommending broader involvement of the County in decision making by the City when increased taking of groundwater and surface water resources from sources common to both City and County are being considered.

We also have the following specific comments on the presentation. Headings in bold type represent the title on the presentation page.

Feedback from Round 1

The Township of Puslinch endorses the feedback from Round 1 but note that concerns from neighbouring municipalities is missing from the list. It has been made clear that the Township of Puslinch is concerned about Well Head Protection Areas (quality) as it impacts land use and the expansion of the Well Head Protection Area (quantity) as it has the potential to impact water taking in the Township both at present rates and future rates given the high risk rating assigned to the exiting City of Guelph well system.

Task 2 – Population and Water Supply Demand Forecasts

There is no mention of the population growth and water supply demand increases within the source areas of the City of Guelph municipal wells beyond the City municipal boundaries. A significant percentage of water obtained by the City of Guelph is sourced from beyond the City boundaries and there must be a recognition of this fact and an inclusion of growth and demand in the source areas.

Overview of Guelph's Existing Water Supply System

This figure is inadequate by failing to recognize the areal extent of the source area for the City of Guelph's Water Supply System. This map only shows the infrastructure used to obtain the water supply. A map of the WHPA-Q1 would better represent the present extent of the source area for Guelph's existing water supply system and thereby recognize the extent to which groundwater and surface water is obtained from beyond the City of Guelph municipal boundaries.

Additional System Risks

This list does not include the potential reduction in recharge or the contamination of recharge resulting from expanded development within the existing City boundaries. Specifically, the risk of developing the Clair-Maltby area should be included as an additional risk to an important source area for the City of Guelph municipal wells. We encourage the City to review the Galt Paris Moraine Policies enacted by the County of Wellington.

Conservation Alternatives

The Township of Puslinch requests to be informed of the implementation and effectiveness of conservation methods as this will affect the timing of the drilling additional wells at the Township boundaries or within the Township municipal boundaries. It is both the City of Guelph's and the Township of Puslinch's best interest for conservation efforts to be implemented as early as possible and as effectively as possible to minimize the potential for commissioning new wells on the Township borders or within the Township.

Groundwater Alternatives

The Township requests to be informed of the progress made with each of these alternatives on a regular basis and in particular would like to be informed of the implementation of any of these alternatives that result on the expansion of the exiting WHPA's for quantity or quality. The implementation or non-implementation of any one of these alternatives has the potential to affect the timing of drilling wells that can affect water levels in the Township of Puslinch, affect land use restrictions in the Township of Puslinch or restrict water use in the Township of Puslinch.

- Optimize existing operating municipal sources
- •Restore existing off-line municipal wells
- Develop existing municipal test wells
- •Install new wells inside City boundaries (screened out through prelim. modelling)
- •Install new wells outside City boundaries

Guelph Water Supply Master Plan November 26, 2021 Page 4

•Install new ASR wells inside City to optimize excess Arkell Collector system volumes

It is therefore in the interest of the Township to be kept informed of the progress made on each of these alternatives.

The consideration of any of these alternatives should be preceded by evaluating the potential impact using the existing groundwater model and presentation of these impacts to the Township of Puslinch prior to further consideration or implementation. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on WHPA's outside of the municipal boundaries. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on surface water and groundwater resources outside of the municipal boundaries. These should be part of the Guelph Master Plan whereby potential impacts to Township neighbours can be included in the decision making matrix.

Offline/New Sources

The Township requests that they are informed in regard to the consideration of or testing of any new source or offline groundwater source that has the potential to expand the WHPA for quantity or quality into the Township. The experience in 2020 was that testing of the Southwest well was conducted with very short commenting period from the Township resulting in inadequate monitoring of quantity and quality impacts within the Township. The minimum notification period is six months.

New Surface Water Supply Alternatives

The Township requests that they are informed of any consideration of or elimination of surface water alternatives as their implementation or elimination may affect the timing of the development of alternatives that directly impact the Township groundwater resources and land use.

Aquifer Storage and Recovery

The Township requests advance notice of the consideration and implementation of any Aquifer Storage and Recovery alternatives. The implementation or elimination of this alternative may affect the timing and development of alternatives that directly impact the Township groundwater resources and land use.

We encourage the City of Guelph to frequent and regular dialogue with respect to these shared groundwater and surface water resources.

Guelph Water Supply Master Plan November 26, 2021 Page 5

Respectfully Submitted,

Harden Environmental Services Ltd.

SIR



Stan Denhoed, P. Eng., M.Sc.



February 11, 2022

Sent by email

Mr. Kyle Davis Risk Management Official Wellington Source Protection – Risk Management Office 7444 Wellington Rd 21 Elora, ON N0B 1S0

Dear Kyle,

RE: Guelph Water Supply Master Plan Update – Response to Puslinch Township, Guelph/Eramosa Township and Wellington County Comments on the September 14th, 2021, Agency and Municipality Workshop Presentation

Please find attached, the City of Guelph's response to comments provided by Wellington County, Puslinch Township and Guelph Eramosa Township on the September 14, 2021 Agency and Municipality Workshop as part of the Water Supply Master Plan Update. The comments were provided to the City on November 26, 2021.

We acknowledge receipt of the comments and have responded to the comments in the attachment. Our response has been provided to address the Puslinch Council Resolution dated October 13, 2021 and the Guelph Eramosa Township Council Resolution dated October 20, 2021. In addition, the City has arranged ongoing meetings with the County and Townships to continue discussions on the draft Water Supply Master Plan Update Report. The report was provided on January 10, 2022 as part of the 90-day public review period so that the parties can provide comments prior to the report being presented to City Council in June, 2022.

Sincerely,

Dave Belanger, M.Sc., P.Geo., Water Supply Program Manager, Water Services, Environmental Services

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T: 519.650.5313 F: 519.650.3424 www.aecom.com

To: Dave Belanger, City of Guelph

Date: February 11, 2022

Project #: 60612820

From: Matt Alexander (AECOM)

Patty Quackenbush (AECOM)

cc: Scott Cousins, City of Guelph Alicia Evans, AECOM

Memorandum

Subject:

Guelph Water Supply Master Plan Update – Response to Puslinch Township, Guelph/Eramosa Township and Wellington County Comments on the September 14th, 2021, Agency and Municipality Workshop Presentation

Introduction

On November 26th, 2021, The City of Guelph ('the City') received three letters/memoranda that provided review comments related to the presentation prepared by AECOM Canada Limited (AECOM) and the City for the Agency and Municipality Workshop held on September 14th, 2021. The objective of the workshop was to provide the attendees a progress update on the Water Supply Master Plan (WSMP) Update project and to solicit input on the project. This presentation is included as **Attachment A**. The received letters/memoranda are as follows:

- Title: City of Guelph Water Supply Master Plan Update 2021. Author: Kyle Davis, Risk Management Official, Wellington Source Water Protection. Date: November 26, 2021.
- Title: City of Guelph Water Supply Master Plan. Author: Stan Denhoed, P.Eng., Harden Environmental Services Ltd. (on behalf of the Township of Puslinch). Date: November 26, 2021.
- Title: City of Guelph WSMP Comments. Author: Dwight Smikle, Senior Hydrogeologist, R.J. Burnside & Associates Limited (on behalf of Guelph/Eramosa Township). Date: November 26, 2021.

These documents are included herein as **Attachments B, C, and D**. Within this document, the Townships and County are referred to as Puslinch Township (Puslinch), Guelph-Eramosa Township (GET), and Wellington County (County).

Subsequent to receipt of the memoranda, a meeting was held on December 6th, 2021 between the City, AECOM and the authors of each document to discuss the comments and concerns in more detail. The minutes prepared as a record of this meeting are included as **Attachment E**. The responses provided in this memorandum have been prepared with the assistance of the City as certain aspects of the received comments are beyond the scope of the WSMP Update project. The comments received and this response will form a component of the record of consultation prepared for the WSMP Update report.

Purpose

This memorandum includes a response to each of the documents listed above; however, in reviewing the received comments, the City identified four "themes" which are described as follows:



- Consultation and meetings with the County and Townships with respect to WSMP projects;
- Source protection concerns resulting from changes in City water takings;
- Source protection concerns resulting from the City's Wellhead Protection Area for water quantity (WHPA-Q) and the associated Significant Stress and Significant Risk designations from the Guelph-Guelph Eramosa Township (GGET) Tier 3 Water Budget and Local Area Risk Assessment (Tier 3 Water Budget); and
- Consideration of growth and water demand for the Townships.

Each of these themes is described in greater detail below along with corresponding general responses. An important consideration when reviewing the responses provided is the planning period covered by the WSMP Update and the frequency at which it is updated. The WSMP Update covers a 30-year period from 2021 to 2051 and therefore identifies projects for implementation in the short-, medium-, and long-term. Further, the plan is updated approximately every five years to allow for the incorporation of new supplies that have been developed and new hydrogeological information that has been collected by the City. These aspects of the planning process are reflected in the level of detail that is included in the plan. For example, projects that are planned in the short-term have a higher level of detail and supporting investigations regarding estimated capacity and potential impacts. Whereas potential water supply projects that are to be implemented in the medium and long-term have less information currently available but will evolve as the plan is implemented and the City progresses with the technical work required to further evaluate the viability of the supply sources. Ongoing consultation with the Townships and County will occur with each WSMP update and each individual WSMP project. Many of the specific comments and questions identified within the comments received will be addressed over time through the required technical work and consultation and collaboration process.

General Responses

General Response #1: Consultation and Meetings

The County and Townships have raised concerns regarding consultation and meetings about the City's water supply projects and the City acknowledges the need for greater engagement between the parties with respect to issues and concerns that relate to water supply. As described at the meeting on December 6th, 2021, the City will commit to improving consultation with the County and Township on projects related to the WSMP. The City is aware that there are discussions ongoing at several staffing levels and additional discussions can determine the content and frequency of meetings to be attended by City, County and Township representatives. The meetings can be used to exchange relevant information between the parties with respect to the WSMP projects and/or related projects on water takings in the City and/or Townships. In addition, as part of Class Environmental Assessments (Class EA) for new water supply projects, the City will commit to holding project-specific progress meetings with the County/Townships. At present, the Southwest Guelph Water Supply Class EA and the Logan Well Feasibility Study are active projects in the short-term plan for the WSMP. Other projects can be added to meeting agendas as they are developed such as the design and construction of the Clythe Water Treatment Plant.

General Response #2: Source Protection

In the comments from the County and the Townships, there are numerous comments with respect to source protection and the implications of new water takings for source protection administration and potential land use constraints. It is recognized that source protection requirements, imposed by the Province of Ontario through the Clean Water Act, place a responsibility on the County/Townships to protect the quality and quantity of the City's municipal drinking water sources. In recognition of this responsibility, the City is developing a collaborative agreement between the parties that will address cooperation and sharing of costs related to source protection



requirements for each municipality. It is hoped that this agreement addresses or mitigates comments associated with the responsibility imposed on the County/Townships in protecting the City's water supplies.

In addition, several of the County/Township comments noted the impact of new water takings on the existing WHPA-Q. The WSMP is intended to address Phase 1 – Problem or Opportunity Statement and Phase 2 – Alternative Solutions and source protection requirements are addressed only at a screening level as part of the evaluation of alternatives (see Section 6.1 of the draft WSMP Update Report). Detailed evaluation of the changes to the WHPA's including modelling of the proposed changes to the WHPA's will be conducted as part of subsequent phases of the Class EA process once the preferred design information (i.e., well pumping rates and Permit to Take Water requirements) is available. The technical work and public consultation required by the Clean Water Act to delineate the vulnerable areas (i.e., WHPA's) and the potential drinking water threats within these areas will be undertaken concurrently with the Class EA process for each of the new water supply projects. It is expected, where new water takings affect existing WHPA's or existing source protection policies, the County will be intimately involved in the development and implementation of source protection requirements in the Townships. As such, delineation of the WHPA's for each proposed alternative solution is considered to be beyond the scope of the WSMP.

General Response #3: Source Protection and Significant Stress/Significant Risk Designation

The County/Township comments have identified concerns regarding the designation of the WHPA-Q as an area of significant stress for water quantity and an area of significant risk of not meeting future supply demand under drought conditions. With a "significant" designation, water quantity policies are required to address significant drinking water threats such as Permits to Take Water (PTTW) which may result in some land use constraints. The County/Township comments imply that additional water sources in the WSMP could lead to reductions in the stress and risk levels and potential reductions in the source protection policy requirements. The City agrees with this hypothesis; however, the stress and risk designations are largely the result of a number of water takings in relatively close proximity, including water takings in the City and Townships in the WHPA-Q. To reduce the stress or risk levels, the spatial area of the water takings would need to increase which implies additional water taking outside of the City boundaries. The County/Townships have preferred new City sources to be located inside City boundaries but if this preference is to remain as a potential constraint, then it is unlikely the stress and risk levels will be reduced and any water quantity policies are likely to remain in place.

General Response #4: Growth Within the Townships

In the County/Township comments, concerns were raised regarding potential future growth within the Townships and whether it was considered in the population and water demand forecasts in the WSMP. The WSMP Update was focused on Guelph's water supply requirements and has not evaluated the population or water supply demand forecasts associated with growth in the Townships since it is not within the scope of the project. However, the WSMP Update was informed by earlier work (2018) in the Tier 3 Threats Management Strategy (TMS) (https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/GGET-Threats-Management-Strategy-2018-06-14-final.pdf) which conducted sensitivity analyses using increases to existing non-municipal water takings as a surrogate approach to assessing growth in the Townships. The sensitivity analysis determined that existing takings could increase by about three times higher than current takings before impacts were predicted on municipal sources during drought conditions. These results imply that there is additional capacity in the area to support additional growth in the Townships.

From the December 6th meeting, it is understood that the County has recently produced an Official Plan Amendment (OPA 119) that describes proposed growth allocations for GET and Puslinch to 2051. Growth allocations have been provided by Watson and Associates (2021, https://www.wellington.ca/en/resident-services/resources/Planning/Official-Plan/Official-Plan-Review/Phase-1-MCR-Report-Urban-Structure-and-Growth-Allocations.pdf) which indicate limited growth in Puslinch (4% of proposed growth in the County and



2,400 people) and GET (2% of proposed growth in the County and 1,500 people) primarily due to lack of municipal services. It is also noted that Zoning By-Laws for Puslinch and GET have land use restriction for dry industries only, which implies low water usage for Industrial/ Commercial/ Institutional properties. It would be helpful if the County/Townships can provide growth projections and related water demands (per capita consumption for residential and employment populations) for the WHPA-Q as part of its comments on the WSMP Update report, and the City can evaluate the potential implications with respect to water supply capacity.

The balance of this memorandum addresses specific comments within the review letters/memoranda, with reference to the above general themes.

Wellington Source Water Protection Comments

Please see Attachment B for the comments referenced in the responses below.

Comment #1

This comment is generally requesting increased consultation with the City about water supply projects and is addressed above by General Response #1. The public reporting period has been extended to 90 days to allow for a fulsome review and comments to be submitted.

Comment #2

This comment requests increased consultation with the City specifically for the WSMP evaluation of alternatives and requests an opportunity to review the draft WSMP Update report. The consultation/meeting request is addressed above by General Response #1 and, in part, by Comment #1 above. The Townships and County have the opportunity to review the draft report during the 90-day public review period, commencing on January 10th, 2022 and the City has committed to additional meetings to provide further overview of the WSMP Update report and answer any additional technical questions raised by the County/Township.

We also note that the County raised a concern with respect to "new" wells within the City. The WSMP project is an update of the 2014 WSMP wherein we considered some of the same alternatives as in 2014 and updated the plans for new water supply sources. Details are provided in the WSMP Update report and in Appendix D of the report. Test wells are considered to be new water supply sources for the City. As is indicated by the results of the GGET Tier 3 Water Budget project (see also General Response #3), the existing City water supply has a Significant Stress and a Significant Risk designation. As has been discussed with the County in the GGET Project Team meetings, additional water supply wells inside the existing footprint of the City, in addition to the existing test wells, increases aquifer drawdown within the City, causes interference with existing water takings, increases the stress level and increases the risk that the City's water supply will not be able to meet future demands under drought conditions.

The County has suggested that the Clair-Maltby area should be considered as a proposed alternative for locating a new supply well. As referenced in the comment, previous discussion with the County has communicated that this area has been explored in several City projects in the past and does not present reliable targets for increased water supply. For fully penetrating bedrock wells constructed in the area, potential yields were estimated at less than 500 m³/day and more typically less than 100 m³/day. In addition, as is shown by the gap in the WHPA-B in this area, there are poor hydraulic connections within the bedrock aquifers across the area indicating low potential for high yield water supply wells. If the County has any additional hydrogeological information for this area, please provide it and the City will review the information and respond accordingly.



Comment #3

This comment makes reference to the need to consider growth and water use within the County and Townships alongside water supply planning for the City. The comment further states that increased coordination and engagement is needed as part of the WSMP Update process. These comments are addressed above by General Responses #1 and #4. With respect to the consideration of current water use within the County/Townships, the study area for the project includes the area within 5 kilometres of the City boundary and the detailed modeling impact assessment utilized the model domain developed for the GGET Tier 3 Water Budget. The Tier 3 model was updated to include more current water takings (typically 2018) including GET municipal wells as part of the GGET TMS. The modeling assessment therefore included operation of currently permitted wells and assessed potential impacts both within the City and the County/Townships. In addition, the GGET TMS, at the request of the City, included evaluations of increases in existing permitted water takings as a surrogate to growth projections within the Townships, as described in General Response #4.

To confirm some of the details presented above, the City has requested additional information from the County/Townships on the growth projections for Puslinch and GET and the associated water demand estimates to support this growth. The County has committed to providing these details in order for the City to assess potential implications of the WSMP on growth within the Townships.

Comment #4

This comment references the memoranda prepared by Burnside and Harden and requests a response to the comments contained therein. Please see below for responses to those comments.

Comment #5

This comment requests a two- to three-month period to review the draft WSMP Update report. A 90-day public review period from January 10th to April 10th, 2022 is planned for the project.

Comment #6

This comment requests that the City complete preliminary Source Water Protection analysis in the WSMP Update project and meet with the County/Townships to discuss the results. These comments are addressed above by General Responses #1, #2 and #3.

Township of Puslinch Comments

The comment responses provided are organized according to the headings included within the Harden (2021) memorandum (**Attachment C**).

General Comments

The comments within this section of the memorandum (Pg. 1) indicate that the WSMP should recognize the implications of the Guelph water supply on surface water and groundwater within Wellington County. We are in agreement with this comment and have taken this approach in completion of the impact assessment for the WSMP. The study area for the project includes the area within 5 kilometres of the City boundary and the detailed modeling assessment utilized the model domain developed for the Tier 3 Water Budget Study. The



modeling assessment therefore included operation of currently permitted water takings and assessed potential impacts both within the City and the County/Townships. An overriding objective of the modelling studies was to ensure that the proposed supply alternatives were sustainable in recognition of the potential impacts of additional water takings on groundwater users and surface water features.

The Harden memorandum also raises concerns regarding source protection and potential land use constraints which are addressed in General Responses #2 and 3.

This section of the Harden memorandum (on Pg. 2) goes on to recommend the broader involvement of the County in decision making by the City with respect to the increased taking of common groundwater and surface water resources. This comment is addressed above by General Response #1.

Feedback From Round 1

The comment references Slide 12 of the agency workshop presentation that lists the major themes in the feedback received during Phase 1 of the WSMP Update project and notes that concerns from Puslinch related to WHPAs are missing. The WHPA concerns provided through the WSMP consultation process were a major theme during Phase 2 of the WSMP Update project and have been documented within the Phase 2 consultation section of the WSMP report. In the presentation provided to Puslinch Council on October 13, 2021, we provided some of the consultation feedback which, relevant for the Townships, included:

- Concerns on source protection areas and land use constraints;
- Concerns on potential well interference effects with existing wells; and
- Prioritize supply within City before sources within Township(s).

Task 2 - Population and Water Supply Demand Forecasts

The comments in this section of the memorandum are addressed above by General Response #4.

Overview of Guelph's Existing Water Supply System

The comments in this section recommend use of the Guelph and Guelph/Eramosa WHPA-Q map as a representation of the City's groundwater sources. The study area map for the project, included in the draft WSMP Update report, includes the area within 5 kilometres of the City boundary as was used as the study area in previous WSMP updates. This area was considered to be a reasonable estimate of a search area for new water that would limit potential effects on adjacent municipalities. It was also based on the practicality of connecting to the City existing water supply (i.e., costs to pipe water into the City). Our preference is to maintain this as the study area map due to the complexities of understanding the WHPA-Q map by the average reader of the WSMP report. In addition, the WHPA-Q does not represent "the present extent of the source area for Guelph's existing water supply system" as indicated by the Township. The WHPA-Q represents the cumulative drawdown of all water takings in the local area of the City water supply system. Information regarding the area influenced by operation of the City supply sources, including surface water and groundwater resources is detailed in the modeling technical memoranda included within the report. We will also add links to the Tier 3 Water Budget and Local Area Risk Assessment in the Executive Summary and the body of the Update report to direct interested readers to the details on the WHPA-Q.



Additional System Risks

The comment references Slide 28 of the workshop presentation that provides the list of potential system risks that were considered in the Security of Supply assessment. Specifically, the comment suggests that potential recharge reduction and contamination of recharge resulting from new development within the City be added to the list. We are in agreement that these represent potential system risks. With respect to potential recharge reduction, the Tier 3 Water Budget Study (2017) concluded that recharge reduction related to development included within the Official Plans (at that time) would cause a water level decline of 0.1 to 0.3 m. Threats associated with recharge reductions with the WHPA-Q will be further mitigated by the GGET water quantity policies, currently under development. As such, the associated risk is addressed by the 15% Security of Supply allowance included in the WSMP.

With respect to the risk posed by contamination of recharge water, the assessment did consider contamination of groundwater as a risk to the system. Further, it is noted that water quality source protection policies specifically address risks posed by the management of stormwater.

Conservation Alternatives

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the water conservation and efficiency alternatives, as necessary.

Groundwater Alternatives

The comments in this section related to communication with Puslinch are addressed above by General Response #1. See also our response to the County Comment #1 with respect to consultation with Puslinch.

The comment related to evaluation of future WHPA's is addressed above by General Response #2. With respect to the suggested evaluation of potential impacts of new supplies on surface water and groundwater resources, the City has followed this process and it is documented within the draft WSMP Update report. The City has made the report available to Puslinch and the Township can provide additional comments on the groundwater alternatives, as necessary.

Offline/New Sources

The comment in this section of the memorandum regarding informing Puslinch about testing of offline or new sources is addressed above by General Response #1. The City can demonstrate adequate and appropriate levels of monitoring of potential quantity and quality impacts in its testing programs. The City met with Puslinch staff on December 2nd, 2019 and informed staff of the impending pumping test planned for the summer of 2020 thereby providing notification in excess of the six months suggested by Puslinch. We also offered to meet with Harden Environmental and the Puslinch CAO in February 2020 to describe the WSMP and the Guelph South project. Similar offers were also made by the City to the Puslinch CAO in July 2020 in advance of the pumping test. Lastly, we responded to the Township concerns on the monitoring program by expanding the number of monitoring locations in the testing program.



New Surface Water Supply Alternatives

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the surface water supply alternatives, as necessary.

Aquifer Storage and Recovery

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the aquifer storage and recovery alternatives, as necessary.

Guelph/Eramosa Township Comments

Please see **Attachment D** for the comments referenced in the responses below.

Location and Context considerations

The comments within this section of the memorandum reference the fact that water resources are shared between the City and GET and there is a need to consider impacts both within the City and within GET. We are in agreement with this comment and have taken this approach in completion of the impact assessment for the WSMP. The study area for the project includes the area within 5 kilometres of the City boundary and the detailed WSMP modeling assessment utilized the model domain developed for the Tier 3 Water Budget Study. As noted above, the version of the model used for the WSMP project was the updated model from the GGET TMS which included 2018 updates of the municipal pumping rates provided by GET. The modeling assessment, therefore, included operation of currently permitted wells and assessed potential impacts both within the City and the County/Townships. If the Township is agreeable, there may be opportunities to share pumping data in future WSMP modeling updates to ensure the model is using the most appropriate data set.

Project Objectives and Major Tasks

The comments in this section of the memorandum are in reference to Slide 7 of the presentation, which lists the project objectives. The author recommends that the objectives be modified to specify that the surrounding municipalities will be consulted for the WSMP Update project and that existing water users and the natural environment outside of the City will be considered. The objectives listed in the presentation were used to guide the WSMP process but are not explicitly listed in the WSMP Update report. As part of the initial WSMP, City Council provided direction in 2003 "That the focus of the WSMP establish a sustainable water supply to regulate future growth". Sustainability was considered to be an essential concept in the WSMP Update, and as described in the WSMP Update report, the model was used to assess potential impacts on the environment, particularly surface water features. The suggested considerations did form a component of the consultation and impact assessment process and are documented within the draft WSMP Update report.

Existing Water Supply Capacity Assessment

The interdependence of Guelph and the surrounding municipalities on the Guelph-Gasport bedrock aquifer, referenced in this comment is reflected in the draft WSMP Update report. The comment also requests that the GET Cross Creek, Huntington and Rockwood wells be added to the map of Guelph's existing water supply sources. This edit will be made to the final WSMP Update report.



Water Supply Alternatives - Groundwater Sources

The comment in this section of the memorandum, relating to providing GET with progress updates, is addressed above by General Response #1. The comments relating to modelling analysis completed for the potential Glen Collector replacement, offline and new sources are documented within the modelling reports included in the draft WSMP Update report. As stated above, the modeling assessment included operation of currently permitted wells, including the GET Cross Creek and Huntington wells and the continued sustainability of these wells was a requirement of the process as well as a regulatory requirement for any future, new PTTW's.

The area assessed for a potential Guelph North well, as was provided in the 2014 WSMP Update, is general and was guided by the areas of higher transmissivity included in the model layers. This has not been assessed in the field and significant detailed field work would be required, in consultation with GET, to identify an appropriate location from the technical, logistical and public acceptance perspectives. However, this potential location is in the long-term plan and a low priority potential source at present. It is expected that the WSMP will be updated at least several times before this location may be considered as a higher priority.

With respect to the comment about potential impacts of new groundwater sources on WHPA-Q, this comment is addressed above by General Response #2.

For comments regarding the Logan test well, GET has raised comments that are under consideration as part of the feasibility testing project currently underway. The test well has been reconstructed with a deep casing intended to isolate the well from the influence of shallow groundwater. The City has provided GET with the Terms of Reference for the project and will be provided with updates on the project through implementation of General Response #1.

For project-specific comments on the Southwest Guelph Water Supply Class EA, the City will address the GET concerns as part of the Class EA project using the implementation of General Response #1.

The City has made the WSMP Update report available to GET and the Township can provide additional comments on the groundwater supply alternatives, as necessary.

Surface Water Alternatives Assessment

The comment in this section describes an option to increase storage of surface water to augment the reliability of water availability. This option was not considered in detail as the required capacity for above ground storage would be significant (physical size and cost) and would be subject to significant water quality challenges. Increasing storage within Guelph Lake would have additional ecological and social impacts that may affect the viability of this option.

The comment further requests information on the area of influence associated with the assessed aquifer storage and recovery (ASR) option. This information is included within the modeling memoranda included in the draft WSMP Update report. The comment also references an assessment of water quality impacts. As outlined in the Purpose section of this memorandum, the level of detail included for each water supply alternative differs based on when the associated project(s) may be implemented. As aquifer storage and recovery is not proposed in the short-term, detailed hydrogeological and geochemical analyses have not yet been completed but they are identified within the draft WMSP Update report as a requirement for future implementation. The City has made the WSMP Update report available to GET and the Township can provide additional comments on the surface water supply and ASR alternatives, as necessary.



Closing

We trust that this memorandum provides an adequate response to the comments received in **Attachments B, C** to **D**. Many of the comments are addressed in the draft WSMP Update report. We encourage the County and Townships to review this report during the January 10th to April 10th, 2022 review period and provide any additional comments, as necessary. As stated, the City is committed to improving consultation with the County and Townships on projects related to the WSMP and through these discussions and subsequent WSMP updates, the project-specific comments brought forward will be addressed. Proposed meetings as part of the WSMP Update public review period will allow for more opportunities to discuss the comments and our responses.



Attachment **A**

WSMP Update Agency and Municipality Workshop No. 2 Presentation

Water Supply Master Plan 2021 Update

Agency and Municipality Workshop No. 2









City of Guelph Territorial Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.







Agenda

- Welcome & Check-In
 - a) Opening remarks
 - b) Meeting purpose and objectives
 - c) Introductions
- 2. Project Update Presentation Q&A and Discussion
 - a. Review of WSMP Objectives Purpose Statement and Objectives
 - b. Overview of Major WSMP Tasks
 - c. Major Task Progress Update
 - i. Task 1 Summary of Consultation Conducted to Date
 - ii. Task 2 Review of Population Targets and Water Supply Demand Forecasts
 - iii. Task 3 Review of Existing Water Supply Capacity Assessment
 - iv. Task 4 Review of Draft Evaluation of Alternatives
 - d. Interactive Discussion Evaluation of Alternatives
- 3. Next Steps







Housekeeping

Teams features

- Camera, microphone, raise hand, chat (speech bubble)
- If using a computer access the features by hovering the mouse over the screen
- If using a phone or tablet tap on the screen to access features (may need to click on '...')
- If using a phone or tablet you can change the orientation and zoom in as needed
- Attendees will be muted until the discussion periods
 - Press the 'raise hand' button if you wish to speak and we will prompt you when it is your turn (be sure to enable your device's audio function and unmute when speaking)
 - Add questions and comments in the chat box
- If you have technological issues, please type your issue into the chat box
- Meeting recorded for purpose of preparing meeting summary







Introductions

Share your name and if you are representing an organization or group.

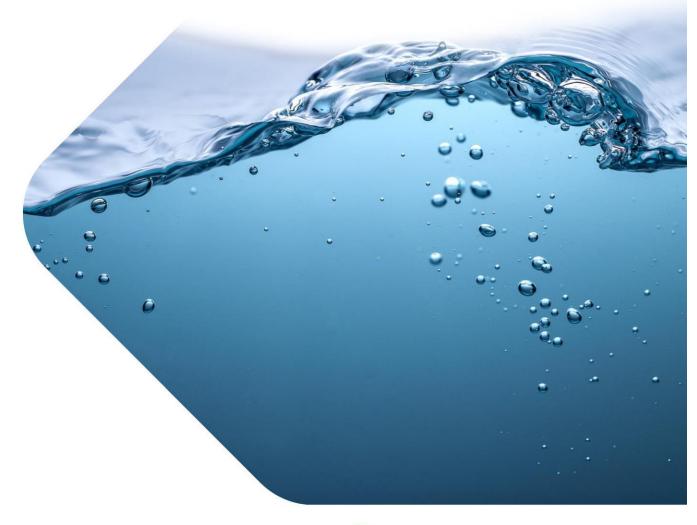








Water Supply Master
Plan Update
Project Objectives
and Major Tasks









Water Supply Master Plan Update

- Will define where and how City gets safe and reliable water to the year 2051 and identify challenges beyond this timeframe
- Will review Guelph's water supply demand forecast and existing water supply and discuss with the community how to continue to meet the City's needs sustainably
- Additional sources to supplement our existing supply will be identified. As will alternative
 ways to conserve supply and manage demands
- When investigating existing and new water supply options we will consider things like climate change, water quality and quantity, economic factors, social/ cultural environment, and any relevant regulations
- Regardless of source, the water supply will continue to meet the service requirements of Guelph and the high standards set by the Ministry of the Environment, Conservation and Parks (MECP), including Source Water Protection requirements
- Short-term, mid-term and long-term water supply options will be recommended







Scope of Work – WSMP Update

Task 1 – Public Consultation

- Indigenous engagement
- WSMP Community Liaison Group (CLG) meetings (3)
- Municipality / Agency workshops (2)
- Community Open Houses (2)
- Water Conservation and Efficiency Public Advisory Committee

Task 2 – Population and Water Demand Forecasts

- Develop population projections residential and ICI (employment)
- Develop water supply demand projections

Task 3 – Existing Water Supply Capacity
Assessment

- Update the assessment of existing well performance, maximum capacity and potential constraints for each supply source
- Comparison of existing water supply capacity with demand forecast

Task 4 – Water Supply Alternatives

- Demand management & efficiency programs
- Groundwater sources inside city
- Groundwater sources outside city
- Local surface water supply & Aquifer Storage and Recovery
- Do nothing

Task 5 – Water Supply Master Plan Update

- Evaluation of alternatives
- Risk Assessment
- Develop WSMP Update Report

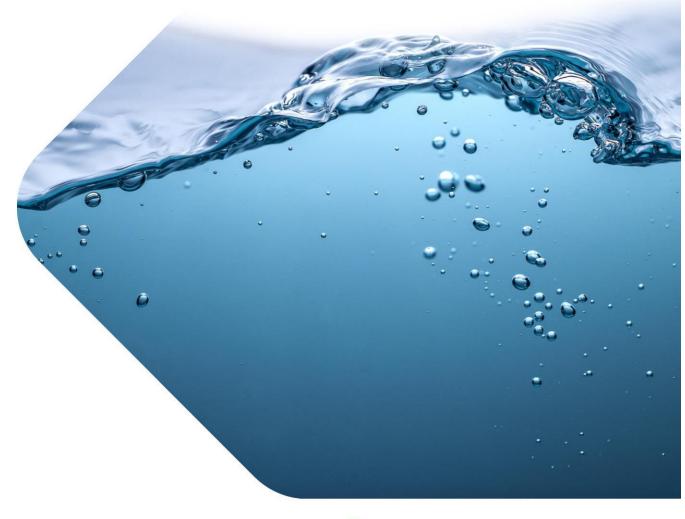








Water Supply Master
Plan Update
Task 1 - Public
Consultation To Date





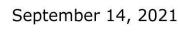




Public Consultation Round #1

- Guelph Wellington Development Association and Guelph and District Home Builders' Association – Nov 7, 2019
 - the City Staff Technical Liaison Committee met with the Guelph Wellington Development Association and Guelph and District Home Builders' Association
- Our community, our water open house Nov 26, 2019
 - Regarding a proposed solution between the City and the owners of the Dolime Quarry
- Agency & Municipality Workshop #1 Nov 28, 2019
 - 10 participants from 6 organizations, along with 4 City staff and 4 AECOM consultants
- Community Liaison Group Meeting #1 Dec 4, 2019
 - 13 of 17 members attended, along with 4 City staff and 3 AECOM consultants
- Community Open House #1 Feb 13, 2020
 - Attended by 17 members of the general public, including several students from a university class
- Water Conservation & Efficiency Public Advisory Committee Meeting Sept 16, 2020







Public Consultation Round #1

- Project notifications and invitations to meet provided to:
 - Six Nations of the Grand River
 - Haudenosaunee Confederacy of Chiefs
 - Mississaugas of the New Credit First Nation
- In July 2021 City had opportunity to meet with Six Nations of the Grand River to discuss the water-related master plans being completed, including an introduction to the WSMP Update project







Feedback from Consultation Round #1

- Prioritizing conservation;
- Protecting the natural environment;
- Managing growth and development;
- Controlling groundwater impacts from large water users;
- Monitoring emerging contaminants;
- Limiting impacts to aquatic and terrestrial wildlife; and,
- Valuing the agency of water.



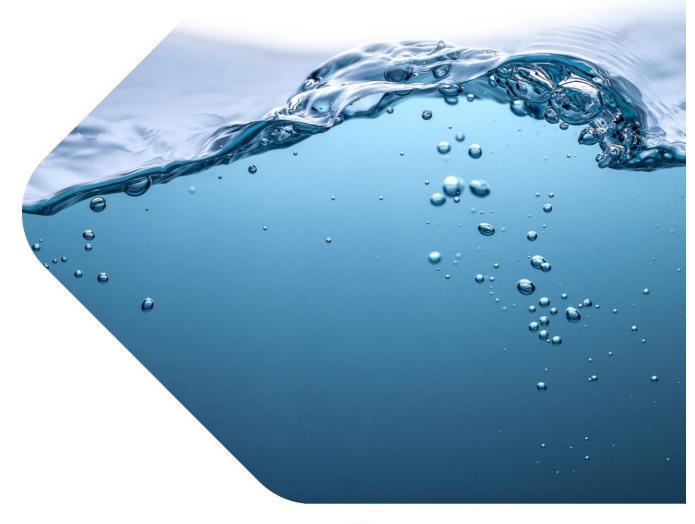






Water Supply Master Plan Update

Task 2 – Population and Water Supply Demand Forecasts









Task 2 Summary

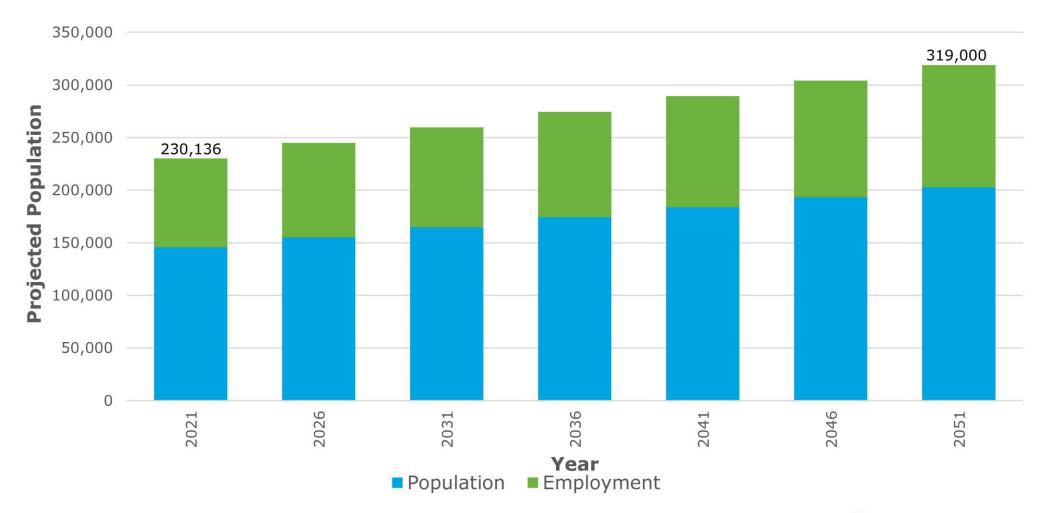
- Population projections changed in the middle of the project to 2051 (30 years)
 - In August 2020, the Province of Ontario provided updated population forecasts for the City of Guelph to 2051 (203,000 residential population, 116,000 employment population)
 - Prior to this update, the WSMP Update project planning period extended to 2041 and considered the associated growth targets
- Review of City historical water supply demand data
- Design basis for projecting future water supply demand, including:
 - Residential
 - Industrial, Commercial and Institutional (ICI)
 - Non-Revenue Water (NRW)
- Projected water supply demands to 2051







"Reference" Population Projections: 2021 - 2051

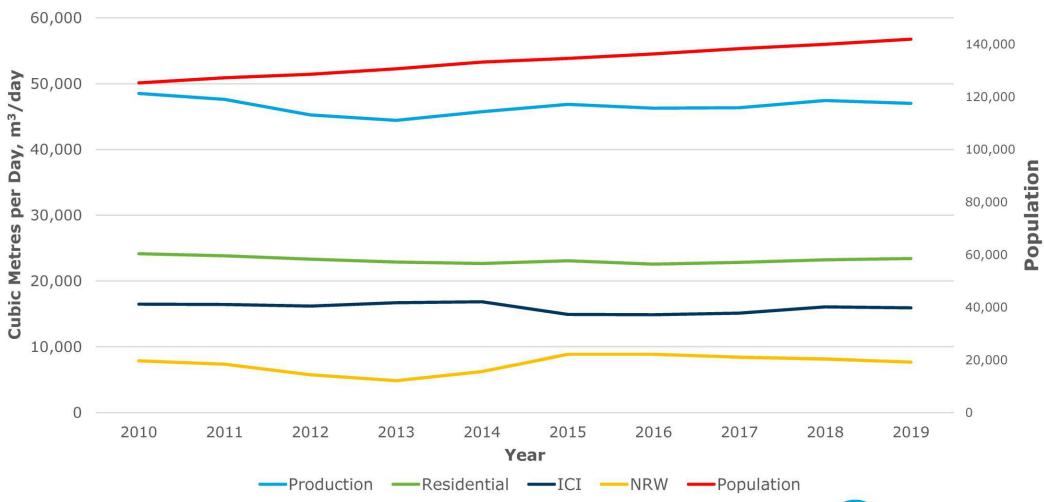








Average Annual Day Production, Demand, NRW & Population

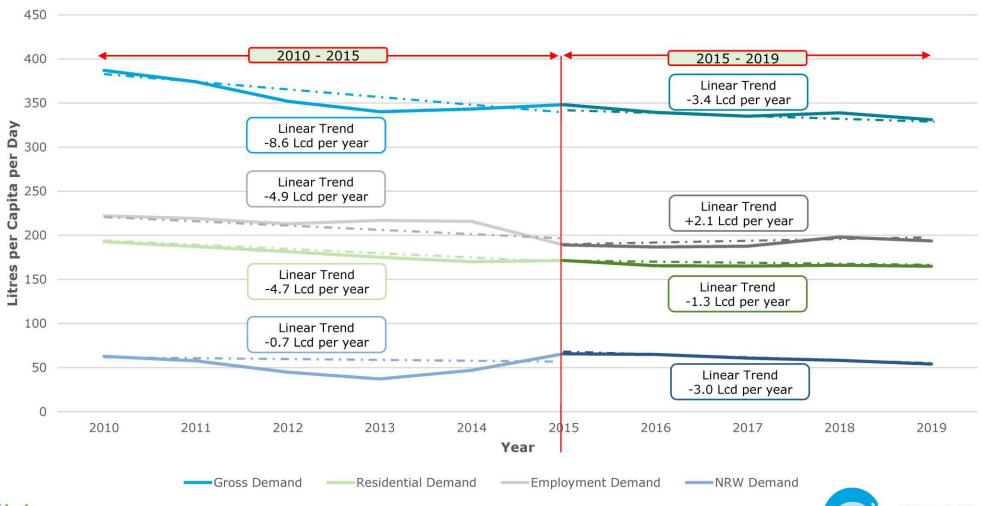








Average Annual Day Per Capita Water Production, Demand and NRW Trend Analysis







Water Demand Projections - Design Basis

Average Per Capita Day Demand (2015-2019)

• Average per capita residential demand rate 2015-2019: **167** Litres per capita per day (Lcd)

Average per capita employment demand rate 2015-2019: 191 Lcd

Average per capita NRW rate 2015-2019: 61 Lcd

Maximum Day Demand

Average Maximum Day Demand Factor (2010-2019): 1.24

Design Maximum Day Demand Factor: 1.34 (Highest value, 2010-2019)

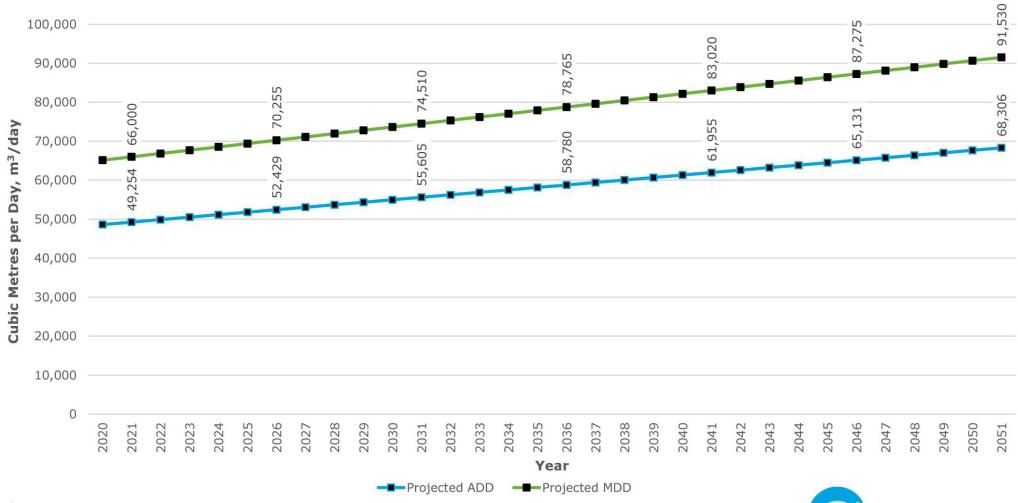
Year	Total Average Day Demand (m³/d)	Max Day Demand @ 1.34 MDF (m³/d)
2021	49,254	66,000
2026	52,429	70,255
2031	55,605	74,510
2036	58,780	78,765
2041	61,955	83,020
2046	65,131	87,275
2051	68,306	91,530





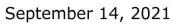


Projected "Reference" Growth Average Day and Maximum Day Demands





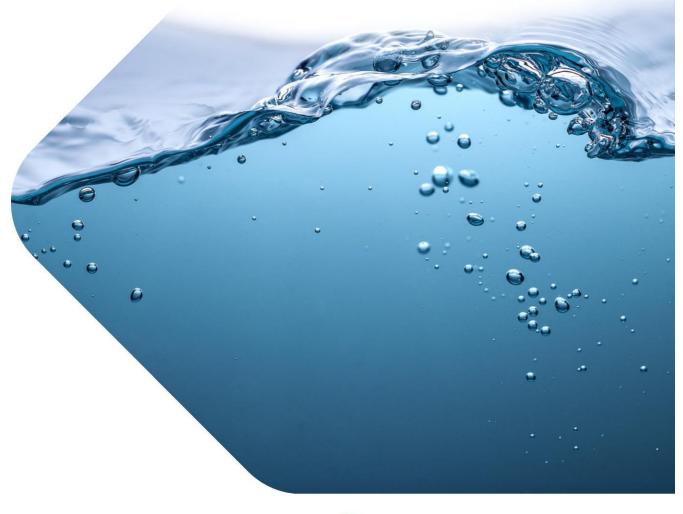








Water Supply Master Plan
Update
Task 3 – Existing Water
Supply Capacity
Assessment









Task 3 Summary

This task includes:

- Evaluation of the maximum capacity of each individual City well (how much each well can pump each day);
- The total sustainable capacity of the existing water supply system (how much can the entire system pump each day); and
- An assessment of the potential risks to the system (Security of Supply)







Overview of Guelph's Existing Water Supply System

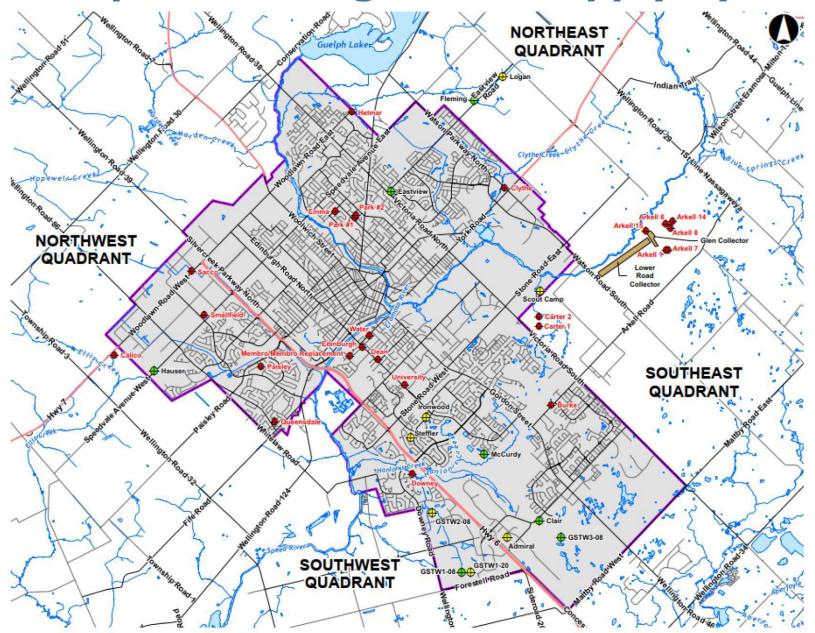
- Reliance on groundwater to meet the City's water demands since 1879
- Guelph's water supply system includes production wells primarily installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells in the municipal supply system, with 21 wells in continuous operation - 4 wells offline due primarily to water quality concerns
 - Glen Collector captures shallow spring water in the Arkell Spring Grounds
 - Artificial recharge system: water is pumped from the Eramosa River to an infiltration pond/ trench – water infiltrates into the ground and some is captured by the collector system







Map of Guelph's Existing Water Supply System



Arkell Spring Grounds









Well Capacity Assessment – Summary

City Quadrant	2014 WSMP (m³/day)	WSMP Update (m³/day)	Net Change
SE	49,700	47,584	2,116 m ³ /d reduction
SW	17,936	16,338	1,598 m ³ /d reduction
NE	12,300	11,600	700 m³/d reduction
NW	3,900	3,900	Unchanged
TOTAL	83,836	79,422	4,414 m³/d reduction

- Glen Collector (SE) capacity reduced to reflect available year-round flow
- Carter Wells (SE) capacity reduced to balance groundwater pumping with ecosystem function
- Water Street Well Field (SW) capacity reduced to reflect available flow with all wells pumping
- Other reductions reflect lower well performance (Helmar NE)







Existing System Capacity vs. 2051 Demand

Demand/Capacity	2019	2051
Average Daily Demand (m³/day)	47,015	68,306
Maximum Daily Demand (m³/day)	58,441	91,530
otal Existing System Capacity (m³/day) 79,422		422
Surplus/Deficit (m³/day)	20,981	-12,108

- Existing system capacity has not been field-tested
- Pumping individual wells effects other wells in system, overall system function at maximum rates is uncertain
- Modelled steady-state capacity ~67,000 m³/day
- Security of supply assessment completed to address risks and uncertainties in evaluation







Security of Supply Assessment

- Reviewed several risks to the City water supply:
 - Prolonged drought conditions
 - Contamination event
 - Loss of supply (well failure, damage, etc.)
 - Regulatory reduction in permitted pumping rate(s)
- Estimated reduction in capacity associated with each risk
- Evaluate amount of required "reserve" supply

Scenario	Capacity (m³/day)	Capacity Reduction
Existing System Capacity	79,422	-
Prolonged Drought	71,477	10%
Contamination Event/ Loss of Well	71,422 to 78,022	2 to 10%
Reduction to Permitted Rate(s)	72,801 to 76,385	4 to 8%







Additional System Risks

- Additional potential risks to the system were reviewed:
 - Drought combined with largest supply out of service
 - Regular maintenance/ mechanical failures combined with largest supply out of service
 - Distribution disruption/ damage
 - Specific contamination events (i.e. quarry, Eramosa River, contaminated sites, etc.)
- Most of the reviewed additional risks are currently managed by the City:
 - Demand management during drought conditions
 - Climate change models
 - Scheduling of maintenance
 - Response plan for watermain breaks
 - Source water protection
- Ultimately, 15% security of supply allowance was recommended

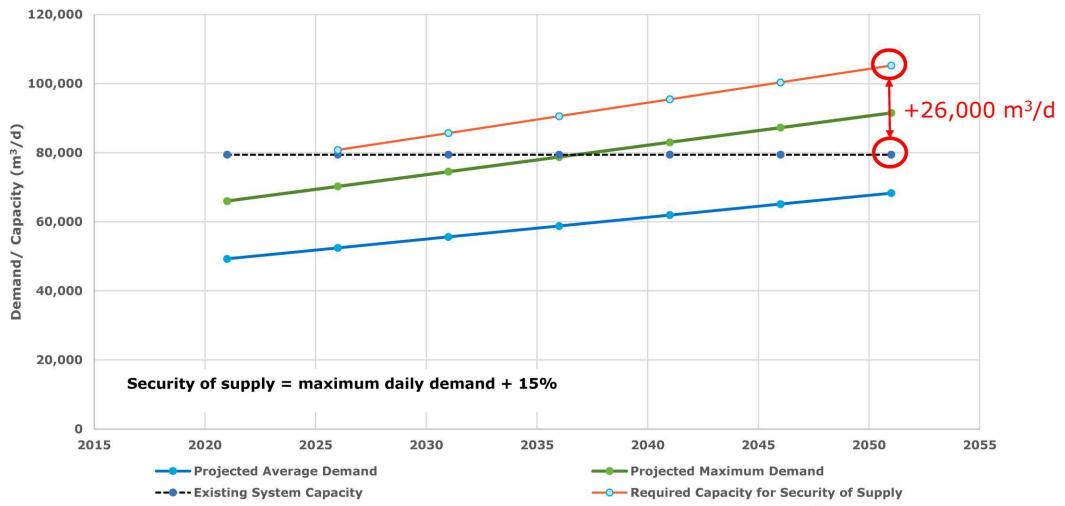






Required Capacity for Security of Supply

Water Demand & Required Total Capacity



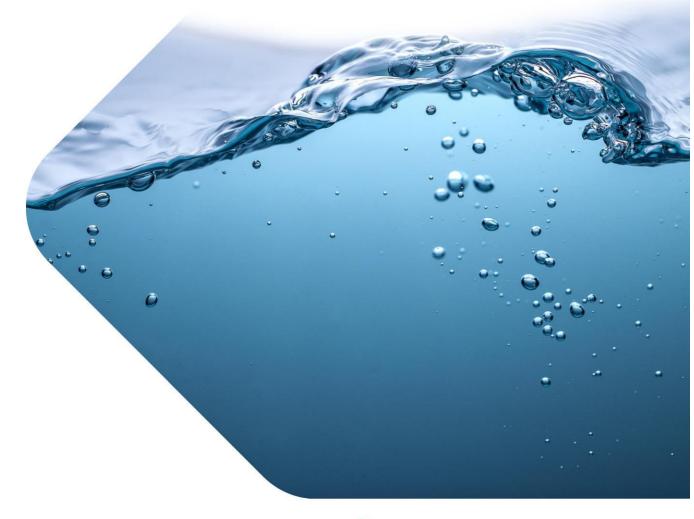








Questions or comments about Tasks 1-3?



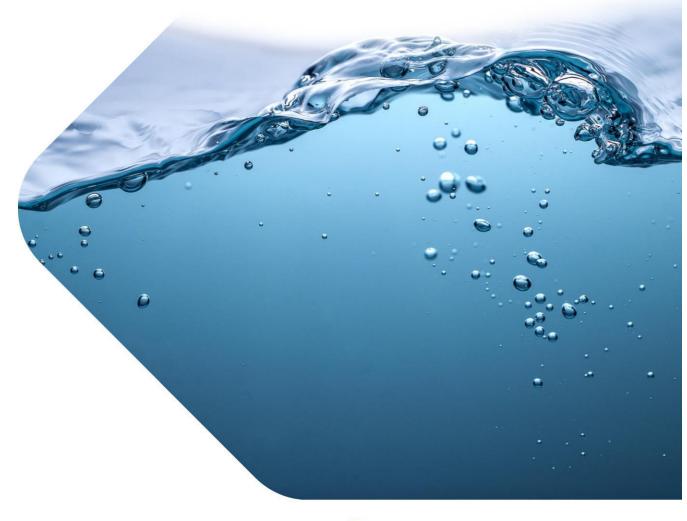








Water Supply Master Plan
Update
Task 4 – Water Supply
Alternatives
Assessment









Alternatives Assessment

Assessment of proposed water supply alternatives under consideration:

- 1 Water conservation and demand management/ water reuse
- 2 Optimize and expand existing groundwater system
- 3 Establish new surface water supply
- 4 Limit growth/ do nothing

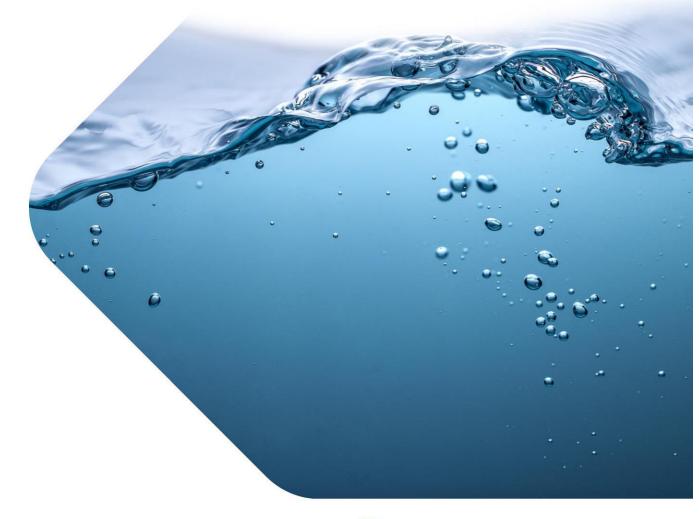








Water Supply Master Plan
Update
Water Supply
Alternatives – Water
Conservation and
Efficiency









Conservation/ Efficiency Programming Scenarios

- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3% in 2051







Non-revenue Water

Economic Level of Leakage (ELL): point at which the cost of lost water (leakage) = costs of leakage prevention programs

Infrastructure leakage index (ILI) = Real Losses / Unavoidable Real Losses

- ILI=2.0 for Guelph in 2019
- Other jurisdictions (UK, Australia) have reported ELL when the ILI is below 3
- Results indicate that Guelph is near or at its ELL
- Recommended focus in future is to maintain the ILI, or improve where possible







- Assumes the City ceases non-mandatory programming
- Sets a baseline against which to compare scenarios
- Based on effort City has put into educating public, no resulting increase in demand is anticipated
- 2051 demands match Task 2 projections
- No cost associated with scenario

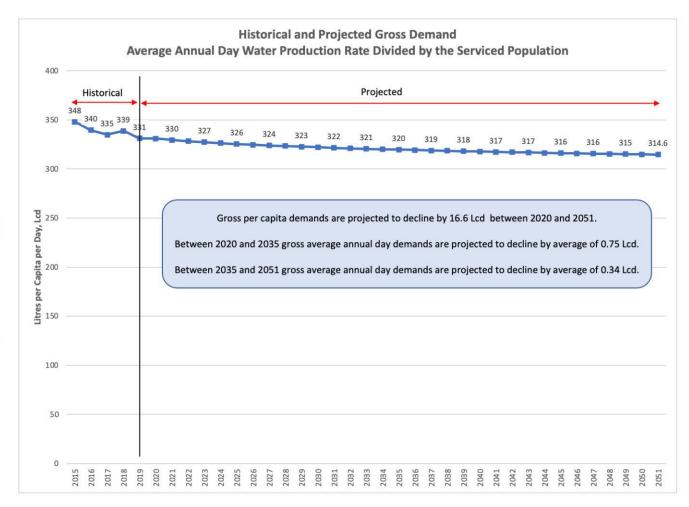
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	166.6	203,000	33,814
Employment	191.0	191.0	116,000	22,155
NRW	60.8	60.8	203,000	12,338
Total			68,306	







- Continuation of current level of programming
- Decline in per capita demands has slowed over time
- Apply avg. rate of per capita demand decline observed from 2015-2019 as target for future decline
- Requires regular review of programs, replace those no longer effective
- Assume matching target reductions for residential and ICI









- Results in 6.5% decline in 2051 demand
- Reduction of ~4,400 m³/day vs. Scenario 1
- Associated cost estimate: \$11.41 M or \$2,578 m³/day; \$380,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
			Total	63,882

- Acknowledges that effective conservation programming becomes more challenging with success
- City may elect to focus programs on high water use customers if per capita demand trend continues to stabilize
- Approach would result in lower demand reduction at a lower cost to City
- Overall reduction of 3.25% in 2051 demand
- Reduction of ~2,200 m³/day vs. Scenario 1
- Associated cost estimate: \$4.73 M or \$2,132 m³/day; \$158,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	159.9	203,000	32,460
Employment	191.0	183.5	116,000	21,288
NRW	60.8	60.8	203,000	12,338
Total			66,086	







- Addition of water reuse opportunities to Scenario 2 demand reductions
- Most aggressive option highest demand reduction and program costs
- Review of water reuse options previously compiled
- Consideration of those most likely to reduce average daily demand (i.e. remove seasonal uses like irrigation)
- Total daily savings of 528 m³/day estimated

Measure	Annual Savings, m³	Average Annual Day Savings, m³/day
Street sweeping	3,175	8.7
Sewer flushing	11,223	30.7
Urban applications	168,168	460.7
Construction	10,160	27.8
Municipal irrigation	8,800	24.1
Golf course irrigation	147,000	402.7
Total	348,526	955
Total without Irrigation	192,736	528







- Overall reduction of 7.3% in 2051 demand
- Reduction of $\sim 4,900 \text{ m}^3/\text{day vs. Scenario } 1$
- Associated cost estimate: \$15.04 M or \$3,037 m³/day; \$586,000/a operating costs

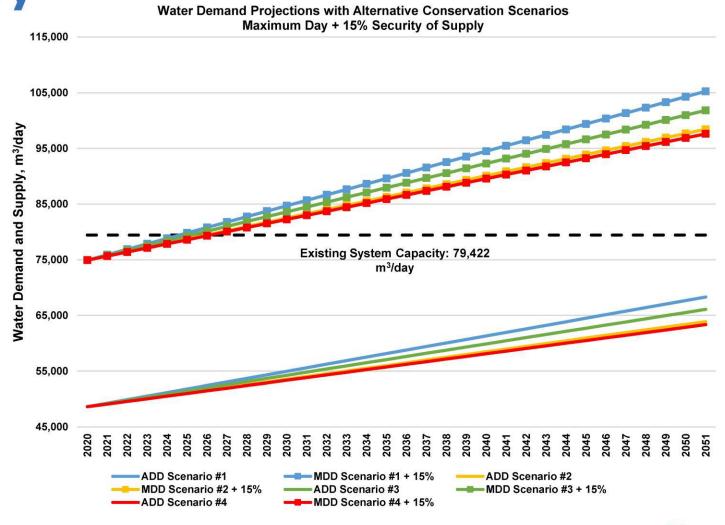
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
Total Potable			63,882	
Minus Estimated Water Reuse Savings			-528	
Total Potable Minus Reuse			63,354	







Conservation/ Efficiency Programming Scenario Summary



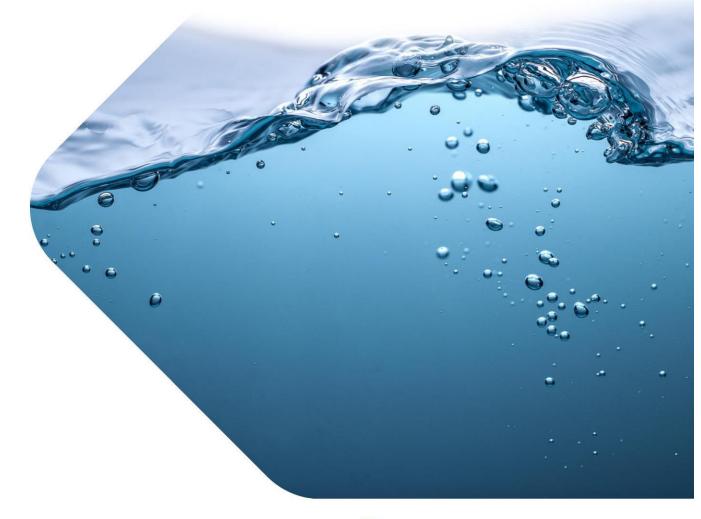








Water Supply Master Plan
Update
Water Supply
Alternatives –
Groundwater Sources









Groundwater Alternatives

The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources
- Restore existing off-line municipal wells
- Develop existing municipal test wells
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes







Optimize existing operating municipal wells

- Reviewed optimization opportunities through historical well performance and discussions with Operations staff
- No significant additional capacity identified
- Recommendations:
 - Confirm capacity where uncertain (Arkell 1)
 - General maintenance, rehabilitation, replacement of equipment where required
 - Replace Calico well (same capacity anticipated)
 - Opportunity to increase Arkell recharge system within existing permit
- Review of previous recommendation to replace Glen Collector
 screened out through preliminary modelling







Upgrades to Arkell Recharge System

Recharge System Modelling

- Three flow rates assessed: existing, 2x rate, 3x rate (all within existing permit)
- Max. flow rates increase; min. flow rates do not vary significantly between scenarios
- Field testing/ upgrades required to increase recharge
- Replacement of Lower Road Collector would improve system efficiency

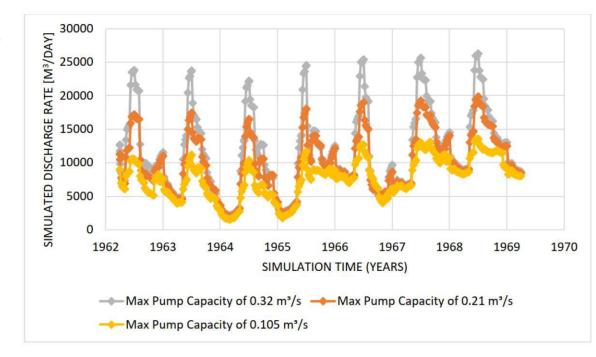


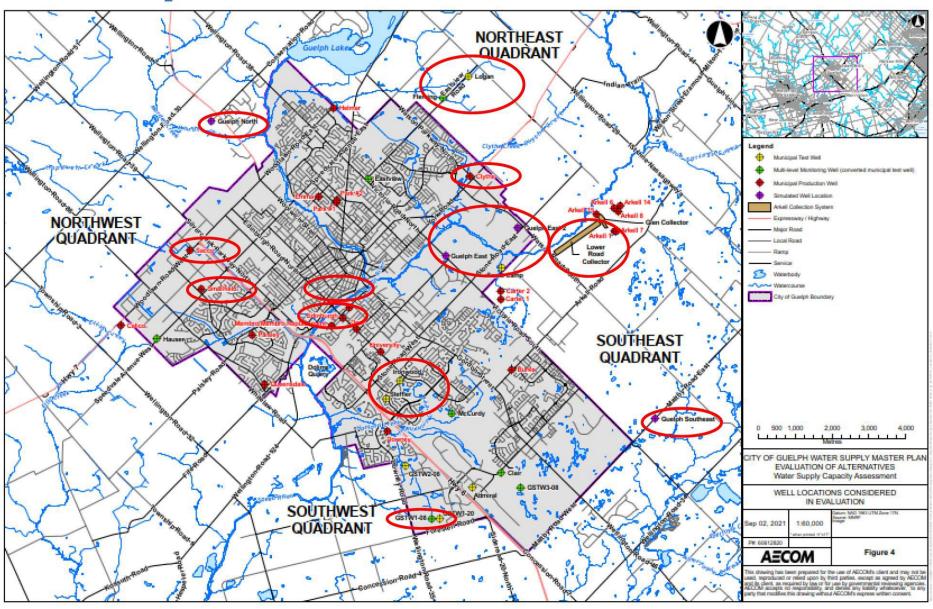
CHART 2 Simulated Transient Glen Collector Discharge Under the Various Pump Capacity Scenarios







Off-line/ New Sources



Restore existing off-line municipal wells

Quadrant	Well	Required Upgrades	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Northeast	Clythe	Well house upgrade; H2S, Fe&Mn treatment (EA complete)	1,180-3,400	\$6.8M	\$2,000
Northwest	Sacco/ Smallfield	wellhouse upgrade; VOC treatment	850-2,560	\$13.1M	\$5,100
Southeast	Lower Road	new perforated pipe system & associated infrastructure	4,000	\$14.67M	\$3,700
		Total	6,030		

- Uncertainty about Clythe Creek requires additional field program to address as part of PTTW
- Sacco/ Smallfield alternative assumes combined treatment facility on Smallfield property; MECP correspondence: achieving clean up goals (i.e. ODWQS by 2051) is unlikely
- Full re-construction of Lower Road Collector anticipated; additional modelling recommended to optimize design; would benefit from recharge system upgrades
- Additional capacity in table represents modelled long-term average
- · Costing developed for maximum capacity where existing data are available







Develop existing municipal test wells

Quadrant	Well	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Guelph South	SWG EA/OTP; land acquisition; well house; connect to distribution	2,250-4,300	\$5.3M	\$1,200
Southwest	Ironwood/ Steffler	SWG EA/OTP; well house; disinfection; connect to distribution	2,250-8,000	\$5.1 to 6.2M	\$650 to 1,700
Northeast	Logan/ Fleming	new well; well house; connect to distribution	4,180-4,700	\$10.1M	\$2,150
Northwest	Hauser	new well; property in area; well house; connect to distribution	425-900	\$6.6M	\$7,300
Total			9,105		

- Modelled long-term average additional capacity of 4,500 m³/day in SWQ (with active Dolime Quarry dewatering)
- Southwest Guelph EA initiated to assess additional water supply in SWQ in detail
- City has initiated project on Logan site to re-construct and test well

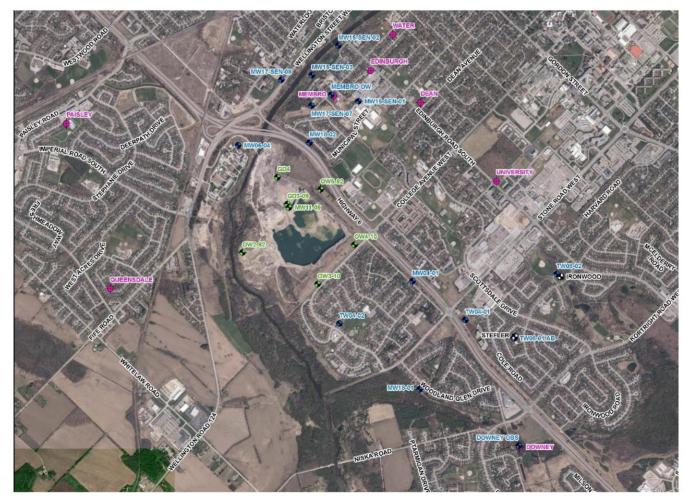






Assessment of Dolime Pond Level Management

- City has agreement in place to take over quarry water management
- Potential opportunity to increase municipal water supply while managing water quality concerns
- Maintain flow divide around quarry to isolate quarry water
- Quarry inflow ranges 8,000 11,000 m³/day
- Managing quarry pond will allow for capture of additional water by surrounding wells or directly from quarry
- Modelling indicates 3,000 m³/day of available capacity
- SWG Water Supply EA will assess available capacity, associated potential impacts and costs in detail









Assessment of Dolime Pond Level Management

Quadrant	Source	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Dolime	SWG EA/OTP; pumping station; WTP (if supply is direct from quarry); connect to distribution	3,000	\$18.9M	\$6,300

- SWG Class EA will assess optimal strategy for capturing available water
- Water quality assessment will determine treatment requirements
- Capture of quarry water would reduce current artificial discharge to Speed River – not relied upon for WWTP assimilative capacity
- Cost would be reduced if additional capacity is captured by surrounding wells







Install new wells outside City boundaries – Guelph North

- Approximate location North of the City (western limit of Conservation Road; City does not currently own land here)
- Rationale proximity to an area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 2,935 m³/day on an average basis
- Model output: >10% baseflow reduction to Marden Creek; near the Marden South PSW Complex
- Field study would assess potential for interference with G-E Township wells, private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$12.8 M, \$4,375/m³









Install new wells outside City boundaries – Guelph Southeast

- Approximate location southeast of the City (Maltby Rd. east of Victoria Road; City does not own land here)
- Rational Proximity to area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 1,600 m³/day on an average basis
- Model output: <10% baseflow reduction to Mill Creek; near Arkell Bog PSW Complex
- Field study would assess potential for interference with private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$10.3 M, \$6,400/m³







Install new ASR wells inside City

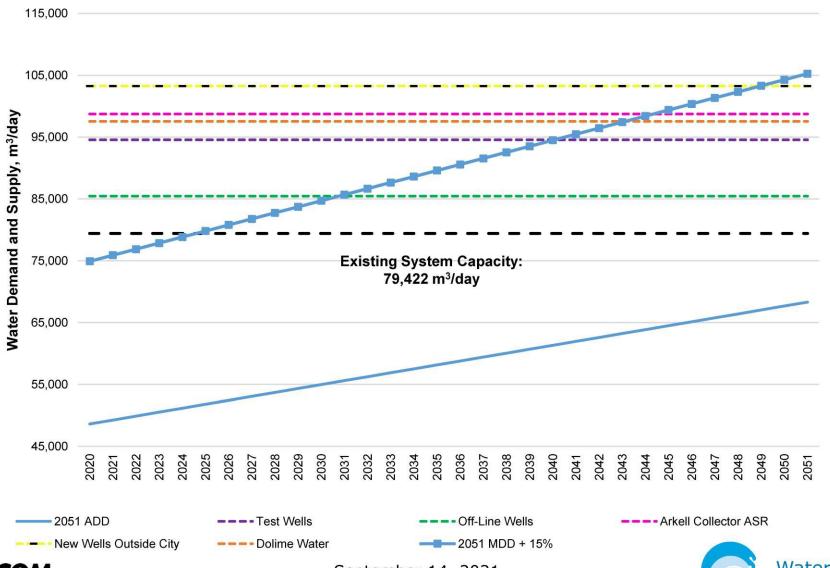
Will be discussed under surface water alternative section







Alternative #2 Summary



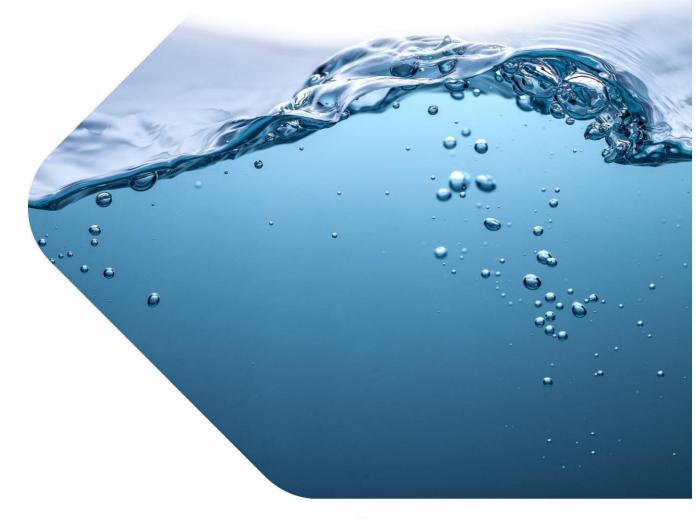








Water Supply Master Plan
Update
Surface Water
Alternatives
Assessment









New Surface Water Supply

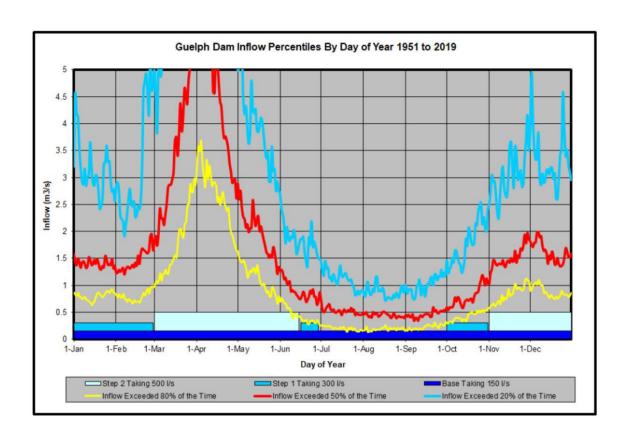
- Two possible local surface water sources for water taking
 - Guelph Lake upstream of the dam
 - Eramosa River at Arkell
- Alternatives:
 - Treatment & direct continuous flow into the distribution system
 - Treatment & store in ASR wells; recovery as required
- New water treatment plant (WTP) required to fully treat the surface water to meet Ontario Drinking Water Quality Standards (ODWQS)
- Assumptions conventional treatment with treatment for taste and odour on a seasonal basis, as required
- Wastewater treatment plant assimilative capacity study (underway) will be considered in evaluation







Surface Water - Guelph Lake



Guelph Lake Yield Analysis (GRCA):

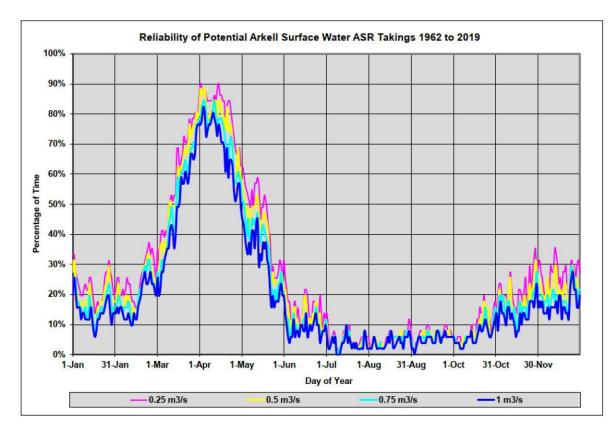
- Modelling results indicate that there is a potential for proposed stepped taking: 150 L/s and 300 L/s
- 500 L/s step dismissed for two reasons:
 - not practical to build a WTP for three months
 - flow cannot be injected in a reasonable number of ASR wells
- ASR alternative assumes base taking of 150 L/s with increase to 300 L/s for nine months of the year







Surface Water - Eramosa



Eramosa River Yield Analysis (GRCA)

- Continuous flow not available for providing a constant rate supply to the distribution system
- Very limited potential for significant increased takings beyond the existing Arkell PTTW at any time other than the spring period







Summary – Guelph Lake

Location	WTP at Guelph Lake or NE part of City	
Description	Surface WTP consisting of conventional/ advanced treatment and distribution pipeline	
Intake Rate (m³/d)	12,960 (continuous annual base taking of 150 L/s)	
Distribution Rate (m³/d)	12,300	
Existing Approvals	None	
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNRF/ MECP - PTTW (Surface Water) ECA/ DWL GRCA 	
Water Quality Issues	High turbidity, colour, odour	
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features	
Past Studies/Work	GRCA review of water taking reliability	
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA 	
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main 	
Estimated Capital Cost	\$ 51,322,000	
Cost per m³/day	\$3,960	

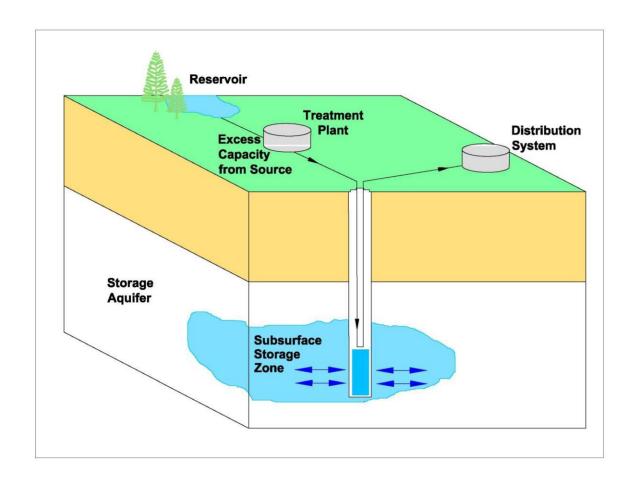






Install new ASR wells inside City

 Aquifer Storage and Recovery (ASR) - reinjection of potable water back into an aquifer for later recovery and use



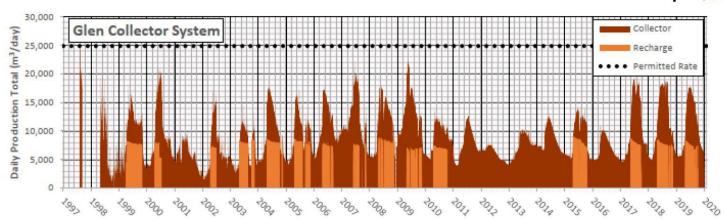


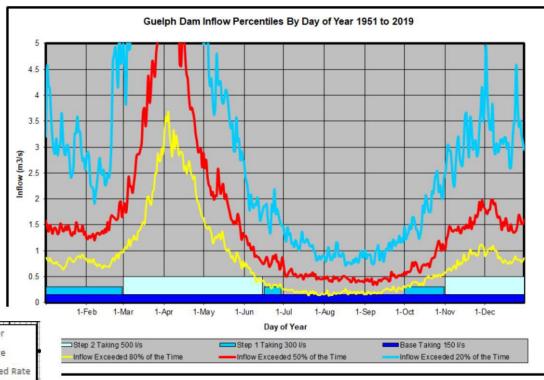




Aquifer Storage and Recovery

- Two potential sources: Guelph Lake following future potential WTP plant construction; Arkell collector system
- Estimated annual excess volume: Arkell – 451,000 m³; Guelph Lake – 941,000 m³





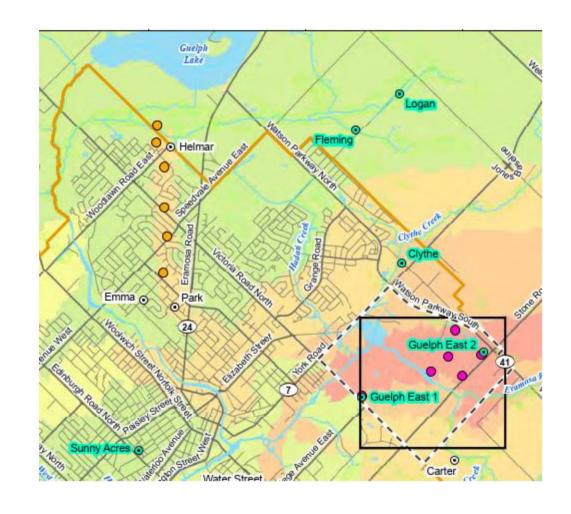






Aquifer Storage and Recovery

- Two injection locations assessed: NE Guelph – between Helmar and Emma/Park wells; East Guelph in area of simulated production wells
- All ASR wells simulated as injection and extraction
- Impact assessment:
 - Sustainability of surrounding production wells
 - Water level elevation during injection
 - Changes to stream baseflow









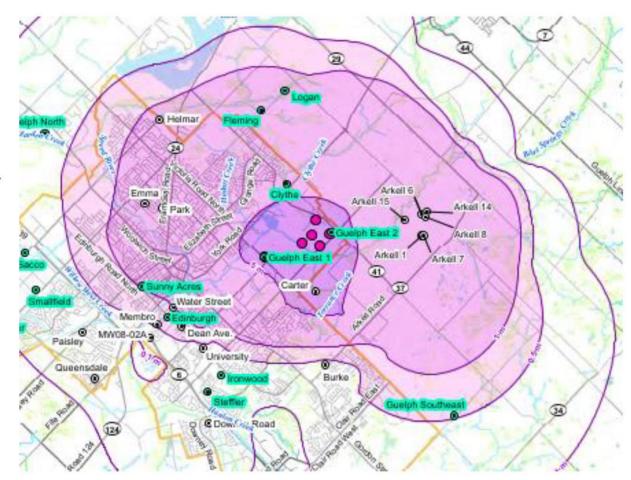
Aquifer Storage and Recovery

Results:

- Model predicts large area of injection influence (area of water level increase)
- Extraction of 60% of injection volume to maintain function of existing wells

• Interpretation:

- Efficiency of ASR well field approach with injection/ extraction wells below target
- System would have to be optimized in City to utilize production wells for recovery
- Focus on areas of existing wells, core of City to minimize influence beyond boundary
- Arkell ASR cost: \$25.3M; \$21,600/m³
- Further study required to evaluate optimized system, fewer ASR wells and increased recovery efficiency will reduce cost









Summary – Guelph Lake + ASR

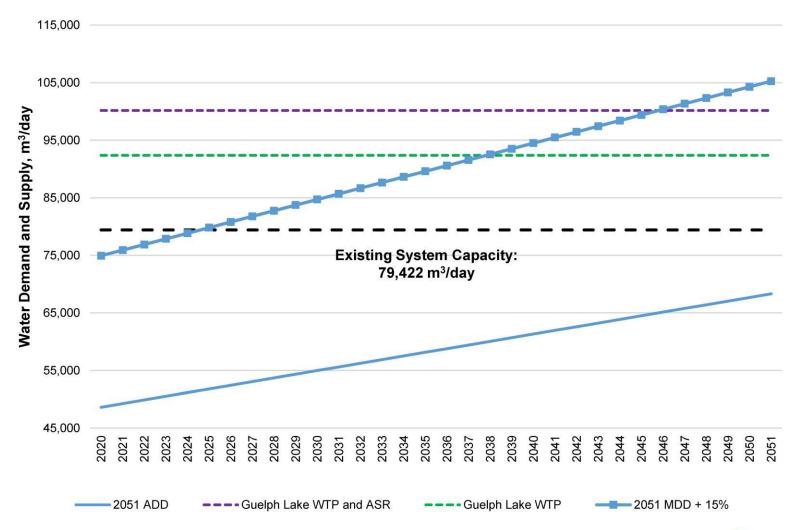
Location	WTP at Guelph Lake/dam, ASR wells at NEQ in the vicinity of Park/Emma wells
Description	A surface water treatment plant consisting of conventional treatment and distribution pipelines, ASR wells
Intake Rate (m³/d)	12,960 - 25,920
Distribution Rate (m³/d)	Up to 25,825 m ³ /day (subject to ASR optimization)
Existing Approvals	None
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNR/MECP - PTTW (Surface Water/ Groundwater); ECA/DWL GRCA
Water Quality Issues	High turbidity, colour, odour
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features
Past Studies/Work	GRCA review of water taking reliability
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main; ASR well facilities
Estimated Capital Cost	\$ 57,283,000
Cost per m³/day	\$4,420







Alternative #3 Summary

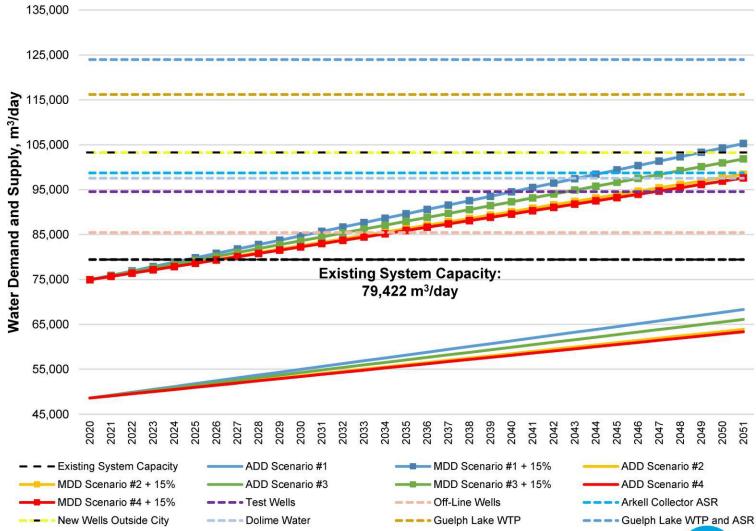








All Water Supply Alternatives Summary









Other Alternatives

Limit Growth / Do Nothing

- Represents what would likely occur if none of the alternative solutions were implemented
- Reduction in future water supply needs by limiting the extent, density, type and/or location of future residential, industrial, commercial and institutional growth in the City below levels identified in recent planning studies
- Implementation of this alternative would require change to municipal planning documents which would not meet Provincial growth targets
- Will have a significant impact on the growth potential for the City.

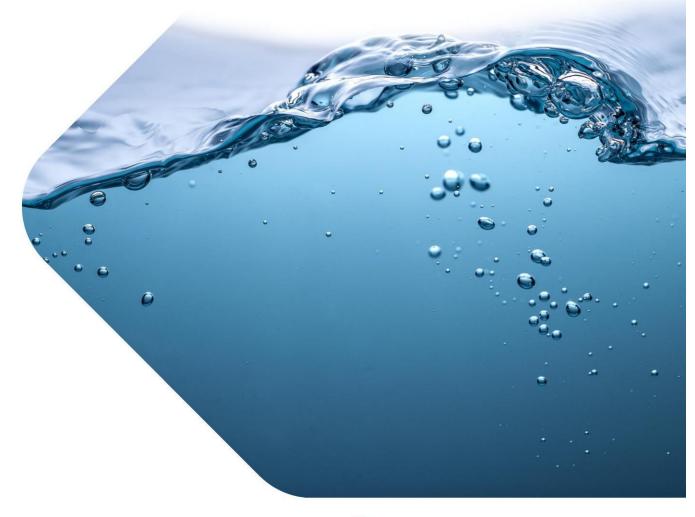








Water Supply Master Plan
Update
Preliminary Evaluation
of Alternatives









Evaluation Summary Tables







We'd Like Your Input...

Are there additional factors that should considered in the evaluation? Is there anything you would evaluate differently or change?

Should any alternatives be prioritized differently? Why?









We'd Like Your Input...

Provide your thoughts on public acceptance of the different alternatives – e.g. conservation; off-line sources; ASR; wells outside the City; surface water.

What advice do you have for presenting this information at the upcoming virtual Open House?



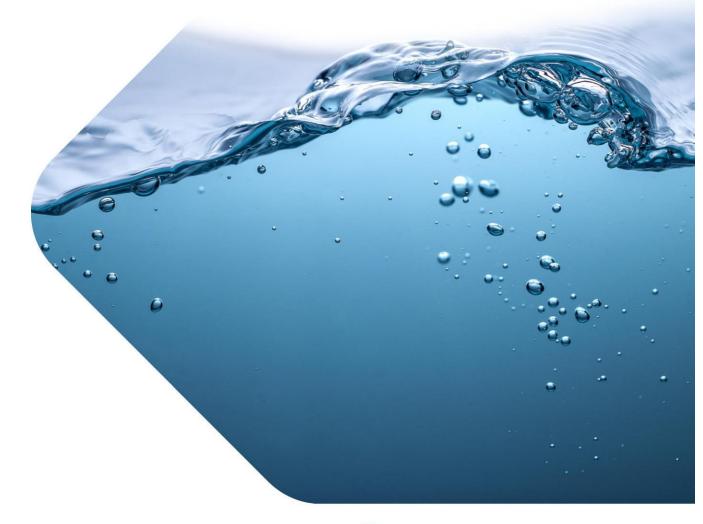








Next Steps









Next Steps

- Incorporate/ consider feedback from this workshop
- Prepare meeting summary and circulate to attendees
- Additional communications with First Nation communities
- Refine assessment/ evaluation based on feedback received
- Additional Community Engagement
 - Community Liaison Group Meeting #3 –September 21st
 - Community Open House #2 September 28th









Visit our website: guelph.ca/WSMP









Attachment **B**

Review Memorandum #1: Wellington Source Water Protection



November 26, 2021

Memorandum

To: lan Roger, Chief Administrative Officer, Guelph / Eramosa Township Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch

Aldo Salis, Director of Planning, County of Wellington

From: Kyle Davis, Risk Management Official,

Guelph/Eramosa Township and Township of Puslinch

RE: City of Guelph Water Supply Master Plan Update - 2021

The following comments are related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments are provided in conjunction with comments provided by R J Burnside and Associates and Harden Environmental, the hydrogeologists for Guelph / Eramosa Township and Township of Puslinch respectively. Please note that, at this time, a Water Supply Master Plan report is not available for review.

Wellington Source Water Protection is a partnership of the Wellington County municipalities and these comments are on behalf of the Township of Guelph / Eramosa, Township of Puslinch and County of Wellington. These comments should not be construed as a hydrogeological, engineering, ecological or technical review. These comments are strictly provided in regards to consultation and engagement process and our municipalities' role in implementing the Clean Water Act and municipal source water protection. For hydrogeological, engineering and / or technical review comments, please see the Burnside and Harden memorandums.

Comments

1. The Township of Puslinch, Guelph / Eramosa Township and the County of Wellington must be brought into the City's water supply projects early and often. Similar comments from our municipalities were made during the 2014 Water Supply Master Plan update and during the Guelph / Guelph – Eramosa Tier 3 Water Budget Study that was completed in 2017. It is the City's responsibility to engage the Townships and County on their projects. The Townships and County are key stakeholders in the City of Guelph water supply planning process and their input or comments should not have been absent for a period of 20 months while key project decisions were made in this Water Supply



Master Plan update. The Townships and County should be some of the first stakeholders the City contacts and there should be continuous contact throughout the process.

Recommendation:

Going forward, it is recommended the following be established:

- a) High level meetings, at either a quarterly or semi-annual frequency, organized between City, Township and County staff to identify and update key projects planned or occurring between our municipalities. Part of the purpose of these meetings will also be to ensure more frequent, project specific meetings are happening where required.
- b) That the City set up regular meetings, frequency to be determined based on the project schedule, on the Southwest Guelph Class Environmental Assessment and on the Guelph Water Supply Master Plan. These meetings would be with Township and County staff / consultants.
- 2. The lack of Township and County input has a direct connection to the selection of preferred alternatives in the Water Supply Master Plan. The City's response to our 2014 Water Supply Master Plan comments was that the City will prioritize wells within the City boundaries first. In this draft update, new municipal wells within the City boundaries were not carried forward into the preferred alternatives as a modelling exercise showed there was too much projected interference with existing municipal wells. This has a direct impact on other alternatives ranking higher, including City test wells and proposed new wells located in the County. This is an example where earlier engagement with the Township and County staff, while the modelling work was ongoing, was necessary to at least understand the rationale behind this decision and to also provide any additional information or data that may result in a different conclusion and decision. Based on the previous City response and the first agency workshop in 2019, staff expected City staff to engage them during this Water Supply Master Plan update process not at the end. Moving forward and outlined in the comment above, we propose a process when planning or modelling work is ongoing near the municipal boundary or within the County, that Township and County staff / consultants are engaged early when there is still time for their comments to be incorporated into the City's results.



On a related note, the lack of proposed alternatives within the southeast quadrant of the City (the Clair – Maltby area) appears to be a gap. It is understood that this is a major recharge area and it is understood through conversations, that there are technical reasons for this exclusion. However, given the proximity of this area to the County and given that fewer new wells in the City directly results in proposing other wells in the County, consultation should have occurred early in the process regarding this point so our technical staff could review the rationale and provide input towards this decision.

It is understood that the preferred alternatives build on one another and cumulatively represent how the City will meet the projected water needs. The Townships and County request further information, in the form of the draft Water Supply Master Plan report and meetings, on the rationale behind the selection of the preferred alternatives. In particular, it is noted that water conservation and municipal system optimization, including reduction of line loss / leakage and increasing capacity of existing municipal wells closer to permitted values, serve as the first alternatives to be implemented. Therefore, it is important to understand and review the data and rationale underpinning each of the preferred alternatives as an increase in water availability through the initial preferred alternatives will reduce the likelihood or need of the later preferred alternatives (ie new wells in the County or Townships).

Overall, the Townships and County request a meeting to discuss and understand the City's decision-making process to identify and rank the preferred alternatives and whether additional information is available that may affect that identification and ranking.

Recommendation:

It is recommended that a meeting be held in December 2021 with City staff and consultants and Township / County staff and consultants to review these comments and the attached Burnside and Harden comments and discuss incorporation into this Water Supply Master Plan update. It is understood that City staff have initiated organizing this meeting already and it is tentatively scheduled for early December 2021. Follow-up meetings should be scheduled following the initial December 2021 meeting.

3. As discussed in the Harden and Burnside memorandums, water supply planning should not be completed in isolation. The Township of Puslinch, Guelph / Eramosa Township



and the County of Wellington host the City's Arkell Spring Grounds, the Eramosa River intake plus a number of current and proposed City municipal wells. Additional current and proposed wells within the City are also very close to the municipal boundaries. As a result, the City of Guelph wellhead protection areas and intake protection zones extend kilometres into the Townships and County and encompass thousands of County properties. Both the City and the County are subject to growth projections from the Province that will result in more population and more water usage. This Master Plan update is in direct response to those 2051 growth projections for the City. Given the interconnected nature of the groundwater systems in this area, water supply planning in the City, County and Townships should also be interconnected and consider the growth projections and current / projected water usage in all the municipalities utilizing the groundwater system whether through private or municipal systems.

The Guelph Water Supply Master Plan assesses the City's needs in a vacuum. There does not appear to be much consideration or incorporation of County or Township growth projections or even current municipal wells. On some maps in the presentations, the existing Guelph / Eramosa Township municipal wells are not shown. In another map presented to Guelph / Eramosa Council, a decommissioned municipal well in Guelph / Eramosa Township is shown. In both instances, this is in the general area where the City has proposed a preferred alternative of a new City of Guelph municipal well (Guelph North). Examples such as these, demonstrate why increased coordination and engagement is needed.

Recommendation

In the December meeting referenced in comment 2 and any follow-up meetings, discussion should include the County of Wellington growth projections and associated water supply.

4. As outlined in the Burnside and Harden memorandums, there are a number of comments requiring response.

Recommendation

In the December meeting referenced in comment 2, that the City of Guelph review, meet to discuss and incorporate Burnside and Harden comments outlined in their respective memorandums.



5. It is understood that the draft Water Supply Master Plan document is being prepared, however, is not available for review at this time.

Recommendation

Our municipalities request sufficient time, at least two to three months, to review this draft document and to provide detailed comments, meet with City staff and consultants, present to our Council(s) and review responses from City staff and consultants

6. Our municipalities have been implementing the Clean Water Act and the Grand River Source Protection Plan since 2016 while planning for implementation began in 2006. We protect the City of Guelph wellhead protection areas and municipal wells / intakes located in the Townships or County including draft wellhead protection areas such as the WHPA-Q. This requires significant work by multiple Township and County departments and is undertaken to protect our much larger neighbour's water supply.

The City's Water Supply Master Plan update has implications for all the wellhead protection areas, intake protection zones and issue contributing areas currently delineated for the City of Guelph municipal drinking water system. At this time, there is insufficient information provided by the City to accurately assess the impact of the preferred alternatives on our source protection implementation efforts.

In the absence of more information at this time, a few general scenarios can be stated. The first scenario is that new City of Guelph municipal wells in the County or close to (within approximately one kilometre) of the municipal boundary will have increased source protection implementation requirements in the County when compared to new municipal wells further within the City boundaries. Similarly, increased water takings from existing City municipal wells in the County or close to the municipal boundary will also have increased source protection implementation requirements. In this regard, it can be expected that the preferred alternatives of Logan, Hauser, Guelph North, Guelph South and Southeast will have increased source protection requirements in the County compared to Ironwood or Steffler. It is worth noting that many of the City's higher ranked preferred alternatives are within or close to the County.



The second scenario is that revised modelling / sampling for existing municipal wells that increases the vulnerability score to a score 10 (red area) or identifies a drinking water issue (ie increasing trends of contaminants above or approaching provincial standards) will increase source protection requirements, potentially substantially. At this time, it is difficult to ascertain, based on the information presented, whether either increased vulnerability scores or delineation of a drinking water issue will occur from the preferred alternatives in the Water Supply Mater Plan. It is unknown whether the draft report will contain a preliminary analysis for each of the preferred alternatives. delineation of new wellhead protection areas from the preferred alternatives are separate studies from the Water Supply Master Plan, it is possible to conduct some preliminary analysis to determine whether certain preferred alternatives are more likely to result in increased vulnerability scoring. The delineation of a drinking water issue is unlikely to occur in a new municipal well supply, however, often the re-evaluation of past sampling data occurs concurrently with wellhead protection area revisions, therefore, some initial Drinking Water Issue analysis should also be incorporated into the Water Supply Master Plan update especially where quality concerns may reduce the available quantity of water in existing municipal wells.

The third scenario is related to the draft WHPA-Q (quantity). The draft WHPA-Q (quantity) is already very extensive, however, new municipal wells or new private water takings, either in the City or County, that are close to limit of the draft WHPA-Q may increase its size and therefore increase requirements on additional properties. Since the WHPA-Q already completely covers the City of Guelph any increase to size would result in new properties and increased requirements being outside of the City boundaries. These properties would be in either the County of Wellington, Region of Waterloo or Region of Halton. An alternative result of this scenario is the reduction of the significant risk level in the WHPA-Q to a moderate or low risk level through an updated Tier 3 Risk Assessment process. A reduction of the risk level would lead to the currently draft source protection water quantity policies applying only to future development in a moderate risk level or not applying at all in a low risk level. It is possible that implementation of certain alternatives in the Guelph Water Supply Master Plan could lead to the outcome of reducing risk levels in the WHPA-Q, however, in the current information available on this Guelph Water Supply Master Plan update it is unclear whether this has been considered. In particular, under the optimization alternative it is unclear whether upgrades are proposed at the two existing City of Guelph municipal wells (Queensdale



and Arkell-1) that currently trigger the significant risk level and whether upgrades would reduce the risk level. It is understood that other municipal wells were identified in the Tier 3 study as being at potential risk for water quantity, however, did not trigger the significant risk level in 2017 when the Tier 3 Study was complete. A preliminary analysis should be completed of the impact of the preferred alternatives on the Queensdale and Arkell-1 wells and the other wells identified in the Tier 3 and how that may affect the WHPA-Q risk level.

Lastly, when scenario 2 (increased vulnerability or a drinking water issue) occurs on or near lands designated or zoned for employment, settlement areas and / or other development uses, the source protection implementation requirements often increase substantially due to the land use. In addition, there is often also increased public interest, staff review, consultation and ultimately time and effort related to these properties. This time and effort can be substantial and is not only limited to County / Township source protection staff and includes consultants and staff from Planning, Building staff, Clerk, Water, Engineering and Administration departments.

When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter. Therefore, it is critical that the County and Townships be kept apprised of the City's water supply plans and work collaboratively with us to ensure protection of the resource.



Recommendation

- a) That the City incorporate preliminary analysis of the general scenarios outlined above in their evaluation of preferred alternatives. When completing that analysis, it recommended that the City consults with the Townships and County and that the Townships and County review that analysis.
- b) That the City, Townships and County incorporate discussion of the necessary source protection updates into the meetings discussed in comment 2 and to include the Grand River Conservation Authority when appropriate.

If you require further information, please contact:

Kyle Davis, Risk Management Official

519-846-9691 ext 362

kdavis@centrewellington.ca

Attachments Harden Environmental Memorandum RJ Burnside and Associates Memorandum



Attachment **C**

Review Memorandum #2: Township of Puslinch



Harden Environmental Services Ltd. 4622 Nassagaweya-Puslinch Townline Road Moffat, Ontario, L0P 1J0

Phone: (519) 826-0099 Fax: (519) 826-9099

Groundwater Studies

Geochemistry

Phase I / II

Regional Flow Studies

Contaminant Investigations

OMB Hearings

Water Quality Sampling

Monitoring

Groundwater Protection

Studies

Groundwater Modelling

Groundwater Mapping

File: 0505

November 26, 2021

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora ON NOB 1SO

Attention: Kyle Davis

Dear Mr. Davis:

Re: City of Guelph Water Supply Master Plan

Harden Environmental is pleased to provide comments on the City of Guelph Water Supply Master Plan. We attended a meeting on September 14, 2021 and therein viewed a presentation summarizing the Master Plan. No other documents were made available to us for review. We have both general comments and comments specific to the presentation.

General Comments

The City of Guelph relies on groundwater resources for residential, industrial, commercial and institutional use within their municipal boundaries. The majority of the groundwater supply is sourced from outside of the municipal boundaries, specifically the County of Wellington. The Official Plan (OP) of The County of Wellington recognizes the Well Head Protection Areas that extend from the City of Guelph (and Arkell Well Field in Puslinch Township) and thereby offer protection for the underlying groundwater resource. The County of Wellington also has significant groundwater and surface water resource protection policies in the OP that benefit the source areas of City of Guelph municipal wells. For example, the OP includes protective policies for the Paris and Galt Moraines, two glacial features that are identified as Significant Groundwater Recharge Areas. In addition to providing groundwater to local streams, wetlands and water supply in the Townships, these features also supply water to the City of Guelph. These are examples of the efforts that the County of Wellington and Townships benefit the City of Guelph.

The City of Guelph Water Supply Master Plan should thus recognize that its supply is more than infrastructure that delivers the necessary volume of water

Guelph Water Supply Master Plan November 26, 2021 Page 2

and should recognize the implications of the taking on groundwater and surface water resources in Wellington County.

Any increase in the City of Guelph Water Supply comes with an impact to the groundwater or surface water resources of the County of Wellington. This is realized as an expansion of the Well Head Protection Areas (quantity and quality) into the County. This is realized as increased diversion of groundwater or surface water from features within the County or decreased release of water to downstream or downgradient users. Depending on the outcome of Source Water Protection policies and priority of use policy issued by the Province, an increase in groundwater or surface water taking by the City of Guelph, Region of Waterloo or City of Hamilton could also be realized as a reduction in water taking in the County should the water taking in the County be deemed to interfere with taking for municipal drinking water. As a minimum, there will be changes in groundwater levels and increased WHPAs (quantity and quality) that have land use implications that are dictated by the Risk Management Plan associated with that Well Head Protection Area. In this way, the Townships and the County have a significant interest in the future use of groundwater and surface water by the City of Guelph, Region of Waterloo and the City of Hamilton.

For these reasons, the County and Townships are very interested in ongoing dialogue with the City of Guelph. The groundwater and surface water resources are not confined to municipal boundaries, thus the development/implementation of plans and policies for their use should also not be restricted to within the municipal boundary. We are recommending broader involvement of the County in decision making by the City when increased taking of groundwater and surface water resources from sources common to both City and County are being considered.

We also have the following specific comments on the presentation. Headings in bold type represent the title on the presentation page.

Feedback from Round 1

The Township of Puslinch endorses the feedback from Round 1 but note that concerns from neighbouring municipalities is missing from the list. It has been made clear that the Township of Puslinch is concerned about Well Head Protection Areas (quality) as it impacts land use and the expansion of the Well Head Protection Area (quantity) as it has the potential to impact water taking in the Township both at present rates and future rates given the high risk rating assigned to the exiting City of Guelph well system.

Task 2 – Population and Water Supply Demand Forecasts

There is no mention of the population growth and water supply demand increases within the source areas of the City of Guelph municipal wells beyond the City municipal boundaries. A significant percentage of water obtained by the City of Guelph is sourced from beyond the City boundaries and there must be a recognition of this fact and an inclusion of growth and demand in the source areas.

Overview of Guelph's Existing Water Supply System

This figure is inadequate by failing to recognize the areal extent of the source area for the City of Guelph's Water Supply System. This map only shows the infrastructure used to obtain the water supply. A map of the WHPA-Q1 would better represent the present extent of the source area for Guelph's existing water supply system and thereby recognize the extent to which groundwater and surface water is obtained from beyond the City of Guelph municipal boundaries.

Additional System Risks

This list does not include the potential reduction in recharge or the contamination of recharge resulting from expanded development within the existing City boundaries. Specifically, the risk of developing the Clair-Maltby area should be included as an additional risk to an important source area for the City of Guelph municipal wells. We encourage the City to review the Galt Paris Moraine Policies enacted by the County of Wellington.

Conservation Alternatives

The Township of Puslinch requests to be informed of the implementation and effectiveness of conservation methods as this will affect the timing of the drilling additional wells at the Township boundaries or within the Township municipal boundaries. It is both the City of Guelph's and the Township of Puslinch's best interest for conservation efforts to be implemented as early as possible and as effectively as possible to minimize the potential for commissioning new wells on the Township borders or within the Township.

Groundwater Alternatives

The Township requests to be informed of the progress made with each of these alternatives on a regular basis and in particular would like to be informed of the implementation of any of these alternatives that result on the expansion of the exiting WHPA's for quantity or quality. The implementation or non-implementation of any one of these alternatives has the potential to affect the timing of drilling wells that can affect water levels in the Township of Puslinch, affect land use restrictions in the Township of Puslinch or restrict water use in the Township of Puslinch.

- Optimize existing operating municipal sources
- •Restore existing off-line municipal wells
- Develop existing municipal test wells
- •Install new wells inside City boundaries (screened out through prelim. modelling)
- •Install new wells outside City boundaries

Guelph Water Supply Master Plan November 26, 2021 Page 4

•Install new ASR wells inside City to optimize excess Arkell Collector system volumes

It is therefore in the interest of the Township to be kept informed of the progress made on each of these alternatives.

The consideration of any of these alternatives should be preceded by evaluating the potential impact using the existing groundwater model and presentation of these impacts to the Township of Puslinch prior to further consideration or implementation. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on WHPA's outside of the municipal boundaries. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on surface water and groundwater resources outside of the municipal boundaries. These should be part of the Guelph Master Plan whereby potential impacts to Township neighbours can be included in the decision making matrix.

Offline/New Sources

The Township requests that they are informed in regard to the consideration of or testing of any new source or offline groundwater source that has the potential to expand the WHPA for quantity or quality into the Township. The experience in 2020 was that testing of the Southwest well was conducted with very short commenting period from the Township resulting in inadequate monitoring of quantity and quality impacts within the Township. The minimum notification period is six months.

New Surface Water Supply Alternatives

The Township requests that they are informed of any consideration of or elimination of surface water alternatives as their implementation or elimination may affect the timing of the development of alternatives that directly impact the Township groundwater resources and land use.

Aguifer Storage and Recovery

The Township requests advance notice of the consideration and implementation of any Aquifer Storage and Recovery alternatives. The implementation or elimination of this alternative may affect the timing and development of alternatives that directly impact the Township groundwater resources and land use.

We encourage the City of Guelph to frequent and regular dialogue with respect to these shared groundwater and surface water resources.

Guelph Water Supply Master Plan November 26, 2021 Page 5

Respectfully Submitted,

Harden Environmental Services Ltd.

SIR



Stan Denhoed, P. Eng., M.Sc.



Attachment D

Review Memorandum #3: Guelph/Eramosa Township



November 26, 2021

Via: Email

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora, ON NOB 1S0

Dear Mr. Davis:

Re: City of Guelph WSMP Comments

Project No.: 300036495.0003

R.J. Burnside & Associates Limited (Burnside) was requested by the Township of Guelph / Eramosa to review the presentation on the City of Guelph's Water Supply Master Plan that was provided at an Agency and Municipality workshop in September 2021. Our review of this presentation is also supported by our attendance at a presentation on the same topic to the Guelph / Eramosa Committee of the Whole on October 20, 2021. Burnside also attended a kick-off meeting for the Southwest Guelph Water Supply Class Environmental Assessment on October 6, 2021.

This letter provides Burnside's comments on the main presentation but also incorporates consistent trends encountered in all presentations.

Location and Context considerations

The presentations are as required focused on the needs of the City of Guelph (COG); however, they consistently lack any form of recognition of the locational context for the City's water supply. The COG's water supply is dependent on supplies flowing from Guelph / Eramosa into the COG. The presentations seem to address the water supply issues as solely a COG issue with little recognition for the contributions from Guelph / Eramosa. For instance, the mapping provided for existing sources does not show the location of the Cross Creek and Huntington wells which are located within the area shown on the associated figure.

The context seems to be one in which the supply to the COG is the focus with no recognition of the existence of other demands and users outside of the COG. We note that currently there are impacts due to the use by the COG that extend the current water quantity WHPA-Q into Guelph / Eramosa. It seems expedient that any analysis of potential impacts should not be restricted to the COG but should consider all areas within the current WHPA-Q. Additionally existing large users in and around the COG should be recognized and included in the discussions to ensure that the water is treated as a shared resource that does not recognize the boundaries placed on maps by municipalities.

Project No.: 300036495.0003

Project Objectives and Major Tasks

We suggest that the project objectives be revised to incorporate at a high level the recognition of the shared nature of the water resource with Guelph / Eramosa and other surrounding municipalities. To this end we suggest that the following bullets under the project Objectives and major Tasks be revised to read:

Will review Guelph's water supply demand forecast and existing water supply and discuss with the community (and surrounding municipalities) how to continue to meet the City's needs sustainably, while also sustaining environmental and other demands outside of the City.

When investigating existing and new water supply options we will consider things like *natural environment, existing water users*, climate change, water quality and quantity, economic factors, social/cultural environment, and any relevant regulations.

Existing Water Supply Capacity Assessment

The overview of the COG's existing water supply system should acknowledge that the system is dependent on the Guelph-Gasport bedrock aquifer as are a number of surrounding municipalities. It is important to establish that this is a shared resource and is important not only to the COG.

The map of existing water supply wells should include the Cross Creek and Huntington Wells as they are within the area shown and within the WHPA-Q for existing wells.

Water Supply Alternatives- Groundwater Sources

The COG indicates that a number of analyses have been completed or are scheduled to take place. The results of these analyses have implications for Guelph / Eramosa and it will be important that Guelph / Eramosa be kept updated on the progress of these analyses.

It was noted that a review of previous recommendation to replace Glen Collector was screened out through preliminary modelling. It would be informative for Guelph / Eramosa to understand what this modelling showed and what factors were considered for ruling out this option.

Restoration of existing off-line municipal wells was suggested as a potential source for additional capacity. The wells included in this consideration are located on the northeast, northwest and southeast of the COG. It will need to be confirmed that modelling has been completed with these wells running and that the impact to the WHPA-Q on any water users or features within this zone inside Guelph / Eramosa examined.

The development of existing municipal test wells was suggested as a potential source for additional capacity. It is suggested that modelling has occurred based on long-term average pumping. The scenarios included in the pumping should be reviewed and the predicted impacts outlined by the COG. The impact on the existing WHPA-Q should also be provided and any expansions into Guelph / Eramosa outlined.

It is noted that the COG has initiated construction of a new well on the Logan site which is inside Guelph / Eramosa. The following comments are provided specifically regarding this well location.

Page 3 of 5

Mr. Kyle Davis November 26, 2021

Project No.: 300036495.0003

- The well is located adjacent to a site of potential contamination. The overburden is thin (about 4 m) and the well may also be under the influence of surface water. These considerations suggest that this well may be high risk for contamination.
- The well is located adjacent to a water course and may be influenced by surface water.
 Pumping from the well may impact surface water and therefore surface water impacts will need to be considered as part of an evaluation of well performance.
- Additional monitoring wells that look at shallow impacts will be necessary on the Logan site.
- Guelph Lakes Golf Course has a well that it uses for irrigation. It will be important to monitor that well for potential impacts during any pumping test at the Logan site.
- None of the wells associated with the former Eastview Landfill are included in the monitoring program. It is important to confirm that no impacts from the former landfill are anticipated.
- Due to location, potential for impacts and new trends in water quality, analysis of samples from Logan should consider the impacts of per- and poly-fluoroalkyl substances (PFAS).

We note that Guelph / Eramosa should be kept abreast of all studies and proposed works at this site.

The COG has indicated that the Southwest Guelph Water Supply EA has been initiated. The study is intended to also evaluate the impact of management of the Dolime Quarry Pond level on water resources in the area. Based on materials provided and our attendance at the kick-off meeting for the Southwest Guelph Water Supply EA we are not aware of any monitoring that is proposed in Guelph / Eramosa to understand the impacts of any of the proposed changes in water use in this area. It is our position that the impacts within Guelph / Eramosa should be considered in a similar manner to those inside the COG and that Guelph / Eramosa should be kept abreast of potential impacts.

The presentation suggests that the installation of wells outside COG boundaries would provide additional capacity. This recommendation is couched on the premise that the addition of new wells within the COG has been examined. Information provided at the presentation indicated that modelling that was completed suggested that new locations within the city would not result in new water but would instead move water around from already existing sources. This is an important principle that seeks to preserve existing users. We are supportive of this principle being used but note that it should also apply to sources within Guelph / Eramosa. It is in this context that the omission of the Cross Creek and Huntington Wells seems more problematic. We note that a new supply is proposed for North Guelph, in the vicinity of Cross Creek and Huntington. We recommend that similar modelling as occurred to rule out new wells inside the COG be undertaken to ensure that a new well in this area does not result in reduced capacity at either Cross Creek or Huntington. The following comments are provided on the Guelph North proposed new well:

- Rationale for selecting this location indicates that there is limited local groundwater use. We
 note that municipal wells at Cross Creek and Huntington are located in this area, so while
 there are a limited number of domestic wells, the municipal supply wells are critically
 important to Guelph/Eramosa and the importance of maintaining the capacity at these
 existing sources cannot be overstated.
- The presentation suggests that the selected location is close to an area of high transmissivity within the aquifer. Guelph/Eramosa should be provided with a copy of the documentation supporting this determination and any mapping showing the location.

Mr. Kyle Davis November 26, 2021

Project No.: 300036495.0003

 We note that there is an existing well located on the St. Ignatius property that was tested at 300 IGPM. This well is a bit further away from the Guelph / Eramosa wells and suggests that supplies may be available in other areas further away from the Guelph / Eramosa wells.

Surface Water Alternatives Assessment

Surface water reliability is noted as a concern for both the Guelph Lake and Eramosa River locations. Traditionally surface water reliability has been augmented by increasing storage and storing water during the spring when it is available for use when it is required. This principle is similar to that suggested for the Aguifer Storage and Recovery. Surface water storage has numerous advantages over aquifer storage. It is not clear whether an evaluation of surface storage options has been included along with the analysis of aquifer storage and recovery.

The aquifer storage and recovery modelled results indicate a very large are of influence that extends out into Guelph / Eramosa. More information on this zone needs to be provided including the magnitude of the water level increase that is expected. Impacts to water quality should also be provided and details on any risks to the aquifer from this proposal should be provided.

Conclusions

The water resources of the Guelph / Eramosa and COG area are a shared resource that is utilized by residents and industries within both municipalities. It is important that the management of the resource by the COG recognize this fact and seek to include the existing uses within the township in any further analysis or studies. Recognition of the use by the township also includes considerations for future use.

The COG should seek to keep Guelph / Eramosa abreast of studies and findings as they occur and not later in the process which gives the township the opportunity to be involved from the outset and to provide comments that may be useful at the appropriate times versus at the end of the process.

Numerous alternatives have been presented and it would be helpful for the COG to provide further information and clarifications as outlined above to allow Guelph / Eramosa to fully understand the implications of the proposals.

It is important to note that at current levels of water taking the overall WHPA-Q for the COG extends into the Townships of Guelph/Eramosa and Puslinch. This water taking is therefore having an impact and the associated source protection vulnerable areas extend into the townships. The townships on the other hand are required to manage and protect water resources for use inside the COG. It should be noted that even when water taking is restricted to inside the COG boundary, there are impacts that need to be addressed by the townships. It should therefore be recognized that changes to water taking within the COG may have external implications and the townships should be made away and kept aware as major stakeholders in the WSMP process as any decisions taken will likely have impacts that extend past COG boundaries.

Mr. Kyle Davis November 26, 2021 Project No.: 300036495.0003

Yours truly,

R.J. Burnside & Associates Limited

Dwight Smikle

Senior Hydrogeologist

DS:js

cc: Harry Niemi, Guelph/ Eramosa (enc.) (Via: Email)

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

RJB Comments 26/11/2021 1:16 PM



Attachment **E**

Guelph Water Supply Master Plan – County and City, Meeting #1 Minutes



January 20, 2022

Meeting: Guelph Water Supply Master Plan - County and City, Meeting #1

Date: December 6, 2021

Participants: Kyle Davis (KD), Wellington Source Water Protection, Stan Denhoed (SD), Harden Environmental (Township of Puslinch), Matthew Alexander (MA), AECOM (City of Guelph), Dave Belanger (DB), City of Guelph, Dwight Smikle (DS), Burnside and Associates (Guelph / Eramosa), Emily Stahl (ES), City of Guelph, Harry Niemi (HN), Guelph / Eramosa Township, Tracey McKenna (TM), AECOM (City of Guelph), Scott Cousins (SC), City of Guelph, Wayne Galliher (WG), City of Guelph.

Agenda

- 1. Review and Discussion of Staff / Consultant Comment Memos
- 2. Council Comments (including those outlined by **DB** plus any from Nov 24th Puslinch Council)
- 3. Timing and Scheduling
 - a. City Council
 - b. WSMP report and review period
 - c. Next meetings on WSMP and SW Guelph EA

Discussion

Participant	Item (1)
WG	Comments provided to start about meeting regularly and the process going forward. The City is committed to meeting regularly with the Townships and County on our shared water interests. Noted that there is a cost recovery tie in because the City understands there will be source protection costs and implications for County. • Those discussions are continuing separately Our review comments tied to original consultation materials
	Timing of the report and reply in writing will happen from City to our memos Early January 2022 - 3-month consultation period with draft report. It is understood there will be more comments • Council approval - June 2022 • Wanted to share that to help our discussion today
SD	Reviewed memo • Concerns on what happens in City will impact Township - physical and source protection side and any changes in City affects size of WHPA-Q



- Need to be kept abreast of changes in the City
- Need an opportunity to comment in a reasonable amount of time.
- Population projections in City of Guelph presentation did not recognize County population projections.

Including Puslinch growth as it affects WHPA-Q

Significant risk category for Guelph vs Region of Waterloo related to WHPA-Q. So, if there is an opportunity to minimize the significant risk, that should be a priority as it would reduce the onus on the neighbors

DB

Four common themes in the Township/RMO comments: meetings and consultations; implications of source protection; considerations on growth in the Townships; and significant risk designation.

DB reiterated the commitment to improve consultation. WSMP Update project ends in June but implementation of the Plan continues. Each individual WSMP project has consultation requirements. Meetings done collectively to discuss a number of topics and then project specific meetings like SW Guelph Class EA.

Understand that source protection has impact on County and townships. Root cause is provincial legislation. **WG** introduced the funding agreement, noted that City appreciates efforts by County/Township on protecting shared water supply. Recognize each new well will have an impact on source protection areas and new WHPAs etc. Also applies for other water takings in Townships (i.e., Lafarge) will impact WHPAs too. Deal with implications of changes through consultation.

Class EA process has consultation requirements.

WSMP - Phase 1 and 2 of Class EA process (completed at a high level). Detailed design - Phase 3 and 4 and then identification of WHPAs and eventually CWA process. Both processes have consultation requirements. Actual pumping rates will change between the WSMP Update and the Class EA projects, so at this stage we can't tell you exactly how it (WHPA) will change but they will get bigger if we add wells.

Growth - we do recognize growth requirements and have some questions within Townships – how much? Where? And what is the per capita consumption? etc. Through Tier 3 Threats Management Strategy (TMS) - looked at scenarios for existing takings (increased) and demonstrated there is available water supply (in the order of 20,000 cubic metres per day). More concerned where the water supply will be located.

Significant risk - very important one. If we can get more water supply to reduce significant risk level, need to broaden the footprint of WHPA-Q. More wells



	inside WHPA-Q just increases stress level (due to interference between wells). Need to put wells out further to broaden the taking out and increase area of water taking. If we increase the area of the water taking, it may reduce the significant risk to moderate or low depending on available water. If inability to step outside, then stuck with significant risk designation and associated constraints. Constraints may be manageable but if there is resistance to increasing the footprint, then constraints will remain.
MA	Good overview Dave on high level themes
SD	Once into individual EA's already on a track and can't be changed easily. Want to know there is enough opportunity for Township to weigh in on individual EA's and in enough time.
DB	WSMP produces preferred alternatives to walk through Class EA. Each Class EA evaluates the environmental, social and economic factors to develop the final water supply details. WSMP carried a number of preferred alternatives with understanding that some may not make it (i.e., may not get PTTW or may not be feasible) - Feasibility study on Guelph South included a 30-day test that gives confidence in this location but the Class EA is still required. Feasibility study is planned for Logan well. There is an opportunity to bring in concerns during Class EA. Uncertain what the design concept may look like - for South Guelph - May be a wellfield PTTW to optimize water taking while minimizing potential environmental impacts.
SD	When doing individual EA - already have made a choice. When get to the stage, not weighing it against the other alternatives within the City.
DB	WSMP orders the projects to look at first. Plan considers "best" projects first (i.e., least impacts, lowest costs, proximity to City). When you see the report, tables order the projects into short term, medium term, and long term. If we get more water out of first alternatives, it may defer other projects (i.e., if more water from SW Guelph). The WSMP gets updated every 5 years to re-evaluate the order and priority of projects as projects are advanced in the process and unknowns are addressed.
SC	Priorities order in the WSMP do reflect comments received through the EA engagement i.e., preference for inside the City prior to going outside the City.
SD	Priority of use framework - we understand that most of City's water needs are industrial not drinking water. Is there an opportunity to reduce the industrial component? We know City and Region have done fantastic conservation work to stave off need for new wells. What about industrial growth going forward?



DB	Residential 167 and employment - 191 litres per capita per day. Conservation is
	to reduce both residential and employment per capita down. Residential
	reductions may be maxed out. Big opportunities are on ICI side.
WG	Done a lot of work with residential sector - 150 litres per capita per day is seen
	as hard line for residential especially with people working from home. ICI and
	water loss are areas for growth in future.
ES	Business program - Water Smart Business program. Active over 10 plus years.
	Success with Linamar, Sleeman etc. Water Efficiency strategy will be updated
	after WSMP.
	Water reuse component - starting to look at that as a City and industrial users
MA	Reuse likely to become more important later in planning horizon but needs to
	be planned for now through WES update in terms of how it will be accomplished
DB	WSMP sets high level goals for water efficiency strategy to meet WSMP goals –
	WES to be updated in 2022 based on WSMP goals. will see more detail in
	report.
	Growth raised as a concern but what are the growth projections for Townships?
KD & HN	OPA describes growth projections and is a starting point for discussion. County
	allocates targets. Centre Wellington and Erin to receive most growth due to
	servicing. OPA (note actually technical studies supporting OPA) lists projections
	for Puslinch and GET – constrained due to lack of municipal servicing.
	Wastewater capacity constraints for Rockwood, Puslinch constrained by private
	servicing. Rockwood – I&I challenges, can meet full build out, Hamilton Drive can be built-
	out, industrial lands have potential for growth. Dry use on Jones Baseline.
	Challenges to grow on private services.
	chancinges to grow on private services.
	Provided links to the County OPA on growth
DB	OPA (note actually technical studies supporting OPA) indicates limited growth
	for Puslinch and GET through to 2051 due to lack of municipal servicing. 2 and
	4% growth in Wellington County (1,500 and 2,400 people) for GET and Puslinch
	to 2051.
SD	Discussed per capita water usage. Servicing studies ongoing. How to determine
	for rural ICI i.e., dry industry for personal hygiene. Tier 3 some discussion on
	water taking and consumption. Dry industry – typically less than 50 m3/day.
DB	DB - Could apply City rates if we don't have it. For example – 3,900 people =
06	1,400 m3/day for entire Townships so less in WHPA-Q.
KD	HN and KD can work with them to get good numbers on that.
ND .	The and No can work with them to get good numbers on that.



 TMS - Appears to be more than adequate for water supply capacity for GET and Puslinch based on population. SD - Cautions that we need to look more closely on industry basis (i.e., Morguard or Maple Leaf) - concerned if there would be a hard no in future. Mentions that opportunity for growth in population and employment lands need to be considered. DB - Dry industry RE: Morguard: permit is high (600 m3/day), but use is lower. Available capacity within existing permit. SD - Wants to work with the city on these kinds of numbers and need time to compare the solution. Asked about employment land designation in Highway 6 and OPA - surprised to hear given dry industry designation - didn't see this in Twp comments. Responded about OPA 119 and getting Sarah online next meeting to discuss it further. Noted that the rural employment land along Highway 6 has been designated since the 1990's and what is new, is its inclusion in the regionally significant economic study area. Does regionally significant economic study area mean studies still to be done? 	
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significant economic study area.	
,	
MA Does regionally significant economic study area mean studies still to be done?	
KD Sarah Wilhelm from the County of Wellington would be best to present and	
discuss that.	
discuss that.	
DS Reviewed memo- mostly covered by SD.	
Ideally would want to be able to tell Council and senior Management that we	
have seen it vs late scramble.	
Therefore, need to show GET wells and recognize they are taking water. Work	
together so we can ensure Townships and City has water, noted that growth is	
pushed by province.	
Mentions that he lives in Guelph, so he has a vested interest in ensuring Guelp	n
having water.	
We need to be able to respond that we have been involved, reviewed and our	
concerns have been addressed when asked by Council and senior Managemen	t.
KD Agrees. Townships, County and Guelph are integrated. Lives in Elora but is into	
Guelph a couple times a week. Others live in Township and work in City so we	
all recognize it is an integrated economic area and the water use in Guelph do	
provide benefit to County residents. We do not want to be in a position like w	!S
were in September where we are caught by surprise.	
DB We are committed to regular communication/consultation.	



	 Covid and delays in the project hampered consultation. Province introduced new population projections in summer/2021 which caused delays in the middle of the project. Reference to how Township water taking are considered in the WSMP. Have updated in report - PTTWs and GET wells in model and taking all water takings in report / model from the TMS. Used 2019 water takings for GET wells. Evaluates increased takings on top of existing takings. Logan well - provided Harry with TOR and work is going on now. Noted that project is well reconstruction with a deep casing, not new well, objective is to mitigate shallow impacts. Will keep us informed as we go through the project. SW Guelph EA - will keep us involved.
sc	Logan - PFAS - is that a general comment or is there site-specific information? 2016 there was a fire. City doesn't use PFAS but GET Fire there too. Above packer, saw some Toluene. May be cross contamination from drill rig DS – general comment, no site-specific information on PFAS. KD – agreed this was a general comment given historic land use;
	SC likelyboth depts. attended the fire noted above.
DS	DB - Logan won't likely be in production for 7 or 10 years. Water quality
	concerns would be in domestic wells first.
KD	Asked if we have sampled PFAS in domestic wells?
	Stated no. But can talk to Harry.
	KD - We don't have legal reason to sample for PFAS in domestic wells.
	SC&DB – Water quality results will be in the reports for Logan feasibility study but can't share specifically the results as told private well owners wouldn't (not sampling for PFAS).
DS	CTC regional water management policy and working group – does this apply here or could it be a model.
KD	Discussed GGET Tier 3 Working Group idea as it is based on CTC policy and DS and DB agreed. Noted GGET - led by GRCA, Terms of Reference being developed and Working Group would be higher level and also separately we would have these Guelph - Wellington meetings. Working group will include MECP representation.
DB	DB – Discussions in water quantity policy development regarding a broader water resource management approach in the WHPA-Q but requires monitoring data and data sharing. Want to have broader discussion and tied into Area-Based Management from MECP.
KD	KD - Briefly talked about some of his comments - especially last one # 6 and number #1 - want to move forward now



DB	DB – Modelling shows potential environmental impacts as constraints on new water takings. Considered to be a conservative approach, detailed field work (typically 30-day tests) will provide more direct information. Modelling results in appendix used a number of scenarios to evaluate different supply alternatives. Results are described in the report text and evaluation matrices. Evaluation matrices were provided as part of the package from the Sept 24 agency meeting. SD - Not sure saw the evaluation matrices or reviewed that. MA – We can re-send any information as required. Outcome is same right now in report as presented in September.
DB	Draft Final WSMP is >1400 pages; a lot of comments received are addressed in report; others may need to be addressed during comment period; aiming for response to comments by mid-Jan; issue response as draft as this will be a work in progress; County/Twp needs to go through report before next meeting for a meaningful discussion
KD	Suggested interim meeting to complete missed agenda items

Action Items

Next Steps for Meeting #2

- KD to send Doodle poll (first two to three weeks in January)
- Bring Agenda Item 2 Council Comments to second meeting Check re Mayor
 White's offer, Mayor Seeley's option and Puslinch feasibility study
- Sarah W to present on OPA 119 growth if available
- Presentation from City on report overview primarily focusing on the recommendations since the overview on the WSMP was provided in the September 24 agency and Council presentations

Meeting #3

- Discussion on Guelph Response in writing to Twp current comments mid
 January
- Discussion on what comments can be factored into the WSMP report. (Twp current comments are not in draft report)



Appendix A

90-Day WSMP review documentation

- Hydro One Review Comments
- Wellington Federation of Agriculture Review Comments
- Ministry of the Environment, Conservation and Parks Review Comments
- City Response to the Ministry of the Environment, Conservation and Parks – Cover Letter
- City Response to Ministry of the Environment, Conservation and Parks – Memorandum
- Ministry of Heritage, Sport, Tourism and Culture Industries Review Comments
- Township of Puslinch Resolution April 2022
- Township of Puslinch Review Comments
- Response to Township of Puslinch Cover Letter
- Response to Township of Puslinch Memorandum
- Township of Guelph / Eramosa Review Comments
- Township of Guelph/Eramosa Resolution April 2022
- City Response to Township of Guelph / Eramosa – Cover Letter
- City Response to Township of Guelph / Eramosa – Memorandum

Hydro One Networks Inc 483 Bay St Toronto, ON



January 20, 2022

Re: City of Guelph Water Supply Master Plan Update

Attention:

Dave Belanger, Water Supply Program Manager

Thank you for sending us notification regarding (City of Guelph Water Supply Master Plan Update). In our preliminary assessment, we have confirmed that Hydro One has existing high voltage Transmission facilities within your study area. At this time we do not have sufficient information to comment on the potential resulting impacts that your project may have on our infrastructure. As such, we must stay informed as more information becomes available so that we can advise if any of the alternative solutions present actual conflicts with our assets, and if so; what resulting measures and costs could be incurred by the proponent. Note that this response does not constitute approval for your plans and is being sent to you as a courtesy to inform you that we must continue to be consulted on your project.

In addition to the existing infrastructure mentioned above, the applicable transmission corridor may have provisions for future lines or already contain secondary land uses (e.g., pipelines, watermains, parking). Please take this into consideration in your planning.

Also, we would like to bring to your attention that should (City of Guelph Water Supply Master Plan Update) result in a Hydro One station expansion or transmission line replacement and/or relocation, an Environmental Assessment (EA) will be required as described under the Class Environmental Assessment for Minor Transmission Facilities (Hydro One, 2016). This EA process would require a minimum of 6 months for a Class EA Screening Process (or up to 18 months if a Full Class EA were to be required) to be completed. Associated costs will be allocated and recovered from proponents in accordance with the Transmission System Code. If triggered, Hydro One will rely on studies completed as part of the EA you are current undertaking.

Consulting with Hydro One on such matters during your project's EA process is critical to avoiding conflicts where possible or, where not possible, to streamlining processes (e.g., ensuring study coverage of expansion/relocation areas within the current EA). Once in receipt of more specific project information regarding the potential for conflicts (e.g., siting, routing), Hydro One will be in a better position to communicate objections or not objections to alternatives proposed.

If possible at this stage, please formally confirm that Hydro One infrastructure and associated rights-ofway will be completely avoided, or if not possible, allocate appropriate lead-time in your project schedule to collaboratively work through potential conflicts with Hydro One, which ultimately could result in timelines identified above.

In planning, note that developments should not reduce line clearances or limit access to our infrastructure at any time. Any construction activities must maintain the electrical clearance from the

transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage.

Be advised that any changes to lot grading or drainage within, or in proximity to Hydro One transmission corridor lands must be controlled and directed away from the transmission corridor.

Please note that the proponent will be held responsible for all costs associated with modifications or relocations of Hydro One infrastructure that result from your project, as well as any added costs that may be incurred due to increased efforts to maintain said infrastructure.

We reiterate that this message does not constitute any form of approval for your project. Hydro One must be consulted during all stages of your project. Please ensure that all future communications about this and future project(s) are sent to us electronically to secondarylanduse@hydroone.com

Sent on behalf of,

Secondary Land Use
Asset Optimization
Strategy & Integrated Planning
Hydro One Networks Inc.



Janet Harrop

President 7764 Nichol SR 5 RR1 Fergus ON N1M 2W3 519-820-9293 ijharrop@hsfx.ca

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Lisa Hern Secretary-Treasurer RR 2 Kenilworth ON N0G 2E0 519-848-3774 wellington@ofa.on.ca

City of Guelph 1 Carden Street Guelph, Ontario N1H 3A1

March 2, 2022

Re: City of Guelph Water Supply Master Plan Study

Via Email To: Dave Belanger - Water Supply Program Manager, City of Guelph

dave.belanger@guelph.ca

Matthew Alexander - Project Manager, AECOM Canada Ltd

matthew.alexander@aecom.com

The Wellington Federation of Agriculture (WFA) is the largest farm organization in the County of Wellington with over 1500 members and works in concert with the Ontario Federation of Agriculture (OFA). Both federations work to develop consensus in a diverse agriculture industry and lobby for policies that create a sustainable and profitable environment for farming in Ontario.

The WFA is appreciative of the collaborative approach in the development and participation opportunities provided as the City of Guelph updates their Water Supply Master Plan.

The WFA would ask the following comments be considered during your Master Plan update:

- Agriculture is evolving and adapting efforts to address climate change and economic challenges. Weather extremes highlight the need for flexibility of water holding and changing water usage in agriculture.
- Environmental Assessment Criteria within the Study must include consideration of potential impact on private farm wells and effect on farm surface water quantity and quality.
- The Connected Water Ecosystem identified in the Study recognize the imperative origin of water occurs on agricultural land in the form of natural water capture, filtration and purification
- > To match requirements with end-uses, any upgrades to existing wells or potential new wells must be located within the City of Guelph limits.
- In the event of considering water resources outside of the City of Guelph limits, the City of Guelph must work closely with the County of Wellington when identifying water sink opportunities in the form of aguifer storage in the rural zoning to preserve agricultural land and not restrict agricultural uses.

Respectfully on behalf of the Board of Directors

Janet Harrop, President WFA



Ministry of the Environment, Conservation and Parks Ministère de l'Environnement, de la Protection de la nature

et des Parcs

Environmental Assessment

Branch

Direction des évaluations environnementales

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April 1, 2022

Dave Belanger (Via Email Only)

City of Guelph

Matthew Alexander AECOM Canada Ltd

Re: Water Supply Master Plan Update

City of Guelph

Municipal Class Environmental Assessment - Master Plan

Project Review Unit Comments - Draft Report

Dear Dave Belanger and Matthew Alexander:

Thank you for providing the Ministry of the Environment, Conservation and Parks (ministry) with an opportunity to comment on the above noted Class Environmental Assessment (EA) draft Master Plan Report (Report). Our understanding is that in order to address current and future water supply in the community of Guelph, the City of Guelph (the proponent) has provided short-term, mid-term and long-term water supply options to ensure that Guelph can continue to meet the demands of its growing population. The ministry provides the following comments for your consideration.

Technical Support- Groundwater Comments:

Existing Water Supply System Capacity:

The City indicated in the March 21, 2022 meeting, as well as in the WSMP report, that it
is not feasible to pump the water supply system at full capacity of 79,422 m3/day and
that it would likely not be sustainable due to well interferences and well efficiency losses.

The City concluded that "the presented maximum capacity value should be considered achievable over a short-term, but not necessarily sustainable long-term." The City conducted a Sustainability Assessment using the Tier Three Model to evaluate the average (steady-state) yield/capacity of the existing municipal groundwater supply system. The MECP acknowledges the logistical complexities involved in conducting a system-wide pumping test at full capacity of the City's water supply system. The MECP also acknowledges that a groundwater model is an effective tool to predict yield/capacity of existing and proposed production wells under theoretical scenarios (i.e., drought, contamination etc.).

The City stated that they will need to conduct site-specific field testing to verify sustainable rates and impacts to groundwater resources and surface water features for the new groundwater supply source locations. As each new supply source is developed, it is recommended that the City consider conducting additional individual well and/or wellfield-scale testing for existing production wells, where possible, to confirm yields and reduce uncertainties/assumptions applied to the Tier Three Model. From a regulatory permitting perspective, individual well or combined wellfield-based field testing should be undertaken to quantify the long-term sustainable capacity/yields of the existing municipal water supply system. It is noted that review of the Tier Three Groundwater Model was not within the scope of this current review.

2. The City explained in the March 21, 2022 meeting, that pumps have been installed at depths within the cased portions of the existing production wells and at elevations within the Vinemount Formation and above (i.e., not within the Gasport Formation). The City should continue to optimize all existing production wells such that sustainable yields are based on aquifer conditions and not limited by well construction/design and/or inefficiencies.

Potential Groundwater Alternative Capacities and Preferred Solution:

3. At this stage of the project, the use of the Tier Three Model to prioritize new groundwater supply well locations is considered appropriate. According to the information provided, Class EAs will be required for groundwater projects 2 through 9 of the preferred solution. The City indicated that detailed field work and evaluation of the impact of takings on the groundwater/surface water interactions as well as with municipal and private water wells will be undertaken during the Class EA process. Hydrogeological studies conforming to the requirements of the PTTW manual (MOE, April 2005) and the Technical Guidance Document for Hydrogeological Studies (MOE, April 2008) will be required for assessing and confirming the long-term sustainability/viability of the municipal water supply source (aquifer). It was noted that some of the prospective test wells and new groundwater supply locations were adjacent to surface water features (i.e., creeks and PSW complexes) and in the vicinity of groundwater receptors (i.e., municipal/private water wells) (see summary Project Sheets in Appendix G of the WSMP Update report). The City should carefully evaluate the adequacy of the existing monitoring network in terms of providing reasonable spatial lateral and vertical coverage for hydraulic data collection before proceeding to the individual well and wellfield-based testing programs.

- 4. The groundwater projects included in the City's preferred solution are situated outside of the City or in close proximity to the City's boundaries with Guelph-Eramosa and Puslinch Townships. For these new supply locations, the wellhead areas and impacts of the proposed taking will be partly or substantially outside of the City's boundaries. The City acknowledged that consultation and coordination with neighbouring Township(s) will be required. The City noted in their report and during the meeting with the MECP that during the Agency consultation sessions representatives from both Townships expressed concerns over a variety of issues including private water well interference and surface water impacts. These hydrogeological concerns should be addressed through the Class EA phase of detailed field study by establishing a comprehensive groundwater and surface water monitoring program in collaboration with the adjacent Townships.
- 5. In the short-term (~ 5-6 years) groundwater projects 1 to 4 are proposed to be implemented by the City. Restoration of the Clythe well (project 1) in the northeast quadrant is proposed to be implemented in 2023. As mentioned above, the active PTTW No. 3823-BCUSQK for the Clythe well included a condition which allowed for additional testing to be completed to determine impacts to the local surface water features (Clythe Creek and Clythe Creek PSW complex) as well as interference with other groundwater users. The City should provide an update on the results of this additional testing program to the MECP if they haven't already done so.
- 6. Development of Ironwood, Steffler and Guelph South test wells and construction of the Dolime Quarry Site Pumping Station and Water Treatment Plant are proposed to be implemented in 2027 to 2028. These groundwater projects (projects 2 to 4) are part of the on-going Southwest Guelph Water Supply EA which was initiated in 2021. It is noted that the Downey well will also be evaluated further by the City within the ongoing SW Guelph WS Class EA. MECP is currently participating in consultation for this Class EA and additional TSS groundwater comments will be provided during the EA process as required.

Technical Support - Surface Water comments:

1. The report identified that the Southwest Guelph Water Supply Class EA will evaluate additional water supply sources including a long term Operation Testing Program at the Dolime Quarry to control the groundwater elevation within the quarry and groundwater inflow into the quarry pond. At a January 23, 2019 meeting in the Ministry's West Central Region office, representatives of the City of Guelph, River Valley Developments Inc. and the Ministry's Technical Support Section discussed the Dolime Quarry PTTW and water management scenarios. Based on my notes, the Ministry identified a potential concern with reduction of the assimilative capacity streamflow in the Speed River for the Guelph Wastewater Treatment Plant if the Dolime Quarry pond discharge to the Speed River was reduced or stopped. The City responded that the Dolime Quarry discharge was not part of the assimilative capacity streamflow and would identify to the Ministry the relevant

assimilative capacity study document to verify this. However, I do not recall that this information was provided.

That being said, the City has recently submitted the "Assimilative Capacity Study for the Speed River Downstream of the Guelph WWTP, Final Report, Hutchinson Environmental Sciences Ltd., January 18, 2022" to the Ministry's Technical Support Section for review and comment. This assimilative capacity study report identified that the Dolime Quarry pond discharge is not a part of the assimilative capacity streamflow for the Guelph Wastewater Treatment Plant since the pond discharges to the Speed River approximately 300 m downstream of the Guelph WWTP. As such, this previous concern has been addressed.

2. The GRCA Technical Memorandum (Appendix E) that evaluated the potential new surface water source Speed River at Guelph Lake identified that the environmental flow needs assessment included in the previous version of this memorandum (2014) was not updated. If the proposal assessment proceeds further, then the environmental flow needs assessment should be updated, climate change and drought should be incorporated into the assessment and the potential impact of lower downstream flows maintained for longer periods of time annually should be assessed.

Permit to Take Water Unit Comments:

- The Ministry understands that source water protection policies for the GGET WHPA-Q
 are under development and, as such, these policies will not be within the scope of this
 review. The protection of existing and future sources of supply, as identified in the
 WSMP, within the Clean Water Act framework will continue to be addressed through
 discussions within the GGET Working Group and other similar forums.
- 2. The Ministry has established thresholds for potentially unacceptable impacts to surface water features resulting from water taking activities. Some of the planned water supply projects, notably for the Clythe well, exceed these thresholds under some future pumping scenarios. We recognize that the City has identified surface water quantity and quality its Environmental Assessment Evaluation Criteria outlined in Table 6-1. The Ministry will review the potential for surface water impacts resulting from water supply projects primarily during the Environmental Assessment stage, with any outstanding issues to be addressed at the approvals (i.e. Permit to Take Water application) stage.
- 3. The Ministry recommends that the City consider including future groundwater demand from non-municipal takers and from surrounding municipal takers, in areas where growth is anticipated, in all future updates to the Water Supply Master Plan, Environmental Assessments, and associated Tier 3 Modelling work. The Ministry recognizes that these water takings are not necessarily within the City's jurisdiction but, since they have the potential to influence the water supply planning process, they should be considered in these analyses to the extent that this information is or becomes available.

Conservation and Source Protection Branch (CSPB) Comments:

Source Protection Plan Policy Comments

We note that the final draft WSMP includes a discussion of drinking water source protection under Section 2.2 Regulatory Environment and again later under Section 2.4.2 Land Use. The WSMP correctly identifies that the project is occurring within the Lake Erie Source Protection Region and that it falls under the Grand River Source Protection Plan. Section 2.2 is written to suggest that the source protection plan is still under development, in fact, the plan took effect on July 1, 2016. CSPB recommends that the WSMP text be updated to reflect the current status of the source protection plan.

As a suggestion, to improve on the usefulness of the WSMP to support future decisions and transparent consultation about water supply alternatives, the document could include a summary of the existing source protection plan policies and how the implementation of these policies might affect landowners in the wellhead protection areas or intake protection zones associated with each of the alternatives should they be established in the future and similar policies applied. It may be worthwhile to include a discussion of the policies in the Grand River Source Protection Plan and their potential impact on these activities. We encourage the City to review their policies in Grand River Source Protection Plan online at https://www.sourcewater.ca/en/source-protection-areas/Grand-River-Source-Protection-Plan.aspx. Questions about the source protection plan and policy applicability should be directed to the local source protection authority.

As a reminder, individual project plans (detailed in Appendix G) should factor in necessary timelines for amendments to the source protection plan. Regulation 205/18 requires an amendment to the source protection plan to incorporate any new wells or intakes and their vulnerable areas. The amended source protection plan must be approved before a Drinking Water Works Permit would allow for water to be supplied as drinking water from the new / amended system. This would apply to any new wells and intakes and could also apply to replacement wells depending on site-specific circumstances.

Source Protection Technical Comments

A significant risk of water quantity stress has been assigned to the City of Guelph's municipal drinking water system based on a risk of not meeting future water demand identified through the Tier 3 water budget and Local Area Risk Assessment. The City is considering additional water supplies to meet future demands. The ministry recognizes that the City must balance a number of factors when selecting new water supply wells. Water resources are a shared regional resource and the sustainability of regional water resources should be a highly weighted factor of consideration. To that end, the ministry encourages the City to continue to explore different options and prioritize new sources that help to reduce the strain on regional water resources, such as those further afield.

Section 5.3.2, details the City's plans to optimize existing wells using a working definition of "optimizing" as a well-focused activity to "ensure that potential hydrogeological capacity can be achieved and to meet peak demands". The ministry supports these efforts and recognizes that the Tier 3, the WSMP, and other studies have identified wells where additional assessment is warranted to determine if the well is limiting the modelled hydrogeological capacity. In addition, to these efforts, the ministry suggests the City expand its working definition of "optimization" to also include consideration of water distribution infrastructure changes. For example, an assessment of where increased interconnection of water sources/distribution system would create opportunities to increase optimization the City's use of regional water resources.

Species at Risk Branch (SARB) Comments:

- 1. Table 2 Potential Impacts of Each Alternative:
 - a. The 120m buffer is not relevant as far as species at risk go. Habitat as described for SAR is species specific. When generalizing the City should be considering all observations within 2km of the site for SAR and then narrow it down from there based on habitat suitability.
- 2. Attachment B. Guelph Water Supply Master Plan Updated Study Species at Risk Habitat Screening:
 - Red-headed woodpecker has been uplisted from Special Concern to Endangered.
 The ESA status should be updated in this table.
 - b. it is unclear if certain species have been screened out. The following species also have records in the vicinity; Acadian flycatcher, American ginseng, blue ash, bank swallow, cerulean warbler, goldenseal, gypsy cuckoo bumble bee, hoary mountain mint, rainbow mussel, nine-spotted lady beetle, unisexual ambystoma (Jefferson dependant), West Virginia white.

Stakeholder and Review Agency Consultation:

The City should continue efforts to address concerns from potentially affected, interested stakeholders and review agencies. These efforts should be included in the Class EA documentation.

Indigenous Consultation:

Further to any follow-up during the review period for the EA, the City should continue reaching out to all communities previously engaged if there any substantial changes to the project/process or if they are applying for subsequent permits from the ministry that may be of interest or concern to communities

Thank you for circulating this draft Report for the ministry's consideration. Please document the provision of the draft Report to the ministry as well as this Project Review Unit Comments letter in the final report, and please provide an accompanying response letter to support our review of the final report. A copy of the final Notice should be sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca).

Should you or any members of your project team have any questions regarding the material above, please contact me at joan.delvillarcuicas@ontario.ca.

Sincerely,

Joan Del Villar Cuicas

Regional Environmental Planner

Project Review Unit, Environmental Assessment Branch

Ontario Ministry of the Environment, Conservation and Parks

Cc Katy Potter, Project Unit Supervisor, MECP



June 8, 2022

Sent by email

Joan Del Villar Cuicas

Regional Environmental Planner Project Review Unit | Environmental Assessment Branch Ontario Ministry of the Environment, Conservation and Parks

Dear Joan,

RE: Guelph Water Supply Master Plan Update – Response to MECP Comments on the Draft Final Master Plan Document

On April 1st, 2022, the Ministry of the Environment, Conservation and Parks (MECP) provided a memorandum summarizing staff comments on the Draft Final Water Supply Master Plan Update report. The City has prepared a response to the MECP comments which is attached. Please note that the comments received, and our response will form a component of the record of public consultation prepared for the WSMP Update report.

Thank you for engaging and consulting with the City on this important project.

Sincerely,

Dave Belanger, M.Sc., P.Geo., Water Supply Program Manager, Water Services, Environmental Services

T - 519-822-1260 x2186

F - 519-822-8837

E - Dave.Belanger@guelph.ca

C Wayne Galliher, Emily Stahl, Scott Cousins, Matt Alexander



AECOM Canada Ltd. 50 Sportsworld Crossing Road, Suite 290 Kitchener, ON N2P 0A4 Canada

T: 519.650.5313 F: 519.650.3424 www.aecom.com

To: Dave Belanger, City of Guelph Date: June 7, 2022

Project #: 60612820

From: Matt Alexander (AECOM)

Jason Murchison (AECOM)

cc: Scott Cousins, City of Guelph Alicia Evans, AECOM

Memorandum

Subject: Guelph Water Supply Master Plan Update – Response to Ministry of the Environment, Conservation and Parks Comments on the Draft Final Master plan Document

Introduction

On April 1st, 2022, the Ministry of the Environment, Conservation and Parks (MECP) provided a memorandum summarizing staff comments on the Draft Final Water Supply Master Plan Update report (the 'WSMP Update report'). These comments are included herein as **Attachment A**.

The purpose of this memorandum is to provide responses to the review comments and to provide additional information, where warranted. This memorandum has been prepared with the assistance of the City as certain aspects of the received comments are beyond the scope of the WSMP Update project. The comments received and this response will form a component of the record of public consultation prepared for the WSMP Update report.

Comment Response

Technical Support – Groundwater Comments

Existing Water Supply Capacity

Comment #1 references the Sustainability Assessment completed for the WSMP Update using the Tier Three Model stating that a groundwater model is an effective tool to predict yield/capacity of existing and proposed production wells under theoretical scenarios. We agree that the Tier Three Model is an effective predictive tool for these purposes.

This comment (#1) goes on to re-iterate commentary provided within the WSMP Update report regarding the need for site-specific data to support many of the alternatives and specifically recommends individual well and/or wellfield scale testing to confirm long-term well yields and reduce uncertainties/assumptions within the model. We agree that the testing outlined in this comment is required and is currently being implemented through a long-term operational testing program (OTP) for the Southwest Guelph Water Supply Class Environmental Assessment (Class EA).

Comment #2 recommends that the City continue to optimize all existing production wells to maximize their yields such that they are not limited by well construction/design and/or inefficiencies. The City has optimized well pump settings to the maximum available drawdown at each location and continues to address well inefficiencies through



their routine well maintenance programs. Sustainable yields of the municipal groundwater supply system are not presently limited by the City's infrastructure.

Potential Groundwater Alternative Capacities and Preferred Solution

Comment #3 re-iterates that the use of the Tier Three Model in the WSMP Update project to prioritize new groundwater supply well locations is appropriate and recommends that City follows the MECP Permit to Take Water (PTTW) manual and the Technical Guidance Document for Hydrogeological Studies, when developing future site-specific field programs. Finally, the comment recommends that the City evaluate the adequacy of their existing monitoring network (both vertically and spatially) prior to proceeding with each Class EA project.

The City has followed MECP's recommended process for past Class EA projects and will continue to follow it in developing future water supply sources. Developing sustainable water systems is the goal of the WSMP, which includes managing environmental effects on the natural environment and local groundwater users. As part of each feasibility study or Class EA, the City has evaluated groundwater monitoring needs and has expanded their monitoring network when necessary. Recently, collaboration with the University of Guelph (G360 Institute for Groundwater Research) for the Southwest Guelph Water Supply Class EA has resulted in world-class monitoring programs in fractured rock; including the use of proprietary multi-level monitoring systems customized for the project.

Comment #4 notes that representatives from the surrounding Townships have expressed concerns regarding potential future impacts to private wells and surface water features from the preferred alternatives and that detailed field study (groundwater and surface water monitoring) should be conducted in collaboration with the Townships at the Class EA phase. The City agrees with this comment and has engaged with the Townships in regular information sharing sessions outside of the Class EA process to discuss water resource issues. In addition, a collaborative engagement process has also been initiated for the Southwest Guelph Water Supply Class EA. The Townships have significant interest in regional water resource issues related to a number of issues including potential environmental impacts, private well interference, sustainability of the resource, future growth, etc. Comprehensive monitoring is expected to address some, but not all, of these concerns.

Comment #5 requests an update on additional testing of the Clythe Well. A well capacity assessment is currently being completed, and a long term 30-day pumping test will be completed in the summer of 2022. Groundwater to surface water interactions will be assessed as well as monitoring for nearby private well interference during the pumping tests. The MECP will be provided with a report outlining the results when it is available as part of the PTTW approvals process.

Comment #6 is noted with no response required.

Technical Support – Surface Water Comments

Comment #1 is noted with no response required.

The City agrees with Comment #2, which identifies a series of technical factors requiring technical assessment if the Guelph Lake alternative proceeds.

Permit to Take Water Unit Comments

Comment #1 is noted with no response required.

Comment #2 references the modeled future pumping at the Clythe Well noting that the estimated baseflow reduction in some scenarios exceeds the MECP thresholds for potentially unacceptable impacts to surface water. It is noted that model output is not 100% accurate and this fact is acknowledged in Appendix D of the WSMP



Update report. The following is an excerpt from Section 5.1.4 of this appendix:

"The Tier Three model is not calibrated to groundwater pumping conditions at the Clythe Creek well location. There is resulting uncertainty with the estimated effects on the creek's baseflow and, as a result, baseflow to the creek was not considered as part of the water supply capacity optimization. However, without additional field data and model calibration, the simulated impacts are the best available estimates of surface water effects from increased pumping. These predicted effects on baseflow may not translate to ecological effects."

The uncertainty inherent in the model will be addressed by the City through a well capacity assessment and a 30-day pumping test in the summer of 2022, and in advance of the design of a water treatment plant, which will assess the groundwater to surface water interactions. Results of these tests will be reported to MECP and will include an assessment of groundwater to surface water interactions, as well as a preliminary GUDI assessment under MECP's draft Terms of Reference: Determination of Minimum Treatment for Municipal Residential Drinking Water Systems using Subsurface Raw Water Supply. In support of the technical analysis to be completed for the Clythe Well, the City is respectfully requesting MECP's referenced "established thresholds for potentially unacceptable impacts to surface water features" for consideration in the study.

The City agrees with Comment #3, which recommends that future non-municipal water demand and future municipal water demand outside of the City boundaries be considered in all future updates to the WSMP, Class EA's and associated Tier Three modeling work. The City has requested the requisite information from the surrounding County and Townships as part of their WHPA-Q delineation efforts and will include it in the noted future studies to the extent that this information is or becomes available. It should be noted, however, that future growth within the Townships resulting in additional non-municipal water takings were not included in the 2017 Tier 3 Water Budget and Local Area Risk Assessment. Additional non-municipal, consumptive water takings will increase the stress level in the Wellhead Protection Area for water quantity (WHPA-Q).

Conservation and Source Protection Branch (CSPB) Comments

Source Protection Plan Policy Comments

The City agrees with the first comment suggesting that the report text be updated to reflect the current status of the Source Protection Plan (SPP) and the second comment recommending the addition of a SPP policy summary to the report. Changes will be made to the WSMP Update Report to address this comment.

The final comment in this section pertains to the timelines required to amend the SPP for new wells/intakes/replacement wells. The City is aware of the referenced process and will ensure that the requirements of O.Reg. 205/18 are followed in the permitting of any new water supplies.

Source Protection Technical Comments

The City agrees with the first comment in this section, which encourages the City to highly weight sustainability when considering new potential water supplies and to prioritize new sources that reduce the strain on the regional water budget (such as those further afield). This was a significant consideration in the assessment of water supply alternatives, as demonstrated by the modeling assessments completed for the WSMP Update (see **Appendices B** and **D** in the WSMP Update report).

With respect to the location of future supplies beyond the City boundary, it was determined through consultation with the surrounding Townships that their preference is for the City to explore resources inside its boundaries first before those within the Townships. This requirement is likely to increase water quantity stress levels; however, it will be managed to the extent possible. The jurisdictional challenges associated with water resource development are captured in Section 8.5 of the WSMP Update report (General Program Recommendations):



"Through the WSMP Community Engagement Plan, the Project Team heard concerns from adjacent municipalities on source protection and land use constraints as well as potential impacts to domestic wells from well interference. While some concerns, such as well interference, can be addressed with technical/operational measures (i.e., lowering of well pumps, deepening of wells), land use and water rights concerns associated with municipal growth are more difficult to address. It is recommended that future programs have a focus on enhanced engagement and development of intergovernmental relations with the goal to promote more regional water resources management, to support water supply needs for all affected municipalities and to address attendant environmental effects with the support of provincial agencies (i.e., Ministry of the Environment, Conservation and Parks) to meet provincial growth targets."

The second comment under this heading supports the City's ongoing efforts to maintain an optimized water supply system and notes several studies that have "identified wells where additional assessment is warranted to determine if the well is limiting the modelled hydrogeological capacity". The City requests additional feedback on this comment as its meaning is somewhat unclear.

The comment goes on to suggest that the City's definition of "optimization" should be expanded to consider water distribution infrastructure changes, such as interconnected water sources/distribution system to optimize the use of regional water resources. This comment is not immediately clear but suggests interconnection to other municipal water supply systems, but the City welcomes further discussion and formal direction from MECP regarding the management of regional water resources. As a single-tier municipality, and as stated in the recommendation above, development of regional water supply systems by the City would require cooperation of surrounding municipalities and the support of MECP. Furthermore, City staff would require the direction of Guelph City Council to investigate such opportunities based on its long standing direction already provided to manage growth in the context of local water resources.

Should this comment be in reference to the City's existing water distribution system, it is not our understanding that such constraints exist. However, such constraints will be further evaluated through the ongoing City of Guelph Linear Servicing Master Plan.

Species at Risk Branch (SARB) Comments

The City agrees with the two comments in this section and they will be incorporated into and/or updated within the WSMP Update report.

Stakeholder and Review Agency Consultation

The City agrees with this comment and will summarize all engagement and consultation efforts in the WSMP Update report.

Indigenous Consultation

The City agrees to complete the recommended engagement and consultation during individual Class EA's for the preferred water supply projects.

Closing

We trust that this memorandum provides an adequate response to the comments received in **Attachment A**. Many of the comments are addressed in the Draft Final WSMP Update report and the above-noted commitments to edit this document will be reflected in the Final WSMP Update report. Some of the comments will require further discussion with MECP and the City is committed to engaging in ongoing dialogue as the WSMP projects are implemented.

Ministry of Heritage, Sport, Tourism and Culture Industries

Programs and Services Branch 400 University Ave, 5th Flr Toronto, ON M7A 2R9 Tel: 437.996.5218 Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services 400, av. University, 5e étage Toronto, ON M7A 2R9 Tél: 437.996.5218



April 7, 2022

EMAIL ONLY

Matthew Alexander Project Manager AECOM Canada Ltd.

Email: matthew.alexander@aecom.com

MHSTCI File: 0000278

Proponent : City of Guelph

Subject: Notice of Completion – MCEA Master Plan - Approach 1

Project: Water Supply Master Plan Update

Location : Guelph, Ontario

Dear Mr. Alexander:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the notice of completion for the above-referenced project. MHSTCI's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage.

Project Summary

The City of Guelph has updated its 2014 Water Supply Master Plan (WSMP) to review municipal water supply sources and identify priorities, including sustainable water supply options from now until 2051. The update is part of the City of Guelph's commitment to ensuring adequate water supply while managing the city's population growth and respecting growth requirements for Guelph/Eramosa Township, Puslinch Township and Wellington County. The WSMP update provides short-term, mid-term and long-term water supply options to ensure that Guelph can continue to meet the demands of its growing population. It also identifies how to help increase the capacity of the City's existing water system and provide additional security of supply options.

The WSMP has been completed at a broad level of assessment, requiring more detailed investigations at the project-specific level to fulfill Municipal Class EA (MCEA) documentation requirements for any specific Schedule B or C projects, as applicable, identified within the Master Plan.

Comments

MHSTCI reviewed the *Final Draft Water Supply Master Plan Update* (dated December 2021 prepared by AECOM and finds that the Water Supply Master Plan update is consistent with the requirements, guidance and standards of the Municipal Class EA – Master Planning process and with best practice guidance prepared by MHSTCI.

However, we recommend some edits to the following sections of the Master Plan:

Table 6-5 (Summary of Evaluation of Water Supply Alternatives) and Table 6-6 (Assessment and Evaluation of Water Supply Alternatives) – Social/Cultural Environment Category (pages 135 and 141): The 3rd bullet should read as "Technical cultural heritage studies (e.g. heritage and/or archaeological assessment) will be undertaken as early as

possible during preliminary design and prior to any ground disturbing activities. Recommendations from these studies will be followed.

 Section 7.2.5 (Preliminary Evaluation criteria)- Item Social and cultural resources (page 169): A bullet should be included to address cultural heritage resources i.e. potential impacts on known or potential cultural heritage resources

For subsequent MCEA projects identified within the Master Plan, technical cultural heritage studies should be completed as early as possible during preliminary design and prior to any ground disturbing activities.

Thank you for consulting MHSTCI on this. If you have any questions or require clarification, please do not hesitate to contact me.

Regards,

Laura Romeo Heritage Planner (A) laura.romeo@ontario.ca

Copied to: Dave Belanger, Water Supply Program Manager, Water Services, City of Guelph

Karla Barboza, Team Lead (A), Heritage Planning Unit, MHSTCI

Joan Del Villar Cuicas, Environmental Resource Planner & EA Coordinator (A), MECP

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MHSTCI makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MHSTCI be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MHSTCI (at archaeology@ontario.ca) if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately, and the local police and coroner must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified (at archaeology@ontario.ca) to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.



Dave Belanger Water Supply Program Manager City of Guelph VIA EMAIL:

Dave.Belanger@guelph.ca>

Wayne Galliher
Division Manager Water
Services
City of Guelph
VIA EMAIL:
Wayne.Galliher@guelph.ca

Township of Puslinch 7404 Wellington Road 34 Puslinch, ON NOB 2J0 www.puslinch.ca

April 22, 2022

RE: City of Guelph Water Supply Master Plan Comments prepared by Kyle Davis, Wellington Source Water Protection, and Harden Environmental Services Ltd.

Please be advised that Township of Puslinch Council, at its meeting held on April 13, 2022 considered the aforementioned topic and subsequent to discussion, the following was resolved:

Resolution No. 2022-124: Moved by Councillor Sepulis and Seconded by Councillor Goyda

That Council receive Correspondence item 10.4 regarding the City of Guelph Water Supply Master Plan Comments prepared by Kyle Davis, Wellington Source Water Protection and Harden Environmental Services Ltd.; and

That Council directs staff to submit the comments and recommendations outlined in the report to the City of Guelph for review and response; and

That Wellington Source Water Protection and Harden Environmental report back to Council regarding discussions with the City of Guelph prior to a final report being presented to City of Guelph.

CARRIED

Resolution No. 2022-125: Moved by Councillor Sepulis and

Seconded by Councillor Bulmer

That Council request that Harden Environmental prepare a work plan outlining the costs and benefits associated with providing a deep water aquifer monitoring program; and



That Harden Environmental request that Guelph Eramosa's Hydrogeologist collaborate on this initiative; and

That this resolution be forwarded to Guelph Eramosa Township for their information.

CARRIED

As per the above resolution, please accept a copy of this correspondence for your information and consideration.

Sincerely, Courtenay Hoytfox Municipal Clerk

PUSLINCH

MEMO

TO: Mayor and Members of Council

FROM: Kyle Davis, Risk Management Official

MEETING DATE: April 13, 2022

SUBJECT: City of Guelph Water Supply Master Plan Comments

RECOMMENDATION

That Report ADM-2021-042 regarding "Guelph Water Supply Master Plan Comments" be received for information; and

THAT Council direct staff to submit comments to the City of Guelph.

Summary

Staff and consultants have been regularly meeting with the City of Guelph and their consultants to provide comments and discuss the City's Water Supply Master Plan Update. Progress has been made in terms of addressing previous Township comments and meetings are scheduled to continue through 2022. The City has a formal comment period ending April 10, 2022 and understands that Township comments on their draft final Guelph Water Supply Master Plan report will be provided following discussion and endorsement by Council.

Background

In 2019, the City of Guelph initiated stakeholder consultation including the Township, Guelph / Eramosa Township and the County of Wellington on the City's Water Supply Master Plan update. The City routinely updates their Water Supply Master Plan approximately every five years with the most recent update in 2014. A stakeholder engagement session was held in December 2019 and Township staff and the Township hydrogeologist were in attendance. No further engagement occurred until September 2021 when the City of Guelph invited the same stakeholders to a second engagement session where the results of the City of Guelph Water Supply Master Plan Update were presented. This was of serious concern to Township staff as it was understood that engagement would occur over the two year period between 2019 and 2021 on this project to ensure meaningful collaboration between the City, the Township, Guelph / Eramosa Township and the County. On October 13, 2021, the City of Guelph and their

consultants presented to Council on the Guelph Water Supply Master Plan Update. The following resolution was passed:

Resolution No. 2021-310: Moved by Councillor Sepulis and Seconded by Councillor Goyda

THAT Council receives Correspondence item 10.1 from the City of Guelph entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 and the City of Guelph presentation; and

WHEREAS the City of Guelph staff have extended the Township commenting deadline from October 22, 2021 to only November 5, 2021 despite Township staff requesting a longer review window given the technical nature of the topic, the absence and availability of City draft report to review and the potential impact to the Township;

THEREFORE BE IT RESOLVED: THAT Council pass a resolution stating their concerns to the City of Guelph staff's stipulation that Township comments to be provided no later than November 5, 2021 and direct staff to submit the resolution to the City of Guelph; and

THAT Council direct Township staff and consultant(s) to review the City of Guelph Water Supply Master Plan Update correspondence and draft report, when available, and to provide comments for Council's consideration at the November 24 Puslinch Council meeting; and

That the City of Guelph Council provide the opportunity for Puslinch Council to provide comments in advance of the draft report being adopted by City of Guelph Council; and

That Council request that the City of Guelph Council acknowledge receipt of Township comments and that the City of Guelph provide a response to the Township's comments; and

That Council request City of Guelph Council to authorize the release of the draft report to Puslinch staff in advance of the City of Guelph Council meeting in order to prepare comments; and

That this resolution be forwarded to the Township of Guelph Eramosa.

Following the October 13, 2021 Council meeting and a subsequent Guelph / Eramosa Township Committee of the Whole meeting, comments were provided to the City of Guelph from staff, Township Hydrogeologist and the Guelph / Eramosa Township hydrogeologist on November 26, 2021. Attachments 1 and 2 provided the staff and Township Hydrogeologist comments. The Guelph / Eramosa Township Hydrogeologist comments are not attached.

Staff then initiated a series of meetings with City staff to discuss these comments, the City of Guelph Water Supply Master Plan Update and how to ensure meaningful collaboration and incorporation of input to the final Water Supply Master Plan report. Four meetings to facilitate

this discussion were held between December 2021 and end of March 2022. Participants varied between meetings, however, included the Risk Management Official, Source Protection staff, the Township CAO, the Township Hydrogeologist, Guelph / Eramosa Township Director of Public Works, Guelph / Eramosa Hydrogeologist, the County of Wellington Manager of Policy Planning, City of Guelph Water senior management and staff and their consultants from AECOM. Overall, the discussions were very useful and collaborative and have led to the comments presented below.

Early in these discussions, the City of Guelph informed staff that in response to the Townships' and County's concerns that presentation of the final Water Supply Master Plan to City Council would be delayed from December 2021 to approximately June 2022. This was to allow sufficient time to discuss and, hopefully resolve, comments and concerns. On January 10, 2022, the City published their Notice of Completion and posted the draft final Water Supply Master Plan report and Executive Summary here: https://guelph.ca/plans-and-strategies/water-supply-master-plan/. This report was the focus of the detailed reviews by the Township and Guelph / Eramosa Hydrogeologists. Attachment 3 provides the Township Hydrogeologist's comments on the report. The City has a formal comment period ending April 10, 2022 and understands that Township comments on their draft final Guelph Water Supply Master Plan report will be provided following discussion and endorsement by Council.

On February 11, 2022, the City of Guelph provided a response to our November 2021 comments, This response is considered in the Township Hydrogeologist's comments and in the following staff comments.

Comments and Recommendations

As outlined in Attachments 1 through 3 and above, there has been considerable discussion and back and forth with the City of Guelph staff and consultant team and a number of the comments identified in Attachments 1 and 2 have been addressed. In particular, please note that bimonthly meetings have been set up to address Comments 1 a) and b) in Attachment 1 and are scheduled to continue through 2022. Many of the outstanding comments from the Township perspective are outlined in Attachment 3.

Attachment 3 provides the Township Hydrogeologist's (Harden Environmental) memorandum on the City of Guelph's Final Draft Water Supply Master Plan Update dated December 2021. Harden Environmental presents general comments and commentary on the process to date as well as seven specific comments for Council's consideration and discussion. To summarize, the seven specific comments are:

- 1. Early Technical Evaluation of Alternatives Using Existing Model
- 2. System Redundancy Significant Risk Status
- 3. Population Growth in Township and Increased Groundwater Use in Townships 2022 through 2051

- 4. Evaluation of Impact to the Natural Environment
- 5. Impacts to Private Well Yields and Contaminant Movement Through Wells
- 6. Potential Use of Aggregate Ponds as Future Water Supply
- 7. Impact on Water Resources

Staff support Harden's recommendations and comments and following Council discussion, it is recommended that the Harden Environmental memorandum and this staff report be forwarded to the City of Guelph.

In addition to the Harden Environmental recommendations, the following should also be considered by Council. Some of the Townships and County November 2021 comments to the City related to the lack of information initially assessed by the City on growth in the County. In conjunction with County Planning staff, additional information has been presented to the City of Guelph staff in January 2022. Additionally, the County Official Plan Review – Growth Forecasts and Allocations report, presented to the County of Wellington Planning Committee on March 10, 2022 and County of Wellington Council on March 31, 2022, summarizes the growth forecast information needed by the City to incorporate into their Water Supply Master Plan. It is located here

https://pub-wellington.escribemeetings.com/filestream.ashx?DocumentId=2413 . Additional detail can be found on the County's website through the "Phase 1 MCR Report: Urban Structure and Growth Allocations, June 16, 2021 Final Report (as amended January 31, 2022)" located here https://www.wellington.ca/en/resident-services/resources/Planning/Official-Plan/Official-Plan-Review/Final-Phase-1-MCR-Report---Urban-Structure-and-Growth-Allocations.pdf The above links provide the growth allocations and forecast in terms of population and employment. It is recognized that the City would prefer per capita water use estimates for their assessment. Some of the challenges associated with this approach for a wholly private serviced community such as the Township are outlined by Harden Environmental in Attachment 3 Comment 3. Staff and the Township Hydrogeologist will continue to discuss this matter with the City of Guelph.

As outlined by Harden Environmental in Comment 1 and 7 in Attachment 3, the expansion of the City wellhead protection areas lead to increased application of the Source Protection Plan policies. This is true for both quality and quantity wellhead protection areas. There has been considerable discussion on whether the City should, as part of the Water Supply Master Plan, include some high level modelling evaluation of the impacts of the different water supply alternatives on the size, shape and vulnerability scoring of the wellhead protection areas. It is important to note that the City has a timeline for proposed implementation of the alternatives and some of the alternatives are post-2051 while others are within the next 15 years up until 2037. The City, therefore, has concerns related to lack of data associated with some of the alternatives. Modelling only the short and medium alternatives may provide some of the information currently missing to assess potential impact to the Township while addressing some of the City's concerns related to lack of data for the longer term alternatives. It is our opinion

that this evaluation should be part of this Water Supply Master Plan update and future updates and included in the alternative evaluation matrices and therefore included as part of the preferred alternative selection. To date, this has not been included.

Comment 6 in Attachment 1 provides a general analysis of the potential source protection impacts to the Township and without the additional modelling discussed above, that comment still is accurate at this time. The following conclusion is replicated for ease of reference. When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter.

It can be expected that whichever alternatives are implemented by the City of Guelph there will be increases in wellhead protection areas — quality and quantity in the Township. Without further information, it is difficult to assess the exact number of properties affected. Discussions will continue with the City of Guelph through the meetings outlined above related to this issue.

The ongoing meetings and discussions with the City of Guelph have highlighted the need for a more regional water management approach. To this end, both the Township and City Risk Management Officials have requested that the Grand River Conservation Authority initiate these meetings in 2022. These meetings are a recommended policy approach through the ongoing Tier 3 policy work and given the various City, County and Township initiatives in progress plus renewals of Permits to Take Water, the time is right to start these meetings. Further updates will be provided to Council at a future date.

Financial Implications

Not applicable

Applicable Legislation and Requirements

Clean Water Act Environmental Assessment Act Ontario Water Resources Act

Attachments

Attachment #1: Wellington Source Water Protection Report and Cover letter dated November 26, 2022

Attachment #2 Harden Environmental Report dated November 26, 2022 Attachment #3 Harden Environmental Report dated April 6, 2022



November 26, 2021

Dave Belanger, M.Sc., P. Geo.
Water Supply Program Manager
City of Guelph – Water Services
Via email – dave.belanger@guelph.ca

RE: Cover Letter Regarding Township of Puslinch, Guelph / Eramosa Township and County of Wellington Comments on the City of Guelph Water Supply Master Plan Update - 2021

Dear Dave,

Please find attached three (3) comment memorandums related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments represent formal, written comments on the Guelph Water Supply Master Plan presentations on behalf of the Township of Puslinch, Guelph / Eramosa Township and the County of Wellington.

As we have discussed and as outlined in the attached comments, our Townships and the County have serious concerns with the City of Guelph Water Supply Master Plan Update as presented in September and October 2021. As such, we have made recommendations that we request are responded to, formally and in writing, by the City of Guelph and its consultants. Prior to that response, we appreciate the opportunity to meet on December 6, 2021 to discuss these comments and other comments raised by our Councils. We look forward to the December 6th meeting as being the first of a series of meetings related to this update of the Guelph Water Supply Master Plan and we anticipate providing further written comments as follow-up(s) to the meetings and on the draft report once available

As discussed previously, I am willing to serve as a point of contact to assist with scheduling and logistics related to our Townships and County comments on the Guelph Water Supply Master Plan. Please do not hesitate to call me in this regard. If I am unavailable or if needed, please do not hesitate to contact Ian, Glenn, Aldo or Harry. Discussing our comments and concerns regarding the Guelph Water Supply Master Plan is a priority for our municipalities.



If you require further information, please contact:



Kyle Davis, Risk Management Official 519-846-9691 ext 362 kdavis@centrewellington.ca

Attachments

Wellington Source Water Protection Comments Harden Environmental Memorandum RJ Burnside and Associates Memorandum

C.C.

Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township
Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch
Aldo Salis, Director of Planning, County of Wellington
Harry Niemi, Director Public Works, Guelph / Eramosa Township
Dwight Smikle, Township Hydrogeologist, Guelph / Eramosa Township (RJ Burnside)
Stan Denhoed, Township Hydrogeologist, Township of Puslinch (Harden Environmental)
Wayne Galliher, Division Manager, Water Services, City of Guelph
Emily Stahl, Manager of Technical Services, Water Services, City of Guelph
Scott Cousins, Hydrogeologist, Water Services, City of Guelph
Matt Alexander, Water Supply Master Plan Project Manager, City of Guelph (AECOM)



November 26, 2021

Memorandum

To: Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch

Aldo Salis, Director of Planning, County of Wellington

From: Kyle Davis, Risk Management Official,

Guelph/Eramosa Township and Township of Puslinch

RE: City of Guelph Water Supply Master Plan Update - 2021

The following comments are related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments are provided in conjunction with comments provided by R J Burnside and Associates and Harden Environmental, the hydrogeologists for Guelph / Eramosa Township and Township of Puslinch respectively. Please note that, at this time, a Water Supply Master Plan report is not available for review.

Wellington Source Water Protection is a partnership of the Wellington County municipalities and these comments are on behalf of the Township of Guelph / Eramosa, Township of Puslinch and County of Wellington. These comments should not be construed as a hydrogeological, engineering, ecological or technical review. These comments are strictly provided in regards to consultation and engagement process and our municipalities' role in implementing the Clean Water Act and municipal source water protection. For hydrogeological, engineering and / or technical review comments, please see the Burnside and Harden memorandums.

Comments

1. The Township of Puslinch, Guelph / Eramosa Township and the County of Wellington must be brought into the City's water supply projects early and often. Similar comments from our municipalities were made during the 2014 Water Supply Master Plan update and during the Guelph / Guelph – Eramosa Tier 3 Water Budget Study that was completed in 2017. It is the City's responsibility to engage the Townships and County on their projects. The Townships and County are key stakeholders in the City of Guelph water supply planning process and their input or comments should not have been absent for a period of 20 months while key project decisions were made in this Water Supply



Master Plan update. The Townships and County should be some of the first stakeholders the City contacts and there should be continuous contact throughout the process.

Recommendation:

Going forward, it is recommended the following be established:

- a) High level meetings, at either a quarterly or semi-annual frequency, organized between City, Township and County staff to identify and update key projects planned or occurring between our municipalities. Part of the purpose of these meetings will also be to ensure more frequent, project specific meetings are happening where required.
- b) That the City set up regular meetings, frequency to be determined based on the project schedule, on the Southwest Guelph Class Environmental Assessment and on the Guelph Water Supply Master Plan. These meetings would be with Township and County staff / consultants.
- 2. The lack of Township and County input has a direct connection to the selection of preferred alternatives in the Water Supply Master Plan. The City's response to our 2014 Water Supply Master Plan comments was that the City will prioritize wells within the City boundaries first. In this draft update, new municipal wells within the City boundaries were not carried forward into the preferred alternatives as a modelling exercise showed there was too much projected interference with existing municipal wells. This has a direct impact on other alternatives ranking higher, including City test wells and proposed new wells located in the County. This is an example where earlier engagement with the Township and County staff, while the modelling work was ongoing, was necessary to at least understand the rationale behind this decision and to also provide any additional information or data that may result in a different conclusion and decision. Based on the previous City response and the first agency workshop in 2019, staff expected City staff to engage them during this Water Supply Master Plan update process not at the end. Moving forward and outlined in the comment above, we propose a process when planning or modelling work is ongoing near the municipal boundary or within the County, that Township and County staff / consultants are engaged early when there is still time for their comments to be incorporated into the City's results.



On a related note, the lack of proposed alternatives within the southeast quadrant of the City (the Clair – Maltby area) appears to be a gap. It is understood that this is a major recharge area and it is understood through conversations, that there are technical reasons for this exclusion. However, given the proximity of this area to the County and given that fewer new wells in the City directly results in proposing other wells in the County, consultation should have occurred early in the process regarding this point so our technical staff could review the rationale and provide input towards this decision.

It is understood that the preferred alternatives build on one another and cumulatively represent how the City will meet the projected water needs. The Townships and County request further information, in the form of the draft Water Supply Master Plan report and meetings, on the rationale behind the selection of the preferred alternatives. In particular, it is noted that water conservation and municipal system optimization, including reduction of line loss / leakage and increasing capacity of existing municipal wells closer to permitted values, serve as the first alternatives to be implemented. Therefore, it is important to understand and review the data and rationale underpinning each of the preferred alternatives as an increase in water availability through the initial preferred alternatives will reduce the likelihood or need of the later preferred alternatives (ie new wells in the County or Townships).

Overall, the Townships and County request a meeting to discuss and understand the City's decision-making process to identify and rank the preferred alternatives and whether additional information is available that may affect that identification and ranking.

Recommendation:

It is recommended that a meeting be held in December 2021 with City staff and consultants and Township / County staff and consultants to review these comments and the attached Burnside and Harden comments and discuss incorporation into this Water Supply Master Plan update. It is understood that City staff have initiated organizing this meeting already and it is tentatively scheduled for early December 2021. Follow-up meetings should be scheduled following the initial December 2021 meeting.

3. As discussed in the Harden and Burnside memorandums, water supply planning should not be completed in isolation. The Township of Puslinch, Guelph / Eramosa Township



and the County of Wellington host the City's Arkell Spring Grounds, the Eramosa River intake plus a number of current and proposed City municipal wells. Additional current and proposed wells within the City are also very close to the municipal boundaries. As a result, the City of Guelph wellhead protection areas and intake protection zones extend kilometres into the Townships and County and encompass thousands of County properties. Both the City and the County are subject to growth projections from the Province that will result in more population and more water usage. This Master Plan update is in direct response to those 2051 growth projections for the City. Given the interconnected nature of the groundwater systems in this area, water supply planning in the City, County and Townships should also be interconnected and consider the growth projections and current / projected water usage in all the municipalities utilizing the groundwater system whether through private or municipal systems.

The Guelph Water Supply Master Plan assesses the City's needs in a vacuum. There does not appear to be much consideration or incorporation of County or Township growth projections or even current municipal wells. On some maps in the presentations, the existing Guelph / Eramosa Township municipal wells are not shown. In another map presented to Guelph / Eramosa Council, a decommissioned municipal well in Guelph / Eramosa Township is shown. In both instances, this is in the general area where the City has proposed a preferred alternative of a new City of Guelph municipal well (Guelph North). Examples such as these, demonstrate why increased coordination and engagement is needed.

Recommendation

In the December meeting referenced in comment 2 and any follow-up meetings, discussion should include the County of Wellington growth projections and associated water supply.

4. As outlined in the Burnside and Harden memorandums, there are a number of comments requiring response.

Recommendation

In the December meeting referenced in comment 2, that the City of Guelph review, meet to discuss and incorporate Burnside and Harden comments outlined in their respective memorandums.



5. It is understood that the draft Water Supply Master Plan document is being prepared, however, is not available for review at this time.

Recommendation

Our municipalities request sufficient time, at least two to three months, to review this draft document and to provide detailed comments, meet with City staff and consultants, present to our Council(s) and review responses from City staff and consultants

6. Our municipalities have been implementing the Clean Water Act and the Grand River Source Protection Plan since 2016 while planning for implementation began in 2006. We protect the City of Guelph wellhead protection areas and municipal wells / intakes located in the Townships or County including draft wellhead protection areas such as the WHPA-Q. This requires significant work by multiple Township and County departments and is undertaken to protect our much larger neighbour's water supply.

The City's Water Supply Master Plan update has implications for all the wellhead protection areas, intake protection zones and issue contributing areas currently delineated for the City of Guelph municipal drinking water system. At this time, there is insufficient information provided by the City to accurately assess the impact of the preferred alternatives on our source protection implementation efforts.

In the absence of more information at this time, a few general scenarios can be stated. The first scenario is that new City of Guelph municipal wells in the County or close to (within approximately one kilometre) of the municipal boundary will have increased source protection implementation requirements in the County when compared to new municipal wells further within the City boundaries. Similarly, increased water takings from existing City municipal wells in the County or close to the municipal boundary will also have increased source protection implementation requirements. In this regard, it can be expected that the preferred alternatives of Logan, Hauser, Guelph North, Guelph South and Southeast will have increased source protection requirements in the County compared to Ironwood or Steffler. It is worth noting that many of the City's higher ranked preferred alternatives are within or close to the County.



The second scenario is that revised modelling / sampling for existing municipal wells that increases the vulnerability score to a score 10 (red area) or identifies a drinking water issue (ie increasing trends of contaminants above or approaching provincial standards) will increase source protection requirements, potentially substantially. At this time, it is difficult to ascertain, based on the information presented, whether either increased vulnerability scores or delineation of a drinking water issue will occur from the preferred alternatives in the Water Supply Mater Plan. It is unknown whether the draft report will contain a preliminary analysis for each of the preferred alternatives. delineation of new wellhead protection areas from the preferred alternatives are separate studies from the Water Supply Master Plan, it is possible to conduct some preliminary analysis to determine whether certain preferred alternatives are more likely to result in increased vulnerability scoring. The delineation of a drinking water issue is unlikely to occur in a new municipal well supply, however, often the re-evaluation of past sampling data occurs concurrently with wellhead protection area revisions, therefore, some initial Drinking Water Issue analysis should also be incorporated into the Water Supply Master Plan update especially where quality concerns may reduce the available quantity of water in existing municipal wells.

The third scenario is related to the draft WHPA-Q (quantity). The draft WHPA-Q (quantity) is already very extensive, however, new municipal wells or new private water takings, either in the City or County, that are close to limit of the draft WHPA-Q may increase its size and therefore increase requirements on additional properties. Since the WHPA-Q already completely covers the City of Guelph any increase to size would result in new properties and increased requirements being outside of the City boundaries. These properties would be in either the County of Wellington, Region of Waterloo or Region of Halton. An alternative result of this scenario is the reduction of the significant risk level in the WHPA-Q to a moderate or low risk level through an updated Tier 3 Risk Assessment process. A reduction of the risk level would lead to the currently draft source protection water quantity policies applying only to future development in a moderate risk level or not applying at all in a low risk level. It is possible that implementation of certain alternatives in the Guelph Water Supply Master Plan could lead to the outcome of reducing risk levels in the WHPA-Q, however, in the current information available on this Guelph Water Supply Master Plan update it is unclear whether this has been considered. In particular, under the optimization alternative it is unclear whether upgrades are proposed at the two existing City of Guelph municipal wells (Queensdale



and Arkell-1) that currently trigger the significant risk level and whether upgrades would reduce the risk level. It is understood that other municipal wells were identified in the Tier 3 study as being at potential risk for water quantity, however, did not trigger the significant risk level in 2017 when the Tier 3 Study was complete. A preliminary analysis should be completed of the impact of the preferred alternatives on the Queensdale and Arkell-1 wells and the other wells identified in the Tier 3 and how that may affect the WHPA-Q risk level.

Lastly, when scenario 2 (increased vulnerability or a drinking water issue) occurs on or near lands designated or zoned for employment, settlement areas and / or other development uses, the source protection implementation requirements often increase substantially due to the land use. In addition, there is often also increased public interest, staff review, consultation and ultimately time and effort related to these properties. This time and effort can be substantial and is not only limited to County / Township source protection staff and includes consultants and staff from Planning, Building staff, Clerk, Water, Engineering and Administration departments.

When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter. Therefore, it is critical that the County and Townships be kept apprised of the City's water supply plans and work collaboratively with us to ensure protection of the resource.



Recommendation

- a) That the City incorporate preliminary analysis of the general scenarios outlined above in their evaluation of preferred alternatives. When completing that analysis, it recommended that the City consults with the Townships and County and that the Townships and County review that analysis.
- b) That the City, Townships and County incorporate discussion of the necessary source protection updates into the meetings discussed in comment 2 and to include the Grand River Conservation Authority when appropriate.

If you require further information, please contact:



Kyle Davis, Risk Management Official 519-846-9691 ext 362 kdavis@centrewellington.ca

Attachments
Harden Environmental Memorandum
RJ Burnside and Associates Memorandum



Harden Environmental Services Ltd. 4622 Nassagaweya-Puslinch Townline Road Moffat, Ontario, L0P 1J0

Phone: (519) 826-0099 Fax: (519) 826-9099

Groundwater Studies

Geochemistry

Phase I / II

Regional Flow Studies

Contaminant Investigations

OMB Hearings

Water Quality Sampling

Monitoring

Groundwater Protection

Studies

Groundwater Modelling

Groundwater Mapping

File: 0505

November 26, 2021

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora ON NOB 1SO

Attention: Kyle Davis

Dear Mr. Davis:

Re: City of Guelph Water Supply Master Plan

Harden Environmental is pleased to provide comments on the City of Guelph Water Supply Master Plan. We attended a meeting on September 14, 2021 and therein viewed a presentation summarizing the Master Plan. No other documents were made available to us for review. We have both general comments and comments specific to the presentation.

General Comments

The City of Guelph relies on groundwater resources for residential, industrial, commercial and institutional use within their municipal boundaries. The majority of the groundwater supply is sourced from outside of the municipal boundaries, specifically the County of Wellington. The Official Plan (OP) of The County of Wellington recognizes the Well Head Protection Areas that extend from the City of Guelph (and Arkell Well Field in Puslinch Township) and thereby offer protection for the underlying groundwater resource. The County of Wellington also has significant groundwater and surface water resource protection policies in the OP that benefit the source areas of City of Guelph municipal wells. For example, the OP includes protective policies for the Paris and Galt Moraines, two glacial features that are identified as Significant Groundwater Recharge Areas. In addition to providing groundwater to local streams, wetlands and water supply in the Townships, these features also supply water to the City of Guelph. These are examples of the efforts that the County of Wellington and Townships benefit the City of Guelph.

The City of Guelph Water Supply Master Plan should thus recognize that its supply is more than infrastructure that delivers the necessary volume of water

Guelph Water Supply Master Plan November 26, 2021 Page 2

and should recognize the implications of the taking on groundwater and surface water resources in Wellington County.

Any increase in the City of Guelph Water Supply comes with an impact to the groundwater or surface water resources of the County of Wellington. This is realized as an expansion of the Well Head Protection Areas (quantity and quality) into the County. This is realized as increased diversion of groundwater or surface water from features within the County or decreased release of water to downstream or downgradient users. Depending on the outcome of Source Water Protection policies and priority of use policy issued by the Province, an increase in groundwater or surface water taking by the City of Guelph, Region of Waterloo or City of Hamilton could also be realized as a reduction in water taking in the County should the water taking in the County be deemed to interfere with taking for municipal drinking water. As a minimum, there will be changes in groundwater levels and increased WHPAs (quantity and quality) that have land use implications that are dictated by the Risk Management Plan associated with that Well Head Protection Area. In this way, the Townships and the County have a significant interest in the future use of groundwater and surface water by the City of Guelph, Region of Waterloo and the City of Hamilton.

For these reasons, the County and Townships are very interested in ongoing dialogue with the City of Guelph. The groundwater and surface water resources are not confined to municipal boundaries, thus the development/implementation of plans and policies for their use should also not be restricted to within the municipal boundary. We are recommending broader involvement of the County in decision making by the City when increased taking of groundwater and surface water resources from sources common to both City and County are being considered.

We also have the following specific comments on the presentation. Headings in bold type represent the title on the presentation page.

Feedback from Round 1

The Township of Puslinch endorses the feedback from Round 1 but note that concerns from neighbouring municipalities is missing from the list. It has been made clear that the Township of Puslinch is concerned about Well Head Protection Areas (quality) as it impacts land use and the expansion of the Well Head Protection Area (quantity) as it has the potential to impact water taking in the Township both at present rates and future rates given the high risk rating assigned to the exiting City of Guelph well system.

Task 2 – Population and Water Supply Demand Forecasts

There is no mention of the population growth and water supply demand increases within the source areas of the City of Guelph municipal wells beyond the City municipal boundaries. A significant percentage of water obtained by the City of Guelph is sourced from beyond the City boundaries and there must be a recognition of this fact and an inclusion of growth and demand in the source areas.

Overview of Guelph's Existing Water Supply System

This figure is inadequate by failing to recognize the areal extent of the source area for the City of Guelph's Water Supply System. This map only shows the infrastructure used to obtain the water supply. A map of the WHPA-Q1 would better represent the present extent of the source area for Guelph's existing water supply system and thereby recognize the extent to which groundwater and surface water is obtained from beyond the City of Guelph municipal boundaries.

Additional System Risks

This list does not include the potential reduction in recharge or the contamination of recharge resulting from expanded development within the existing City boundaries. Specifically, the risk of developing the Clair-Maltby area should be included as an additional risk to an important source area for the City of Guelph municipal wells. We encourage the City to review the Galt Paris Moraine Policies enacted by the County of Wellington.

Conservation Alternatives

The Township of Puslinch requests to be informed of the implementation and effectiveness of conservation methods as this will affect the timing of the drilling additional wells at the Township boundaries or within the Township municipal boundaries. It is both the City of Guelph's and the Township of Puslinch's best interest for conservation efforts to be implemented as early as possible and as effectively as possible to minimize the potential for commissioning new wells on the Township borders or within the Township.

Groundwater Alternatives

The Township requests to be informed of the progress made with each of these alternatives on a regular basis and in particular would like to be informed of the implementation of any of these alternatives that result on the expansion of the exiting WHPA's for quantity or quality. The implementation or non-implementation of any one of these alternatives has the potential to affect the timing of drilling wells that can affect water levels in the Township of Puslinch, affect land use restrictions in the Township of Puslinch or restrict water use in the Township of Puslinch.

- Optimize existing operating municipal sources
- •Restore existing off-line municipal wells
- Develop existing municipal test wells
- •Install new wells inside City boundaries (screened out through prelim. modelling)
- •Install new wells outside City boundaries

Guelph Water Supply Master Plan November 26, 2021 Page 4

•Install new ASR wells inside City to optimize excess Arkell Collector system volumes

It is therefore in the interest of the Township to be kept informed of the progress made on each of these alternatives.

The consideration of any of these alternatives should be preceded by evaluating the potential impact using the existing groundwater model and presentation of these impacts to the Township of Puslinch prior to further consideration or implementation. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on WHPA's outside of the municipal boundaries. The City of Guelph has the tools to evaluate future development of groundwater resources and their potential impact on surface water and groundwater resources outside of the municipal boundaries. These should be part of the Guelph Master Plan whereby potential impacts to Township neighbours can be included in the decision making matrix.

Offline/New Sources

The Township requests that they are informed in regard to the consideration of or testing of any new source or offline groundwater source that has the potential to expand the WHPA for quantity or quality into the Township. The experience in 2020 was that testing of the Southwest well was conducted with very short commenting period from the Township resulting in inadequate monitoring of quantity and quality impacts within the Township. The minimum notification period is six months.

New Surface Water Supply Alternatives

The Township requests that they are informed of any consideration of or elimination of surface water alternatives as their implementation or elimination may affect the timing of the development of alternatives that directly impact the Township groundwater resources and land use.

Aquifer Storage and Recovery

The Township requests advance notice of the consideration and implementation of any Aquifer Storage and Recovery alternatives. The implementation or elimination of this alternative may affect the timing and development of alternatives that directly impact the Township groundwater resources and land use.

We encourage the City of Guelph to frequent and regular dialogue with respect to these shared groundwater and surface water resources.

Guelph Water Supply Master Plan November 26, 2021 Page 5

Respectfully Submitted,

Harden Environmental Services Ltd.

Stan Denhoed, P. Eng., M.Sc.



Harden Environmental Services Ltd. 4622 Nassagaweya-Puslinch Townline Road Moffat, Ontario, L0P 1J0 Phone: (519) 826-0099 Fax: (519) 826-9099

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Groundwater Mapping

File: 0505

April 6, 2022

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora ON NOB 1S0

Attention: Kyle Davis

Dear Mr. Davis:

Re: City of Guelph Water Supply Master Plan

Harden Environmental is pleased to provide comments regarding the City of Guelph Water Supply Master Plan (GWSMP). Although the Township of Puslinch is the intended audience, we have addressed this letter to the Risk Management Official (RMO) for the County of Wellington as the RMO is preparing a coordinated response to the City of Guelph on behalf of the County, the Township of Puslinch and the Township of Guelph Eramosa.

Our engagement in the process to date is as follows.

We attended a meeting on September 14, 2021 and therein viewed a presentation summarizing the Master Plan. Harden Environmental prepared comments on the presentation and these were discussed in Council in November 2021. In December 2021 the draft final report was made available for review. We have attended several meetings to discuss the draft final report and appreciate the on-going effort by the City of Guelph to include the Township of Puslinch at this draft stage of the report.

Here are our comments on the draft final report.

General Comments

The City of Guelph relies on groundwater resources for residential, industrial, commercial and institutional use within their municipal boundaries. The source area of the City municipal wells extends beyond municipal boundaries in the Townships of Guelph Eramosa (GET) and Puslinch. The Official Plan (OP) for the County of Wellington recognizes the Well Head Protection Areas (WHPAs) that extend from the City of Guelph (and City owned properties in

Guelph Water Supply Master Plan April 6, 2022 Page 2



Puslinch Township) and thereby offer protection for the underlying groundwater resource. The County of Wellington also has significant groundwater and surface water resource protection policies in the OP that benefit the source areas of the City of Guelph municipal wells. For example, the Wellington County OP includes protective policies for the Paris and Galt Moraines, two glacial features that are identified as Significant Groundwater Recharge Areas. In addition to providing groundwater to local streams, wetlands and water supply in the Townships, these features also replenish aquifers connected to the City of Guelph water supply. These are examples of the efforts that the County of Wellington is taking to benefit local groundwater resources.

The City of Guelph Water Supply Master Plan must recognize the cross-municipal boundary cooperation that is required to achieve a successful long term water supply.

Any increase in the City of Guelph Water Supply comes with an impact to the groundwater or surface water resources of the County of Wellington. This is realized as an expansion of the Well Head Protection Areas (quantity- WHPA-Q and quality-WHPA) into the County. This is realized as increased diversion of groundwater or surface water from features within the County or decreased release of water to downstream or downgradient users. Depending on the outcome of Source Water Protection policies, any increase in groundwater or surface water taking by the City of Guelph, Region of Waterloo or City of Hamilton could also be realized as reduction in taking or prohibition of water taking in the County. This potential particularly applies to the City of Guelph where a "Significant Risk" status for water quantity is associated with their municipal water supply. Because of this status, many of the industrial water takings in the Township of Puslinch are designated water quantity threats to the City's municipal supply (see attached map).

As a minimum, there will be decreases in water levels in private wells and increased sizes of WHPAs both quantity and quality that have land use implications. The lowering of the water levels could affect individual well yields and also increase the volume of water moving between shallow and deep aquifers through multiple-aquifer-penetrating-wells. In this way, the Townships and the County have a significant interest in the future use of groundwater and surface water by the City of Guelph, Region of Waterloo, and the City of Hamilton.

For these reasons, the County and Townships are very interested in ongoing dialogue with the City of Guelph. We are recommending involvement of the County in decision making by the City when increased use of groundwater and surface water resources are being considered. Improved dialogue is now occurring through bi-monthly meetings with the City, technical meetings to discuss Environmental Assessment projects and meetings to discuss the GWSMP.

Technical Comments

There are five main Township related concerns with the proposed Guelph Water Supply Master Plan that should be discussed by Council.



- 1) Early Technical Evaluation of Alternatives Using Existing Model There are a limited number of alternatives that the City can use to secure a water supply for the 2051 time period. Each alternative comes with its own challenges such as water quality or quantity unknowns. The GWSMP includes groundwater modelling that optimizes well withdrawal rates for various alternatives. Included in the analysis are estimates of increased drawdown in the aquifer and potential impact to baseflow to streams, including Mill Creek. However, to assess and rank the alternatives, particularly for constructive Township input, it would be of great assistance to include metrics such as increased size of WHPA's and increased size of WHPA-Q. The expansion of WHPA's leads to the increased application of Source Water Protection policies which may not be onerous but must be considered for any future land use changes. The expansion of the WHPA-Q increases the area in which activities in the Township could be considered a water quantity threat to the City municipal wells. Depending on Source Water Protection policies, this could curtail some forms of land development and permitted water use.
- 2) System Redundancy Significant Risk Status For the Townships, the significant risk status of the City of Guelph Municipal Supply results in both established and future water takings and changes to groundwater recharge conditions being identified as Water Quantity Threats. The significant risk designation is not applied to the Region of Waterloo municipal system and therefore activities in the Township within the Regions WHPA-Q are not a water quantity threat to the Region. Water quantity policies within the WHPA-Q have not been established but could restrict future and existing groundwater use. This is made clear in a 2018 sensitivity study for the City of Guelph that found that there will be interference at municipal wells when non-municipal water use in the WHPA-Q exceeds 70% of existing permitted consumptive use. This establishes an upset limit regarding non-municipal water use within the WHPA-Q. The increase in consumptive use is approximately 20,000 m³/day which is a significant quantity of water. This upset limit warrants further discussion with the City of Guelph to determine underlying assumptions and implications to water use growth in the Townships.

We note that the allocation of pumping volume for the Queensdale Well has been reduced and this well is no longer a factor in the Significant Risk determination. We suggest that the City make it a priority to work to reduce the pumping volume allocation at Arkell Well No. 1 that presently contributes to the Significant Risk designation.

3) Population Growth In Townships and increased groundwater use in Townships 2022 through to 2051. The GWSMP projections are that, on average, there will be an increased demand of 632 m³/day every year for the next 30 years within the City of Guelph. Modelling has been conducted to evaluate how this can be achieved through various alternatives. The success/failure of alternatives is evaluated by whether the municipal well system can function within certain water level tolerances. The groundwater model does not account for increased groundwater use through population growth or increased pumping for employment lands in the neighbouring townships. As a shared resource it makes sense to



include growth of Township's water demands in the model as the model is used to gauge success/failure of various alternatives put forth within the GWSMP. The City has asked the Townships to assist them with estimates of increased water taking over the GWSMP time frame. Sarah Wilhelm at the County has estimated population growth and we are working through an appropriate way to estimate per-capita-water-use growth for residential and industrial needs.

There are two significant considerations for making the water use growth determination. First, most of the water use in Puslinch, and Guelph-Eramosa Township is not metered. Estimates of water use per household or per industrial lot will be made. Historical growth or places to grow estimates will have to be used to estimate future use. Secondly, the Permitted water use in Puslinch Township exceeds that of the City of Guelph. In the Aberfoyle area alone, the permitted water use exceeds 86,000 m³/day. In comparison, by year 2051, the City of Guelph estimates their need to be 67,000 m³/day. At face value, the per capita industrial use in the Township of Puslinch greatly exceeds that of the City of Guelph. However, other than the water taking for water bottling, most of the water taking both permitted (i.e. PTTW's) and private water use (residential, industrial and commercial) in the Townships, is returned to the shallow aquifer system. Conversely, the majority of water captured by the City is not returned to the aquifer. Most of the City-use water is released as sewage discharge into the Speed River. In this way, the majority of permitted water use by the City is deemed to be 100% consumed.

This makes it difficult to determine an equivalent per-capita-water-use volume as done for the City of Guelph and used for water use growth projections. Consumptive use values were used in the 2018 sensitivity study in which an upset limit for non-municipal consumptive use was established. This study and underlying assumptions should be reviewed by the Townships and County to understand implications to future growth potential limitations.

The concern regarding estimates of per-capita-use growth within the County, is that when groundwater source alternatives are being evaluated and the model is used to evaluate viability of the alternatives, appropriate increased water demands in the County should be incorporated into the model. We will continue to discuss this issue with Guelph Eramosa Township, the RMO, County planners and the City to determine the best way to include water use growth in the Townships.

- 4) **Evaluation of Impact to the Natural Environment.** Increased water taking is not possible without an impact to the natural environment. This change can be measured as;
 - Lower water levels in aquifers
 - Decreased baseflow to streams
 - Decreased hydroperiods in wetlands

The GWSMP should recognize the present and ongoing impact of water taking on the natural environment. Water taking from the Gasport Formation, Guelph Formation and the overburden aquifers has been going on for more than 100 years. There must be an



ongoing and increasing ecological impact from this taking that is presently not being recognized. The transfer of water taking to the City limits and beyond will result in increased ecological impacts in the Townships. The question for the Townships and the County is whether the taking is acceptable under the Official Plan policies which clearly lay out responsibility of both protecting municipal water supplies and ensuring that baseflow to streams, fisheries and wetlands is maintained. It is our opinion that these statements are in direct conflict regarding the expansion of significant water resource development occurring within the Townships or along the municipal border. This may also be true for alternatives that increase taking within the City's municipal boundary, however, impacts from these alternatives will be subtle.

The City of Guelph should undertake and disclose groundwater level monitoring and use the observations to inform alternatives for future water taking. The Township of Puslinch has been monitoring and reporting water levels since 1993 and should also expand its monitoring program to include more deep aquifer locations as an independent check on water levels in the aquifers.

We also encourage the City to obtain streamflow measurements in the Eramosa River upstream of the Eramosa intake. Measurements obtained on behalf of the Eden Mills Conservation Association show a loss of water from the river to the aquifer between Indian Trail and the confluence of the Eramosa River and Blue Springs Creek. This loss has not been incorporated into the model and in our opinion, would improve WHPA and WHPA-Q delineations and help understand ongoing ecological impacts.

5) Impact to Private Well Yields and Contaminant Movement Through Wells

The pumping of water from the Logan Well (GET), Guelph North (GET), Guelph Southwest and Guelph Southeast (Puslinch) wells results in the lowering of water levels at the well and in the surrounding area. A depiction of the potential drawdown was included in the GWSMP and attached hereto. We understand that the Guelph Southeast well may not be needed until after the 2051-time frame, however, the drawdown depicted in the attached figure indicates significant water level changes will occur in nearby private wells. There are already numerous private wells that are within the area of influence of City wells. This raises obvious concerns about well yield reduction. This raises concerns regarding water moving from upper aquifers to lower aquifers through the numerous open wells found in the Township.

The City of Guelph has an established well interference protocol that to my knowledge has never been called upon to resolve an interference issue in the Township of Puslinch. The City should also monitor the movement of water in open wells to determine the impact on the shallow aquifer (quantity) and impact on deeper aquifer (quality).

Additional Comments



In response to our November 2021 comments on the GWSMP, a question arose from council regarding the potential use of aggregate ponds as a future water supply. There are many challenges including environmental, ownership and infrastructure associated with such an undertaking. Although the aggregate ponds have a significant volume of water, any significant taking without replacement (for example by returning treated sewage), would quickly result in a significant impact to the baseflow in Mill Creek. Without significant investment in water treatment of sewage, this is not a viable option.

The City, County and Townships are engaged at a technical level in regard to municipal water use. The City is seeking success at securing long-term groundwater and surface water takings to the year 2051 and beyond. These takings will impact on water resources related ecological features protected under the Wellington County OP, lower water levels in underlying aquifers and increase the area that falls under Source Water Protection policies designed to protect quality and quantity of municipal wells. In terms of Provincial Priority of Use policies, private domestic water use is on equal footing with municipal water taking. Any challenges that arise regarding private use can likely be addressed through existing City protocols for interference. However, in our opinion and supported by modeling, a decrease in groundwater support to ecological features in the Townships will occur. The RMO can speak to the implication of increased Well Head Protection zones in the Township.

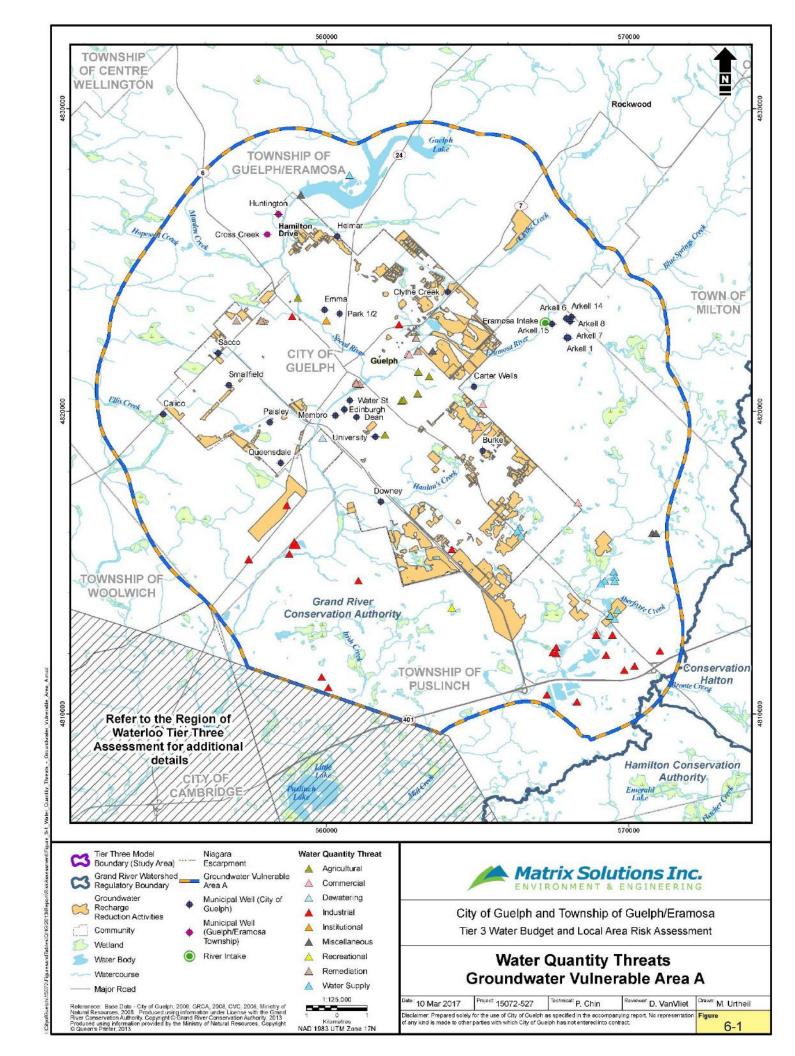
Respectfully Submitted,

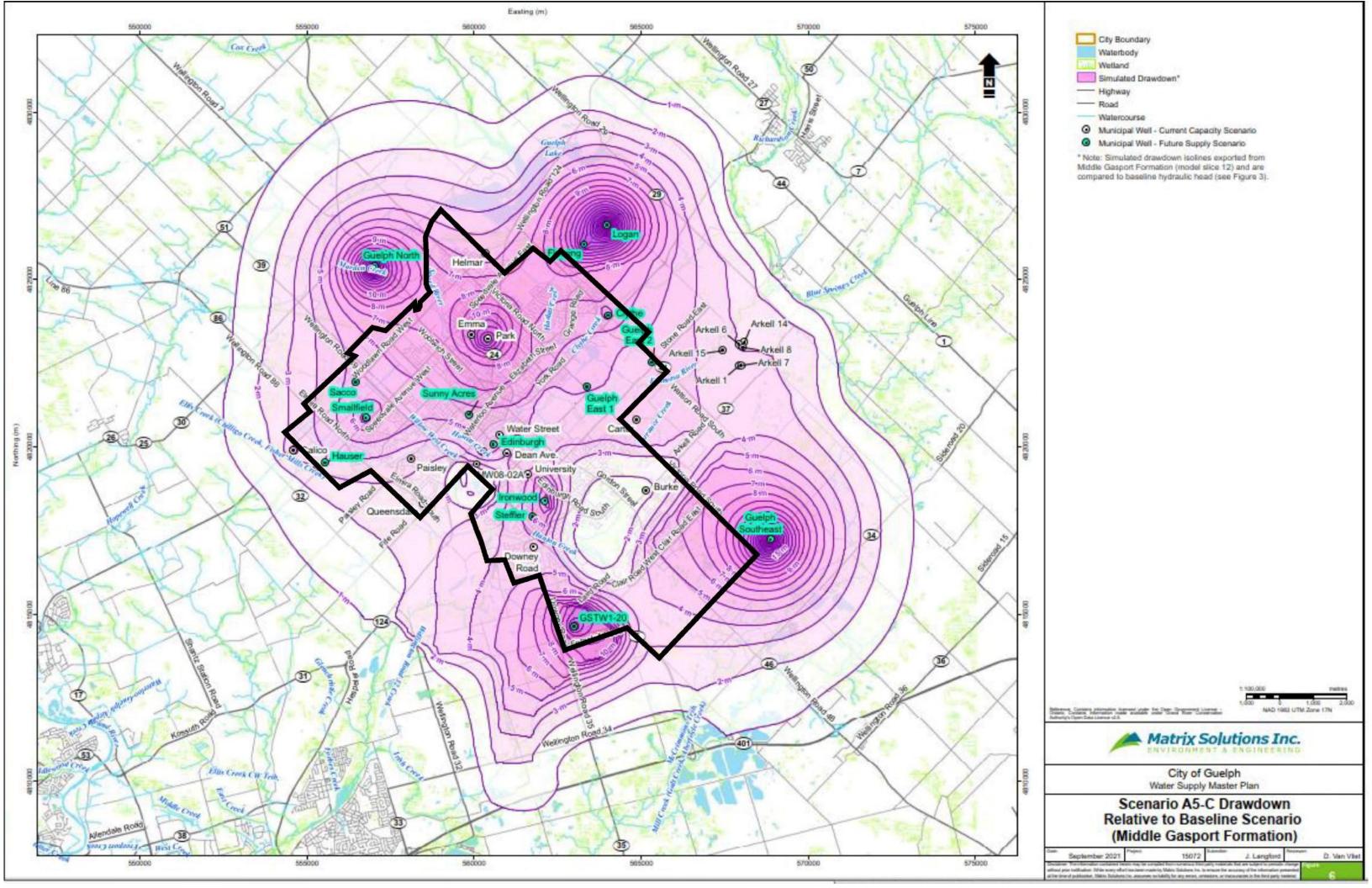
Harden Environmental Services Ltd.



Stan Denhoed, P. Eng., M.Sc.

Senior Hydrogeologist







May 18, 2022

Sent by email

Mayor Seeley and Township of Puslinch Council c/o Courtenay Hoytfox, Municipal Clerk Township of Puslinch 7404 Wellington Road 34 Puslinch, ON NOB 2J0

Dear Ms. Hoytfox,

RE: Guelph Water Supply Master Plan Update - Response to Puslinch Township Comments on the Draft Final Master Plan Document

On April 26, 2022, the City of Guelph (City) received from Mr. Kyle Davis, Risk Management Official, Wellington Source Protection the following:

- Resolution from Township of Puslinch 2022-125 dated April 22, 2022
- Staff Report ADM-2021-042 regarding "Guelph Water Supply Master Plan Comments" Township of Puslinch including Harden Environmental comments from Township Council Agenda Package April 13, 2022

One of the Council Resolutions specifically asked the City to review the Township's comments on the Water Supply Master Plan (WSMP) Update Report and to respond to Council on the comments. The attached AECOM memorandum dated May 18, 2022, titled Guelph Water Supply Master Plan Update – "Response to Puslinch Township Comments on the Draft Final Master Plan Document" provides our response to the Township comments. Our response also includes an abbreviated version of our February 11, 2022 response to previous Township comments dated November 24, 2021 on the WSMP as this information may not have been provided to Council. Please note that the comments received and this response will form a component of the record of public consultation prepared for the WSMP Update Report.

Thank you for your comments on the WSMP and we look forward to working with the Township of Puslinch in future water supply projects.

Sincerely,

Wayne Galliher, Division Manager,

Water Services, Environmental Services

T - 519-822-1260 x2106

E - wayne.galliher@guelph.ca

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T: 519.650.5313 F: 519.650.3424 www.aecom.com

To: Dave Belanger, City of Guelph

Date: May 18, 2022

Project #: 60612820

From: Matt Alexander (AECOM)

Patty Quackenbush (AECOM)

cc: Scott Cousins, City of Guelph Alicia Evans, AECOM

Memorandum

Subject: Guelph Water Supply Master Plan Update – Response to Puslinch Township Comments on the Draft Final Master Plan Document

Introduction

On April 26th, 2022, the Wellington County Source Water Protection Risk Management Official (RMO) provided the City of Guelph ('the City') with a copy of the Township of Puslinch (Puslinch) Resolution No. 2022-124, resulting from Correspondence 10.4 (Report ADM-2021-042) from the April 13th, 2022 Council Meeting, which stated the following:

"That Council receive Correspondence item 10.4 regarding the City of Guelph Water Supply Master Plan Comments prepared by Kyle Davis, Wellington Source Water Protection and Harden Environmental Services Ltd.; and

That Council directs staff to submit the comments and recommendations outlined in the report to the City of Guelph for review and response; and

That Wellington Source Water Protection and Harden Environmental report back to Council regarding discussions with the City of Guelph prior to a final report being presented to City of Guelph."

The City was also provided with the above noted comments (Report ADM 2021-042, April 13th, 2022) that documented the Puslinch RMO and Harden Environmental Services Ltd. (Harden) review (Attachment 3 in Report ADM-2021-042, April 6th, 2022) of the Draft Final Water Supply Master Plan (WSMP) Update report. Within this document, Puslinch Township is referred to as Puslinch and Wellington County as the County.

The purpose of this memorandum is to provide responses to the review comments and to provide additional information, where warranted. This memorandum has been prepared with the assistance of the City as certain aspects of the received comments are beyond the scope of the WSMP Update project. In this memorandum, there are references to the City's response to previous comments provided by the County and Townships in a February 11th, 2022 AECOM memorandum titled: Guelph Water Supply Master Plan Update – Response to Puslinch Township, Guelph/Eramosa Township and Wellington County Comments on the September 14th, 2021, Agency and Municipality Workshop Presentation. The February 11th, 2022 memorandum is provided herein as Attachment A; however, for brevity and since the information has been provided previously to the County/ Townships, we have omitted Attachments A, B, C, D and E of the February 11th memo. The comments received



and this response will form a component of the record of public consultation prepared for the WSMP Update report.

Comment Response

Memorandum Prepared by Kyle Davis, Risk Management Official – Background Section

In the "background" section of this memorandum, the following is stated:

"A stakeholder engagement session was held in December 2019 and Township staff and the Township hydrogeologist were in attendance. No further engagement occurred until September 2021 when the City of Guelph invited the same stakeholders to a second engagement session where the results of the City of Guelph Water Supply Master Plan Update were presented. This was of serious concern to Township staff as it was understood that engagement would occur over the two year period between 2019 and 2021 on this project to ensure meaningful collaboration between the City, the Township, Guelph / Eramosa Township and the County."

The memorandum prepared by Harden also references the September 2021 project workshop noted above, as well as subsequent meetings attended by Harden, Puslinch and the City. These records of project consultation omit that, starting in 2019 and at several points during the WSMP Update process through to October 2021, the City contacted the Township regarding consultation opportunities for the WSMP Update project, including the following:

- November 28th, 2019 Agency/Municipality Workshop #1
- December 2nd, 2019 Presentation to M. Fowler/Township on WSMP Overview
- December 4th, 2019 Community Liaison Group (CLG) Meeting #1
- February 13th, 2020 Open House #1
- July 27th, 2021 CLG Meeting #2
- September 14th, 2021 Agency/Municipality Workshop #2
- September 21st, 2021 CLG Meeting #3
- September 29th, 2021 Open House #2
- October 14th, 2021 Puslinch Council Presentation

More specifically, the WSMP Project Team made the following offers between December 2019 and October 2021 to meet with Puslinch staff, its CAO and/or its Council to present on the WSMP Update and solicit input from the Township:

- December 2nd, 2019 Belanger to Fowler
- January 6th, 2020 Belanger to Denhoed
- February 6th, 2020 Belanger to Denhoed
- February 20th, 2020 Belanger to Schwendinger
- July 9th, 2020 Galliher to Schwendinger
- September 11th, 2020 Galliher to Schwendinger
- July 29th, 2021 AECOM to Mayor Seeley and Councillor Bulmer
- September 14th, 2021 Belanger to Davis/Denhoed (at Agency/Municipality Workshop)

Any feedback that was received was used to inform the WSMP project and is included in the consultation record.



This section of the Puslinch memorandum also provides the text of Puslinch Council Resolution No. 2021-310 (from October 2021), which requests "That Council request that the City of Guelph Council acknowledge receipt of Township comments and that the City of Guelph provide a response to the Township's comments". The referenced Township comments were received by the City on November 26th, 2021 and the City provided a detailed formal response to the comments on February 11th, 2022 to Puslinch staff in the form of a memorandum. In addition, the City met with Puslinch staff and Harden on four occasions between December 2021 and March 2022 to discuss the comments provided in November 2021, to further consult on the WSMP Update and to discuss additional topics as identified in advance of each meeting.

Memorandum Prepared by Kyle Davis, Risk Management Official - Comments and Recommendations Section

Future Township Water Supply Requirements

This section of the memorandum references the comment submitted in November 2021 by Puslinch, which requested that the City consider future growth within Puslinch and the associated water supply demand in the Guelph WSMP Update. In response to this comment the City requested that Puslinch staff provide area-specific growth projections and related water demands (per capita consumption for residential and employment populations) for review. The Puslinch memorandum received in response from staff, documents the growth projection data for the entire Township that have been provided to the City and states that water demand projections are not yet available. Furthermore, the Harden memorandum (Attachment 3 in Report ADM-2021-042, April 6th, 2022) states that the required water demand estimates are a work in progress and will be developed by Harden and Puslinch, noting that the estimates need to consider the typical non-consumptive commercial/industrial water use in Puslinch.

Based on the above there is currently insufficient information provided to incorporate this data into the Final WSMP Update report; however, the City will review the data when it is provided and incorporate it into future modeling exercises, including for the Southwest Guelph Water Supply Class Environmental Assessment and the next WSMP Update. As Puslinch continues to develop the 2051 demand projections, the City requests that the output include the location(s) within Puslinch where the water will likely be derived so that this information can be incorporated into the future modeling exercises. To reiterate the conclusion of the response provided previously by the City in our February 11th Memorandum, the results of the Tier 3 Threats Management Strategy (which assigned consumptive use factors for all permitted water takings in Puslinch) imply that there is additional capacity in the area to support the low additional growth and low water demand anticipated to occur in the Township. The analysis by Harden suggesting that a large proportion of this future demand should be considered non-consumptive use further supports the previous conclusion.

Well Head Protection Area Modeling

This section of the Puslinch memorandum requests that the City complete Well Head Protection Area (WHPA) modeling as part of the WSMP Update project. A similar request is also made in the Harden memorandum and was made in the November 2021 comments. To reiterate the response provided to this comment through our February 11th Memorandum, the WSMP Update includes high-level screening of the water supply alternatives, including consideration of the Source Water Protection implications. At this stage, there is insufficient site-specific field data available to reliably develop WHPAs for the alternatives (most notably well pumping rates supported by detailed field testing). The WHPAs will be modeled as part of the evaluation of alternatives for the Class EA completed for each water supply project that progresses to this stage. Consultation regarding changes to the WHPAs will occur with Puslinch through the public consultation requirements of each Class EA and through the Source Protection requirements under the Clean Water Act.

This section of the Puslinch memorandum goes on to note that it is difficult to assess the exact number of properties affected by WHPA changes and that discussions on this issue will continue with the City. The City



agrees that until the WHPA delineation process is completed and the changes to a WHPA are presented to the public and formally approved by the Source Protection committee, the exact number of properties will remain unknown or uncertain. The City welcomes future opportunities to discuss this issue with Puslinch through ongoing consultation and the formal processes noted above.

<u>Memorandum Prepared by Stan Denhoed, Harden Environmental Services Ltd. (Attachment 3 in Report ADM 2021-042, dated April 6th, 2022)</u>

General Comments

This section of the Harden memorandum states:

"The City of Guelph Water Supply Master Plan must recognize the cross-municipal boundary cooperation that is required to achieve a successful long term water supply."

We agree with this statement and it is noted that the importance of this requirement is recognized throughout the WSMP Update report in the focus on developing sustainable water supplies. It is also shown in the use of a regional groundwater flow model to assess new supplies and evaluate potential impacts on private wells, streams, wetlands and groundwater-dependent ecosystems. The report also identifies specific issues that require cooperation and collaboration with Puslinch (i.e., investigation programs outside of the City boundary, consultation and engagement under the Class EA process, ongoing discussion with Puslinch at various City staffing levels, etc.). This requirement is documented in Section 8.5 of the WSMP Update, under General Program Recommendations (#7):

"Through the WSMP Community Engagement Plan, the Project Team heard concerns from adjacent municipalities on source protection and land use constraints as well as potential impacts to domestic wells from well interference. While some concerns, such as well interference, can be addressed with technical/operational measures (i.e., lowering of well pumps, deepening of wells), land use and water rights concerns associated with municipal growth are more difficult to address. It is recommended that future programs have a focus on enhanced engagement and development of intergovernmental relations with the goal to promote more regional water resources management, to support water supply needs for all affected municipalities and to address attendant environmental effects with the support of provincial agencies (i.e., Ministry of the Environment, Conservation and Parks) to meet provincial growth targets."

As taken from our February 11th, 2022 Memorandum "the City will commit to improving consultation with the County and Township on projects related to the WSMP. The City is aware that there are discussions ongoing at several staffing levels and additional discussions can determine the content and frequency of meetings to be attended by City, County and Township representatives. The meetings can be used to exchange relevant information between the parties with respect to the WSMP projects and/or related projects on water takings in the City and/or Townships. In addition, as part of Class Environmental Assessments (Class EA) for new water supply projects, the City will commit to holding project specific progress meetings with the County/Townships. At present, the Southwest Guelph Water Supply Class EA and the Logan Well Feasibility Study are active projects in the short-term plan for the WSMP. Other projects can be added to meeting agendas as they are developed such as the design and construction of the Clythe Water Treatment Plant." As noted, the City is committed to improving cross-municipal boundary cooperation that is required to achieve a successful long term water supply.

This section of the Harden memorandum goes on to re-iterate the concern with the Significant water quantity risk designation assigned to the City's quantity WHPA (WHPA-Q). As discussed in our February 11th, 2022 Memorandum, "with a "Significant" designation, water quantity policies are required to address Significant drinking water threats such as Permits to Take Water (PTTW) which may result in some land use constraints.



The County/Township comments imply that additional water sources in the WSMP could lead to reductions in the stress and risk levels and potential reductions in the source protection policy requirements. The City agrees with this hypothesis; however, the stress and risk designations are largely the result of a number of water takings in relatively close proximity, including water takings in the City and Townships in the WHPA-Q. To reduce the stress or risk levels, the spatial area of the water takings would need to increase which implies additional water taking outside of the City boundaries. The County/Townships have preferred new City sources to be located inside City boundaries but if this preference is to remain as a potential constraint, then it is unlikely the stress and risk levels will be reduced and any water quantity policies are likely to remain in place".

Technical Comments

1) Early Technical Evaluation of Alternatives Using Existing Model

Please see the above section titled "Well Head Protection Area Modeling" for a response to this comment.

2) System Redundancy – Significant Risk Status

This comment further discusses the Significant water quantity risk status of the City supply wells and states:

"Water quantity policies within the WHPA-Q have not been established but could restrict future and existing groundwater use. This is made clear in a 2018 sensitivity study for the City of Guelph that found that there will be interference at municipal wells when non-municipal water use in the WHPA-Q exceeds 70% of existing permitted consumptive use. This establishes an upset limit regarding non-municipal water use within the WHPA-Q. The increase in consumptive use is approximately 20,000 m³/day which is a significant quantity of water."

To re-iterate a key point from the City's February 11th Memorandum, the sensitivity analysis determined that existing takings could increase by about three times higher than current takings before impacts were predicted on municipal sources <u>during drought conditions</u>. The referenced 20,000 m³/day increase in consumptive use was under the assessed drought conditions. The following is directly from the TMS and provides the conclusion of the analysis:

"The modeling results show that municipal pumping wells can maintain their <u>Allocated rates under average</u> <u>annual conditions</u>, with non-municipal, non-dewatering pumping rates increasing up to the current maximum permitted consumptive demand. The results of the sensitivity analysis revealed that, within the assumptions of the analysis, the current non-municipal, non-dewatering permitted takings may increase by approximately three times what they are currently taking (i.e., the 2016 reported consumptive amount) before impacts are predicted at municipal wells <u>under drought conditions</u>. These results suggest that there may be capacity within the WHPA-Q for some increased water takings".

The City welcomes the opportunity to further discuss the technical aspects of the TMS such that all parties understand the findings and how they relate to future water use in the WHPA-Q.

The final paragraph in this comment states that the Queensdale Well is no longer a factor in the Significant Risk determination. This statement is incorrect as a pumping rate reduction at a given well does not change the significant stress designation since it is based on the total water demand versus the total available water budget in the WHPA-Q. A reduction at the Queensdale Well means that the quantity must be made up from other wells. In addition, the stress designation is only changed following an update to the Tier 3 assessment and only if warranted.



3) Population Growth in Townships and increased groundwater use in Townships 2022 through to 2051

Please see the above section titled "Future Township Water Supply Requirements" for a response to this comment.

4) Evaluation of Impact to the Natural Environment

This section outlines concerns related to ecological impacts of increased municipal pumping activities. Current and future pumping is/will be conducted under the PTTW process, as established under the Ontario Water Resources Act. This process permits the pumping of groundwater where it has been established that a proposed activity will not negatively affect the environment. Prior to the PTTW phase, new sources of municipal supply will be established through the Class EA process, under the Environmental Assessment Act. The stated purpose of this Act is to provide protection, conservation and wise management in Ontario of the environment. The City is committed to upholding their responsibilities under the Class EA and PTTW processes, completing detailed field programs that evaluate the sustainability and environmental impacts associated with each identified potential water supply and sharing information/consulting with Puslinch throughout the process of establishing new water supply.

This section goes on to suggest that the City should undertake and disclose groundwater level monitoring and use the results to inform future water taking. The City conducts ongoing, comprehensive groundwater monitoring programs designed to comply with PTTW monitoring requirements and inform the viability of future water supply sources. The monitoring network is expanded, as required, to inform/address new information requirements, such as the recent expansion of the sentry well network in proximity to the Dolime Quarry site for the Southwest Guelph Water Supply Class EA.

The final paragraph states that loss of water from the Eramosa River between Indian Trail and the confluence of the Eramosa River and Blue Springs Creek, monitored on behalf of the Eden Mills Conservation Association, has not been incorporated into the groundwater flow model (used for the WSMP Update analysis). This item was raised during the Municipal Peer Review of the Tier 3 Water Budget and Local Area Risk Assessment and was not supported by the Provincial Peer Reviewers who determined that the loss of water from the river was a local feature and the water returned to the river within the same subwatershed. The Tier 3 model was determined by the Reviewers to be appropriately calibrated in this area and the Reviewers signed off on the final Tier 3 Report.

5) Impact to Private Well Yields and Contaminant Movement Through Wells

This section references drawdown estimates included in the WSMP Update report and states that pumping of the Logan, Guelph North, Guelph Southeast and Guelph South wells results in lowering of water levels at the well(s) and surrounding area (it is noted that the Guelph North and Southeast wells are hypothetical and therefore the comment is referencing modeling results only). The comment then states a concern about private well yield reduction and about water moving from upper aquifers to lower aquifers through the numerous open wells found in Puslinch.

The drawdown <u>predicted</u> by the model at each potential well location is hypothetical and will be evaluated in future field-based studies. The future Class EAs completed to evaluate new water supply sources will consider potential interference effects on private wells in the numerous evaluation criteria. PTTW requirements protect existing water use, so any City water taking would not be allowed to have a negative effect on the use of the private wells. If at any point during operation of an existing or future City groundwater well, it is determined that a private water supply has been impacted, the City has a responsibility to repair or replace the water supply (i.e.,



lower a well pump, deepen a well, drill a new well, etc.). In addition, the City has a Standard Operating Procedure on Well Interference Complaints that it implements upon receiving a complaint. The procedure includes use of a Well Interference Committee, with Puslinch Township representation, to resolve disputed complaints.

The final paragraph in this section suggests that the City should monitor the movement of water in open wells to determine the impact on the shallow aquifer (quantity – addressed above) and on deep aquifers (quality). The second point (quality) is apparently related to the statement that there are numerous open wells found in Puslinch that may allow poor quality shallow groundwater (if it exists) to migrate to depth and degrade deep bedrock water quality. Ontario Regulation 903 Section 21.(7) states:

"If a well permits any movement of natural gas, contaminants or other materials between subsurface formations, or between a subsurface formation and the ground surface, and the movement may impair the quality of any waters, the well owner shall immediately abandon the well unless measures are taken that prevent the movement at all times."

If Puslinch is aware of any wells in the Township that are contrary to the Regulation, we would recommend that the MECP be informed or actions be taken by the well owner to bring the well into compliance with the Regulation.

With respect to the City monitoring water quality, an element of the noted comprehensive City monitoring program is the monitoring of groundwater quality, including at a series of multi-level monitoring wells that provide geochemical data at discrete vertical intervals in the subsurface. Previously, when the City has detected shallow groundwater quality issues or concerns, action has been taken to protect the resource from potential impact. An example of this is extending a production well casing to seal off a shallow zone that contains a contaminant so that the contaminant is not pumped out during groundwater extraction for supply and does not enter the well and move to a deeper aquifer. The City will continue this practice for existing and new supply wells.

Additional Comments

This section notes that the City is seeking success at securing long-term groundwater and surface water takings to the year 2051 and beyond. It is noted that, in the WSMP Update, only new groundwater sources are proposed to the year 2051.

Closing

We trust that this memorandum provides an adequate response to the comments received in Report ADM-2021-042, dated April 6th, 2022. Many of the comments are addressed in the draft final WSMP Update report and previous commitments to edit this document will be reflected in the final WSMP Update report. As stated, the City is committed to ongoing consultation with the County and Puslinch on projects related to the WSMP and through these discussions and subsequent WSMP updates, the project-specific comments brought forward will be addressed.

Attachment **A**

Guelph Water Supply Master Plan Update – Response to Puslinch Township, Guelph/Eramosa Township and Wellington County Comments on the September 14th, 2021, Agency and Municipality Workshop Presentation



AECOM Canada Ltd. 50 Sportsworld Crossing Road, Suite 290 Kitchener, ON N2P 0A4 Canada

T: 519.650.5313 F: 519.650.3424 www.aecom.com

To: Dave Belanger, City of Guelph

Date: February 11, 2022

Project #: 60612820

From: Matt Alexander (AECOM)

Patty Quackenbush (AECOM)

Scott Cousins, City of Guelph Alicia Evans, AECOM

Memorandum

Subject:

Guelph Water Supply Master Plan Update – Response to Puslinch Township, Guelph/Eramosa Township and Wellington County Comments on the September 14th, 2021, Agency and Municipality Workshop Presentation

Introduction

On November 26th, 2021, The City of Guelph ('the City') received three letters/memoranda that provided review comments related to the presentation prepared by AECOM Canada Limited (AECOM) and the City for the Agency and Municipality Workshop held on September 14th, 2021. The objective of the workshop was to provide the attendees a progress update on the Water Supply Master Plan (WSMP) Update project and to solicit input on the project. This presentation is included as **Attachment A**. The received letters/memoranda are as follows:

- Title: City of Guelph Water Supply Master Plan Update 2021. Author: Kyle Davis, Risk Management Official, Wellington Source Water Protection. Date: November 26, 2021.
- Title: City of Guelph Water Supply Master Plan. Author: Stan Denhoed, P.Eng., Harden Environmental Services Ltd. (on behalf of the Township of Puslinch). Date: November 26, 2021.
- Title: City of Guelph WSMP Comments. Author: Dwight Smikle, Senior Hydrogeologist, R.J. Burnside & Associates Limited (on behalf of Guelph/Eramosa Township). Date: November 26, 2021.

These documents are included herein as **Attachments B, C, and D**. Within this document, the Townships and County are referred to as Puslinch Township (Puslinch), Guelph-Eramosa Township (GET), and Wellington County (County).

Subsequent to receipt of the memoranda, a meeting was held on December 6th, 2021 between the City, AECOM and the authors of each document to discuss the comments and concerns in more detail. The minutes prepared as a record of this meeting are included as **Attachment E**. The responses provided in this memorandum have been prepared with the assistance of the City as certain aspects of the received comments are beyond the scope of the WSMP Update project. The comments received and this response will form a component of the record of consultation prepared for the WSMP Update report.

Purpose

This memorandum includes a response to each of the documents listed above; however, in reviewing the received comments, the City identified four "themes" which are described as follows:



- Consultation and meetings with the County and Townships with respect to WSMP projects;
- Source protection concerns resulting from changes in City water takings;
- Source protection concerns resulting from the City's Wellhead Protection Area for water quantity (WHPA-Q) and the associated Significant Stress and Significant Risk designations from the Guelph-Guelph Eramosa Township (GGET) Tier 3 Water Budget and Local Area Risk Assessment (Tier 3 Water Budget); and
- Consideration of growth and water demand for the Townships.

Each of these themes is described in greater detail below along with corresponding general responses. An important consideration when reviewing the responses provided is the planning period covered by the WSMP Update and the frequency at which it is updated. The WSMP Update covers a 30-year period from 2021 to 2051 and therefore identifies projects for implementation in the short-, medium-, and long-term. Further, the plan is updated approximately every five years to allow for the incorporation of new supplies that have been developed and new hydrogeological information that has been collected by the City. These aspects of the planning process are reflected in the level of detail that is included in the plan. For example, projects that are planned in the short-term have a higher level of detail and supporting investigations regarding estimated capacity and potential impacts. Whereas potential water supply projects that are to be implemented in the medium and long-term have less information currently available but will evolve as the plan is implemented and the City progresses with the technical work required to further evaluate the viability of the supply sources. Ongoing consultation with the Townships and County will occur with each WSMP update and each individual WSMP project. Many of the specific comments and questions identified within the comments received will be addressed over time through the required technical work and consultation and collaboration process.

General Responses

General Response #1: Consultation and Meetings

The County and Townships have raised concerns regarding consultation and meetings about the City's water supply projects and the City acknowledges the need for greater engagement between the parties with respect to issues and concerns that relate to water supply. As described at the meeting on December 6th, 2021, the City will commit to improving consultation with the County and Township on projects related to the WSMP. The City is aware that there are discussions ongoing at several staffing levels and additional discussions can determine the content and frequency of meetings to be attended by City, County and Township representatives. The meetings can be used to exchange relevant information between the parties with respect to the WSMP projects and/or related projects on water takings in the City and/or Townships. In addition, as part of Class Environmental Assessments (Class EA) for new water supply projects, the City will commit to holding project-specific progress meetings with the County/Townships. At present, the Southwest Guelph Water Supply Class EA and the Logan Well Feasibility Study are active projects in the short-term plan for the WSMP. Other projects can be added to meeting agendas as they are developed such as the design and construction of the Clythe Water Treatment Plant.

General Response #2: Source Protection

In the comments from the County and the Townships, there are numerous comments with respect to source protection and the implications of new water takings for source protection administration and potential land use constraints. It is recognized that source protection requirements, imposed by the Province of Ontario through the Clean Water Act, place a responsibility on the County/Townships to protect the quality and quantity of the City's municipal drinking water sources. In recognition of this responsibility, the City is developing a collaborative agreement between the parties that will address cooperation and sharing of costs related to source protection



requirements for each municipality. It is hoped that this agreement addresses or mitigates comments associated with the responsibility imposed on the County/Townships in protecting the City's water supplies.

In addition, several of the County/Township comments noted the impact of new water takings on the existing WHPA-Q. The WSMP is intended to address Phase 1 – Problem or Opportunity Statement and Phase 2 – Alternative Solutions and source protection requirements are addressed only at a screening level as part of the evaluation of alternatives (see Section 6.1 of the draft WSMP Update Report). Detailed evaluation of the changes to the WHPA's including modelling of the proposed changes to the WHPA's will be conducted as part of subsequent phases of the Class EA process once the preferred design information (i.e., well pumping rates and Permit to Take Water requirements) is available. The technical work and public consultation required by the Clean Water Act to delineate the vulnerable areas (i.e., WHPA's) and the potential drinking water threats within these areas will be undertaken concurrently with the Class EA process for each of the new water supply projects. It is expected, where new water takings affect existing WHPA's or existing source protection policies, the County will be intimately involved in the development and implementation of source protection requirements in the Townships. As such, delineation of the WHPA's for each proposed alternative solution is considered to be beyond the scope of the WSMP.

General Response #3: Source Protection and Significant Stress/Significant Risk Designation

The County/Township comments have identified concerns regarding the designation of the WHPA-Q as an area of significant stress for water quantity and an area of significant risk of not meeting future supply demand under drought conditions. With a "significant" designation, water quantity policies are required to address significant drinking water threats such as Permits to Take Water (PTTW) which may result in some land use constraints. The County/Township comments imply that additional water sources in the WSMP could lead to reductions in the stress and risk levels and potential reductions in the source protection policy requirements. The City agrees with this hypothesis; however, the stress and risk designations are largely the result of a number of water takings in relatively close proximity, including water takings in the City and Townships in the WHPA-Q. To reduce the stress or risk levels, the spatial area of the water takings would need to increase which implies additional water taking outside of the City boundaries. The County/Townships have preferred new City sources to be located inside City boundaries but if this preference is to remain as a potential constraint, then it is unlikely the stress and risk levels will be reduced and any water quantity policies are likely to remain in place.

General Response #4: Growth Within the Townships

In the County/Township comments, concerns were raised regarding potential future growth within the Townships and whether it was considered in the population and water demand forecasts in the WSMP. The WSMP Update was focused on Guelph's water supply requirements and has not evaluated the population or water supply demand forecasts associated with growth in the Townships since it is not within the scope of the project. However, the WSMP Update was informed by earlier work (2018) in the Tier 3 Threats Management Strategy (TMS) (https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/GGET-Threats-Management-Strategy-2018-06-14-final.pdf) which conducted sensitivity analyses using increases to existing non-municipal water takings as a surrogate approach to assessing growth in the Townships. The sensitivity analysis determined that existing takings could increase by about three times higher than current takings before impacts were predicted on municipal sources during drought conditions. These results imply that there is additional capacity in the area to support additional growth in the Townships.

From the December 6th meeting, it is understood that the County has recently produced an Official Plan Amendment (OPA 119) that describes proposed growth allocations for GET and Puslinch to 2051. Growth allocations have been provided by Watson and Associates (2021, https://www.wellington.ca/en/resident-services/resources/Planning/Official-Plan/Official-Plan-Review/Phase-1-MCR-Report-Urban-Structure-and-Growth-Allocations.pdf) which indicate limited growth in Puslinch (4% of proposed growth in the County and



2,400 people) and GET (2% of proposed growth in the County and 1,500 people) primarily due to lack of municipal services. It is also noted that Zoning By-Laws for Puslinch and GET have land use restriction for dry industries only, which implies low water usage for Industrial/ Commercial/ Institutional properties. It would be helpful if the County/Townships can provide growth projections and related water demands (per capita consumption for residential and employment populations) for the WHPA-Q as part of its comments on the WSMP Update report, and the City can evaluate the potential implications with respect to water supply capacity.

The balance of this memorandum addresses specific comments within the review letters/memoranda, with reference to the above general themes.

Wellington Source Water Protection Comments

Please see Attachment B for the comments referenced in the responses below.

Comment #1

This comment is generally requesting increased consultation with the City about water supply projects and is addressed above by General Response #1. The public reporting period has been extended to 90 days to allow for a fulsome review and comments to be submitted.

Comment #2

This comment requests increased consultation with the City specifically for the WSMP evaluation of alternatives and requests an opportunity to review the draft WSMP Update report. The consultation/meeting request is addressed above by General Response #1 and, in part, by Comment #1 above. The Townships and County have the opportunity to review the draft report during the 90-day public review period, commencing on January 10th, 2022 and the City has committed to additional meetings to provide further overview of the WSMP Update report and answer any additional technical questions raised by the County/Township.

We also note that the County raised a concern with respect to "new" wells within the City. The WSMP project is an update of the 2014 WSMP wherein we considered some of the same alternatives as in 2014 and updated the plans for new water supply sources. Details are provided in the WSMP Update report and in Appendix D of the report. Test wells are considered to be new water supply sources for the City. As is indicated by the results of the GGET Tier 3 Water Budget project (see also General Response #3), the existing City water supply has a Significant Stress and a Significant Risk designation. As has been discussed with the County in the GGET Project Team meetings, additional water supply wells inside the existing footprint of the City, in addition to the existing test wells, increases aquifer drawdown within the City, causes interference with existing water takings, increases the stress level and increases the risk that the City's water supply will not be able to meet future demands under drought conditions.

The County has suggested that the Clair-Maltby area should be considered as a proposed alternative for locating a new supply well. As referenced in the comment, previous discussion with the County has communicated that this area has been explored in several City projects in the past and does not present reliable targets for increased water supply. For fully penetrating bedrock wells constructed in the area, potential yields were estimated at less than 500 m³/day and more typically less than 100 m³/day. In addition, as is shown by the gap in the WHPA-B in this area, there are poor hydraulic connections within the bedrock aquifers across the area indicating low potential for high yield water supply wells. If the County has any additional hydrogeological information for this area, please provide it and the City will review the information and respond accordingly.



Comment #3

This comment makes reference to the need to consider growth and water use within the County and Townships alongside water supply planning for the City. The comment further states that increased coordination and engagement is needed as part of the WSMP Update process. These comments are addressed above by General Responses #1 and #4. With respect to the consideration of current water use within the County/Townships, the study area for the project includes the area within 5 kilometres of the City boundary and the detailed modeling impact assessment utilized the model domain developed for the GGET Tier 3 Water Budget. The Tier 3 model was updated to include more current water takings (typically 2018) including GET municipal wells as part of the GGET TMS. The modeling assessment therefore included operation of currently permitted wells and assessed potential impacts both within the City and the County/Townships. In addition, the GGET TMS, at the request of the City, included evaluations of increases in existing permitted water takings as a surrogate to growth projections within the Townships, as described in General Response #4.

To confirm some of the details presented above, the City has requested additional information from the County/Townships on the growth projections for Puslinch and GET and the associated water demand estimates to support this growth. The County has committed to providing these details in order for the City to assess potential implications of the WSMP on growth within the Townships.

Comment #4

This comment references the memoranda prepared by Burnside and Harden and requests a response to the comments contained therein. Please see below for responses to those comments.

Comment #5

This comment requests a two- to three-month period to review the draft WSMP Update report. A 90-day public review period from January 10th to April 10th, 2022 is planned for the project.

Comment #6

This comment requests that the City complete preliminary Source Water Protection analysis in the WSMP Update project and meet with the County/Townships to discuss the results. These comments are addressed above by General Responses #1, #2 and #3.

Township of Puslinch Comments

The comment responses provided are organized according to the headings included within the Harden (2021) memorandum (**Attachment C**).

General Comments

The comments within this section of the memorandum (Pg. 1) indicate that the WSMP should recognize the implications of the Guelph water supply on surface water and groundwater within Wellington County. We are in agreement with this comment and have taken this approach in completion of the impact assessment for the WSMP. The study area for the project includes the area within 5 kilometres of the City boundary and the detailed modeling assessment utilized the model domain developed for the Tier 3 Water Budget Study. The



modeling assessment therefore included operation of currently permitted water takings and assessed potential impacts both within the City and the County/Townships. An overriding objective of the modelling studies was to ensure that the proposed supply alternatives were sustainable in recognition of the potential impacts of additional water takings on groundwater users and surface water features.

The Harden memorandum also raises concerns regarding source protection and potential land use constraints which are addressed in General Responses #2 and 3.

This section of the Harden memorandum (on Pg. 2) goes on to recommend the broader involvement of the County in decision making by the City with respect to the increased taking of common groundwater and surface water resources. This comment is addressed above by General Response #1.

Feedback From Round 1

The comment references Slide 12 of the agency workshop presentation that lists the major themes in the feedback received during Phase 1 of the WSMP Update project and notes that concerns from Puslinch related to WHPAs are missing. The WHPA concerns provided through the WSMP consultation process were a major theme during Phase 2 of the WSMP Update project and have been documented within the Phase 2 consultation section of the WSMP report. In the presentation provided to Puslinch Council on October 13, 2021, we provided some of the consultation feedback which, relevant for the Townships, included:

- Concerns on source protection areas and land use constraints;
- Concerns on potential well interference effects with existing wells; and
- Prioritize supply within City before sources within Township(s).

Task 2 - Population and Water Supply Demand Forecasts

The comments in this section of the memorandum are addressed above by General Response #4.

Overview of Guelph's Existing Water Supply System

The comments in this section recommend use of the Guelph and Guelph/Eramosa WHPA-Q map as a representation of the City's groundwater sources. The study area map for the project, included in the draft WSMP Update report, includes the area within 5 kilometres of the City boundary as was used as the study area in previous WSMP updates. This area was considered to be a reasonable estimate of a search area for new water that would limit potential effects on adjacent municipalities. It was also based on the practicality of connecting to the City existing water supply (i.e., costs to pipe water into the City). Our preference is to maintain this as the study area map due to the complexities of understanding the WHPA-Q map by the average reader of the WSMP report. In addition, the WHPA-Q does not represent "the present extent of the source area for Guelph's existing water supply system" as indicated by the Township. The WHPA-Q represents the cumulative drawdown of all water takings in the local area of the City water supply system. Information regarding the area influenced by operation of the City supply sources, including surface water and groundwater resources is detailed in the modeling technical memoranda included within the report. We will also add links to the Tier 3 Water Budget and Local Area Risk Assessment in the Executive Summary and the body of the Update report to direct interested readers to the details on the WHPA-Q.



Additional System Risks

The comment references Slide 28 of the workshop presentation that provides the list of potential system risks that were considered in the Security of Supply assessment. Specifically, the comment suggests that potential recharge reduction and contamination of recharge resulting from new development within the City be added to the list. We are in agreement that these represent potential system risks. With respect to potential recharge reduction, the Tier 3 Water Budget Study (2017) concluded that recharge reduction related to development included within the Official Plans (at that time) would cause a water level decline of 0.1 to 0.3 m. Threats associated with recharge reductions with the WHPA-Q will be further mitigated by the GGET water quantity policies, currently under development. As such, the associated risk is addressed by the 15% Security of Supply allowance included in the WSMP.

With respect to the risk posed by contamination of recharge water, the assessment did consider contamination of groundwater as a risk to the system. Further, it is noted that water quality source protection policies specifically address risks posed by the management of stormwater.

Conservation Alternatives

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the water conservation and efficiency alternatives, as necessary.

Groundwater Alternatives

The comments in this section related to communication with Puslinch are addressed above by General Response #1. See also our response to the County Comment #1 with respect to consultation with Puslinch.

The comment related to evaluation of future WHPA's is addressed above by General Response #2. With respect to the suggested evaluation of potential impacts of new supplies on surface water and groundwater resources, the City has followed this process and it is documented within the draft WSMP Update report. The City has made the report available to Puslinch and the Township can provide additional comments on the groundwater alternatives, as necessary.

Offline/New Sources

The comment in this section of the memorandum regarding informing Puslinch about testing of offline or new sources is addressed above by General Response #1. The City can demonstrate adequate and appropriate levels of monitoring of potential quantity and quality impacts in its testing programs. The City met with Puslinch staff on December 2nd, 2019 and informed staff of the impending pumping test planned for the summer of 2020 thereby providing notification in excess of the six months suggested by Puslinch. We also offered to meet with Harden Environmental and the Puslinch CAO in February 2020 to describe the WSMP and the Guelph South project. Similar offers were also made by the City to the Puslinch CAO in July 2020 in advance of the pumping test. Lastly, we responded to the Township concerns on the monitoring program by expanding the number of monitoring locations in the testing program.



New Surface Water Supply Alternatives

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the surface water supply alternatives, as necessary.

Aquifer Storage and Recovery

The comments in this section of the memorandum are addressed above by General Response #1. The City has made the WSMP Update report available to Puslinch and the Township can provide additional comments on the aquifer storage and recovery alternatives, as necessary.

Guelph/Eramosa Township Comments

Please see Attachment D for the comments referenced in the responses below.

Location and Context considerations

The comments within this section of the memorandum reference the fact that water resources are shared between the City and GET and there is a need to consider impacts both within the City and within GET. We are in agreement with this comment and have taken this approach in completion of the impact assessment for the WSMP. The study area for the project includes the area within 5 kilometres of the City boundary and the detailed WSMP modeling assessment utilized the model domain developed for the Tier 3 Water Budget Study. As noted above, the version of the model used for the WSMP project was the updated model from the GGET TMS which included 2018 updates of the municipal pumping rates provided by GET. The modeling assessment, therefore, included operation of currently permitted wells and assessed potential impacts both within the City and the County/Townships. If the Township is agreeable, there may be opportunities to share pumping data in future WSMP modeling updates to ensure the model is using the most appropriate data set.

Project Objectives and Major Tasks

The comments in this section of the memorandum are in reference to Slide 7 of the presentation, which lists the project objectives. The author recommends that the objectives be modified to specify that the surrounding municipalities will be consulted for the WSMP Update project and that existing water users and the natural environment outside of the City will be considered. The objectives listed in the presentation were used to guide the WSMP process but are not explicitly listed in the WSMP Update report. As part of the initial WSMP, City Council provided direction in 2003 "That the focus of the WSMP establish a sustainable water supply to regulate future growth". Sustainability was considered to be an essential concept in the WSMP Update, and as described in the WSMP Update report, the model was used to assess potential impacts on the environment, particularly surface water features. The suggested considerations did form a component of the consultation and impact assessment process and are documented within the draft WSMP Update report.

Existing Water Supply Capacity Assessment

The interdependence of Guelph and the surrounding municipalities on the Guelph-Gasport bedrock aquifer, referenced in this comment is reflected in the draft WSMP Update report. The comment also requests that the GET Cross Creek, Huntington and Rockwood wells be added to the map of Guelph's existing water supply sources. This edit will be made to the final WSMP Update report.



Water Supply Alternatives - Groundwater Sources

The comment in this section of the memorandum, relating to providing GET with progress updates, is addressed above by General Response #1. The comments relating to modelling analysis completed for the potential Glen Collector replacement, offline and new sources are documented within the modelling reports included in the draft WSMP Update report. As stated above, the modeling assessment included operation of currently permitted wells, including the GET Cross Creek and Huntington wells and the continued sustainability of these wells was a requirement of the process as well as a regulatory requirement for any future, new PTTW's.

The area assessed for a potential Guelph North well, as was provided in the 2014 WSMP Update, is general and was guided by the areas of higher transmissivity included in the model layers. This has not been assessed in the field and significant detailed field work would be required, in consultation with GET, to identify an appropriate location from the technical, logistical and public acceptance perspectives. However, this potential location is in the long-term plan and a low priority potential source at present. It is expected that the WSMP will be updated at least several times before this location may be considered as a higher priority.

With respect to the comment about potential impacts of new groundwater sources on WHPA-Q, this comment is addressed above by General Response #2.

For comments regarding the Logan test well, GET has raised comments that are under consideration as part of the feasibility testing project currently underway. The test well has been reconstructed with a deep casing intended to isolate the well from the influence of shallow groundwater. The City has provided GET with the Terms of Reference for the project and will be provided with updates on the project through implementation of General Response #1.

For project-specific comments on the Southwest Guelph Water Supply Class EA, the City will address the GET concerns as part of the Class EA project using the implementation of General Response #1.

The City has made the WSMP Update report available to GET and the Township can provide additional comments on the groundwater supply alternatives, as necessary.

Surface Water Alternatives Assessment

The comment in this section describes an option to increase storage of surface water to augment the reliability of water availability. This option was not considered in detail as the required capacity for above ground storage would be significant (physical size and cost) and would be subject to significant water quality challenges. Increasing storage within Guelph Lake would have additional ecological and social impacts that may affect the viability of this option.

The comment further requests information on the area of influence associated with the assessed aquifer storage and recovery (ASR) option. This information is included within the modeling memoranda included in the draft WSMP Update report. The comment also references an assessment of water quality impacts. As outlined in the Purpose section of this memorandum, the level of detail included for each water supply alternative differs based on when the associated project(s) may be implemented. As aquifer storage and recovery is not proposed in the short-term, detailed hydrogeological and geochemical analyses have not yet been completed but they are identified within the draft WMSP Update report as a requirement for future implementation. The City has made the WSMP Update report available to GET and the Township can provide additional comments on the surface water supply and ASR alternatives, as necessary.



Closing

We trust that this memorandum provides an adequate response to the comments received in **Attachments B, C** to **D**. Many of the comments are addressed in the draft WSMP Update report. We encourage the County and Townships to review this report during the January 10th to April 10th, 2022 review period and provide any additional comments, as necessary. As stated, the City is committed to improving consultation with the County and Townships on projects related to the WSMP and through these discussions and subsequent WSMP updates, the project-specific comments brought forward will be addressed. Proposed meetings as part of the WSMP Update public review period will allow for more opportunities to discuss the comments and our responses.



Attachment **A**

WSMP Update Agency and Municipality Workshop No. 2 Presentation



Attachment **B**

Review Memorandum #1: Wellington Source Water Protection



Attachment C

Review Memorandum #2: Township of Puslinch



Attachment **D**

Review Memorandum #3: Guelph/Eramosa Township



Attachment **E**

Guelph Water Supply Master Plan – County and City, Meeting #1 Minutes



WATER WASTE WATER DEPARTMENT REPORT 22/02

TO: Mayor and Members of Council

FROM: Kyle Davis, Risk Management Official

MEETING DATE: Tuesday, April 19, 2022

SUBJECT: City of Guelph Water Supply Master Plan Comments

RECOMMENDATION:

Be it resolved that the Council of the Township of Guelph/Eramosa has received Water/Wastewater Department Report 22/02 regarding City of Guelph Water Supply Master Plan Comments; and

That Council endorses Burnsides comments regarding the City of Guelph WSMP as included as attachment 3 to this report; and

That the Council of the Township of Guelph/Eramosa direct staff to submit this Staff Report and the above-mentioned comments to the City of Guelph.

BACKGROUND:

In 2019, the City of Guelph initiated stakeholder consultation including the Township, Township of Puslinch and the County of Wellington on the City's Water Supply Master Plan update. The City routinely updates their Water Supply Master Plan approximately every five years with the most recent update in 2014. A stakeholder engagement session was held in December 2019 and Township staff were in attendance. No further engagement occurred until September 2021 when the City of Guelph invited the same stakeholders to a second engagement session where the results of the City of Guelph Water Supply Master Plan Update were presented. This was of serious concern to Township staff as it was understood that engagement would occur over the two year period between 2019 and 2021 on this project to ensure meaningful collaboration between the City, the Township, Township of Puslinch and the County. On October 20, 2021, the City of Guelph and their consultants presented to Committee of the Whole on the Guelph Water Supply Master Plan Update.

Following the October 20, 2021 Committee of the Whole meeting and a Township of Puslinch Council meeting, comments were provided to the City of Guelph from staff, Township Hydrogeologist and the Township of Puslinch hydrogeologist on November 26, 2021. Attachments 1 and 2 provided the staff and Township Hydrogeologist comments. The Township of Puslinch Hydrogeologist comments are not attached.

Staff then initiated a series of meetings with City staff to discuss these comments, the City of Guelph Water Supply Master Plan Update and how to ensure meaningful collaboration and incorporation of input to the final Water Supply Master Plan report. Four meetings to facilitate this discussion were held between December 2021 and end of March 2022. Participants varied between meetings, however, included the Risk Management Official, Source Protection staff, the Township Hydrogeologist, Township Director of Public Works, Township of Puslinch Hydrogeologist, the County of Wellington Manager of Policy Planning, City of Guelph Water senior management and staff and their consultants from AECOM. Overall, the discussions were very useful and collaborative and have led to the comments presented below.

Early in these discussions, the City of Guelph informed staff that in response to the Townships' and County's concerns that presentation of the final Water Supply Master Plan to City Council would be delayed from December 2021 to approximately June 2022. This was to allow sufficient time to discuss and, hopefully resolve, comments and concerns. On January 10, 2022, the City published their Notice of Completion and posted the draft final Water Supply Master Plan report and Executive Summary here: https://guelph.ca/plans-and-strategies/water-supply-master-plan/. This report was the focus of the detailed reviews by the Township and Guelph / Eramosa Hydrogeologists. Attachment 3 provides the Township Hydrogeologist's comments on the report. The City has a formal comment period ending April 10, 2022 and understands that Township comments on their draft final Guelph Water Supply Master Plan report will be provided following discussion and endorsement by Council.

On February 11, 2022, the City of Guelph provided a response to our November 2021 comments, This response is considered in the Township Hydrogeologist's comments and in the following staff comments.

Comments and Recommendations

As outlined in Attachments 1 through 3 and above, there has been considerable discussion and back and forth with the City of Guelph staff and consultant team and a number of the comments identified in Attachments 1 and 2 have been addressed. In particular, please note that bimonthly meetings have been set up to address Comments 1 a) and b) in Attachment 1 and are scheduled to continue through 2022. Many of the outstanding comments from the Township perspective are outlined in Attachment 3.

Attachment 3 provides the Township Hydrogeologist's (RJ Burnside) memorandum on the City of Guelph's Final Draft Water Supply Master Plan Update dated December 2021. RJ Burnside presents general comments and commentary on the process to date as well as eight specific comments for Council's consideration and discussion. To summarize, the eight specific comments are:

- 1. Actions arising from previous comments
- 2. Size of the Study and Report

- 3. Collaboration between Municipalities
- 4. Fate of Comments
- 5. Environmental Impacts
- 6. Impacts to Huntington and Cross Creek Wells
- 7. Aquifer Storage and Recovery
- 8. Sustainability and Resource Management

Staff support Burnside's recommendations and comments and following Council discussion, it is recommended that the RJ Burnside memorandum and this staff report be forwarded to the City of Guelph.

In addition to the RJ Burnside recommendations, the following should also be considered by Council. Some of the Townships and County November 2021 comments to the City related to the lack of information initially assessed by the City on growth in the County. In conjunction with County Planning staff, additional information has been presented to the City of Guelph staff in January 2022. Additionally, the County Official Plan Review – Growth Forecasts and Allocations report, presented to the County of Wellington Planning Committee on March 10, 2022 and County of Wellington Council on March 31, 2022, summarizes the growth forecast information needed by the City to incorporate into their Water Supply Master Plan. It is located here https://pub-wellington.escribemeetings.com/filestream.ashx?DocumentId=2413 . Additional detail can be found on the County's website through the "Phase 1 MCR Report: Urban Structure and Growth Allocations, June 16, 2021 Final Report (as amended January 31, 2022)" located here https://www.wellington.ca/en/resident-services/resources/Planning/Official-Plan-Official-Plan-Review/Final-Phase-1-MCR-Report---Urban-Structure-and-Growth-Allocations.pdf links provide the growth allocations and forecast in terms of population and employment. In addition to this information, staff will forward data to the City of Guelph on raw water demand for the Township municipal systems. It is recognized that the City would prefer per capita water use estimates for their assessment, however, the information outlined above should allow the assessment to be conducted. Staff and the Township Hydrogeologist will continue to discuss this matter with the City of Guelph.

The expansion of the City wellhead protection areas lead to increased application of the Source Protection Plan policies. This is true for both quality and quantity wellhead protection areas. There has been considerable discussion on whether the City should, as part of the Water Supply Master Plan, include some high level modelling evaluation of the impacts of the different water supply alternatives on the size, shape and vulnerability scoring of the wellhead protection areas. It is important to note that the City has a timeline for proposed implementation of the alternatives and some of the alternatives are post-2051 while others are within the next 15 years up until 2037. The City, therefore, has concerns related to lack of data associated with some of the alternatives. Modelling only the short and medium alternatives may provide some of the information currently missing to assess potential impact to the Township while addressing some

of the City's concerns related to lack of data for the longer term alternatives. It is our opinion that this evaluation should be part of this Water Supply Master Plan update and future updates and included in the alternative evaluation matrices and therefore included as part of the preferred alternative selection. To date, this has not been included.

Comment 6 in Attachment 1 provides a general analysis of the potential source protection impacts to the Township and without the additional modelling discussed above, that comment still is accurate at this time. The following conclusion is replicated for ease of reference. When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter.

It can be expected that whichever alternatives are implemented by the City of Guelph there will be increases in wellhead protection areas — quality and quantity in the Township. Without further information, it is difficult to assess the exact number of properties affected. Discussions will continue with the City of Guelph through the meetings outlined above related to this issue. In particular, Council should be aware that the Logan well alternative will expand wellhead protection areas in that portion of the Township (Eastview Road). Similarly, the Southwest Guelph Environmental Assessment may result in expansion of wellhead protection areas in the area of Highway 124 and Wellington County Road 32. This employment area currently is partially in a Wellhead Protection Area C and D so Source Protection Policies for chemical handling only apply in part of the employment area (the Wellhead Protection Area C portion). Expansion of wellhead protection areas may change this, however, we do not have specific information at this time to comment.

The ongoing meetings and discussions with the City of Guelph have highlighted the need for a more regional water management approach. To this end, both the Township and City Risk Management Officials have requested that the Grand River Conservation Authority initiate these meetings in 2022. These meetings are a recommended policy approach through the ongoing Tier 3 policy work and given the various City, County and Township initiatives in progress plus renewals of Permits to Take Water, the time is right to start these meetings. Further updates will be provided to Council at a future date.

FINANCIAL IMPACT:

Not applicable

SUMMARY COMMENTS:

Staff and consultants have been regularly meeting with the City of Guelph and their consultants to provide comments and discuss the City's Water Supply Master Plan Update. Progress has been made in terms of addressing previous Township comments and meetings are scheduled to continue through 2022. The City has a formal comment period ending April 10, 2022 and understands that Township comments on their draft final Guelph Water Supply Master Plan report will be provided following discussion and endorsement by Council.

Respectfully Submit	ted,
Kyle Davis, Risk Ma	nagement Official
Reviewed By:	
lan Roger, P. Eng CAO	

Attachment #1: Wellington Source Water Protection Report and Cover letter dated November

26, 2022

Attachment #2: RJ Burnside Report dated November 26, 2022

Attachment #3: RJ Burnside Report dated April 7, 2022



November 26, 2021

Dave Belanger, M.Sc., P. Geo.
Water Supply Program Manager
City of Guelph – Water Services
Via email – dave.belanger@guelph.ca

RE: Cover Letter Regarding Township of Puslinch, Guelph / Eramosa Township and County of Wellington Comments on the City of Guelph Water Supply Master Plan Update - 2021

Dear Dave,

Please find attached three (3) comment memorandums related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments represent formal, written comments on the Guelph Water Supply Master Plan presentations on behalf of the Township of Puslinch, Guelph / Eramosa Township and the County of Wellington.

As we have discussed and as outlined in the attached comments, our Townships and the County have serious concerns with the City of Guelph Water Supply Master Plan Update as presented in September and October 2021. As such, we have made recommendations that we request are responded to, formally and in writing, by the City of Guelph and its consultants. Prior to that response, we appreciate the opportunity to meet on December 6, 2021 to discuss these comments and other comments raised by our Councils. We look forward to the December 6th meeting as being the first of a series of meetings related to this update of the Guelph Water Supply Master Plan and we anticipate providing further written comments as follow-up(s) to the meetings and on the draft report once available

As discussed previously, I am willing to serve as a point of contact to assist with scheduling and logistics related to our Townships and County comments on the Guelph Water Supply Master Plan. Please do not hesitate to call me in this regard. If I am unavailable or if needed, please do not hesitate to contact Ian, Glenn, Aldo or Harry. Discussing our comments and concerns regarding the Guelph Water Supply Master Plan is a priority for our municipalities.

Attachment 1

9.3
WELLINGTON
Source Water
PROTECTION
Wellingtonwater.ca

If you require further information, please contact:

Kyle Davis, Risk Management Official 519-846-9691 ext 362

kdavis@centrewellington.ca

Attachments

Wellington Source Water Protection Comments Harden Environmental Memorandum RJ Burnside and Associates Memorandum

C.C.

Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township
Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch
Aldo Salis, Director of Planning, County of Wellington
Harry Niemi, Director Public Works, Guelph / Eramosa Township
Dwight Smikle, Township Hydrogeologist, Guelph / Eramosa Township (RJ Burnside)
Stan Denhoed, Township Hydrogeologist, Township of Puslinch (Harden Environmental)
Wayne Galliher, Division Manager, Water Services, City of Guelph
Emily Stahl, Manager of Technical Services, Water Services, City of Guelph
Scott Cousins, Hydrogeologist, Water Services, City of Guelph
Matt Alexander, Water Supply Master Plan Project Manager, City of Guelph (AECOM)

Attachment 1 9.3



November 26, 2021

Memorandum

To: Ian Roger, Chief Administrative Officer, Guelph / Eramosa Township Glenn Schwendinger, Chief Administrative Officer, Township of Puslinch Aldo Salis, Director of Planning, County of Wellington

From: Kyle Davis, Risk Management Official, Guelph/Eramosa Township and Township of Puslinch

RE: City of Guelph Water Supply Master Plan Update - 2021

The following comments are related to the City of Guelph presentation entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 dated September 14, 2021 as well as shortened versions of this presentation presented to the Councils of Guelph / Eramosa Township and Township of Puslinch in October 2021. These comments are provided in conjunction with comments provided by R J Burnside and Associates and Harden Environmental, the hydrogeologists for Guelph / Eramosa Township and Township of Puslinch respectively. Please note that, at this time, a Water Supply Master Plan report is not available for review.

Wellington Source Water Protection is a partnership of the Wellington County municipalities and these comments are on behalf of the Township of Guelph / Eramosa, Township of Puslinch and County of Wellington. These comments should not be construed as a hydrogeological, engineering, ecological or technical review. These comments are strictly provided in regards to consultation and engagement process and our municipalities' role in implementing the Clean Water Act and municipal source water protection. For hydrogeological, engineering and / or technical review comments, please see the Burnside and Harden memorandums.

Comments

1. The Township of Puslinch, Guelph / Eramosa Township and the County of Wellington must be brought into the City's water supply projects early and often. Similar comments from our municipalities were made during the 2014 Water Supply Master Plan update and during the Guelph / Guelph — Eramosa Tier 3 Water Budget Study that was completed in 2017. It is the City's responsibility to engage the Townships and County on their projects. The Townships and County are key stakeholders in the City of Guelph water supply planning process and their input or comments should not have been absent for a period of 20 months while key project decisions were made in this Water Supply

Attachment 1



Master Plan update. The Townships and County should be some of the first stakeholders the City contacts and there should be continuous contact throughout the process.

Recommendation:

Going forward, it is recommended the following be established:

- a) High level meetings, at either a quarterly or semi-annual frequency, organized between City, Township and County staff to identify and update key projects planned or occurring between our municipalities. Part of the purpose of these meetings will also be to ensure more frequent, project specific meetings are happening where required.
- b) That the City set up regular meetings, frequency to be determined based on the project schedule, on the Southwest Guelph Class Environmental Assessment and on the Guelph Water Supply Master Plan. These meetings would be with Township and County staff / consultants.
- 2. The lack of Township and County input has a direct connection to the selection of preferred alternatives in the Water Supply Master Plan. The City's response to our 2014 Water Supply Master Plan comments was that the City will prioritize wells within the City boundaries first. In this draft update, new municipal wells within the City boundaries were not carried forward into the preferred alternatives as a modelling exercise showed there was too much projected interference with existing municipal wells. This has a direct impact on other alternatives ranking higher, including City test wells and proposed new wells located in the County. This is an example where earlier engagement with the Township and County staff, while the modelling work was ongoing, was necessary to at least understand the rationale behind this decision and to also provide any additional information or data that may result in a different conclusion and decision. Based on the previous City response and the first agency workshop in 2019, staff expected City staff to engage them during this Water Supply Master Plan update process not at the end. Moving forward and outlined in the comment above, we propose a process when planning or modelling work is ongoing near the municipal boundary or within the County, that Township and County staff / consultants are engaged early when there is still time for their comments to be incorporated into the City's results.



On a related note, the lack of proposed alternatives within the southeast quadrant of the City (the Clair – Maltby area) appears to be a gap. It is understood that this is a major recharge area and it is understood through conversations, that there are technical reasons for this exclusion. However, given the proximity of this area to the County and given that fewer new wells in the City directly results in proposing other wells in the County, consultation should have occurred early in the process regarding this point so our technical staff could review the rationale and provide input towards this decision.

It is understood that the preferred alternatives build on one another and cumulatively represent how the City will meet the projected water needs. The Townships and County request further information, in the form of the draft Water Supply Master Plan report and meetings, on the rationale behind the selection of the preferred alternatives. In particular, it is noted that water conservation and municipal system optimization, including reduction of line loss / leakage and increasing capacity of existing municipal wells closer to permitted values, serve as the first alternatives to be implemented. Therefore, it is important to understand and review the data and rationale underpinning each of the preferred alternatives as an increase in water availability through the initial preferred alternatives will reduce the likelihood or need of the later preferred alternatives (ie new wells in the County or Townships).

Overall, the Townships and County request a meeting to discuss and understand the City's decision-making process to identify and rank the preferred alternatives and whether additional information is available that may affect that identification and ranking.

Recommendation:

It is recommended that a meeting be held in December 2021 with City staff and consultants and Township / County staff and consultants to review these comments and the attached Burnside and Harden comments and discuss incorporation into this Water Supply Master Plan update. It is understood that City staff have initiated organizing this meeting already and it is tentatively scheduled for early December 2021. Follow-up meetings should be scheduled following the initial December 2021 meeting.

3. As discussed in the Harden and Burnside memorandums, water supply planning should not be completed in isolation. The Township of Puslinch, Guelph / Eramosa Township



and the County of Wellington host the City's Arkell Spring Grounds, the Eramosa River intake plus a number of current and proposed City municipal wells. Additional current and proposed wells within the City are also very close to the municipal boundaries. As a result, the City of Guelph wellhead protection areas and intake protection zones extend kilometres into the Townships and County and encompass thousands of County properties. Both the City and the County are subject to growth projections from the Province that will result in more population and more water usage. This Master Plan update is in direct response to those 2051 growth projections for the City. Given the interconnected nature of the groundwater systems in this area, water supply planning in the City, County and Townships should also be interconnected and consider the growth projections and current / projected water usage in all the municipalities utilizing the groundwater system whether through private or municipal systems.

The Guelph Water Supply Master Plan assesses the City's needs in a vacuum. There does not appear to be much consideration or incorporation of County or Township growth projections or even current municipal wells. On some maps in the presentations, the existing Guelph / Eramosa Township municipal wells are not shown. In another map presented to Guelph / Eramosa Council, a decommissioned municipal well in Guelph / Eramosa Township is shown. In both instances, this is in the general area where the City has proposed a preferred alternative of a new City of Guelph municipal well (Guelph North). Examples such as these, demonstrate why increased coordination and engagement is needed.

Recommendation

In the December meeting referenced in comment 2 and any follow-up meetings, discussion should include the County of Wellington growth projections and associated water supply.

4. As outlined in the Burnside and Harden memorandums, there are a number of comments requiring response.

Recommendation

In the December meeting referenced in comment 2, that the City of Guelph review, meet to discuss and incorporate Burnside and Harden comments outlined in their respective memorandums.



5. It is understood that the draft Water Supply Master Plan document is being prepared, however, is not available for review at this time.

Recommendation

Our municipalities request sufficient time, at least two to three months, to review this draft document and to provide detailed comments, meet with City staff and consultants, present to our Council(s) and review responses from City staff and consultants

6. Our municipalities have been implementing the Clean Water Act and the Grand River Source Protection Plan since 2016 while planning for implementation began in 2006. We protect the City of Guelph wellhead protection areas and municipal wells / intakes located in the Townships or County including draft wellhead protection areas such as the WHPA-Q. This requires significant work by multiple Township and County departments and is undertaken to protect our much larger neighbour's water supply.

The City's Water Supply Master Plan update has implications for all the wellhead protection areas, intake protection zones and issue contributing areas currently delineated for the City of Guelph municipal drinking water system. At this time, there is insufficient information provided by the City to accurately assess the impact of the preferred alternatives on our source protection implementation efforts.

In the absence of more information at this time, a few general scenarios can be stated. The first scenario is that new City of Guelph municipal wells in the County or close to (within approximately one kilometre) of the municipal boundary will have increased source protection implementation requirements in the County when compared to new municipal wells further within the City boundaries. Similarly, increased water takings from existing City municipal wells in the County or close to the municipal boundary will also have increased source protection implementation requirements. In this regard, it can be expected that the preferred alternatives of Logan, Hauser, Guelph North, Guelph South and Southeast will have increased source protection requirements in the County compared to Ironwood or Steffler. It is worth noting that many of the City's higher ranked preferred alternatives are within or close to the County.



The second scenario is that revised modelling / sampling for existing municipal wells that increases the vulnerability score to a score 10 (red area) or identifies a drinking water issue (ie increasing trends of contaminants above or approaching provincial standards) will increase source protection requirements, potentially substantially. At this time, it is difficult to ascertain, based on the information presented, whether either increased vulnerability scores or delineation of a drinking water issue will occur from the preferred alternatives in the Water Supply Mater Plan. It is unknown whether the draft report will contain a preliminary analysis for each of the preferred alternatives. Although delineation of new wellhead protection areas from the preferred alternatives are separate studies from the Water Supply Master Plan, it is possible to conduct some preliminary analysis to determine whether certain preferred alternatives are more likely to result in increased vulnerability scoring. The delineation of a drinking water issue is unlikely to occur in a new municipal well supply, however, often the re-evaluation of past sampling data occurs concurrently with wellhead protection area revisions, therefore, some initial Drinking Water Issue analysis should also be incorporated into the Water Supply Master Plan update especially where quality concerns may reduce the available quantity of water in existing municipal wells.

The third scenario is related to the draft WHPA-Q (quantity). The draft WHPA-Q (quantity) is already very extensive, however, new municipal wells or new private water takings, either in the City or County, that are close to limit of the draft WHPA-Q may increase its size and therefore increase requirements on additional properties. Since the WHPA-Q already completely covers the City of Guelph any increase to size would result in new properties and increased requirements being outside of the City boundaries. These properties would be in either the County of Wellington, Region of Waterloo or Region of Halton. An alternative result of this scenario is the reduction of the significant risk level in the WHPA-Q to a moderate or low risk level through an updated Tier 3 Risk Assessment process. A reduction of the risk level would lead to the currently draft source protection water quantity policies applying only to future development in a moderate risk level or not applying at all in a low risk level. It is possible that implementation of certain alternatives in the Guelph Water Supply Master Plan could lead to the outcome of reducing risk levels in the WHPA-Q, however, in the current information available on this Guelph Water Supply Master Plan update it is unclear whether this has been considered. In particular, under the optimization alternative it is unclear whether upgrades are proposed at the two existing City of Guelph municipal wells (Queensdale



and Arkell-1) that currently trigger the significant risk level and whether upgrades would reduce the risk level. It is understood that other municipal wells were identified in the Tier 3 study as being at potential risk for water quantity, however, did not trigger the significant risk level in 2017 when the Tier 3 Study was complete. A preliminary analysis should be completed of the impact of the preferred alternatives on the Queensdale and Arkell-1 wells and the other wells identified in the Tier 3 and how that may affect the WHPA-Q risk level.

Lastly, when scenario 2 (increased vulnerability or a drinking water issue) occurs on or near lands designated or zoned for employment, settlement areas and / or other development uses, the source protection implementation requirements often increase substantially due to the land use. In addition, there is often also increased public interest, staff review, consultation and ultimately time and effort related to these properties. This time and effort can be substantial and is not only limited to County / Township source protection staff and includes consultants and staff from Planning, Building staff, Clerk, Water, Engineering and Administration departments.

When speaking in generalities, it is difficult to assess the exact implementation requirement that may apply, however, most will be in the form of increased regulation not prohibition as per the policy requirements outlined in the Wellington County chapter of the Grand River Source Protection Plan. For instance, mandatory septic system inspections every five years, increased study requirements for new development and / or risk management plans to regulate certain activities on the properties. To more accurately determine which Source Protection Policies apply, more information is required from the City. Additionally, it is important to note that although the technical work, such as Water Supply Master Plans or Class Environmental Assessments, are completed by the City of Guelph that the Source Protection Plan amendments are completed by the County of Wellington and the City of Guelph. The policies that apply in Wellington County are written and updated by County, Township and Grand River Conservation Authority staff. The City of Guelph and the Grand River Conservation Authority are responsible to update the Assessment Report and the City's Source Protection Plan Chapter. Therefore, it is critical that the County and Townships be kept apprised of the City's water supply plans and work collaboratively with us to ensure protection of the resource.

Attachment 1



Recommendation

- a) That the City incorporate preliminary analysis of the general scenarios outlined above in their evaluation of preferred alternatives. When completing that analysis, it recommended that the City consults with the Townships and County and that the Townships and County review that analysis.
- b) That the City, Townships and County incorporate discussion of the necessary source protection updates into the meetings discussed in comment 2 and to include the Grand River Conservation Authority when appropriate.

If you require further information, please contact:

Kyle Davis, Risk Management Official

519-846-9691 ext 362

kdavis@centrewellington.ca

Attachments

Harden Environmental Memorandum

RJ Burnside and Associates Memorandum

Attachment 2

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA telephone (519) 823-4995 fax (519) 941-8120 web www.rjburnside.com



November 26, 2021

Via: Email

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora, ON NOB 1S0

Dear Mr. Davis:

Re: City of Guelph WSMP Comments

Project No.: 300036495.0003

R.J. Burnside & Associates Limited (Burnside) was requested by the Township of Guelph / Eramosa to review the presentation on the City of Guelph's Water Supply Master Plan that was provided at an Agency and Municipality workshop in September 2021. Our review of this presentation is also supported by our attendance at a presentation on the same topic to the Guelph / Eramosa Committee of the Whole on October 20, 2021. Burnside also attended a kick-off meeting for the Southwest Guelph Water Supply Class Environmental Assessment on October 6, 2021.

This letter provides Burnside's comments on the main presentation but also incorporates consistent trends encountered in all presentations.

Location and Context considerations

The presentations are as required focused on the needs of the City of Guelph (COG); however, they consistently lack any form of recognition of the locational context for the City's water supply. The COG's water supply is dependent on supplies flowing from Guelph / Eramosa into the COG. The presentations seem to address the water supply issues as solely a COG issue with little recognition for the contributions from Guelph / Eramosa. For instance, the mapping provided for existing sources does not show the location of the Cross Creek and Huntington wells which are located within the area shown on the associated figure.

The context seems to be one in which the supply to the COG is the focus with no recognition of the existence of other demands and users outside of the COG. We note that currently there are impacts due to the use by the COG that extend the current water quantity WHPA-Q into Guelph / Eramosa. It seems expedient that any analysis of potential impacts should not be restricted to the COG but should consider all areas within the current WHPA-Q. Additionally existing large users in and around the COG should be recognized and included in the discussions to ensure that the water is treated as a shared resource that does not recognize the boundaries placed on maps by municipalities.

Mr. Kyle Davis November 26, 2021 Project No.: 300036495.0003

Project Objectives and Major Tasks

We suggest that the project objectives be revised to incorporate at a high level the recognition of the shared nature of the water resource with Guelph / Eramosa and other surrounding municipalities. To this end we suggest that the following bullets under the project Objectives and major Tasks be revised to read:

Will review Guelph's water supply demand forecast and existing water supply and discuss with the community (and surrounding municipalities) how to continue to meet the City's needs sustainably, while also sustaining environmental and other demands outside of the City.

When investigating existing and new water supply options we will consider things like *natural environment*, *existing water users*, climate change, water quality and quantity, economic factors, social/cultural environment, and any relevant regulations.

Existing Water Supply Capacity Assessment

The overview of the COG's existing water supply system should acknowledge that the system is dependent on the Guelph-Gasport bedrock aquifer as are a number of surrounding municipalities. It is important to establish that this is a shared resource and is important not only to the COG.

The map of existing water supply wells should include the Cross Creek and Huntington Wells as they are within the area shown and within the WHPA-Q for existing wells.

Water Supply Alternatives- Groundwater Sources

The COG indicates that a number of analyses have been completed or are scheduled to take place. The results of these analyses have implications for Guelph / Eramosa and it will be important that Guelph / Eramosa be kept updated on the progress of these analyses.

It was noted that a review of previous recommendation to replace Glen Collector was screened out through preliminary modelling. It would be informative for Guelph / Eramosa to understand what this modelling showed and what factors were considered for ruling out this option.

Restoration of existing off-line municipal wells was suggested as a potential source for additional capacity. The wells included in this consideration are located on the northeast, northwest and southeast of the COG. It will need to be confirmed that modelling has been completed with these wells running and that the impact to the WHPA-Q on any water users or features within this zone inside Guelph / Eramosa examined.

The development of existing municipal test wells was suggested as a potential source for additional capacity. It is suggested that modelling has occurred based on long-term average pumping. The scenarios included in the pumping should be reviewed and the predicted impacts outlined by the COG. The impact on the existing WHPA-Q should also be provided and any expansions into Guelph / Eramosa outlined.

It is noted that the COG has initiated construction of a new well on the Logan site which is inside Guelph / Eramosa. The following comments are provided specifically regarding this well location.

Mr. Kyle Davis November 26, 2021 Project No.: 300036495.0003

- The well is located adjacent to a site of potential contamination. The overburden is thin (about 4 m) and the well may also be under the influence of surface water. These considerations suggest that this well may be high risk for contamination.
- The well is located adjacent to a water course and may be influenced by surface water.
 Pumping from the well may impact surface water and therefore surface water impacts will need to be considered as part of an evaluation of well performance.
- Additional monitoring wells that look at shallow impacts will be necessary on the Logan site.
- Guelph Lakes Golf Course has a well that it uses for irrigation. It will be important to monitor
 that well for potential impacts during any pumping test at the Logan site.
- None of the wells associated with the former Eastview Landfill are included in the monitoring program. It is important to confirm that no impacts from the former landfill are anticipated.
- Due to location, potential for impacts and new trends in water quality, analysis of samples from Logan should consider the impacts of per- and poly-fluoroalkyl substances (PFAS).

We note that Guelph / Eramosa should be kept abreast of all studies and proposed works at this site.

The COG has indicated that the Southwest Guelph Water Supply EA has been initiated. The study is intended to also evaluate the impact of management of the Dolime Quarry Pond level on water resources in the area. Based on materials provided and our attendance at the kick-off meeting for the Southwest Guelph Water Supply EA we are not aware of any monitoring that is proposed in Guelph / Eramosa to understand the impacts of any of the proposed changes in water use in this area. It is our position that the impacts within Guelph / Eramosa should be considered in a similar manner to those inside the COG and that Guelph / Eramosa should be kept abreast of potential impacts.

The presentation suggests that the installation of wells outside COG boundaries would provide additional capacity. This recommendation is couched on the premise that the addition of new wells within the COG has been examined. Information provided at the presentation indicated that modelling that was completed suggested that new locations within the city would not result in new water but would instead move water around from already existing sources. This is an important principle that seeks to preserve existing users. We are supportive of this principle being used but note that it should also apply to sources within Guelph / Eramosa. It is in this context that the omission of the Cross Creek and Huntington Wells seems more problematic. We note that a new supply is proposed for North Guelph, in the vicinity of Cross Creek and Huntington. We recommend that similar modelling as occurred to rule out new wells inside the COG be undertaken to ensure that a new well in this area does not result in reduced capacity at either Cross Creek or Huntington. The following comments are provided on the Guelph North proposed new well:

- Rationale for selecting this location indicates that there is limited local groundwater use. We
 note that municipal wells at Cross Creek and Huntington are located in this area, so while
 there are a limited number of domestic wells, the municipal supply wells are critically
 important to Guelph/Eramosa and the importance of maintaining the capacity at these
 existing sources cannot be overstated.
- The presentation suggests that the selected location is close to an area of high transmissivity within the aquifer. Guelph/Eramosa should be provided with a copy of the documentation supporting this determination and any mapping showing the location.

Mr. Kyle Davis November 26, 2021 Project No.: 300036495.0003

 We note that there is an existing well located on the St. Ignatius property that was tested at 300 IGPM. This well is a bit further away from the Guelph / Eramosa wells and suggests that supplies may be available in other areas further away from the Guelph / Eramosa wells.

Surface Water Alternatives Assessment

Surface water reliability is noted as a concern for both the Guelph Lake and Eramosa River locations. Traditionally surface water reliability has been augmented by increasing storage and storing water during the spring when it is available for use when it is required. This principle is similar to that suggested for the Aquifer Storage and Recovery. Surface water storage has numerous advantages over aquifer storage. It is not clear whether an evaluation of surface storage options has been included along with the analysis of aquifer storage and recovery.

The aquifer storage and recovery modelled results indicate a very large are of influence that extends out into Guelph / Eramosa. More information on this zone needs to be provided including the magnitude of the water level increase that is expected. Impacts to water quality should also be provided and details on any risks to the aquifer from this proposal should be provided.

Conclusions

The water resources of the Guelph / Eramosa and COG area are a shared resource that is utilized by residents and industries within both municipalities. It is important that the management of the resource by the COG recognize this fact and seek to include the existing uses within the township in any further analysis or studies. Recognition of the use by the township also includes considerations for future use.

The COG should seek to keep Guelph / Eramosa abreast of studies and findings as they occur and not later in the process which gives the township the opportunity to be involved from the outset and to provide comments that may be useful at the appropriate times versus at the end of the process.

Numerous alternatives have been presented and it would be helpful for the COG to provide further information and clarifications as outlined above to allow Guelph / Eramosa to fully understand the implications of the proposals.

It is important to note that at current levels of water taking the overall WHPA-Q for the COG extends into the Townships of Guelph/Eramosa and Puslinch. This water taking is therefore having an impact and the associated source protection vulnerable areas extend into the townships. The townships on the other hand are required to manage and protect water resources for use inside the COG. It should be noted that even when water taking is restricted to inside the COG boundary, there are impacts that need to be addressed by the townships. It should therefore be recognized that changes to water taking within the COG may have external implications and the townships should be made away and kept aware as major stakeholders in the WSMP process as any decisions taken will likely have impacts that extend past COG boundaries.

Mr. Kyle Davis November 26, 2021

Project No.: 300036495.0003

Yours truly,

R.J. Burnside & Associates Limited

Dwight Smikle

Senior Hydrogeologist

DS:js

cc: Harry Niemi, Guelph/ Eramosa (enc.) (Via: Email)

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

RJB Comments 26/11/2021 1:16 PM

Attachment 3

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA telephone (519) 823-4995 fax (519) 941-8120 web www.rjburnside.com



April 7, 2022

Via: Email

Mr. Kyle Davis Risk Management Official County of Wellington 7444 Wellington Road 21 Elora ON NOB 1S0

Dear Mr. Davis:

Re: City of Guelph WSMP Report Comments

Project No.: 300036495.0003

R.J. Burnside & Associates Limited (Burnside) was requested by the Township of Guelph / Eramosa to review the draft report for the City of Guelph's Water Supply Master Plan (WSMP).

This letter provides Burnside's comments on the report and is a follow up to comments previously provided in response to a presentation attended by Burnside.

Actions arising from previous comments

Burnside notes that since the provision of our previous comments in November 2021, we have been engaged with the city as part of a scheduled series of meetings regarding the WSMP. These meetings are aimed at facilitating greater consultation with the surrounding townships on matters related to groundwater supply and the various alternatives for water supply included in the WSMP. These meetings are a positive step but have also allowed for additional insight into the water supply situation in the region. Previously we had indicated that the water resources of the area cannot be handled in an isolated manner and the concerns of the City of Guelph (COG) should not be isolated from the concerns of the region. Arising from this previous comment, our review of the WSMP report has further indicated that analysis of impacts needs to be comprehensive and not solely limited to water supply considerations. The review has also indicated a need for a more regional approach to water resources management which may be outside the mandate or authority of any of the participating municipalities.

Size of the Study and Report

The WSMP report as provided is over 1,400 pages. In light of the size of the document and the many complexities that are incorporated, Burnside has tried to focus our attention on key areas while acknowledging that our opinions may not reflect a firm understanding of all aspects of this complicated document.

Mr. Kyle Davis April 7, 2022

Project No.: 300036495.0003

Additionally, the time required to respond with comments may not be adequate for a fulsome review to be completed. Various scenarios have been completed and evaluated within the groundwater model. The implications of each scenario would need to be further evaluated to determine the potential impacts to the township. It has not been verified that all township concerns have been addressed with the modelling completed and additional model scenarios may be required to evaluate impacts to the township. We are aware that no additional modelling is projected at this time and therefore an approach for future modelling analyses will need to be developed. The need for future modelling is another component that is best addressed as a regional water resources management process.

Collaboration between Municipalities

The report consistently refers to the need for collaboration with the surrounding townships and specifically mentions that development of water supply sources inside the townships would require concurrence with the townships and the county. While this is true, the focus of the document is solely the provision of water for the COG. While it is recognized that the study is funded by the COG, in recognition of the regional nature of the water resources it may be important to include considerations for the townships in order to make a very clear indication that the COG's water supply does not exist in isolation and the township of Guelph / Eramosa's water supply systems should also be identified and accounted for in the study.

Fate of Comments

Our understanding is that comments on the overall WSMP will be considered by the project team and may be included with the final report, however actions on concerns may be delayed till various Class EA studies are initiated. It is uncertain whether during the Class EA process there will be an opportunity to seriously consider whether a project should proceed or not and its inclusion in the WSMP and the preferred alternative seems to be a commitment to following through on testing the feasibility of the source. It is therefore uncertain as to what would need to happen for a particular option to be abandoned.

The following specific comments are also provided:

Environmental Impacts

The WSMP uses the COG's groundwater model to attempt to predict impacts to the environment that may be caused by various scenarios in pumping. While not 100% accurate, the model provides good insights into potential impacts and concerns. In one scenario, the potential for drilling a new well in southeast Guelph is evaluated. The scenario (A1-B) looks at using the Lower Road Collector and a hypothetical well on the southeast edge of the city in Puslinch Township. The modelling report notes that this scenario results in reductions in groundwater discharge to watercourses of up to 13% along Hanlon Creek and 17% along Irish Creek.

The Northeast quadrant wells scenario A3-A results in baseflow reductions of 24% at Clythe Creek.

The Northwest quadrant scenario A4-B results in baseflow reductions of 13% at Marden Creek.

Mr. Kyle Davis April 7, 2022

Project No.: 300036495.0003

These examples indicate the potential for significant impacts to the environment, and additional study is recommended. It is important for these future studies to include clear objective criteria that are agreed so that any environmental impacts will be evaluated in a consistent manner and adequate attention be made to environmental impacts of each proposed taking.

Alongside the potential environmental impacts, impacts to other water resource users should be considered. In areas where private wells are still present it will be important to determine these impacts. The information provided does not evaluate local impacts in detail and the expectation is that these local impacts will be evaluated during the particular EA studies. This expectation therefore will require that the townships remain connected to all EA studies related to water supply development and provide input to each. This approach while possible does not meet the suggested requirement for a more regional approach to water resource management where all impacts are viewed in a comprehensive manner. To meet the regional approach a study such as a Master Plan which looks at the overall picture is the best tool versus individual EA studies.

Impacts to Huntington and Cross Creek Wells

The evaluation for scenario A4-B Sacco, Smallfield, Hauser and the hypothetical Guelph North well indicates that due to simulated hydraulic connection between the hypothetical Guelph North well and nearby pumping wells, the pumping of the hypothetical well results in a reduction of water levels at many municipal wells to below the low water thresholds. This projection is of concern to the Huntington and Cross Creek wells.

Aquifer Storage and Recovery

Aquifer Storage and Recovery (ASR) is included as an alternative to provide water in the long term. It should be noted that the establishment and operation of these systems may be very complicated. The information provided so far has been very conceptual and the potential impacts of such systems are not readily determined without extensive testing and the long-term impacts are yet to be determined. It is noted that the groundwater model predicts that the impacts of injecting water into the aquifer using ASR techniques would create an impact up to 10 km away from the point of injection. It will be important to examine the implications of this impact to private and municipal wells, groundwater discharge and groundwater recharge within this or any zone to be impacted by the proposed ASR.

Sustainability and Resource Management

The inclusion of the various options within the WSMP and the stating of the potential impacts make it very clear that the further development of the areas water supply will come at some cost to the environment or to other water users. The need to develop new water sources will therefore need to be evaluated against the objectives of the study which we suggested should be:

- Will review Guelph's water supply demand forecast and existing water supply and discuss with the community (and surrounding municipalities) how to continue to meet the City's needs sustainably, while also sustaining environmental and other demands outside of the City.
- When investigating existing and new water supply options we will consider things like natural environment, existing water users, climate change, water quality and quantity, economic factors, social/cultural environment, and any relevant regulations.

Mr. Kyle Davis April 7, 2022

Project No.: 300036495.0003

It is obvious from the scenarios developed and the assumptions necessary to obtain new water that sourcing water in this area in a sustainable manner is becoming a greater challenge. In order to obtain its required water supply the COG is forced to become increasingly innovative. While recognizing the need for the water supply of the COG to be maintained there is also a need to maintain environmental and other uses as well. A comprehensive approach that includes all users in the region is increasingly more necessary, and this approach should require the same restrictions on all participants in the sector. As no municipality has a function in regional water resource management it may be necessary to approach the MECP as a collaborative and develop a joint approach to water resources management for the region.

Conclusions

The water resources of the Guelph / Eramosa and COG area are a shared resource that is utilized by residents and industries within both municipalities. The management of the resource is important to both municipalities. Going forward it is evident that the resource will come under increasing pressure due to growing demands in the COG as well as elsewhere. It will be important for a common approach to resource management to be established in the region and for all concerns, both water supply and environmental to be included in all analysis. It should be recognized that neither municipality is responsible for resource management, yet the use of the resources affects both and therefore in the interest of the common good, a common approach to management is ideal. Development of water resources comes at a price, both financially and environmentally and the factors that drive growth may need to be examined to determine whether the resource has the capacity to accommodate that growth in a sustainable manner.

In light of the above, we note that the current projects included in the WSMP have a potential to impact water resources within the township. Based on what we have reviewed we are of the opinion that some of these alternatives should be of concern, however we do not have enough information at the current time to provide a full description and discussion on what these impacts will be.

Yours truly,

R.J. Burnside & Associates Limited

Dwight Smikle

DS:js

cc: Harry Niemi, Guelph/ Eramosa (enc.) (Via:)

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

RJB WSMP Report Comments.docx 30/03/2022 11:04 AM

	THE CORPORAT	ION OF THE TO	DWNSHIP OF GUELPH	/ERAMOSA
Moved by:	Steven Liebig		Date: Tuesday April	19, 2022
Seconded t	oy: Bruce Dickieso	on	Resolution Number: 2	022-04-19 – 9.3 – CL
	9.3			
		r Department	the Township of Guelph Report 22/02 regarding and	
	That Council endo		comments regarding the is report; and	e City of Guelph WSMP
			o of Guelph/Eramosa di ioned comments to the 0	
	349			
corded Vote	Requested By:		MAYOR	
	Yea Nay		Tabled Lost Pecuniary Interest:	Copied to:
DUWMEESTER CKIESON. B.	K, M			Building By-Law Enforcemen

Disclosed his/her/their interest(s), vacated

and did not vote.

his/her/their seat(s), abstained from discussion

Engineer

Planning/Planner

Public Works

Fire

PLS

DICKIESON, B.

MARSHALL, L.

WOODS, C.

WHITE, C.



June 7, 2022

Sent by email

Mr. Kyle Davis Risk Management Official Wellington Source Protection – Risk Management Office 7444 Wellington Rd 21 Elora, ON N0B 1S0

Dear Kyle,

RE: Guelph Water Supply Master Plan Update – Response to Guelph-Eramosa Township Comments on the Draft Final Master Plan Document

On April 26th, 2022, the Wellington County Source Water Protection Risk Management Official provided the City of Guelph with a copy of Guelph-Eramosa Township (GET) Resolution No. 2022-04-19-9.3-CL resulting from Water/ Wastewater Department Report 22/02, dated April 19, 2022, wherein GET provided comments on the City's Water Supply Master Plan Update Report. Our response to these comments is attached. Please note that the comments received, and our response will form a component of the record of public consultation prepared for the WSMP Update report.

Thank you for engaging and consulting with the City on this important project.

Sincerely,

Dave Belanger, M.Sc., P.Geo., Water Supply Program Manager, Water Services, Environmental Services

T - 519-822-1260 x2186

F - 519-822-8837

E - Dave.Belanger@guelph.ca

C Wayne Galliher, Emily Stahl, Scott Cousins, Matt Alexander, Ian Rogers/GET, Amanda Knight/GET



AECOM Canada Ltd. 50 Sportsworld Crossing Road, Suite 290 Kitchener, ON N2P 0A4 Canada

T: 519.650.5313 F: 519.650.3424 www.aecom.com

Date:

To: Dave Belanger, City of Guelph

June 7, 2022

Project #: 60612820

From: Matt Alexander (AECOM)

Patty Quackenbush (AECOM)

cc: Scott Cousins, City of Guelph Alicia Evans, AECOM

Memorandum

Subject:

Guelph Water Supply Master Plan Update – Response to Guelph-Eramosa Township Comments on the Draft Final Master plan Document

Introduction

On April 26th, 2022, the Wellington County Source Water Protection Risk Management Official (RMO) provided the City of Guelph ('the City') with a copy of Guelph-Eramosa Township (GET) Resolution No. 2022-04-19-9.3-CL resulting from Water/Wastewater Department Report 22/02, dated April 19, 2022, which stated the following:

"Be it resolved that the Council of the Township of Guelph/Eramosa has received Water/Wastewater Department Report 22/02 regarding City of Guelph Water Supply Master Plan Comments; and

That Council endorses Burnsides comments regarding the City of Guelph WSMP as included as attachment 3 to this report; and

That the Council of the Township of Guelph/Eramosa direct staff to submit this Staff Report and the abovementioned comments to the City of Guelph."

The City was also provided with the above noted comments that document the GET and R.J. Burnside & Associates Ltd. (Burnside) review (Attachment 3 of Water/Wastewater Department Report 22/02, dated April 7, 2022) of the Draft Final Water Supply Master Plan Update report (the 'WSMP Update report').

The purpose of this memorandum is to provide responses to the GET review comments and to provide additional information, where warranted. This memorandum has been prepared with the assistance of the City as certain aspects of the received comments are beyond the scope of the WSMP Update project. The comments received and this response will form a component of the record of public consultation prepared for the WSMP Update report.

Comment Response

Memorandum Prepared by Kyle Davis, RMO - Background Section

In the "background" section of this memorandum, the following is stated:



"A stakeholder engagement session was held in December 2019 and Township staff and the Township hydrogeologist were in attendance. No further engagement occurred until September 2021 when the City of Guelph invited the same stakeholders to a second engagement session where the results of the City of Guelph Water Supply Master Plan Update were presented. This was of serious concern to Township staff as it was understood that engagement would occur over the two year period between 2019 and 2021 on this project to ensure meaningful collaboration between the City, the Township, Guelph / Eramosa Township and the County."

This record of project consultation omits that, starting in 2019 and at several points during the WSMP Update process through to September 2021, the City contacted GET regarding consultation opportunities for the WSMP Update project, including, but not limited to participation in two Agency and Municipality Workshops, three Community Liaison Group (CLG) meetings and the first Public Open House (held in early 2020). Councillor Woods attended the three CLG meetings as the GET representative. Any feedback that was received was used to inform the WSMP project and is included in the consultation record.

This section of the GET memorandum also references previous WSMP comments provided by GET on November 26th, 2021. It is noted that the City provided a detailed formal response to the comments on February 11th, 2022 in the form of a memorandum. As noted in the GET memorandum, the City met with GET on four occasions between December 2021 and March 2022 to discuss the comments provided in November 2021, to further consult on the WSMP Update and to discuss additional topics as identified in advance of each meeting.

Memorandum Prepared by Kyle Davis, RMO - Comments and Recommendations Section

Future Township Water Supply Requirements

This section of the memorandum references the comments submitted in November 2021 by GET, which requested that the City consider future growth within GET and the associated water supply demand in the Guelph WSMP Update. In response to this comment (and through our February 11, 2022 memorandum) the City requested that GET provide area-specific growth projections and related water demands (per capita consumption for residential and employment populations) for review. The GET memorandum documents the growth projection data for the entire Township that have been provided to the City and states that water demand projections are forthcoming.

Currently there is insufficient information provided to incorporate specific future GET water supply requirements into the Final WSMP Update report; however, the City will review the data when it is provided and incorporate it into future modeling exercises, including for the Southwest Guelph Water Supply Class Environmental Assessment and the next WSMP Update. As GET continues to develop the 2051 demand projections, the City requests that the output include the location(s) within GET where the water will likely be derived so that this information can be incorporated into the future modeling exercises. To reiterate the February 11, 2022 memorandum concerning this matter, the results of the Tier 3 Threats Management Strategy (which assigned consumptive use factors for all permitted water taking in GET) imply that there is additional capacity in the area to support the low additional growth and low water demand anticipated to occur in GET.

Well Head Protection Area Modeling

This section of the GET memorandum requests that the City complete Well Head Protection Area (WHPA) modeling as part of the WSMP Update project. A similar request was made in the November 2021 comments, to which the City provided a response (see February 11, 2022 memorandum, General Response #2). To reiterate, the WSMP Update includes high-level screening of the water supply alternatives, including consideration of the Source Water Protection implications. At this stage, there is insufficient site-specific field data available to reliably develop WHPAs for the alternatives (most notably well pumping rates supported by detailed field testing). The WHPAs will be modeled as part of the evaluation of alternatives for the Class EA completed for



each water supply project that progresses to this stage. Consultation regarding changes to the WHPAs will occur with GET through the public consultation requirements of each Class EA and through the Source Protection requirements under the Clean Water Act.

This section of the GET memorandum goes on to note that it is difficult to assess the exact number of properties affected by WHPA changes and that discussions on this issue will continue with the City. The City agrees that, until the WHPA delineation process is completed and the changes to a WHPA are presented to the public and formally approved by the Source Protection committee, the exact number of properties will remain unknown or uncertain. The City welcomes future opportunities to discuss this issue with GET through ongoing consultation and the formal processes noted above.

Memorandum Prepared by Dwight Smikle, R.J. Burnside & Associates Limited

Actions arising from previous comments

In reference to the four meetings attended by the City and GET between December 2021 and March 2022, this section of the Burnside memorandum states:

"These meetings are aimed at facilitating greater consultation with the surrounding townships on matters related to groundwater supply and the various alternatives for water supply included in the WSMP."

We agree with this statement and note that the meetings were also intended to discuss the November 2021 WSMP comments from GET/Burnside, to present and explain the Draft Final WSMP Update report and to answer any comments that GET/Burnside had on the report during the 90-day public review period.

Size of the Study and Report

This section of the Burnside memorandum notes that the WSMP Update report is complex and 1,400 pages in length and that the 90-day public review period may not be adequate for a fulsome review to be completed. It further notes that the implications of each modeling scenario included in the report would need to be further evaluated to determine potential impacts to GET and that further modeling may be required to evaluate impacts to GET. Finally, it is suggested that an approach for future modeling analyses will need to be developed and may be best addressed as a regional water resources management process.

While we acknowledge the length and complexity of the WSMP Update report, it is noted that the public review period significantly exceeds the standard 30-day requirement. GET is encouraged to complete additional evaluation and raise additional items for discussion, as necessary, at the ongoing and planned consultation with GET as per engagement commitments of our February 11th, 2022 memorandum. We have also invited GET into the Class EA engagement process for the specific WSMP projects which will also provide opportunities for additional discussions. Feedback received in these future sessions, including an approach for future modeling analyses, will be considered in the next WSMP Update project, as appropriate.

Collaboration between Municipalities

This section of the Burnside memorandum states that the City's water supply does not exist in isolation and the GET water supply systems should also be identified and accounted for in the study. In response, the following quotation is taken from the February 11th, 2022 City memorandum:

"The study area for the project includes the area within 5 kilometres of the City boundary and the detailed WSMP modeling assessment utilized the model domain developed for the Tier 3 Water Budget Study. As noted above, the version of the model used for the WSMP project was the updated model from the GGET TMS which included 2018 updates of the municipal pumping rates provided by GET. The modeling assessment, therefore,



included operation of currently permitted wells and assessed potential impacts both within the City and the County/Townships."

Fate of Comments

This section of the Burnside memorandum states an uncertainty as to whether there will be an opportunity during the Class EA process (for individual water supply projects) to seriously consider whether a project should proceed or not and questions what would need to happen for a project to be abandoned.

As outlined in this comment, Class EA studies are the next step in evaluating new water supply opportunities that are identified in the high-level WSMP process. The Class EA process includes a detailed evaluation of the alternatives against a series of criteria and selects the sustainable option(s) that have acceptable impacts. The Class EA preferred solution is approved through a consultation process with consideration for the acceptable potential impacts. If the Class EA does not justify proceeding with the proposed water supply project, then a PTTW is unlikely to be issued and an option would need to be abandoned in its current form.

Environmental Impacts

This section of the Burnside memorandum identifies specific modeling scenarios and provides potential baseflow reductions identified by the model, with a potential baseflow reduction of 24% at Clythe Creek being the highest value quoted. The comment acknowledges that model output is not 100% accurate and this fact is also acknowledged in Appendix D of the Draft Final WSMP Update report. The following is an excerpt from Section 5.1.4:

"The Tier Three model is not calibrated to groundwater pumping conditions at the Clythe Creek well location. There is resulting uncertainty with the estimated effects on the creek's baseflow and, as a result, baseflow to the creek was not considered as part of the water supply capacity optimization. However, without additional field data and model calibration, the simulated impacts are the best available estimates of surface water effects from increased pumping. These predicted effects on baseflow may not translate to ecological effects."

This section of the Burnside memorandum goes on to highlight the need for clear objective criteria in future field programs that pay adequate attention to potential environmental impacts and conduct evaluations in a consistent manner. The WSMP Update report recommends a series of additional studies, including ecological assessments, to be conducted during individual Class EA projects. The criteria for these studies will be identified in accordance with MECP requirements for technical studies in support of PTTW applications. This additional field work will aid in further defining current baseflow conditions and potential baseflow reductions associated with new water supply sources. As stated previously, if an adverse environmental impact is identified which cannot be mitigated (i.e., significant baseflow reduction), a PTTW would not be issued, and the alternative would be abandoned.

The final paragraph in this section states the importance of GET remaining connected to the individual Class EA studies, to provide input on potential private well interference impacts. It goes on to say that this approach does not meet the suggested requirement of a more regional approach to water resource management where all impacts are viewed in a comprehensive manner, suggesting that a Master Plan is a more appropriate study to meet this objective.

In our February 11th, 2022 memo the City provides a detailed summary of planned consultation with GET and the County, moving forward, including in regard to projects related to the WSMP. The Class EA and PTTW processes have been established by MECP for the evaluation and permitting of new water supply sources. Technical work completed under these processes will include field monitoring inside and outside of the City and use of the regional groundwater flow model to assess future pumping configurations, rates and the overall



regional water budget. The City is committed to ongoing discussion with GET and MECP in regard to the most appropriate way to manage regional water resources moving forward.

Impacts to Huntington and Cross Creek Wells

This comment references modeling Scenario A4-B and indicates that the result is of concern to the Huntington and Cross Creek wells. As stated above, the modeling assessment of this potential future alternative included operation of currently permitted wells, including the GET Cross Creek and Huntington wells and the continued sustainability of these wells was a requirement of the process. That is to say, the preferred alternative in the WSMP does not include projects that were evaluated to have potential impacts to the sustainability of GET wells and under the terms of the Ontario Water Resources Act the permitted water capacity of existing wells would be protected in concert with development of any new permitted water taking.

Aquifer Storage and Recovery

This comment (see (Attachment 3 of Water/Wastewater Department Report 22/02, dated April 7, 2022) echoes the discussion included within the Draft Final WSMP Update report with respect to the extensive level of additional analysis, field study and impact assessment that is required to further explore the aquifer storage and recovery alternative.

Sustainability and Resource Management

We agree with the summary provided in this section regarding the future challenges in water supply management and the need to manage the resource in an innovative and comprehensive manner. The City encourages GET to participate with the City in development of regional water resource management including participation in monitoring programs, data sharing and consultation.

Closing

We trust that this memorandum provides an adequate response to the comments received in Water/Wastewater Department Report 22/02, dated April 19, 2022. Many of the comments are addressed in the Draft Final WSMP Update report and previous commitments to edit this document will be reflected in the Final WSMP Update report. As stated, the City is committed to ongoing consultation with the County and GET on projects related to the WSMP and through these discussions and subsequent WSMP updates, the project-specific comments brought forward will be addressed.

AECOM

Appendix B

Notice of commencement and completion

Notice of commencement

- Notice
- Formal Letters
- Email Content
- Advertisements

Notice of completion

- Notice
- Email Content

AECOM

Appendix B

Notice of commencement

- Notice
- Formal Letters
- Email Content
- Advertisements

Public Notice



Notice of study commencement

City of Guelph Municipal Class Environmental Assessment for Water Supply Master Plan Update

We're updating our Water Supply Master Plan!

The City of Guelph is updating the 2014 Water Supply Master Plan (WSMP) to review our municipal water supply sources and identify priorities, including sustainable water supply options from now until 2041.

Today, our existing water supply fulfills the City's commitment to provide a safe and reliable supply of water. Our WSMP update will look to the community to discuss how best to manage this vital supply so that we continue to provide the same high level of service to Guelph residents.

The updated WSMP will provide short-term, mid-term and long-term water supply options to ensure we can continue to meet the demands of Guelph's growing population. When investigating existing and new water supply options – like new groundwater sources in and outside of the City and local surface water sources – we'll consider things like water quality and quantity, climatic conditions, economic factors and any relevant regulations.

When we're done – after our WSMP update is reviewed by the Guelph community and approved by Council – we'll have identified constraints and opportunities related to our existing water supply system. We'll also have evaluated and prioritized individual projects to increase the capacity of our existing system.

We want to hear from you

Your feedback is an important part of the WSMP update.

- **Join our Community Liaison Group**. You'll help us set objectives for the WSMP update and assess alternative water supply options. If you're interested, please contact Matthew Alexander at 519-840-2223 or at matthew.alexander@aecom.com.
- Attend our open houses and let us know what you think. Our first open house will be scheduled early in 2020. Dates for this event will be posted at Guelph.ca/WSMP, in the City News pages of the Guelph Mercury Tribune and sent to the project mailing list.
- Read about our progress. Project information will be posted on our project page Guelph.ca/WSMP
- **Join our mailing list**. <u>Send us</u> your name and how you would like to be contacted (e.g., email or mail) and we will keep you informed.
- Follow the conversation on Twitter and Facebook.

The process

Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

For more information

Please visit <u>Guelph.ca/WSMP</u> for the latest information about the WSMP update.

To provide your comments, request additional information, be added to the project mailing list, or if you require this notice to be provided in an alternative format as per the Accessibility for Ontarians with Disabilities Act (2005), please contact:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186 Dave.Belanger@guelph.ca Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

This notice was first issued on October 31, 2019.



Anneleis Eckert Rural Planner, Central-West Ontario, Land Use Policy and Stewardship Ministry of Agriculture, Food, and Rural Affairs Elora Resource Ctr Unit 10 6484 Wellington Rd 7 Elora, ON, N0B 1S0

Dear Anneleis Eckert,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

AECOM has been retained by the City of Guelph to conduct the Master Plan update. Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan update, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14**, **2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14**, **2019**.

We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

Anneleis Eckert
Thursday, October 31, 2019
RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class
Environmental Assessment
Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Adriana Ibarguchi Director Community Safety and Corrections Policy Branch Strategic Policy, Research and Innovation Division George Drew Bldg 9th Flr 25 Grosvenor St Toronto, ON, M7A 1Y6

Dear Adriana Ibarguchi,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

AECOM has been retained by the City of Guelph to conduct the Master Plan update. Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan update, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14**, **2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14**, **2019**.

We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

Adriana Ibarguchi Thursday, October 31, 2019 RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
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Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
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Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Environmental Assessment Coordination Crown-Indigenous Relations and Northern Affairs Canada 10 rue Wellington Gatineau QC, K1A 0H4

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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Crown-Indigenous Relations and Northern Affairs Canada Thursday, October 31, 2019 RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186 Dave.Belanger@guelph.ca

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services

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City of Guelph

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F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Wednesday, November 13, 2019

Hohahes Leroy Hill Haudenosaunee Confederacy Chiefs Council 2634 6th Line Road, RR#2 Ohsweken, ON N0A 1M0

Dear Hohahes Leroy Hill,

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Hohahes Leroy Hill November 13, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

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Wednesday, November 13, 2019

Chief Stacey LaForme Mississaugas of the Credit First Nation 2789 Mississauga Road R.R. #6 Hagersville, ON N0A 1H0

Dear Chief Stacey LaForme,

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Wednesday, November 13, 2019

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Environmental Assessment Review Team 160 Bloor Street East, 4th Floor Toronto, ON, M7A 2E6

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Fisheries and Oceans Canada 867 Lakeshore Rd Burlington, ON, L7S 1A1

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Fisheries and Oceans Canada Thursday, October 31, 2019 RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment Page 2 of 2

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Karla Barboza
Team Lead – Heritage (Acting)
Heritage Planning Unit
Programs and Services Branch
Culture Division
Ministry of Heritage, Sport, Tourism, and Culture Industries
401 Bay St
Toronto, ON, M7A 0A7

Dear Karla Barboza,

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Lisa Myslicki Environmental Specialist Infrastructure Ontario 1 Dundas St W, Toronto, Suite 2000 Toronto, ON, M5G 1Z3

Dear Lisa Myslicki,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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City Hall 1 Carden St Guelph, ON Canada N1H 3A1

T 519-822-1260 TTY 519-826-9771 Lisa Myslicki

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

519-822-1260 x 2186

Dave.Belanger@guelph.ca

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

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F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com

Ministry of the Environment, Conservation and Parks Drinking Water and Environmental Compliance Division West Central Region

119 King Street West, 12th Floor Hamilton, Ontario L8P 4Y7

Tel.: 905 521-7640 Fax: 905 521-7820

Ministère de l'Environnement de la Protection de la nature et des Parcs Division de la conformité en matière d'eau potable et d'environnement Direction régionale du Centre-Ouest

119 rue King Ouest, 12e étage Hamilton (Ontario) L8P 4Y7

Tél.: 905 521-7640 Téléc.: 905 521-7820



November 5, 2019

Mr. D. Belanger City of Guelph

Mr. M. Alexander AECOM Canada Ltd.

Dear Messrs. Belanger and Alexander

Re: City of Guelph Municipal Class Environmental Assessment Water Supply Master Plan Update Response to Notice of Study Commencement

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the City of Guelph has indicated that its study is following the master planning process to complete Phases 1 and 2 under the MEA Class EA. It is understood that the purpose of the master planning exercise is to enable the City to review the existing water supply system to ensure that it is relevant with current and future needs

Identification of specific projects should consider whether they have the potential to result in impacts to source protection related features such as highly vulnerable aquifers or significant groundwater recharge areas. It is recognized that a more detailed analysis of source protection implications and any mitigation measures will be assessed in the project specific EAs that may be identified through the master planning process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

Your proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to your proposed project, **the MECP is delegating the procedural aspects of rights-based consultation to you through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information you have provided to date and the Crown's preliminary assessment you are required to consult with the following communities who have been identified as potentially affected by your proposed project.

First Nation	Contact Information
Six Nations of the Grand River	Six Nations of the Grand River P.O. BOX 5000, Ohsweken, ON., NOA 1M0 (519) 445-2201 Chief Ava Hill avahill@sixnations.ca Other Contact: Lands and Resources Director, Lonny Bomberry lonnybomberry@sixnations.ca 519-753-0665 Consultation Point Person: Matthew Jocko mjocko@sixnations.ca 2498 Chiefswood Road, P.O. Box 5000 Ohsweken, ON NOA 1M0
Haudenosaunee Confederacy Chiefs Council	Haudenosaunee Confederacy Chiefs Council 2634 6 th Line Road, RR#2 Ohsweken, ON NOA 1M0 Hohahes Leroy Hill, Secretary jocko@sixnations.com
Mississaugas of the New Credit First Nation	Mississaugas of the New Credit First Nation 2789 Mississauga Road R.R. #6, Hagersville, ON NOA 1H0 519-768-1133 Chief Stacey LaForme Stacey.Laforme@mncfn.ca Other Contact: Fawn Sault, Consultation Coordinator Department of Consultation & Accommodation Fawn.Sault@mncfn.ca 6 First Line Rd., Unit 1 R.R.#6 Hagersville, ON NOA 1H0 905-768-4260

Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process" which can be found at the following link: https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process

Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments

You must contact the Director of Environmental Assessment and Permissions Branch under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation has reached an impasse
- A Part II Order request or elevation request is expected

The Director can be notified either by email with the subject line "Potential Duty to Consult" to MOECCpermissions@ontario.ca or by mail or fax at the address provided below:

Email:	MOECCpermissions@ontario.ca
	Subject: Potential Duty to Consult

Fax:	416-314-8452
Address:	Environmental Assessment and
	Permissions Branch
	135 St. Clair Avenue West, 1st Floor
	Toronto, ON, M4V 1P5

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play in them.

While Master Plans themselves are not subject to Part II Orders, any projects identified and for which the Master Plan completes the EA process would be subject. As of July 1st 2018, a standardized form is to be used by anyone who believes that the environmental assessment process was incomplete, incorrect or that it failed to follow the required process. The required form can be found on the Forms Repository website (http://www.forms.ssb.gov.on.ca/) by searching "Part II Order" or "012-2206E (the form ID number). Once completed, the form is then to be sent to both the Minister and Director of the Environmental Assessment and Permissions Branch. Their addresses are:

Minister Ministry of the Environment, Conservation and Parks Minister.mecp@ontario.ca

Director, Environmental Assessment and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave. West, 1st Floor
Toronto, ON M4V 1P5
MOECCpermissions@ontario.ca

Should you have questions, please contact me either at (905) 521-7864 or at Barbara.slattery@ontario.ca With regards,

EA/Planning Coordinator

Barbara Slattery

Encl.



Amy Shaw
Manager
Guelph District Office
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks
Ontario Government Bldg 4th Flr
1 Stone Rd W
Guelph, ON, N1G 4Y2

Dear Amy Shaw,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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Amy Shaw

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Annamaria Cross
Manager
Environmental Assessment Services
Environmental Assessment and Permissions Division
Ministry of the Environment, Conservation and Parks
1st Flr, 135 St Clair Ave W
Toronto, ON, M4V 1P5

Dear Annamaria Cross,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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Annamaria Cross
Thursday, October 31, 2019
RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class
Environmental Assessment
Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
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Dave.Belanger@guelph.ca

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

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CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Heather Malcolmson Director (Acting) Environmental Assessment and Permissions Branch Ministry of the Environment, Conservation and Parks 1st Flr, 135 St Clair Ave W Toronto, ON, M4V 1P5

Dear Heather Malcolmson,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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Heather Malcolmson Thursday, October 31, 2019 RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

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Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@guelph.ca

Sincerely,

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CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Ling Mark
Director
Great Lakes and Inland Waters Branch
Land and Water Division
Ministry of the Environment, Conservation and Parks
Foster Bldg 10th Flr
40 St Clair Ave W
Toronto, ON, M4V 1M2

Dear Ling Mark,

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City Hall 1 Carden St Guelph, ON Canada N1H 3A1

T 519-822-1260 TTY 519-826-9771 Ling Mark

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 \times 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Natalie Stacey
Supervisor (Acting)
Air, Pesticides and Environmental Planning
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks
Ellen Fairclough Bldg 12th Flr
119 King St W
Hamilton, ON, L8P 4Y7

Dear Natalie Stacey,

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T 519-822-1260 TTY 519-826-9771 Natalie Stacey

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com

Sincerely,

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Water Supply Program Manager

Water Services

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T 519-822-1260 \times 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Paul Widmeyer
Manager (Acting)
Hamilton District Office
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks
Ellen Fairclough Bldg 9th Flr
119 King St W
Hamilton, ON L8P 4Y7

Dear Paul Widmeyer,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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Paul Widmeyer

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

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Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Sincerely,

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Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Peter Brown Indigenous Consultation Advisor Ministry of the Environment, Conservation and Parks 1st Flr, 135 St Clair Ave W Toronto, ON, M4V 1P5

Dear Peter Brown,

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Peter Brown
Thursday, October 31, 2019
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Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
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Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

T **519-822-1260** x **2186**

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Erick Boyd Manager (Acting) Community Planning and Development Western Municipal Services Office Ministry of Municipal Affairs and Housing Exeter Road Complex 2nd Flr 659 Exeter Rd London, ON N6E 1L3

Dear Erick Boyd,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

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We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

City Hall 1 Carden St Guelph, ON Canada N1H 3A1

T 519-822-1260 TTY 519-826-9771 Erick Boyd Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services

Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Jennifer McKay Coordinator, Water Resources (Acting) Ministry of Natural Resources and Forestry 6th Flr S 300 Water St Peterborough, ON, K9J 3C7

Dear Jennifer McKay,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

AECOM has been retained by the City of Guelph to conduct the Master Plan update. Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan update, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14**, **2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14**, **2019**.

We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

Jennifer McKay

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186

Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 \times 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Tammy Verhaeghe District Manager Guelph District Ministry of Natural Resources and Forestry Ontario Government Bldg 1 Stone Rd W Guelph, ON, N1G 4Y2

Dear Tammy Verhaeghe,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

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Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14, 2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14, 2019**.

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Tammy Verhaeghe
Thursday, October 31, 2019
RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class
Environmental Assessment
Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph



Transport Canada 330 Sparks St Ottawa, ON, K1A 0N5

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

AECOM has been retained by the City of Guelph to conduct the Master Plan update. Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan update, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14, 2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14, 2019**.

We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

Transport Canada
Thursday, October 31, 2019
RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class
Environmental Assessment
Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@guelph.ca

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph

T **519-822-1260 x 2186** F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph

Matthew Alexander, M.Sc., P.Geo.

Project Manager AECOM Canada Ltd 519-840-2223

Matthew.Alexander@aecom.com



Neil Zohorsky Regional Director (Acting) West Region Provincial Highways Management Division Ministry of Transportation Exeter Road Complex 4th Flr 659 Exeter Rd London, ON, N6E 1L3

Dear Neil Zohorsky,

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class Environmental Assessment

The City of Guelph is updating its Water Supply Master Plan (WSMP) to define how we will continue to provide a sustainable supply of municipal water from now until 2041. This is a chance to review our existing water supply system, and to discuss with the community how best to manage this vital resource so that we continue to provide the high level of service Guelph citizens have come to expect. The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City. Included with this letter is the Notice of Study Commencement which will appear in the Guelph Mercury Tribune on October 31, 2019.

AECOM has been retained by the City of Guelph to conduct the Master Plan update. Our Water Supply Master Plan update will follow the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at approximately five-year intervals. This 2019 update will be coordinated with the Official Plan update, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

Potential Involvement of Your Agency/ Organization

If your Agency/ organization would like to be notified for continued involvement in this Project, please indicate this by contacting us at the coordinates below by **November 14, 2019**. We recognize that this Project may not impact your mandate or programs, and should this be the case, we would appreciate you advising us either by email or letter by **November 14, 2019**.

We know that water is everyone's business and look forward to your input. We would be happy to meet with you to provide more information about the study and the progress made. In the meantime, to find out more about the Water Supply Master Plan Update please visit <u>Guelph.ca/WSMP</u> or contact:

Neil Zohorsky

Thursday, October 31, 2019

RE: Notice of Commencement—City of Guelph Water Supply Master Plan/Class

Environmental Assessment

Page 2 of 2

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

Sincerely,

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

T 519-822-1260 x 2186

F 519-822-8837

E <u>Dave.Belanger@guelph.ca</u>

CC Kate Bishop, City of Guelph

Guelph Water Supply Master Plan Notice of Commencement

Email Content

November 4, 2019

The City of Guelph is initiating a Municipal Class Environmental Assessment Study for a Water Supply Master Plan update. AECOM has been retained by the City of Guelph to conduct the Master Plan update and is contacting you on behalf of the City. Included with this email is the Notice of Study Commencement. Please reply to this email to indicate if you would like to be notified for continued involvement, and/ or if you would like to receive a hard copy of the attached documents.

You may also contact the City of Guelph's Water Supply Program Manager, Dave Belanger, at dave.belanger@guelph.ca or (519) 822-1260 ext. 2186 or AECOM's Project Manager, Matthew Alexander, at matthew.alexander@aecom.com or (519)840-2223.



guelph.ca/news

City News

NOTICE OF STUDY COMMENCEMENT

City of Guelph Municipal Class Environmental Assessment for Water Supply Master Plan Update

We're updating our Water Supply Master Plan!

The City of Guelph is updating the 2014 Water Supply Master Plan (WSMP) to review our municipal water supply sources and identify priorities, including sustainable water supply options from now until 2041.

Today, our existing water supply fulfills the City's commitment to provide a safe and reliable supply of water. Our WSMP update will look to the community to discuss how best to manage this vital supply so that we continue to provide the same high level of service to Guelph residents.

The updated WSMP will provide short-term, mid-term and long-term water supply options to ensure we can continue to meet the demands of Guelph's growing population. When investigating existing and new water supply options—like new groundwater sources in and outside of the City and local surface water sources—we'll consider things like water quality and quantity, climatic conditions, economic factors and any relevant regulations.

When we're done—after our WSMP update is reviewed by the Guelph community and approved by Council—we'll have identified constraints and opportunities related to our existing water supply system. We'll also have evaluated and prioritized individual projects to increase the capacity of our existing system.

We want to hear from you

Your feedback is an important part of the WSMP update.

- Join our Community Liaison Group. You'll help us set objectives for the WSMP update and assess alternative water supply options. If you're interested, please contact Matthew Alexander at 519-840-2223 or at matthewalexander@aecom.com.
- Attend our open houses and let us know what you think. Our first open house will be scheduled early in 2020. Dates for this event will be posted at guelph.ca/WSMP, in the City News pages of the Guelph Mercury Tribune and sent to the project mailing list.
- Read about our progress. Project information will be posted on our project page quelph.ca/WSMP
- Join our mailing list. Send us your name and how you would like to be contacted (e.g., email or mail) and we will keep you informed.
- · Follow the conversation on Twitter and Facebook.

The process

Our Water Supply Master Plan update will follow the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process described in the MCEA Manual (amended in 2015) by the Municipal Engineers Association. The WSMP update will be readily updated at

approximately five-year intervals. This 2019 update will be coordinated with the Official Plan, and will contain plans for execution of individual projects consisting of Class EA Schedule A, B and C activities.

For more information

Please visit **guelph.ca/WSMP** for the latest information about the WSMP update.

To provide your comments, request additional information, be added to the project mailing list, or if you require this notice to be provided in an alternative format as per the Accessibility for Ontarians with Disabilities Act (2005), please contact:

Dave Belanger, M.Sc., P.Geo., Water Supply Program Manager Water Services

Infrastructure, Development and Enterprise City of Guelph 519-822-1260, x 2186 dave.belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo., Project Manager AECOM Canada Ltd 519-840-2223 matthew.alexander@aecom.com

This notice was first issued on October 31, 2019.



AECOM

Appendix B

Notice of completion

- Notice
- Email Content

Public Notice



Notice of study completion

City of Guelph Municipal Class Environmental Assessment for Water Supply Master Plan Update

The City of Guelph has updated its 2014 Water Supply Master Plan (WSMP) to review municipal water supply sources and identify priorities, including sustainable water supply options from now until 2051. The update is part of the City of Guelph's commitment to ensuring adequate water supply while managing the city's population growth and respecting growth requirements for Guelph/Eramosa Township, Puslinch Township and Wellington County. The WSMP update provides short-term, mid-term and long-term water supply options to ensure that Guelph can continue to meet the demands of its growing population. It also identifies how to help increase the capacity of the City's existing water system and provide additional security of supply options.

The WSMP update was initiated in 2019 but it was delayed due to changes in the population growth projections received from the Province in August 2020. The project followed Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) described in the Municipal Engineers Association's MCEA Manual. Through analysis and evaluation of alternatives and input from the public, Community Liaison Group, and agency and municipality consultation, the recommended preferred alternatives were selected and refined. The alternatives identify next steps for how the City may proceed with future water supply projects.

The WSMP will be updated at approximately five-year intervals. This update was coordinated with the City's Official Plan update and contains plans for execution of individual projects consisting of Class EA Schedule B and C activities.

By this notice, the WSMP update is being placed on public record for a 90-day review period in accordance with the requirements of the MCEA process. This period will begin on January 10_{th} , 2022. Please provide all written comments by April 10_{th} , 2022 (within 90 days of this notice). The WSMP update may be viewed online at: https://guelph.ca/wsmp, or in person at the main branch of the Guelph Public Library (100 Norfolk St.). All comments will become part of the public record of the WSMP update with the exception of personal information. Please send your written comments to the contacts below by April 10_{th} , 2022:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager Water Services Infrastructure, Development and Enterprise City of Guelph 519-822-1260 x 2186 Dave.Belanger@quelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

Comments submitted to the City of Guelph for the purpose of providing feedback regarding the Water Supply Master Plan are collected under the authority of the Environmental Assessment Act. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Dave Belanger, Water Supply Program Manager at 519-822-1260 x2186 or dave.belanger@guelph.ca.

This notice was first issued on January 10th, 2022.

Water Supply Master Plan Update Notice of Completion

Email Content

January 10, 2022

Good morning,

I'm emailing you today to inform you of the completion of the City's Water Supply Master Plan Update. The City has updated its 2014 Water Supply Master Plan to review municipal water supply sources and identify priorities, including sustainable water supply options from now until 2051. The Notice of Completion is attached.

The final draft WSMP Update Report will be available for your review and comment from January 10 to April 10. The full report is available at https://guelph.ca/plans-and-strategies/water-supply-master-plan/. Please provide this information to other people in your organization, as necessary. City staff are also available to engage with you directly, once you have had time to review the report.

If you have comments, please send them by April 10, 2022 to Dave Belanger, Water Supply Program Manager at dave.belanger@guelph.ca or 519-822-1260 extension 2186, or Matthew Alexander, Project Manager at matthew.alexander@aecom.com or 226-821-4906.

Thank you.

AECOM

Appendix C

Community Open House #1 and #2

- Open House #1 Notice
- Open House #1 Advertisements
- Email Content #1
- Display Boards #1
- Survey #1
- Map #1
- Open House #2 Notice
- Open House #2 Advertisements
- Email Content #2
- Presentation #2
- Survey #2

Public Notice



Join us February 13 for the first Water Supply Master Plan open house

Help guide the City's Water Supply Master Plan

The City is updating the <u>2014 Water Supply Master Plan</u> (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows.

The WSMP update includes reviewing our current drinking water sources and identifying options for more sources, from now until 2041.

Have your say

We need your help! Over the next several months, the City will ask the community to share feedback, both in person and online, to help inform how we will manage our water supply as our community grows. We want to know how you use water today, and what is important to you for the future so that we can continue to provide excellent drinking water service to Guelph residents.

The City is hosting the first of two community open houses at City Hall on February 13.

What: 2019 Water Supply Master Plan update open house

Where: Marg MacKinnon Community Room, City Hall, 1 Carden Street (enter from the Galleria)

When: February 13, from 2-4 p.m. and 6-8 p.m.

Join us to learn about and share your thoughts on:

- the objectives and overview of the WSMP update
- the City's current drinking water supply
- proposed alternatives for meeting our drinking water supply needs
- proposed criteria and methodology for evaluating new drinking water sources
- next steps as we update the WSMP

Other ways to get involved

Your feedback is an important part of the WSMP update.

- Register, join the conversation and share thoughts at haveyoursay quelph.ca.
- **Read about our progress**. Project information will be posted on our project page at quelph.ca/wsmp.
- Join our mailing list. <u>Send us</u> your name and provide your address (email or post mail), and we'll keep you informed.
- Follow the conversation on <u>Twitter</u> and <u>Facebook</u>.

The process

Our Water Supply Master Plan update follows the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process. Guelph's WSMP is updated about every five years. The 2019 update will align with the City's Official Plan update, and will include project implementation plans with additional MCEA Schedule A, B and C activities.

For more information

Please visit <u>quelph.ca/wsmp</u> for the latest information about the WSMP update.

To provide your comments, request additional information, be added to the project mailing list, or if you require this notice to be provided in an alternative format as per the Accessibility for Ontarians with Disabilities Act (2005), please contact:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@quelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

This notice was first issued on January 30, 2020.

CITY OF GUELPH OPEN HOUSE

2

Join us February 13 for the first Water Supply Master Plan open house

Help guide the City's Water Supply Master Plan

The City is updating the 2014 Water Supply Master Plan (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows. The WSMP update includes reviewing our current drinking water sources and identifying options for more sources from now until 2041.

Have your say

We need your help! Over the next several months, the City will ask the community to share feedback, both in person and online, to help inform how we will manage our water supply as our community grows. We want to know how you use water today and what is important to you for the future, so that we can continue to provide excellent drinking water services to Guelph residents. The City is hosting the first of two community open houses at City Hall on February 13.

What: 2019 Water Supply Master Plan update open house

Where: Marg MacKinnon Community Room

City Hall, 1 Carden Street

When: February 13, from 2–4 p.m. and 6–8 p.m. Join us to learn about and share your thoughts on:

- the objectives and overview of the WSMP update;
- · the City's current drinking water supply;
- · proposed alternatives for meeting our drinking water supply needs;
- proposed criteria and methodology for evaluating new drinking water sources and;
- · next steps as we update the WSMP.

Other ways to get involved

Your feedback is an important part of the WSMP update.

- Join the conversation and share your thoughts at haveyoursay.guelph.ca.
- Read about our progress. Project information will be posted on our project page at guelph.ca/wsmp.
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For more information

Please visit **guelph.ca/wsmp** for the latest information about the WSMP update. To provide your comments, request additional information, or be added to the project mailing list, please contact:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

519-822-1260 x 2186 dave.belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager

AECOM Canada Ltd

519-840-2223

matthew.alexander@aecom.com

This notice was first issued on January 23, 2020.



Your weekly source of City information

NOTICE FOR NEW SIGNS

The City received applications for variances from the City of Guelph Sign By-law Number (1996)-15245, as amended. The requests for variances are for the following properties

10 Woodlawn Road East

Request for variance from Table 1, Row 1 of Sign By-law Number (1996)-15245, as amended, to permit one (1) non-illuminated building sign with an area of 1.76 metres squared (m²) to be located 2.08 m above the ground surface.

435 Stone Road West

Request for variance from Table 2, Row 13 of Sign By-law Number (1996)-15245, as amended, to permit one (1) illuminated menu board/ order board with a height of 3.13 m above the adjacent roadway.

Request for a variance from Table 2, Row 13 of Sign By-law Number (1996)-15245, as amended, to permit one (1) illuminated pre-sell menu board with a height of 1,81 m above the adjacent roadway.

Read the report

Reports relating to these applications will be available online on Thursday, January 16, 2020 at **guelph.ca**. For questions about these applications please email building@guelph.ca.

How to participate

nese variance applications will be addressed at the Council Planning meeting in Council Chambers, City Hall, 1 Carden Street, Guelph at 6:30 p.m. on Monday, January 27, 2020. If you wish to speak about either of these applications or provide a written submission, please register online at guelph.ca using the "Request to speak at a meeting form, email clerks@guelph.ca, or call the City Clerk's office at 519-837-5603 (TTY 519-826-9771) by Friday, January 24, 2020 at 10 a.m.

OPEN HOUSE

Join us February 13 for the first Water Supply Master Plan open house

Help guide the City's Water Supply Master Plan

the City's updating the 2014 Water Supply Master Plan (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows. The WSMP update includes reviewing our current drinking water sources and identifying options for more sources from now until 2041.

Have your say We need your help! Over the next several months, the City will ask the community to share feedback, both in person and online, to help inform how we will manage our water supply as our community grows. We want to know how you use water today and what is important to you for the future, so that we can continue to provide excellent drinking water services to Guelph residents. The City is hosting the first of two community open houses at City Hall on February 13.

What: 2019 Water Supply Master Plan update open house

Where: Marg MacKinnon Community Room City Hall, 1 Carden Street

When: February 13, from 2-4 p.m. and 6-8 p.m.

Join us to learn about and share your thoughts on:

- · the objectives and overview of the WSMP update;
- . the City's current drinking water supply;
- proposed alternatives for meeting our drinking water supply
- proposed criteria and methodology for evaluating new drinking water sources and-
- next steps as we update the WSMP.

Other ways to get involved

- Join the conversation and share your thoughts at haveyoursay.guelph.ca.
- Read about our progress. Project information will be posted at
- Join our mailing list. Send us your name and provide your address (email or post mail), and we'll keep you informed.
- · Follow the conversation on Twitter and Facebook

The process

Our Water Supply Master Plan update follows the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process Guelph's WSMP is updated about every five years. The 2019 update will align with the City's Official Plan update, and will include project implementation plans with additional MCEA Schedule A. B.

For more information

Please visit guelph.ca/wsmp for the latest information about the WSMP update. To provide your comments, request additional information, or be added to the project mailing list, please contact:

Matthew Alexander

AECOM Canada Ltd

matthewalexander@aecom.com

519-840-2223

Dave Belanger

Water Supply Program Manager Water Services City of Guelph

519-822-1260 x 2186

dave belanger@guelph.ca

This notice was first issued on January 23, 2020.

Be careful about what you put in your waste carts



Help keep us safe. Guelph Solid Waste Resources staff working the line at the Material Recovery Facility

Things like syringes, propane tanks, helium tanks, partially full paint cans, toner cartridges and cleaning products should not go in your carts.

When hazardous items end up in your carts, they can injure a worker, get stuck in equipment, shut down the facility, or contaminate clean material.

Please drop off your hazardous waste for free at the Waste Resource Innovation Centre (110 Dunlop Drive) all year round.

For more information Solid Waste Resources

519-767-0598 waste@guelph.ca



Not sure what goes where? Download the Guelph Waste app or use the Waste Wizard at guelph.ca/waste

Like us on facebook.com/cityofguelph

Accessible formats available by calling 519-822-1260 or TTY 519-826-9771



Your weekly source of City information

Have your say

on four proposed community gardens by February 14

New community gardens have been proposed for:

- · Mollison Park
- Stephanie Drive Park · St. George's Park · Burns Drive Park

We want to know how you community garden, the want to participate if it's

Take the survey at haveyoursay.guelph.ca



Holiday hours

Monday, February 17

City Hall will be closed on Monday, February 17 and will reopen at 8:30 a.m. on February 18.

Other City facilities, services and programs will operate on reduced holiday hours. Visit guelph.ca/holidayhours for a full listing of hours. Visit guelphtransit.ca for Guelph Transit service hours

Waste collection moves one day forward.



Ash tree and buckthorn removals in Westwood sugartree woodlot starting February 10

Crews will treat the invasive buckthorn from the natural area starting the week of February 10, to prepare the area for tree remova

We're starting work on February 17 to remove ash and hazard of our larger strategy to manage ash trees affected by the emerald ash borer and manage invasive species.

Sidewalks on Imperial Road at Bond Court will have intermittent closures

ks at the intersection of Imperial Road Court will be closed intermittently between February 17-21. Trail closures through the woodlot should be expected. We ask that residents stay out of the area while crews complete their work.

Approximately 100 trees, in addition to buckthorn, will be removed between February 17-21, weather permitting. Trees scheduled for removal will be marked with an orange 'x'

For more information

Timea Filer, Urban Forestry Field Technologist Parks Operations and Forestry 519-822-1260 x 3352

guelph.ca/environment

Open House

Join us February 13 for the first Water Supply Master Plan open house

Help guide the City's Water Supply Master Plan

the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows. The WSMP update includes reviewing our current drinking water sources and identifying aptions for more sources from now until 2041

Have your say

Over the next several months, the City will ask the community to share feedback, both in person and online, to help inform how we will manage our water supply as our community grows. We want to know how you use water today and what is important to you for the future, so that we can continue to provi excellent drinking water services to Gueloh residents. The City is hosting the first of two community open houses at City Hall on February 13

What: 2019 Water Supply Master Plan update open house City Hall, 1 Carden Street

When: February 13, from 2-4 p.m. and 6-8 p.m.

Join us to learn about and share your thoughts on:

- · the objectives and overview of the WSMP update;
- . the City's current drinking water supply
- · proposed alternatives for meeting our drinking water supply
- proposed criteria and methodology for evaluating new drinking water sources and:
- · next steps as we update the WSMP.

Other ways to get involved

back is an important part of the WSMP update

- Join the conversation and share your thoughts at haveyoursay.guelph.ca
- · Read about our progress. Project information will be posted at guelph.ca/wsmp
- Join our mailing list. Send us your name and provide your address (email or post mail), and we'll keep you informed.
- · Follow the conversation on Twitter and Facebook

The process

Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) in accordance with Approach #1 of the Master Plan Process. Guelph's WSMP is updated about every five years. The 2019 update will align with the City's Official Plan update, and will include project implementation plans with additional MCEA Schedule A, B and C activities.

For more information

Please visit guelph.ca/wsmp for the latest information about the WSMP update. To provide your comments, request additional information, or be added to the project mailing list, please contact

Dave Belanger Water Supply Program Manager

City of Guelph

dave belanger@quelph.ca

This notice was first issued on January 23, 2020.

Matthew Alexander

519-840-2223

Like us on facebook.com/cityofquelph

Accessible formats available by calling 519-822-1260 or TTY 519-826-9771

City of Guelph Water Supply Master Plan Open House – February 13 Email Content January 30, 2020

The City of Guelph is hosting the first of two community open houses for the Water Supply Master Plan at City Hall on February 13. The open house notice is attached with this email.

What: 2019 Water Supply Master Plan update open house

Where: Marg MacKinnon Community Room, Guelph City Hall, 1 Carden

Street (enter from the Galleria)

When: February 13, from 2-4 p.m. and 6-8 p.m.

Join us to learn about and share your thoughts on:

- the objectives and overview of the WSMP update
- the City's current drinking water supply
- proposed alternatives for meeting our drinking water supply needs
- proposed criteria and methodology for evaluating new drinking water sources
- next steps as we update the WSMP

Visit the <u>project page</u> to learn more, and join the conversation at <u>haveyoursay.guelph.ca</u>. You are receiving this email because you have indicated interest in receiving updates about the City of Guelph's Water Supply Master Plan update. You can opt out at any time by replying to this email.

Guelph Water Supply Master Plan open house #1 email Email content March 2, 2020

The City of Guelph hosted the first of two open houses for the Water Supply Master Plan (WSMP) update on February 13, 2020. For those of you who were able to make it out, thank you for attending and sharing your comments and questions with the project team.

The <u>display boards</u> are available on our project page under the resources section. We also have a digital version of the survey available and we are looking for your input until March 16, 2020. The survey is available through the City's online community engagement site, <u>Have Your Say Guelph</u>. We encourage you to both complete the survey and <u>register</u> to Have Your Say Guelph so you can stay up-to-date on current and future City of Guelph digital engagement opportunities.

The WSMP team is available to answer any questions, comments or concerns you may have. You can contact the City of Guelph's Water Supply Program Manager, Dave Belanger, at dave.belanger@guelph.ca or (519) 822-1260 ext. 2186 or AECOM's Project Manager, Matthew Alexander, at matthew.alexander@aecom.com or (519) 840-2223.





Welcome

Help shape the City's Water Supply Master Plan

The City is updating the 2014 Water Supply Master Plan (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows.

The WSMP update includes reviewing our current water supply sources and identifying priorities for a sustainable municipal water supply from now until 2041.

This is the first of two open houses to provide you with an opportunity to formally participate in the Master Plan process.

The purpose of this open house is to learn about and share your thoughts on:

the objectives and overview of the WSMP update

the City's current drinking water supply

proposed alternatives for meeting our drinking water supply needs

proposed criteria and methodology for evaluating new drinking water sources

next steps as we update the WSMP

Read through the information on display and complete a comment form in-person or online (haveyoursay.guelph.ca) after reviewing the boards and talking with our experts.

Our team is available to answer any questions you may have.





Why are we updating the Water Supply Master Plan?

Draft problem and opportunity statement

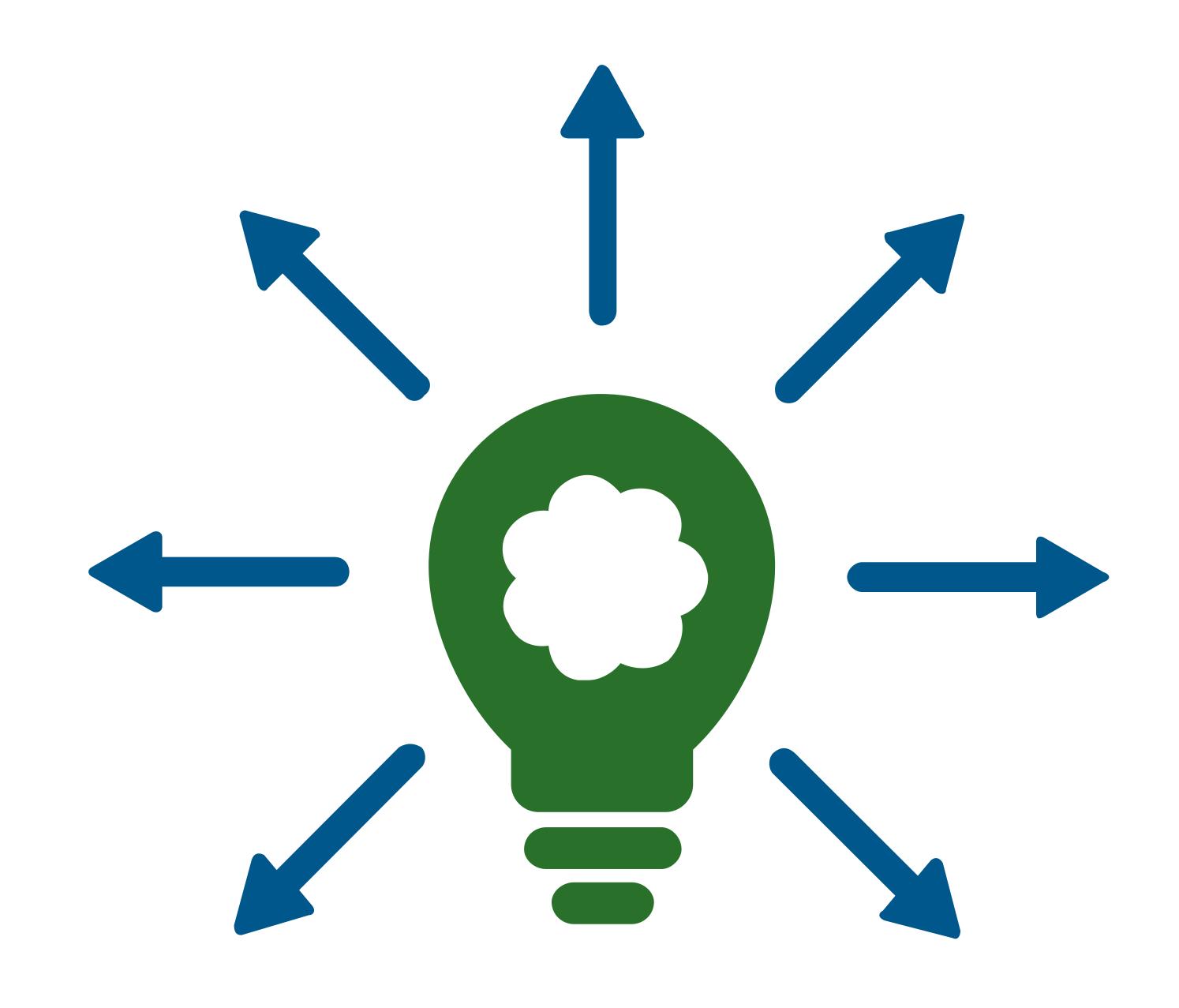
The City of Guelph is committed to managing population growth as it continues to develop strategies for ensuring adequate water supply. The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers.

The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting future demand. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required.

The proposed implementation strategy must deliver, through to 2041, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.



Do you have any suggested changes or additions to the draft problem and opportunity statement?









The water is sick and people need to really fight for that water, to speak for that water, to love that water."



Josephine Mandamin, Mother Earth Water Walker

https://m.facebook.com/story.php?story_fbid=3400290223331295&id=100000510517006&sfnsn=mo

Jospehine's Water Song

Ne-be Gee Zah- gay- e- goo Gee Me-gwetch -wayn ne- me - goo Gee Zah Wayn ne- me- goo

> Water, we love you. We thank you. We respect you.

The story of the Nibi (Water) song

Written by Doreen Day at the request of her grandson Mashkoonce. Doreen and her grandson gifted this to Josephine Mandamin, who gives permission for everyone to share this song and to sing it to water every day.

http://www.motherearthwaterwalk.com/?attachment_id=2244







The process

The Municipal Class Environmental Assessment (EA) process

Our WSMP update is completed every five years and follows the Municipal Class Environmental Assessment (EA) process. There are many opportunities to provide your input and comments throughout the process. Visit municipalclassea.ca to learn more about the Environmental Assessment process.



Identify and describe problem(s) and opportunities





Phase 2

Identify and evaluate alternative solutions and establish the preferred solution



Spring, Summer and Fall 2020

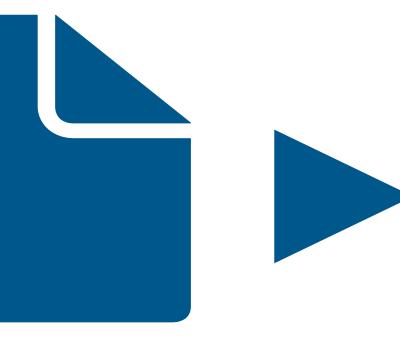
Provide comments, stay involved and help the City ensure a sustainable supply of water for our community!

You can help us ensure that we have enough water for the future as the city grows by participating in the WSMP update.



Report

City of Guelph Water Supply Master Plan



The WSMP identifies the need for individual projects and the conceptual feasibility, including anticipated project triggers and impacts

Individual projects will proceed in accordance with remaining class **Environmental Assessment** requirements

Remaining approvals will be completed with a focus on addressing site specific environmental impacts, and the required consultation and documentation













What is involved in the WSMP update?

From now until 2041

The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands. The 2019 WSMP update will re-examine Guelph's water supply and water demand and will make recommendations on how best to meet the community's water needs from now to 2041. The 2019 WSMP update will include the following steps:

Ongoing public engagement

Step 2:

Assess existing water supply capacity

- update the assessment of existing water well performance, maximum capacity and potential constraints for each water supply source
- compare existing capacity with the water demand projections

Step 4:

Update the WSMP

 develop a WSMP update report, including recommendations and an implementation plan for defined projects

2

3

4

Step 1:

Forecast future population and water demand

- consider anticipated growth in Guelph, both residential and industrial, commercial and institutional (ICI)
- develop water demand projections

Step 3:

Develop and evaluate water supply alternatives

 develop and evaluate water supply alternatives, including water conservation and efficiency programs





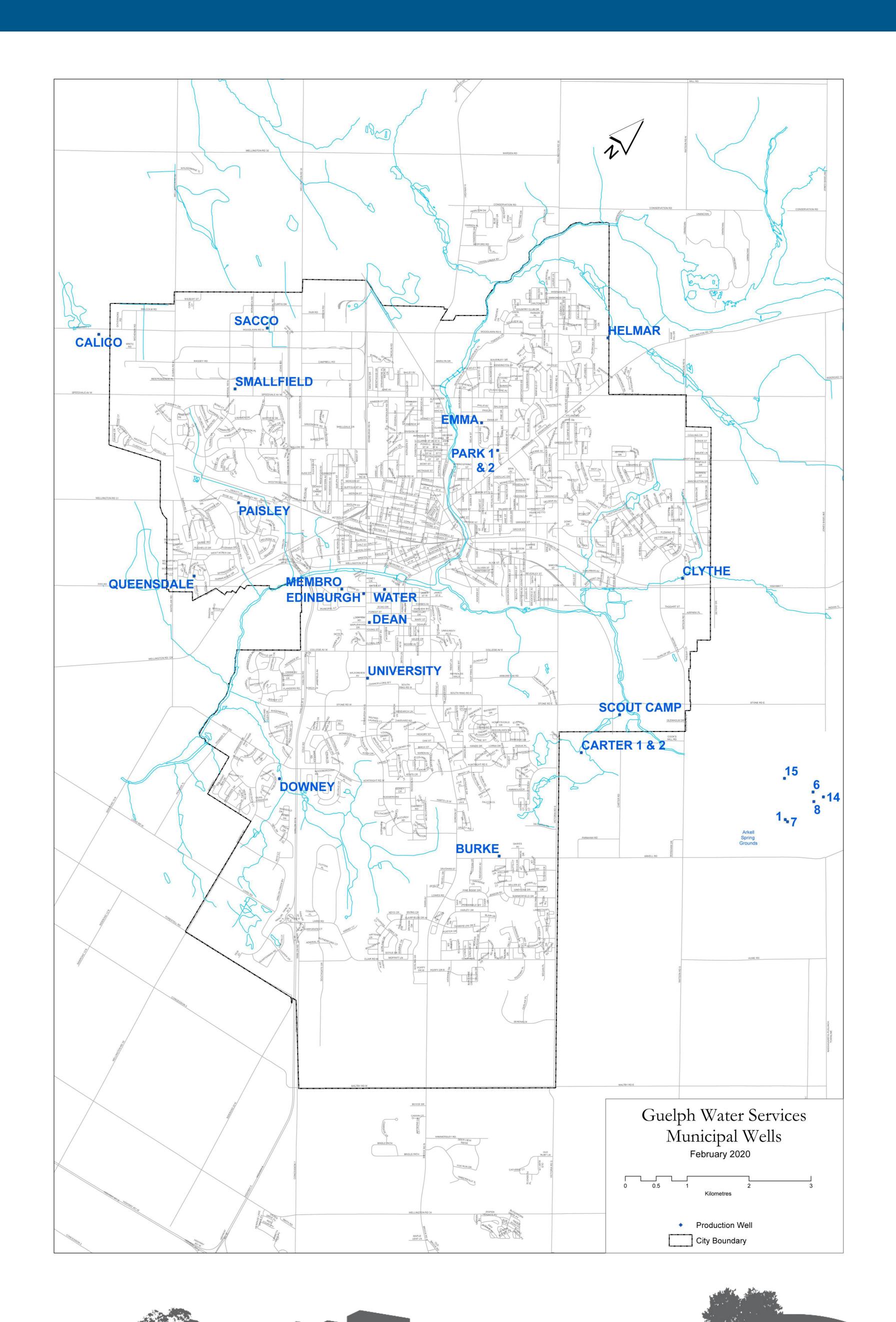
Guelph's water supply

A closer look at our current groundwater supply

Guelph has had a groundwater-based water supply since 1879. Our water is clean, safe and reliable, and meets the Ontario Drinking Water Quality Standards, which are among the strictest in the world.

Guelph's water supply system includes production wells primarily installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:

- 25 production wells, 21 wells in continuous operation, four wells offline (due primarily to water quality concerns)
- a shallow groundwater system that collects spring water in the Arkell Spring Grounds
- a seasonally operated Eramosa River Intake and Recharge system. River water is pumped to an infiltration pond and trench where it is captured by the Arkell subsurface collector system. Availability is subject to river flow conditions (i.e., reduced capacity during summer when river flows are low)
- the 2014 WSMP identified a system capacity of approximately 84,000 cubic metres per day







How much water do we need?

Estimating water supply capacity projections

The City's water supply capacity (pumping) requirements – i.e., what we need – are based on meeting peak day demand and providing system redundancy. In 2018, Guelph's:

- Average Day Demand was approximately 47,500 cubic metres per day
- Peak Day Demand was approximately 57,000 cubic metres per day

Therefore, with redundancy, Guelph currently requires approximately **71,250 cubic metres per day.** This is the same as roughly 29 Olympic-sized swimming pools.

Average Day Demand

is the total volume of water consumed in a year divided by 365 days.

Peak Day Demand

is the volume of water consumed on the highest water use day of the year; estimated as approximately 1.35 times Average Day Demand.

System Redundancy

is the amount of system capacity 'set aside' as contingency to allow for regular facility maintenance, and to safeguard against unplanned events. This is estimated as 1.5 times the Average Day Demand or an additional 10 per cent.



The WSMP update includes:

- developing population projections for residential and employment growth to 2041
- will reflect Ontario 2019 Growth Plan (191,000 residents and 101,000 jobs by 2041)
- developing water demand projections for average daily use, peak daily use and system redundancy
 - will be based on City water consumption and production data from 2010 to 2018



Guelph's population is expected to grow by more than 35 per cent by 2041 – from 140,000 to 191,000 residents. As we update our WSMP to plan for the water supply requirements of 191,000 residents, we will consider sustainable solutions for both water supply and growth.





Challenges we face

Challenges related to our water supply



A Tier 3 Water Budget and Local Area Risk Assessment identified the City's water supply as having a 'significant risk level' of not meeting the 2031 water demand under drought conditions



Whether a 10 per cent 'system redundancy' allowance is sufficient for ensuring security of our water supply



Understanding impacts from climate change and extreme weather events to our water supply



Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?



The existing Smallfield and Sacco wells are affected by contaminated sites and may need to be removed from consideration as City water supply options



Dolime Quarry – a proposal to close the quarry ahead of schedule and transfer water management to the City is under consideration



How surface water quantity and quality could be impacted if we pump more groundwater

Tier 3 Water Budget

As part of Ontario's Clean Water Act, the Tier 3 Water Budget provides an assessment of current and future sustainability of municipal drinking water systems. Growth, development and climate change impacts are considered.

Local Area Risk Assessment

As part of the Tier 3 Water Budget, a risk assessment determines an area where the municipal drinking water systems could be affected by other existing, new or expanded water takings.





Proposed alternative solutions

A snapshot of the water supply alternatives being considered/ updated

Demand management/ efficiency programs

- Maintain commitment to our water conservation initiatives and 2016 Water Efficiency Strategy
- Determine range of realistic goals and cost for implementation
 - Develop means to measure for effectiveness

Local surface water sources

- Establish feasibility/ risks of surface water alternatives including aquifer storage and recovery system
- Assessment areas include: Guelph Lake/ Speed River and Eramosa River

Groundwater sources in and outside of city

- Improve and optimize the existing well supply system
 - Restore offline wells with treatment
 - Identify new potential water supply areas
- Consider Dolime Quarry as a source of municipal water supply

Do nothing

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative

Did we miss any alternatives?



Conservation is key!

Thanks to conservation efforts we now use about 20 per cent less water in Guelph than the average person in Ontario. One of our conservation goals is reducing the City's water use by 6.2 million litres per day by 2026.





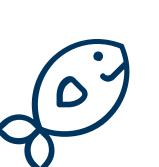
How will the proposed alternatives be evaluated?

A detailed evaluation of each proposed water supply alternative will be completed to assess the impact, if any, to the following:



Public health and safety

Ability to meet provincial water quality requirements



Natural environment

- Potential effects to natural environment
- Potential impacts to water resources
- Potential impacts to natural heritage features
- Environmental management planning considerations



Social and cultural resources

- Land use impacts
- Short-term construction impacts
- Potential impacts from operations
- Implications of new/ expanded Source Protection areas

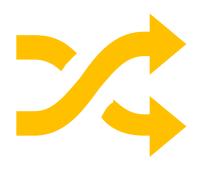
Additional considerations

- Alignment with City 2050 Net Zero Carbon emissions target
- Impacts on Indigenous peoples and values
 - Climate adaptability and resiliency



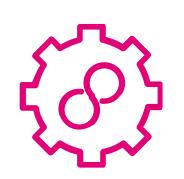
Economic and financial considerations

- Estimated capital costs
- Estimated operations and maintenance costs, including energy consumption



Legal/ jurisdictional considerations

- Location of facility relative to city boundaries
- Land requirements
- Implementation of Source Protection Policies



Technological considerations

- Ability to implement and meet peak demand
- Constructability, schedule and timing, and maintaining operations during construction
- Water quality
- Allowance for future treatment needs
- Expandability
- Ability to respond to changes in regulations
- Ability to utilize existing infrastructure



Are there additional evaluation criteria we should include?





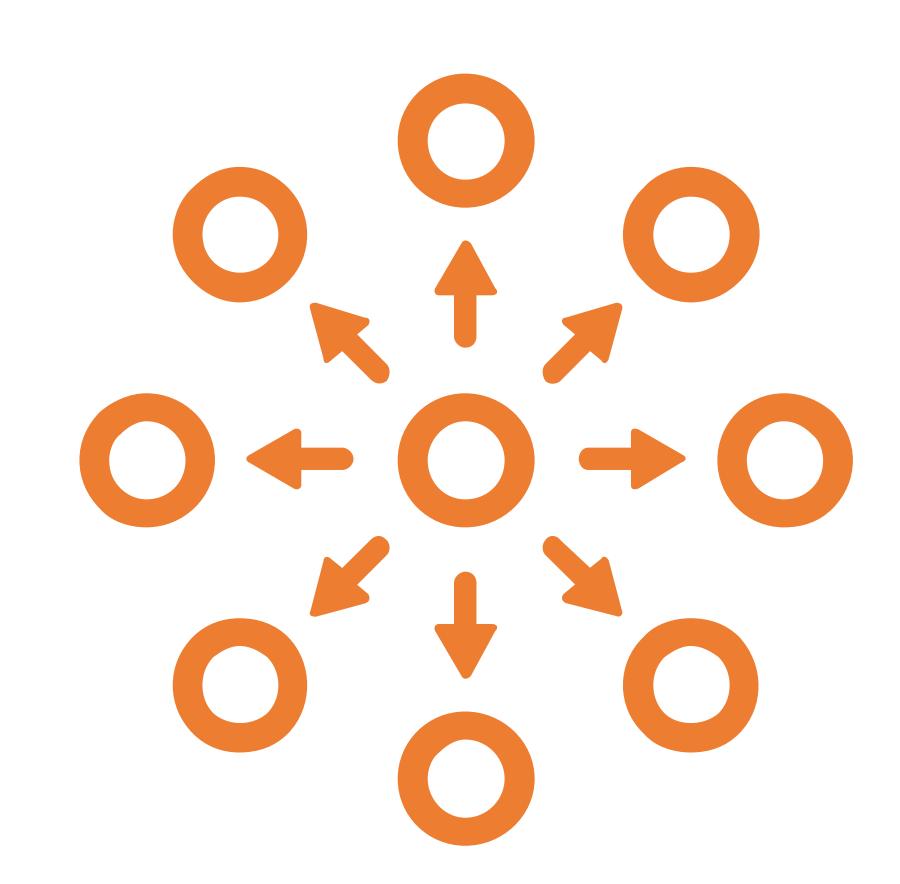
Aligning with other City project

If you are interested in the Water Supply Master Plan, you may also be interested in other water master planning projects that are underway at the City.

These include:

- Wastewater and Biosolids Master Plan;
- Water and Wastewater Servicing Master Plan; and
- Stormwater Master Plan.

These projects are being conducted to support the City's Official Plan Update to be completed in 2021.



Watch the City news for information on community engagement for these projects.





Next Steps

Thank you for your interest in learning about the City of Guelph's WSMP update.

Get involved

Your feedback is an important part of the WSMP update.

- Register, join the conversation and share thoughts at haveyoursay.guelph.ca.
- Read about our progress. Project information will be posted on our project page at guelph.ca/wsmp.
- Join our mailing list. <u>Send us</u> your name to the contacts below and provide your address (email or post mail), and we'll keep you informed.
- Follow the conversation on <u>Twitter</u> (<u>twitter.com/cityofguelph</u>) and <u>Facebook</u> (<u>facebook.com/cityofguelph</u>).



Contact us with any additional comments or questions at any time:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
Infrastructure, Development and Enterprise
City of Guelph

519-822-1260, ext. 2186

Dave.Belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223

Matthew.Alexander@aecom.com

Please remember to drop off your completed comment form in the comment box.

City of Guelph Territorial Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.

Open house #1 Feedback Form

We want to hear your ideas, suggestions and opinions! Thank you for attending and participating in the first community open house for the City of Guelph Water Supply Master Plan (WSMP) on February 13, 2020. Please complete this feedback form so your valued input may be considered and documented as part of the Municipal Class Environmental Assessment (EA).

- Name:
- Mailing address:
- Email address:
- Telephone:

Future communications

How would you prefer to receive information about this study in the future?

- Email (please provide email above)
- I do not wish to receive further information
- Regular Mail
- Are there better ways to let you know about future meetings?

How did you hear about the open house? Please check all that apply.

- Advertisement
- Received the notice via email
- Project website
- Other, please specify:

What parts of this open house were of the most interest to you? (please check all that apply)

- Viewing the information displays
- Having the opportunity to meet and talk directly with the project team
- Providing feedback regarding the WSMP
- Other, please specify:

Draft problem and opportunity statement

The City of Guelph is committed to managing population growth as it continues to develop strategies for ensuring adequate water supply. The goal

is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers.

The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting future demand. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required.

The proposed implementation strategy must deliver, through to 2041, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.

1. Do you have any suggested changes or additions to the draft problem and opportunity statement?

Challenges we face

- A Tier 3 Water Budget and Local Area Risk Assessment identified the City's water supply as having a 'significant risk level' of not meeting the 2031 water demand under drought conditions
- Whether a 10 per cent 'system redundancy' allowance is sufficient for ensuring security of our water supply
- Understanding impacts from climate change and extreme weather events to our water supply
- The existing Smallfield and Sacco wells are affected by contaminated sites and may need to be removed from consideration as City water supply options
- DolimeQuarry –a proposal to close the quarry ahead of schedule and transfer water management to the City is under consideration
- How surface water quantity and quality could be impacted if we pump more groundwater

2. Are there other unique challenges that Guelph faces and should be considered with regards to our water supply?

Proposed alternative solutions

Demand management/ efficiency programs

- Maintain commitment to our water conservation initiatives and 2016
 Water Efficiency Strategy
- Determine range of realistic goals and cost for implementation
- Develop means to measure for effectiveness

Groundwater sources in and outside of city

- Improve and optimize the existing well supply system
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- Consider Dolime Quarry as a source of municipal water supply

Local surface water sources

- Establish feasibility/ risks of surface water alternatives including aquifer storage and recovery system
- Assessment areas include: Guelph Lake/ Speed River and Eramosa River

Do nothing

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative

3. Did we miss any alternatives?

Evaluation criteria

Public health and safety

Ability to meet provincial water quality requirements

Natural environment

- Potential effects to natural environment
- Potential impacts to water resources
- Potential impacts to natural heritage features
- Environmental management planning considerations

Social and cultural resources

- Land use impacts
- Short-term construction impacts
- Potential impacts from operations
- Implications of new/ expanded Source Protection areas

Economic and financial considerations

- Estimated capital costs
- Estimated operations and maintenance costs, including energy consumption

Legal/ jurisdictional considerations

- Location of facility relative to city boundaries
- Land requirements
- Implementation of Source Protection Policies

Technological considerations

- Ability to implement and meet peak demand
- Constructability, schedule and timing, and maintaining operations during construction
- Water quality
- Allowance for future treatment needs
- Expandability
- Ability to respond to changes in regulations
- Ability to utilize existing infrastructure

Additional considerations

- Alignment with City 2050 Net Zero Carbon emissions target
- Impacts on Indigenous peoples and values
- Climate adaptability and resiliency

4. Are there additional evaluation criteria we should include?

We appreciate the time you have taken to learn more about our plans and contribute your input!

Please submit this form at the welcome table before you leave. You can also submit your feedback online by registering at haveyoursay.guelph.ca

Other ways to get involved

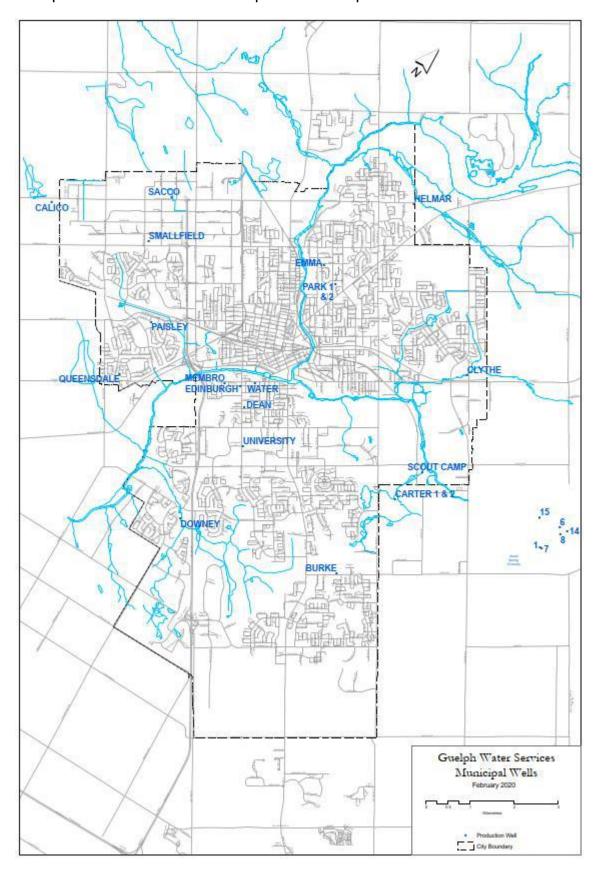
- Read about our progress. Project information will be posted on our project page at guelph.ca/wsmp
- Join our mailing list. <u>Send us</u> your name to the contacts below and provide your address (email or post mail), and we'll keep you informed.
- Follow the conversation on Twitter (twitter.com/cityofguelph)and Facebook (facebook.com/cityofguelph).

Contact us with additional comments or questions at any time:
Dave Belanger
Water Supply Program Manager
City of Guelph
519-822-1260 x 2186 / dave.belanger@guelph.ca

Matt Alexander Project Manager, Senior Hydrogeologist AECOM Canada Ltd. 519-840-2223 / matthew.alexander@aecom.com

Notice of collection: Personal information, as defined by the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) is collected under the authority of the Municipal Act, 2001, and in accordance with the provisions of MFIPPA. Personal information on this form will be used to send out electronic project updates related to the 2019 Water Supply Master Plan update. If you have questions about this collection; use, and disclosure of this information, contact the City of Guelph's Access, Privacy and Records Specialist at 519-822-1260 x 2349 or Jennifer.Slater@guelph.ca

Guelph Water Services Municipal Wells Map



Public Notice



Join us September 29 for the second Water Supply Master Plan virtual open house

Help guide the City's Water Supply Master Plan

The City is updating the <u>Water Supply Master Plan</u> (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows.

The WSMP update includes reviewing our current drinking water sources and identifying options for more sources, from now until 2051.

Our first open house was held in February 2020 and we would like to share our progress since then.

Have your say

We need your help! The City will ask the community to share feedback to help inform how we will manage our water supply as our community grows. We want your input on the project progress, and upcoming developments. The City is hosting a virtual open house to discuss the WSMP update and future plans. The open house will include a presentation and opportunity for questions and answers.

What: 2021 Water Supply Master Plan update virtual open house

Where: Online via Teams Meeting

When: September 29 from 6:30 p.m. - 8:30 p.m.

How to register in advance

Contact Tracey McKenna at tracey.mckenna@aecom.com or 416-605-6678 to register in advance with your name, email address and telephone number (if you are joining by telephone only) and a meeting invite will be provided. Please let us know if you have any accessibility requirements. A direct access link and phone number will also be uploaded on the project engagement page https://www.haveyoursay.guelph.ca/wsmp the day of the open house. We welcome any questions submitted in advance. You can also contact Dave Belanger or Matthew Alexander (information below)

Join us to learn about and share your thoughts on:

- the objectives and overview of the WSMP update
- the projected water supply requirements to 2051
- the City's current drinking water supply
- results and recommendation(s) from the evaluation of alternatives for meeting our drinking water supply needs
- next steps as we update the WSMP

Other ways to get involved

Your feedback is an important part of the WSMP update.

- Register, join the conversation and share thoughts at https://www.haveyoursay.quelph.ca/wsmp.
- Read about our progress. Project information will be posted on our project page at guelph.ca/wsmp.
- **Join our mailing list**. <u>Send us</u> your name and provide your address (email or post mail), and we'll keep you informed.
- Follow the conversation on Twitter and Facebook.

For more information

Please visit <u>quelph.ca/wsmp</u> for the latest information about the WSMP update.

To provide your comments, request additional information, be added to the project mailing list, or if you require this notice to be provided in an alternative format as per the Accessibility for Ontarians with Disabilities Act (2005), please contact:

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager
Water Services
AECOM Canada
Infrastructure, Development and Enterprise
City of Guelph
519-822-1260 x 2186
Dave.Belanger@quelph.ca

Matthew Alexander, M.Sc., P.Geo.

Project Manager
AECOM Canada Ltd
519-840-2223
Matthew.Alexander@aecom.com

This notice was first issued on September 10, 2021.

guelph.ca/news



Notice of the passing of a zoning bylaw by the City of Guelph

Guelph City Council passed By-law (2021)-20626, for property at 29-31 Fountain Street West (OZS21-005) on September 13, 2021 under section 34 of the Planning Act, R.S.O. 1990, c. P.13, as amended.

An explanation of the numose and effect of the hylaw as well as a key map of the lands are included. For more information regarding zoning amendment, contact the Planning Services at 519-837-5616, email at planning@guelph.ca or in person at Guelph City Hall. (8:30 a.m. to 4:00 p.m., Monday to Friday)

Only Individuals, corporations and public bodies may appeal a bylaw to the Ontario Land Tribunal (OLT). A notice of appeal may not be filed by an unincorporated association or group. However, a notice of appeal may be filed in the name of an individual who is a member e association or the group on its hehalf. An appeal m filed with the City Clerk no later than October 13, 2021 at 4 p.m. The appeal must set out the reasons for the appeal and be accompanied by the fee of \$1,100.00, paid by credit card,

certified cheque or money order payable to the Minister of Finance. The forms are available from ServiceGuelph, Guelph City Hall or on OLT's website, www.olt.gov.on.ca.

No person or public body will be added as a party to the hearing of the appeal of the decision unless, before the bylaw was passed, the

person or public body made oral submissions at a public meeting or written submissions to the council or, in the opinion of the LPAT, there are reasonable grounds to add the person or public body as a party.

Any and all written submissions relating to this application that were made to City Council before its decision and any and all oral submissions related to this application that were made at a public meeting, held under the Planning Act, have been, on balance, taken into consideration by City Council as part of its deliberations and final decision on this matter.

DATED at the City of Guelph September 23, 2021.

Stephen O'Brien City of Guelph, 1 Carden Street, Guelph, ON N1H 3A1 clerks@quelph.ca 519-837-5603

By-law (2021)-20626

Explanation of purpose and effect and key map By-law (2021)-20626 has the following purpose and effect:

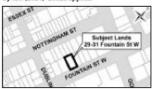
This bylaw authorizes a zoning bylaw amendment affecting the

lands municipally known as 29-31 Fountain Street West, City of Guelph from the "Residential Single Detached" (R.1B) Zone to the "Residential Semi-Detached/Duplex" (R.2) Zone to recognize the existing semi-detached dwelling and allow for future consent applications to divide the subject lands into separate parcels.

The proposed zoning amendment was considered by City Council. at a public meeting held on June 14, 2021

For more information, call Planning Services at 519-837-5616 extension 2492

The key map showing the location of the subject lands to which By-law (2021)-20626 applies:



Meeting notice

Join us September 29 to talk about the future of drinking water in Guelph

Help guide the City's Water Supply Master Plan

The City is updating the Water Supply Master Plan, the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows.

This master plan update includes reviewing our current drinking water sources and identifying options for more sources from now

Our first open house was held in February 2020. We used your input to guide our plans and now it's time to share what we've learned and what we're recommending.

Have your say

We want your thoughts on potential drinking water sources we've evaluated with criteria you told us was important. Join us for a virtual open house to learn about Guelph's Water Supply Master Plan, our current drinking water sources, our expected needs to 2051 and our recommendations for meeting them, what the next steps are. This live, virtual open house includes a presentation and an opportunity to ask questions.

Water supply master plan update virtual open house

September 29

6:30–8:30 p.m. Online via Teams Meeting

Register in advance

register for this live, virtual event, provide your name, email address and telephone number (if you are joining by telephone only) to Tracey McKenna at tracey.mckenna@aecom.com or

416-605-6678

Please include any accessibility requirements you have and feel welcome to submit questions in advance.

The link to the live event will also be posted at

haveyoursay.guelph.ca/wsmp the day of the open house.

Other ways to get involved

- haveyoursay.guelph.ca/wsmp
- Read about our progress. Project information is posted and updated at guelph.ca/wsmp

- Join our mailing list by sending your name and address femail or post mail) to dave.belanger@guelph.ca
- · Follow the City on Twitter and Facebook

For more information

Visit guelph.ca/wsmp for the latest information about the Water Supply Master Plan update.

To provide your comments, request additional information, be added to the project mailing list, or if you require this notice to be provided in an alternative format as per the Accessibility for Ontarians with Disabilities Act (2005), please contact:

Dave Belanger, M.Sc., P.Geo.

Program Manager, Environmental Services City of Guelph

519-822-1260 extension 2186

dave.belanger@guelph.ca

Matthew Alexander, M.Sc., P.Geo.

AECOM Canada Ltd

matthew.alexander@aecom.com

This notice was first issued on September 16, 2021.

Subject line: Guelph Water Supply Master Plan Virtual Open House #2

To: Attendees

Date: September 28, 2021

Good afternoon,

The City of Guelph is updating the 2014 Water Supply Master Plan to review our water supply sources and identify priorities, including sustainable municipal water supply options, from now until 2051. The Open House will feature a presentation about the work done to date along with a question and answer period with the project team.

For more information about how to use Teams, we've attached a Best Practices guide for your reference.

For more information visit: https://guelph.ca/plans-and-strategies/water-supply-master-plan/

Thanks!



Welcome

Water Supply Master Plan Open House #2

September 29, 2021

6:30 p.m. to 8:30 p.m.

We will begin shortly. Please make sure you are muted.

For your convenience, you will find a chat window on the screen where you can type in a question at any time. We will address the questions at the end of the presentation.



Territorial acknowledgement



- As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.
- As a City we have a responsibility for the stewardship of the land on which we live and work.
- Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.



Housekeeping



- We kindly ask attendees to be muted throughout the presentation until the Question and Answer portion of today's session
- If you have any technological issues, please also use the chat window
- All materials and a survey will be sent out to attendees following the open house
- This open house is being recorded





Agenda



- 6:30 p.m. 8:30 p.m.
- Introductions and purpose
- Presentation
- Questions and answers



Introductions

Dave Belanger

Water Supply Program Manager WSMP Project Manager City of Guelph



Matthew Alexander

Project Manager AECOM Canada Ltd.



Bill Gauley

Water Conservation and Efficiency Lead Gauley Associates Ltd.





Introduction



The City is updating the 2014 Water Supply Master Plan (WSMP), the City's long-term plan for ensuring we sustain our drinking water sources and services as our community grows.

- The WSMP update includes reviewing our current water supply sources and identifying priorities for a sustainable municipal water supply from now until 2051.
- This is the second open house to provide you with an opportunity to formally participate in the Master Plan process.



Open house purpose



The purpose of this open house is to learn about and share your thoughts on:

- the potential alternative water supply sources that have been identified
- the detailed evaluation of the alternatives
- the preferred solution(s) that has been identified





Master plan challenge and opportunity statement



- The City of Guelph is committed to managing population growth as it continues to develop strategies for ensuring adequate water supply
- The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers



Master plan challenge and opportunity statement (cont'd)



- The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting future demand to 2038
- It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects
- The proposed implementation strategy must deliver, through to 2051, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised





The Municipal Class Environmental Assessment process









What is involved in the WSMP Update



Ongoing Public Engagement

Task 1

Task 2

Task 3

Task 4

Forecast future population and water demand

- consider anticipated growth in Guelph, both residential and industrial, commercial and institutional (ICI)
- develop water demand projections to 2051

Assess existing water supply capacity

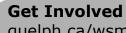
- update the assessment of existing municipal water wells performance, maximum capacity and potential constraints for each water supply source
- compare existing capacity with the water demand projections

Develop and evaluate water supply alternatives

 develop and evaluate water supply alternatives, including water conservation and efficiency programs

Update the WSMP

 develop a WSMP update report, including recommendations and an implementation plan for defined projects







Public consultation



- One in-person and one virtual Open House
- Project overview meetings with Six Nations of the Grand River and Mississaugas of the Credit First Nation (October 2021)
- Project information and updates provided to the above communities and the Haudenosaunee Confederacy of Chiefs
- Two Agency & Municipality Workshops
- Three Community Liaison Group Meetings
- Two Water Conservation & Efficiency Public Advisory Committee Meetings
- Project information provided at other City events:
 - Guelph Wellington Development Association and Guelph and District Home Builders' Association
 - Our Community, Our Water Open House



Consultation feedback

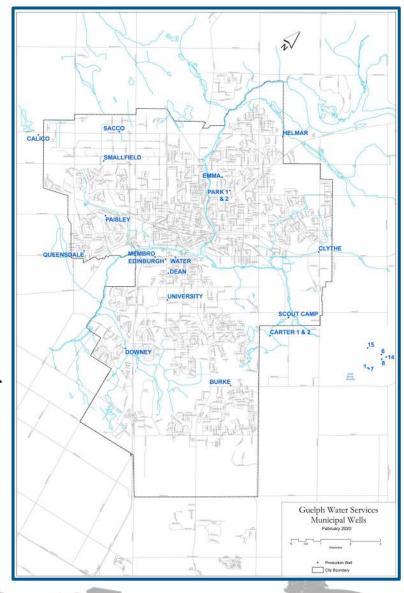


- Prioritizing conservation
- Protecting the natural environment
- Managing growth and development
- Controlling groundwater impacts from large water users
- Monitoring emerging contaminants
- Limiting impacts to aquatic and terrestrial wildlife
- Prioritize supply within City before sources within Township(s)
- Consider potential climate change impacts on water supply
- Valuing the agency of water



Guelph's water supply

- Groundwater-based water supply since 1879
- Includes production wells primarily installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells, 21 wells in continuous operation, four wells offline (due primarily to water quality concerns)
 - a shallow groundwater system that collects spring water in the Arkell Spring Grounds
 - a seasonally operated Eramosa River Intake and Recharge system
 - an updated assessment identified a system capacity of approximately 79,000 cubic metres per day







How much water do we need?



The WSMP update:

- developed population projections for residential and employment growth to 2051
 - population projections provided by Ontario 2020 Growth Plan 203,000 residential and 116,000 employment
- developed water demand projections for average daily use, maximum daily use and system redundancy
 - City water consumption and production data from 2010-2019 were reviewed to develop projections



Guelph

How much water do we need?



Average day demand is the total volume of water consumed in a year divided by 365 days. This is estimated to be 68,300 m³/day in 2051.

Maximum day demand is the volume of water consumed on the highest water use day of the year; estimated as approximately 1.34 times Average Day Demand. This is estimated to be 91,500 m³/d in 2051.

System redundancy is the amount of system capacity 'set aside' as contingency to address uncertainty in planning process, to accommodate regular facility maintenance, and to safeguard against unplanned events. This is estimated as an additional 15%.

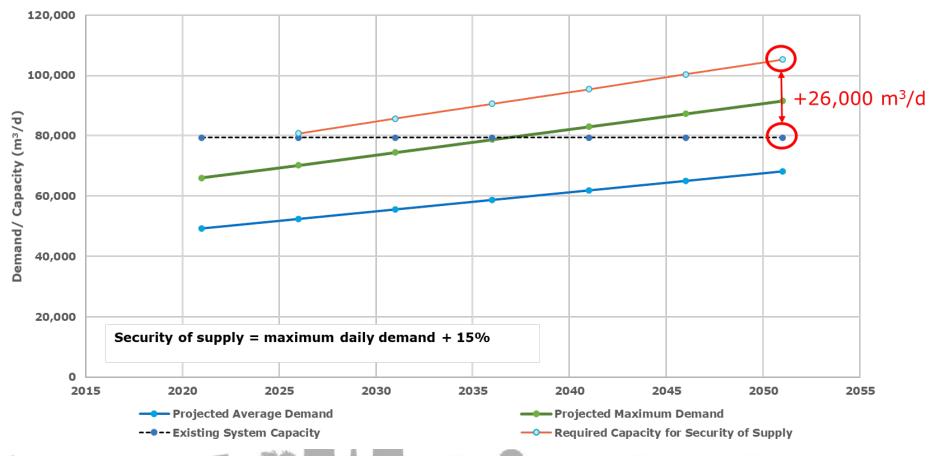


Guelph

How much water do we need?









Identified alternative solutions



The water supply alternatives considered in the evaluation



Demand management/ efficiency and water reuse programs

- Maintain commitment to our water conservation initiatives and 2016 Water Efficiency Strategy
- Review success of programs since 2014 and evaluate trends in other jurisdictions
- Determine range of realistic goals and cost for implementation



Groundwater sources in and outside of city

- Improve and optimize the existing well supply system
- Restore offline sources with treatment
- Identify new potential groundwater supply areas, including the Dolime Quarry
- Install aguifer storage and recovery wells



Identified alternative solutions



The water supply alternatives considered in the evaluation



Local surface water sources

- Establish feasibility/ risks of surface water alternatives including aquifer storage and recovery system
- Assessment areas include: Guelph Lake/ Speed River and Eramosa River



Do nothing/ limit growth

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative

WSMP study area

New water supply sources were limited to an approximately 5-kilometer
 area around the City to align with a desire to maintain local sustainability







Water Conservation and Efficiency Alternative



- Four scenarios identified for alternative
- High level of detail for evaluation purposes; detailed programs will be developed through Water Efficiency Strategy
- Demand reduction targets and estimated cost established for each scenario

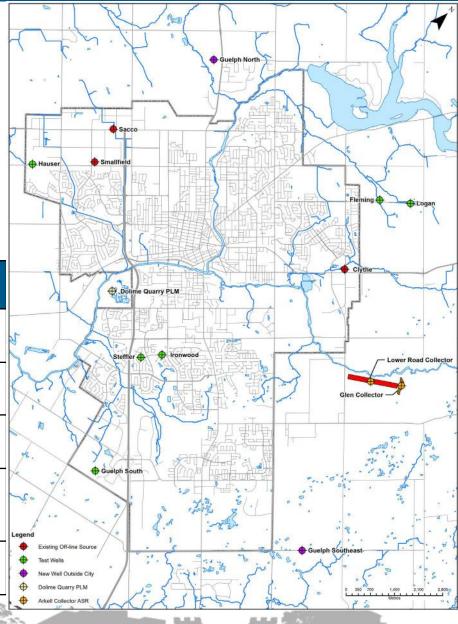
Scenario	Description	Reduction in 2051 Demand	Estimated Cost (\$/m³/day)
1	Baseline – Cease Non-mandatory Programs	No reduction	No cost
2	Current Level of Effort	4,400 m³/day	\$2,600
3	Focus on High Demand Customers	2,200 m³/day	\$2,100
4	Current Level of Effort with Water Reuse	4,900 m³/day	\$3,000



Groundwater Alternative

- Five categories of groundwater sources evaluated
- Groundwater flow model used to evaluate amount of water available and potential impacts

Water Source	Description	Location
Existing off-line source	Three supply wells, one groundwater collector	In City and City-owned land
Test wells	Six existing test wells	In City and City-owned land
Quarry Pond Level Management	Dolime quarry water management strategy	Borders City, annexation process in progress
Arkell Collectors Aquifer Storage and Recovery	Treat excess water from collectors to potable standard, inject into deep aquifer for later use	In City and City-owned land
New Wells	Hypothetical wells outside of City	Outside City (north and southeast)

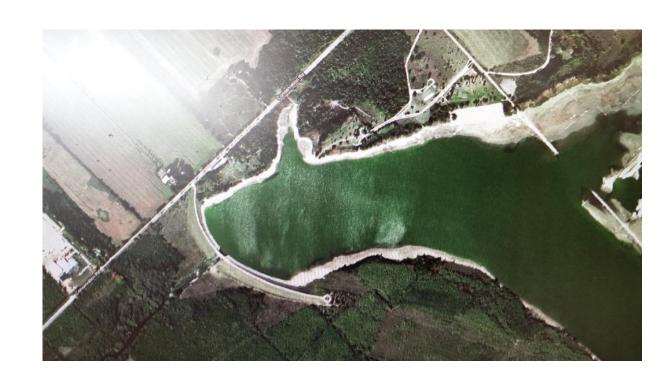


Get Involved quelph.ca/wsmp | haveyoursay.quelph.ca



Surface Water Alternative

- Guelph Lake as surface water supply under two scenarios:
 - Water Treatment Plant (WTP) to potable water standards; and
 - WTP with excess water for Aquifer Storage and Recovery
- Grand River Conservation Authority analysis of long-term flow data to identify amount of water available for supply
- Considers down stream flow requirements





Evaluation criteria





First Nations, Métis and Inuit Peoples

 Effect on Indigenous values, cultural and Traditional use



Built Environment

- Potential effect on existing/ planned structures
- Potential effects on private and municipal wells



Natural **Environment**

- Potential effects to natural environment
- Potential impacts to water resources
- Potential impacts to natural heritage features
- Environmental management planning considerations





Evaluation criteria





Social and Cultural Environment

- Land use impacts
- Short-term construction impacts
- Potential impacts from operations
- Cultural heritage/ archaeology impacts
- Ability to meet growth targets
- Public acceptance



Economic and Financial Considerations

- Estimated capital costs
- Estimated operations and maintenance costs, including energy consumption



Legal/ Jurisdictional Considerations

- Location of facility relative to city boundaries
- Land requirements
- Implementation of Source Protection Policies





Evaluation criteria



Technological Considerations

- Ability to implement and meet maximum demand
- Constructability of alternative
- Water treatment requirements (current and future)
- Expandability of facility
- Ability to respond to changes in regulations
- Ability to utilize existing infrastructure
- Approval requirements





Detailed alternatives evaluation – conservation and efficiency



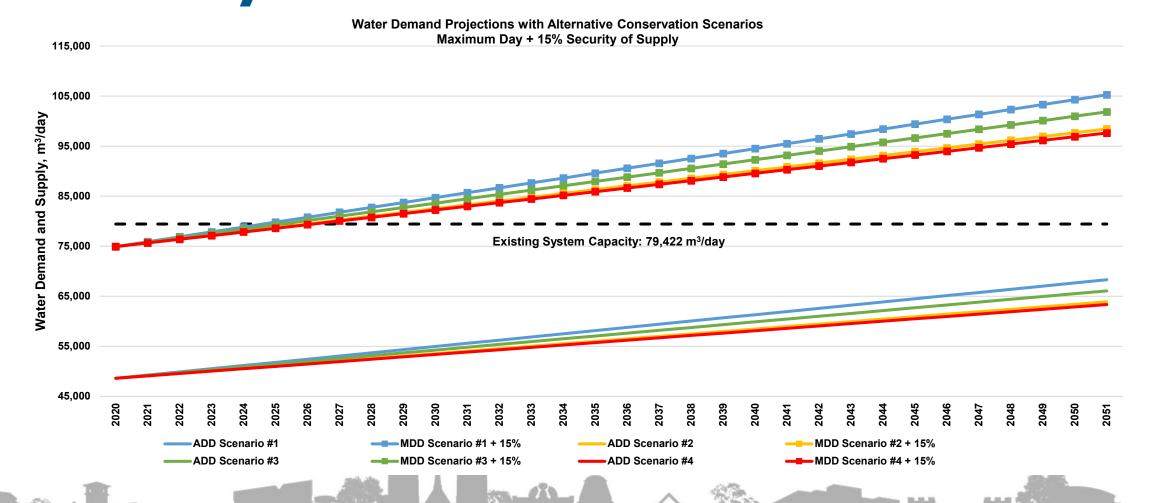
Scenario	Description	Key Evaluation Considerations	Outcome
1	Baseline – Cease Programs	 Does not achieve demand reductions Inferred low public acceptance No associated costs 	Not preferred
2	Current Level of Effort	 Moderate demand reduction Inferred high public acceptance Minor changes to existing/ planned buildings Low to moderate costs relative to supply alternatives 	Preferred as part of short-term strategy
3	Focus on High Demand Customers	 Least demand reduction Inferred high public acceptance Minor changes to existing/ planned buildings Low costs relative to supply alternatives 	Preferred as part of short to mid- term strategy
4	Current Level of Effort with Water Reuse	 Most demand reduction Inferred moderate public acceptance (some education may be required) Minor changes to existing/ planned buildings, moderate impact to WWTP infrastructure Reuse options can require regulatory approvals Moderate to high costs relative to supply alternatives 	Preferred as part of long-term strategy





Conservation/ efficiency alternative summary









Detailed alternatives evaluation – off-line municipal sources



Groundwater Source	Description	Key Evaluation Considerations	Outcome
Existing Off- Line Sources	Wells: Clythe, Sacco, Smallfield, Lower Road Collector (LRC)	 High certainty of available water volume, water quality Some infrastructure in place; upgrades required Past operation demonstrates low environmental impacts, some additional study required Risk of contaminant movement-potential environmental and legal issue; remediation of contamination prior to 2051 is unlikely; returning well to service not currently considered feasible Low to high costs 	 Preferred as part of overall solution Clythe Class EA complete, can be implemented in short-term Lower Road Collector to be studied further Uncertain timeline for Sacco/ Smallfield due to contamination issue; returning well to service not currently considered feasible High priority as sources are within City, on City-owned land; Clythe can be implemented in short-term; work required to advance LRC and Sacco/ Smallfield
Conse	rvative Estimate o	f Added Water Supply Capacity	6,000 cubic metres per day



Detailed alternatives evaluation municipal test wells



Groundwater Source	Description	Key Evaluation Considerations	Outcome
Existing Test Wells	Wells: Ironwood, Steffler, Guelph South, Logan/ Fleming, Hauser	 Moderate to high certainty of available water volume, water quality Hauser – low capacity well in area with known contamination New infrastructure required Wells near surface water/ wetlands require field assessment of potential interaction New well head protection areas required; potential land use restrictions Logan/ Fleming wells on City-owned land in Guelph-Eramosa Township General low cost, Hauser exception 	 Preferred as part of overall solution Ironwood, Steffler, Guelph South included in Southwest Guelph Class EA Logan well being reconstructed and tested Hauser requires further study High priority as sources are within City, on City-owned land
	Conservative Es	timate of Added Water Supply Capacity	9,100 cubic metres per day



Detailed alternatives evaluation – Dolime Quarry



Groundwater Source	Description	Key Evaluation Considerations	Outcome
Dolime Quarry	Additional water from quarry pond level management (PLM)	 High certainty of available water volume, water quality assessment required Availability of water through surrounding wells (existing and new) or directly from quarry to be assessed in Southwest Guelph Class EA New infrastructure required Low anticipated risk to natural environment; quarry has been dewatered long-term; discharge to river not required to support WWTP assimilative capacity New source water protection designation required; potential land use restrictions Council has approved quarry annexation, Provincial approval required Cost significantly lower for water capture by surrounding wells; high cost for new WTP. 	Preferred as part of overall solution Alternative included in Southwest Guelph Class EA
	Conservative Estim	3,000 cubic metres per day	



Detailed alternatives evaluation - Arkell **Aquifer Storage and Recovery (ASR)**

Groundwater Source	Description	Key Evaluation Considerations	Outcome
Arkell Collectors	Capture excess spring flow for treatment and storage in aquifer, extract when water demand is high	Collector re-construction required, ASR optimization	 Preferred as part of overall solution Significant additional work required to define alternative and refine estimated costs
	Conservative Estim	ate of Added Water Supply Capacity	1,200 cubic metres per day



Detailed alternatives evaluation – new wells outside City



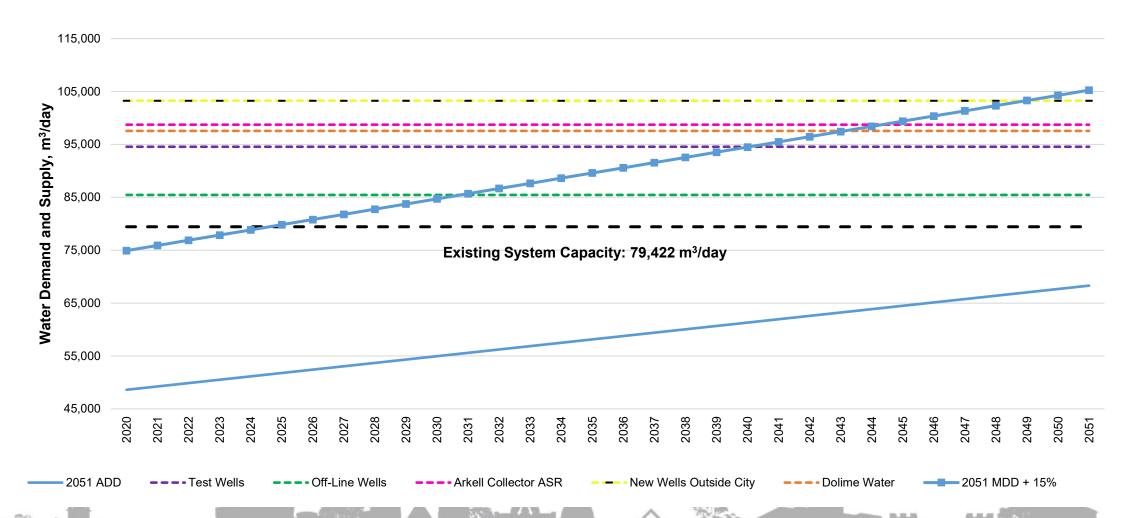
Groundwater Source	Description	Key Evaluation Considerations	Outcome
New Groundwater Wells	Construction of new groundwater wells outside City boundary (two locations, north and southeast of City)	 Moderate certainty of available water volume due to limited site-specific information Wells near surface water/ wetlands require field assessment of potential interaction New infrastructure required New wellhead protection areas required; potential land use restrictions Locations are within Guelph-Eramosa and Puslinch Townships Moderate to high costs 	 Preferred as part of overall solution Significant additional work required to define alternative and collaborate with Townships Lower priority than sources within City
	Conservative Estim	4,500 cubic metres per day	





Groundwater alternative summary







Detailed alternatives evaluation surface water



Groundwater Source	Description	Key Evaluation Considerations	Outcome
Guelph Lake	Construction of Guelph Lake intake and new water treatment plant	 High certainty of available water volume due to long-term record of river flow Complex system to operate Detailed assessment of potential impacts to natural environment and recreational use of Guelph Lake required New infrastructure required New intake protection zone required; potential land use restrictions Location within Guelph-Eramosa Township Moderate to high costs 	 Preferred as part of overall solution Significant additional work required to define alternative and collaborate with Township Lower priority than sources within City
	Conservative Estim	ate of Added Water Supply Capacity	13,000 cubic metres per day



Detailed alternatives evaluation – surface water with Aquifer Storage and Recovery (ASR)

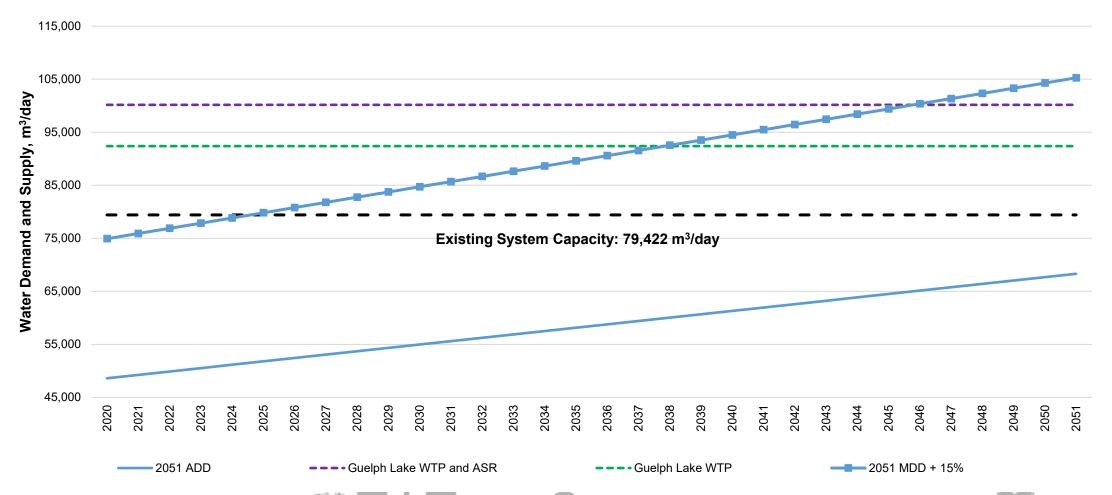


Groundwater Source	Description	Key Evaluation Considerations	Outcome
Guelph Lake and ASR System	Expansion of Guelph Lake water treatment plant (13,000 m³/day additional capacity) and construction of ASR system	 High certainty of available water volume due to long-term record of river flow; ASR optimization study required Complex system to operate Detailed assessment of potential impacts to natural environment and recreational use of Guelph Lake required; ASR system would be designed to pump volume equal to injected volume (low risk of impacts) New infrastructure required New intake protection zone and well head protection area required; potential land use restrictions Location within Guelph-Eramosa Township and City (ASR wells) Moderate to high costs 	 Preferred as part of overall solution Significant additional work required to define alternative and collaborate with Township Lower priority than sources within City
	Conservative Es	timate of Added Water Supply Capacity	Up to 13,000 cubic metres per day (additional)



Surface water alternative summarv









Detailed alternatives evaluation – limit growth/ do nothing

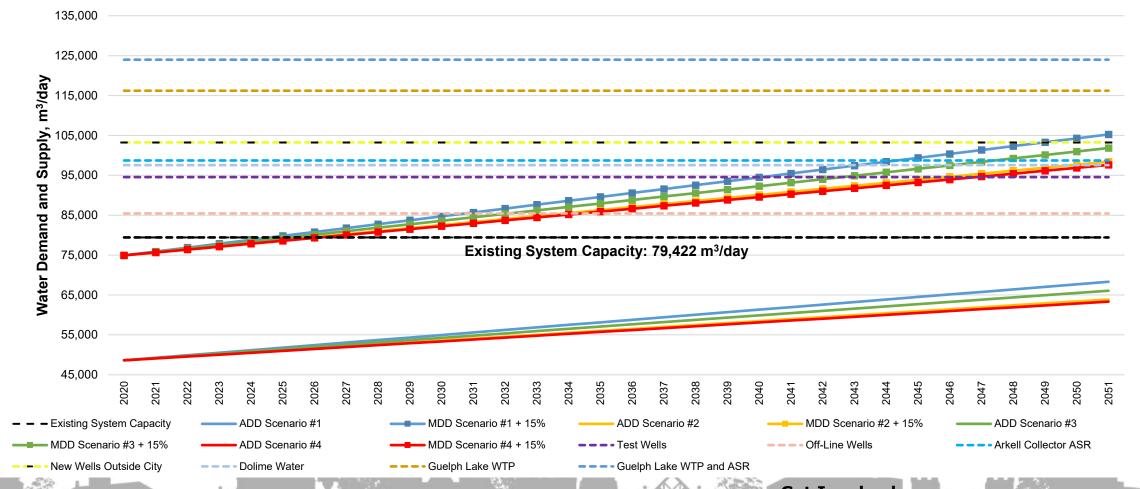


Water Source	Description	Key Evaluation Considerations	Outcome
None	Limit growth to align with current system capacity	 Does not address EA objective; no increase in capacity or reduction in demand Limits potential for impacts to natural environment High impact to meeting growth targets Mixed public acceptance anticipated Could drive growth to Townships 	Not preferred
	Conservative Es	None	



All water supply alternatives summary

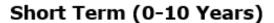






Preliminary preferred solution – initial implementation timeline





Conservation and efficiency – current level of effort

Clythe well (offline)

SW Guelph test well(s)

Dolime Quarry PLM

Logan/ Fleming test well(s)

Medium Term (10-20 Years)

Conservation and efficiency – focus on high demand customers

Lower Road Collector (offline)

Arkell ASR

Long Term (20-30 Years)

Conservation and efficiency – water reuse

Hauser test well

Guelph North well (new well outside City)

Guelph Southeast well (new well outside City)

Guelph Lake surface water

Smallfield/ Sacco (offline) >30 yrs





Next steps

- Incorporate public feedback from today's session and the online survey
- Further communications with First Nations communities (virtual meeting and review of draft report)
- Develop implementation plan
- Deliver a Council presentation
- Post the draft Water Supply Master Plan report for public review
- Address any comments or concerns from the public review
- Implement the preferred strategy

Questions and answers





Stay involved

Thank you for your interest in learning about the City of Guelph's WSMP update.

- Fill out the survey on haveyoursay.guelph.ca by October 13
- Register, join the conversation and share thoughts at haveyoursay.guelph.ca.
- Read about our progress. Project information will be posted on our project page at guelph.ca/wsmp.
- Join our mailing list. <u>Send us</u> your name to the contacts below and provide your address (email or post mail), and we'll keep you informed.
- Follow the conversation on <u>Twitter</u> (<u>twitter.com/cityofguelph</u>) and <u>Facebook</u> (<u>facebook.com/cityofguelph</u>).

Contact us if you have any questions or comments:

Dave Belanger, Water Supply Program Manager

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Infrastructure, Development and
Enterprise
City of Guelph
519-822-1260, extension 2186
dave.belanger@quelph.ca

Matthew Alexander, Project Manager

AECOM Canada Ltd 226-821-4906 matthew.alexander@aecom.com







Phase 2 Online Survey

We want your feedback! This survey asks about the preliminary evaluation of water supply alternatives from now until 2051. Your feedback will be considered in the development of recommendations about how our water supply will be managed as Guelph grows.

Before you complete the survey, we encourage you to review the presentation and evaluation matrix that were presented at the second open house on September 29, 2021.

Your participation in this survey is voluntary. All individual responses will be kept confidential and will be used only for the purposes of helping to develop the updated water supply master plan for Guelph. Non-identifiable summaries of responses may be developed and shared publicly.

This survey will take approximately 10 to 15 minutes to complete and will be open until October 13, 2021.

Preliminary Evaluation of Water Supply Alternatives

The goal of the Water Supply Master Plan Update is to identify a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers in Guelph.

The following water supply alternatives were studied and each alternative was considered using a specific set of evaluation criteria:

Demand management/ efficiency programs

- Maintain commitment to our water conservation initiatives and 2016 Water Efficiency Strategy
- Review success of programs since 2014 and evaluate trends in other jurisdictions
- Determine range of realistic goals and cost for implementation

Groundwater sources in and outside of city

- Improve and optimize the existing well supply system
- Restore offline sources with treatment
- Identify new potential groundwater supply areas, including the Dolime Quarry
- Evaluate aguifer storage and recovery wells







Local surface water sources*

- Establish feasibility/ risks of surface water alternatives including aquifer storage and recovery system
- Assessment areas include: Guelph Lake/ Speed River and Eramosa River (*Includes facility to treat water to drinking water quality)

Do nothing/ limit growth

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative

A preliminary evaluation of these water supply alternatives was conducted to identify the preferred solution to address Guelph's water supply need. Please review the results of this <u>preliminary evaluation and timeline</u> here. Click to the next question to provide your feedback.

Water Conservation and Efficiency Alternatives

Four water conservation and efficiency scenarios were evaluated:

Scenario 1 – Cease Non-Mandatory Programs

- This alternative does not achieve demand reductions, would have low public acceptance but no associated costs
- Not preferred

Scenario 2 - Maintain the Current Level of Effort

- This alternative would result in a moderate water demand reduction, would have a high public acceptance, would require minor changes to existing/ planned buildings and has low to moderate costs relative to other alternatives
- Preferred as part of the short-term strategy

Scenario 3 – Focus on High Demand Customers

- This alternative would result in the least water demand reduction, would have a high public acceptance, would require minor changes to existing/ planned buildings, and has low costs relative to other alternatives
- Preferred as part of the short to mid-term strategy

Scenario 4 - Maintain the Current Level of Effort with Water Reuse





- This alternative would result in the greatest water demand reduction, would have moderate public acceptance (some education may be required), would require minor changes to existing/ planned buildings, would have a moderate impact to wastewater treatment plant infrastructure, may require regulatory approvals, and would have moderate to high costs relative to other alternatives
- Preferred as part of the long-term strategy

Review the evaluation matrix.

Do you agree with the preliminary evaluation of the water conservation and efficiency alternatives?

Do you agree with including the water conservation and efficiency alternatives in the preferred solution?

Are there any considerations missing from the evaluation of the water conservation and efficiency alternatives or anything you would evaluate differently?

Groundwater Alternatives

Several groundwater supply alternatives were evaluated:

Groundwater Alternative 1 - Restore Currently Off-Line Municipal Wells

- This alternative has a high certainty of available water volume, water quality, would require some upgrades, would have low environmental impacts (but some additional study is required), may have a risk of contaminant movement– potential environmental and legal issue, would have an unlikely need for remediation of contamination prior to 2051, and would have low to high costs.
- This alternative is preferred as part of the overall solution and is a high-priority as the sources are within the City of Guelph, on city-owned land.

Groundwater Alternative 2 – Use the Municipal Test-Wells

- This alternative has a moderate to high certainty of available water volume, water quality, includes a low capacity well in area with known contamination (Hauser), would require new infrastructure, would require field assessments of potential interaction for wells near surface water/ wetlands, would require new well head protection areas (potential land use restrictions), some wells are on City-owned land in Guelph-Eramosa Township, and would have general low cost (except for Hauser).
- This alternative is preferred as part of the overall solution and is high priority as sources are within the City, on City-owned land.

Groundwater Alternative 3 - Dolime Quarry







- This alternative has a high certainty of available water volume, would require a
 water quality assessment, has an availability of water through surrounding wells
 or directly from quarry, would require new infrastructure, has a low anticipated
 risk to natural environment, would require a new source water protection
 designation, requires Provincial approval, and would cost significantly lower for
 water capture by surrounding wells, although a high cost for new WTP.
- This alternative is preferred as part of the overall solution.

Groundwater Alternative 4 - Arkell Aquifer Storage and Recovery (ASR)

- This alternative has low certainty of available water volume, would require reconstruction for the Lower Road Collector, would require an ASR optimization study, has low anticipated risk to natural environment, is currently permitted, ASR system would be designed to pump volume equal to injected volume, would require new infrastructure, would require new wellhead protection areas, and would require refinement of cost estimate.
- This alternative is preferred as part of the overall solution, with significant additional work required to define alternative and refine estimated costs.

Groundwater Alternative 5 - New Wells Outside the City

- This alternative has a moderate certainty of available water volume due to limited site-specific information, would require field assessment of potential interaction for wells near surface water/ wetlands, would require new infrastructure, would require new wellhead protection areas required, has wells located within Guelph-Eramosa and Puslinch Townships, and would have moderate to high costs.
- This alternative is preferred as part of overall solution, and would require significant additional work required to define alternative and collaborate with Townships. This alternative is also a lower priority than sources within City.

Review the evaluation matrix.

Do you agree with the preliminary evaluation of the groundwater alternatives?

Did we miss any alternatives?

Do you agree with including the groundwater alternatives in the preferred solution?

Are there any considerations missing from the evaluation of the groundwater alternatives or anything you would evaluate differently?

Surface Water Alternatives

Several surface water alternatives were evaluated







Surface Water Alternative 1 – Surface Water

- This alternative would have a high certainty of available water volume due to long-term record of river flow, would require a complex system to operate, would require a detailed assessment of potential impacts to natural environment and recreational use of Guelph Lake, would require new infrastructure, would require new intake protection zone required, would be located within Guelph-Eramosa Township and would have moderate to high costs.
- This alternative is preferred as part of overall solution. Significant additional work would be required to define the alternative and collaborate with Township, and is a lower priority than sources within City.

Surface Water Alternative 2 – Surface Water with Aquifer Storage and Recovery (ASR)

- This alternative would have a high certainty of available water volume due to long-term record of river flow, would require an ASR optimization study, would be a complex system to operate, would require a detailed assessment of potential impacts to natural environment and recreational use of Guelph Lake, the ASR system would be designed to pump volume equal to injected volume (low risk of impacts), would require new infrastructure, would require new intake protection zone and well head protection area, is located within Guelph-Eramosa Township and City (ASR wells) and would have moderate to high costs.
- This alternative is preferred as part of overall solution. It would require significant additional work to define the alternative and collaborate with Township. It is a lower priority than sources within City.

Review the evaluation matrix.

Do you agree with the preliminary evaluation of the surface water alternatives?

Do you agree with including the surface water alternatives in the preferred solution?

Are there any considerations missing from the evaluation of this alternative or anything you would evaluated differently?

We appreciate the time you have taken to learn more about our plans and contribute your input.

Other ways to get involved

- Read about our progress. Project information will be posted on our project page at <u>guelph.ca/wsmp</u>
- Join our mailing list. <u>Send us</u> your name to the contacts below and provide your address (email or post mail), and we'll keep you informed.





• Follow the conversation on Twitter (<u>twitter.com/cityofguelph</u>) and Facebook (<u>facebook.com/cityofguelph</u>).

Contact us with additional comments or questions at any time:

Dave Belanger

Water Supply Program Manager City of Guelph 519-822-1260 x 2186 / <u>dave.belanger@guelph.ca</u>

Matt Alexander

Project Manager, Senior Hydrogeologist AECOM Canada Ltd. 519-840-2223 / matthew.alexander@aecom.com

Notice of collection: Personal information, as defined by the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) is collected under the authority of the Municipal Act, 2001, and in accordance with the provisions of MFIPPA. Personal information on this form will be used to send out electronic project updates related to the 2019 Water Supply Master Plan update. If you have questions about this collection; use, and disclosure of this information, contact the City of Guelph's Access, Privacy and Records Specialist at 519-822-1260 x 2349 or Jennifer.Slater@guelph.ca

AECOM

Appendix D

Social Media Posts and Have Your Say Newsletters

EngagementHQ Newsletter

February 2020

City of Guelph online participation opportunities

Hello!

In February we are looking for your feedback and have some updates on these projects:

- 1. Baker District redevelopment and new central library
- 2. Clair-Maltby Secondary Plan
- 3. Community gardens
- 4. Dallan Park
- 5. Growth Management Strategy shaping Guelph
- 6. Guelph Farmers Market
- 7. Our Community Our Water quarry site revitalization
- 8. Parks and Recreation Master Plan
- 9. Parks playground replacements
- 10. Solid Waste Management Master Plan give waste a new life
- 11. Transportation Master Plan moving Guelph forward
- 12. Water Supply Master Plan

Baker District redevelopment and new central library

The Baker District redevelopment project is ongoing. We're working on the draft Urban Design Master Plan and schematic design for the new central library. We'll share both with the community at upcoming engagement sessions this spring. <u>Stay tuned for more information</u>.

Clair-Maltby Secondary Plan - parks and open spaces

Thank you to everyone who participated in the engagement sessions for the parks and open space system in Clair-Maltby! This feedback will help establish policy directions that will inform the creation of the secondary plan for the Clair-Maltby area. The Open Space System Strategy will be presented to Council in the near future and the final secondary plan will become part of the City's Official Plan.

Community gardens

Four new community gardens are proposed for St. George's Park, Mollison Park, Burns Drive Park and Stephanie Drive Park. Access all four surveys <u>here</u>.

We want to hear what you think about the garden proposals by participating in the survey for your park before February 14, 2020.

We want to know:

- What you think of the proposed location?
- What feedback you have about the proposed community garden?
- How do you feel about participating in the garden if it's approved?

Next steps

We will use your feedback to help determine if the proposed garden will benefit each of the four park's users. Once we've made a decision, we will follow up with you to let you know our final results.

Dallan Park

We're starting the process to create a master plan for a new neighbourhood park at Poppy Drive East and Dallan Drive. We want you to be a part of the design process.

Starting February 12 until February 28, find the project on our Have your Say home page to review two design concepts for the future park and vote on your preferred concept. You can also share your ideas about playground equipment and provide comments to us. We'll use that feedback to help create one final park concept that we will share with you this spring.

Construction of the new park is expected to start June 2021.

Why we create park master plans

A park master plan is a blueprint that guides park design according to the space and community needs. We look at everything that makes a park a place to play, including how it's graded, what surfaces to use, pathways, tables and benches, playground equipment, shelters and more! Some things you can see on the surface and some things are invisible. Master plans make sure our parks are functional, aesthetically pleasing and create a sense of community space.

Growth Management Strategy - shaping Guelph

Guelph needs to plan to meet provincial growth forecasts of a population of 191,000 and 101,000 jobs by 2041. How we meet those forecasts is up to us. Growth doesn't mean putting high-rise apartment buildings in every neighbourhood; thoughtful planning will identify the right growth for all areas of the city so that Guelph can attract new residents, businesses and services that add to our community. Planning how and where we grow helps us create a people-oriented city full of essential amenities, walkable neighbourhoods, thriving community hubs and an interconnected transportation network. We need your help to ensure that we develop a Guelph-made approach to accommodate this growth.

There's lots of ways to get involved in this new project:

- Learn more about the project
- Take an online survey about your preferences for future growth to 2041 (coming this February to haveyoursay.guelph.ca, stay tuned!)
- Attend a public event <u>"Guelph 2041: A conversation about a growing city"</u> on February 27. Please register by February 26.

Guelph Farmers Market

The Farmers' Market bylaw review: Refreshing our Local Tradition will be complete in June 2020. We are reviewing results of the survey, taken by nearly 1,000 people!

We will share the survey results with the participants, vendors, stakeholder committee and Council in early March.

The draft policies and bylaw will be presented to Council at Committee of the Whole on June 9, with the final Council decision on June 29.

Our Community Our Water - quarry site revitalization

We've shared our concerns and <u>a possible solution</u> to protect Guelph's drinking water. Formal opportunities for in-person and online engagement on Our Community, Our Water (the proposed solution between the City of Guelph and the owners of the Dolime Quarry) have ended. Thanks for sharing your thoughts with us. We're summarizing your feedback in a report which we'll share in spring 2020 when City Council is expected to make its decision about whether or not to pursue the proposed solution. In the meantime, if you have more questions you can email us anytime at <u>ocow@quelph.ca</u>.

Parks and Recreation Master Plan

The Parks and Recreation Master Plan and Trails Master Plan updates are ongoing. We continue to develop draft strategies and a draft master plan. More public engagement is planned for later this year. Stay tuned for updates!

Parks playground replacements

We're inviting you to participate in engagement to help us design four playgrounds we're replacing in 2020 starting the week of February 24. The playgrounds include:

- Bullfrog Pond Park, 13 Walnut Drive
- Clair Park, 22 Eugene Drive
- Kortright Hills Park, 165 Milson Crescent
- Westminster Woods Park, 146 Clairfields Drive East

Is one of your favourite parks on our list?

When we replace play equipment, we consider available budget, maintenance, how to make the play equipment fun for everyone and your comments. Your participation in engagement will help us choose the right play equipment for your neighbourhood. We want you to tell us:

- What kind of equipment you would like to see
- What you like about the existing playground
- If there are any specific accessibility features you would like to see included

What's next?

Once we've collected and reviewed all of the information received from you, we will use the information to develop requirements for the design of new play equipment. We will send this information to specialized playground designers as part of our process for selecting new play equipment. We will review the design submissions and select the best two designs for each park where we will then invite you to vote on which one you like best.

Construction is anticipated to begin in summer and be completed by fall 2020.

Solid Waste Master Plan - give waste a new life

The City is updating the 2014 Solid Waste Management Master Plan, which will shape how Guelph manages its waste over the next 25 years. To kick off the master plan process, the City hosted a launch event on December 9, 2019 with a talk by Dr. Dianne Saxe, the former Environmental Commissioner of Ontario. Dr. Saxe spoke about the climate crisis within our local context, the role of waste, and what the City of Guelph and its residents can do to affect positive change.

If you couldn't make the launch event, you can view the <u>video</u> of Dr. Dianne Saxe's talk, read the <u>public engagement update</u>, and participate online by visiting <u>haveyoursay.guelph.ca/waste</u>.

For more details about the Solid waste master Plan, visit https://guelph.ca/plans-and-strategies/solid-waste-management-master-plan/

Transportation Master Plan - moving Guelph forward

During the Fall of 2019, we have asked Guelph residents: What are your transportation issues and what opportunities exist? Thank you to all who gave us your feedback! The team also tested potential solutions such as complete streets and bus-only lanes through demonstration projects as a way to experiment with the types of changes we could see on our roads in the future. For a summary of the most commonly heard feedback and some bold ideas, please see the **Phase 2 Community Engagement Summary**.

Over the next month, the technical team will continue their analysis of Guelph's current transportation network and will begin work to identify potential solutions for the future. Stay tuned at haveyoursay.guelph.ca/transportation for more opportunities coming this Spring to help shape the future of transportation in Guelph.

For more details about the Transportation Master Plan visit <u>guelph.ca/plans-and-strategies/transportation-master-plan/</u>

Water Supply Master Plan

Where will our water supply come from over the next 20 years?

Join us as we discuss Guelph's water supply at the first Water Supply Master Plan (WSMP) open house on February 13 from 2-4 p.m. and 6-8 p.m. in the Marg MacKinnon community room at City Hall, 1 Carden Street.

Drop-in and play a part in our discussions on how to best manage this vital resource so that we can continue to provide a sustainable, high level of service to Guelph residents now and into the future. The open house will not have a formal presentation, and will be an information and idea sharing opportunity for the Guelph community.

Can't make the open house? We still want to hear from you. You can share your thoughts on haveyoursay.guelph.ca starting on February 14.

For more details about the WSMP, visit quelph.ca/wsmp.

Thank you for being part of the City of Guelph's online engagement program. We appreciate your time, ideas and feedback!

EngagementHQ Newsletter

March 2020

City of Guelph online engagement

Hello,

In February we are looking for your feedback and have some updates on these projects:

- 1. Baker District redevelopment and new central library
- 2. Community Gardens
- 3. Community Road Safety Strategy
- 4. Dallan subdivision park
- 5. Give waste a new life: Solid Waste Master Plan
- 6. Moving Guelph forward: Transportation Master Plan
- 7. Our Community Our Water quarry site revitalization
- 8. Playground replacements
- 9. Shaping Guelph: Guelph's growth management strategy
- 10. Smoking and Alcohol Regulations
- 11. Water Supply Master Plan

Current engagement opportunities

Community Road Safety Strategy

The community road safety strategy (CRSS) is a high-level road safety plan for Guelph. Road safety impacts all members of our community, regardless of their ability, age, or mode of transportation. The strategy will provide a range of road safety measures, such as education campaigns, enforcement strategies (e.g. redlight cameras) and engineering modifications (e.g. leading pedestrian intervals).

Complete an online survey by March 22 to help us determine and rank road safety priorities. https://www.haveyoursay.guelph.ca/community-road-safety-strategy

Give waste a new life: Solid Waste Master Plan

The City is updating the <u>2014 Solid Waste Management Master Plan</u>, which will shape how Guelph manages its waste over the next 25 years. Look for the Solid Waste Management Master Plan (SWMMP) team at these events in the community. Stop by to learn more about the SWMMP and leave your feedback.

Off Campus Living Winter Fair

University Centre Courtyard, University of Guelph

March 10 from 10 a.m. to 3 p.m.

eMERGE EcoMarket 2020

Old Quebec Street Shoppes

March 21 from 10 a.m. to 3 p.m.

Stay tuned for details about our first SWMMP open house which will take place on April 18. Details will be shared on our <u>project page</u>.

Playground replacements

We're replacing four playgrounds in 2020 at Bullfrog Pond Park, Clair Park, Kortright Hills Park and Westminster Woods Park. From March 5-23, we want <u>your feedback</u> on:

- What kind of equipment you would like to see.
- What you like about the existing playground.
- What accessibility features you would like to see included.

We will use the survey information to develop requirements for the design of new play equipment. We will review proposed playground designs and select two for the community to choose from in spring 2020. Construction will start in summer and be completed in late fall, weather permitting.

Shaping Guelph: Guelph's growth management strategy

On February 27, the City of Guelph launched Shaping Guelph: Guelph's Growth Management Strategy to 2041. To conform to provincial laws, Guelph needs to plan for a population of 191,000 and an employment base of 101,000 jobs by 2041. We want your feedback about how and where we grow to 2041. Learn more about the project and take our surveys, by March 8.

Water Supply Master Plan

Where will our water supply come from over the next 20 years?

We hosted the first of two open houses for the Water Supply Master Plan update on February 13, 2020. For those of you who were able to make it out, thank you for attending and sharing your comments and questions with the project team.

The display boards are available on our <u>project page</u> under the resources section.

We want to hear what you think about the Water Supply Master Plan update by participating in a <u>survey</u> by March 16, 2020. This survey asks about our municipal water supply sources and priorities, including sustainable water supply options from now until 2041. Your feedback will be considered in the development of

recommendations for how our water supply will be managed as Guelph grows. <u>Take</u> the survey.

Project Updates

Baker District redevelopment and new central library

Open houses: Urban Design Master Plan for Baker District redevelopment and library schematic design

You are invited! On Monday, March 23, we'll show how your input over 18 months has influenced the Urban Design Master Plan for the Baker District redevelopment. Join us from 2 to 4 p.m. or 7 to 9 p.m. at River Run Centre as Windmill Development Group presents our plan.

Also, a second set of open house sessions—specific to the new central library's programming and design plans—are happening on Thursday, April 2 from 2 to 4 p.m. and 7 to 9 p.m. at the Italian Canadian Club. Diamond Schmitt Architects will reveal how the library's programs and services will be laid out over the four floors and work with the schematic design that was informed by community input over the past 18 months.

Learn more about the <u>open house sessions</u>. If you can't attend these open houses we post the presentations <u>guelph.ca/bakerdistrict</u> by March 27 (Urban Design Master Plan) and April 6 (Library schematic design). After you view the presentations, you can ask us questions at on <u>haveyoursay.quelph.ca</u>

Community gardens

Thanks to everyone that participated in the online survey for the four proposed community gardens.

We're reviewing your comments and feedback as we consider each garden proposal. We'll share the results of the community engagement and our next steps for the proposed sites online at guelph.ca/communitygardens in the coming weeks.

Dallan subdivision park

Thanks to everyone that participated in the online survey for the new park we're designing for Dallan subdivision.

We're using your feedback to create a final park concept, which we will share with the community for feedback from March 23 to April 7. We expect construction of the new park to start in June 2021.

Moving Guelph forward: Transportation Master Plan

We've summarized feedback from the community engagement that took place during Phase 2 of the <u>Guelph Transportation Master Plan</u>. The report is <u>now posted online</u>. Over the next month, the technical team will continue their analysis of Guelph's current transportation network and will begin work toward identifying potential solutions for the future. Stay tuned at <u>haveyoursay.guelph.ca/transportation</u> for more opportunities to help shape the future of transportation in Guelph.

Our Community, Our Water

We've summarized your feedback from the <u>Our Community</u>, <u>Our Water engagement program</u>. The <u>report is now posted online</u> and was presented to Council on March 2, with a final decision on whether to pursue the proposed solution expected at the March 30 Council meeting. If you have questions you can email us anytime at <u>ocow@quelph.ca</u>.

Smoking and alcohol regulations

In October 2019, we launched two surveys to explore whether new smoking and alcohol regulations.

We received 4580 survey responses and are preparing to share engagement summaries about what we heard during the online surveys and the two statistically-valid telephone surveys on our website. Stay tuned!

Thank you for being part of the City of Guelph's online engagement program. We appreciate your time, ideas and feedback!

Phase 1 Social Media Posts

Facebook February 2020

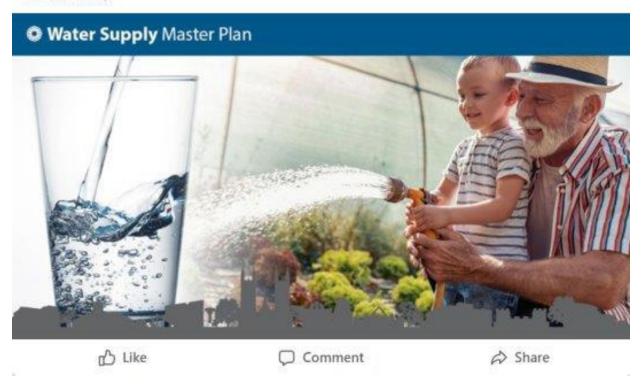
Feb 5

How do you use water in your daily life? Let us know at the Water Supply Master Plan open house on February 13 from 2-4 p.m. and 6-8 p.m. at City Hall. https://guelph.ca/2020/01/join-us-february-13-for-the-first-water-supply-master-plan-open-house/

Total reach: 1462 / Engaged users: 5



How do you use water in your daily life? Let us know at the Water Supply Master Plan open house on February 13 from 2-4 p.m. and 6-8 p.m. at City Hall. https://guelph.ca/.../join-us-february-13-for-the-first.../

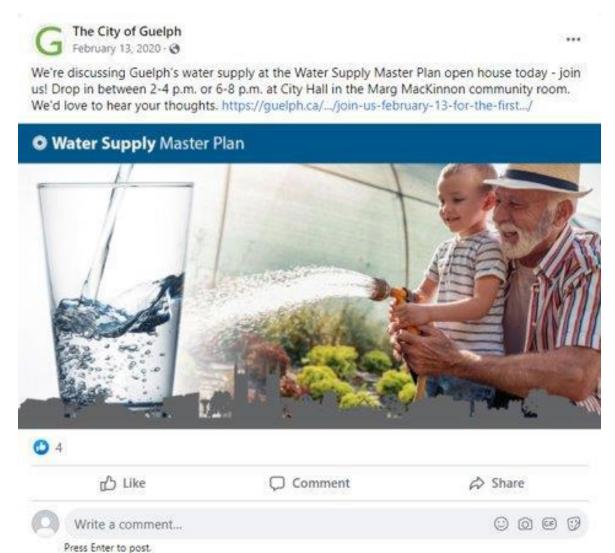


Feb 13

We're discussing Guelph's water supply at the Water Supply Master Plan open house today - join us! Drop in between 2-4 p.m. or 6-8 p.m. at City Hall in the Marg MacKinnon community room. We'd love to hear your

thoughts. https://guelph.ca/2020/01/join-us-february-13-for-the-first-water-supply-master-plan-open-house/

Total reach: 1565 / Engaged users: 9



Twitter February 2020

Feb 2

Guelph's population is growing. How will we manage our water supply as our community grows? Join us for the Water Supply Master Plan discussion on February 13 at City Hall. 2-4 p.m. and 6-8 p.m. https://t.co/XJIEeXcYv5#GuelphWater#Guelph https://t.co/5w7UWynK7j

Impressions: 2794 / Engagements: 17

Feb 12

What kind of challenges does Guelph face when it comes to our water supply? We're talking about it tomorrow at the Water Supply Master Plan open house at City Hall from 2-4 p.m. and 6-8 p.m. Don't miss it! https://t.co/9FWN2ZcIRp #GuelphWater #Guelph https://t.co/XQQNB8kg6R

Impressions: 2606 / Engagement: 12

Feb 13

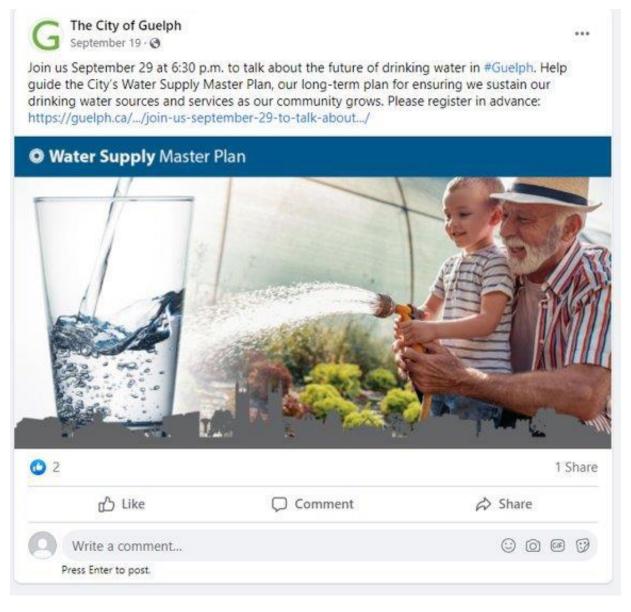
We're discussing Guelph's water supply at the Water Supply Master Plan open house today - join us! Drop in between 2-4 p.m. or 6-8 p.m. at City Hall in the Marg MacKinnon community room. We'd love to hear your thoughts. https://t.co/rBHJDhdiae #GuelphWater #Guelph https://t.co/HcljvrIceF

Impressions: 1746 / Engagement: 12

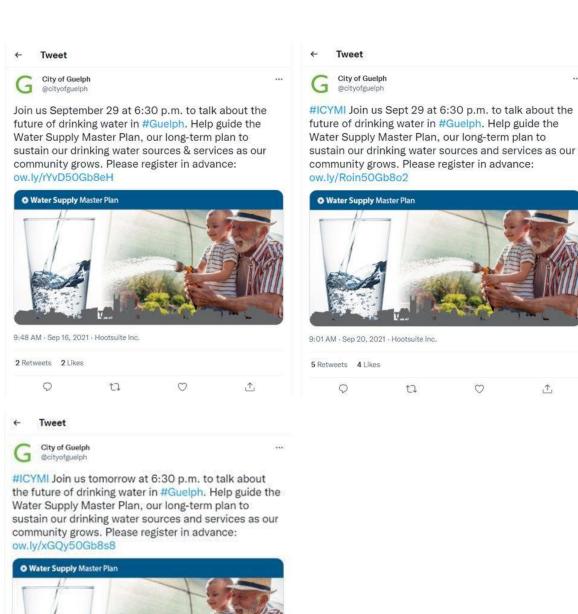


Phase 2 Social Media Posts

Facebook September 2021



Twitter September 2021







Appendix E

Additional stakeholder meetings and presentations

- Guelph Wellington Development Association and Guelph and District Home Builders' Association presentation
- Guelph Wellington Development Association and Guelph and District Home Builders' Association minutes
- Our Community, Our Water open house display board
- Water Conservation and Efficiency Public Advisory Committee 2020 presentation
- Water Conservation and Efficiency Public Advisory Committee 2020 minutes
- Water Conservation and Efficiency Public Advisory Committee 2021 presentation
- Water Conservation and Efficiency Public Advisory Committee 2021 minutes
- Township of Puslinch presentation 2019
- Township of Puslinch Council presentation 2021
- Township of Puslinch Council resolution 2021
- Township of Guelph/Eramosa Council presentation 2021
- Township of Guelph/Eramosa Council resolution 2021
- County, Township, and City Meeting #1 Meeting Minutes

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Appendix E (continued)

- County, Township, and City Meeting #2 Meeting Minutes
- County, Township, and City Meeting #2 City Presentation
- County, Township, and City Meeting #2 Wellington County Official Plan Review Presentation
- County, Township, and City Meeting #3 Meeting Minutes
- County, Township, and City Meeting #4 Meeting Minutes
- Ministry of the Environment, Conservation and Parks Presentation

City of Guelph 2019 Water Supply Master Plan - Overview

November 7, 2019





Overview



- Follows the Municipal Class Environmental Process
- Problem/Opportunity Statement;
- Review Work Plan for 2019 WSMP; and
- Review schedule and next steps



2019 Problem / Opportunity Statement

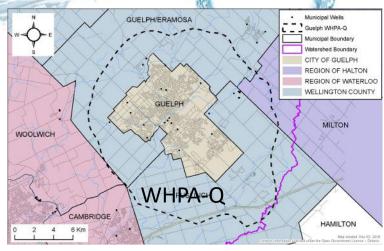


- City is responsible for supplying clean, safe drinking water;
- City will provide a reliable and sustainable supply to meet current and future needs of all customers for the next 20 years (2041);
- Question: How best to manage vital supply to provide the high level of service our residents expect?
- The updated Master Plan will identify and prioritize individual projects required to implement the Master Plan.

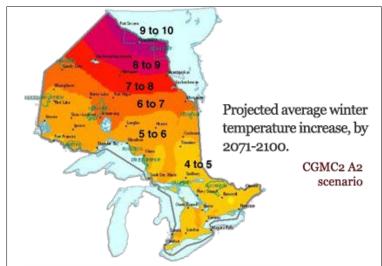
CITY OF GUELPH WATER SUPPLY MASTER PLAN UPDATE:

2019 WSMP - SPECIAL ISSUES

- Tier 3 Water Budget and Local Area Risk Assessment
- Contaminated Sites
- Dolime
- Surface Water Impacts
- Firm Capacity and Security of Supply
- Climate Change



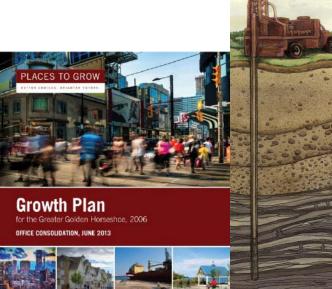
Guelp



2019 WSMP WORK PLAN

- Same approach as in 2014
- Task 1 Develop Community Engagement Plan
- Task 2 Population and Water Demand forecasts
- Task 3 Water Supply Capacity
- Task 4 Water Supply Alternatives (similar to 2014)
- Task 5 WSMP Report

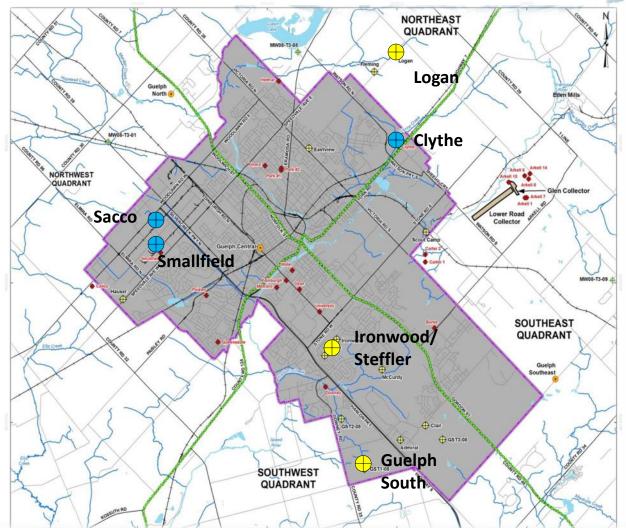




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OFFLINE WELLS AND TEST WELLS





- Offline Well
- Test Well





- Criteria (2014):
 - Financial Consideration
 - Legal and Jurisdictional Considerations
 - Technological Consideration constructability
 - Built Environment effect on existing infrastructure
 - Natural Environment
 - Social and Cultural Environment meet growth, public acceptance
- Evaluate alternatives, prioritize projects and estimate costs

2019 WSMP - SCHEDULE AND NEXT STEPS

- Guelph
- Schedule one year +/- (Community Engagement Plan)
- Next Steps:
 - AECOM retained to manage the project
 - Notice of Study Commencement October
 - Formation of Community Liaison Group
 - First Community Engagement
 - Introduce the project
 - Discuss/define problem statement
 - Discuss Community Engagement Plan
 - Outline next steps and schedule
 - GWDA welcome to provide input
 - •GWDA to provide a representative for the Community Liaison Group



QUESTIONS?

For more information - https://guelph.ca/plans-and-strategies/water-supply-master-plan/

Meeting Minutes



Meeting: Guelph Wellington Development Association/Guelph & District Home Builders' Association/City Staff Technical Liaison Committee

Date: Thursday, November 7, 2019

Location: City Hall, Meeting Room C

Time: 12:00 – 1:30pm

Present: Astrid Clos, Alfred Artinger, Nancy Shoemaker, Paul Magahay, Steve Conway, Angela Kroetsch, Shawn Marsh, David Brix, Tom McLaughlin, Kevin Brousseau, Frank Cernuk, Ian Panabaker, Chris DeVriendt, Arun Hindupur, Dave Belanger, Dylan McMahon, Trista Di Lullo, Laurie Iversen (recording secretary)

Regrets: Larry Kotseff, Terry Gayman

Meeting Minutes

Welcome from the Chair

- 1. Agenda and minutes of July 18, 2019 accepted.
- 2. **Committee of Adjustment Fee Increase** Dylan McMahon (attachment) An explanation was provided on the method of calculating the increase to the Committee of Adjustment fees for 2020.
- 3. Water Supply Master Plan Overview Dave Belanger (attachment)
 An overview of the process for updating the 2014 Water Supply Master Plan was provided. The master plan will review water supply sources and identify priorities, including sustainable municipal water supply options from now until 2041.

The consultant will be reaching out to GWDA and the Home Builders' Association asking for representatives to participate in a community liaison group.

4. Water & Wastewater Services/Stormwater Master Plans – Arun Hindupur Looking at a collaborative engagement process to combine with other master plan updates that are occurring within the city. Stormwater Master Plan will include the entire city. Similar to the Water Supply Master Plan, industry associations will be contacted to participate in a community liaison group.

Action: Arun to provide timelines for the Master Plans.

5. **Engineering Matters** – Arun Hindupur November 19, will be the first of two Clair-Maltby Secondary Plan workshops for parks and open spaces.

Sanitary Flow

Inflow and infrastructure study will be begin on November 13 and last approximately five weeks.

6. Comprehensive Zoning By-law Update - Chris DeVriendt

Phase 2 discussion papers were released in October. There are numerous engagement workshops taking place in November.

Goal is to have a draft completed by the end of 2020.

Astrid Clos posed a question regarding the two year moratorium and whether the Zoning By-law should be considered a comprehensive update.

Action: Chris DeVriendt

The preliminary recommendation of the CZBR is to repeal and replace the entirety of the zoning by-law. Since this will deliver one complete new zoning by-law at one time, the provision of the Planning Act that does not allow for amendments to the zoning by-law for two years from adoption of the new by-law would be applicable. However, the Planning Act also allows Council to pass a motion to waive this provision.

7. Additional Items

a) Turnaround time

A request was made for a minimum of four weeks turnaround when asked to provide comments on city documents. Example provided related to the commenting period provided to review the DEM.

b) **Bulk Water Meter** – Angela Kroetsch

The city no longer approves water commissioning plans.

Action: Arun Hindupur

Where did this change come from and why wasn't it communicated externally? City to follow up with GWDA for additional information/specifics.

c) Staff comments

Concern there is incorrect information related to stormwater management criteria provided by staff at the Site Plan Review Committee meetings. Need to ensure city internal departments are providing the correct criteria.

Action: City to follow up on specifics.

d) Noise Studies

Why are Guelph's new noise guidelines more stringent than the provincial regulations? Example provided related to City not accepting board on board fence for noise mitigation, whereby this would meet Provincial standard.

Action: Arun Hindupur

City to follow up with GWDA for additional information/specifics.

Why can't Guelph use the provincial standards?

e) Legal condo registration process

Question raised why General Manager is not exercising their delegated authority to sign mylars for condominium registrations expressing opinion that this could save time.

Action: Chris DeVriendt

Review this process with General Manager.

Next Meeting Date: Thursday, April 2, 2020 12:00 – 1:30pm

City Hall, Meeting Room C

WE ARE UPDATING OUR WATER SUPPLY MASTER PLAN!

The City of Guelph is updating the 2014 Water Supply Master Plan (WSMP) to review our municipal water supply sources and identify priorities, including sustainable water supply options from now until 2041.

What is a WSMP update?

The purpose of the 2019 WSMP update is to review and revise the 2014 plan to make it consistent with the current and future needs of the City.

The updated WSMP will provide short-term, mid-term and long-term water supply options to ensure we can continue to meet the demands of Guelph's growing population. When investigating existing and new water supply options we'll consider things like water quality and quantity, climatic conditions, economic factors and any relevant regulations.

Through the WSMP update we'll:

- » Identify constraints and opportunities related to our existing water supply system; and
- » Evaluate and prioritize individual projects to increase the capacity of our existing system.

Stay informed and engaged!



» **Join our Community Liaison Group.** You'll help us set objectives for the WSMP update and assess alternative water supply options. Contact us if you are interested in applying.



Attend our Open Houses and let us know what you think. Our first Open House will be scheduled in early 2020. Dates for this event will be posted at guelph.ca/WSMP, in the City News pages of the Guelph Mercury Tribune and sent to the project mailing list.



» **Read about our progress.** Project information will be posted on our project page guelph.ca/WSMP.



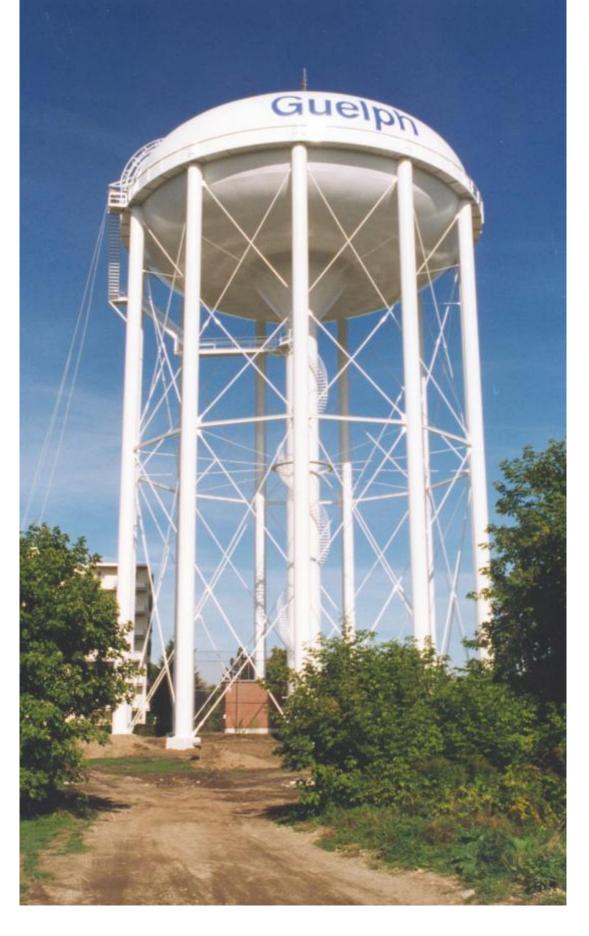
Join our mailing list. Send us your name and how you would like to be contacted (e.g., email or mail) so we can keep you informed.



Follow the conversation on Twitter (twitter.com/cityofguelph) and Facebook (facebook.com/cityofguelph).







Do you have any questions or comments? Contact us:

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Water Supply Master Plan 2019 Update

Water Conservation and Efficiency Public Advisory Committee









Presentation Outline

- Opening Remarks
- 2014 WSMP Preferred Solution
- Enhanced Water Conservation Alternative
- 2016 Water Efficiency Strategy
- Enhanced Water Conservation Program Successes/Challenges
- Water Supply Master Plan Update
- Feedback







2014 WSMP Preferred Solution

- 1 Conservation & Demand Management
- Implementation is on-going

2A – Groundwater: Existing Off-Line Municipal Wells

- Clythe in 2024, Sacco in 2029, Smallfield in 2030
- 2B Groundwater: Municipal Test Wells
- SWQ in 2019, Logan in 2027, Scout Camp 2036, Hauser post-2038
- 2C Groundwater: New Well Inside City
- Sunny Acre in 2033

2D - Arkell Collectors & ASR Wells

Collector in 2031, ASR post-2038

2E - Groundwater: New Wells Outside City

Guelph South and North post-2038

3A – Surface Water: Guelph Lake Water Treatment Plant

post-2038

3B - Surface Water: Guelph Lake Water Treatment Plant & ASR Wells

post-2038







Conservation and Demand Management

- Enhanced Water Conservation recommended as primary preferred alternative
 - Average day demand (ADD) reduction target: 9,147 m³/d by 2038
 - Represents a 13% reduction in projected 2038 ADD
 - Total program cost (to 2038) estimated at \$22.6 to 43.8 million
 - ADD reduction results in three water supply projects no longer being required within 2038 planning horizon







Impact of Conservation on Implementation Timeline

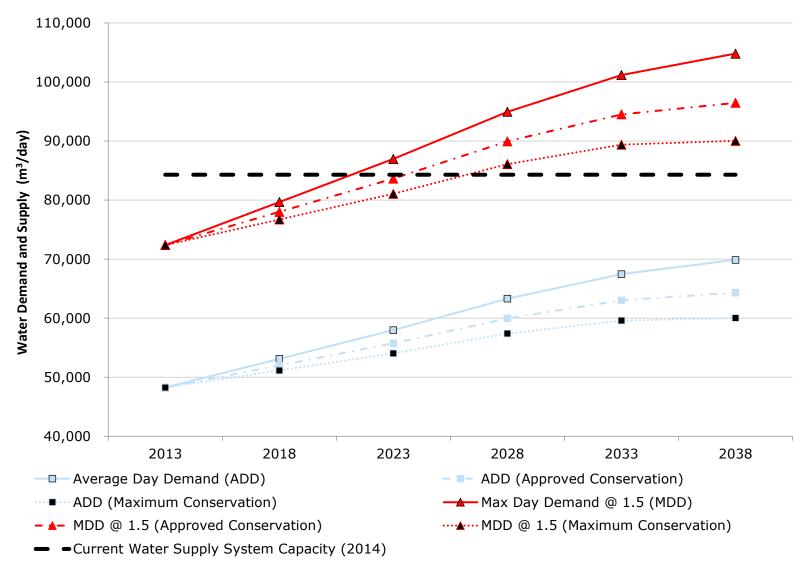
Project No.	Project Name	Timing Base Case	Timing Approved Conservation	Timing Enhanced Conservation	Timing Maximum Conservation
Project 1	Ironwood test well	2015	2017	2019	2019
Project 2	Clythe Well	2018	2022	2024	2024
Project 3	Logan test well	2020	2025	2027	2027
Project 4	Sacco Well	2022	2026	2029	2029
Project 5	Smallfield Well	2023	2027	2030	2030
Project 6	Lower Road Collector System	2023	2028	2031	2032
Project 7	Sunny Acre (new well inside City)	2025	2029	2033	2035
Project 8	Scout Camp test well	2026	2030	2036	2038
Project 9	Hauser test well	2027	2033	Post 2038	Post 2038
Project 10	Arkell Collector ASR wells	2028	2034	Post 2038	Post 2038
Project 11	Guelph South (new well outside City)	2030	2038	Post 2038	Post 2038
Project 12	Guelph North (new well outside City)	2034	Post 2038	Post 2038	Post 2038
Project 13	Guelph Lake WTP	2038	Post 2038	Post 2038	Post 2038
Project 14	Guelph Lake WTP and ASR wells in NEQ	Post 2038	Post 2038	Post 2038	Post 2038







Water Demand Projection with Conservation Alternative Scenarios









Water Conservation & Demand Management Post-2014

2016 Water Efficiency Strategy

Preferred water conservation and efficiency programs to achieve WSMP target demand reduction

Water Efficiency Strategy community demand management, efficiency and conservation goals:

- Reduce water use as part of new growth
- Develop/ pilot new technologies to save water
- Reduce water use in existing buildings
- The technology is proven and easily implementable in the City
- Stimulate the Guelph economy
- Minimize costs to the City

Final strategy endorsed by Council in September of 2016.

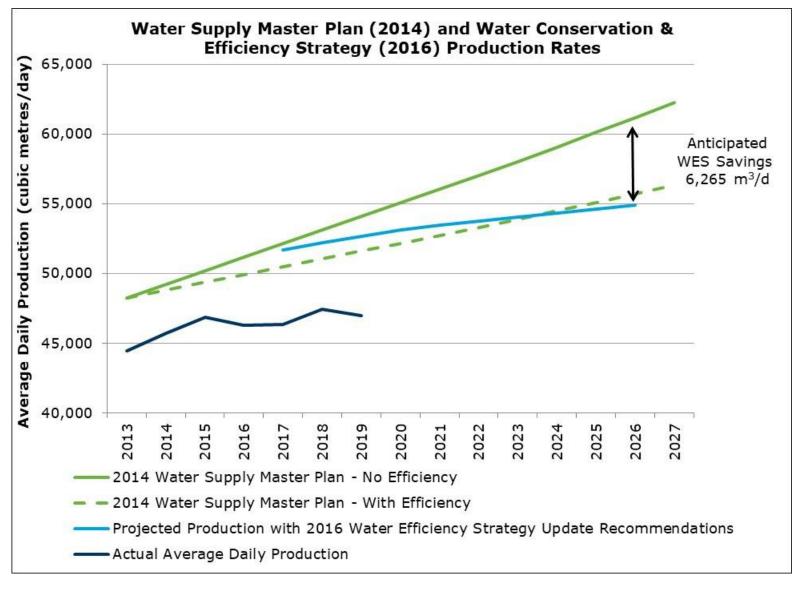
- 10 year, \$13.6 million community-driven water efficiency and demand management programming
- Goal: Reduce water use by 6.2
 Million Litres per Day by 2026







Water Conservation & Demand Management









Enhanced Conservation Program Successes/Challenges

2016 Water Efficiency Strategy and delivery:

- Saturating "low hanging fruit"; shift in marketplace
- First time addressing multi-residential consumption
- Interdependence of rebate, audit programs
- Expanding residential programming for retrofits
- Formalized pilots and research to support reduction targets
 - App and other technology stop gap for smart metering technology







Enhanced Conservation Program Successes/Challenges

2016 Water Efficiency Strategy and delivery (continued):

- Improving datasets i.e., multi-residential consumption challenging to quantify, invested in methodology improvement
- Water Smart Business emphasis enhanced; relationship building
- Community interest, want, desire to see water reuse
 - Impacts of residential softeners (to inform update)
 - Establishment of the Stormwater utility, rebates, credits







Enhanced Conservation Program Successes/Challenges

Program	2014-2020 Summary Total Average Daily Water Savings (m ³ /d)	2014-2020 Summary Total Units/Rebates/Audits
Blue Built Home	12.3	48
eMERGE Home Tune-up	64.3	1,670
Humidifier Rebate	0.3	3
Leak Detection	10,110.0	105
Multi-Residential Audit	76.7	15
Multi-Residential Sub-metering	8.7	20
Municipal Facility	39.4	7
Royal Flush	623.7	6,779
Smart Wash Rebate	102.6	1,333
Water Smart Business	456.3	10
Totals	11,494.3	9,990







Water Supply Master Plan Update – 2014 Demand Projections

- The 2014 WSMP provided water demand projections until 2038 under both "without water efficiency" and "with water efficiency" scenarios
- The projections included in the 2014 WSMP have been extended until 2041 by assuming that the annual rate of growth between 2033 and 2038 continues until 2041
- This has been done to allow a direct comparison between the 2014 WSMP and the 2019 WSMP values







Water Supply Master Plan Update – 2014 Demand Projections

Year	Residential Lcd No Efficiency	Residential Lcd With Efficiency	and the second	Employment Lcd With Efficiency	NRW Lcd No Efficiency	NRW Lcd With Efficiency
2013	180	180	286	286	43	43
2018	180	173	286	275	43	41
2023	180	167	286	265	43	40
2028	180	162	286	257	43	39
2033	180	158	286	251	43	38
2038	180	157	286	248	43	37
2041	180	156	286	246	43	36







Water Supply Master Plan Update – 2014 Demand Projections

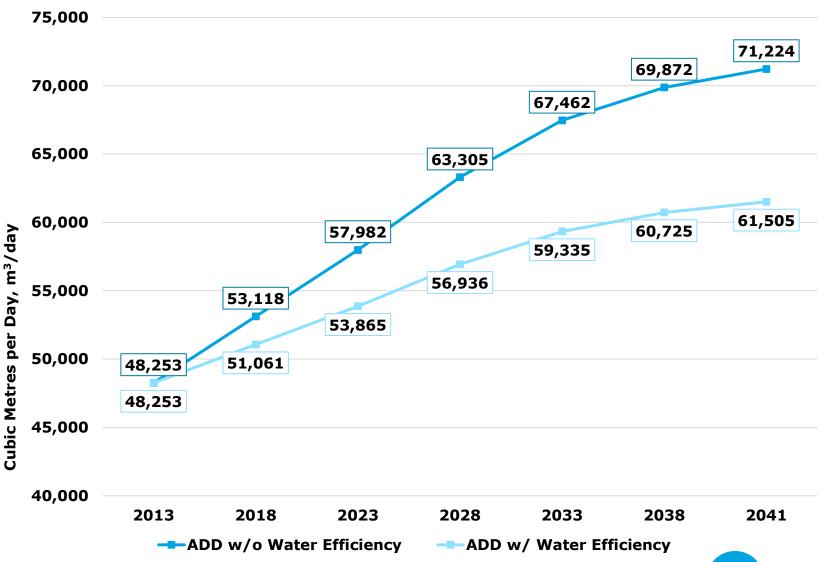
Year	Reference Population	Reference Employment	Average Day Demand, m ³ No Efficiency	Average Day Demand, m ³ With Efficiency
2013	130,670	66,730	48,253	48,253
2018	143,480	73,874	53,118	51,061
2023	156,290	81,017	57,982	53,865
2028	168,190	90,340	63,305	56,936
2033	178,464	96,947	67,462	59,335
2038	186,299	99,480	69,872	60,725
2041	191,000	101,000	71,224	61,505







2104 WSMP Average Annual Day Projections (demands extrapolated to include 2041)







Water Supply Master Plan Update – 2019 Demand Projections

- Between 2014 and 2019 per capita water demands declined significantly for several reasons, including:
 - Direct and indirect water savings due to Guelph water efficiency programs
 - Improved codes and standards
 - Improved efficiencies of water-using fixtures and appliances
 - Growing environmental awareness, etc.
- Residential Demands = 167 Lcd in 2019 (vs. 180 Lcd in 2014)
- Employment Demands = 191 Lcd in 2019 (vs. 286 Lcd in 2014)
- Per capita NRW demands fluctuate from year to year but have leveled off at approximately 61 Lcd (vs. an estimated 43 Lcd in 2014)







Water Supply Master Plan Update - 2019 Demand Projections

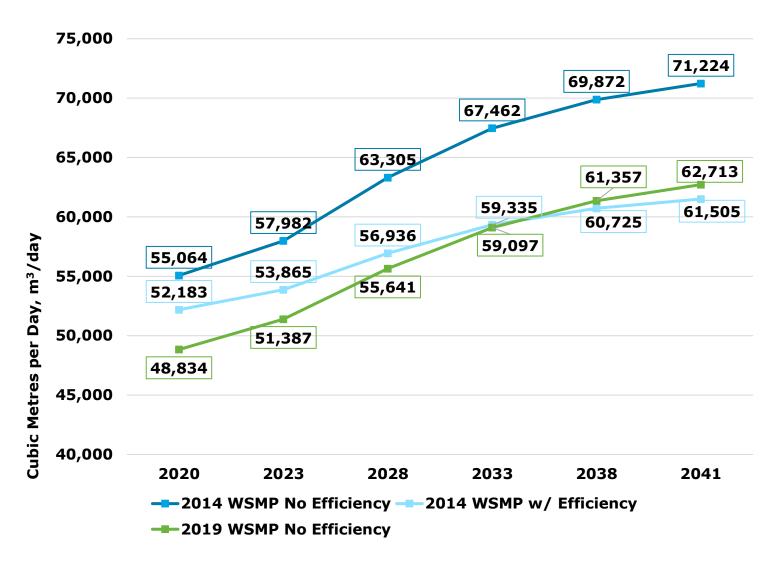
- As stated earlier, the 2014 WSMP projected:
 - 2041 ADD of 71,224 m³ without additional efficiency measures
 - 2041 ADD of 61,505 m³ with additional efficiency measures
- The 2019 WSMP is projecting:
 - 2041 ADD of 62,713 m³ without additional efficiency measures (i.e. do nothing DIFFERENT scenario)
- The potential for Guelph to reduce the projected 2041 ADD by implementing additional water efficiency measures will be evaluated in the WSMP update
- We know that, when per capita demands are very low, there are fewer opportunities to achieve additional savings







2104 WSMP vs. 2019 WSMP Average Annual Day Demand









Water Supply Master Plan Update – P2G Amendment

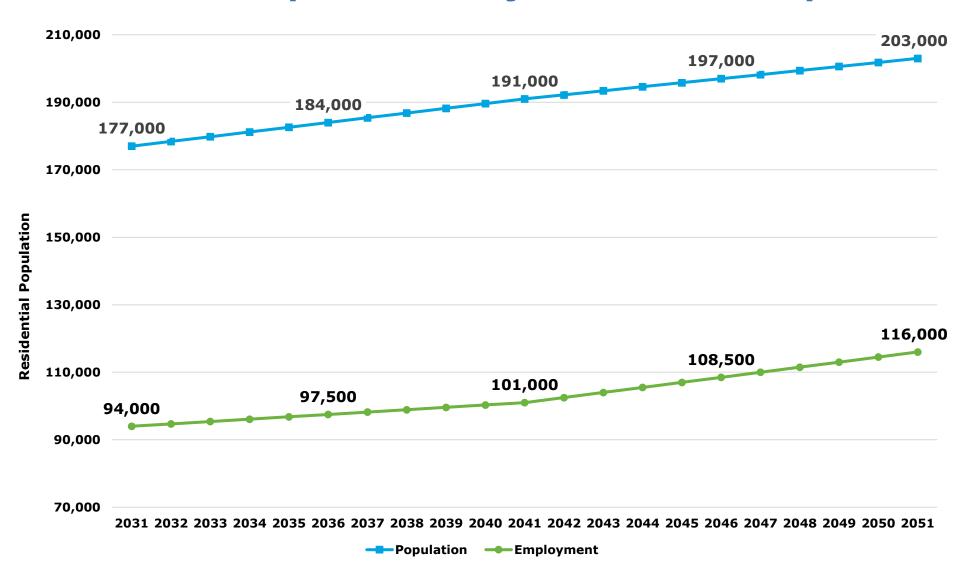
- In August 2020, the Province of Ontario's **A Place to Grow Growth Plan for the Greater Golden Horseshoe** (P2G) plan was updated to include population and employment projections until 2051 (vs. 2041)
- This included target population and employment projections for Guelph of 203,000 and 116,000 in 2051, respectively
- Importantly, the amended P2G anticipates a significant growth in Guelph's employment population between 2041 and 2051
- The WSMP demand projections completed to date will be updated to reflect the amended targets







P2G Population Projections for Guelph









Water Supply Master Plan Update - Conservation Target

- WSMP update will review/update 2016 WES water use reduction target by considering:
 - Alignment with Council objectives and public input
 - Conservation/efficiency program successes/challenges to date
 - Potential 'natural savings' during planning period
 - Economic benefit to City and water rate payers
 - Potential for water reclamation/re-use, in conjunction with ongoing Master Plan update projects: Water and Wastewater Servicing, Wastewater Treatment and Biosolids Management, and Stormwater Management
 - P2G amendment







We'd Like Your Input...

Given the demand reductions achieved to date and projected future demands, should the City be targeting similar future reductions (i.e., ~13%) or a higher/lower target?

Is there a particular water use sector and/or type of program that the City should emphasize in future conservation/efficiency programs?

Other questions/comments?















Meeting Minutes



City of Guelph

Water Conservation and Efficiency Public Advisory Committee (WCEPAC)

September 16, 2020

Online, Webex

From 7:00 to 9:00 p.m.

Meeting Chair: Grant Parkinson (GP)

Vice-Chair: Jaime Boutilier (JB)

Present: David Worden (DW), Eric Meliton (EM), Justin Arbuckle (JA),

Regrets: Louise Cottreau (LC), Robert Orland (RO), Emma Thompson (ET)

Staff: Arun Hindupur (AH), Dave Belanger (DB), Heather Yates (HY), Mari McNeil (MM), Nathan Siniowski (NS), Stephanie Shouldice (SS), Tara Roumeliotis (TR), Tim Robertson (TR), Travis Pawlick (TP)

Guest Presenters: Matthew Alexander (MA) (AECOM), Bill Gauley (BG) (Gauley Associates), Mike Newbigging (MN) (Jacobs Engineering Group)

Agenda Items

Item 1

Procedure using WebEx for Committee of Council meeting -H. Yates

- This session will be recorded.
- Please mute when not speaking to reduce background noise.
- Questions will be held to end of each presentation.
- Questions may be typed into the "Chat" function throughout the presentation; please do not use the Q&A function.
- During the question period, please physically raise your hand or use the "raise hand" button
 to indicate that you have a question. The Chair will note and call upon meeting attendants in
 order.

Item 2

Introductions and confirmation of meeting notes (February 5, 2020) – All

Motion: To approve the February 5, 2020 meeting notes.

Motion approved by DW

Motion seconded by JB

Carried

Item 3

Committee updates - departures, extensions, and vacancy posting -H. Yates

Attachment A: WCEPAC Presentation

Sincerest gratitude's extended to LC for completing her maximum number of years on the City's Water Conservation and Efficiency Public Advisory Committee.

There are currently two committee vacancies posted.

Action Item: All committee members are asked to share the vacancies with their networks and any contacts they believe would be interested and valuable to the committee.

Item 4

COVID impacts and program updates -H. Yates

Attachment A: WCEPAC Presentation

Due to Covid-19 most Water Efficiency programs were halted and staff impacted for approximately 3 months this summer. Staff have resumed work and most programs have been reinstated in some form. The Water Smart Business Program is still on hold. Program timelines have been reevaluated and various programs and tools are being adjusted to online formats. For example, the eMerge Home Tune-ups, school presentations, and site tours. The Water Efficiency Team will provide final reporting and project updates to the committee later this year.

Item 5

Water Supply Master Plan Update – Enhanced Water Conservation Scenario Review and Considerations for Setting Future Conservation and Efficiency Targets –M. Alexander, D. Belanger, B. Gauley, and H. Yates

Description: The Water Supply Master Plan project team presented on reduced water production and reclaimed supply since the approved 2014 WSMP Enhanced Water Conservation Scenario. This presentation will be a discussion on program successes and challenges, and considerations in developing water conservation scenarios for the WSMP update.

Attachment B: Water Supply Master Plan Update

The 2014 Water Supply Master Plan highlighted water efficiency's importance. Guelph's per capita water demands have declined significantly for many reasons, including water efficiency program effectiveness. Water efficiency programs to date have resulted in significant water savings that justify the investments made to enhance the community's water supply. The updated Water Supply Master Plan will continue to highlight and lean on water efficiency as the most important, immediate and cost-effective community water supply. The updated Water Supply Master Plan will include a projection for community water use to 2051 both with and without water efficiency measures.

Discussion:

DW: Max day factor is preferred over average day demand and recommends considering the cost saving estimates as well. The savings on an average day in September will be significantly different than on the maximum day in July. It will also be important to consider residential perception around rate increases despite engagement in water conservation efforts due to the resources required for infrastructure upgrades.

MA: Max day factor will be evaluated and extended to 2051. The firm system capacity, infrastructure requirements, maintenance needs, and potential supply impacts (i.e. drought, contamination, well/equipment failure, etc.) will be considered when investigating infrastructure needs.

JB: Guelph has been so successful that a similar target does not seem feasible. Water reclamation is a hot topic in places with high water restrictions and drought prone areas. People in Guelph would like to see how we can utilize this practice.

MA: Agrees. Water reuse is a high priority under consideration.

DB: Also agrees. Notes that water reuse applications will be part of the long-term plans within the Water Supply Master Plan. Regulation constraints and current capacity for practical application create barriers for quick adoption. But they will look at pilot scale projects, feasibility investigations, and planning needs to make water reuse part of the long-term supply solution.

JB: Recognizes water reuse obstacles, especially regulations, but notes that many organizations in Ontario have been talking about water reclamation and might provide good case examples.

GP: Guelph's max day is lower than theoretical factors, which is in our favor correct?

BG: Yes, Guelph's max day factor is low. Guelph does not have a typical municipal water use profile. Sometimes Guelph's day with the highest water use occurs in February when water is run to prevent freezing pipes, instead of during the summer when temperatures are high. This anomaly is likely due to limited irrigation happening in Guelph compared to other municipalities.

GP: City has installed District Metered Areas in recent years across the city. Will this data feed into the Water Supply Master Plan?

HY: District Metered Areas have not been functioning in a way that we can apply the data at this time. Issues are associated with lack of smart meters and aging infrastructure. The Servicing Master Plan will also consider the DMA infrastructure.

EM: For the targeted industrial, commercial and institutional (ICI) sector participants, is there a selection based on the Climate Change Action Plan?

DB: Will take that question under advisement and get back to EM.

RESPONSE UPON FOLLOW UP: that level of analysis of ICI sector consumption/emphasis (especially through Places to Grow amendment) will be addressed through the update to the Water Efficiency Strategy; this is typically when specific sector impact and analysis occurs. Staff will engage with the City's Economic Development team for their advice in this evaluation. The City does not have a climate change action plan. The Community Energy Initiative's sectoral review/representation would also be considered when we get to the Strategy stage when soliciting participation, advice and alignment.

Item 6

Wastewater Treatment and Biosolids Management Master Plan - Mike Newbigging

Description: The Wastewater Treatment and Biosolids Management Master Plan is a long-term plan. It will consider how the City is currently managing and treating wastewater and guides how the City will continue to meet growing community demands over the next 30 years.

Attachment C: WTBMMP Overview

Discussion:

JB: Many downstream communities rely on the Speed River feeding into surface water drinking supplies. But water reuse practices will result in the City discharging less water in the Speed River. Will you be connecting with potentially impacted communities about this?

MN: Plans to discuss impacts with the Grand River Conservation Authority, but will consider whether more communities should be brought directly into the discussion.

TP: The ongoing Assimilative Capacity Study is investigating discharge impacts on the Speed River and considers both water quality and quantity. This study will also inform the Master Plan.

DW: What percentage of our capacity is taken by Rockwood's wastewater? Does their agreement have provisions for expansion if they pay into their proportional use?

MN: It is a small capped amount. Rockwood consists of 2,100 units and a population of approximately 6,000 people. Their wastewater only accounts for approximately 3% of the wastewater transported to the Treatment Plant.

RO: Reducing discharge into the Speed River is likely not a problem due to increase in surface waters from expanded urban areas and impervious surfaces in upstream areas.

TP: In consultation with the Grand River Conservation Authority, various modelling scenarios will be considered.

GP: It is anticipated that climate change will result in slight net water increase in this area.

DB: Climate change modelling for the Tier Three Water Budget did predict more recharge events. With increasing temperature, more freeze-thaw events are anticipated in the winter months that will result in more recharge. But models are still based 50 years into the future with lots of uncertainty. The model presents an interpretation that will be updated in future years and the higher recharge with be re-evaluated.

TP: Encourage any committee members that would like to provide input to sign-up on Guelph.ca to remain connected and updated on Master Plan developments.

Item 7

Water and Wastewater Servicing Master Plan Update-A. Hindupur

Description: The City has progressed in updating this Master Plan since last presenting to WCEPAC in late 2019. This presentation will provide the committee an update on the tasks, deliverables and timeline for the completion of this Master Plan.

Attachment A: WCEPAC Presentation

Studies for the Wastewater Servicing Master Plan began earlier this year. Hydraulic modelling and analysis will take place for the distribution and collection systems once appropriate tools and methods have been determined. Once appropriate tools are established, this analysis will take place under consideration for both existing and potential future circumstances. For example, storm intensities, residential and ICI growth patterns, and plans for intensification corridors. Such factors can all impact infrastructure needs and have associated costs and risks.

A community engagement plan has been developed. It adopts a more virtual approach due to Covid and will include a story map which has been successful for other City master plans.

It is anticipated that a Project File Report collating this information will be completed within one year to a year and six months from now.

Discussion:

AH: Requests continuation to final slide before questions and comments.

No objection from the committee.

GP: Approves continuation onto item 8 before questions are posed.

Item 8

Stormwater Management Master Plan -A. Hindupur

Description: The City has progressed in updating this Master Plan since last presenting to WCEPAC in late 2019. This presentation will provide the committee an update on the tasks, deliverables and timeline for the completion of this Master Plan and solicit feedback on the interplay with the water efficiency mandate of the committee.

Attachment A: WCEPAC Presentation

As part of this project, staff will be examining existing stormwater management facilities throughout the City for their design and functionality. Consideration will be made for how inefficient facilities can be addressed as well as opportunities to install retrofits in areas where no current stormwater management facilities exist.

A watercourse condition assessment will be conducted to evaluate erosion along watercourses. Anecdotal reports and observations suggest that watercourse erosion is not a major issue in Guelph. Proactive measures will still be taken to consider where issues may lie and devise mitigation strategies.

Hydraulic modelling and analysis will also be conducted to develop a comprehensive overview of the stormwater system.

To understand current and future infrastructure needs, an updated analysis of our Rainfall and Intensity Duration Frequency Curve will take place. This analysis considers current and future anticipated precipitation trends. A stormwater management and drainage assessment will be conducted to understand how the system reacts to these weather conditions. The output from this assessment is a new capital infrastructure plan.

Standard stormwater management criteria for developers is that 80% of suspended solids must be removed from the water. This project will consider where this standard is acceptable and where more strict or specific criteria is needed.

Low Impact Development is a green infrastructure standard that is gaining attention. In Guelph, we need to consider the impacts of Low Impact Development on our groundwater quality. Because this form of stormwater management encourages infiltration there are associated source water protection implications.

Communications and community engagement around this project will be virtually based. This work will include an interactive map that allows people to identify where they have seen flooding or erosion in the community.

It is anticipated that this project will take approximately one year and result in a final Project File Report and Innovation Strategy.

Discussion (Items 7 and 8):

EM: Has the City incorporated ICI surcharge reconciliations for Low Impact Development or green infrastructure projects?

AH: Yes, the City offers both a residential and ICI credit rebate program. ICI uptake has been modest, though applications are received every year.

EM: In City of Mississauga and Brampton design and implementation loans are offered to increase the return on investment for ICI. Research suggests that upfront design costs are a limiting factor. Funding this project aspect has been helpful for increasing interest and uptake.

AH: Will connect further with EM about this approach.

RO: Will the City investigate to ensure the developer followed through on the approved plan?

AH: The City can conduct inspections.

GP: In recent years, land development patterns have shifted towards intensification. This leads to greater impervious areas instead of sprawl. Is this impacting the Master Plan?

AH(subsequent editing by **HY** for clarity): The impact has not been as prominent as expected. There are more stormwater issues where infrastructure is old, not as prevalent in the new areas. We are not seeing many new stormwater issues – with the exception, as anticipated, of St. Patrick's ward (a portion of Guelph's Ward 1).

Item 9

Next meeting -H. Yates

The next Water Conservation and Efficiency Public Advisory Committee Meeting is scheduled for December 9, 2020.

Item 10

Meeting ended at 9:18 pm.

Water Supply Master Plan 2021 Update

Water Conservation and Efficiency Public Advisory Committee









Presentation Outline

- Summary of Water Supply Requirements to 2051
- Overview of Water Supply Alternatives
- Environmental Assessment Evaluation Criteria
- Preliminary Preferred Solution
- Q&A, feedback

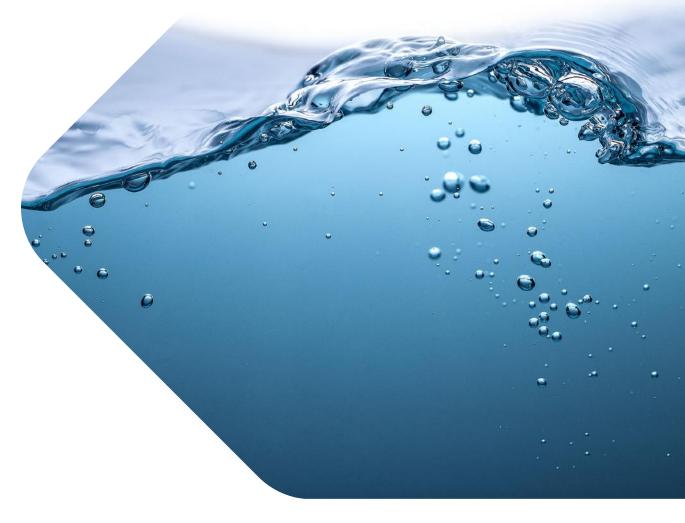








Water Supply Master
Plan Update
Summary of water
supply requirements



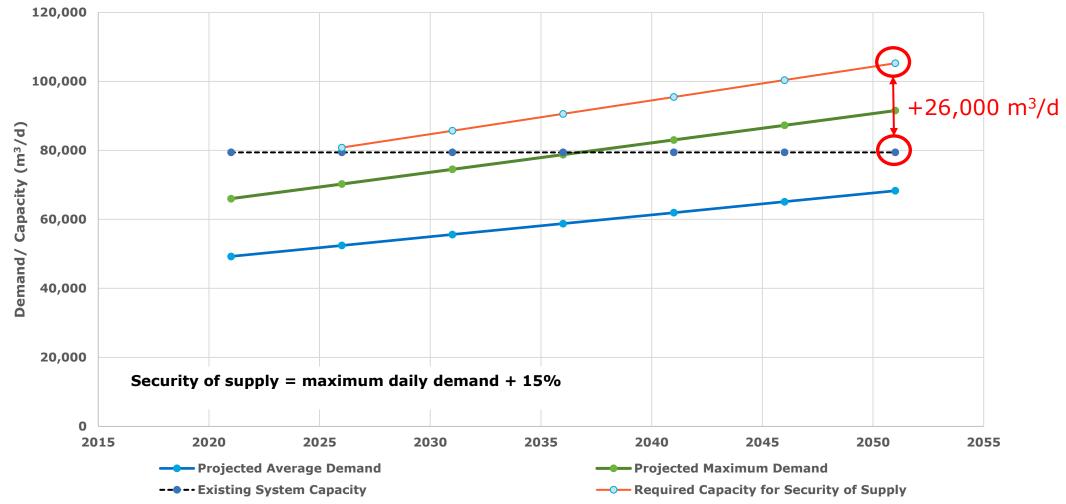






Required Capacity for Security of Supply

Water Demand & Required Total Capacity



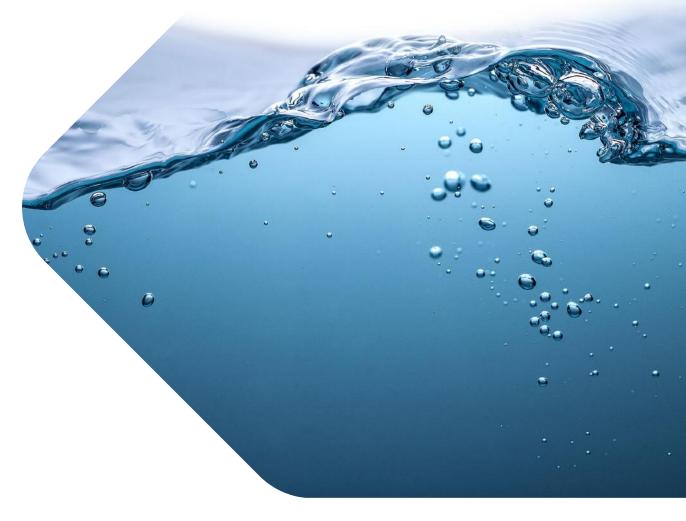








Water Supply Master Plan
Update
Task 4 - Water Supply
Alternatives
Assessment









Alternatives Assessment

Assessment of proposed water supply alternatives under consideration:

- 1. Water conservation, efficiency and demand management, including water reuse
- 2. Optimize and expand existing groundwater system
- 3. Establish new surface water supply
- 4. Limit growth/ do nothing

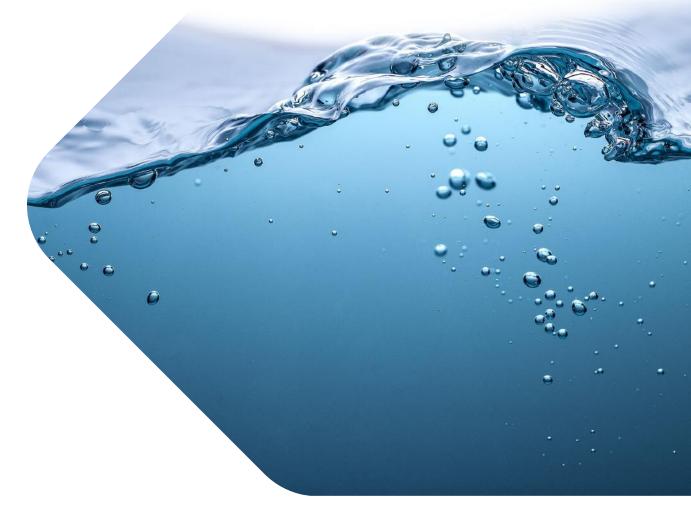








Water Supply Master Plan
Update
Water Supply
Alternatives – Water
Conservation and
Efficiency









Conservation/ Efficiency Programming Scenarios

- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3% in 2051







Non-revenue Water

Economic Level of Leakage (ELL): point at which the cost of lost water (leakage) = costs of leakage prevention programs

Infrastructure leakage index (ILI) = Real Losses / Unavoidable Real Losses

- ILI=2.0 for Guelph in 2019
- Other jurisdictions (UK, Australia) have reported ELL when the ILI is below 3
- Results indicate that Guelph is near or at its ELL
- Recommended focus in future is to maintain the ILI, or improve where possible







- Assumes the City ceases non-mandatory programming
- Sets a baseline against which to compare scenarios
- Based on effort City has put into educating public, no resulting increase in demand is anticipated
- Scenario does not reduce demands
- No cost associated with scenario

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	166.6	203,000	33,814
Employment	191.0	191.0	116,000	22,155
NRW	60.8	60.8	203,000	12,338

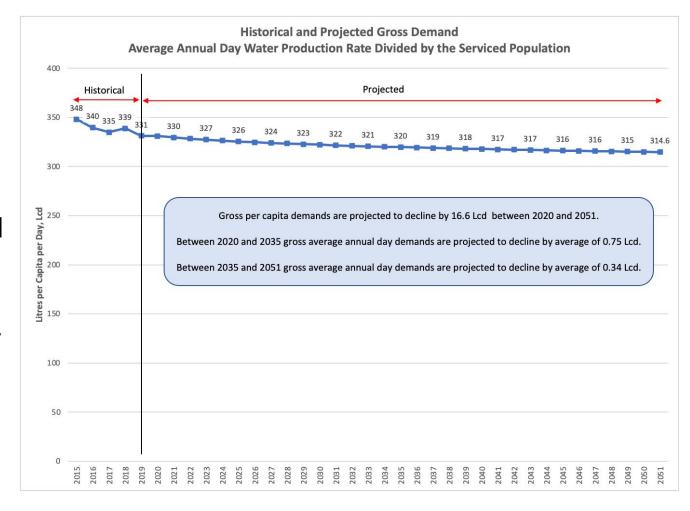
Total is $68,305 \text{ m}^3/\text{day}$ (2051)







- Continuation of current level of programming
- Decline in per capita demands has slowed over time
- Apply avg. rate of per capita demand decline observed from 2015-2019 as target for future decline
- Requires regular review of programs, replace those no longer effective
- Assume matching target reductions for residential and ICI









- Results in 6.5% decline in 2051 demand
- Reduction of $\sim 4,400 \text{ m}^3/\text{day vs.}$ Scenario 1
- Associated cost estimate: \$11.41 M or \$2,600 m³/day; \$380,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338

Total is $63,882 \text{ m}^3/\text{day}$ (2051)







- Acknowledges that effective conservation and efficiency programming becomes more challenging with success
- City may elect to focus programs on high water use customers if per capital demand trend continues to stabilize
- Approach would result in lower demand reduction at a lower cost to City
- Overall reduction of 3.25% in 2051 demand
- Reduction of ~2,200 m³/day vs. Scenario 1
- Associated cost estimate: \$4.73 M or \$2,100 m³/day; \$158,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	159.9	203,000	32,460
Employment	191.0	183.5	116,000	21,288
NRW	60.8	60.8	203,000	12,338

Total is $66,086 \text{ m}^3/\text{day}$ (2051)







- Addition of water reuse opportunities to Scenario 2 demand reductions
- Most aggressive option highest demand reduction and program costs
- Review of water reuse options previously compiled
- Consideration of those most likely to reduce average daily demand (i.e., remove seasonal uses like irrigation)
- Total daily savings of 528 m³/day estimated

Measure	Annual Savings, m³	Average Annual Day Savings, m³/day
Street sweeping	3,175	8.7
Sewer flushing	11,223	30.7
Urban applications	168,168	460.7
Construction	10,160	27.8
Municipal irrigation	8,800	24.1
Golf course irrigation	147,000	402.7
Total	348,526	955
Total without Irrigation	192,736	528







Scenario 4

- Overall reduction of 7.3% in 2051 demand
- Reduction of ~4,900 m³/day vs. Scenario 1
- Associated cost estimate: \$15.04 M or \$3,000 m³/day; \$586,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338

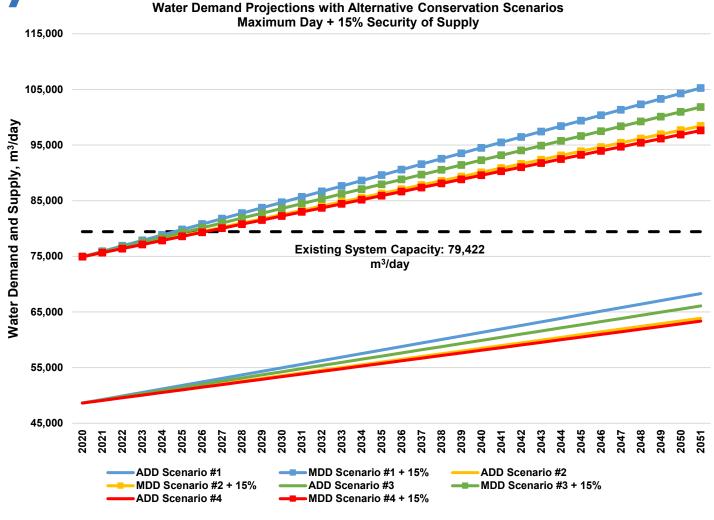
- Total Potable is 683,992 m³/day (2051)
- Minus Estimated Water Reuse Savings -528 m³/day (2051)
- Total Potable Minus Reuse is 63,354 m³/day (2051)







Conservation/ Efficiency Programming Scenario Summary



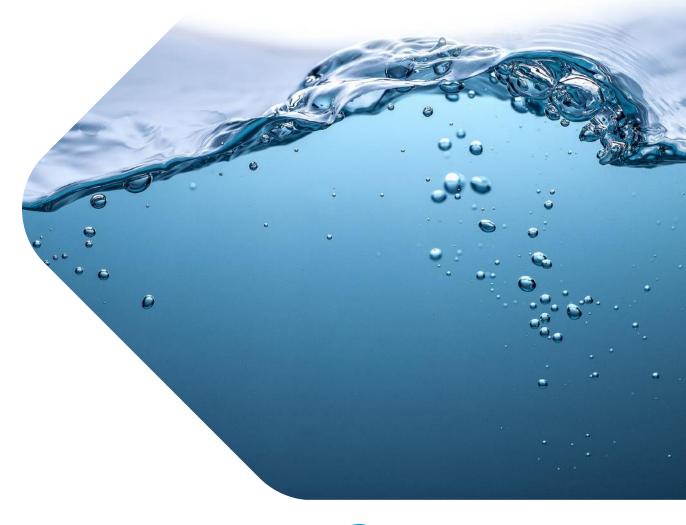








Water Supply Master Plan
Update
Water Supply
Alternatives –
Groundwater Sources









Groundwater Alternatives

The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources
- Restore existing off-line municipal wells
- Develop existing municipal test wells
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes

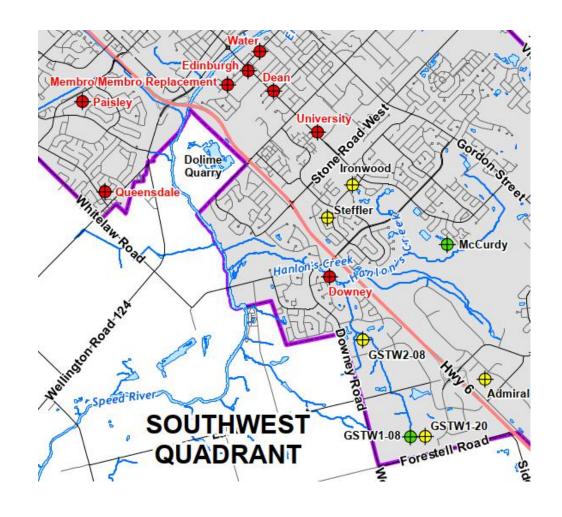






Optimize existing operating municipal wells

- Reviewed optimization opportunities through historical well performance and discussions with Operations staff
- Potential for additional capacity from Downey Well
 - Located within southwest quadrant
 - Must be evaluated alongside test wells in quadrant
 - Consideration of Dolime Pond Level Management
 - Detailed assessment of additional water supply to be completed through Southwest Guelph Water Supply EA



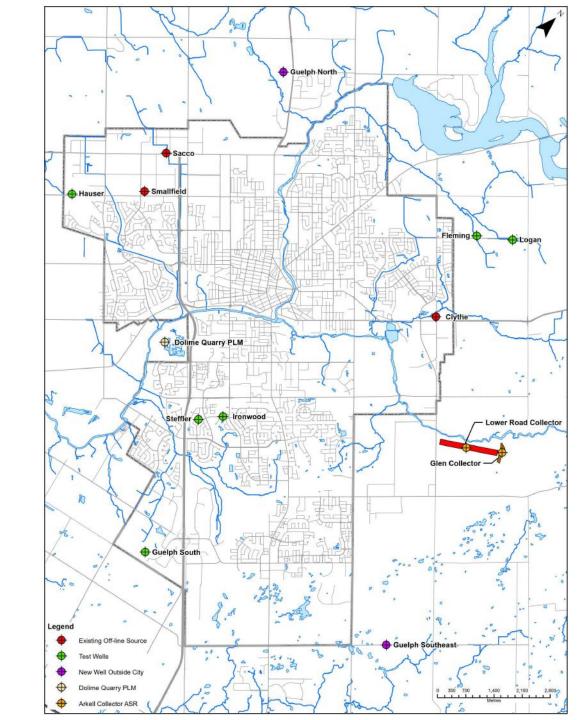






Off-line/ New Sources

- Four off-line sources shown in red
- Six test well locations shown in green



Restore existing off-line municipal wells

Quadrant	Well	Required Upgrades	Approximate Additional Capacity (m ³ /d)	Estimated Capital Cost	Cost per m³/d
Northeast	Clythe	Well house upgrade; H2S, Fe&Mn treatment (EA complete)	1,180-3,400	\$6.8M	\$2,000
Northwest	Sacco/ Smallfield	wellhouse upgrade; VOC treatment	850-2,560	\$13.1M	\$5,100
Southeast	Lower Road Collector	new perforated pipe system & associated infrastructure	4,000	\$14.67M	\$3,700
		Total	6,030		

- Uncertainty about Clythe Creek requires additional field program to address as part of PTTW
- Sacco/ Smallfield alternative assumes combined treatment facility on Smallfield property; MECP correspondence: achieving clean up goals
 (i.e. ODWQS by 2051) is unlikely
- Full re-construction of Lower Road Collector anticipated; additional modelling recommended to optimize design; would benefit from recharge system upgrades
- Additional capacity in table represents modelled long-term average
- · Costing developed for maximum capacity where existing data are available







Develop existing municipal test wells

Quadrant	Well	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Guelph South	SWG EA/OTP; land acquisition; well house; connect to distribution	2,250-4,300	\$5.3M	\$1,200
Southwest	Ironwood/ Steffler	SWG EA/OTP; well house; disinfection; connect to distribution	2,250-8,000	\$5.1 to 6.2M	\$650 to 1,700
Northeast	Logan/ Fleming	new well; well house; connect to distribution	4,180-4,700	\$10.1M	\$2,150
Northwest	Hauser	new well; property in area; well house; connect to distribution	425-900	\$6.6M	\$7,300
Total			9,105		

- Modelled long-term average additional capacity of 4,500 m³/day in SWQ (with active Dolime Quarry dewatering)
- Southwest Guelph EA initiated to assess additional water supply in SWQ in detail
- City has initiated project on Logan site to re-construct and test well







Assessment of Dolime Pond Level Management

Quadrant	Source	Required Infrastructure	Approximate Additional Capacity (m ³ /d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Dolime	SWG EA/OTP; pumping station; WTP (if supply is direct from quarry); connect to distribution	3,000	\$18.9M	\$6,300

- SWG Class EA will assess optimal strategy for capturing available water
- Water quality assessment will determine treatment requirements
- Capture of quarry water would reduce current artificial discharge to Speed River – not relied upon for WWTP assimilative capacity
- Cost would be reduced if additional capacity is captured by surrounding wells







Install new wells outside City boundaries – Guelph North

- Approximate location G-E Township North of the City (City does not currently own land here)
- Consultation and collaboration with G-E Township
- Rationale proximity to an area with high transmissivity within the Gasport aquifer
- Estimated available capacity 2,935 m³/day on an average basis
- Model output: >10% baseflow reduction to Marden Creek; near the Marden South PSW Complex
- Field study would assess potential for interference with G-E Township wells, private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$12.8 M, \$4,375/m³









Install new wells outside City boundaries – Guelph Southeast

- Approximate location in Puslinch Township southeast of the City (City does not own land here)
- Consultation and collaboration with Puslinch Township
- Rational Proximity to area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 1,600 m³/day on an average basis
- Model output: <10% baseflow reduction to Mill Creek; near Arkell Bog PSW Complex
- Field study would assess potential for interference with private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$10.3 M, \$6,400/m³

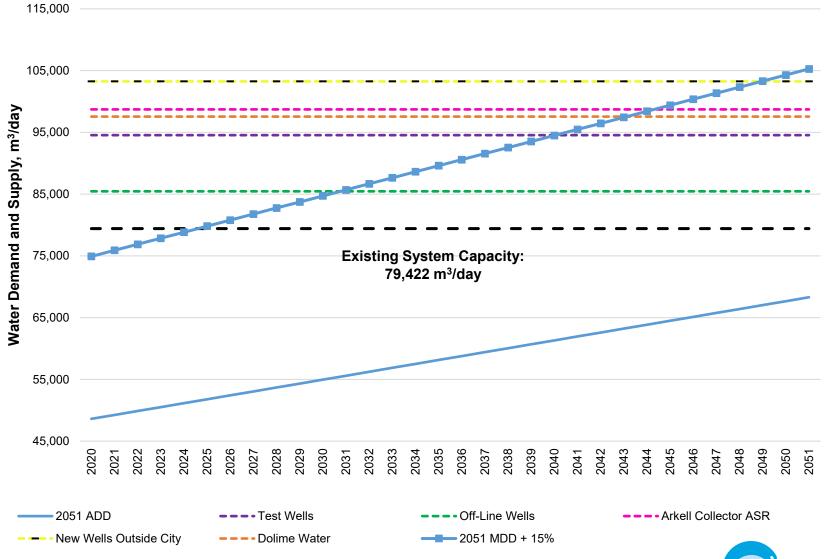








Groundwater Alternative Summary

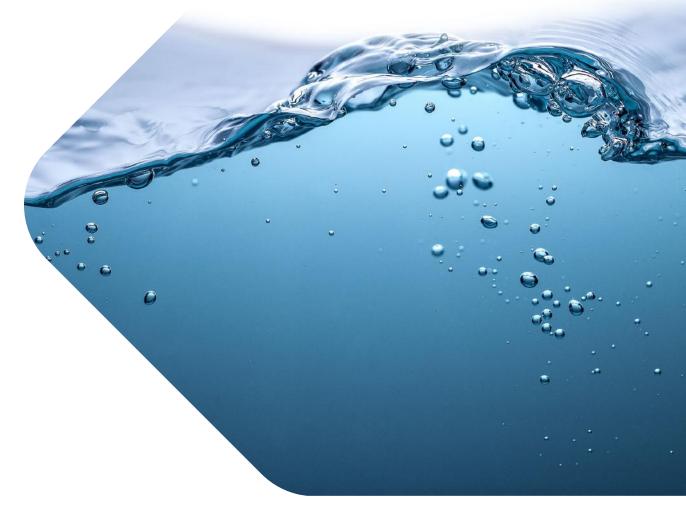








Water Supply Master Plan Update
Surface Water Alternatives
Assessment

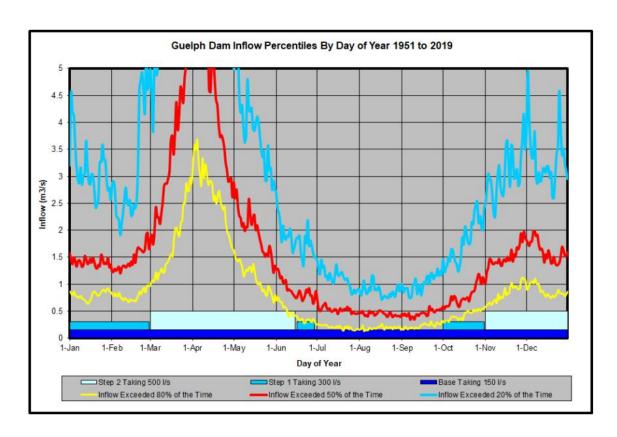








Surface Water - Guelph Lake



Guelph Lake Yield Analysis (GRCA):

- Modelling results indicate that there is a potential for proposed stepped taking: 150 L/s and 300 L/s
- 500 L/s step dismissed for two reasons:
 - not practical to build a WTP for three months
 - flow cannot be injected in a reasonable number of ASR wells
- ASR alternative assumes base taking of 150 L/s with increase to 300 L/s for nine months of the year







Summary – Guelph Lake Water Treatment Plant

Location	WTP at Guelph Lake or NE part of City		
Description	Surface WTP consisting of conventional/ advanced treatment and distribution pipeline		
Intake Rate (m³/d)	12,960 (continuous annual base taking of 150 L/s)		
Distribution Rate (m³/d)	12,300		
Existing Approvals	None		
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNRF/ MECP - PTTW (Surface Water) ECA/ DWL GRCA 		
Water Quality Issues	High turbidity, colour, odour		
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features		
Past Studies/Work	GRCA review of water taking reliability		
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA 		
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main 		
Estimated Capital Cost	\$ 51,322,000		
Cost per m³/day	\$3,960		
mated Capital Cost	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main \$ 51,322,000 		

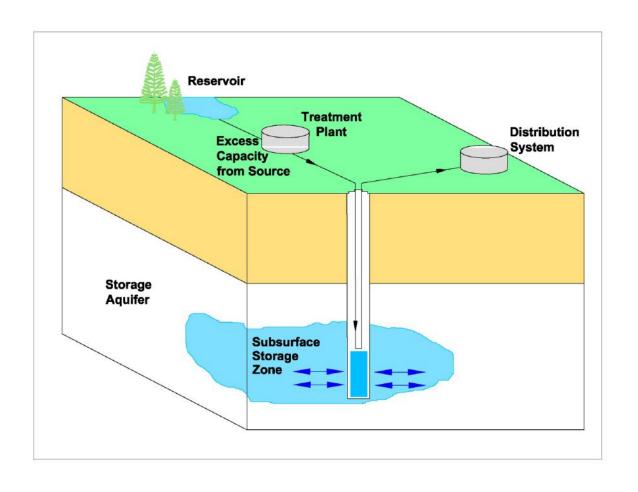






Install new ASR wells inside City

 Aquifer Storage and Recovery (ASR) injection of potable water into an aquifer for later recovery and use



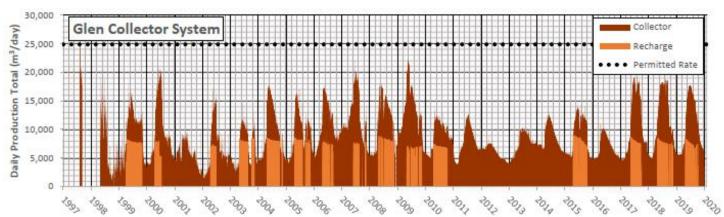


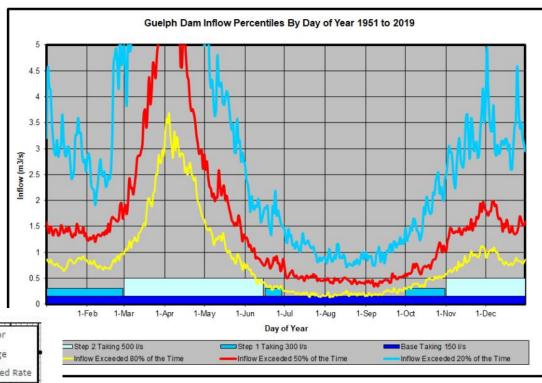




Aquifer Storage and Recovery

- Two potential sources: Guelph Lake following future potential WTP plant construction; Arkell collector system
- Estimated annual excess volume: Arkell – 451,000 m³; Guelph Lake – 941,000 m³



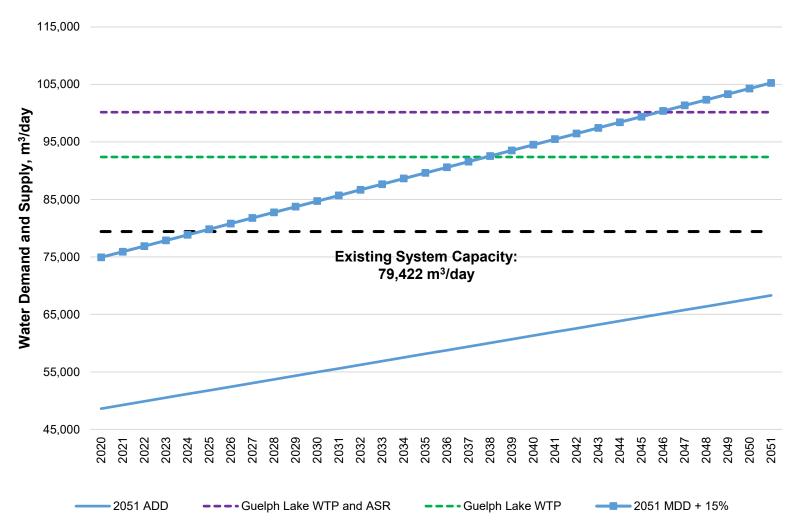








Surface Water Alternative Summary

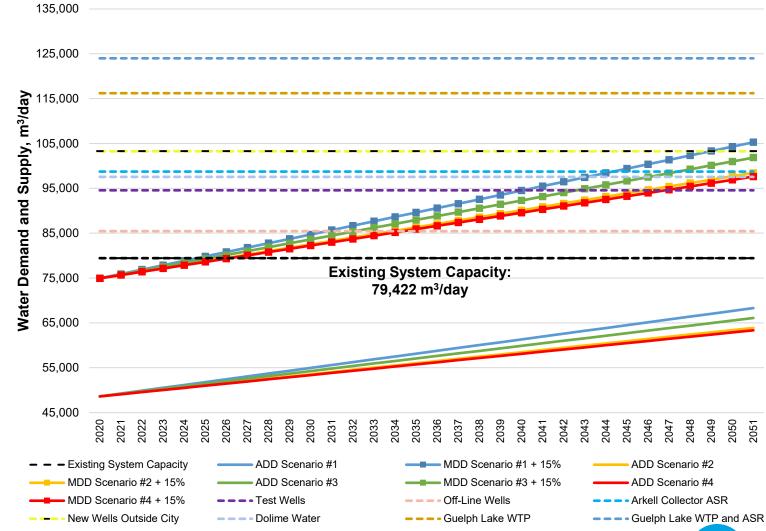








All Water Supply Alternatives Summary









Other Alternatives

Limit Growth / Do Nothing

- Represents what would likely occur if none of the alternative solutions were implemented
- Reduction in future water supply needs by limiting the extent, density, type and/or location of future residential, industrial, commercial and institutional growth in the City below levels identified in recent planning studies
- Implementation of this alternative would require change to municipal planning documents which would not meet Provincial growth targets
- Will have a significant impact on the growth potential for the City
- Does not meet EA challenge and opportunity statement

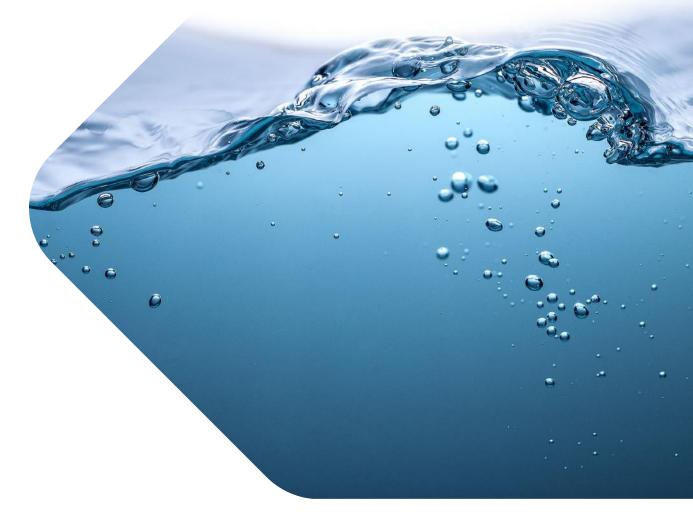








Water Supply Master Plan Update Evaluation Criteria









Evaluation criteria





First Nations, Métis and Inuit Peoples

• Effect on Indigenous values, cultural and Traditional use



Built Environment

- Potential effect on existing/ planned structures
- Potential effects on private and municipal wells



Natural Environment

- Potential effects to natural environment
- Potential impacts to water resources
- Potential impacts to natural heritage features
- Environmental management planning considerations







Evaluation criteria





Social and Cultural Environment

- Land use impacts
- Short-term construction impacts
- Potential impacts from operations
- Cultural heritage/ archaeology impacts
- Ability to meet growth targets
- Public acceptance



Economic and Financial Considerations

- Estimated capital costs
- Estimated operations and maintenance costs, including energy consumption



Legal/ Jurisdictional Considerations

- Location of facility relative to city boundaries
- Land requirements
- Implementation of Source Protection Policies







Evaluation criteria



Technological Considerations

- Ability to implement and meet maximum demand
- Constructability of alternative
- Water treatment requirements (current and future)
- Expandability of facility
- Ability to respond to changes in regulations
- Ability to utilize existing infrastructure
- Approval requirements







Preliminary preferred solution – initial implementation timeline





Conservation and efficiency – current level of effort

Clythe well (offline)

SW Guelph test well(s)

Dolime Quarry PLM

Logan/ Fleming test well(s)

Medium Term (10-20 Years)

Conservation and efficiency – focus on high demand customers

Lower Road Collector (offline)

Arkell ASR

Long Term (20-30 Years)

Conservation and efficiency – water reuse

Hauser test well

Guelph North well (new well outside City)

Guelph Southeast well (new well outside City)

Guelph Lake surface water

Smallfield/ Sacco (offline) >30 yrs







Questions?

 We welcome any questions or feedback you have about the information shared tonight









Visit our website: guelph.ca/WSMP







Meeting Minutes



Water Conservation and Efficiency Public Advisory Committee

Tuesday, September 28th, 2021 at 7:00 pm

Online, Webex

To access the meeting's recording follow:

Water Conservation and Efficiency Public Advisory Committee meeting-20210928 2303-1

Password

hPBig2F8

From 7:00 to 9:00 p.m.

Committee Membership Present: Grant Parkinson (GP), Emma Thompson (ET), Rahim Kanji (RK), Taylor Dorland (TD)

Regrets: David Worden (DW), Eric Meliton (EM), Jaime Boutilier (JB), Justin Arbuckle (JA)

Staff: Beatriz Gomez-Canizo (BGC), Heather Yates (HY), Donna Tremblay (DT), Dave Belanger (DB), Matthew Alexander – AECOM (MA), Bill Gauley – AECOM (BG)

Agenda Items

Item 1

Procedure using WebEx for Committee of Council meeting and recording – 7:00 p.m. – H. Yates

Item 2

Land Acknowledgement - 7:05 p.m. - G. Parkinson

Item 3

Introductions and confirmations on meeting notes (February 3rd, 2021) -7:10 p.m. – G. Parkinson

Motion: To approve the February 3rd, 2021 meeting notes.

Committee did not meet quorum and the meeting minutes were not approved.

Item 4

Updates to Advisory Committees of Council Policy – 7:15 p.m. – D. Tremblay

Description: On July 19^{th,} 2021 Council approved new policy changes to Advisory Committees of Council, including Meeting Procedures Policy, Administration Policy and Public Appointment Policy. This item will be presented to the committee regarding process, procedure and training.

Discussion:

City of Guelph Water Conservation and Efficiency Public Advisory Committee Meeting Agenda

GP-Difference between presenter and delegate?

DT-Revisions to the Administration Policy now permit Chairs or a designated member from the committee to attend Council and Committee meetings to speak to committee advice which has been incorporated into staff reports. The Chair or their designated will not be required to register as a delegate, instead, upon instructions from the Chair, staff liaisons will communicate to Clerks Office Staff that the Chair or their designate have requested to speak to the staff report and will be listed as a presenter and not public delegate on the Council or Committee Agenda.

Item 5

All-Season Rainwater Harvesting Rebate Terms and Conditions review – 7:40 p.m. – B. Gomez-Canizo

Description: Seeking committee's feedback as subject matter experts in regards to proposed changes to the All-Season Rainwater Harvesting Rebate Terms and Conditions that changes in municipal bylaw, Ontario Building Code, technology advancements and system availability and the market that the City would like to consider.

Discussion:

TD- Agree with the proposed changes. Would it be possible to mandate reuse water systems like rainwater harvesting systems for new homes and new developments.

BG- There is no intention from the City to mandate or change bylaws right now to incorporate reuse systems. We have been part of pilot projects in the past and will keep promoting water reuse systems in Guelph.

TD- Understand why people are not signing up and barriers that are preventing our messages to reach their targets. Use other channels to reach different audiences, like using the property tax letter as an opportunity to add a bill insert.

BG- We have tried different communication channels, business and social groups. We are open to suggestions and ideas.

TD-Could it be possible that Grey water and Rainwater harvesting systems are cannibalizing each other?

BG- There had not been many applications for the Greywater rebate after the pilot project. Although RWH rebates have not been very common, we are still seeing some uptake. Both reuse systems could help meet our targets.

AECOM BG- Are backflow preventions inspections needed for these systems? These constant inspections increase the costs of these systems.

BG-Yes, they are needed.

GP- Could there be opportunity to increase uptake by talking more about the benefits of the natural soft water, like preventing scale on laundry and dishwashers, extra savings when reducing the use of water softeners.

Item 6

Water Supply Master Plan updates. - 8:05 p.m. - M. Alexander, B. Gauley

Description: Water supply alternatives, including conservation scenarios, have been proposed for the Water Supply Master Plan update. This presentation will share the results of this technical review, the evaluation criteria and seek the Committee's input and feedback on the proposed.

City of Guelph Water Conservation and Efficiency Public Advisory Committee Meeting Agenda

Different water conservation and efficiency scenarios and proposed water supply alternatives were shared.

Conversation:

RK- Was climate change considered in the projections?

MA- Security of supply looking at the potential of it being dryer in the future considering drought, which was part of the decision to include the extra 15% of extra capacity due to those extended droughts. From the groundwater perspective, based on modeling from the City for source water protection, we may see overall higher recharge levels due to more melting in the winter. From the City's perspective there is legislation for thresholds to be met for water treatment. As we learn more about contaminants present in the water it becomes a revolving area that needs to be revisited

DB- The Water Supply master plan and Source Protection Plans are in place to protect quality and quantity, including risk management plans to protect water supply from those risks. Develop policies to protect and take priority over other source protection policies, incorporate drought and climate change into the plans. Falls into source protection and water supply master plan.

RK -Sustainability and lower risks were considered?

MA-Climate change was considered, in both cases, ground water and surface water. The priority is ground water as we want to prioritize the sources within City limits. The City has a ground water supply, which is less vulnerable to climate change. Surface water is more vulnerable.

DB- Reuse built in the projections and will become more important in the future.

Next Meeting

Virtual meeting - December 1, 2021

Meeting ended at 9:09p.m.

City of Guelph 2019 Water Supply Master Plan – Overview for Puslinch Township

December 2, 2019





Overview



- Problem/Opportunity Statement;
- Review Work Plan for 2019 WSMP; and
- Review schedule and next steps





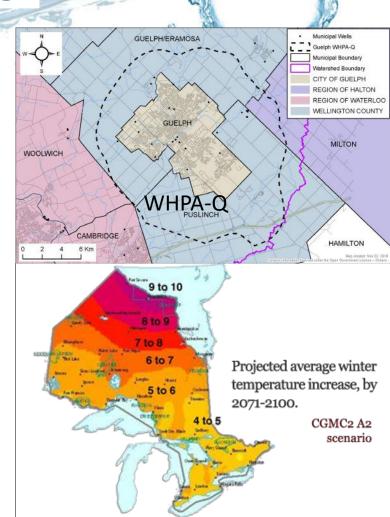
Guelph Maga 200mm

2019 PROBLEM / OPPORTUNITY STATEMENT

- City is responsible for supplying clean, safe drinking water;
- City will provide a reliable and sustainable supply to meet current and future needs of all customers for the next 20 years (2041);
- The updated Master Plan will identify and prioritize individual projects required to implement the Master Plan.

2019 WSMP - SPECIAL ISSUES

- Tier 3 Water Budget and Local Area Risk Assessment
- Contaminated Sites
- Dolime
- Surface Water Impacts
- Firm Capacity and Security of Supply
- Climate Change

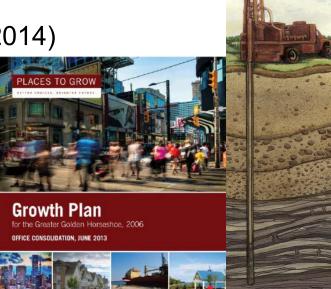


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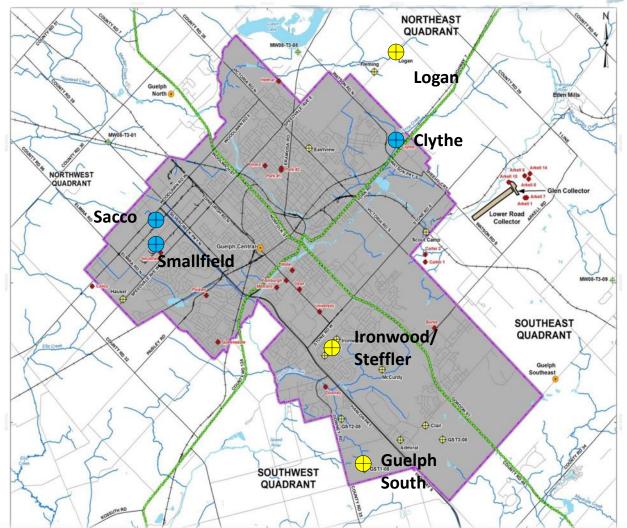
2019 WSMP WORK PLAN

- Same approach as in 2014
- Task 1 Develop Community Engagement Plan
 - Community Liaison Group, Municipality/Agency Workshops, Open Houses
- Task 2 Population and Water Demand forecasts
- Task 3 Water Supply Capacity
- Task 4 Water Supply Alternatives (similar to 2014)
- •Task 5 WSMP Report





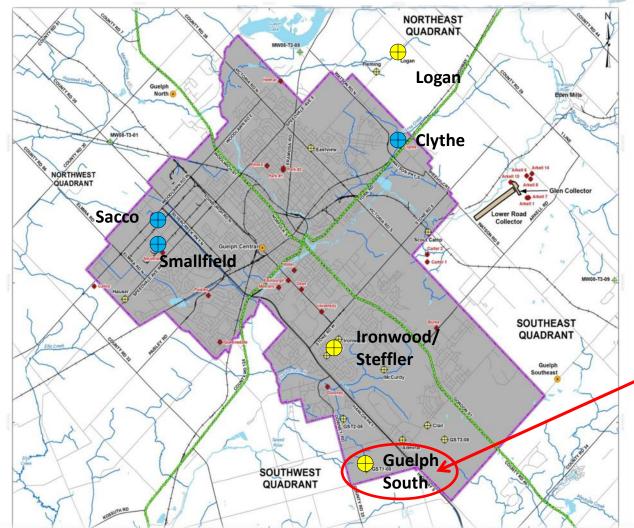
OFFLINE WELLS AND TEST WELLS





- Offline Well
- Test Well

OFFLINE WELLS AND TEST WELLS





Offline Well

Test Well

Guelph South Groundwater Investigation Feasibility Study





- Investigation of Test Well in Hanlon Creek Business Park
- Test well converted to larger diameter production well
- Construction of multi-level monitoring wells
- Domestic well survey identify wells in the area
- 30 day pumping test to assess well interference and potential impacts (late Spring, 2020)
- Information used to support Water Supply Master Plan





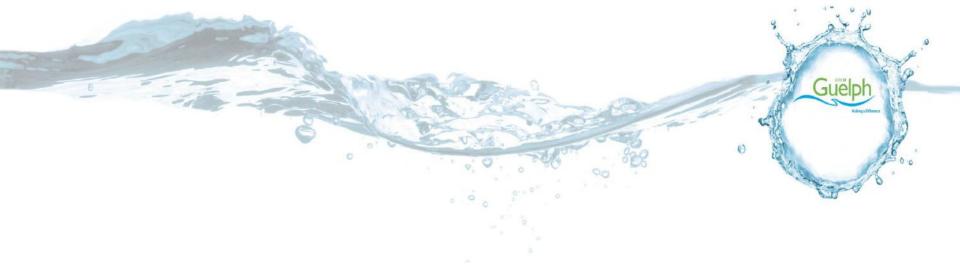
- Criteria (2014):
 - Financial Consideration
 - Legal and Jurisdictional Considerations
 - Technological Consideration constructability
 - Built Environment effect on existing infrastructure
 - Natural Environment
 - Social and Cultural Environment meet growth, public acceptance
- Evaluate alternatives, prioritize projects and estimate costs

2019 WSMP - SCHEDULE AND NEXT STEPS

- Schedule one year +/- (Community Engagement Plan)
- Next Steps:
 - AECOM retained to manage the project
 - Notice of Study Commencement October
 - Formation of Community Liaison Group
 - First Community Engagement
 - Introduce the project
 - Discuss/define problem statement
 - Discuss Community Engagement Plan
 - Outline next steps and schedule
 - Puslinch Township welcome to provide input
 - Puslinch has provided representatives for the Community Liaison Group

CITY OF GUELPH WATER SUPPLY MASTER PLAN UPDATE: December 2019

Guelo



QUESTIONS?

For more information - https://guelph.ca/WSMP



Water Supply Master Plan Update - Overview

Puslinch Township Council

Guelph Water Services

October 13, 2021



Water Supply Master Plan Update

Update of the 2014 WSMP – consistent with Guelph City Council 2003 direction "that the focus of the Water Supply Master Plan establish a sustainable water supply to regulate future growth"

The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers

Five parts of the WSMP:

- How are we engaging on the WSMP Update?
- How much water do we have now?
- How much water do we need in the future?
- What are the water supply alternatives?
- What is the plan for new supply?



Overview of Our Existing System

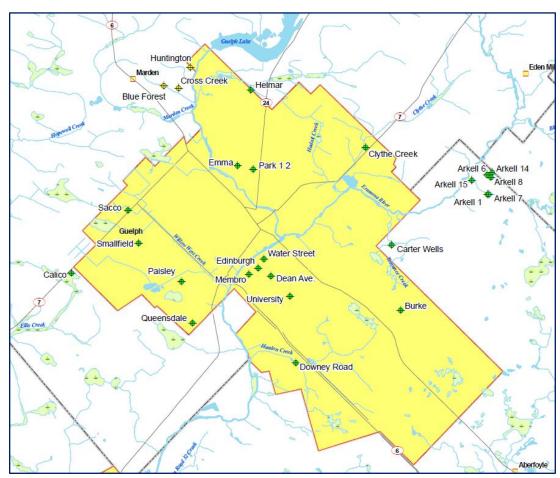
Groundwater-based water supply since 1879

Water supply system - production wells in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system

21 wells in continuous operation - 4 wells offline due primarily to water quality concerns

A shallow groundwater collector system that collects spring water in the Arkell Spring Grounds

Eramosa River Intake and Recharge system (seasonal): river water pumped to an infiltration pond and trench provides water to the collector system; subject to river flow conditions





How are we engaging on the WSMP?

Guelph Community Engagement Framework

Community engagement plan:

- 3 Community Liaison Group meetings
- 2 Multi-agency workshops with Puslinch representation
- 2 Public information centres
- Indigenous Engagement: Mississaugas of the Credit First Nations, Six Nations, local Indigenous people
- Puslinch Twp staff (M. Fowler) presentation (Dec./19)
- Puslinch and Guelph-Eramosa Township Councils presentations
- Online and social media engagement
- Completion of Community Engagement Fall, 2021

Project web page – https://guelph.ca/plans-andstrategies/water-supply-master-plan/

Have your say Guelph - https://www.haveyoursay.guelph.ca/wsmp





Consultation feedback

Prioritizing conservation

Protecting the natural environment

Managing growth and development

Controlling groundwater impacts from large water users

Concerns on source protection areas and land use constraints

Concerns on potential well interference effects with existing wells

Prioritize supply within City before sources within Township(s)

Consider potential climate change impacts on water supply

Valuing the agency of water





How much water do we have now?

Water supply capacity:

- "Normal" conditions: 79,422 m³/day
- Drought conditions: 65,447 m³/day
- Loss of source: 73,437 to 76,200 m³/day
- Regulatory approvals: 73,300 to 77,200 m³/day

For planning purposes:

• 65,447 to 79,422 m 3 /day – range of \sim 15%

Current water supply demand (2020):

- Average day 45,000 m³/day
- Maximum day (highest single day demand) 61,000 m³/day







How much water do we need in the future?

Provincial Places to Grow projections to 2051

Guelph 2051 population:

- Residential 203,000
- Employment 116,000

Per person water demand:

- Residential 167 Litres per day
- Employment 191 L/day
- Non-revenue water 61 L/day (leaks, main flushing, fire flows, etc.)

2051 Water demand:

- Average day 68,300 m³/day
- Maximum day 91,500 m³/day

Water supply deficit:

- Average day $\sim 3,000 \text{ m}^3/\text{day}$
- Maximum day \sim 26,000 m³/day







What are the water supply alternatives?

Water Conservation and Efficiency Strategy

Most important component of the WSMP; Guelph is a leader in water conservation and demand management

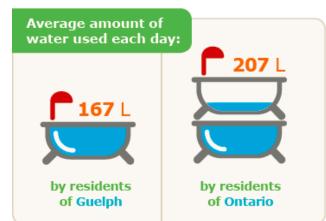
Four Scenarios considered as alternatives:

- 1. Static Residential and ICI per capita demands cease non-mandatory programs
- 2. Demand Reduction of 6.5% in 2051 continue current level of programming
- 3. Demand Reduction of 3.25% in 2051 focus on high water use customers
- 4. Demand Reduction of 7.3% in 2051 Scenario 2 plus water reuse opportunities

Groundwater alternatives inside and outside of the City See next slide

Surface water alternative

Guelph Lake intake and Water Treatment Plant Guelph Lake plus Aquifer Storage and Recovery (ASR) Long-term alternative – 20 to 30 yr timeframe









Groundwater Alternatives

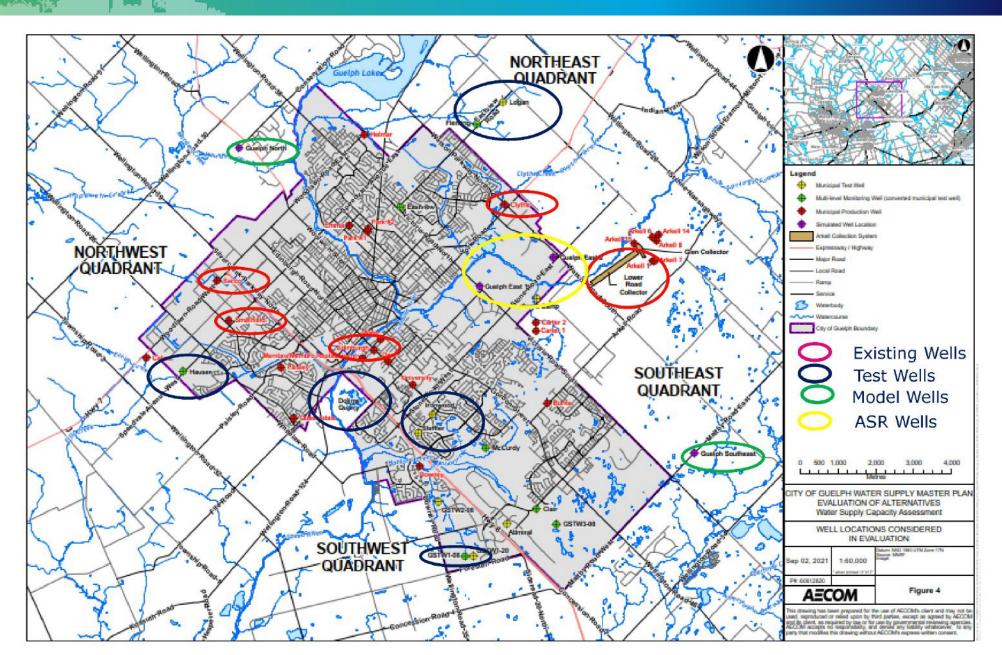
The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources (<u>Downey Well</u>)
- Restore existing off-line municipal wells (<u>Clythe</u>, Smallfield, Sacco, Edinburgh Wells, <u>Lower Road Collector</u>)
- Develop existing municipal test wells (<u>Steffler/Ironwood</u>, <u>Guelph South</u>, <u>Logan</u>, Hauser Test Wells, <u>Dolime Pond Level Management</u>)
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries (Guelph North, Guelph Southeast)
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes

Evaluated using the City's groundwater flow model to assess sustainability and potential for environmental effects



Off-line/ New Sources





Criteria used to evaluate alternatives

First Nations, Metis and Inuit people - Effect on Indigenous values, cultural and traditional use

Built environment - Potential effect on existing/ planned structures and on private and municipal wells

Natural environment - Potential effects to natural environment, water resources, natural heritage features and environmental management/planning considerations

Social and cultural environment - Land use, construction, operational, heritage and archaeology impacts; meet growth targets; public acceptance

Economic and financial considerations - Estimated capital costs and operations and maintenance costs, including energy consumption

Legal and jurisdictional considerations - Location of facility relative to city boundaries; land requirements; implementation of Source Protection Policies

Technological considerations – Implementability, constructability and expandability of alternative; treatment requirements (current and future); ability to respond to changes in regulations; ability to utilize existing infrastructure; approval requirements



Example - Develop Existing Test Wells (Guelph South - GSTW1-20)

City-owned property located in Hanlon Creek Business Park – access to infrastructure

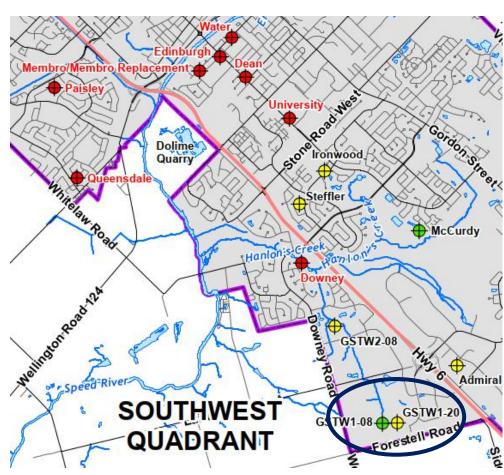
Moderate to high capacity from 30-day pumping test - ~4,000 m³/day

Model output: potential for <10% baseflow reduction to Hanlon Creek and wetlands; potential for well interference

Source protection - within existing WHPA's for quality and quantity - changes to WHPA's (Guelph and RMOW) may affect current and future land uses

Estimated capital cost: \$4.8 M, \$1,200/m³

Complete assessment including public engagement to be conducted in the SW Guelph Water Supply Class Environmental Assessment (September/21)





Example - New wells outside City - Guelph Southeast

Model-defined, approximate location – in Puslinch Township southeast of the City (City does not own land here)

Consultation and collaboration required with Puslinch Township

Rationale – Model assessment - Proximity to area with high transmissivity within the Gasport aquifer and limited local groundwater usage

Estimated available capacity (average) – 1,600 m³/day

Model output: <10% baseflow reduction to Mill Creek; near Arkell Bog PSW Complex

Field study would assess potential for interference with private wells; Source protection constraints

Iron and Manganese treatment assumed for costing purposes

Estimated capital cost: \$10.3 M, \$6,400/m³

Low priority – potential future source (20–30 yr timeframe





Preliminary preferred solution – initial implementation timeline

Short Term (0-10 Years)

Conservation and efficiency – current level of effort

Clythe well (offline)

SW Guelph test well(s)

Dolime Quarry Pond Level Management

Logan/ Fleming test well(s)

Medium Term (10-20 Years)

Conservation and efficiency – focus on high demand customers

Lower Road Collector (offline)

Arkell ASR

Long Term (20-30 Years)

Conservation and efficiency – water reuse

Hauser test well

Guelph North well (new well outside City)

Guelph Southeast well (new well outside City)

Guelph Lake surface water

Smallfield/Sacco (offline) >30 yrs



What's the Plan for new supply?

New supply projects - Class EA process to evaluate environmental, social, and economic impacts (such as impacts to surface water systems and sustainability) in and around the City and including public engagement/consultation

Draft Water Supply Master Plan Update Report to be presented to Council in late 2021

Update WSMP every 5 years approximately

For more information:

- Project web page https://guelph.ca/plans-andstrategies/water-supply-master-plan/
- Have your say Guelph https://www.haveyoursay.guelph.ca/wsmp



Questions? Comments?

Thank you!



Dave Belanger
Water Supply Program
Manager
City of Guelph
VIA EMAIL:
Dave.Belanger@guelph.ca>

Wayne Galliher Division Manager Water Services City of Guelph VIA EMAIL:

Wayne.Galliher@guelph.ca

Township of Puslinch
7404 Wellington Road 34
Puslinch, ON NOB 2J0
www.puslinch.ca

October 14, 2021

RE: 10.1 City of Guelph Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 and the City of Guelph presentation Water Supply Master Plan Update – Overview

Please be advised that Township of Puslinch Council, at its meeting held on October 13, 2021 considered the aforementioned topic and subsequent to discussion, the following was resolved:

Resolution No. 2021-309: Moved by Councillor Sepulis and Seconded by Councillor Goyda

THAT Council receives Correspondence item 10.1 from the City of Guelph entitled Water Supply Master Plan 2021 Update – Agency and Municipality Workshop No. 2 and the City of Guelph presentation; and

WHEREAS the City of Guelph staff have extended the Township commenting deadline from October 22, 2021 to only November 5, 2021 despite Township staff requesting a longer review window given the technical nature of the topic, the absence and availability of City draft report to review and the potential impact to the Township;

THEREFORE BE IT RESOLVED:



THAT Council pass a resolution stating their concerns to the City of Guelph staff's stipulation that Township comments to be provided no later than November 5, 2021 and direct staff to submit the resolution to the City of Guelph; and

THAT Council direct Township staff and consultant(s) to review the City of Guelph Water Supply Master Plan Update correspondence and draft report, when available, and to provide comments for Council's consideration at the November 24 Puslinch Council meeting; and

That the City of Guelph Council provide the opportunity for Puslinch Council to provide comments in advance of the draft report being adopted by City of Guelph Council; and

That Council request that the City of Guelph Council acknowledge receipt of Township comments and that the City of Guelph provide a response to the Township's comments; and

That Council request City of Guelph Council to authorize the release of the draft report to Puslinch staff in advance of the City of Guelph Council meeting in order to prepare comments; and

That this resolution be forwarded to the Township of Guelph Eramosa.

CARRIED

As per the above resolution, please accept a copy of this correspondence for your information and consideration.

Sincerely, Glenn Schwendinger CAO

CC:

lan Roger, CAO, Guelph Eramosa Township, iroger@get.on.ca
Kyle Davis, Risk Management Official, KDavis@centrewellington.ca



Water Supply Master Plan Update - Overview

Guelph Eramosa Township Council

Guelph Water Services

October 20, 2021



Water Supply Master Plan Update

Update of the 2014 WSMP – consistent with Guelph City Council 2003 direction "that the focus of the Water Supply Master Plan establish a sustainable water supply to regulate future growth"

The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers

Five parts of the WSMP:

- How are we engaging on the WSMP Update?
- How much water do we have now?
- How much water do we need in the future?
- What are the water supply alternatives?
- What is the plan for new supply?



Overview of Our Existing System

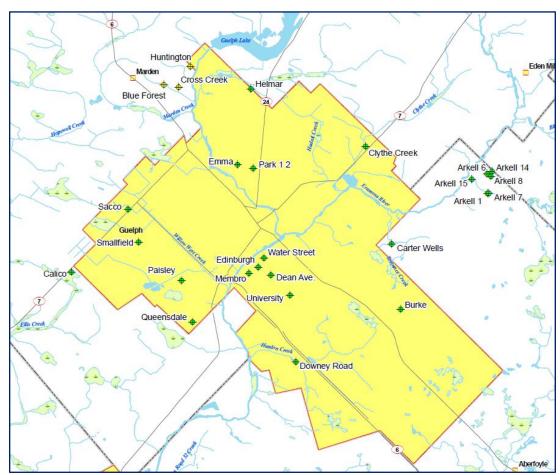
Groundwater-based water supply since 1879

Water supply system - production wells in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system

21 wells in continuous operation - 4 wells offline due primarily to water quality concerns

A shallow groundwater collector system that collects spring water in the Arkell Spring Grounds

Eramosa River Intake and Recharge system (seasonal): river water pumped to an infiltration pond and trench provides water to the collector system; subject to river flow conditions





How are we engaging on the WSMP?

Guelph Community Engagement Framework Community engagement plan:

- 3 Community Liaison Group meetings
- 2 Multi-agency workshops with GET representation
- 2 Public information centres
- Indigenous Engagement: Mississaugas of the Credit First Nations, Six Nations, local Indigenous people
- Guelph-Eramosa and Puslinch Township Councils presentations
- Online and social media engagement
- Completion of Community Engagement Fall, 2021

Project web page – https://guelph.ca/plans-andstrategies/water-supply-master-plan/

Have your say Guelph - https://www.haveyoursay.guelph.ca/wsmp





Consultation feedback

- Prioritizing conservation
- Protecting the natural environment
- Managing growth and development
- Controlling groundwater impacts from large water users
- Concerns on source protection areas and land use constraints
- Concerns on potential well interference effects with existing wells
- Prioritize supply within City before sources within Township(s)
- Consider potential climate change impacts on water supply
- Valuing the agency of water





How much water do we have now?

Water supply capacity:

- "Normal" conditions: 79,422 m³/day
- Drought conditions: 65,447 m³/day
- Loss of source: 73,437 to 76,200 m³/day
- Regulatory approvals: 73,300 to 77,200 m³/day

For planning purposes:

• 65,447 to 79,422 m 3 /day – range of \sim 15%

Current water supply demand (2020):

- Average day 45,000 m³/day
- Maximum day (highest single day demand) 61,000 m³/day







How much water do we need in the future?

Provincial Places to Grow projections to 2051

Guelph 2051 population:

- Residential 203,000
- Employment 116,000

Per person water demand:

- Residential 167 Litres per day
- Employment 191 L/day
- Non-revenue water 61 L/day (leaks, main flushing, fire flows, etc.)

2051 Water demand:

- Average day 68,300 m³/day
- Maximum day 91,500 m³/day

Water supply deficit:

- Average day $\sim 3,000 \text{ m}^3/\text{day}$
- Maximum day \sim 26,000 m³/day







What are the water supply alternatives?

Water Conservation and Efficiency Strategy

Most important component of the WSMP; Guelph is a leader in water conservation and demand management

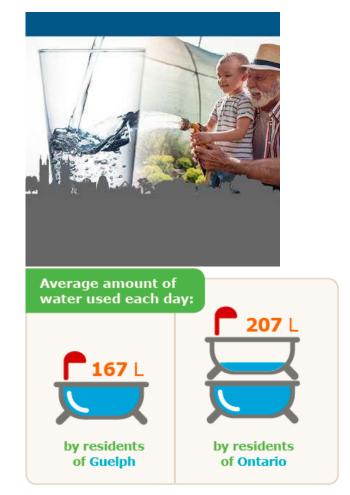
Four Scenarios considered as alternatives:

- 1. Static Residential and ICI per capita demands cease non-mandatory programs
- 2. Demand Reduction of 6.5% in 2051 continue current level of programming
- 3. Demand Reduction of 3.25% in 2051 focus on high water use customers
- Demand Reduction of 7.3% in 2051 Scenario 2 plus water reuse opportunities

Groundwater alternatives inside and outside of the City See next slide

Surface water alternative

Guelph Lake intake and Water Treatment Plant Guelph Lake plus Aquifer Storage and Recovery (ASR)





Groundwater Alternatives

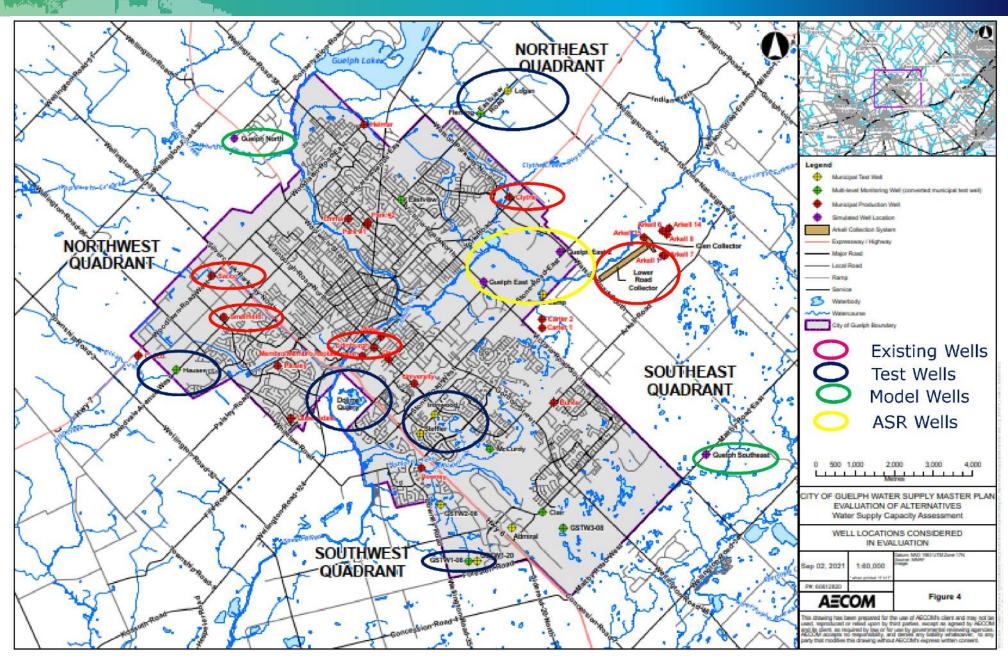
The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources (<u>Downey Well</u>)
- Restore existing off-line municipal wells (<u>Clythe</u>, Smallfield, Sacco, Edinburgh Wells, <u>Lower Road Collector</u>)
- Develop existing municipal test wells (<u>Steffler/Ironwood</u>, <u>Guelph South</u>, <u>Logan</u>, Hauser Test Wells, <u>Dolime Pond Level Management</u>)
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries (Guelph North, Guelph Southeast)
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes

Evaluated using the City's groundwater flow model to assess sustainability and potential for environmental effects



Off-line/ New Sources





Surface Water Alternative

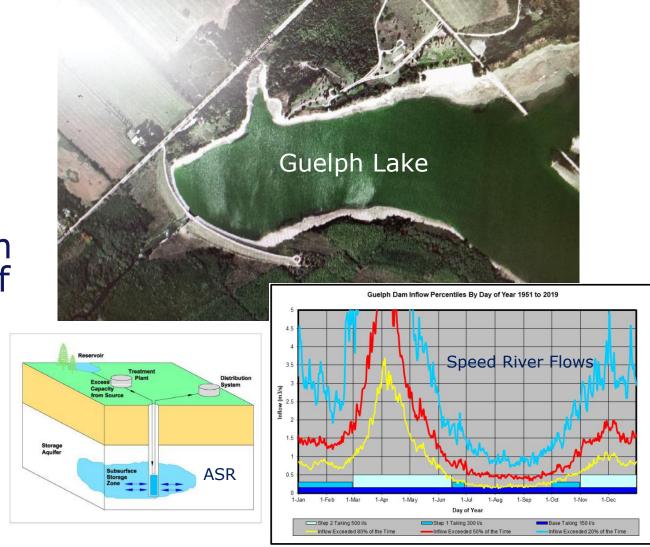
Guelph Lake as surface water supply under two scenarios:

- Water Treatment Plant (WTP) to potable water standards; and
- WTP with excess water for Aquifer Storage and Recovery

Grand River Conservation Authority analysis of long-term flow data to identify amount of water available for supply

Considers down stream flow requirements

Long-term alternative – 20 to 30 yr timeframe





Criteria used to evaluate alternatives

First Nations, Metis and Inuit people - Effect on Indigenous values, cultural and traditional use

Built environment - Potential effect on existing/ planned structures and on private and municipal wells

Natural environment - Potential effects to natural environment, water resources, natural heritage features and environmental management/planning considerations

Social and cultural environment - Land use, construction, operational, heritage and archaeology impacts; meet growth targets; public acceptance

Economic and financial considerations - Estimated capital costs and operations and maintenance costs, including energy consumption

Legal and jurisdictional considerations - Location of facility relative to city boundaries; land requirements; implementation of Source Protection Policies

Technological considerations – Implementability, constructability and expandability of alternative; treatment requirements (current and future); ability to respond to changes in regulations; ability to utilize existing infrastructure; approval requirements



Example – Develop Existing Test Wells (Logan Test Well)

City-owned property located in Guelph-Eramosa Township (GET)(Eastview Rd and Jones Baseline Rd)

Consultation and collaboration required with GET - utility easements for water main along Eastview Rd

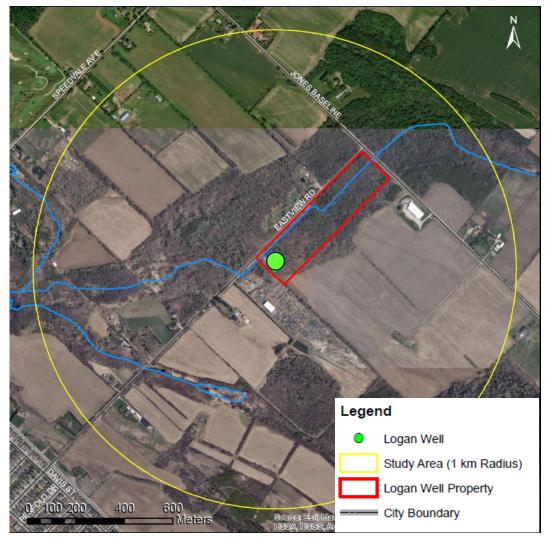
Moderate capacity from previous tests - ~4,700 m³/day

Model output: potential for effects on Guelph NE PSW; potential for well interference

Source protection - within existing WHPA's for quality and quantity - changes to WHPA's may affect current and future land uses

Estimated capital cost: \$10.1 M, \$2,160/m³

City has initiated Logan Well Rehabilitation project to provide an initial feasibility assessment including well casing replacement, multi-level monitoring well, domestic well survey, short pumping test – Fall/21





Example - New wells outside City - Guelph North

Model-defined, approximate location – GET North of the City (City does not currently own land here)

Consultation and collaboration required with GET

Rationale - proximity to an area with high transmissivity within the Gasport aquifer

Estimated available capacity (average) – 2,935 m³/day

Model output: >10% baseflow reduction to Marden Creek; near the Marden South PSW Complex

Field study would assess potential for interference with GET wells, private wells; Source protection constraints

Iron and Manganese treatment assumed for costing purposes

Estimated capital cost: \$12.8 M, \$4,375/m³

Low priority – potential future (20 – 30 yr source)





Preliminary preferred solution – initial implementation timeline

Short Term (0-10 Years)

Conservation and efficiency – current level of effort

Clythe well (offline)

SW Guelph test well(s)

Dolime Quarry Pond Level Management

Logan/ Fleming test well(s)

Medium Term (10-20 Years)

Conservation and efficiency – focus on high demand customers

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Draft Water Supply Master Plan Update Report to be presented to Council in late 2021

Update WSMP every 5 years approximately

For more information:

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- Have your say Guelph https://www.haveyoursay.guelph.ca/wsmp



The Municipal Class EA process

Phase 1

Identify and describe problem(s) and opportunities



Phase 2

Identify and evaluate alternative solutions and establish the preferred solution





Fall 2019/ Winter 2020



Summer/ Fall 2021





Fall 2021

Report

Water Supply Master Plan The WSMP identifies the need for individual projects and the conceptual feasibility, including anticipated project triggers and impacts

Individual projects in accordance with remaining Class EA requirements (Phases 3, 4 and 5) Remaining approvals
completed by addressing
site specific
environmental impacts,
and consultation and
documentation
requirements



Questions? Comments?

Thank you!



8348 Wellington Road 124 P.O. Box 700 Rockwood ON N0B 2K0 Tel: 519-856-9596

Fax: 519-856-2240 Toll Free: 1-800-267-1465

Tel: 519-856-9596 ext. 107

ispies@get.on.ca

October 27, 2021

Mr. Dave Belanger, M.Sc., P.Geo.
Water Supply Program Manager
Water Services - Infrastructure, Development and Enterprise
City of Guelph
1 Carden Street
Guelph, ON N1H 3A1
Dave.Belanger@guelph.ca

Re: Water Supply Master Plan 2021 Update

Dear Mr. Belanger,

At the Committee of the Whole meeting held on October 20, 2021, the following resolution was put forward and passed:

Be it resolved that the Committee of the Whole of the Township of Guelph/Eramosa has received Guelph Water Services Presentation regarding the Water Supply Master Plan 2021 Update; and

That the Committee recommend to Council that a resolution be passed, stating the following:

That the Township of Guelph/Eramosa has concerns with the City of Guelph's November 5, 2021, deadline for comments regarding the Water Supply Master Plan 2021 Update; and

That Guelph/Eramosa Council request the City of Guelph Council to authorize the release of the draft report to Guelph/Eramosa staff in advance of the City of Guelph Council meeting so that the Township of Guelph/Eramosa may prepare comments; and

That Council direct Township staff and Township consultant(s) to review the City of Guelph Water Supply Master Plan Update correspondence and draft report, when available, and to provide comments for Council's consideration at a subsequent Township of Guelph/Eramosa Council meeting; and

That the City of Guelph Council permit Guelph/Eramosa Council to provide comments in advance of the draft report being adopted by City of Guelph Council; and

That Council request that, when received, the City of Guelph Council acknowledge receipt of the Township comments and that the City of Guelph provide a response to the Township's comments; and

That this resolution be forwarded to the City of Guelph and the Township of Puslinch.

Please accept this for your information and any necessary action.

Sincerely,

Jenni Spies Deputy Clerk

c.c. - Wayne Galliher, City of Guelph Division Manager Water Services Scott Cousins, City of Guelph Hydrogeologist Emily Stahl City of Guelph Manager of Technical Services Matthew Alexander, AECOM Project Manager Chris Knechtel, RJ Burnside Project Engineer Dwight Smikle, RJ Burnside Senior Hydrogeologist Kyle Davis, Risk Management Officer - Wellington Source Water Protection

Meaghen Reid Clerk Tel: 519-856-9596 ext. 107 mreid@get.on.ca



February 10, 2022

Meeting: Guelph Water Supply Master Plan - County and City, Meeting #1

Date: December 6, 2021

Participants: Kyle Davis (KD), Wellington Source Water Protection, Stan Denhoed (SD), Harden Environmental (Township of Puslinch), Matthew Alexander (MA), AECOM (City of Guelph), Dave Belanger (DB), City of Guelph, Dwight Smikle (DS), Burnside and Associates (Guelph / Eramosa), Emily Stahl (ES), City of Guelph, Harry Niemi (HN), Guelph / Eramosa Township, Tracey McKenna (TM), AECOM (City of Guelph), Scott Cousins (SC), City of Guelph, Wayne Galliher (WG), City of Guelph.

Agenda

- 1. Review and Discussion of Staff / Consultant Comment Memos
- 2. Council Comments (including those outlined by **DB** plus any from Nov 24th Puslinch Council)
- 3. Timing and Scheduling
 - a. City Council
 - b. WSMP report and review period
 - c. Next meetings on WSMP and SW Guelph EA

Discussion

Participant	Item (1)			
WG	Comments provided to start about meeting regularly and the process going forward. The City is committed to meeting regularly with the Townships and County on our shared water interests. Noted that there is a cost recovery tie in because the City understands there will be source protection costs and implications for County. • Those discussions are continuing separately Our review comments tied to original consultation materials Timing of the report and reply in writing will happen from City to our memos Early January 2022 - 3-month consultation period with draft report. It is			
	 understood there will be more comments Council approval - June 2022 Wanted to share that to help our discussion today 			
SD	Reviewed memo • Concerns on what happens in City will impact Township - physical and source protection side and any changes in City affects size of WHPA-Q			



- Need to be kept abreast of changes in the City
- Need an opportunity to comment in a reasonable amount of time.
- Population projections in City of Guelph presentation did not recognize County population projections.

Including Puslinch growth as it affects WHPA-Q

Significant risk category for Guelph vs Region of Waterloo related to WHPA-Q. So, if there is an opportunity to minimize the significant risk, that should be a priority as it would reduce the onus on the neighbors

DB

Four common themes in the Township/RMO comments: meetings and consultations; implications of source protection; considerations on growth in the Townships; and significant risk designation.

DB reiterated the commitment to improve consultation. WSMP Update project ends in June but implementation of the Plan continues. Each individual WSMP project has consultation requirements. Meetings done collectively to discuss a number of topics and then project specific meetings like SW Guelph Class EA.

Understand that source protection has impact on County and townships. Root cause is provincial legislation. **WG** introduced the funding agreement, noted that City appreciates efforts by County/Township on protecting shared water supply. Recognize each new well will have an impact on source protection areas and new WHPAs etc. Also applies for other water takings in Townships (i.e., Lafarge) will impact WHPAs too. Deal with implications of changes through consultation.

Class EA process has consultation requirements.

WSMP - Phase 1 and 2 of Class EA process (completed at a high level). Detailed design - Phase 3 and 4 and then identification of WHPAs and eventually CWA process. Both processes have consultation requirements. Actual pumping rates will change between the WSMP Update and the Class EA projects, so at this stage we can't tell you exactly how it (WHPA) will change but they will get bigger if we add wells.

Growth - we do recognize growth requirements and have some questions within Townships – how much? Where? And what is the per capita consumption? etc. Through Tier 3 Threats Management Strategy (TMS) - looked at scenarios for existing takings (increased) and demonstrated there is available water supply (in the order of 20,000 cubic metres per day). More concerned where the water supply will be located.

Significant risk - very important one. If we can get more water supply to reduce significant risk level, need to broaden the footprint of WHPA-Q. More wells



	inside WHPA-Q just increases stress level (due to interference between wells). Need to put wells out further to broaden the taking out and increase area of water taking. If we increase the area of the water taking, it may reduce the significant risk to moderate or low depending on available water. If inability to step outside, then stuck with significant risk designation and associated constraints. Constraints may be manageable but if there is resistance to increasing the footprint, then constraints will remain.
MA	Good overview Dave on high level themes
SD	Once into individual EA's already on a track and can't be changed easily. Want to know there is enough opportunity for Township to weigh in on individual EA's and in enough time.
DB	WSMP produces preferred alternatives to walk through Class EA. Each Class EA evaluates the environmental, social and economic factors to develop the final water supply details. WSMP carried a number of preferred alternatives with understanding that some may not make it (i.e., may not get PTTW or may not be feasible) - Feasibility study on Guelph South included a 30-day test that gives confidence in this location but the Class EA is still required. Feasibility study is planned for Logan well. There is an opportunity to bring in concerns during Class EA. Uncertain what the design concept may look like - for South Guelph - May be a wellfield PTTW to optimize water taking while minimizing potential environmental impacts.
SD	When doing individual EA - already have made a choice. When get to the stage, not weighing it against the other alternatives within the City.
DB	WSMP orders the projects to look at first. Plan considers "best" projects first (i.e., least impacts, lowest costs, proximity to City). When you see the report, tables order the projects into short term, medium term, and long term. If we get more water out of first alternatives, it may defer other projects (i.e., if more water from SW Guelph). The WSMP gets updated every 5 years to re-evaluate the order and priority of projects as projects are advanced in the process and unknowns are addressed.
SC	Priorities order in the WSMP do reflect comments received through the EA engagement i.e., preference for inside the City prior to going outside the City.
SD	Priority of use framework - we understand that most of City's water needs are industrial not drinking water. Is there an opportunity to reduce the industrial component? We know City and Region have done fantastic conservation work to stave off need for new wells. What about industrial growth going forward?



DB	Residential 167 and employment - 191 litres per capita per day. Conservation is to reduce both residential and employment per capita down. Residential
	reductions may be maxed out. Big opportunities are on ICI side.
WG	Done a lot of work with residential sector - 150 litres per capita per day is seen
	as hard line for residential especially with people working from home. ICI and
	water loss are areas for growth in future.
ES	
E3	Business program - Water Smart Business program. Active over 10 plus years.
	Success with Linamar, Sleeman etc. Water Efficiency strategy will be updated
	after WSMP.
	Water reuse component - starting to look at that as a City and industrial users
MA	Reuse likely to become more important later in planning horizon but needs to
	be planned for now through WES update in terms of how it will be accomplished
DB	WSMP sets high level goals for water efficiency strategy to meet WSMP goals –
	WES to be updated in 2022 based on WSMP goals. will see more detail in
	report.
	Growth raised as a concern but what are the growth projections for Townships?
	Growth raised as a concern sat what are the growth projections for rownships.
KD & HN	OPA describes growth projections and is a starting point for discussion. County
	allocates targets. Centre Wellington and Erin to receive most growth due to
	servicing. OPA (note actually technical studies supporting OPA) lists projections
	for Puslinch and GET – constrained due to lack of municipal servicing.
	Wastewater capacity constraints for Rockwood, Puslinch constrained by private
	servicing.
	Rockwood – I&I challenges, can meet full build out, Hamilton Drive can be built-
	out, industrial lands have potential for growth. Dry use on Jones Baseline.
	Challenges to grow on private services.
	Provided links to the County OPA on growth
DB	OPA (note actually technical studies supporting OPA) indicates limited growth
DB	
	for Puslinch and GET through to 2051 due to lack of municipal servicing. 2 and
	4% growth in Wellington County (1,500 and 2,400 people) for GET and Puslinch
	to 2051.
SD	Discussed nor capita water usage Servicing studies engoing. How to determine
30	Discussed per capita water usage. Servicing studies ongoing. How to determine
	for rural ICI i.e., dry industry for personal hygiene. Tier 3 some discussion on
	water taking and consumption. Dry industry – typically less than 50 m3/day.
DB	DB - Could apply City rates if we don't have it. For example – 3,900 people =
00	
ND.	1,400 m3/day for entire Townships so less in WHPA-Q.
KD	HN and KD can work with them to get good numbers on that.



DB	 TMS - Appears to be more than adequate for water supply capacity for GET and Puslinch based on population.
	SD - Cautions that we need to look more closely on industry basis (i.e.,
SD	Morguard or Maple Leaf) - concerned if there would be a hard no in future.
	Mentions that opportunity for growth in population and employment lands
	need to be considered.
	DB – Dry industry RE: Morguard: permit is high (600 m3/day), but use is lower.
DB	Available capacity within existing permit.
	SD - Wants to work with the city on these kinds of numbers and need time to do
SD	so
Jackson and	
DB	Asked about employment land designation in Highway 6 and OPA – surprised to
	hear given dry industry designation - didn't see this in Twp comments.
KD	Responded about OPA 119 and getting Sarah online next meeting to discuss it
	further. Noted that the rural employment land along Highway 6 has been
	designated since the 1990's and what is new, is its inclusion in the regionally
	significant economic study area.
MA	Does regionally significant economic study area mean studies still to be done?
KD	Sarah Wilhelm from the County of Wellington would be best to present and
	discuss that.
DS	Reviewed memo- mostly covered by SD .
	Ideally would want to be able to tell Council and senior Management that we
	have seen it vs late scramble.
	Therefore, need to show GET wells and recognize they are taking water. Work
	together so we can ensure Townships and City has water, noted that growth is
	pushed by province.
	Mentions that he lives in Guelph, so he has a vested interest in ensuring Guelph
	having water.
	We need to be able to respond that we have been involved, reviewed and our
	concerns have been addressed when asked by Council and senior Management.
KD	Agrees. Townships, County and Guelph are integrated. Lives in Elora but is into
	Guelph a couple times a week. Others live in Township and work in City so we
	all recognize it is an integrated economic area and the water use in Guelph does
	provide benefit to County residents. We do not want to be in a position like we
	were in September where we are caught by surprise.
DB	We are committed to regular communication/consultation.



	 Covid and delays in the project hampered consultation. Province introduced new population projections in summer/2021 which caused delays in the middle of the project. Reference to how Township water taking are considered in the WSMP. Have updated in report - PTTWs and GET wells in model and taking all water takings in report / model from the TMS. Used 2019 water takings for GET wells. Evaluates increased takings on top of existing takings. Logan well - provided Harry with TOR and work is going on now. Noted that project is well reconstruction with a deep casing, not new well, objective is to mitigate shallow impacts. Will keep us informed as we go through the project. SW Guelph EA - will keep us involved. 					
SC	Logan - PFAS - is that a general comment or is there site-specific information?					
	2016 there was a fire. City doesn't use PFAS but GET Fire there too. Above					
	packer, saw some Toluene. May be cross contamination from drill rig					
	DS – general comment, no site-specific information on PFAS.					
	KD – agreed this was a general comment given historic land use;					
DC	SC likelyboth depts. attended the fire noted above.					
DS	DB - Logan won't likely be in production for 7 or 10 years. Water quality concerns would be in domestic wells first.					
KD	Asked if we have sampled PFAS in domestic wells?					
ND	Stated no. But can talk to Harry.					
	KD - We don't have legal reason to sample for PFAS in domestic wells.					
	SC&DB – Water quality results will be in the reports for Logan feasibility study					
	but can't share specifically the results as told private well owners wouldn't (not sampling for PFAS).					
DS	CTC regional water management policy and working group – does this apply					
	here or could it be a model.					
KD	Discussed GGET Tier 3 Working Group idea as it is based on CTC policy and DS and DB agreed. Noted GGET - led by GRCA, Terms of Reference being					
	developed and Working Group would be higher level and also separately we would have these Guelph - Wellington meetings. Working group will include MECP representation.					
DB	DB – Discussions in water quantity policy development regarding a broader water resource management approach in the WHPA-Q but requires monitoring					
	data and data sharing. Want to have broader discussion and tied into Area- Based Management from MECP.					
KD	KD - Briefly talked about some of his comments - especially last one # 6 and number #1 - want to move forward now					



DB	DB – Modelling shows potential environmental impacts as constraints on new
DB	
	water takings. Considered to be a conservative approach, detailed field work
	(typically 30-day tests) will provide more direct information. Modelling results
	in appendix used a number of scenarios to evaluate different supply
	alternatives. Results are described in the report text and evaluation matrices.
	Evaluation matrices were provided as part of the package from the Sept 24
	agency meeting.
	SD - Not sure saw the evaluation matrices or reviewed that.
	MA – We can re-send any information as required. Outcome is same right now
	in report as presented in September.
DB	Draft Final WSMP is >1400 pages; a lot of comments received are addressed in
	report; others may need to be addressed during comment period; aiming for
	response to comments by mid-Jan; issue response as draft as this will be a work
	in progress; County/Twp needs to go through report before next meeting for a
	meaningful discussion
KD	Suggested interim meeting to complete missed agenda items

Action Items

Next Steps for Meeting #2

- KD to send Doodle poll (first two to three weeks in January)
- Bring Agenda Item 2 Council Comments to second meeting Check re Mayor White's offer, Mayor Seeley's option and Puslinch feasibility study
- Sarah W to present on OPA 119 growth if available
- Presentation from City on report overview primarily focusing on the recommendations since the overview on the WSMP was provided in the September 24 agency and Council presentations

Meeting #3

- Discussion on Guelph Response in writing to Twp current comments mid
 January
- Discussion on what comments can be factored into the WSMP report. (Twp current comments are not in draft report)



Meeting: Guelph Water Supply Master Plan - County and City, Meeting #2

Date: January 17, 2022

Participants: Kyle Davis (KD), Wellington Source Water Protection, Sarah Wilhelm (SW), County of Wellington, Glenn Schwendinger (GS), Township of Puslinch, Stan Denhoed (SD), Harden Environmental (Township of Puslinch), Matthew Alexander (MA), AECOM (City of Guelph), Dave Belanger (DB), City of Guelph, Dwight Smikle (DS), Burnside and Associates (Guelph / Eramosa), Emily Stahl (ES), City of Guelph, Tracey McKenna (TM), AECOM (City of Guelph), Danielle Walker (DW), Wellington Source Water Protection.

Agenda

- 1. Introductions
- 2. Review of minutes
- 3. Presentation and Discussion on County of Wellington Official Plan Amendment 119–Sarah Wilhelm, Manager of Policy Planning, County of Wellington
- 4. Presentation and Discussion on Overview of City of Guelph WSMP Update Report Dave Belanger, Water Supply Program Manager, City of Guelph
- 5. Next Steps and Scheduling of Next Meeting

Discussion

2/ Review of minutes

Review of minutes, clarifications made.

3/ Presentation: County Growth Structure and Allocations

Sarah Wilhelm presented on the County of Wellington Growth Structure and Allocations. Presentation was circulated and attached separately.

There was considerable group discussion on a number of points including clarification of what needs provincial approval for the County OP amendments, proposed Regionally Significant Economic Development Area, any changes to Greenland designation, moraine policies, type of economic development that may be included, connection to zoning by-law and dry land use designation, rural employment land designation, servicing strategy, Puslinch water feasibility studies, growth in the Township.

Also clarification there will be OPAs in future to deal with growth allocations, settlement boundaries, source protection mapping.



Also discussion on how to translate population numbers in non-municipally serviced areas to water demand numbers.

Some agreement on applying same litres per capita per day as City (350 L) x population ends up being 1,400 cubic metres per day. Not a lot compared to City and Tier 3 study shows additional capacity. So should be enough to supply Townships' growth. However, distribution/location of growth is needed for assessment.

Need range of numbers on demand for population and employment forecast.
 Need County and Township help. Tell City how much water we need?

County and Townships will try to help you with that. It is difficult as GET - part of that growth is in Rockwood on municipal. Employment growth needs to be factored into that in GET and Puslinch. City noted that if growth / demand numbers are provided by April 10th it can be worked into this WSMP report, otherwise it will need to be incorporated in the WSMP update in 2026.

Also discussion on dry industry clarification about PTTW and that it does not mean no PTTW needed. Dry industry definition in GET is not tied to 50,000 litres per day threshold.

4/ Presentation: Water Supply Master Plan 2021 Update

- Walked through TOC of WSMP report
- Comments due by April 10, 2022

Highlighted that Master plans only complete Phase 1 and 2 of Class EA process, so the individual projects complete Class EA Phase 3, 4 and 5.

Discussed employment population projection and an average per capita residential demand, employment demand and non-revenue water demand over 2015 to 2019.

Highlighted timeline for projects and really focused on short term projects (next 10 years)

- Timeline and schedule is in the report and noted water conservation will push back timeline for some other projects
 - Water Efficiency strategy update will be initiated this year WSMP sets high level goal

Noted that need to add some of the new sources (preferred alternatives) in source protection plan.

WSMP report adds a recommendation directly on enhanced engagement with County and Townships.



Action items

- Next steps for Meeting #3
 - o **DW** to send out Doodle poll-monthly frequency
 - KD- Confirm population numbers and employment (jobs) forecast numbers from Sarah
 - KD- Determine methodology on how to convert population numbers and employment (jobs) forecast to water demand on a per person basis - talk to DS, SD, HN, and SW
- Meeting #3
 - Discussion on township initial comments / City response, Council questions and initial thoughts on report

Water Supply Master Plan 2021 Update

County/Townships Meeting No. 2 WSMP Update Report Overview









WSMP Update Report – Table of Contents

- Introduction
- Study Area Profile
- Population and Water Supply Demand Projections
- Existing Water Supply System Capacity Assessment
- Water Supply Alternatives
- Environmental Assessment Evaluation Criteria and Process
- Engagement and Consultation
- Implementation Recommendations







Section 1 - Introduction

- Update of the 2014 WSMP Update
- Overview of progress since 2014 completion of Arkell OTP (Arkell 14/15 wells, Clythe Well Treatment Class EA, upgrades to Arkell Recharge System, upgrades to Burke Treatment, Membro Replacement well, Dolime Quarry settlement agreement, etc.
- Source Protection Program Tier 3 Water Budget, Threats Management Strategy, SP Plan
- Description of the Class EA process for Master Plans Phases 1 and 2
- Challenges and Opportunities Statement manage growth, sustainable supply to meet demand to 2051, safe and costeffective

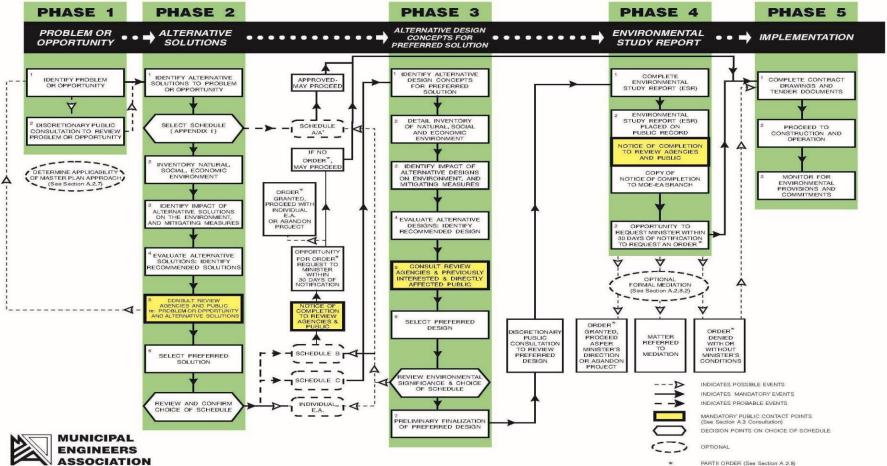




EXHIBIT A.2

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



1aster Plan



guelph.ca/WSMP

Master Plan Update Approach Overview

Task No.	Task Description			
Task 1 – Public Consultation	 WSMP Community Liaison Group (CLG) meetings (3) Municipality / Agency workshops (2) Community Open Houses (2) Water Conservation and Efficiency Public Advisory Committee (2) Master Plan briefings for First Nation Communities (2) Presentations to Township Councils (2) 			
Task 2 – Population and Water Demand Forecasts	 Develop population projections – residential and Industrial/Commercial/Institutional (included 2020 Places to Grow amendment to 2051) Develop water demand projections 			
Task 3 – Existing Water Supply Capacity Assessment	 Update the assessment of existing well/supply system performance, maximum system capacity and minimize potential constraints for each supply source Compare existing capacity with demand forecast to identify future needs 			
Task 4 – Water Supply Alternatives	Review potential alternatives including: Conservation, Efficiency and Demand Management programs (including water reuse) Groundwater sources inside city Groundwater sources outside city Local surface water supply Limit growth/Do nothing			
Task 5 – WSMP Update	 Evaluate alternatives Develop Implementation Strategy Complete WSMP Update report 			



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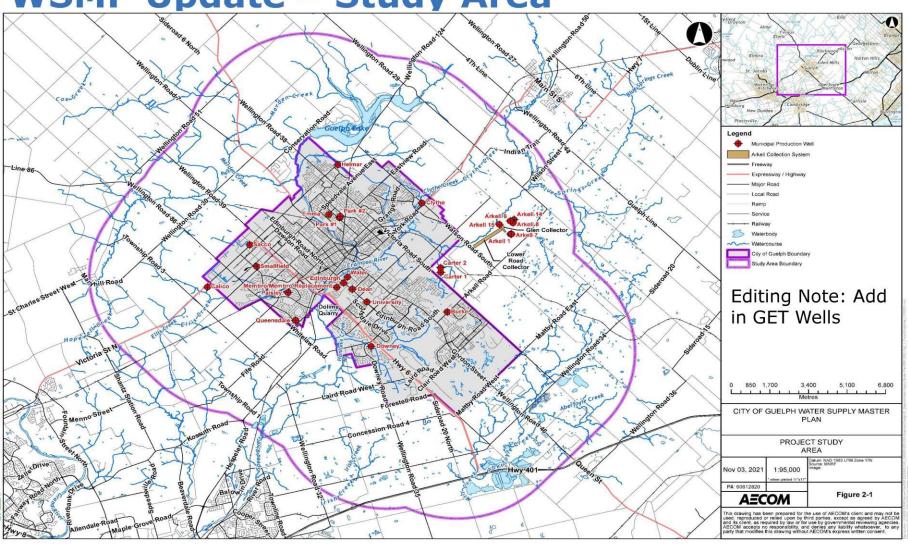
Section 2 – Study Area Profile

- Overview of the Study Area
- Set the stage for the Environmental Assessment Evaluation Criteria:
 - Indigenous Peoples
 - Regulatory Environment
 - Natural Environment (Appendix A)
 - Social/Cultural and Built Environment
 - Economic/Financial Considerations
 - Legal Jurisdiction
 - Technical Considerations





WSMP Update - Study Area



Plan

Section 3 – Population and Water Supply Demand Projections

- Population projections from the Province (Place to Grow Growth Plan) first to 2041, then to 2051 in August 2020
- Residential population 203,000, Employment population 116,000
- Historical water demand review of the past to project to the future
 - Average per capita residential demand rate 2015-2019: 167 Lcd
 - Average per capita employment demand rate 2015-2019: 191 Lcd
 - · Average per capita Non-Revenue Water demand rate 2015-2019: 61 Lcd
- Assume that further reductions in Lcd customer demands will not occur

Parameter	2021	2026	2031	2036	2041	2046	2051
Average Annual Day Demand (m³/day)	49,254	52,429	55,605	58,780	61,955	65,131	68,306
Maximum Day Demand using Maximum Day Factor of 1.34 (m³/day)	66,000	70,255	74,510	78,765	83,020	87,275	91,530





Section 4 – Existing Water Supply System Capacity Assessment

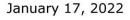
Assessment of existing well/system capacities:

Evaluation Parameter	2019	2051
Average Daily Demand (m³/day)	47,015	68,306
Maximum Daily Demand (m³/day)	58,441	91,530
Existing System Maximum Capacity (m³/day)	79,422	79,422
Surplus/Deficit (m³/day)	20,981	-12,108

- Security of Supply Drought, contamination event, changes in regulations, other risks – reduction in capacity of up to 15 %
- Security of Supply Implication is to maintain 15 % capacity redundancy



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- Follows same approach as in 2014 WSMP Update:
 - Conservation, efficiency and demand management
 - Groundwater sources:
 - Optimize existing sources
 - Restore offline sources
 - Develop existing test wells
 - Develop new wells outside City
 - Surface water sources and Aquifer Storage and Recovery (ASR)
 - Limit community growth, Do nothing





- Conservation, efficiency and demand management
- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3 % in 2051
 - 5 A blend of Scenarios 2 to 4
 - Water Loss Management Strategy in Appendix B





- Groundwater supply alternatives:
 - Alternative 2A Optimize existing municipal sources
 - Alternative 2B Restore off-line municipal sources (Clythe, Smallfield, Sacco, Lower Road Collector)
 - Alternative 2C/D Develop municipal test wells (Ironwood, Steffler, Guelph South, Logan, includes Dolime Quarry)
 - Alternative 2E Develop new sources inside City (screened out)
 - Alternative 2F Install new ASR wells inside City to optimize excess Arkell Collector system volumes
 - Alternative 2G Develop new wells outside City (Guelph North, Guelph Southeast)
- Supported by groundwater modelling in Appendices B and D
- Project sheets for preferred alternatives in Appendix G
- Presentation herein to focus on short-term preferred alternatives

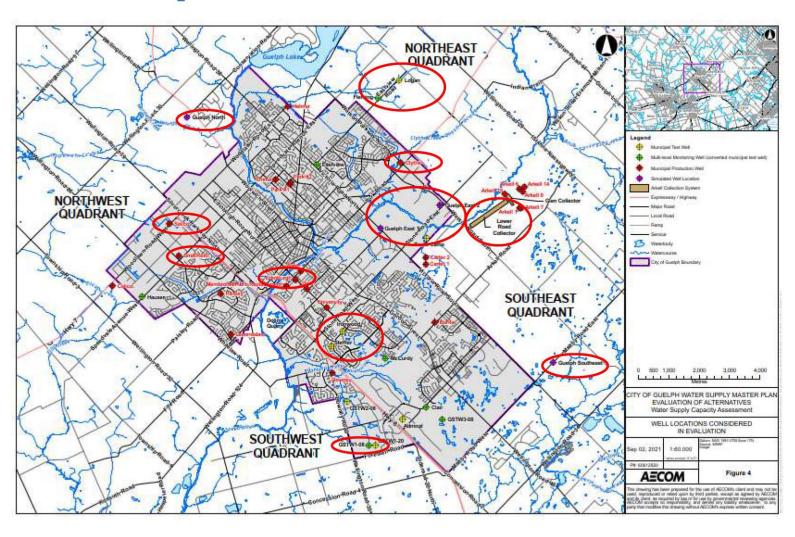


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Off-line/ New Sources



- Surface water alternatives:
 - Guelph Lake Intake and Treatment Plant
 - Guelph Lake plus Aquifer Storage and Recovery
- Supported by surface water analysis by GRCA in Appendix E
- Project sheets for preferred alternatives in Appendix G
- Long-term alternative post 2051
- Presentation herein to focus on short-term preferred alternatives





Section 6 – Environmental Assessment Evaluation Criteria (Tables 6-3 to 6-8)

Component	Criteria			
Effect on Indigenous values, culture, and Traditional use	 An evaluation of the effect on Indigenous values, culture, and Traditional use. Key themes shared with the Project Team that help guide the evaluation 			
Technical Considerations	 Constructability Potential productivity and reliability Water treatment requirements Approval requirements 			
Natural Environmental	 Effect of construction and operation on aquatic and terrestrial species and habitat Effect on surface water quantity and quality 			
Built Environment	 Effect on existing and/or planned residences, businesses, community, institutional or recreational facilities Effect on private and municipal wells 			
Social/Cultural Environment	 Ability to meet municipal and provincial growth targets Public acceptance Effect of noise/vibration on sensitive receptors Effect on cultural heritage landscapes and built heritage resources Effect on potential archaeological resources 			
Legal/Jurisdictional Considerations	Location inside versus outside of City boundaries			
Financial Considerations	 Estimated capital costs; capital cost per capacity Estimated operation and maintenance costs Life cycle cost (per volume produced) 			



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January 17, 2022

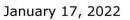


Section 7 – Engagement and Consultation

- Components include:
 - WSMP Community Liaison Group (CLG) meetings (3)
 - Municipality / Agency workshops (2)
 - Community Open Houses (2)
 - Water Conservation and Efficiency Public Advisory Committee meetings (2)
 - Master Plan briefings for First Nation Communities (2)
 - Presentations to Township Councils (2)
 - Online and social media engagement
- Consultation Summary Report Appendix F



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Section 8 – Implementation Recommendations

- Recommended Water Conservation, Efficiency and Demand Management Strategy
- Preferred Water Supply Alternatives
- Recommendations





Preferred Water Supply Alternatives

Alternative	Timeline	Projects
1A – Conservation, Efficiency & Demand Management	Throughout	Blended Conservation Scenario
2B – Groundwater: Restore Off-line Municipal Wells	Short-term	Clythe Well (completion in 2023)
2B – Groundwater: Restore Off-line Municipal Wells	Mid-term	Lower Road Collector (completion in 2037)
2C/D – Groundwater: Develop Municipal Test Wells	Short-term	 Ironwood/Steffler (completion in 2027) Guelph South (completion in 2028) Dolime Quarry (pumping station component completed to align with Ironwood/ Steffler) Logan/ Fleming (completion in 2030)
2C/D – Groundwater: Develop Municipal Test Wells	Long-term	Hauser (completion in 2047)
2F – Groundwater: Arkell Collectors & ASR Wells	Long-term	Arkell ASR (completion in 2045)
2G – Groundwater: Develop New Wells Outside City	Long-term	■ Guelph North (completion in 2048)





Recommendations - Order of Implementation

Order of Implementation	Project Name	Project Type
Project 1	Clythe Well	Offline Wells
Project 2*	Ironwood/ Steffler Well	Test Wells
Project 3*	Guelph South Well	Test Wells
Project 4*	Dolime Quarry	Optimization of existing and test wells / potential direct supply source
Project 5	Fleming/ Logan	Test Wells
Project 6	Lower Road Collector	Offline Wells
Project 7	Arkell Collector ASR Wells	Arkell Collector
Project 8	Hauser test well	Test Wells
Project 9	Guelph North	New Wells Outside City
Project 10	Guelph Southeast	New Wells Outside City
Project 11	Guelph Lake WTP	Surface Water
Project 12	Smallfield/ Sacco Wells	Offline Wells
Project 13	Guelph Lake WTP and ASR wells	Surface Water

Notes:

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*Project implementation subject to outcome of on-going Southwest Guelph Water Supply EA





Recommended Water Conservation, Efficiency and Demand Management Strategy

- Scenario 1: No further reductions ceasing non-provincially mandated water efficiency measures (baseline scenario)
- Scenario 2: Potential reduction through maintaining a level of programming similar to the current water conservation, efficiency and demand management program
- Scenario 3: Potential reduction through a focus on high water use customers
- Scenario 4: Potential reduction through a focus on the current level of programming and water reuse initiatives
- Scenario 5: A blend of Scenarios 2 to 4 (Preferred Alternative)

Scenario	Reduction in Average Day Demand (m³/day)	Est. Total Program Cost (Non-Discounted; million \$)
1	-	-
2	4,424	11.41
3	2,220	4.73
4	4,952	15.04
5	3,683	8.99

January 17, 2022



Water Supply Master Plan quelph.ca/WSMP

Proposed Water Supply Projects Under Different Conservation Scenarios

Order of Implementation	Project Name	Scenario 1	Scenario 2	Scenario 3	Scenario 4	5
Project 1	Clythe Well	2023	2023	2023	2023	2023
Project 2*	Ironwood/ Steffler	2027	2027	2027	2027	2027
Project 3*	Guelph South	2028	2030	2028	2030	2030
Project 4*	Dolime Quarry	2031	2032	2031	2032	2032
Project 5	Fleming/ Logan	2033	2036	2034	2037	2036
Project 6	Lower Road Collector	2037	2042	2038	2042	2040
Project 7	Arkell Collector ASR	2041	2047	2044	2047	2045
Project 8	Hauser test well	2042	2049	2045	2049	2047
Project 9	Guelph North	2043	2049	2046	2050	2048
Project 10	Guelph Southeast	2046	Post-2051	2048	Post-2051	Post-2051
Project 11	Guelph Lake WTP	2048	Post-2051	2051	Post-2051	Post-2051
Project 12	Smallfield/ Sacco Wells	Post-2051	Post-2051	Post-2051	Post-2051	Post-2051
Project 13	Guelph Lake WTP and ASR wells	Post-2051	Post-2051	Post-2051	Post-2051	Post-2051

Notes: *Project implementation subject to outcome of on-going Southwest Guelph Water Supply EA

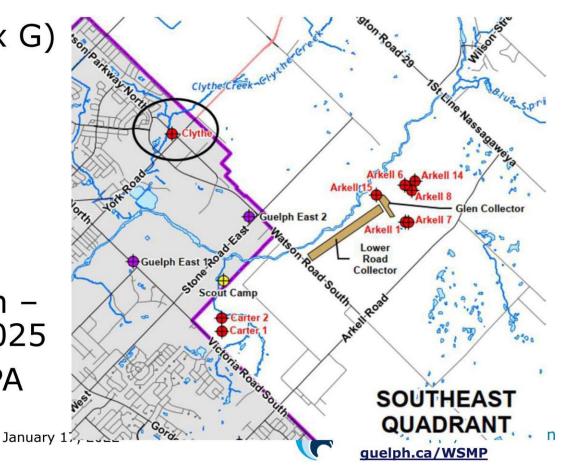


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Restore Existing Well - Clythe Well

- Section 5.3.3 (Appendix G)
- Return to service with treatment for hydrogen sulphide, iron and manganese
- Class EA completed in 2018
- Design and construction 2022-2024, online in 2025
- Existing PTTW and WHPA

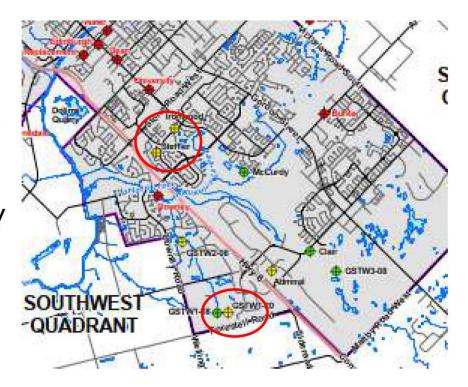






Develop Municipal Test Wells – Ironwood/Steffler/Guelph South Well

- Section 5.3.4 (Appendix D, G)
- Existing large diameter test wells
- Field testing 30-day pumping tests
- Ironwood 2,250–8,000 m³/day,
 Steffler 2,250-3,600 m³/day,
 Guelph South 2,250–4,320 m³/day
- SW Guelph Water Supply Class EA
- Concerns on well interference, surface water impacts, source protection, land use constraints, implications for growth









Develop Municipal Test Wells -Logan Well

- Section 5.3.4 (Appendix D, G)
- Newly reconstructed large diameter test well (34 m casing) on City property in Twp
- Field testing proposed short-term pumping test, more testing in Class EA
- Capacity estimate 4,180-4,700 m³/day
- Feasibility well interference, surface water impacts
- Concerns on well interference, surface water impacts, source protection, land use constraints, implications for growth



quelph.ca/WSMP

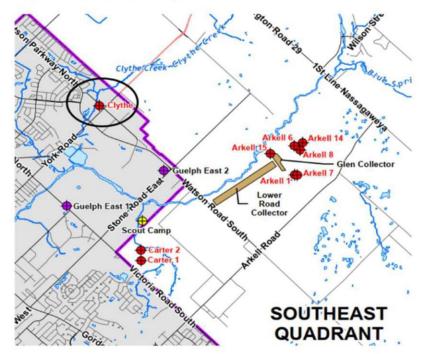


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Appendix G - Project Sheets

Alternative: Restoration of Existing Off-line Municipal Wells

Project Sheet: Restoration of Clythe Well



Project Component	Project Details			
Location	Adjacent to Clythe Creek, near intersection of Highway 7 and Watson Road			
Description	■ Drilled in 1976, has 305 mm dia. casing, offline since 1999			
Permitted Pump Rate	■ 3,395 m³/d			
Sustainable Capacity	■ 1,180 m³/d per modelling assessment (considered to be a conservative value); field testing has shown 3,370 to be locally sustainable			

Project Component	Project Details			
Existing Approvals	■ PTTW			
Required Approvals	■ Amendment to City Drinking Water License (DWL)			
Water Quality Issues	■ Hydrogen sulfide, iron and manganese			
Environmental Constraints	 Close to Clythe Creek and Clythe Creek PSW Potential impacts to features assessed as part of MECP PTTW approval process City collecting additional data to build on understanding of the potential for interaction between the well and natural environment 			
Past Studies/Work	 Rehabilitation and Performance Assessment in 2008 Schedule B Class EA for WTP completed in 2018 (identified strategy for water quality treatment requirements) Land acquisition of property across road to accommodate new WTP 			
Required Studies	■ Additional monitoring data noted above			
Required Infrastructure	 Water Treatment System Well house upgrades 			
Estimated Capital Cost	■ \$6,781,000 (for WTP with design capacity of 3,370 m³/d)			
Cost per m³/day	■ \$2,012 (at 3,370 m³/d; field tested rate)			
Annual O&M Cost	\$100,000			
Life Cycle Cost	■ \$0.56/m³ of water produced			
Implementation Timeline	■ Two year design and construction period			

General Program Recommendations - Highlights

- As each new supply source is developed, the total water budget should be reevaluated.
- Additional surface water and groundwater monitoring programs be put in place to monitor for potential environmental effects.
- Groundwater modelling is an important tool and should be continuously updated and maintained for application in the various WSMP projects.
- A basic premise of the WSMP Update is that the existing supply system is protected, therefore, it is important that the City enhance/maintain its source protection programs
- The preferred solution (i.e., future drinking water sources) in this WSMP Update be incorporated into the City's Source Protection Program for protection of water quantity of future drinking sources





General Program Recommendations - Highlights

- As part of feasibility studies or the Class EA process, require additional field work and environmental impact assessments, particularly with respect to water budget and sustainability issues.
- The Project Team heard concerns from adjacent municipalities on source protection and land use constraints as well as potential impacts to domestic wells from well interference. Future programs should focus on enhanced engagement and development of intergovernmental relations with the goal to promote more regional water resources management, to support water supply needs for all affected municipalities and to address attendant environmental effects with the support of provincial agencies (i.e., MECP) to meet provincial growth targets.
- Develop a risk management plan that includes mitigation and response strategies.
- The feasibility of both the Arkell and Guelph Lake ASR alternatives should be further developed including an optimization study to evaluate the placement of ASR wells that best utilize the existing municipal supply wells to efficiently recover injected water.





Water Supply Planning Recommendations - Highlights

- Balance employment and water use and couple high volume water users with high employment to help manage water demand projections so as not to jeopardize the needs of planned growth.
- Investigate process for supply capacity allocation and development commitments for both new and existing customers to help manage the relatively large capital expenses and lengthy timelines required to fully commission new water supply facilities.
- Complete an update of the 2016 Water Efficiency Strategy, commencing as early as 2022, based on the blended water conservation, efficiency and demand management scenarios presented through the WSMP (Scenario 5). This will include evaluation of non-potable reuse options in alignment with the City's other water-related Master Plans.
- Continue, and refine as necessary, the tracking system that closely monitors sectoral demand management (i.e., conservation and efficiency programs) and optimization successes and whether results are in-line with the forecasted demand for the preferred scenario and is achieving the goals of the Water Efficiency Strategy.
- Review land acquisition requirements for all projects, both short- and longterm, to ensure future flexibility when implementing alternatives.





Supply Capacity Recommendations - Highlights

- Conduct annual reviews of each component of the water supply system to determine the supply capacity and to identify any changes in the capacity from previous years or any constraints in delivering the optimal supply capacity.
- Based on the annual reviews of water supply capacity, Water Services should develop programs and implement maintenance and upgrades to the water supply system so that the system can deliver its optimal supply capacity.
- To protect water quantity and to mitigate potential impacts on quantity from other water takings, the City should consider implementing a municipal by-law to prohibit new private groundwater supply wells in the City as well as other areas where municipal water services are present.





Comments? Questions?









Wellington County Official Plan Review

County Growth Structure & Allocations

Guelph Water Supply Master Plan - County and City Meeting January 17, 2022







County Growth Structure OPA 119

Municipal Comprehensive Review (MCR)

- Interrelated and overlapping focus areas
- Growth
 Management
 technical work
 being completed
 by Watson &
 Associates



Work Plan



Growth Management Three key phases of technical work:

Phase 1

Urban
Structure
and Growth
Analysis

Phase 2

Land Needs Assessment

Phase 3

Settlement Area Boundary Review

Work Plan

Key Topics

PHASE 1 Urban Structure and Growth Analysis

Growth Plan alignment

employment forecast

Growth allocations by Member Municipality

Population and

review

Land Needs Assessment

PHASE 2

Residential intensification

Housing analysis

Employment area conversions

Urban community land needs

Phase 2 Land Needs Assessment Report (Q1 2022)

Virtual Public Information Centre (December 13, 2021) PHASE 3 Settlement Area Boundary Review

Work plan under development

TBD

TBD

TECHNICAL WORK

Technical Reports Phase 1 Urban Structure & Growth Allocations (Oct. 2021) Addendum Report (Q1 2022)

Public Consultation Virtual Public Information Centre (June 23, 2021)

IMPLEMENTATION

We are here

Implementing Official Plan Amendments (OPAs)

> Statutory Consultation

 OPA #119 – County Growth Structure

Public Open House (January 31, 2022) Public Meeting (February 10, 2022) TBD

TBD

TBD

TBD

Phase 1 Technical Work

- Deliverable -- Phase 1 MCR Report: Urban Structure and Growth Allocations
 - Draft version available online
 - Final version of Phase 1 Report and Addendum Report will be posted to project website in the next few weeks
- OPA 119 implements part of Phase 1 growth management technical work
- 2051 growth allocations will be implemented through a future OPA
- Companion document for OPA circulation shows OPA 119 in the context of the current Official Plan, which includes allocations to 2041

Purpose of Official Plan Amendment

- Add new policies for complete communities
- Revise and map the County growth structure based on servicing
- Add new policies for a Regionally Significant
 Economic Development Study Area in Puslinch
- Re-designate the existing historic rural settlement of Puslinch as a Hamlet
- Other technical and formatting changes

Complete Communities

- One of the guiding principles of the Growth Plan
- Provincial Growth Plan provides for both urban and rural communities to be complete communities by supporting a mix of:
 - jobs, local stores, and services, a full range of housing, transportation options and public service facilities
 - May take different shapes and forms appropriate to their context
- Amendment introduces complete communities as a key planning concept and objective of the Official Plan

County Structure

- Includes three Systems identified on the Land Use Schedules of Official Plan:
 - Greenlands System
 - Rural System
 - Urban System
- OPA 119 introduces a revised settlement area hierarchy in the Rural System and Urban System

County Structure

Greenlands System

- Core Greenlands
- Greenlands
- ANSIs

Rural System

- Prime Agricultural
- Secondary Agricultural
- Other Rural Lands

Urban System

- Urban Centre
- Hamlet

CURRENT OFFICIAL PLAN

OPA 119

No changes

Retain
 existing, but
 add
 Secondary
 Urban Centre
 and Hamles

Primary Urban Centres

Revised Settlement Hierarchy

Urban System

12 Urban Centres re-classified as Primary Urban Centres

- Recognizes majority of forecast growth to be allocated to areas with water and wastewater servicing
- Continue to be part of Urban System

Rural System

2 Urban Centres re-classified as Secondary Urban Centres (Aberfoyle and Morriston)

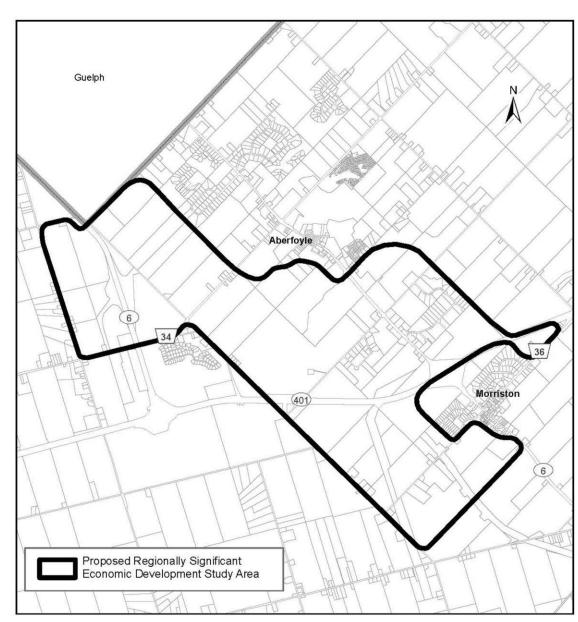
- Recognizes growth to be limited in areas without water and wastewater servicing
- Moved to Rural System, but continue to recognize importance as community hubs
- All Hamlets to be recognized as newly defined Rural Settlement Areas

Regionally Significant Economic Development Area (RSEDA)

- Examining new options for South Wellington through MCR
- Provincial policies pose serious difficulties for growth in Puslinch
- Highway 6 and 401 Morriston By-pass expansion project presents unique constraints and opportunities
- Need support of Province to proceed with establishing study area

RSEDA Study Area and Policy

- Study to be initiated by the Township in consultation with the County
- Township and County to prepare detailed terms of reference
- The Study is to incorporate a transportation analysis, a servicing strategy, an agricultural and environmental review



RSEDA Study Area Context



Legend

Proposed Regionally Significant Economic Development Study Area

Proposed Hamlet of Puslinch

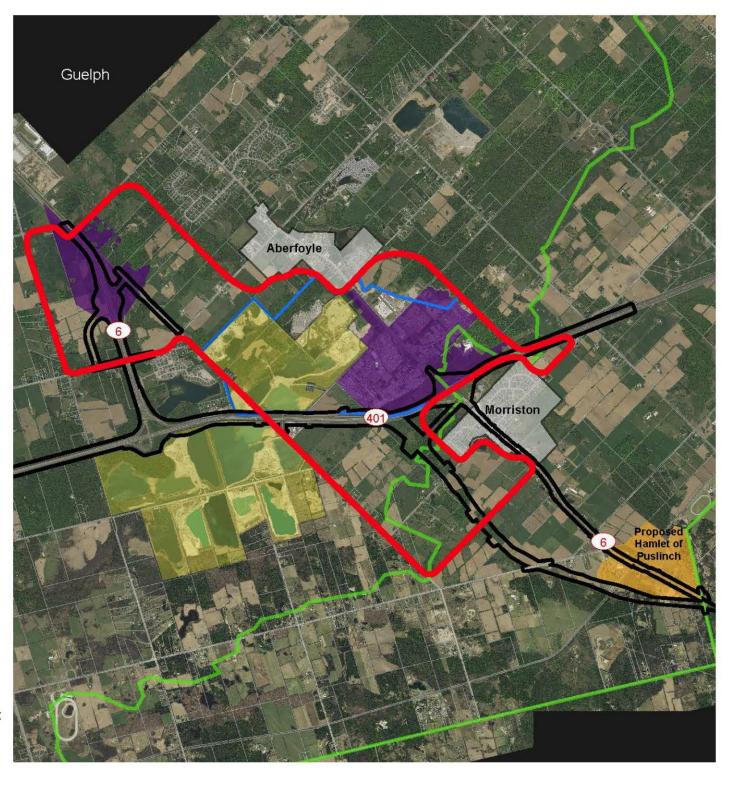
Hwy 6 & 401 Right-of-Way Extension with 45m Offset

Greenbelt Area

Existing Rural Employment Areas

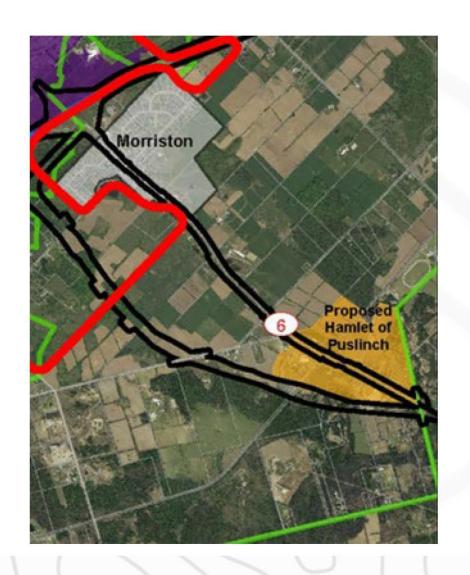
Existing Puslinch Economic Development Area (PA7-1)

Nearby Licenced Aggregate Operations



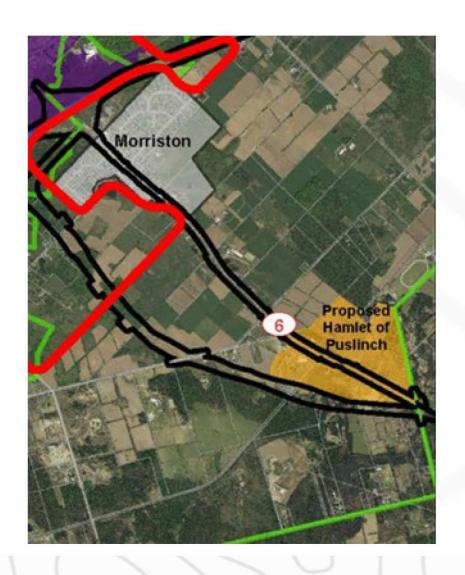
RSEDA Implementation

- Implementation details will be addressed as part of the future Study
- Further Official Plan
 Amendment(s) necessary to
 introduce new land use
 designation(s)
- Zoning By-law Amendment(s) to introduce new permitted uses and regulations



Hamlet of Puslinch

- Historic Hamlet of Puslinch is a long standing small, mixed use community in southern Puslinch
- Hamlet was recognized with a special policy in 1988 Puslinch Official Plan
- Re-designation is logical at this time due to status of Highway 6 realignment



Municipal Comprehensive Review Allocations

2041 Growth Forecasts

- 2041 growth forecasts and allocations have been in County Official Plan since 2017
- Current MCR introduces an additional 10 years of growth
- OPA 119 does not include implementation of 2051 growth forecasts, but technical work is complete
- Final Phase 1 technical report with growth allocations to be posted to project website in the next few weeks

2051 Population and Housing Forecasts

Puslinch

- Annual rate of population growth of 0.8% (down from 1.5% historically)
- Approx. 24 units annually from 2016 to 2051 (down from 36 units historically)
- Approx. 10 units annually from 2041 to 2051

Guelph / Eramosa

- Annual rate of population growth of 0.3% (down from 1.2% historically)
- Approx. 18 units annually from 2016 to 2051 (down from 56 units historically)
- Approx. 9 units annually from 2041 to 2051



For more information

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www.wellington.ca/planwell



Meeting: Guelph Water Supply Master Plan - County and City, Meeting #3

Date: March 11, 2022

Participants: Kyle Davis (KD), Wellington Source Water Protection, Wayne Galliher (WG), City of Guelph, Stan Denhoed (SD), Harden Environmental (Township of Puslinch), Matthew Alexander (MA), AECOM (City of Guelph), Dave Belanger (DB), City of Guelph, Dwight Smikle (DS), Burnside and Associates (Guelph / Eramosa), Scott Cousins (SC), City of Guelph, Emily Stahl (ES), City of Guelph, Tracey McKenna (TM), AECOM (City of Guelph), Danielle Walker (DW), Wellington Source Water Protection.

Agenda

1. Review of minutes and action items from last meeting

New business

- Discussion on Township initial comments / City response, Council questions and Initial Thoughts on Full Report
- 3. Discussion- additional consultation into the Southwest Guelph Water Supply Class EA
 - Quarterly meetings and progress reports
 - Workshops
- 4. Next Steps and Scheduling of Next Meeting

Discussion

- 1/ Review of minutes
 - Clarifications made and discussion of action items listed in minutes
- 2/ Discussion on Township Initial Comments

Discussion included

- Concerns related to not modelling WHPAs in WSMP alternative evaluation and leaving it to the individual EA. Discussion on this point and differences in opinion on how to proceed with City preferring the modelling at the EA stage.
- Discussion on PTTWs and modelling that occurs related to some applications such as Lafarge.
- Discussion on action item related to growth numbers no update available. Agreement that main comment is that growth outside of City is not static.
- Review of comments by KD, SD, DS and discussion on various points included in the comments.
- Discussion on servicing of new industries in City and County including whether there will be servicing in Puslinch



Conservation and Groundwater alternatives discussion – discussed

Discussion

Discussion regarding council meetings and capacity of Hamilton Drive / Rockwood wells as per Mayor White's comment on selling water to City and discussion on Mayor Seeley's comment regarding numerous aggregate ponds in Puslinch as water source. Action item for DS / HN to review whether capacity is present in GET wells. Discussion and agreement that there is difficulties surrounding use of aggregate ponds for drinking water supply (shallow water source, needs treatment, long pipeline). Consensus is that it is not a feasible alternative

Discussion on thoughts on initial WSMP report and noted no comments yet, Townships and County still discussing internally and will report back whether April 10th deadline can be met for comments.

3/ Discussion on Future Consultation

Discussion included additional consultation into the Southwest Guelph Water Supply Class EA – quarterly meetings, progress reports and workshops. Notes that written summary of these meetings/ these minutes provide documentation as part of the Class EA process. General satisfaction with additional consultation on SW Guelph.

4/ Next Steps

Discussion on updates to model. The Tier 3, although finalized in 2017, carried data from 2010. Looking at updating the model in general to do some improvements to incorporate work from recent projects. Once the model updates are complete, it would be an appropriate time to make the update to the Tier 3 water budget and WHPA-Q. Likely still a couple of years out and prior to next update of WSMP.

Requesting growth/demand estimates from the County. Big ask of the County, maybe better to write into report that Twp demands be considered in next Master Plan. Sarah thought that it may not be done until end of year. Stress that unless the City knows what the growth is in terms of population, demand, locations, residential vs industrial, etc. it's hard to estimate effects on water budget, they assume there's adequate supply, but until the location of that growth is (residential, industrial) known, it may just be better to have it as a recommendation in this report that once the County numbers are finalized, that those numbers can be included in the next WSMP.

Source Water

PROTECTION

wellingtonwater.ca

Notes that the City is looking at how to continuously update the model and different platforms. Trying to get to the point where they can just plug and play data into the model and see what happens.

Action items

- KD- Follow up with Glenn RE: feasibility study question posed by WG
- o KD- Follow up with County (Sarah) RE: servicing
- o KD- Follow up with County and Township (Sarah and Harry) RE: growth
- o KD- April 10th timeframe- is it reasonable?
- DS- Follow up on capacity coming out of Guelph (Hamilton Drive/ Rockwood)
- Additional discussion on servicing industrial growth in City and County potential discussion at Tier 3 policy group



Meeting: Guelph Water Supply Master Plan - County and City, Meeting #4

Date: March 30, 2022

Participants: Kyle Davis (KD), Wellington Source Water Protection, Wayne Galliher (WG), City of Guelph, Stan Denhoed (SD), Harden Environmental (Township of Puslinch), Matthew Alexander (MA), AECOM (City of Guelph), Dave Belanger (DB), City of Guelph, Dwight Smikle (DS), Burnside and Associates (Guelph / Eramosa), Scott Cousins (SC), City of Guelph, Tracey McKenna (TM), AECOM (City of Guelph), Harry Niemi, Guelph / Eramosa Township

Agenda

1. Review of minutes and action Items from last meeting

New business

- 2. April 10th Timeline and Council meetings on April 13 and 19th
- 3. Discussion and / or Clarification Questions Related to Township / County Comments
 - Information sharing between City and Township / County staff to use the model to gauge potential impact from WSMP alternatives to WHPAs – schedule this between WSMP finalization and EA
 - Update on Growth numbers
- 4. Other Business

1/ Review of minutes

Agreed that minutes would be deal with through email.

Discussion on action items

Puslinch Feasibility Study – Township staff are not aware of any plans at this time

County Servicing – Please refer back to feasbility study answer, there may be some studies in County Official Plan work but refer to Official Plan work plan

Growth – Please refer to County Planning report for March 31st, 2022 plus Watson report (draft June 2021 and final Jan 2022). Also GET has provided a water demand spreadsheet for last 5 years for municipal systems. Some discussion on difficulties related to per capita estimates when mixed use. Further discussion between City and GET may occur.

Discussion on Puslinch – discussion on applying a consumption factor to Township water use as all on septic and therefore consumptive use is less than fully municipally serviced system.



Agreement that this should be looked at and that the 2018 Threats

Management Strategy may provide some insight to available water in modelled water budget

Capacity – still would need to be evaluated

Servicing industrial growth in City and County - Kyle and Wayne - agreed loop in planners and rework action item

2/ April 10th

Discussed April 10th and agreed that a later submission based on Council agenda and meeting dates would be acceptable

3/ Discussion and / or Clarification Questions Related to Township / County Comments Update on Growth numbers

Discussed using the City groundwater model to evaluate the alternatives in the WSMP prior to finalization. Discussed the technical pros and cons of that approach for evaluating WHPA expansion into the Township as well as looking at natural environment impacts. Township / County feel after the EA is too late, while City feel before the EA is too early. This was not resolved and it was identified that the discussion would continue in future City/ County update meetings and / or the regional water management group meetings that the GRCA is organizing.

Water Supply Master Plan 2021 Update

MECP - City Meeting WSMP Update Report Overview March 21, 2022









WSMP Update Report – Table of Contents

- Introduction
- Study Area Profile
- Population and Water Supply Demand Projections
- Existing Water Supply System Capacity Assessment
- Water Supply Alternatives
- Environmental Assessment Evaluation Criteria and Process
- Engagement and Consultation
- Implementation Recommendations







Section 1 - Introduction

- Update of the 2014 WSMP Update
- Overview of progress since 2014 completion of Arkell OTP (Arkell 14/15 wells, Clythe Well Treatment Class EA, upgrades to Arkell Recharge System, upgrades to Burke Treatment, Membro Replacement well, Dolime Quarry settlement agreement, etc.
- Source Protection Program Tier 3 Water Budget, Threats Management Strategy, SP Plan
- Description of the Class EA process for Master Plans Phases 1 and 2
- Challenges and Opportunities Statement manage growth, sustainable supply to meet demand to 2051, safe and costeffective

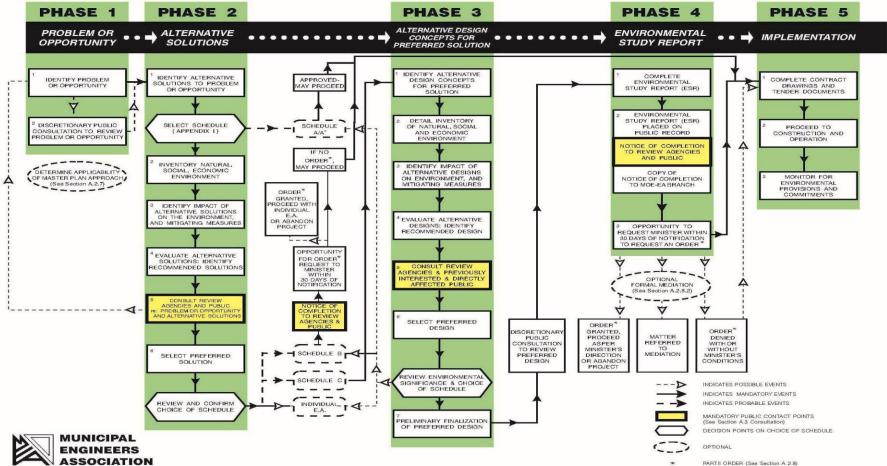




EXHIBIT A.2

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



1aster Plan



quelph.ca/WSMP

Master Plan Update Approach Overview

Task No.	Task Description			
Task 1 – Public Consultation	WSMP Community Liaison Group (CLG) meetings (3) Municipality / Agency workshops (2) Community Open Houses (2) Water Conservation and Efficiency Public Advisory Committee (2) Master Plan briefings for First Nation Communities (2) Presentations to Township Councils (2)			
Task 2 – Population and Water Demand Forecasts	 Develop population projections – residential and Industrial/Commercial/Institutional (included 2020 Places to Grow amendment to 2051) Develop water demand projections 			
Task 3 – Existing Water Supply Capacity Assessment	 Update the assessment of existing well/supply system performance, maximum system capacity and minimize potential constraints for each supply source Compare existing capacity with demand forecast to identify future needs 			
Task 4 – Water Supply Alternatives	 Review potential alternatives including: Conservation, Efficiency and Demand Management programs (including water reuse) Groundwater sources inside city Groundwater sources outside city Local surface water supply Limit growth/Do nothing 			
Task 5 – WSMP Update	 Evaluate alternatives Develop Implementation Strategy Complete WSMP Update report 			
Guelph AECOM	March 21, 2022 Water Supply Master Plan			





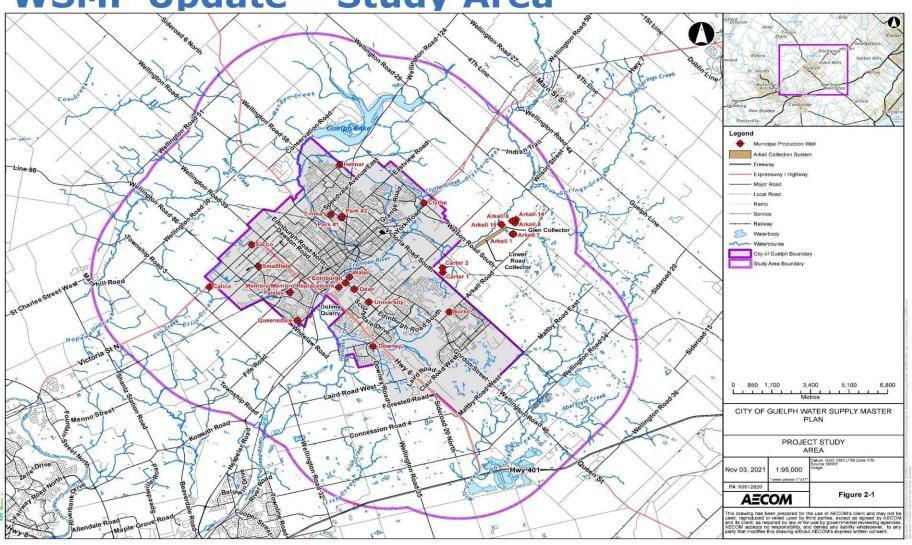
Section 2 – Study Area Profile

- Overview of the Study Area
- Set the stage for the Environmental Assessment Evaluation Criteria:
 - Indigenous Peoples
 - Regulatory Environment
 - Natural Environment (Appendix A)
 - Social/Cultural and Built Environment
 - Economic/Financial Considerations
 - Legal Jurisdiction
 - Technical Considerations





WSMP Update - Study Area



Plan

Section 3 – Population and Water Supply Demand Projections

- Population projections from the Province (Places to Grow Growth Plan) first to 2041, then to 2051 in August 2020
- Residential population 203,000, Employment population 116,000
- Historical water demand review of the past to project to the future
 - Average per capita residential demand rate 2015-2019: 167 Lcd
 - Average per capita employment demand rate 2015-2019: 191 Lcd
 - · Average per capita Non-Revenue Water demand rate 2015-2019: 61 Lcd
- Assume that further reductions in Lcd customer demands will not occur

Parameter	2021	2026	2031	2036	2041	2046	2051
Average Annual Day Demand (m³/day)	49,254	52,429	55,605	58,780	61,955	65,131	68,306
Maximum Day Demand using Maximum Day Factor of 1.34 (m³/day)	66,000	70,255	74,510	78,765	83,020	87,275	91,530



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Section 4 – Existing Water Supply System Capacity Assessment

Assessment of existing well/system capacities:

Evaluation Parameter	2019	2051
Average Daily Demand (m³/day)	47,015	68,306
Maximum Daily Demand (m³/day)	58,441	91,530
Existing System Maximum Capacity (m³/day)	79,422	79,422
Surplus/Deficit (m³/day)	20,981	-12,108

- Security of Supply Drought, contamination event, changes in regulations, other risks – reduction in capacity of up to 15 %
- Security of Supply Implication is to maintain 15 % capacity redundancy



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Optimization of Water Supply System

- Optimization maximum water supply capacity of the system while maintaining safe operation (i.e., water levels above pumps/aquifer) and environmental protection (i.e., baseflow and sustainable pumping rates)
- Methods:
 - Well specific capacity estimates
 - Sustainability assessments Modeling of sustainable capacity

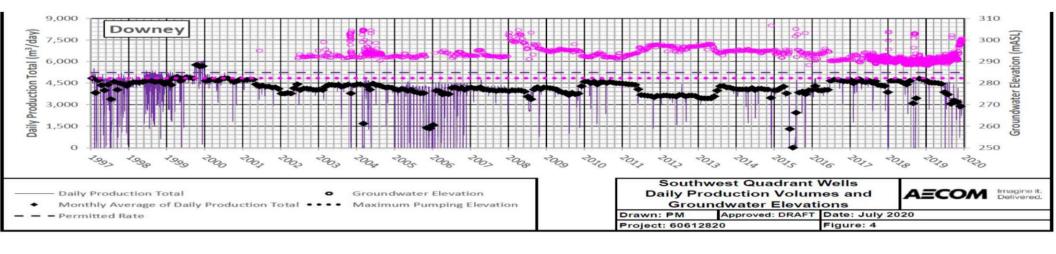






Optimization of Water Supply System – Specific Capacity

- Reviews of pumping rate history versus drawdown and extrapolated to safe available drawdown
- Pumps set to optimize available drawdown
- Sum of all individual wells/systems 79,452 m³/day
- Practical limits resulting from interference, well efficiency, drought, maintenance, safe operation – 67,500 to 79,452 m³/day (15 %)



Optimization of Water Supply System – Sustainability Assessment

- Tier 3 Model Simulations: 1) Max. average day capacity of the current supply system, 2) Max. ave. capacity under drought conditions, 3) Max. ave. capacity for alternative future supply sources with max. 10% reduction in baseflow, and 4) Max. ave. capacity for alternative future supply source with no baseflow constraints
- Constraints: 1) Maintain groundwater elevations above safe operating levels, 2)
 Minimizing reductions in groundwater discharge to coldwater streams, and 3) Keep individual well pumping rates below maximum well withdrawal capacities.
- Optimization of pumping rates using PESTPP-OPT (Parameter Estimation Software)
 which helps to automate the estimation of the maximum pumping rate potentially
 achievable by each well under each of the three constraints.





Optimization of Water Supply System – Sustainability Assessment

- Sustainability Assessment Results (Appendix B):
 - Max. Ave. Day Capacity 66,760 m³/day
 - Max. Ave. Day Capacity (Drought) 57,560 m³/day
 - Max. Ave. Day Capacity (Future Alternatives) 66,760 to 76,740 m³/day (15% less in drought)
- Future Supply Alternatives Assessment (Appendix D) (no baseflow constraint)
 - Max. Ave. Day Capacity 66,760 to 82,370 m³/day (baseflow reductions 0 to 30%)
 - Max. Ave. Day Capacity (Drought) 56,746 to 70,015 m³/day
- Optimal sustainable capacity 67,000 to 76,000 m³/day, maybe up to 82,000 m³/day with reductions in baseflow (>10%)
- 2051 Average Day Demand 68,306 m³/day, Max. Day Demand 91,530 m³/day





Section 5 – Water Supply Alternatives

- Follows same approach as in 2014 WSMP Update:
 - Conservation, efficiency and demand management
 - Groundwater sources:
 - Optimize existing sources
 - Restore offline sources
 - Develop existing test wells
 - Develop new wells outside City
 - Surface water sources and Aquifer Storage and Recovery (ASR)
 - Limit community growth, Do nothing





Section 5 – Water Supply Alternatives

- Conservation, efficiency and demand management
- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3 % in 2051
 - 5 A blend of Scenarios 2 to 4
 - Water Loss Management Strategy in Appendix C





Water Conservation, Efficiency and Demand Management

- Assumes Residential Demand remains low but stable – no further reductions
- Reductions in ICI Demands are the focus of the program
- Water Loss Program Regular leak detection survey and repair program has been effective in reducing real losses and should be continued.
- Audit shows Infrastructure Leakage Index (2.03) is approximately equal to the Economic Level of Leakage
- Water Efficiency Strategy to be updated in 2022

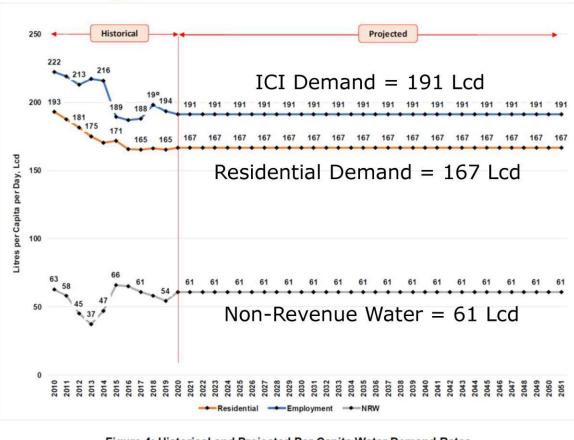


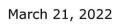
Figure 4: Historical and Projected Per Capita Water Demand Rates

Section 5 – Water Supply Alternatives

- Groundwater supply alternatives:
 - Alternative 2A Optimize existing municipal sources
 - Alternative 2B Restore off-line municipal sources (Clythe, Smallfield, Sacco, Lower Road Collector)
 - Alternative 2C/D Develop municipal test wells (Ironwood, Steffler, Guelph South, Logan, includes Dolime Quarry)
 - Alternative 2E Develop new sources inside City (screened out)
 - Alternative 2F Install new ASR wells inside City to optimize excess Arkell Collector system volumes
 - Alternative 2G Develop new wells outside City (Guelph North, Guelph Southeast)
- Supported by groundwater modelling in Appendices B and D
- Project sheets for preferred alternatives in Appendix G
- Presentation herein to focus on short-term preferred alternatives

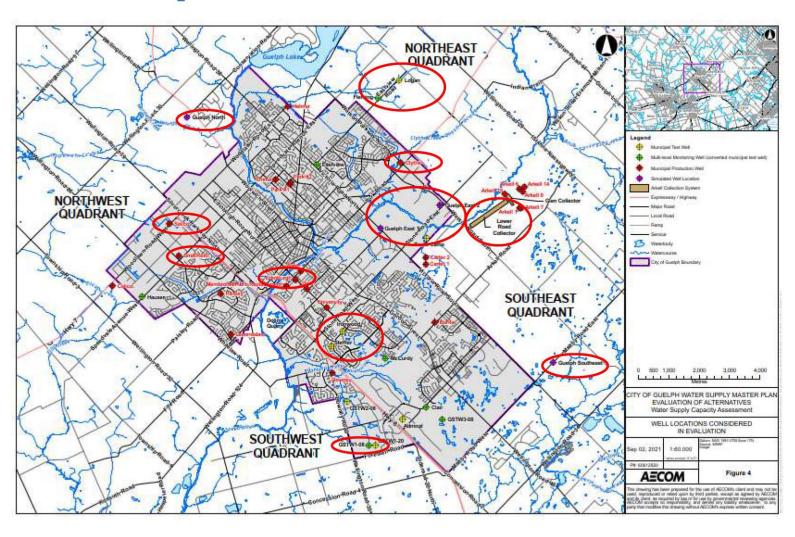


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Off-line/ New Sources



Section 5 – Water Supply Alternatives

- Surface water alternatives:
 - Guelph Lake Intake and Treatment Plant
 - Guelph Lake plus Aquifer Storage and Recovery
- Supported by surface water analysis by GRCA in Appendix E
- Project sheets for preferred alternatives in Appendix G
- Long-term alternative post 2051
- Presentation herein to focus on short-term preferred alternatives



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Section 6 – Environmental Assessment Evaluation Criteria (Tables 6-3 to 6-8)

Component	Criteria
Effect on Indigenous values, culture, and Traditional use	 An evaluation of the effect on Indigenous values, culture, and Traditional use. Key themes shared with the Project Team that help guide the evaluation
Technical Considerations	 Constructability Potential productivity and reliability Water treatment requirements Approval requirements
Natural Environmental	 Effect of construction and operation on aquatic and terrestrial species and habitat Effect on surface water quantity and quality
Built Environment	 Effect on existing and/or planned residences, businesses, community, institutional or recreational facilities Effect on private and municipal wells
Social/Cultural Environment	 Ability to meet municipal and provincial growth targets Public acceptance Effect of noise/vibration on sensitive receptors Effect on cultural heritage landscapes and built heritage resources Effect on potential archaeological resources
Legal/Jurisdictional Considerations	Location inside versus outside of City boundaries
Financial Considerations	 Estimated capital costs; capital cost per capacity Estimated operation and maintenance costs Life cycle cost (per volume produced)



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March 21, 2022

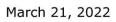


Section 7 – Engagement and Consultation

- Components include:
 - WSMP Community Liaison Group (CLG) meetings (3)
 - Municipality / Agency workshops (2)
 - Community Open Houses (2)
 - Water Conservation and Efficiency Public Advisory Committee meetings (2)
 - Master Plan briefings for First Nation Communities (2)
 - Presentations to Township Councils (2)
 - Online and social media engagement
- Consultation Summary Report Appendix F



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Section 8 – Implementation Recommendations

- Recommended Water Conservation, Efficiency and Demand Management Strategy
- Preferred Water Supply Alternatives
- Recommendations





Preferred Water Supply Alternatives

Alternative	Timeline	Projects
1A – Conservation, Efficiency & Demand Management	Throughout	Blended Conservation Scenario
2B – Groundwater: Restore Off-line Municipal Wells	Short-term	Clythe Well (completion in 2023)
2B – Groundwater: Restore Off-line Municipal Wells	Mid-term	Lower Road Collector (completion in 2037)
2C/D – Groundwater: Develop Municipal Test Wells	Short-term	 Ironwood/Steffler (completion in 2027) Guelph South (completion in 2028) Dolime Quarry (pumping station component completed to align with Ironwood/ Steffler) Logan/ Fleming (completion in 2030)
2C/D – Groundwater: Develop Municipal Test Wells	Long-term	Hauser (completion in 2047)
2F – Groundwater: Arkell Collectors & ASR Wells	Long-term	Arkell ASR (completion in 2045)
2G – Groundwater: Develop New Wells Outside City	Long-term	Guelph North (completion in 2048)



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Recommendations - Order of Implementation

Order of Implementation	Project Name	Project Type
Project 1	Clythe Well	Offline Wells
Project 2*	Ironwood/ Steffler Well	Test Wells
Project 3*	Guelph South Well	Test Wells
Project 4*	Dolime Quarry	Optimization of existing and test wells / potential direct supply source
Project 5	Fleming/ Logan	Test Wells
Project 6	Lower Road Collector	Offline Wells
Project 7	Arkell Collector ASR Wells	Arkell Collector
Project 8	Hauser test well	Test Wells
Project 9	Guelph North	New Wells Outside City
Project 10	Guelph Southeast	New Wells Outside City
Project 11	Guelph Lake WTP	Surface Water
Project 12	Smallfield/ Sacco Wells	Offline Wells
Project 13	Guelph Lake WTP and ASR wells	Surface Water

Notes:

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*Project implementation subject to outcome of on-going Southwest Guelph Water Supply EA





Recommended Water Conservation, Efficiency and Demand Management Strategy

- Scenario 1: No further reductions ceasing non-provincially mandated water efficiency measures (baseline scenario)
- Scenario 2: Potential reduction through maintaining a level of programming similar to the current water conservation, efficiency and demand management program
- Scenario 3: Potential reduction through a focus on high water use customers
- Scenario 4: Potential reduction through a focus on the current level of programming and water reuse initiatives
- Scenario 5: A blend of Scenarios 2 to 4 (Preferred Alternative)

Scenario	Reduction in Average Day Demand (m³/day)	Est. Total Program Cost (Non-Discounted; million \$)
1	-	-
2	4,424	11.41
3	2,220	4.73
4	4,952	15.04
5	3,683	8.99

Water Supply Master Plan quelph.ca/WSMP

Proposed Water Supply Projects Under Different Conservation Scenarios

Order of Implementation	Project Name	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Project 1	Clythe Well	2023	2023	2023	2023	2023
Project 2*	Ironwood/ Steffler	2027	2027	2027	2027	2027
Project 3*	Guelph South	2028	2030	2028	2030	2030
Project 4*	Dolime Quarry	2031	2032	2031	2032	2032
Project 5	Fleming/ Logan	2033	2036	2034	2037	2036
Project 6	Lower Road Collector	2037	2042	2038	2042	2040
Project 7	Arkell Collector ASR	2041	2047	2044	2047	2045
Project 8	Hauser test well	2042	2049	2045	2049	2047
Project 9	Guelph North	2043	2049	2046	2050	2048
Project 10	Guelph Southeast	2046	Post-2051	2048	Post-2051	Post-2051
Project 11	Guelph Lake WTP	2048	Post-2051	2051	Post-2051	Post-2051
Project 12	Smallfield/ Sacco Wells	Post-2051	Post-2051	Post-2051	Post-2051	Post-2051
Project 13	Guelph Lake WTP and ASR wells	Post-2051	Post-2051	Post-2051	Post-2051	Post-2051

Notes: *Project implementation subject to outcome of on-going Southwest Guelph Water Supply EA

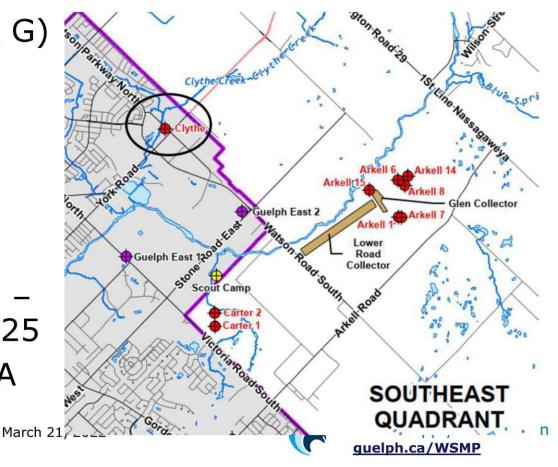


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Restore Existing Well - Clythe Well

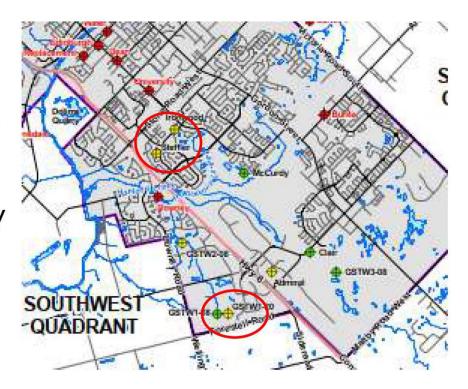
- Section 5.3.3 (Appendix G)
- Return to service with treatment for hydrogen sulphide, iron and manganese
- Class EA completed in 2018
- Design and construction 2022-2024, online in 2025
- Existing PTTW and WHPA





Develop Municipal Test Wells – Ironwood/Steffler/Guelph South Well

- Section 5.3.4 (Appendix D, G)
- Existing large diameter test wells
- Field testing 30-day pumping tests
- Ironwood 2,250–8,000 m³/day,
 Steffler 2,250-3,600 m³/day,
 Guelph South 2,250–4,320 m³/day
- SW Guelph Water Supply Class EA
- Concerns on well interference, surface water impacts, source protection, land use constraints, implications for growth



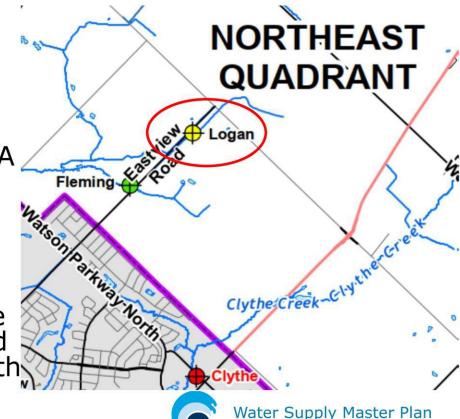






Develop Municipal Test Wells -Logan Well

- Section 5.3.4 (Appendix D, G)
- Newly reconstructed large diameter test well (34 m casing) on City property in Twp
- Field testing proposed short-term pumping test, more testing in Class EA
- Capacity estimate 4,180-4,700 m³/day
- Feasibility well interference, surface water impacts
- Concerns on well interference, surface water impacts, source protection, land use constraints, implications for growth



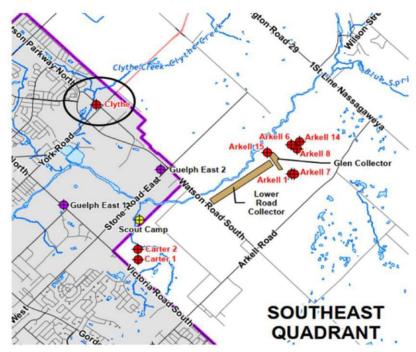
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Appendix G - Project Sheets

Alternative: Restoration of Existing Off-line Municipal Wells

Project Sheet: Restoration of Clythe Well



Project Component	Project Details
Location	Adjacent to Clythe Creek, near intersection of Highway 7 and Watson Road
Description	■ Drilled in 1976, has 305 mm dia. casing, offline since 1999
Permitted Pump Rate	■ 3,395 m³/d
Sustainable Capacity	■ 1,180 m³/d per modelling assessment (considered to be a conservative value); field testing has shown 3,370 to be locally sustainable

Project Component	Project Details			
Existing Approvals	■ PTTW			
Required Approvals	■ Amendment to City Drinking Water License (DWL)			
Water Quality Issues	■ Hydrogen sulfide, iron and manganese			
Environmental Constraints	 Close to Clythe Creek and Clythe Creek PSW Potential impacts to features assessed as part of MECP PTTW approval process City collecting additional data to build on understanding of the potential for interaction between the well and natural environment 			
Past Studies/Work	 Rehabilitation and Performance Assessment in 2008 Schedule B Class EA for WTP completed in 2018 (identified strategy for water quality treatment requirements) Land acquisition of property across road to accommodate new WTP 			
Required Studies	■ Additional monitoring data noted above			
Required Infrastructure	 Water Treatment System Well house upgrades 			
Estimated Capital Cost	■ \$6,781,000 (for WTP with design capacity of 3,370 m³/d)			
Cost per m³/day	■ \$2,012 (at 3,370 m³/d; field tested rate)			
Annual O&M Cost	\$100,000			
Life Cycle Cost	■ \$0.56/m³ of water produced			
Implementation Timeline	■ Two year design and construction period			

General Program Recommendations - Highlights

- As each new supply source is developed, the total water budget should be reevaluated.
- Additional surface water and groundwater monitoring programs be put in place to monitor for potential environmental effects.
- Groundwater modelling is an important tool and should be continuously updated and maintained for application in the various WSMP projects.
- A basic premise of the WSMP Update is that the existing supply system is protected, therefore, it is important that the City enhance/maintain its source protection programs
- The preferred solution (i.e., future drinking water sources) in this WSMP Update be incorporated into the City's Source Protection Program for protection of water quantity of future drinking sources



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General Program Recommendations - Highlights

- As part of feasibility studies or the Class EA process, require additional field work and environmental impact assessments, particularly with respect to water budget and sustainability issues.
- The Project Team heard concerns from adjacent municipalities on source protection and land use constraints as well as potential impacts to domestic wells from well interference. Future programs should focus on enhanced engagement and development of intergovernmental relations with the goal to promote more regional water resources management, to support water supply needs for all affected municipalities and to address attendant environmental effects with the support of provincial agencies (i.e., MECP) to meet provincial growth targets.
- Develop a risk management plan that includes mitigation and response strategies.
- The feasibility of both the Arkell and Guelph Lake ASR alternatives should be further developed including an optimization study to evaluate the placement of ASR wells that best utilize the existing municipal supply wells to efficiently recover injected water.



Water Supply Master Plan

Water Supply Planning Recommendations - Highlights

- Balance employment and water use and couple high volume water users with high employment
- Investigate process for supply capacity allocation and development commitments for both new and existing customers to help manage the capital expenses and lengthy timelines required to fully commission new water supply facilities.
- Complete an update of the 2016 Water Efficiency Strategy, commencing as early as 2022, based on the blended water conservation, efficiency and demand management scenarios presented through the WSMP (Scenario 5).
- Continue, and refine as necessary, the tracking system that closely monitors sectoral demand management (i.e., conservation and efficiency programs) and optimization successes and compare to goals of the W.E. Strategy.
- Review land acquisition requirements for all projects, both short- and longterm, to ensure future flexibility when implementing alternatives.





Supply Capacity Recommendations - Highlights

- Conduct annual reviews of each component of the water supply system to determine the supply capacity and to identify any changes in the capacity from previous years or any constraints in delivering the optimal supply capacity.
- Based on the annual reviews of water supply capacity, Water Services should continue programs and implement maintenance and upgrades to the water supply system so that the system can deliver its optimal supply capacity.
- To protect water quantity and to mitigate potential impacts on quantity from other water takings, the City should consider implementing a municipal by-law to prohibit new private groundwater supply wells in the City as well as other areas where municipal water services are present.





Comments? Questions?







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Appendix F

Community Liaison Group #1, #2, and #3

- Meeting #1 Presentation
- Meeting #1 Discussion Guide
- Meeting #1 Summary
- Meeting #2 Presentation
- Meeting #2 Summary
- Meeting #3 Presentation
- Meeting #3 Summary

Water Supply Master Plan 2019 Update

Community Liaison Group Meeting No. 1









Our Focus on Sustainability

- We recognize that the resources that supply water to the City are vital to others in the community and to the natural environment
- This is reflected in Council's direction on water supply planning: "the focus of the Water Supply Master Plan is to establish a sustainable water supply to regulate future growth."
- The City works closely with MECP to evaluate the sustainability of each permitted water source and to develop policies that address the quantity of available water resources







Agenda

- Welcoming & Opening Remarks
- Water Supply Master Plan Update Overview
- CLG Draft Terms of Reference
- Guelph's Current Water Supply System
- City Updates since 2014 Water Supply Master Plan (WSMP)
- Water Supply Master Plan Update Project Scope
- Next Steps







Meeting Purpose

- To review and provide input on key aspects of the Master Plan and the Class Environmental Assessment (EA), including:
 - Objectives and scope of the Master Plan Update
 - Issues and opportunities to be addressed
 - Alternative solutions to be assessed
 - Evaluation criteria to be applied







Check-In

- Find someone you don't yet know (or know well).
- In pairs, introduce yourself and answer the check-in question.
- In one sentence, introduce your partner to the large group.

What am I bringing to this group? (i.e. interest in/experience/knowledge of water supply)

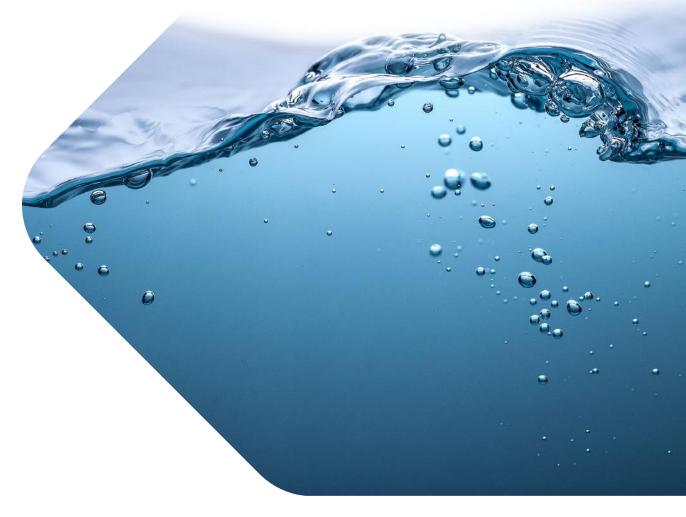








Water Supply Master Plan Update Overview









Purpose Statement (Draft)

The City of Guelph is committed to develop a reliable and sustainable supply of water to meet the current and future needs of all residents, industrial, commercial and institutional customers.

The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required.

The proposed implementation strategy must deliver an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.







Water Supply Master Plan Update

- Will define where and how City gets safe and reliable water to the year 2041 and identify challenges beyond this timeframe
- We'll review Guelph's demand forecast and existing water supply and discuss with the community how to continue to meet the City's needs
- Additional sources to supplement our existing supply will be identified. As will alternative
 ways to conserve supply and manage demands
- When investigating existing and new water supply options we'll consider things like climate change, water quality and quantity, economic factors, social/ cultural environment, and any relevant regulations
- Regardless of source, our water supply will continue to meet the service requirements of Guelph and the high standards set by the Ministry of the Environment, Conservation and Parks (MECP), including Source Water Protection requirements
- Short-term, mid-term and long-term water supply options will be recommended

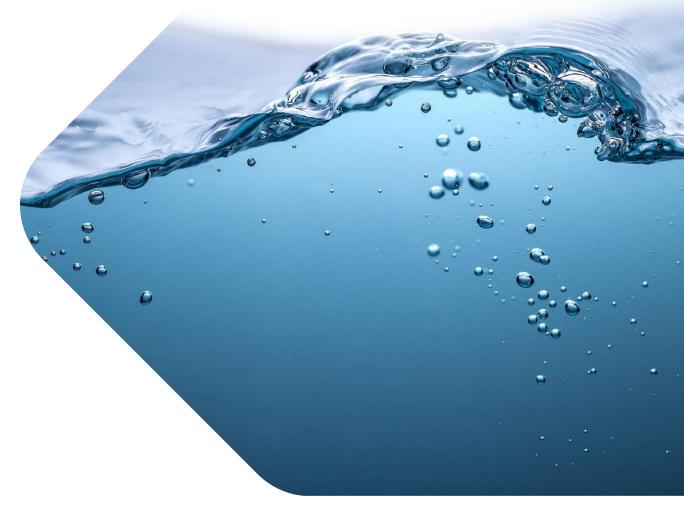








Water Supply Master
Plan Update
CLG Terms of
Reference (Draft)









CLG Terms of Reference

The Community Liaison Group (CLG) provides a forum for community input and guidance to the project team, during the update of the current Water Supply Master Plan (WSMP). The CLG will be established at the outset of the project and will help the City understand and consider the aspirations and concerns of the community as they relate to our current water supply demands, needs and supply sources.







CLG Terms of Reference

In addition to the Participant Responsibilities identified in the City's Community Engagement Framework (see Appendix A,) CLG members will:

- Consider matters, issues or information provided by the project team relating to the Master Plan process and provide guidance and input as requested.
- Liaise with the organization they represent (if applicable) to bring forward issues or comments from their organization and return information and results to the organization from the CLG.
- Ensure that the results of CLG discussions are accurately recorded in the meeting summary,
 or in any additional documents that the CLG or the project team may determine are needed.
- Embrace the City of Guelph's Guiding Principles for Community Engagement and Community Engagement Framework when providing guidance and input, and when interacting with CLG members and the project team.







CLG Terms of Reference

In addition to the Employee Responsibilities identified in the City's Community Engagement Framework (see Appendix A,) project team members will:

- Strive to provide accurate, understandable information to CLG members, so they can contribute informed ideas and input.
- Ensure that appropriate City staff or other resource people are present at discussions on specific issues or components of the planning process.
- Ensure that guidance and input from the CLG are fully considered in developing the Master Plan.
- Be open, receptive, and give careful consideration to ideas and input received from CLG members and strive to reflect this in the Master Plan.
- Embrace the City of Guelph's Guiding Principles for Community Engagement and Community Engagement Framework when interacting or planning to interact with the CLG.

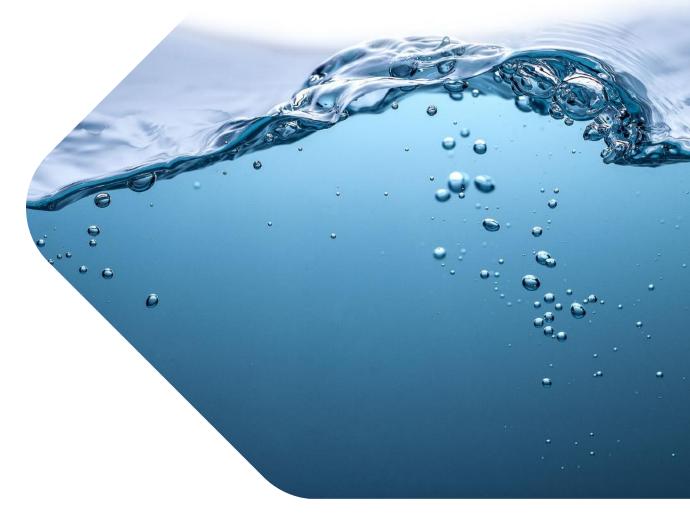








Maintaining a Safe and Sustainable Supply Guelph's Current Water Supply



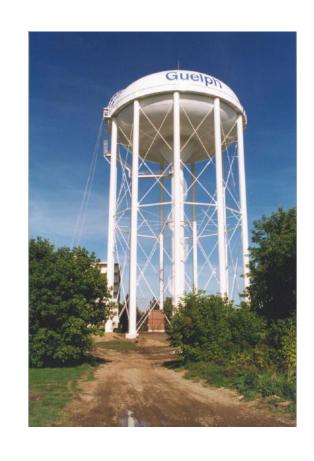






Overview of Our Existing System

- Groundwater-based water supply since 1879
- Guelph's water supply system includes production wells installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells, 21 wells in continuous operation 4
 wells offline due primarily to water quality concerns
 - A shallow groundwater system that collects spring water in the Arkell Spring Grounds
 - Eramosa River Intake and Recharge system (seasonal): river water pumped to a infiltration pond and trench; where it is captured by a subsurface collector system; availability is subject to river flow conditions (i.e., lower flow in summer)

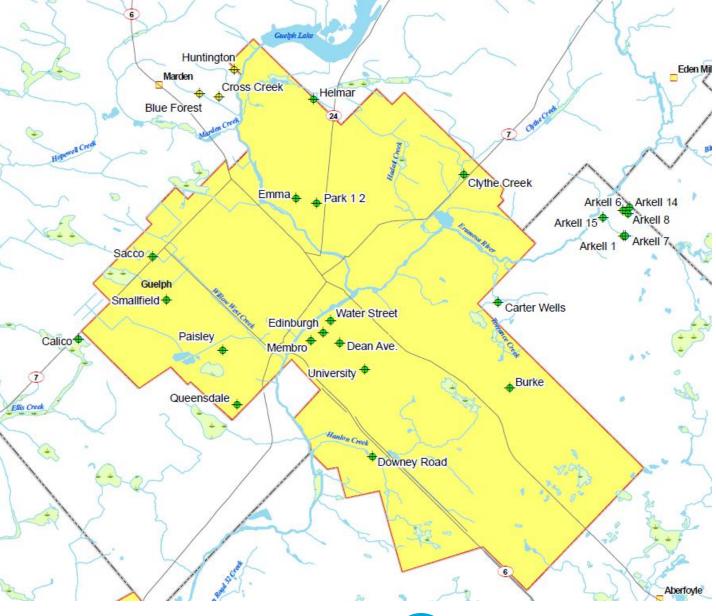








Overview of Our Existing System









Arkell Spring Grounds









Overview of Our Existing System

2014 WSMP

Well/ System Capacities (m³/day)

SE Quadrant	Arkell 1	2,000	NE Quadrant NW Quadrant	Park 1	8,000
	Arkell 6	28,800		Park 2	
	Arkell 7			Emma	2,800
	Arkell 8			Helmar	1,500
	Arkell 14			Clythe Creek	0
	Arkell 15			Paisley	1,400
	Burke	6,500		Calico	1,400
	Carter 1	5,500		Queensdale	1,100
	Carter 2			Sacco	0
	Arkell Infiltration Galleries - Glen Collector	6,900		Smallfield	0
SW Quadrant	Membro	6,000	Total Sustainable Capacity – 83,836 m³/day		
	Water Street	2,700			
	Dean	1,500			
	University	2,500	05,050 III / day		
	Downey	5,236			

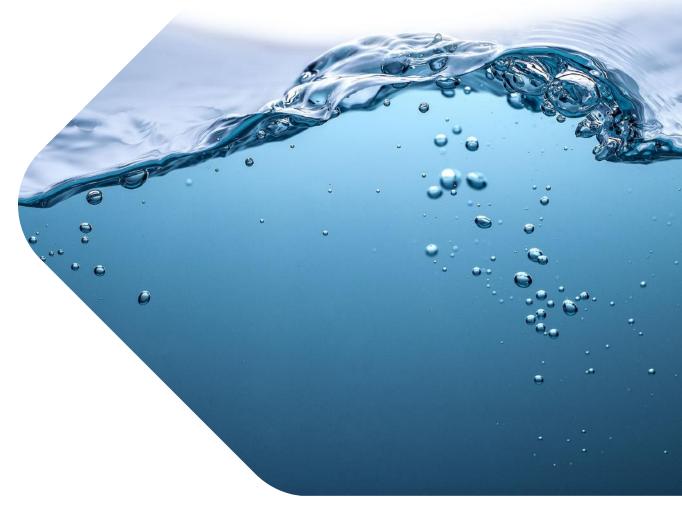








A lot has been going on... Progress Since 2014 WSMP









2014 WSMP Preferred Solution and Timeline

- 1 Conservation & Demand Management
- Implementation is on-going

2A – Groundwater: Existing Off-Line Municipal Wells

Clythe in 2024 Sacco in 2029, Smallfield in 2030

2B – Groundwater: Municipal Test Wells

 SWQ in 2019, Logan in 2027, Scout Camp 2036, Hauser post-2038

2C – Groundwater: New Well Inside City

Sunny Acre in 2033

2D - Arkell Collectors & ASR Wells

Collector in 2031, ASR post-2038

2E - Groundwater: New Wells Outside City

Guelph South and North post-2038

3A – Surface Water: Guelph lake Water Treatment Plant

post-2038

3B - Surface Water: Guelph lake Water Treatment Plant & ASR Wells

post-2038







Water Conservation & Demand Management

Progress 2006 to 2014

- City of Guelph has invested \$10.2 million+ in water conservation programming.
- Delayed the need for close to \$40.6 million+ in water and wastewater infrastructure by using less water.
- Saved \$534,000+ per year in operational costs.
- Decreased peak day water use by 11,800 m³ since 1999.
- Decreased non-revenue water lost to the "system" before reaching customers by almost 50 per cent.



Water conservation and efficiency remain **most cost effective form of "new" supply** to assist in meeting Provincial growth targets.





Water Conservation & Demand Management

2016 Water Efficiency Strategy

2014 Water Supply Master Plan demand reduction target of 9,147 m³/day by 2038.

Water Efficiency Strategy community demand management, efficiency and conservation goals:

- Reduce water use as part of new growth
- Develop/ pilot new technologies to save water
- Reduce water use in existing buildings
- The technology is proven and easily implementable in the City
- Stimulate the Guelph economy
- Minimize costs to the City

Final strategy endorsed by Council in September of 2016.

- 10 year, \$13.6 million community-driven water efficiency and demand management programming
- Goal: Reduce water use by 6.2 MLD by 2026







Arkell Spring Grounds

Progress since 2014

Arkell Adaptive Management Plan and Operational Testing Program (2011 - 2016)

- Increase water taking from the Arkell bedrock wells from 19,584 to 28,800 m³/day
- OTP did not result in any drawdown in the aquifer below Blue Springs Creek
- No impacts (water level drawdown, change in hydraulic gradient, water temperature impacts) to Blue Springs Creek were observed
- Permit-To-Take-Water (PTTW) issued by MECP for the requested 28,880 m³/day

Arkell Spring Glen Collector Improvements

- Trench upgrades completed to improve the capacity of the groundwater recharge system
- Testing and monitoring completed to optimize pumping and recovery







Clythe Well Class EA & Membro Well Replacement

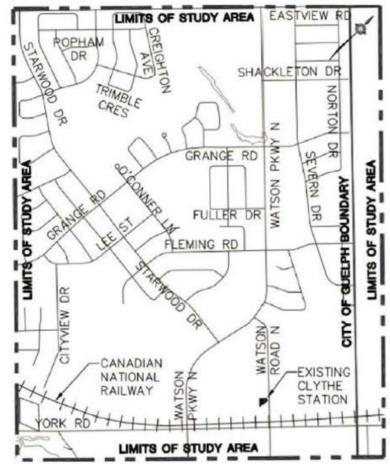
Progress since 2014

Clythe Well Class EA (2018):

- Location selected for water treatment facility
- Conceptual design of facility and raw & treated watermains
- Detailed design in 2019/ 2020
- Construction of project in 2021

Membro Well Replacement:

- Drilled in 2016 to depth of 49 m
- Addressed well diameter constraints for higher pumping rates to 6,000 m³/day
- Well testing to be conducted in 2020









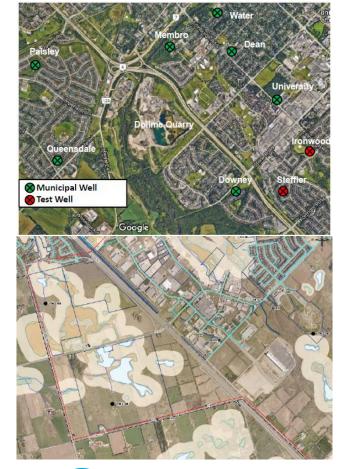
Southwest Quadrant Groundwater Investigations

Ironwood/Steffler Wells (2016)

- Class EA put on hold due to concerns on Dolime Quarry
- Modelling studies to evaluate quality protection and additional quantity

Guelph South Groundwater Supply Investigation (2019)

- GSTW-1 high potential supply source
- Convert to large diameter production well test program
- Target capacity of $\sim 5,200 \text{ m}^3/\text{day}$



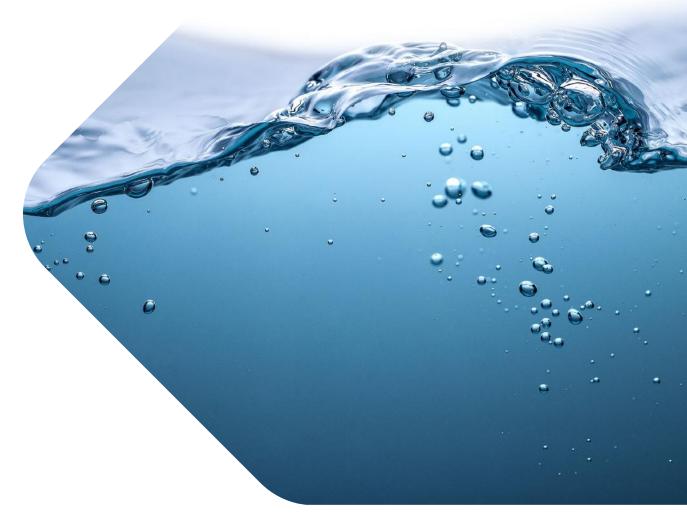








Water Supply Master Plan Update
2019 Special Issues



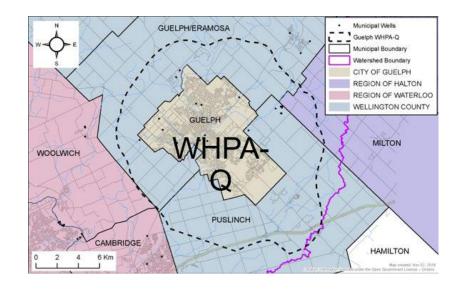






2019 WSMP - Special Issues

- Tier 3 Water Budget and Local Area Risk Assessment
 - Designation of Wellhead Protection Area Quantity and Significant Risk under 2031 demand and drought
 - Potential for impacts on surface water
- Contaminated Sites
 - Northwest Quadrant Smallfield and Sacco Wells
 - May need to abandon wells and "write-off" area for new supply
- Dolime
 - o PTTW appeal water quality and quantity concerns
 - Ironwood and Steffler test wells at risk
 - Settlement pathway proposed



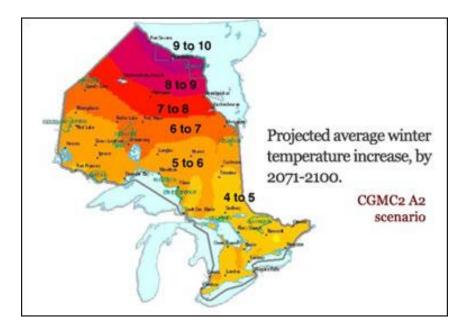






2019 WSMP - Special Issues

- Surface Water Impacts
 - Tier 3 Water Budget shows potential impacts on surface water with additional groundwater takings
- Firm Capacity and Security of Supply
 - Typically consider drought and loss of supply due to contamination event
 - o Is 10 % "security of supply" allowance sufficient?
- Climate Change
 - Modelling studies indicate more recharge in future will supplement water supplies
 - Climate not expected to be an supply issue
 - Expectation that it be addressed in the WSMP









We'd Like Your Input...

What other questions, issues or concerns related to water supply should we consider while updating the Water Supply Master Plan?

- 1-2-All:
- Individual silent reflection 2 mins
- Discuss in pairs or groups of three, building on reflection – 3 mins
- Shareback 10 mins



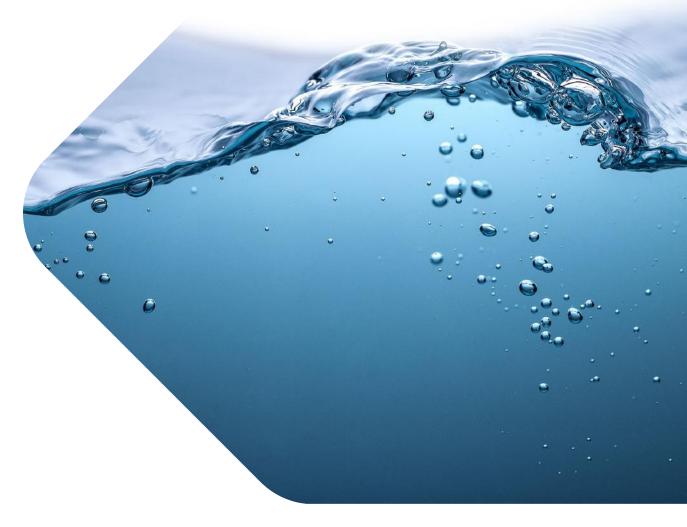








Ensuring a sustainable supply to 2041
2019 WSMP Update









Objectives

- To provide a community-endorsed framework for provision of an adequate and sustainable supply of water to meet the current and future needs of all customers; to the year 2041
- To coordinate with other City master plans in developing a sustainable water/wastewater strategy
- To develop a "strategic plan" for implementation of specific projects (future works/ developments) in a phased approach with identified triggers
- To provide the basis for individual studies under the Class EA process







Scope of Work – WSMP Update

Forecast Population and Water Demand

- Develop population projections residential and ICI (employment)
- Develop water demand projections

Assess Existing Water Supply Capacity

- Update the assessment of existing well performance, maximum capacity and potential constraints for each supply source
- Comparison of existing capacity with demand forecast

Develop and Evaluate Water Supply
Alternatives

- Demand management & efficiency programs
- Groundwater sources inside city
- Groundwater sources outside city
- Local surface water supply & ASR
- Do nothing

Update the Water Supply Master Plan

- Evaluation of alternatives
- Risk assessment
- Develop WSMP Update Report







Community Engagement Goals

- Engage the Guelph community to develop a shared vision for managing the City's water supply
- Generate a broad awareness of the Water Supply Master Plan and the opportunities for participation
- Obtain an understanding of the community's aspirations/concerns relating to water management
- Keep key stakeholders informed of WSMP activities, and communicate in a timely and clear manner
- Affirm the City's commitment to community engagement and open planning processes, and demonstrate the impact of engagement efforts on the Master Plan Update and the Class EA process







Class EA Phase 1

Class EA Phase 2

Additional groundwater & alternative municipal supplies are identified

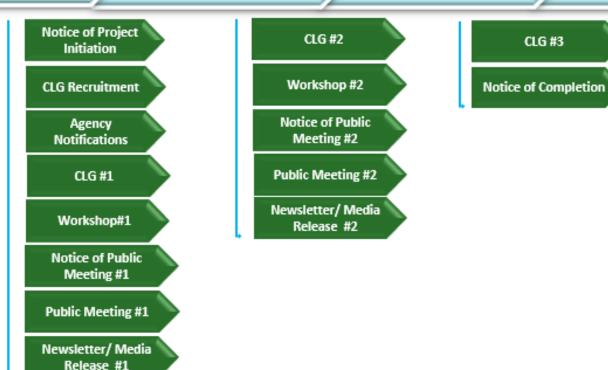
Constraints / opportunities identified, and evaluation methodology /criteria defined.

Servicing strategies identified

CLG #3

Preferred alternatives determined and Draft Plan submitted

Community Engagement



Indigenous Engagement and Stakeholder Meetings

Communications and Social Media

Issue Management, Tracking, and Reporting







We'd Like Your Input...

Group A: Are there other ways to engage community members you would like the City to consider? What types of information is needed? Who else needs to be engaged?

Group B: How can community members outside of Guelph be properly consulted to evaluate water supply sources outside of the City?

Small Group Discussions:

- Split into Group A or Group B according to your interest
- Discuss in groups



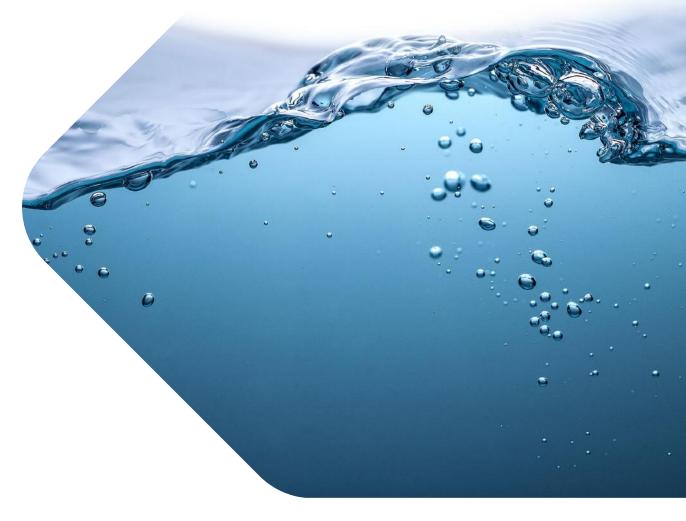








Maintaining a Safe and Sustainable Supply to 2014 Work Underway



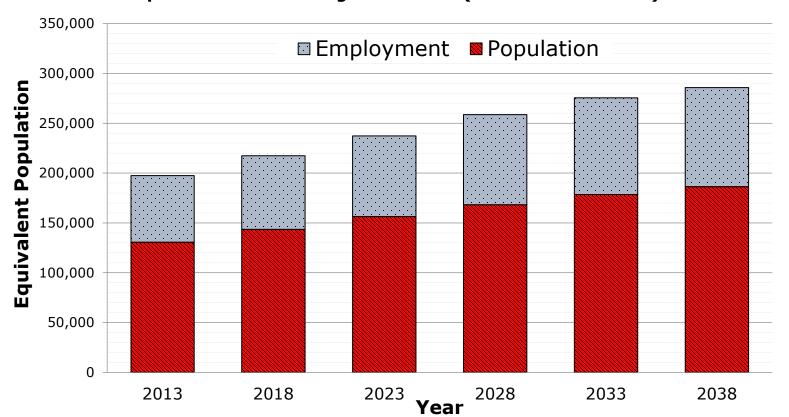






Population and Water Supply Demand Forecasts

Population Projection (2013-2038):



Develop population projections

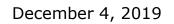
- residential and employment
- Will reflect Ontario 2019 Growth Plan (191,000 residents and 101,000 jobs by 2041)

Develop water demand projections – average daily and maximum daily

- Based on City consumption and well production data
- Quantify use reduction due to Efficiency programs
- Quantify non-revenue use

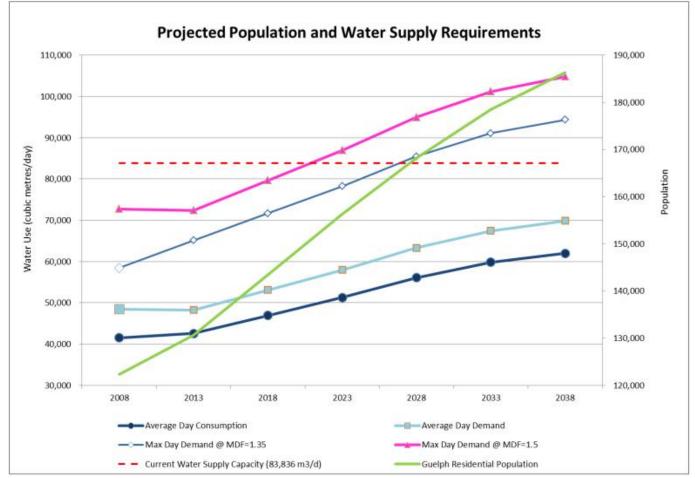








Population and Water Supply Demand Forecasts









Existing Water Supply Capacity Assessment

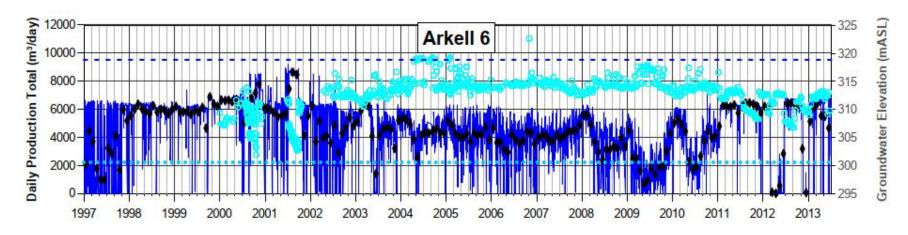
Existing Well Capacity Assessment

- Review historical performance of each well in system
- Conduct Waterworks Operations Workshop to identify constraints
- Determine maximum capacity for each supply source

Review Range of System Capacity

 Predictive / modeling assessment to review scenarios: loss of supply well, drought and short term high demand.

Comparison of Capacity Assessment with Demand Forecast









Developing Water Supply Alternatives

Scope of Work

Demand Management/ Efficiency Programs

- Maintain commitment to these initiatives and 2016 WES
- Determine range of realistic goals, and cost to implement
- Develop means of measurement to evaluate

Groundwater
Sources In &
Outside of City

- Restore lost capacity through optimization of existing well supplies (i.e. infrastructure improvements)
- Restore existing wells with treatment
- Identify new potential water supply areas
- Dolime Quarry groundwater/surface water source

Local Surface Water Sources

- Establish feasibility/ risks of surface water alternatives including ASR
- Assessment areas include: Eramosa River/ Guelph Lake

like a Great
Lakes pipeline –
will **NOT** be
considered
during this

Note: A regional

water system -

Do Nothing

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative



Update.





We'd Like Your Input...

For each alternative, what are your questions and concerns?

Should any be added or removed from consideration?

Brainwriting:

- Individual silent reflection
- Write one question/ concern per sticky note, and post on wall beside the alternative



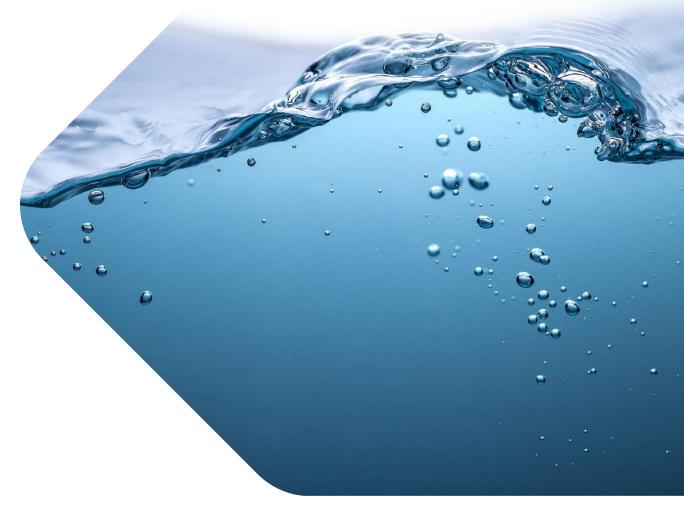








Maintaining a Safe and Sustainable Supply to 2041 Assessing Alternatives









How We Will Assess Alternatives

Scope of Work

- Each potential alternative will be assessed using a consistent approach and evaluation criteria
- A short-list of alternatives will be ranked and further evaluated. This may include screening by:
 - Primary Criteria (e.g., ability to meet regulations, costs, technical feasibility, environmental or social affects)
 - Secondary Criteria (e.g., manageable impacts like construction truck traffic)
 - The technical assessment will include use of the Tier 3 Groundwater model to assess well system optimization and potential impacts related to development of new supplies
 - Comparisons and trade-offs will be made between alternatives and will form the rationale for the identification of the preferred solution or water strategy







Evaluation Criteria

Public Health and Safety	Ability to meet provincial requirements	
Natural Environment	 Potential effects to natural environment Potential impacts to water resources Potential impacts to natural heritage features Environmental management planning considerations 	
Social and Cultural Resources	 Land use impacts Short-term construction impacts Potential impacts from operations Potential impacts to Indigenous Peoples and values 	
Economic and Financial Considerations	 Estimated capital costs Estimated operations and maintenance costs, including energy consumption 	
Legal / Jurisdictional Considerations	 Location of facility relative to city boundaries Land requirements Ability to address outside control 	
Technological Considerations	 Ability to implement and meet peak demand Constructability, schedule and timing, and maintaining operations during construction Water quality Allowance for future treatment needs Expandability Ability to respond to changes in regulations Ability to utilize existing infrastructure 	







We'd Like Your Input...

Are the evaluation criteria suitable for this study? Is there anything you would add or change?

Large Group Discussion:

- Individual silent reflection.
- Share your thoughts!



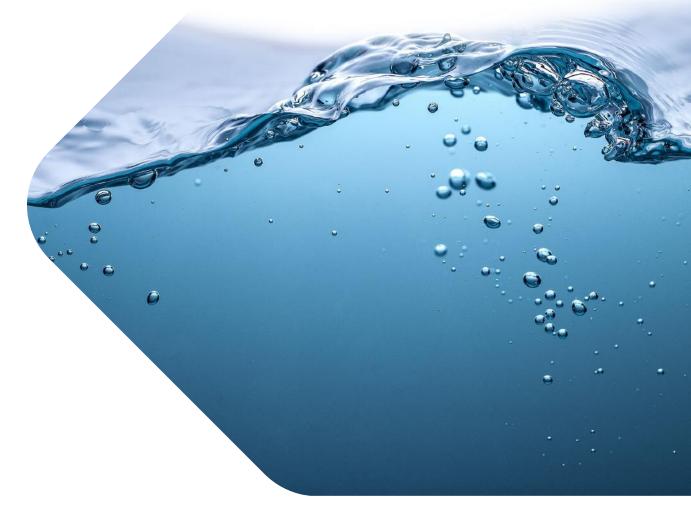








Next Steps









Next Steps

- Incorporate/ consider feedback from this workshop
- Prepare meeting summary and circulate to CLG members
- Complete current work and develop water supply alternatives
- Conduct preliminary evaluation of alternatives
- On-going Community Engagement
 - Community Liaison Group Meeting #1 Wednesday Dec. 4
 - Community Open House #1 late January 2020 (tentative)
 - CLG # 2 Summer 2020 (tentative)
 - Workshop #2 Summer 2020 (tentative)
 - Community Open House #2 Late Summer 2020 (tentative)





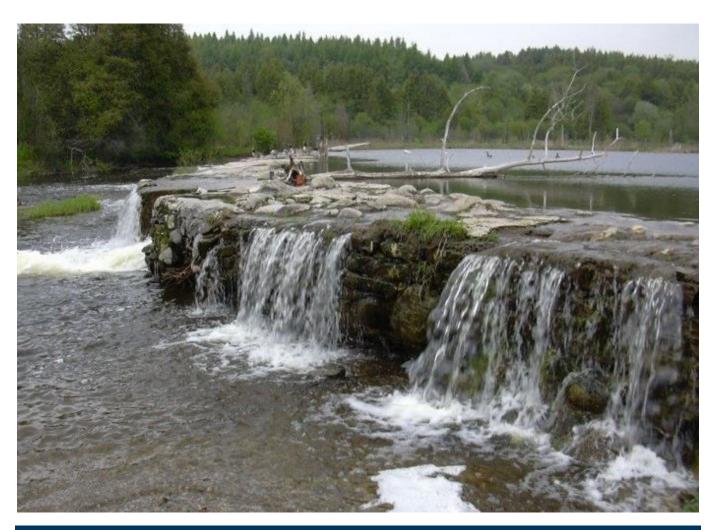












Guelph's Water Supply Master Plan Update Discussion Guide – Fall 2019

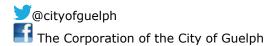


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Matt Alexander

Project Manager, Senior Hydrogeologist AECOM Canada Ltd. 519-840-2223 / matthew.alexander@aecom.com



Why Update the Water Supply Master Plan?

The City of Guelph is updating its council-approved Water Supply Master Plan, from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2041. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Today, our existing water supply fulfills the City's commitment to provide a safe and reliable supply of water. Our updated Master Plan will provide short-term, midterm and long-term water supply options to meet Guelph's predicted demand for water in the future. Guelph is a growing community, and new water supply will be required to support the City's continued growth. In keeping with the 2014 Water Supply Master Plan, any development of water supply options outside of the City will only be considered with the co-operation and participation of the County and the relevant Township/Town.

When investigating existing and new water supply options—like new groundwater sources in and outside of the City, and local surface water sources—we'll consider things like water quality and quantity, economic factors, environmental and social/cultural concerns and any relevant regulations. Regardless of source, our water supply will continue to meet the service requirements of the Guelph community and the high regulatory standards of the Ontario Ministry of the Environment, Conservation and Parks (MECP).

What's Included in this Discussion Guide?

	Page
Why Update the Water Supply Master Plan?	1
Getting the Conversation Started	2
Everything you wanted to know about Master Planning	3
Water Efficiency and Demand Management	11
Updating our Water Supply Master Plan	12
Proposed Alternatives (Preliminary)	13
Evaluating our Options – Evaluation Criteria	14
Agenda	17
Discussion Topics and Questions – Community Liaison Group	
Discussion Topics and Questions – Community Liaison Group Meeting #1	17



Getting the Conversation Started

Community input is an essential part of our Water Supply Master Plan update process. We know that people care about where our water comes from, and that they want to maintain a safe and sustainable supply for present and future generations.

That's why we're making it easy for people to get involved. We'll be gathering input and suggestions from people and organizations in a number of ways to help update the Water Supply Master Plan:

- A **Community Liaison Group** (CLG) is in place to provide feedback to the project team throughout the process. The CLG has members from a wide cross-section of the community including residents, community groups, local government and business leaders. They will meet on at least three occasions to share ideas and perspectives on ways to improve the Water Supply Master Plan update.
- Two **Workshops** are planned to gather crucial input from the perspective of **Indigenous Communities**, **Municipalities and Agencies** to help ensure that concerns and interests are considered and addressed, and that the Water Supply Master Plan process meets all local and provincial By-laws and Acts, as well as environmental assessment and approval requirements.
- Two **Community Open Houses** are planned for the wider community to participate. These events will give interested individuals and groups an opportunity to review plans, ask questions directly to the project team members, and provide feedback.

In addition, we will be offering various online feedback opportunities at https://www.haveyoursay.quelph.ca/ throughout the process.

The Water Supply Master Plan update process is designed with you in mind. If you have any questions, comments, or concerns, please contact either Dave Belanger or Matt Alexander by telephone or email. We can also add you to the project email list if you would like to receive project notifications.



Everything you wanted to know about Master Planning

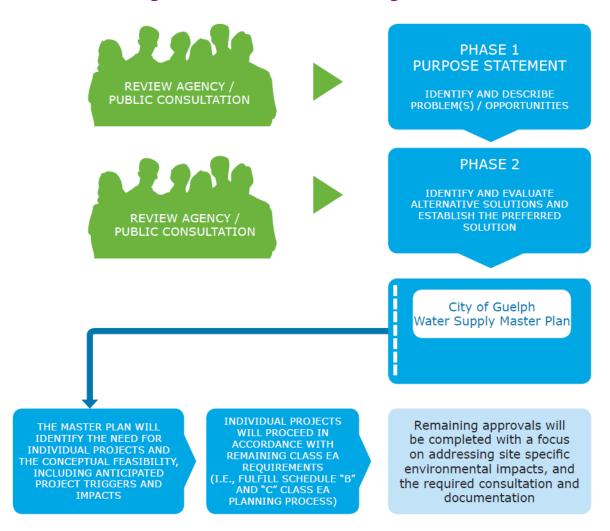
Our update follows the requirements of a Municipal Class Environmental Assessment (Class EA). When we are finished — after our Water Supply Master Plan Update is reviewed by the Guelph community and approved by Council — we will have identified constraints and opportunities related to our existing water supply system. We'll also have evaluated and prioritized a number of individual projects to increase the capacity of our existing system.

Master Plans differ from project specific studies. They:

- **Are broad in scope.** They analyze a system in order to develop a framework for the provision of future works and development.
- Recommend Individual Projects. Specific projects recommended in a Master Plan are part of the larger management system and may be distributed geographically throughout the study area. The implementation of specific projects may occur over an extended time frame. These individual projects will also follow the Municipal Class EA process.
- Must Satisfy Requirements of the Class EA. According to the Class EA document, a Master Plan must at least satisfy the requirements of Phases 1 and 2 of the Class EA process. Figure 1 illustrates the Class EA Master Planning Process.



Figure 1: The Master Planning Process



The Master Plan will include an Implementation Plan that will recommend a series of Class EA water supply projects required to achieve the preferred solution. The Municipal Engineers Association (MEA) Class EA document classifies projects as either Schedule "A", "B" or "C" according to the type of environmental effect(s) anticipated. Each of these classifications requires a different level of review to complete the requirements of the Class EA, and comply with the Environmental Assessment Act:

■ **Schedule 'A' Projects** are limited in scale, have minimal adverse effects and include the majority of municipal sewage, stormwater management and water operations and maintenance activities. These projects are approved and may be implemented without following the Class EA planning process.



Schedule 'A' projects typically include normal or emergency operational maintenance activities. Examples of Schedule "A" projects include facilities that are located within a municipal road allowance or an existing utility corridor.

The sub-classification, Schedule 'A+', ensures that people are notified of certain projects that are pre-approved under the Municipal Class EA. For example, it would be appropriate to notify the public of planned construction in their area. This allows people the opportunity to direct questions or concerns to their municipal council.

Schedule 'B' Projects have the potential for some adverse environmental effects. The proponent is required to conduct a screening process that involves contact with directly affected public and relevant review agencies to ensure that they are aware of the project and that their concerns are addressed.

Schedule 'B' projects require that Phases 1 and 2 of the Class EA planning process be followed and an Environmental Screening Document be prepared and submitted for review by the public and relevant agencies. If there are no outstanding concerns raised by the public and/or review agencies, then the proponent may proceed to project implementation. If, however, the screening process raises a concern that cannot be resolved, then the Part II Order procedure (commonly referred to as a "bump-up") may be invoked.

Schedule **'B'** projects generally include improvements and expansions to existing facilities where there is the potential for some adverse environmental impacts. Examples of Schedule "B" projects include activities such as siting of water storage facilities or new municipal wells (including wellhead protection).

• **Schedule `C' Projects** have the potential for significant environmental effects and must proceed under the full planning and documentation procedures (Phases 1 to 4) specified in the MEA Class EA document.

Schedule **'C'** projects require that an Environmental Study Report (ESR) be prepared and submitted for review by the public. If concerns are raised that cannot be resolved, then the Part II Order procedure may be invoked.

Schedule **'C'** projects typically include the siting and construction of new facilities, such as water treatment plants, and major expansions to existing facilities.



Guelph's Current Water Supply System

The City of Guelph relies almost exclusively on groundwater to meet the municipality's residential and industrial, commercial and institutional (ICI) water demands. Other municipal water uses including fire fighting, street washing, and watermain flushing. The following describes the City's water supply system and its capacity.

The City has used groundwater as its primary source of water since 1879. Guelph's water supply system includes production wells installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system. The locations of the various wells and the collector are shown on **Figure 2** – Existing Water Supply System.

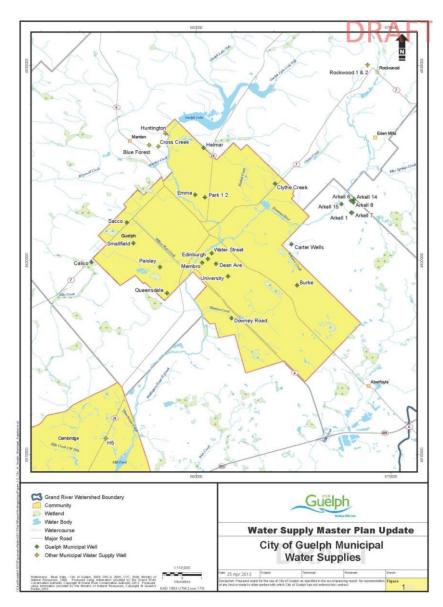


Figure 2: City of Guelph Municipal Water Supplies



There are currently 25 production wells in the municipal supply system. In 2019, 21 municipal wells were operated on a near continuous basis while the other four wells were offline, due primarily to water quality concerns. **Table 1** Municipal Production Wells – Operational Status summarizes the operational status of the individual production wells.

In addition to the municipal wells, there is a shallow groundwater system, called the Glen Collector, that collects spring water in the Arkell Spring Grounds. The City has the infrastructure to augment flow in the collector system during summer months by pumping water from the Eramosa River to a drainage area to recharge the groundwater where it is captured by the collector system. This system is occasionally shut down under low river flow conditions resulting in less water to the system at times when the water is most needed (i.e., summer demand).





Table 1: Municipal Production Wells – Operational Status

Quadrant	Pumping Well	Service Dates	Status in 2019
Northeast Quadrant	Emma Street Well PW1/31(COG)	1931 to present	continuous operation
	Park Wells PW1/37(COG) & PW1/47(COG)	1937 to present	continuous operation
	Clythe Creek Well PW2/76(COG)	1984 to present	off line for treatment upgrade (back on line 2022 est.)
	Helmar Well PW6/66(COG)	1975 to present	continuous operation
Northwest Quadrant	Sacco Well PW8/52(COG)	1953 to 1991	removed from service, low level volatile organic compound contamination
	Paisley Road Well PW4/59(COG)	1962 to present	continuous operation
	Smallfield Well PW3/66(COG)	1970 to 1993	removed from service, low level volatile organic compound contamination
	Queensdale Well PW1/70(COG)	1973 to present	continuous operation
	Calico Well PW4/76(COG)	1979 to present	continuous operation
Southwest Quadrant	Membro Well PW1/53(COG)	1997 to present	continuous operation
	Edinburgh Road Well PW2/53(COG)	1955 to 1996	removed from service, low level volatile organic compound contamination
	Dean Avenue Well PW3/58(COG)	1972 to present	continuous operation
	Water Street Well PW16/53(COG)	1956 to present	continuous operation
	Downey Road Well PW5/67(COG)	1980 to present	continuous operation
	Univ. of Guelph PW1/73(COG)	1970 to present	continuous operation



Quadrant	Pumping Well	Service Dates	Status in 2019
Southeast Quadrant	Carter Wells PW2/62(COG) & PW1/89(COG)	1963 to present	continuous operation
	Arkell 6 PW6/63(COG)	1967 to present	continuous operation
	Arkell 7 PW7/63(COG)	1964 to present	continuous operation
	Arkell 8 PW8/63(COG)	1989 to present	continuous operation
	Arkell 1 PW1/66(COG)	1967 to present	continuous operation
	Arkell 14	2012 to present	continuous operation since 2015 (end of Operational Testing Program)
	Arkell 15	2012 to present	continuous operation since 2015 (end of Operational Testing Program)
	Burkes Well PW2/66(COG)	1975 to present	continuous operation



We've made improvements since our 2014 WSMP

Since the completion of the Water Supply Master Plan in 2014, the City has initiated several projects recommended in the Master Plan.

The Arkell Spring Grounds Operational Testing Program, designed to evaluate potential impacts associated with increased groundwater pumping, was successfully completed between 2011 and 2015. The result is an increase in the City water supply capacity by about 9,000 m³/day. For more information visit http://guelph.ca/plans-and-strategies/water-supply-master-plan/arkell-spring-grounds/.

The Membro production well (PW1/53) was replaced in 2016 with a new well (Membro Replacement Well). The original Membro Well contained a liner which reduced the diameter of the well and the size of the pump that could fit into the well. The Replacement Well was constructed at a larger diameter for increased pumping up to the permitted amount of 6,050 m³/day. Long term testing of the replacement well will be conducted in 2020.

Structural improvements have been made to the Clythe Well to improve water quality. This well is expected to be online in 2022, following construction of a new water treatment facility and associated watermains. The Clythe well is currently limited to 3,396 m³/day. However, subject to a testing program assessing potential impacts to surface water and groundwater users, the permitted rate may be increased to 5,237 m³/day.

Improvements have been made to the Glen Collector at the Arkell Spring Grounds. This includes trench upgrades that have increased the capacity of the groundwater recharge system.

The City is currently undertaking a project in the Southwest Quadrant to upgrade a test well into a test production well and conduct long-term testing of the well capacity and monitoring of associated pumping effects on the aquifer/natural environment. If this becomes a production well site, it will add to the overall system capacity.

A proposal for the future use of the Dolime Quarry lands is currently under consideration by the City. The proposal includes the protection of the quality and quantity of the primary aquifer system utilized by the City for water supply. Alternatives will consider how to potentially capture and treat a portion of the $11,000 \, \text{m}^3/\text{day}$ of groundwater that is extracted during quarry operations for City supply.

In addition to these ongoing projects, the City is actively implementing source protection programs to protect its existing water supply and to prevent loss of



water supply capacity in the future. These Source Protection programs included the Tier Three Water Budget Assessment, conducted in association with the Grand River Conservation Authority (GRCA), to determine the amount of water that may be available for municipal water supply. This assessment resulted in a Significant water quantity risk rating for the City's supply. Subsequently, an assessment was completed to develop a strategy for managing the identified water quantity risk. In addition to this strategy, the City is working with MECP, GRCA and Wellington County to develop Source Protection Policies to help manage groundwater resources within the delineated vulnerable area (WHPA-Q). For more information on the City's source protection programs visit the following websites:

- http://guelph.ca/plans-and-strategies/drinking-water-source-protection/
- https://www.sourcewater.ca/en/source-protection-areas/Guelph-and-Guelph-Eramosa-Tier-3.aspx
- https://www.sourcewater.ca/en/source-protectionareas/resources/Documents/Grand/GGET-Threats-Management-Strategy-2018-06-14-final.pdf

Water Efficiency and Demand Management

In Guelph we depend mostly on groundwater for our water supply, so we know it makes sense to use our water wisely. Water efficiency and demand management will be as important during this Master Plan Update as they were during the 2014 Water Supply Master Plan. We are committed to using less water per capita than comparable Canadian cities! Since 2006, because of our many successful water conservation initiatives, we have reduced our community's average daily water production by twelve per cent, with Guelph residents using 20 per cent less water per person per day than the average person in Ontario. For more information regarding Guelph's current water efficiency opportunities and initiatives, go to http://guelph.ca/ourstoconserve.

The 2016 Guelph Water Efficiency Strategy Update identifies the preferred program, policy and resource requirements to achieve and sustain the water use reduction targets of the City's Water Supply Master Plan, Community Energy Plan and City Council's Strategic Plan. This report can be found at: http://guelph.ca/plans-and-strategies/water-efficiency-strategy/.



Updating our Water Supply Master Plan

Our updated Water Supply Master Plan will provide a community endorsed framework for ensuring an adequate and sustainable supply of water to meet current and future needs of all our customers, until the year 2041 and will identify challenges beyond this timeframe. It will be our strategic plan for implementing – in a phased manner – specific projects to increase our current water supply capacity and will provide the basis for individual studies under the Class EA process.

The Master Plan will be a key document considered during the Municipal Comprehensive Review (MCR), which will be completed by the City between 2020 and 2021. Through the MCR, the City will bring its Official Plan into conformity with the Provincial document "A Place to Grow: The Growth Plan for the Greater Golden Horseshoe" (the Growth Plan). The Master Plan update will incorporate the population targets to 2041 outlined in the Growth Plan.

Our Proposed Purpose Statement

Phase 1 of the Class EA planning process requires proponents to consider why a change is required and to document their reasons. This leads to the development of the Purpose Statement: a clear statement that identifies the problems, deficiencies and opportunities to be investigated. The Purpose Statement is the principle starting point of a Class EA study and becomes the central theme and integrating element of the project. It also assists in setting the scope of the project.

The **Purpose Statement** in the previous WSMP has been updated to provide a starting point for discussion:

The City of Guelph is committed to manage population growth as it continues to develop strategies for ensuring adequate water supply. The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers.

The 2014 Master Plan confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting future demand. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required. The proposed implementation strategy must deliver, through to 2041, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.



This 2019 update will build on the recommendations made during the 2014 Water Supply Master Plan, including water conservation/efficiency measures and additional sources of water supply.

Proposed Alternatives (Preliminary)

To identify the optimal water supply system to go forward with, we'll start by updating the alternatives considered in the 2014 WSMP. We'll consider the following:

- 1. Water Efficiency & Demand Management: Reducing or reusing water can have the same effect as increasing water supply each litre of water saved by an existing customer can be made available for the growth needs of the community. Water conservation and demand management will be as important during this Master Plan update as it was during the 2014 Water Supply Master Plan.
- 2. Groundwater Sources In & Outside of the City: We'll update information related to existing supplies and new supply sources recommended in the 2014 study, as well as investigate new water supply areas, including:
 - a. Increasing water takings from established sources
 - b. Re-establishing sources (includes treatment) that are currently not used because of poorer water quality
 - c. Water takings from new sources
- **3. Local Surface Water Sources:** New local surface water sources with or without Aquifer Storage & Recovery (ASR) will be considered, including possibly the Speed River, Eramosa River and Guelph Lake.
- **4. Do Nothing:** Assumes no improvements to the current water supply system. It is expected that this alternative would have significant impact on the City's growth potential and would be contrary to the City's Official Plan.



Evaluating our Options – Evaluation Criteria

The Water Supply Master Plan (2014) provided a process to evaluate the proposed water supply options. This same process is intended to be used again during this update.

A detailed evaluation of each water supply alternative will be completed to assess the impact, if any, to each of the following environmental components¹:

- **Public Health & Safety.** Addresses public's health and safety.
- **Natural Environment.** Addresses the protection of significant natural and physical elements of the environment (i.e., air, land, water, plants and animal life) including natural heritage environmentally-sensitive policy areas.
- Social / Cultural. Evaluates potential effects on residents, neighbourhoods, businesses, Indigenous Peoples and values, community character, social cohesion, community features and historical/archaeological and heritage components, in addition to municipal development objectives.
- **Economic / Financial.** Addresses the potential effect on water supply system capital costs and operating and maintenance costs.
- **Legal / Jurisdictional.** Considers regulatory and land requirements for each water supply alternative (and has regard to political boundaries).
- **Technical.** Considers technical suitability and other engineering aspects of the water supply system.

^{1.} The Environmental Assessment Act (Section 1. (c) (i) to (vi)) defines the "environment" as: "air, land, water, plant and animal life including humans; the social and cultural conditions that influence the life of humans or a community; any building, structure, machine or other device or thing made by humans; any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or; any part of combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario." This definition of the environment is used and is reflected in the environmental components used in the Phase 2 evaluation.



In keeping with our 2014 Water Supply Master Plan, we are proposing to use the following evaluation criteria to assess the feasibility of the identified water supply alternatives.

Evaluation Category	Evaluation Criteria
Public Health & Safety Considerations	Ability of Alternative to meet provincial water quality and security requirements
Natural Environmental Considerations	 Potential effects to natural environment including siting/routing considerations and/or constraints. Potential impacts to water resources (e.g., stream
	crossings, stream base flow, aquifer groundwater levels).
	 Potential impacts to natural heritage features, including provincially significant wetlands (PSWs), environmentally significant areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), and sensitive species habitat.
	• Environmental management planning considerations.
Social / Cultural Considerations	Short-term construction related impacts including dust, traffic, access, and noise.
	 Potential siting/routing considerations including cultural/heritage (e.g., archaeological) and/or tourist recreational resources.
	Potential impacts to Indigenous Peoples and values.
	 Potential impacts from operations including impacts to groundwater and surface water users.
Economic / Financial	Estimated capital costs.
Considerations	 Estimated operations and maintenance costs, including energy consumption.
Legal / Jurisdictional Considerations	 Location inside vs. outside City boundaries and associated jurisdictional issues.
	Land requirements
	 Ability to address outside control (independence and reliability) of City with respect to participation in decision making, rate structures and risk related to location/position on proposed water supply scheme (e.g., end of pipe). Consideration towards Political Boundaries.
	Dominion Committee Committ



Evaluation Category	Evaluation Criteria
Technical	Ability to implement alternative
Considerations	Maintaining operation during construction
	Minimizing disruptions/ downtime
	Constructability
	Schedule and Timing
	Water quality – requirement for treatment
	Allowance for future treatment needs
	Expandability
	Ability to respond to change in regulatory treatment requirements/standards
	Ability of alternative to use existing infrastructure



City of Guelph - Water Supply Master Plan Update

Agenda

Community Liaison Group Meeting #1

December 4, 2019 from 6:30 to 9:00 pm Guelph City Hall, 1 Carden Street, Marg MacKinnon Community Room

Time	Agenda Item
6:15 pm	Registration and Welcome • Participants will be welcomed at the door and asked to sign-in
6:30 pm to 9:00 pm	 Meeting Opening Remarks WSMP - Overview Guelph's Current Water Supply System City Updates - Since 2014 WSMP WSMP Update - Objectives / Scope of Work Next Steps Discussion Ample opportunity for discussion will be provided - and encouraged - throughout the meeting.
8:50 pm	Next Steps & Adjournment

Discussion Topics and Questions – Community Liaison Group Meeting #1

Guelph primarily depends on groundwater for its water supply, so we know it makes sense to use this finite but renewable resource wisely. Keeping our Water Supply Master Plan up to date gives Guelph short-term, mid-term and long-term water supply options to meet predicted demand.

We want people to join the conversation! We understand that good planning involves the community so we're making it easy for people from Guelph, the



County, Townships and Town of Milton to be involved and kept up-to-date on our progress. Today, we want to gather your perspectives on many topics. Today's meeting will focus primarily on planning aspects of the Water Supply Master Plan update, such as the:

- Current level of water supply service provided, and any overall concerns or issues
- Proposed Purpose Statement for the WSMP
- Preliminary water supply alternatives we are considering
- Evaluation Criteria we will use

Providing your Feedback

General Questions

The following sheets include many of the questions we will be discussing today. Although we will be documenting much of the meeting conversation, it would valuable to also receive your individual feedback, including for those questions we do not discuss. Feel free to make note of your thoughts. A team member will gather your feedback at the end of the meeting. All feedback will be used to prepare recommendations to improve the Water Supply Master Plan update project and will be included in the Consultation Summary Report for the project.

1.	What do you think of the City's current water conservation goals and
	strategies? Are there other goals or strategies that should be considered?

2.	Would you support a bylaw that regulates new high water demand land uses in the City? Why or why not?



		sidered while updating the Water Supply Master Plan?
Vat	er S	Supply Master Plan Update
-	Is t	he Purpose Statement adequate for the WSMP Update?
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L		
	Wha	at do you think of our proposed community engagement plans:
	a)	Are there other ways to engage community members you would like to see the City consider?
	b)	What types of information do community members need to be engaged?



	c)	Who else needs to be engaged?
6.	How	v can community members outside of Guelph be properly consulted
		evaluate water supply sources outside of the City?
Pro	elimi	nary Water Supply Alternatives
7.		you have concerns regarding any of the alternatives presented? ould any be added or removed from consideration?
8.	exa sur	w water supply sources may have some environmental impact. For mple, long-term groundwater pumping from wells may affect face water features. In your opinion, is it reasonable to take water
		support population growth even if there are environmental eacts? What level of impact is acceptable?



9.	Should water supply sources inside the City be prioritized over those outside City boundaries? Why or why not?
10.	Is it appropriate to consider obtaining water from sources that require treatment to remove contaminants (i.e., natural or industrial), assuming all regulatory standards are met after treatment?



Evaluation Criteria

11.	Are the evaluation criteria suitable for this study? Is there anything you would add or change?
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Water Supply Master Plan Update Community Liaison Group #1 - Summary

Date and Time of Meeting: December 4, 2019 from 6:30 to 9:00pm

Location: Guelph City Hall, 1 Carden Street, Marg MacKinnon Community Room

Overview

The City of Guelph is updating its Council-approved Water Supply Master Plan (WSMP), from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2041. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Part of our WSMP update includes a Community Liaison Group (CLG). The CLG includes members from a wide cross-section of the community including community and environmental groups, agricultural organizations, business leaders, and residents from in and outside the City. This was the first of three (3) meetings to share ideas and perspectives on ways to improve the WSMP update. The purpose of the first CLG meeting was to review and provide input on key aspects of the Master Plan and the Class Environmental Assessment, including:

- Objectives and scope of the Master Plan Update
- Issues and opportunities to be addressed
- Alternative solutions to be assessed
- Draft evaluation criteria to be applied

There were 13 participants, along with four (4) City staff and three (3) AECOM consultants.

The format of the workshop included a presentation and opportunities for discussion and reflection.

Attendance

The following CLG members were present:

Andrea Williams, Guelph resident



- Angela Kroetsch, Guelph Wellington Development Association
- Beth Parker, University of Guelph
- Brady Deaton, University of Guelph
- Brendan Bumbaco, Sleeman Breweries
- Carol Tyler, Guelph resident
- Corey Woods, Guelph Eramosa Township
- Grant Parkinson, Guelph Water Conservation and Efficiency Public Advisory Committee
- Janet Harrop, Wellington Federation of Agriculture
- Maya Wariyar, Guelph resident
- Sheri Longboat, Guelph resident
- Susan McSherry, Wellington Water Watchers
- Steve Nyman, University of Guelph
- William Castledine, Cargill Meat Solution

Dave Belanger, Scott Cousins, Peter Rider and Emily Stahl from the City of Guelph were present. Matthew Alexander, Alicia Evans and Kathryn Ross from AECOM were also present.

The following members were unable to attend:

- Matthew Bulmer, Puslinch Township
- Ron East, Council of Canadians
- Steve Chomyc, Resident

Meeting Format

Dave Belanger (City of Guelph) opened with a Statement of Territorial Acknowledgement and highlighted the project's focus on sustainability. Alicia Evans (AECOM) provided an overview of the meeting and asked attendees to introduce themselves. Attendees were provided with copies of the Terms of Reference (Draft), PowerPoint presentation, Discussion Guide, a Municipal Production Wells and Test Well Locations map and an Aquifer Storage and Recovery graphic. The presentation



was delivered by Dave Belanger (City of Guelph) and Matthew Alexander (AECOM). Alicia Evans (AECOM) facilitated the discussions.

The main sections of the presentation included:

- Overview of the WSMP Update and CLG Terms of Reference (Draft)
- Guelph's Current Water Supply
- Progress Since the 2014 WSMP
- Details About the 2019 WSMP Update and Special Issues
- Work Underway
- Assessing Alternatives
- Next Steps

Discussion questions related to the content provided in the presentation were asked at various points during the workshop. Attendees shared their comments with the group and had the opportunity to ask additional questions related to the specific presentation topic.

The discussion captured throughout the workshop is summarized in the sections that follow. Questions are noted with a "Q", answers with "A", comments with a "C" and responses with an "R". Answers were primarily provided by Dave Belanger (City of Guelph).

System Overview and Current Water Supply

Discussion Question: What other questions, issues or concerns related to water supply should we consider while updating the WSMP?

- Water supply and sustainability is a major concern
- Consider large water users. Companies like Lafarge are extending their permit-to-take-water and wanting to increase to half of what the City uses daily
- Concern about the impacts of water-taking from new wells and surface water recharge areas on private agricultural water levels
- Concern about using drinking water for carrying fecal waste out of our homes and public places



- Concern about impacts of personal care products and contaminants entering drinking water system
- Focus on healthy water when we are making water supply decisions
 - Response: Focusing on healthy water is the basis of the City's source water protection program. We want to see that the water quality we have today is the same water quality we have in the future. Protecting water quality and quantity is a high priority.
- Consider impacts of road salt and water softeners
- Consider ways to store water and save it for using at peak times
 - Response: This project is focused on water supply. A separate Master Plan is being done for water and wastewater servicing, which includes water storage.
- Better describe how the whole system works together: how is the need to increase water supply determined; how is population used as an empirical measure to drive our expectation of the water supply we need; and how does that reconcile with what the City's done in the past?
 - Response: The City recently assessed how per capita water demand is trending. The current water demand is at approximately 156 litres per capita. The challenge moving forward is maintaining such low water demand. Population growth will lead to increasing water demand even with the per capita consumption at the same or similar level.

Q1: Is there a contract between the City and Puslinch for the Arkell Springs? **A1:** There is no contract. Arkell Springs is on City-owned property. The City has a permit-to-take-water and water distributed from site through a City easement.

Q2: What is Guelph's peak day water use?

A2: Peak day demand is the maximum amount of water taken in any single day in a one-year period. In 2018, peak day demand was 57,000 m³/day on July 11 which is only a 20 percent increase above the average day demand of 47,500 m³/day. Generally, the peak day occurs on a hot day in the summer but there can be anomalies. We have experienced peak water day demand in February because of extreme cold when we actively tell people to run water to reduce freezing pipes.

Q3: Did you run the model for the Tier 3 Water Budget Study? Where and when did it fall below 'significant risk'?

A3: The Tier 3 Model was used according to the Technical Rules under the Clean Water Act to characterize the water quantity risk for the City's water supply system. We've completed a threats management strategy to understand our options for



addressing the 'significant water quantity risk'. One potential solution is to add more wells. The issue is taking a large amount of water out of a small area and creating impacts. If we spread our water taking over a larger footprint, we could reduce that risk.

Q4: Are we at a significant risk now?

Q4: No. In a drought scenario we are classified at a significant water quantity risk under projected 2031 water demand.

Q5: Where is the threshold for significant risk? Can we appeal to the province if their growth targets are pushing us into a significant risk?

A5: We need to have this discussion as part of this Master Plan process: how much growth can be supported in the City while maintaining a sustainable water supply system. The significant risk is a future projection and we will manage the risk through our Source Protection Program (i.e., water quantity policies in our Source Protection Plan) and the WSMP. If we spread our wells over a larger area, we might need to be able to capture more water and reduce the risk. However, increasing the area of our water taking introduces other factors such as jurisdiction issues, new impacts, and potential land use constraints.

Q6: What strategy is there to reduce the current losses in the system?

A6: We're currently at a 10-12% system loss. We are at, or likely below, industry standards for system losses. Some communities are at 20% or 30% system losses. These losses depend on things like the age of the system and soil conditions. The City is focused on continuing to reduce system losses.

Q7: Do you keep statistics on residential versus industrial water use?

A7: We do. The City has a dedicated water conservation coordinator that works with businesses. The City also has a water efficiency strategy and a Water Smart Business Program. We've found that multi-residential buildings are higher water users compared to businesses, municipal buildings and single detached homes.

C1: Recent residential development has been multi-unit townhouses and condominiums. These developments might lower per person water use because they don't have lawns, have less linear infrastructure to service and more intensive development.

Q8: Is there a model for tracking the growth of large water users in the area due to the *Places to Grow Act?* For example, Guelph was once attracting the food processing industry. How do we track large water users' growth in this Master Plan process?

A8: The City attempted to address this in the 2014 WSMP update by setting standards for types of industry. When a large water user is interested in the City, the proportion of water-taking versus the number of jobs is considered. If it's a reasonable number of jobs with a reasonable water-taking, the company may be



considered (compared to a high amount of water-taking and low number of jobs). This is all taken into consideration before an approval or denial. If a company requires 5 to 10 million litres of water a day, we immediately say no – we do not have the capacity to support this.

Follow-up question: Do businesses see that as a policy?
Answer: Since 2016, the City's source protection program includes asking questions in terms of how much anticipated water will be used for a proposed development. These questions are asked early on at a conceptual level.

Q9: What is the relationship between capacity, availability and use? How do we define capacity?

A9: Parts of the Tier 3 Water Budget Study work tries to define water supply capacity. The challenges we are faced with is knowing how much water is out there and how much water we can sustainably use. If we take more water for supply, that means there is less water for other water uses such as wetlands, streams and rivers. Some systems respond very slowly to water taking so impacts would not be observed for years. The Tier 3 groundwater model is the best, comprehensive tool that we have available to assess potential long-term impacts associated with groundwater supply.

Details About the 2019 WSMP Update

Discussion Question: Are there other ways to engage community members you would like the City to consider? What types of information is needed? Who else needs to be engaged?

- Set up a booth where crowds are. Consider the College Royal Open House, Jazz Festival, Farmers' Market, central neighbourhood locations, Guelph Storm games
- Continue to communicate with companies like Sleeman Breweries to get the word out to other Industrial, Commercial and Institutional companies
- Engage with students and young people at schools and universities. Consider organizing an activity and a print-out for children to take home to their parents
- Organize an event like the Waterloo Wellington Children's Groundwater Festival as a public education opportunity



- Be a guest speaker at a university class or work with university students on a project related to the WSMP
- Be a guest speaker on a podcast
- Create a dedicated Twitter account to the WSMP
- Host a controversial lecture at Memorial Hall on campus (e.g., Nestle) and combine with information about the WSMP

Two CLG representatives who are members of the local Indigenous Community engaged in a discussion with the Group and provided the following in-sights into engagement with the local Indigenous Communities:

- There are 30,000 First Nations, Métis and Inuit people living in the Guelph area and they will not participate in this process for City government, however, they will participate for the water and it starts on a spiritual basis
- Create a sense of ownership in the Master Plan process
- Mobilize young people in the community, attend water walks, ceremonies, learn about plans that help the ecosystem
- The members are willing to participate in further discussion with the City to assist with this aspect of the overall engagement strategy.

Details About the 2019 WSMP Update

Discussion Question: How can community members outside of Guelph be properly consulted to evaluate water supply sources outside of the City?

- Email sign-up sheet for those interested; updates can be provided to those interested through the EA process
- Wellington Advertiser, Puslinch Pioneer and other local newspapers
- A lot of people in the townships are not "connected" through social media, internet or television; other avenues are required for certain demographics
- Engagement needs to be active as opposed to passively posting information on websites
- Access to information is at a premium. Project notices aren't communicated past political circles



- Coordination between municipalities or provincial ministries is not shared readily
- Mailouts to individual residents are effective (at least a great first communication to lead to other medias)
- Political boundaries are not prescribed by water and the City's boundaries will likely change
- Actively monitor private wells and include these residents in a broader monitoring program to help inform them as to what impacts or implications could be of the City expanding water supply
- Watershed scale information sharing should be common practice to obtain a broader perspective in a holistic way
- Being upfront with outside of the City or near boarder takings that could affect other water users; communicate early and often
- Region of Waterloo model is a great visualization tool; share the City's model via some type of visualization to help educate the broader public
- Continue to empower members of the CLG to cast a broader net and push the information outward to their respective communities that they represent.

Work Underway

Discussion Question: For each alternative, what are your questions and concerns? Should any be added or removed from consideration?

Alternative #1 Demand Management/ Efficiency Programs

- The City did a study on wastewater effluent reclamation for non-potable water. As water becomes scarce, looking at sewer flushing, and different maintenance activities are needed
- Consider stormwater as a supply source

Alternative #2 Groundwater Sources In and Outside the City

Q10: Does the City own land outside of the boundaries?

A10: The City owns some land outside of City such as the Arkell Spring Grounds (about 350 hectare), the Carter Wells property, the Calico Well



property and the Logan test well property which are already used for water supply purposes.

Alternative #3 Local Surface Water Sources

Consider adding maximization of aquifer recharge areas as an option

Other Alternatives

- Low Impact Developments to capture and store water to increase supply as another technical option to consider
 - o Response: This is considered in the stormwater master plan.

Q11: Do you know where the aquifers are that are impacted?

A11: Yes. It's the regional Gasport Formation bedrock aquifer that extends beyond Fergus, along the Niagara Escarpment to the Bruce Peninsula.

Q12: Are we confident that the price of water is an accurate reflection? **A12:** Guelph water rates are an accurate reflection of the costs to produce the water. As rates get increased, water use goes down. We need to be careful about how rates get implemented because they can grossly affect certain parts of the community, particularly people on fixed incomes. We try to keep costing fair and set it so that it pays for the water supply system that we have.

Q13: There is a goal to be zero carbon in 2030. How does this impact the WSMP?

A13: This is something we should consider.

Assessing Alternatives

Discussion Question: Are the evaluation criteria suitable for this study? Is there anything you would add or change?

Q14: What about a full ecological assessment?

A14: The Natural Environment is part of the evaluation criteria and includes potential impacts and effects to the natural environment, water resources, natural heritage features and environmental management planning considerations.

Q15: Is there any consideration to how many wetlands have been covered over by pavement?

A15: Yes, wetlands fall under the Natural Environment evaluation criteria. The Tier 3 model will look at potential effects to wetlands, rivers, lakes and more. The completed Tier 3 Water Budget Study considered future land use scenarios



based on approved City planning information to understand how land use will change and what it means to the recharge of the groundwater system.

C2: Add Indigenous communities to the Natural Environmental evaluation criteria section.

Next Steps and Adjournment

The project team reminded participants to fill out the discussion guide, sign the Terms of Reference (draft) and submit their feedback and comments.

Next steps in the project include incorporating and considering feedback from this workshop, developing water supply alternatives, conducting a preliminary evaluation of alternatives and on-going community engagement.

Upcoming engagement opportunities include:

- Community Open House #1 February 13, 2020
- Community Liaison Group Meeting #2 in Summer 2020 (tentative)
- Workshop #2 in Summer 2020 (tentative)
- Community Open House #2 in late Summer 2020 (tentative)

The meeting was adjourned at 9:00 pm.



Water Supply Master Plan 2021 Update

Community Liaison Group Meeting No. 2









City of Guelph Territorial Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.







Agenda

- Welcome & Check-In
 - a) Opening remarks
 - b) Meeting purpose and objectives
 - c) Introductions
- 2. Project Update Presentation Q&A and Discussion
 - a. Review of WSMP Objectives
 - b. Overview of Major WSMP Tasks
 - c. Major Task Progress Update
 - i. Task 1 Summary of Consultation Conducted to Date
 - ii. Task 2 Review of Population Targets and Water Supply Demand Forecasts
 - iii. Task 3 Review of Existing Water Supply Capacity Assessment
 - iv. Task 4 Review of Technical Assessment of Alternatives to Date
 - d. Environmental Assessment Evaluation Criteria
- 3. Next Steps







Housekeeping

Teams features

- Camera, microphone, raise hand, chat (speech bubble)
- If using a computer access the features by hovering the mouse over the screen
- If using a phone or tablet tap on the screen to access features (may need to click on '...')
- If using a phone or tablet you can change the orientation and zoom in as needed
- Attendees will be muted until the discussion periods
 - Press the 'raise hand' button if you wish to speak and we will prompt you when it is your turn (be sure to enable
 your device's audio function and unmute when speaking)
 - Add questions and comments in the chat box
- If you have technological issues, please type your issue into the chat box
- Meeting recorded for purpose of preparing meeting summary







Introductions

Share your name and if you are representing an organization or group.

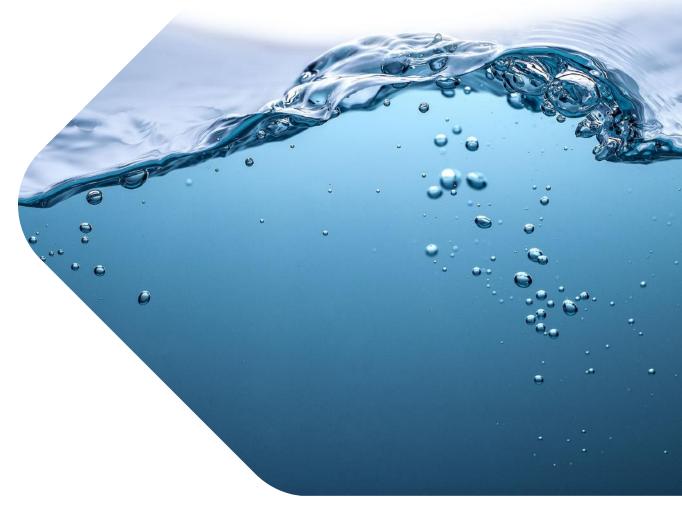








Water Supply Master Plan Update Project Objectives and Major Tasks









Water Supply Master Plan Update

- Will define where and how City gets safe and reliable water to the year 2051 and identify challenges beyond this timeframe
- Will review Guelph's water supply demand forecast and existing water supply and discuss with the community how to continue to meet the City's needs sustainably
- Additional sources to supplement our existing supply will be identified. As will alternative
 ways to conserve supply and manage demands
- When investigating existing and new water supply options we will consider things like climate change, water quality and quantity, economic factors, social/ cultural environment, and any relevant regulations
- Regardless of source, the water supply will continue to meet the service requirements of Guelph and the high standards set by the Ministry of the Environment, Conservation and Parks (MECP), including Source Water Protection requirements
- Short-term, mid-term and long-term water supply options will be recommended







Scope of Work - WSMP Update

Task 1 - Public Consultation

- Indigenous engagement
- WSMP Community Liaison Group (CLG) meetings (3)
- · Municipality / Agency workshops (2)
- · Community Open Houses (2)
- Water Conservation and Efficiency Public Advisory Committee

Task 2 – Population and Water Demand Forecasts

- Develop population projections residential and ICI (employment)
- · Develop water supply demand projections

Task 3 – Existing Water Supply Capacity
Assessment

- Update the assessment of existing well performance, maximum capacity and potential constraints for each supply source
- Comparison of existing water supply capacity with demand forecast

Task 4 – Water Supply Alternatives

- Demand management & efficiency programs
- · Groundwater sources inside city
- Groundwater sources outside city
- Local surface water supply & Aquifer Storage and Recovery
- Do nothing

Task 5 – Water Supply Master Plan Update

- · Evaluation of alternatives
- Risk Assessment
- Develop WSMP Update Report









Water Supply Master
Plan Update
Task 1 - Public
Consultation To Date









What We Heard: Public Consultation Round #1

- Guelph Wellington Development Association and Guelph and District Home Builders' Association – Nov 7, 2019
 - the City Staff Technical Liaison Committee met with the Guelph Wellington Development Association and Guelph and District Home Builders' Association
- Our community, our water open house Nov 26, 2019
 - Regarding a proposed solution between the City and the owners of the Dolime Quarry
- Agency & Municipality Workshop #1 Nov 28, 2019
 - 10 participants from 6 organizations, along with 4 City staff and 4 AECOM consultants
- Community Liaison Group Meeting #1 Dec 4, 2019
 - 13 of 17 members attended, along with 4 City staff and 3 AECOM consultants
- Community Open House #1 Feb 13, 2020
 - Attended by 17 members of the general public, including several students from a university class
- Water Conservation & Efficiency Public Advisory Committee Meeting Sept 16, 2020







Feedback from Consultation Round #1

- Prioritizing conservation;
- Protecting the natural environment;
- Managing growth and development;
- Controlling groundwater impacts from large water users;
- Monitoring emerging contaminants;
- · Limiting impacts to aquatic and terrestrial wildlife; and,
- Valuing the agency of water.

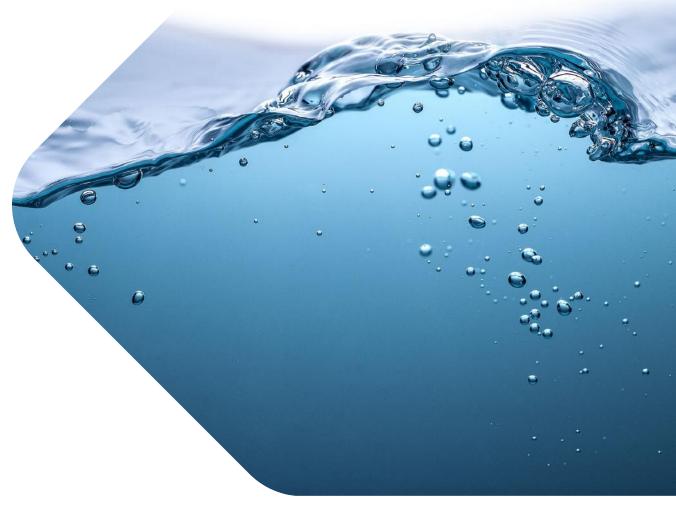








Questions or comments about the Phase 1 public consultation?



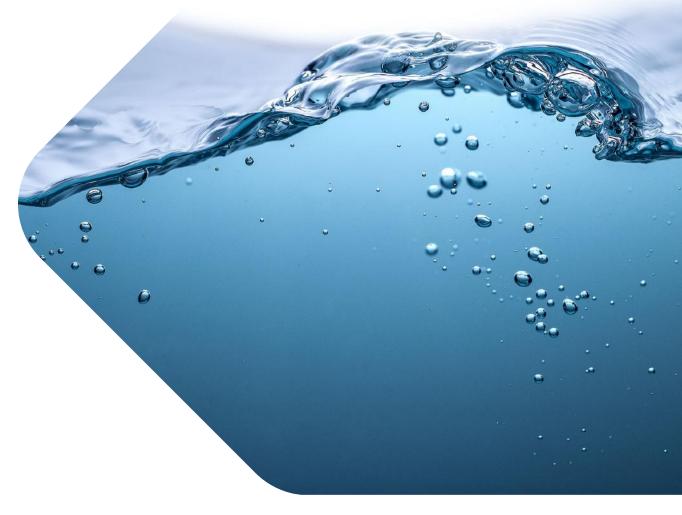








Water Supply Master
Plan Update
Task 2 - Population
and Water Supply
Demand Forecasts









Task 2 Summary

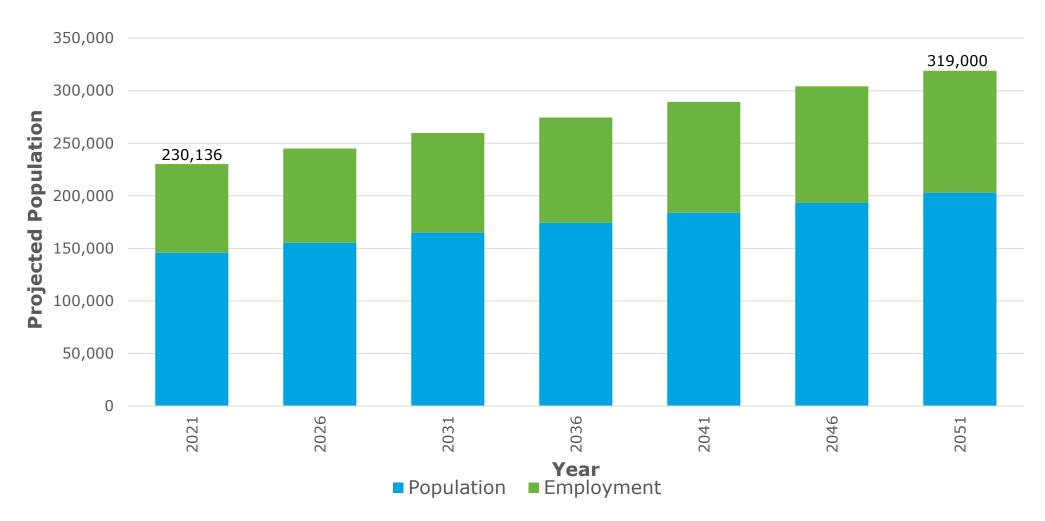
- Population projections changed in the middle of the project to 2051 (30 years)
 - In August 2020, the Province of Ontario provided updated population forecasts for the City of Guelph to 2051 (203,000 residential population, 116,000 employment population)
 - Prior to this update, the WSMP Update project planning period extended to 2041 and considered the associated growth targets
- Review of City historical water supply demand data
- Design basis for projecting future water supply demand, including:
 - Residential
 - Industrial, Commercial and Institutional (ICI)
 - Non-Revenue Water (NRW)
- Projected water supply demands to 2051







"Reference" Population Projections: 2021 - 2051

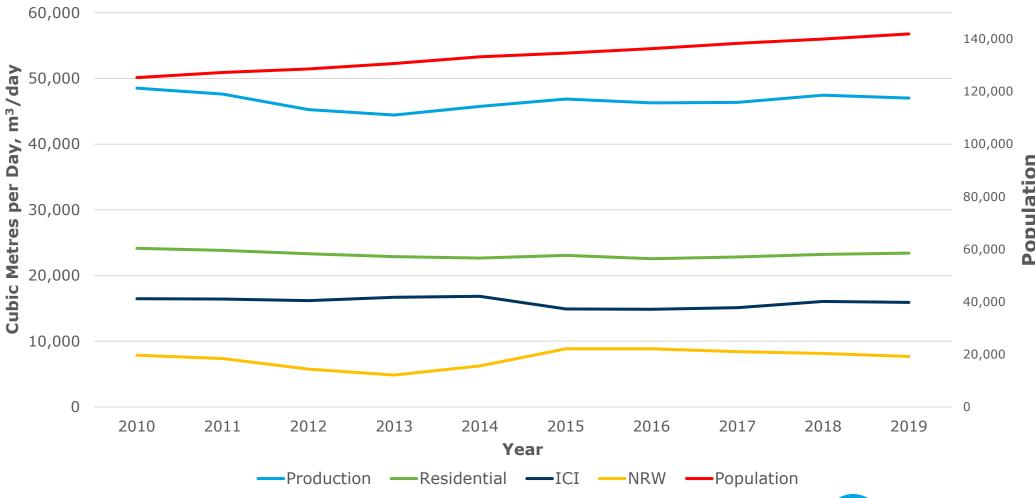








Average Annual Day Production, Demand, NRW & Population

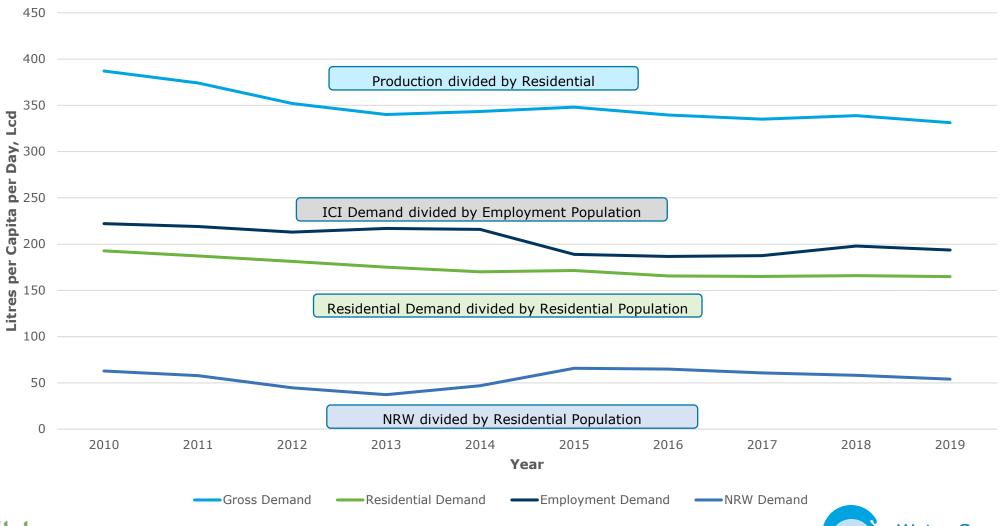








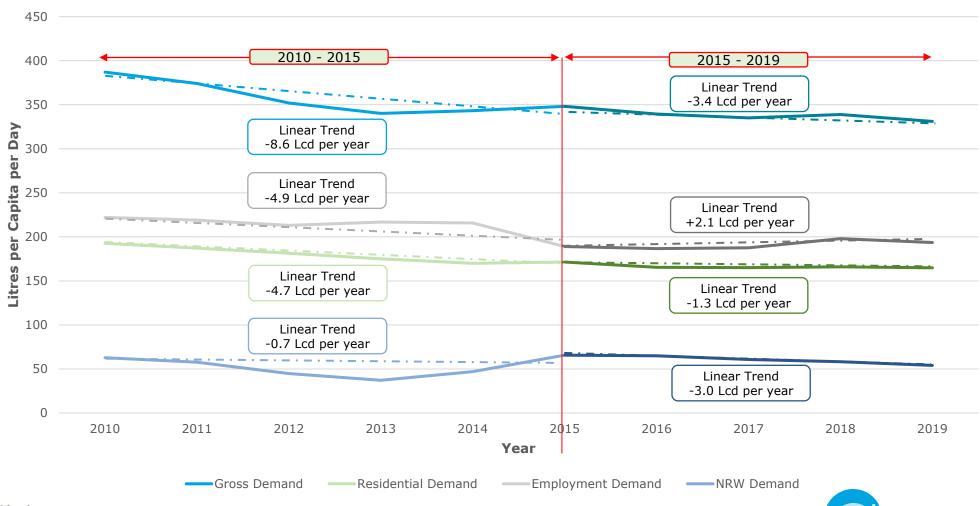
Average Annual Day Per Capita Water Production, Demand and NRW Rates







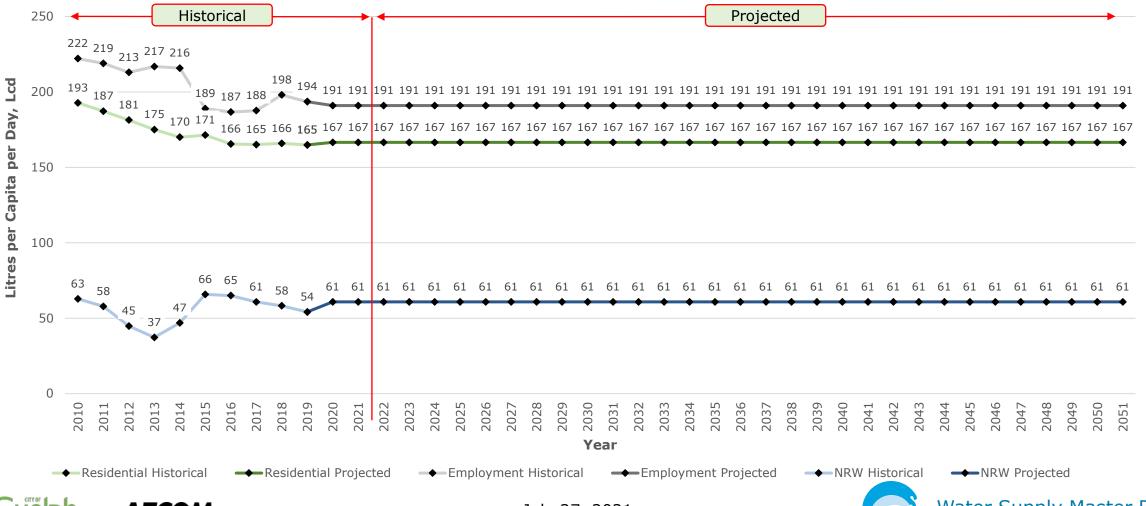
Average Annual Day Per Capita Water Production, Demand and NRW Trend Analysis







Historical and Projected Per Capita Water Demand Rates









Water Demand Projections – Design Basis

Average Per Capita Day Demand (2015-2019)

• Average per capita residential demand rate 2015-2019: **167** Litres per capita per day (Lcd)

Average per capita employment demand rate 2015-2019: 191 Lcd

• Average per capita NRW rate 2015-2019: **61** Lcd

Maximum Day Demand

Average Maximum Day Demand Factor (2010-2019): 1.24

Design Maximum Day Demand Factor: 1.34 (Highest value, 2010-2019)

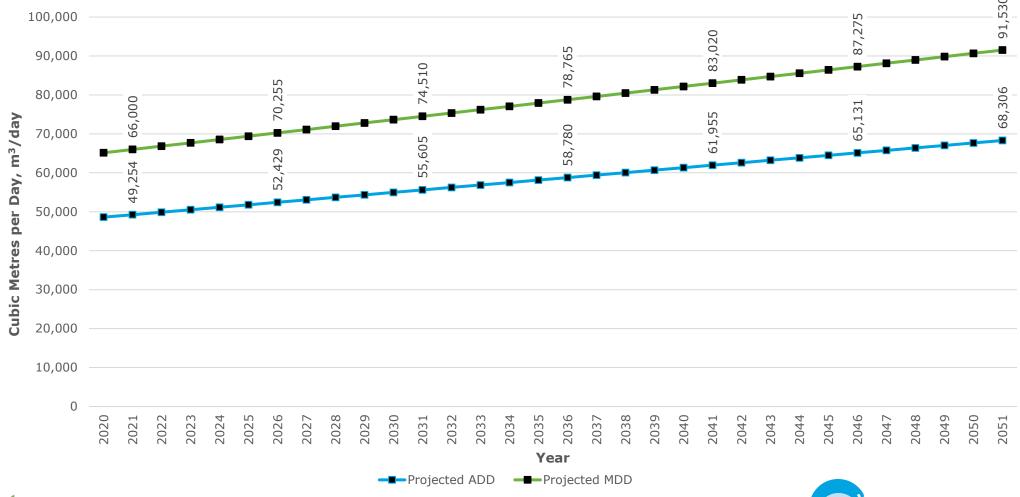
Year	Total Average Day Demand (m³/d)	Max Day Demand @ 1.34 MDF (m³/d)	
2021	49,254	66,000	
2026	52,429	70,255	
2031	55,605	74,510	
2036	58,780	78,765	
2041	61,955	83,020	
2046	65,131	87,275	
2051	68,306	91,530	







Projected "Reference" Growth Average Day and Maximum Day Demands









We'd Like Your Input...

Our analysis suggests that the decline in per capita water demand in Guelph is slowing down.

Our future water demand projections assume no further decline.

Do you agree with this approach for projecting future demands?



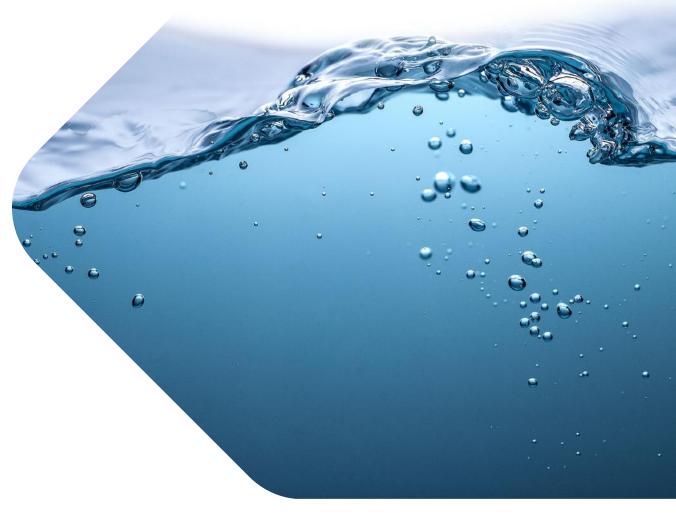








Water Supply Master Plan
Update
Task 3 – Existing Water
Supply Capacity
Assessment









Task 3 Summary

This task includes:

- Evaluation of the maximum capacity of each individual City well (how much each well can pump each day);
- The sustainable capacity of the existing total water supply system (how much can the entire system pump each day); and
- An assessment of the potential risks to the system (Security of Supply)







Overview of Guelph's Existing Water Supply System

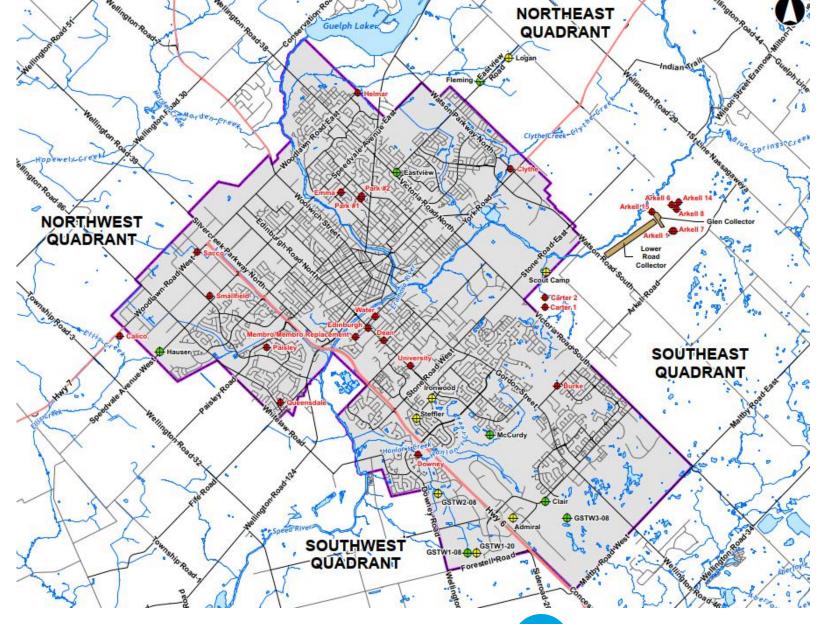
- Reliance on groundwater to meet the City's water demands since 1879
- Guelph's water supply system includes production wells primarily installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells in the municipal supply system, with 21 wells in continuous operation - 4 wells offline due primarily to water quality concerns
 - Glen Collector captures shallow spring water in the Arkell Spring Grounds
 - Artificial recharge system: water is pumped from the Eramosa River to an infiltration pond/ trench – water infiltrates into the ground and some is captured by the collector system







Locations of Existing City of Guelph Water Supply Sources









Arkell Spring Grounds









Well Capacity Assessment – Summary

City Quadrant	2014 WSMP (m³/day)	WSMP Update (m³/day)	Net Change
SE	49,700	47,584	2,116 m ³ /d reduction
SW	17,936	16,338	1,598 m ³ /d reduction
NE	12,300	11,600	700 m ³ /d reduction
NW	3,900	3,900	Unchanged
TOTAL	83,836	79,422	4,414 m ³ /d reduction

- Glen Collector (SE) capacity reduced to reflect available year-round flow
- Carter Wells (SE) capacity reduced to balance groundwater pumping with ecosystem function
- Water Street Well Field (SW) capacity reduced to reflect available flow with all wells pumping
- Other reductions reflect lower well performance (Helmar NE)







Existing System Capacity vs. 2051 Demand

Demand/Capacity	2019	2051
Average Daily Demand (m³/day)	47,015	68,306
Maximum Daily Demand (m³/day)	58,441	91,530
Total Existing System Capacity (m³/day)	79,422	79,422
Surplus/Deficit (m³/day)	20,981	-12,108

- Existing system capacity has not been field-tested
- Pumping individual wells effects other wells in system, overall system function at maximum rates is uncertain
- Security of supply assessment completed to address risks and uncertainties in evaluation







Security of Supply Assessment

- Reviewed several risks to the City water supply:
 - Prolonged drought conditions
 - Contamination event
 - Loss of supply (well failure, damage, etc.)
 - Regulatory reduction in permitted pumping rate(s)
- Estimated reduction in capacity associated with each risk
- Evaluate amount of required "reserve" supply

Scenario	Capacity (m³/day)	Capacity Reduction
Existing System Capacity	79,422	-
Prolonged Drought	71,477	10%
Contamination Event/ Loss of Well	71,422 to 78,022	2 to 10%
Reduction to Permitted Rate(s)	72,801 to 76,385	4 to 8%







Additional System Risks

- Additional potential risks to the system were reviewed:
 - Drought combined with largest supply out of service
 - Regular maintenance/ mechanical failures combined with largest supply out of service
 - Distribution disruption/ damage
 - Specific contamination events (i.e. quarry, Eramosa River, etc.)
- Most of the reviewed additional risks are currently managed by the City:
 - Demand management during drought conditions
 - Climate change models
 - Scheduling of maintenance
 - Response plan for watermain breaks
 - Source water protection
- Ultimately, 15% security of supply allowance was recommended

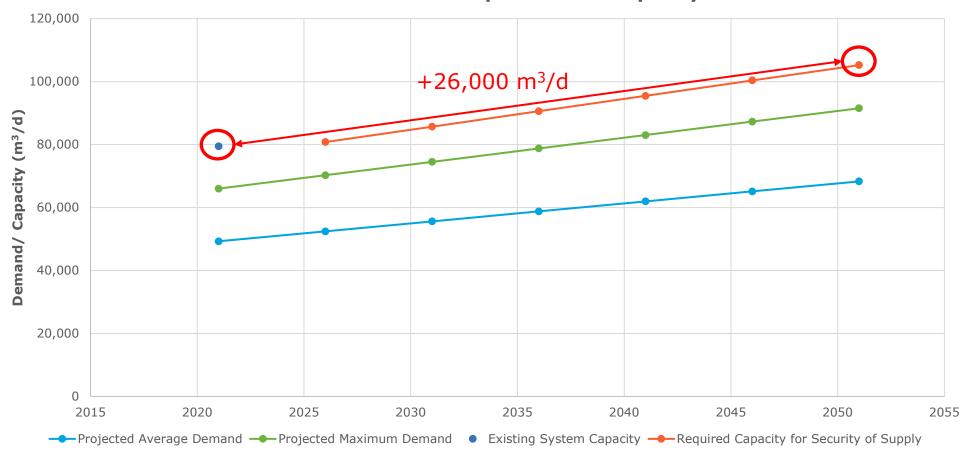






Required Capacity for Security of Supply

Water Demand & Required Total Capacity









We'd Like Your Input...

Questions to consider:

- Are there risks to the system that have not been considered?
- Do you think that 15% security of supply is sufficient?



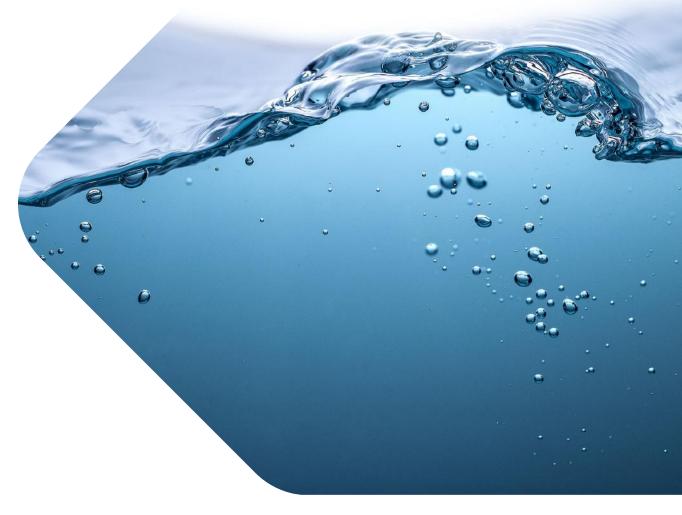








Water Supply Master Plan
Update
Task 4 - Water Supply
Alternatives
Assessment









Alternatives Assessment

Assessment of proposed water supply alternatives under consideration:

- Water conservation and demand management/ water reuse
- Optimize and expand existing groundwater system
- Establish new surface water supply
- Limit growth/ do nothing

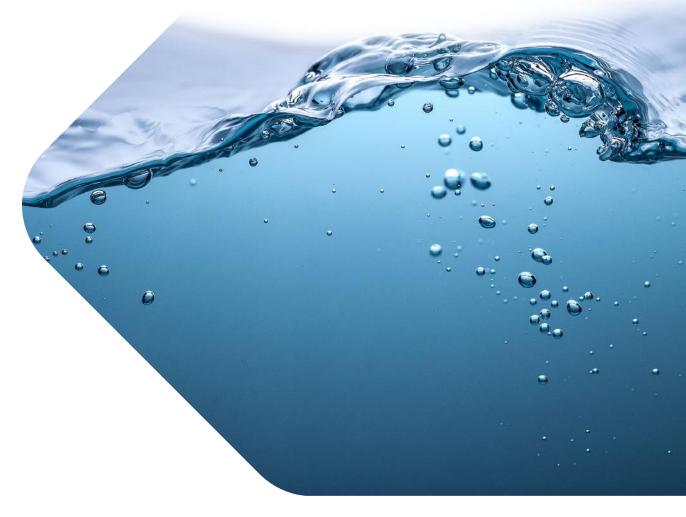








Water Supply Master Plan
Update
Water Supply
Alternatives – Water
Conservation and
Efficiency









Water Conservation and Efficiency

- Currently establishing potential demand reduction scenarios
- Focus to date on success City has had reducing nonrevenue water and potential for future reductions

Non-revenue water (NRW): water produced by the City that does not generate revenue. Sources:

- Unbilled consumption
- Unauthorized consumption
- Metering inaccuracies
- Leakage

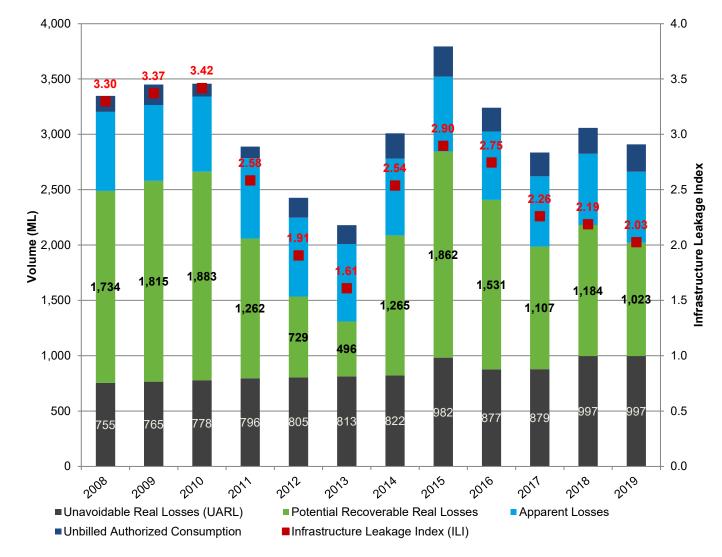






Historical NRW

Infrastructure leakage index = Real Losses / Unavoidable Real Losses



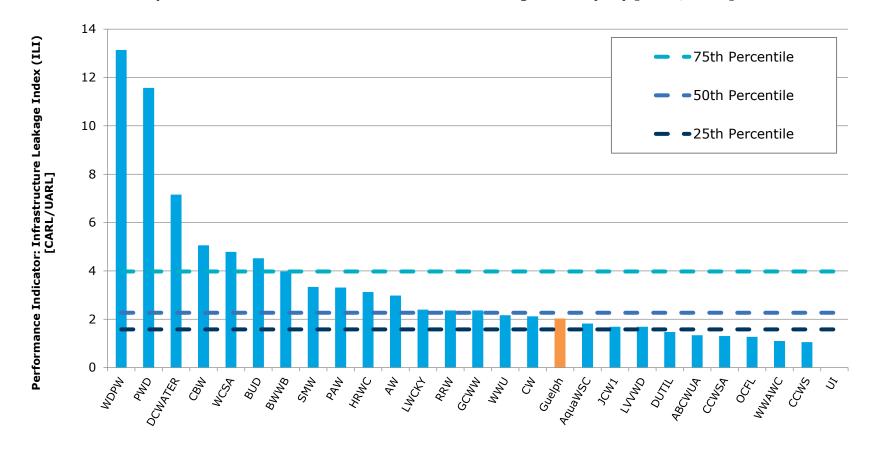






Infrastructure Leakage Index

Guelph: Performance Indicator: Infrastructure Leakage Index (ILI) [CARL/UARL]



Source: WRF 4372: Real Loss Component Analysis: A Tool for Economic Water Loss Control







Economic Level of Leakage

Economic Level of Leakage (ELL): point at which the cost of lost water (leakage) = costs of leakage prevention programs

- Other jurisdictions (UK, Australia) have reported ELL when the ILI is below 3 (ILI=2.0 for Guelph in 2019)
- Results indicate that Guelph is near or at its ELL
- Recommended focus in future is to maintain the ILI, or improve where possible







Future Conservation/ Efficiency Programming Scenarios

- Next steps are to finalize conservation and efficiency scenarios that consider:
 - "Levelling out" of per capita demands
 - Current status of ILI and ELL in City
 - Use of new technologies to maintain ILI/ decrease NRW
 - Continue to educate population as City grows
 - Opportunities for water reuse in the City, including:
 - Residential sector
 - Employment sector
 - Municipal water uses

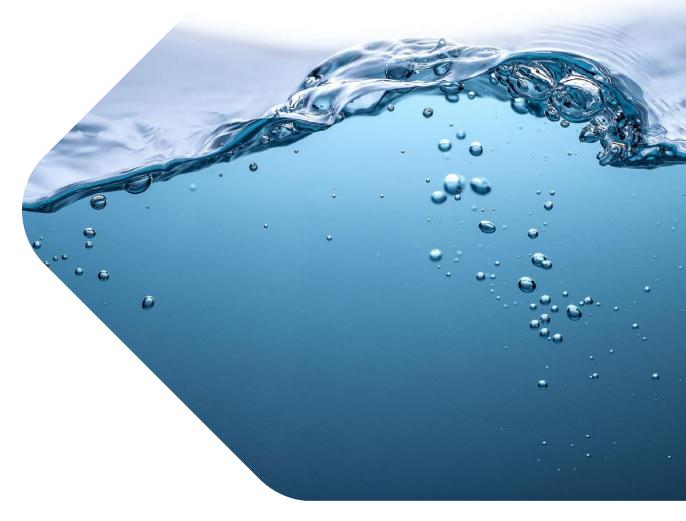








Water Supply Master Plan
Update
Water Supply
Alternatives –
Groundwater Sources









Evaluation Approach – Groundwater Flow Model

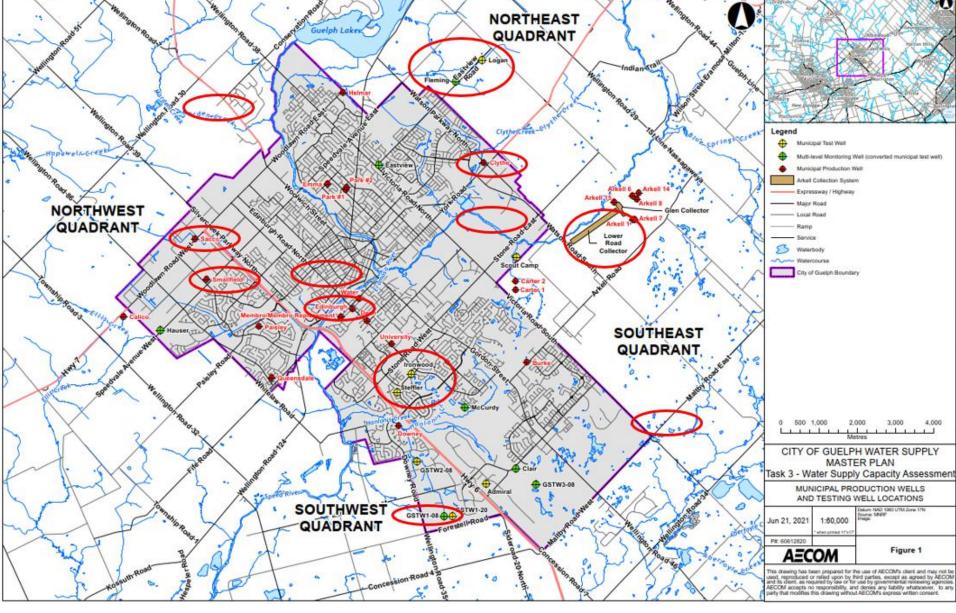
- Updated version of model used for Tier Three Water Budget and Local Risk Assessment under the province's Clean Water Act
- Simplification of system, subject to uncertainties best tool for evaluation of potential sources
- Categories of future groundwater supply assessed:
 - Inactive municipal wells
 - New wells inside and outside of City
 - Dolime Quarry Pond Level Management
 - Optimization of Arkell collector system







Inactive/ New Sources









Inactive/ New Sources - Results

- First assessed sources in City and on City-owned land
- Then moved to new wells outside of City
- Finally assessed all sources simultaneously

Location	Assessed Source(s)	Potential Capacity (m³/d)	Comments
City SE	Lower Rd Collector	4,000	Full reconstruction of collector required
City SW	Edinburgh Well (inactive); Steffler, Ironwood, GSTW1-20 (test wells)	4,700	Irish Creek: 17% baseflow reduction
City NE	Clythe Well (inactive); Fleming, Logan (test wells); Guelph East (hypothetical)	3,600	Clythe Creek: 24% baseflow reduction
City NW	Sacco/ Smallfield Wells (inactive); Hauser (test wells); Sunny Acres Park (hypothetical)	1,500	Contamination in Smallfield Well; No contribution from Sunny Acres due to interference
New Wells Outside City	Guelph North and Southeast Wells (hypothetical)	The property of the property o	
Full study area	All sources	15,600	Clythe Creek: 24% baseflow reduction







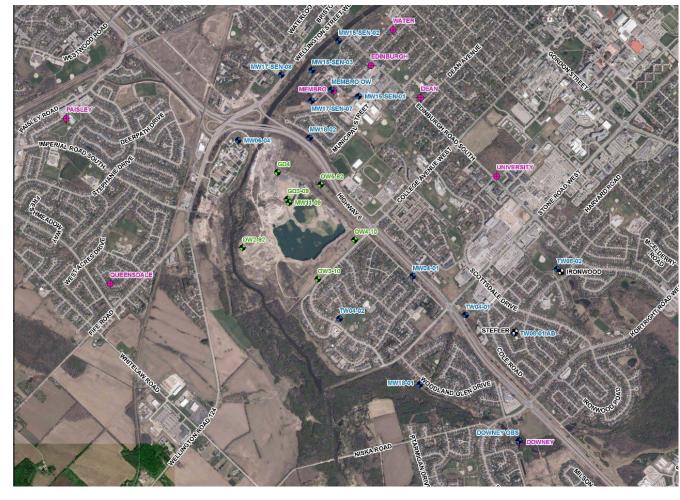
Assessment of Dolime Pond Level Management

Concept:

- City has agreement in place to take over quarry water management
- Potential opportunity to increase pumping of municipal wells near the quarry while managing water quality concerns

Scenario Results:

- Model sensitive to changes in flow divide
- Minor to moderate adjustments to pond level and/ or City pumping rate effects divide
- Results are uncertain and require field testing: Operational Testing Program; Class EA









Optimization of Arkell Collectors

- About half of artificial recharge water is captured by the Glen Collector
- Can system be optimized/ improved
- Modelling Assessment:
 - Increase Eramosa River recharge volume
 - Alternate Glen Collector configuration









Optimization of Arkell Collectors - Results

Recharge System Modelling

- Three flow rates assessed: existing, 2x rate, 3x rate
- Max. flow rates increase; min. flow rates do not vary significantly between scenarios
- Field testing/ upgrades required to increase recharge

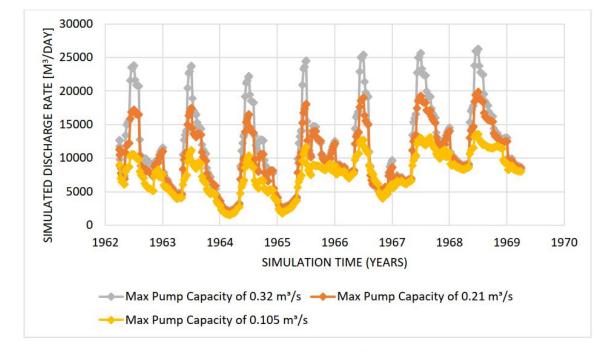


CHART 2 Simulated Transient Glen Collector Discharge Under the Various Pump Capacity Scenarios







Optimization of Arkell Collectors - Results

- Replacement of Glen Collector with Caisson Collector system per 2006 study
- Located 300 m SE of existing collector; anticipated to compete with Arkell Well 1
- Results indicate minimal flow increase compared to existing collector + Well 1
- Caisson system could be less sensitive to variable recharge









Groundwater Modelling Assessment Summary

Demand Type	2051 Low Demand vs. Future Capacity	2051 Reference Demand vs. Future Capacity
Projected Maximum Day Demand (m³/d)	89,751	91,530
Projected Maximum Day Demand with Security of Supply (m ³ /d)	103,214	105,260
Existing Water Supply Capacity (m³/d)	79,422	79,422
Future Estimated Water Supply Capacity (m³/d)	98,982	98,982
Deficit Based on Estimated Future Supply Capacity (m³/d)	-4,232	-6,277









Water Supply Master Plan Update
Surface Water Alternatives
Assessment









New Surface Water Supply

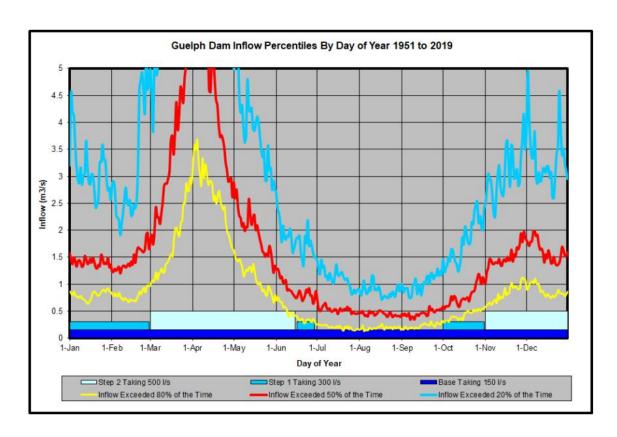
- Two possible local surface water sources for water taking
 - Guelph Lake downstream of the dam
 - Eramosa River at Arkell
- Alternatives:
 - Treatment & direct continuous flow into the distribution system
 - Treatment & store in ASR wells; recovery as required
- New water treatment plant (WTP) required to fully treat the surface water to meet Ontario Drinking Water Quality Standards (ODWQS)
- Assumptions conventional treatment with treatment for taste and odour on a seasonal basis, as required
- Wastewater treatment plant assimilative capacity study (underway) will be considered in evaluation







Surface Water - Guelph Lake



Guelph Lake Yield Analysis (GRCA):

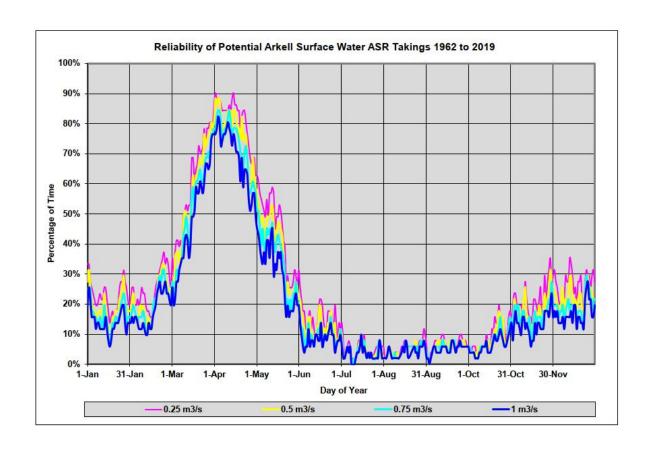
- Modelling results indicate that there is a potential for proposed stepped taking: 150 L/s and 300 L/s
- 500 L/s step dismissed for two reasons:
 - not practical to build a WTP for three months
 - flow cannot be injected in a reasonable number of ASR wells
- ASR alternative assumes base taking of 150 L/s with increase to 300 L/s for nine months of the year







Surface Water - Eramosa



Eramosa River Yield Analysis (GRCA)

- Continuous flow not available for providing a constant rate supply to the distribution system
- Very limited potential for significant increased takings beyond the existing Arkell PTTW at any time other than the spring period







We'd Like Your Input...

Questions to consider:

- Are there other aspects of conservation and efficiency that should be considered?
- Does the average Guelph resident think about water conservation and take actions to use less water?
- The modelling results suggest that long term groundwater pumping could reduce surface water flow. Is it acceptable to potentially effect surface water in this way?



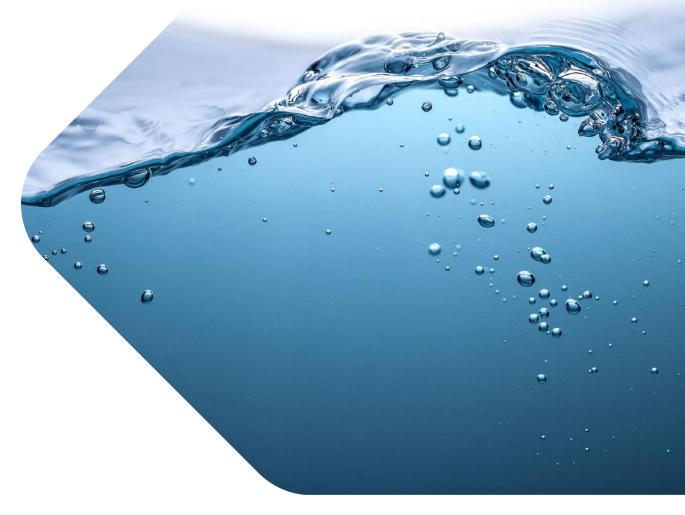








Water Supply Master Plan Update Evaluation Criteria









Evaluation Criteria

Public Health and Safety	Ability to meet provincial requirements
Natural Environment	Potential effects to natural environment and Indigenous Peoples Potential impacts to water resources Potential impacts to natural heritage features Environmental management planning considerations
Social and Cultural Resources	Land use impacts Short-term construction impacts Potential impacts from operations Potential impacts to Indigenous Peoples and values Implications of new/ expanded Source Protection areas
Economic and Financial Considerations	Estimated capital costs Estimated operations and maintenance costs, including energy consumption
Legal / Jurisdictional Considerations	Location of facility relative to city boundaries Land requirements Implementation of Source Protection policies
Technological Considerations	Ability to implement and meet peak demand Constructability, schedule and timing, and maintaining operations during construction Water quality Allowance for future treatment needs Expandability Ability to respond to changes in regulations Ability to utilize existing infrastructure







We'd Like Your Input...

Are the evaluation criteria suitable for this study? Is there anything you would add or change?











Next Steps









Next Steps

- Incorporate/ consider feedback from this workshop
- Prepare meeting summary and circulate to CLG members
- Discuss project with representatives of Six Nations community
- Complete remaining technical work Aquifer Storage and Recovery modelling
- Conduct preliminary evaluation of alternatives
- On-going Community Engagement
 - Agency and Municipal Workshop #2 Week of September 13th
 - Community Liaison Group Meeting #3 Week of September 20th
 - Community Open House #2 Week of September 27th









Visit our website: guelph.ca/WSMP







Water Supply Master Plan Update Community Liaison Group #2 – Summary

Date and Time of Meeting: July 27, 2021 from 7:00 to 9:00pm

Location: Virtual teleconference using Microsoft Teams

Overview

The City of Guelph is updating the Water Supply Master Plan (WSMP) Councilapproved in 2014, to define how we will continue to access a sustainable supply of water and to meet residential, industrial, commercial and institutional demands to the year 2051. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Part of our WSMP update includes a Community Liaison Group (CLG). The CLG includes members from a wide cross-section of the community including community and environmental groups, agricultural organizations, business leaders, and residents from in and outside the City. This was the second of three (3) meetings to share ideas and perspectives on ways to improve the WSMP update. The purpose of the second CLG meeting was to review and provide input on major technical task progress related to the Master Plan and the Class Environmental Assessment, including:

- Consultation conducted to-date
- Population targets and water supply demand forecasts
- Existing water supply capacity assessment
- Technical assessment of alternatives to-date
- Environmental Assessment evaluation criteria

There were nine (9) participants, along with three (3) City staff and three (3) AECOM consultants.

The format of the workshop included a presentation and opportunities for discussion and questions.



Attendance

The following CLG members were present:

- Andrea Williams, Guelph resident
- Brady Deaton, University of Guelph
- · Brendan Bumbaco, Sleeman Breweries
- · Carol Tyler, Guelph resident
- Corey Woods, Guelph Eramosa Township
- Grant Parkinson, Guelph Water Conservation and Efficiency Public Advisory Committee
- Janet Harrop, Wellington Federation of Agriculture
- Lin Grist, Council of Canadians, Guelph resident, Guelph Wellington Coalition for Social Justice
- Ron East, Council of Canadians
- · Sheri Longboat, Guelph resident
- Susan McSherry, Wellington Water Watchers
- Steve Chomyc, Resident
- Steve Nyman, University of Guelph

Dave Belanger, Scott Cousins, Wayne Galliher and Jennifer Rose from the City of Guelph were present. Matthew Alexander, Alicia Evans and Kathryn Ross from AECOM were also present.

The following members were unable to attend:

- Angela Kroetsch, Guelph Wellington Development Association
- Beth Parker, University of Guelph
- Matthew Bulmer, Puslinch Township
- Maya Wariyar, Guelph resident
- William Castledine, Cargill Meat Solution



Meeting Format

Dave Belanger (City of Guelph) opened with a Statement of Territorial Acknowledgement and spoke to the lapse of time since the CLG last meeting (pre-COVID-19). Dave Belanger (City of Guelph) also referenced the new growth targets from 2041 to 2051 and the importance of exploring whether the new population targets can be met while still maintaining sustainable groundwater supply. Alicia Evans (AECOM) provided an overview of the meeting and attendees introduced themselves. Attendees were provided with a copy of the presentation with discussion questions in advance. The presentation was delivered by Matthew Alexander (AECOM). Alicia Evans (AECOM) facilitated the discussions and Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) responded to questions during discussions.

The main sections of the presentation included:

- Review of WSMP objectives
- Overview of major WSMP tasks
- Major task progress update
 - Summary of consultation conducted to-date
 - Review of population targets and water supply demand forecasts
 - Review of existing water supply capacity assessment
 - o Review of technical assessment of alternatives to-date
- Environmental Assessment evaluation criteria
- Next steps

Discussion questions related to the content provided in the presentation were asked at various points during the meeting. Attendees shared their questions/comments with the group and had the opportunity to ask additional questions related to the specific presentation topics.

The discussion captured throughout the meeting is summarized in the sections that follow. Questions are noted with a "Q", answers with "A", comments with a "C" and responses with an "R". Answers were provided by Matthew Alexander (AECOM) and Dave Belanger (City of Guelph).

It is recommended to review the discussion below alongside the presentation; notes are provided under applicable sections below when



the presenter added additional details that are not captured in the presentation.

Task 1 - Public Consultation To-Date

An overview of results and feedback from the first round of public consultation was provided. It was also noted that the Phase 1 Engagement Summary Report is <u>available online</u> and contains more detailed information than what is presented.

Discussion Question: Are there any questions or comments about the Phase 1 public consultation?

There were no comments or questions.

Task 2 – Population and Water Supply Demand Forecasts

A summary of task 2 population and water supply demand forecasts was provided, including population projections changing to 2051 instead of 2041, a review of historical water supply demand, the design basis for projecting future water supply demand and projected water supply demands. Additional notes are provided below to support the technical data presented on the graphs in the presentation.

Slide 15 showed the City of Guelph population targets from 2021 to 2051 as set by the Province of Ontario. The total population and employment target is 230,136 in 2019 and 319,000 by 2051. Additional context:

- Reference population includes population and employment targets
- The word 'reference' in the title is terminology the Province of Ontario uses when developing targets

Slide 16 showed a line graph of the City of Guelph's population between 2010 and 2019, the average daily volume of water produced by the water supply system and the water demand from the residential, industrial/ commercial/ institutional sectors and non-revenue water. The purpose of the graph is to display the historical data that were analyzed to develop the 2051 water demand projections. Additional context:

- The first step was evaluating past water demand in the City
- Non-revenue water (NRW) stands for water produced by the City that does not generate revenue (e.g., water consumed but not billed like fire



fighting flows, watermain flushing, unauthorized water consumption or leaks from system)

- The top red line indicates the population of the City is rising from 2010 to 2019
- The light blue line is the average daily production and shows a flat production curve with some variability
- The green line is the residential demand and shows a fairly flat trend
- The dark blue line is for Industrial, Commercial and Institutional and shows a fairly flat trend
- The yellow line is for non-revenue water and it shows variability, but overall similar values

Slide 17 showed a line graph with the per capita daily volume of water produced by the water supply system and the per capita daily demand from the residential, industrial/ commercial/ institutional sectors and non-revenue water, between 2010 and 2019. Reviewing the data in this format allows for an analysis of how the customer water demands changed as the City's population increased. Additional context:

Provides demand and water production data on a per capita or per person basis

Slide 18 showed a line graph with trends in the data presented on the previous slide 17. The data were reviewed independently for the two identified time periods as the data indicated variability in the water use patterns between the time periods. Additional context:

- The trend analysis is done separately for the periods 2010-2015 and 2015-2019 to assess apparent differences in water use
- Generally, the trend is downward for both time periods with the decline slowing in the 2015-2019 period

Slide 19 showed a line graph with the projected per capita daily water supply demand for the residential, employment sectors and non-revenue water until 2051. This graph provides the results of the water demand projection task.

The results from the water demand projections (slide 20) were prepared by assuming that the average per capita demands between 2015-2019 in each category will continue in the future, i.e. no further decline in per capita demands. The City will continue to implement conservation and efficiency programs; however, the effect of the programming will be assessed through the evaluation of



alternatives evaluation. The maximum day demands were projected using the highest Maximum Day Factor from the 2010-2019 period.

Discussion Question: Our analysis suggests that the decline in per capita water demand in Guelph is slowing down. Our future water demand projections assume no further decline. Do you agree with this approach?

Q1: What is the definition of Employment Population, is it the number of full-time jobs that exist across all industrial, commercial and institutional sectors in the City?

A1: Employment Population is the target of employed people within the City.

Q2: The leakage of non-revenue water looks quite high. We are pumping water, treating it and returning it back to the aquifer, but losing a certain amount per person. How is the lost 44 million litres of water per day part of the projection if it is returned to the aquifer? Could the City pump more water a day because of the 44 million litres of water being lost per day (which ultimately returns back into the system)?

A2: Every water system does leak to a certain degree, and we do need to include non-revenue water in the projection (more information to be provided later in the presentation). Guelph does quite well in comparison to other municipalities. The non-revenue water forms a portion of the total water produced by the City on a daily basis. Despite the fact it doesn't make its' way to the customers, it does have to be accounted for as part of the overall volume of water produced by the system and used in calculations for planning for the future.

Q3: This is a 30-year timeframe and technology will play a role in cutting the non-revenue water number in half (e.g., new flow metre and leak detection) so the system has to be sized to deliver that water. Also, the flatline assumption is safe and conservative assumption for the 30-year outlook. It's clear that everyone is taking part in conservation efforts and there is more opportunities that we aren't discussing, including grey water, high time of use and new technology. Conservation and cutting the non-revenue water number in half should be looked at.

A3: There are additional slides in the presentation related to how the City has progressed with non-revenue water. Even though the City is keeping demand projections constant, the City is still pushing the demand management program and making sure there are comprehensive conversation and efficiency programs (e.g., focused on industrial, commercial and institutional uses, water re-use programs). From a design perspective the City is assuming conservation efforts are relatively constant, however, these opportunities are still being looked at.



Q4: The presentation mentioned that demand in Guelph is slowing down. How does Guelph compare to other municipalities in Canada and Europe in terms of per capita water consumption? We could learn a lot from European countries. **A4:** European per capita water consumption isn't the team's area of expertise,

Q5: Was any consideration given to the pricing strategy for water for forecasting?

however, Guelph compares well against other Canadian jurisdictions.

A5: The pricing strategy was not considered in the development of the demand curves. It will be part of the water conservation and efficiency scenarios we're looking at, including conducting a financial analysis to understand the value of those kinds of programs and a review of previous detailed variable pricing work completed for the City water efficient strategy.

C1: I lived in Perth Australia for 8 years; water there has a non-trivial cost like \$1,500 per annum for the average resident yet consumption per capita is more than double that of Guelph.

Task 3 – Existing Water Supply Capacity Assessment

A summary of task 3 existing water supply capacity assessment was provided, including an overview of Guelph's existing water supply system, how 2019 system capacity compares to 2051 demand, a security of supply assessment, additional system risks and required capacity for security of supply. The supply capacity assessment is a review of the maximum volume of water that the City's existing water supply sources can provide on a daily basis. The security of supply assessment is a review of risks to the City's water supply system and an identification of how much water should be reserved as a risk contingency. It was also noted that additional system risks are considered to better understand if there is a need to be more conservative to plan for additional eventualities.

Additional context for slide 28's well capacity assessment table to explain where reductions in capacity were identified relative to 2014:

The existing capacity within the southeast quadrant was reduced to reflect
the capacity that is available year-round. The Glen collector system¹ captures
the highest flow during the artificial recharge period and the lowest flow
when artificial recharge does not occur. As the timing of the maximum
demand is unknown, the City needs to be prepared to supply that maximum
demand any day of the year. Therefore the capacity of the Glen Collector was

¹ The Glen collector system, located in the Arkell Spring Grounds, is a series of below ground perforated pipes that intercept groundwater located within sands and gravels that are exposed along the south valley wall of the Eramosa River.



7

reduced to reflect the minimum reliable flow available from this system

- Within the southeast quadrant, the Water Street well field includes four active wells that experience mutual interference. The cumulative capacity for these four wells was reduced to reflect the maximum reliable flow that can be pumped from the well field
- The full system has not been tested at the identified existing capacity. There
 is confidence in number based on the available performance records but
 there are uncertainties in how the system would perform under maximum
 system-wide conditions

Discussion Questions: Are there risks to the system that have not been considered? Do you think that 15% security of supply is sufficient? Any suggestions for how to ensure security of supply?

Q6: What does the 79,422 m³/day mean in the existing system capacity table? **A6:** It means that 79,422 m³/day is the estimated maximum capacity of the existing system.

Q7: In terms of climate change, we could experience temperatures to mid-40s within five to six years. If those high temperatures are combined with drought, farmers will be forced to resort to irrigation to save crops. How would that affect water supply for the City?

A7: This is a difficult question to answer because there are unknowns. The City has looked at climate change modelling. Along with dry conditions from the changing climate, there will be periods of more intense rainfalls and increased winter snow melt that assist with the recharge of the aguifer system. Further, previous assessments suggest that there is a buffer and capacity of the system because it is a confined aquifer system and we do know there will be times of intense recharge that could offset the dry periods. In terms of irrigation, that is something we would need to address on an on-going basis. The Water Supply Master Plan is updated approximately every five years and we see how the climate and behaviours are changing on an on-going basis. Also, the goal for source water protection is to protect water quantity for drinking water sources. A wellhead protection area has been identified for water quantity that surrounds the City. This gives us some ability to manage water quantity as a whole moving forward to make sure we have enough water in the future (as required by the Clean Water Act). This is part of developing water quantity policies and making sure practices are sustainable.

Q8: On the required capacity for security of supply graph (slide 32), is the 15% security of supply to maximum day factor a 1.5 factor? Is this the same maximum day factor used in the previous Water Supply Master Plan? **A8:** Yes, a 1.5 maximum day factor was used. This number was a water supply



system design recommendation from the Ministry of the Environment, Conservation and Parks. The City has the data and can pick out what a maximum day is but has added security of supply to be conservative.

C2: 15% seems like a reasonable security of supply.

C3: There are other things we aren't discussing that could change the security of supply, like putting water restrictions in place.

Task 4 – Water Supply Alternatives

An overview was provided for the following proposed water supply alternatives under consideration:

- Water conservation and efficiency
- Groundwater sources
- Surface water sources

As part of the water conservation and efficiency alternative, historical nonrevenue water data, infrastructure leakage index, economic level of leakage and considerations for future programming scenarios were presented. Additional context:

- Patterns in the data of historical non-revenue water (slide 38) showed the following:
 - A leak detection program was implemented in 2010 and success in the following years brought down the non-revenue water numbers
 - There were cold winters in 2015 and 2016, resulting in increased leakages and customers being asked to run water at certain times to prevent freezing, without being billed for this use
 - After 2016 there is success in reducing non-revenue water
- The red numbers in the Infrastructure Leakage Index (slide 38) mean that the bigger the number, the more opportunities there are to capture water lost to leakage.

As part of the groundwater sources alternative, the evaluation approach using the groundwater flow model was presented along with inactive and new sources of groundwater, an assessment of the Dolime quarry Pond Level Management, optimization of the Arkell collectors and a summary of the groundwater modelling assessment. Additional context:



- The groundwater flow model has uncertainties but is the best tool currently available for pumping groundwater
- Table showing results of the inactive/ new sources of groundwater (slide 44-45)
 - In the southeast quadrant, the Lower Road Collector on the Arkell Spring grounds historically collected shallow groundwater similar to how the Glen collector currently does. It has been out of service for some time and would require reconstruction
 - More field data is needed for the southwest quadrant and this will be collected through the upcoming Southwest Guelph Water Supply Environmental Assessment
 - In the northwest quadrant the Smallfield well is offline due to contamination. Note that the model evaluates water quantity and not specifically how contaminants move. We need to further understand through field testing the level of contamination, presence and treatment options
- Assessment of Dolime Pond Level Management (slide 46)
 - In the west side of City there is up to 11,000 m³ of water pumped from the quarry and discharged into Speed River. This pond represents a potential pathway for contamination to reach the aquifer after closure of the quarry.
 - Pond Level Management would control the elevation of the pond in the Dolime quarry and causing water around the quarry to flow into the pond thereby preventing any contamination from moving into the aquifer
 - There is an opportunity to increase pumping at City wells outside of the quarry while managing the pond level and monitoring surrounding water levels in the aguifer
 - There is uncertainty in the flow dynamics in the aquifer and more field testing is required to investigate. This work is being completed in the upcoming Southwest Water Supply Guelph Class Environmental Assessment
- Optimization of Arkell Collectors (slide 47-49)
 - For the purpose of increasing overall capacity, we are looking at the minimum amount of flow—what is the reliable amount of water we can provide from the system at any point in the year? The results don't show a significant difference in annual minimum collector flows.



As part of the surface water supply alternative, an overview was provided along with graphs related to Guelph Lake and the Eramosa River as two possible local surface water sources for water taking. These graphs were used to assess the availability of sufficient surface water to support natural creek function as well as contribute water as a supply source.

Discussion Questions: Are there other aspects of conservation and efficiency that should be considered? Does the average Guelph resident think about water conservation and take actions to use less water?

Q9: Is it fair to say that the Economic Level of Leakage (ELL) holds true until the system can no longer be expanded and then the justifiable incremental cost to reduce loss would be quite high?

A9: The ELL is not a static number and would need to be evaluated as the City grows and as less additional water is available. This could be something to revisit.

Discussion Questions: The modelling results suggest that long term groundwater pumping could reduce surface water flow. Is it acceptable to potentially affect surface water in this way?

Q10: Was that 11,000m³ per day of dewatering in related to the Dolime quarry?

A10: Yes.

Q11: The Paris Galt Moraine runs through Clair Maltby and development in the area. How would the Paris Galt Moraine be affected?

A11: City wells traditionally target deep groundwater (groundwater held in deep bedrock aquifers). This deep groundwater is less connected to shallow groundwater (e.g., groundwater that supports streams, creeks and wetlands). Deep groundwater has less of an impact on shallow groundwater and places like streams, creeks and wetlands associated with the moraine. Any groundwater takings have to assess the impact on shallow groundwater, and this will be subject to future testing and Class Environmental Assessments.

Q12: Can you further explain the City monitoring water quality at the Dolime quarry?

A12: The Pond Level Management strategy is looking at how to manage the pond level to keep water flowing inwards towards the pond and at the same



time try to take more groundwater in the area. It's a balancing act to determine through a testing program.

Q13: You mentioned injecting water back into the aquifer, which concerns me. How does that make sense for water quality? How is it controlled from an environmental, quality or economics perspective?

A13: Aquifer storage recovery means taking excess capacity, treating the water to drinking water quality standards, and storing it in an aquifer and bringing it back when you need it. For example, where there's variation in flows (high flow) in the Speed River, you could use the aquifer as a storage reservoir and bring back the water in future years when it is needed. The water goes into the aquifer meeting drinking water quality standards and gets disinfected when it comes back out.

A14: Injecting water back into the aquifer is changing a natural part of the environment. Will it impact supply where water is taken by private wells or other means?

A14: Water quality is a big issue in any aquifer storage recovery operation. Geochemical testing and treatment is done before injecting water to make sure waters are compatible and that the treatment process is compatible. Water quality also needs to be of drinking water standards. Part of the process also means ensuring existing wells in that area drawing from the same source of water are not impacted; permits would not allow this kind of adverse impact. Florida and California already use aquifer storage recovery and have shown a well defined and proven way of taking surface water and storing it in the ground safely. This is also currently in use at the Region of Waterloo.

Discussion Question: Are there any questions or comments about the surface water source evaluation?

Q15: Has there been any consideration to having more capacity in Guelph Lake if it was dredged?

A16: If Guelph Lake were dredged, there would be an increase in storage, however, the flow through Guelph Lake is what is needed to be defined as a volume. The data in the chart showing the increase in the spring and low flow in the summer (slide 53) demonstrates that it is the low flow that dictates how much water is available. The Grand River Conservation Authority has completed an analysis to determine that 150-300 litres per second may be available. Dredging the lake does not change the flow through the lake.

Q17: What about other storage capacities (e.g., water tanks)?

A17: The majority of storage capacities are designed for emergency uses (e.g., fighting fires). Storage reservoir capacity is three days of flow capacity. Building



storage reservoirs can help on a maximum day demand but we couldn't build enough storage capacity to manage what could be needed. Consistent average day supply is required so that's why we're looking beyond storage capacities.

Evaluation Criteria

An overview of the evaluation criteria was presented and there will be an opportunity to review and comment on this information in more detail at the next CLG meeting. Additional context:

 Since the last CLG meeting, some of the source protection bullets were further defined and impacts to Indigenous Peoples and values were added to both the social and cultural resources category and the natural environment category.

Discussion Questions: Are the evaluation criteria suitable for this study? Is there anything you would add or change?

Q18: When we are evaluating the quantity of water needed to provide, has there been a consideration of a cost-effective way of doing that? Is that implied in the economic calculations (e.g., reviewing the alternative that is the most cost effective) or is it something that could be considered?

A18: The estimated cost for each alternative is considered on a per cubic metre basis regardless of where water source is coming from, including costs required and operating/ maintenance.

C4: The WSMP Update presented in an excellent plan. You could consider adding environmental management under the natural environment. Over a 30-year period it is assumed that the environment is relatively stable environment, however, we are entering a period of environmental instability. Perhaps there needs to be an alternative plan to address extreme weather events.

R: That is a good comment. The City's source protection programs are intended to look at quantity and quality, which is related to both water resource management and environment resource management. We have on-going discussions with the Ministry of the Environment, Conservation and Parks about how to develop water resource management plans to make sure we have sustainable water supply going forward. We will need to adapt and manage resources collectively.

Feedback Received Post-Meeting

Three emails were received following the meeting.



Email 1: I'm so very grateful for the passion, skill, care to detail and cooperative efforts of all those working together on all the Water-related Master Plans. It was obvious in the Source Water Protection session that no one Master Plan had worked as a 'silo'.

The presentation, information session and Q&A were open, positive, well-thought out, and held with such respect! The content and how the content was shared in many ways reflected one of the main gleanings from session #1 and that is to value the agency of the water itself.

Although not articulated in that way specifically within session #2 I heard or read whispers of careful observations, and stewardship of surrounding ecosystems that included water, earth, plants, animal, birds, microbial life and also the relational elements which are fundamental to indigenous worldview, in the conversations of the behaviour of gathering from wells, one, some, all on the individual draw and impact on each and the group.

Valuing the agency of water itself, is not usually included or even referred to indirectly in engineering, hydrology, geology reports. So, I commend the team's courage to speak clearly about how they value the agency of the water itself in such documents, especially under each of the 4 Tasks, the New Surface Water Supply Options. I especially appreciated the comments regarding the significance of 'motion' as it relates to capacity and reciprocity of a sustained healthy relationship to maintain the pureness of water.

In the Evaluation Criteria section, within my ancestral teachings [of which I'm still and will always be learning] I would make note that "Indigenous culture" should be included in each/ all of the 6 aspects.... and even more specifically because we're on this land, using the specific label, First Nations cultures and worldview.

Also, the assumption that Environment is always Stable is a Western worldview and is an assumption that in Anishinaabeg teachings is not made. Just a point of interest perhaps.

Very much appreciated the team providing next steps.

Perhaps with some reflection it might also be considered at this time in the process, that the team personally request the Indigenous, especially Anishinaabeg they know living in the Guelph-Wellington area to gather in a traditional circle way to share conversation [within context of your reports/presentation] on 'the value of the Agency of Water'.

Local Elders, Knowledge Keepers could guide this.



Or as the idea aligns with the City's current agreement to work with Elder Bob Goulais [Anishinaabe] on City of Guelph's Indigenous Community Engagement re: 2020-2050 Strategic Growth Plan, the City staff and Council members who over many years know well, and have friendships with many Indigenous living within the community, could extend the welcome to share conversation. Just a thought from a nookomis to bring a bit of balance within the next steps.

Response 1: Thank you. We appreciate your thoughtful comments and insights on the WSMP. I am learning more each time we communicate. By this email, I am passing them on the team for further considerations as we continue to develop the plan. We have another meeting of the CLG planned for late September and hopefully we can include more discussion on your points below, particularly valuing the agency of water. Thank you for your help and support on this project.

Email 2: Could you please explain why you need to constantly push water into the ponds in the Dolime Quarry and why that is important for the water supply for Guelph residents?

Response 2: Thank you for your questions. The quarry has excavated to the licensed limit of an elevation of approximately 285 m above sea level which is approximately 17 m below the elevation of the Speed River. The quarry excavation has breached the Vinemount Aquitard and therefore the City's water supply aguifer (Gasport Formation) is exposed in the base of the quarry, causing groundwater to flow into the quarry. If the dewatering were to stop, groundwater from the aquifer would fill the quarry. If the dewatering were to stop, the quarry would fill with water. Once the quarry fills, water would flow out of the bottom of the quarry through the breach and flow to our municipal water wells. The water quality of the pond may be similar to surface water and contain bacteria and viruses which could, potentially, contaminate our wells. To protect the water quality of our wells, the proposed concept is to continually pump the quarry pond to maintain the inward flow into the quarry to prevent the outward flow of poor quality water. The water pumped out of the quarry would continue to be discharged to the Speed River. Also, as part of the water management concept, we would optimize the amount of water to be collected by our water supply wells while still maintaining the inward flow to the quarry. All of this will be confirmed in future years through an operational testing program and municipal Class Environmental Assessment. More information on the Dolime Quarry can be found here:

https://guelph.ca/living/environment/our-community-our-water/.

I hope this answers your questions. If you need more or have other questions, please contact us. Thank you for your interest in our project.



Email 3: How is your team planning to include climate change into the predictions to 2051. I am assuming that this will be part of the report which you bring to council.

Response 3: Climate change and the impact on our groundwater resources have been evaluated in our Source Protection program as part of the Tier 3 Water Budget and Water Quantity Risk Assessment. The report is located here - https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/15072-527-Climate-Change-R-2018-11-21-final-V1.0.pdf. In summary, the report predicts that there may be more recharge and more available groundwater in the future resulting from higher winter temperatures (i.e., more freeze/ thaw events in winter months resulting in more groundwater recharge). We will continue to evaluate the effects of climate change in our Source Protection Programs and include these evaluations in subsequent updates to the WSMP.

Next Steps and Adjournment

The project team reminded participants to reach out to Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) if they had any questions, comments or concerns about the technical information presented. Participants were encouraged to provide additional feedback to the discussion questions in the presentation by August 6, 2021.

Next steps in the project include incorporating and considering feedback from this meeting, completing the remaining technical work (aquifer storage and recovery modelling), conducting a preliminary evaluation of alternatives and on-going community engagement.

Upcoming engagement opportunities include:

- Agency and Municipal Workshop #2 week of September 13th, 2021
- Community Liaison Group Meeting #3 week of September 20th, 2021
- Community Open House #2 week of September 27th, 2021

The meeting was adjourned at 9:00 pm.



Water Supply Master Plan 2021 Update

Community Liaison Group Meeting No. 3









City of Guelph Territorial Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.







Agenda

- Welcome & Check-In
 - a) Opening remarks
 - b) Meeting purpose and objectives
 - c) Introductions
- 2. Project Update Presentation Q&A and Discussion
 - a. Brief summary of the water supply requirements
 - b. Work completed since meeting #2
 - i. Assessment of water supply alternatives
 - ii. Preliminary evaluation of water supply alternatives
 - c. Interactive discussion Evaluation of water supply alternatives
- 3. Next Steps







Housekeeping

Teams features

- Camera, microphone, raise hand, chat (speech bubble)
- If using a computer access the features by hovering the mouse over the screen
- If using a phone or tablet tap on the screen to access features (may need to click on '...')
- If using a phone or tablet you can change the orientation and zoom in as needed
- Attendees will be muted until the discussion periods
 - Press the 'raise hand' button if you wish to speak and we will prompt you when it is your turn (be sure to enable
 your device's audio function and unmute when speaking)
 - Add questions and comments in the chat box
- If you have technological issues, please type your issue into the chat box
- Meeting recorded for purpose of preparing meeting summary







Introductions

Share your name and if you are representing an organization or group.

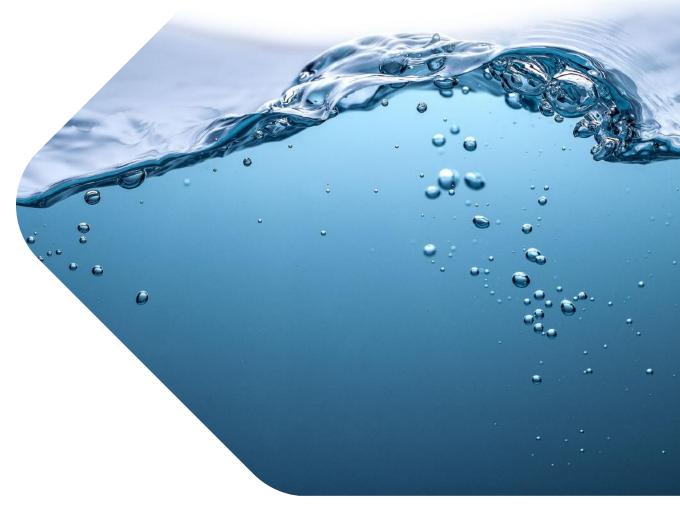








Water Supply Master
Plan Update
Summary of water
supply requirements



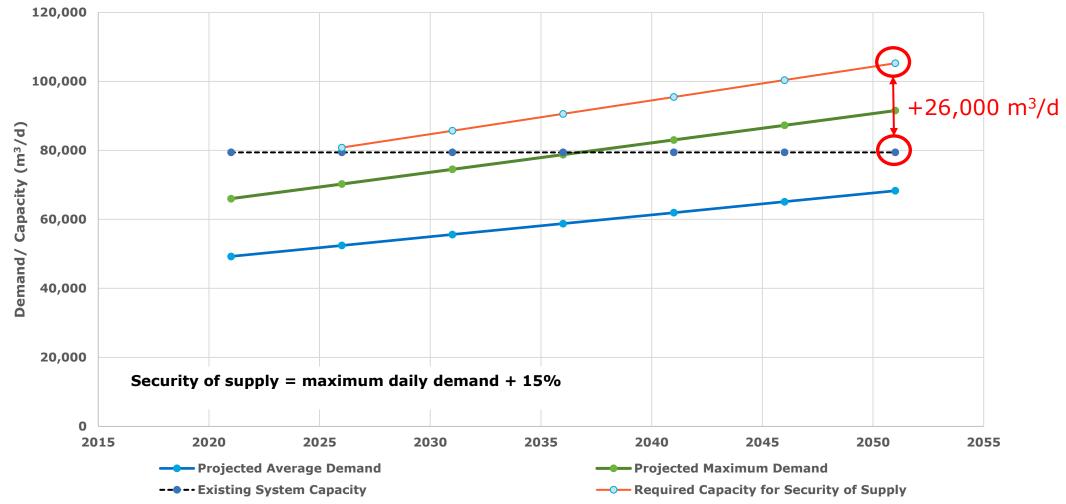






Required Capacity for Security of Supply

Water Demand & Required Total Capacity



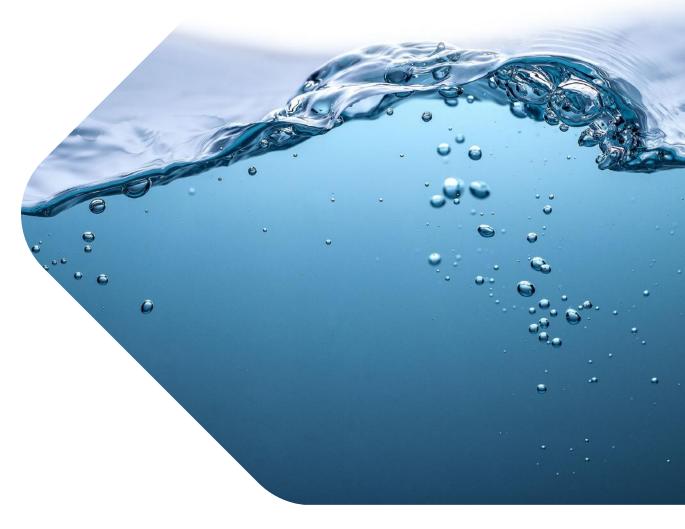








Water Supply Master Plan
Update
Task 4 - Water Supply
Alternatives
Assessment









Alternatives Assessment

Assessment of proposed water supply alternatives under consideration:

- 1 Water conservation and demand management/ water reuse
- 2 Optimize and expand existing groundwater system
- 3 Establish new surface water supply
- 4 Limit growth/ do nothing

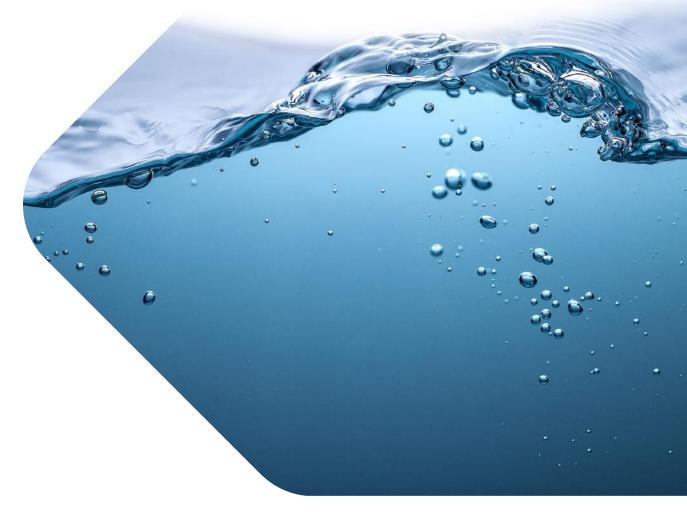








Water Supply Master Plan
Update
Water Supply
Alternatives – Water
Conservation and
Efficiency









Conservation/ Efficiency Programming Scenarios

- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3% in 2051







Non-revenue Water

Economic Level of Leakage (ELL): point at which the cost of lost water (leakage) = costs of leakage prevention programs

Infrastructure leakage index (ILI) = Real Losses / Unavoidable Real Losses

- ILI=2.0 for Guelph in 2019
- Other jurisdictions (UK, Australia) have reported ELL when the ILI is below 3
- Results indicate that Guelph is near or at its ELL
- Recommended focus in future is to maintain the ILI, or improve where possible







- Assumes the City ceases non-mandatory programming
- Sets a baseline against which to compare scenarios
- Based on effort City has put into educating public, no resulting increase in demand is anticipated
- Scenario does not reduce demands
- No cost associated with scenario

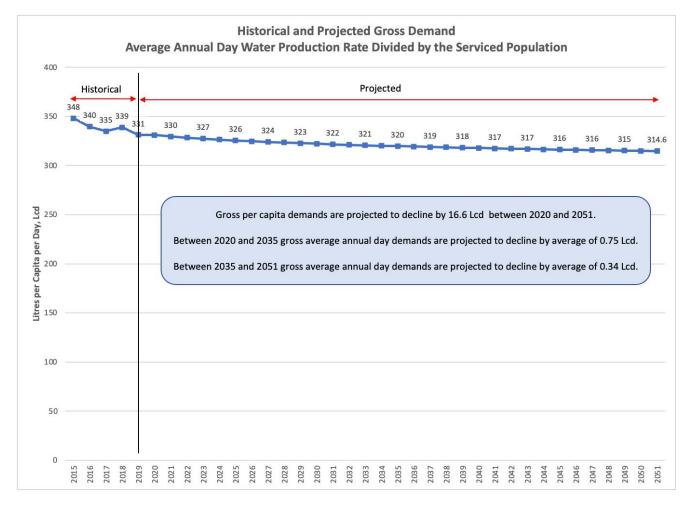
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	166.6	203,000	33,814
Employment	191.0	191.0	116,000	22,155
NRW	60.8	60.8	203,000	12,338
			Total	68,306







- Continuation of current level of programming
- Decline in per capita demands has slowed over time
- Apply avg. rate of per capita demand decline observed from 2015-2019 as target for future decline
- Requires regular review of programs, replace those no longer effective
- Assume matching target reductions for residential and ICI









- Results in 6.5% decline in 2051 demand
- Reduction of ~4,400 m³/day vs. Scenario 1
- Associated cost estimate: \$11.41 M or \$2,600 m³/day; \$380,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
			Total	63,882







- Acknowledges that effective conservation programming becomes more challenging with success
- City may elect to focus programs on high water use customers if per capital demand trend continues to stabilize
- Approach would result in lower demand reduction at a lower cost to City
- Overall reduction of 3.25% in 2051 demand
- Reduction of ~2,200 m³/day vs. Scenario 1
- Associated cost estimate: \$4.73 M or \$2,100 m³/day; \$158,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	159.9	203,000	32,460
Employment	191.0	183.5	116,000	21,288
NRW	60.8	60.8	203,000	12,338
			Total	66,086







- Addition of water reuse opportunities to Scenario 2 demand reductions
- Most aggressive option highest demand reduction and program costs
- Review of water reuse options previously compiled
- Consideration of those most likely to reduce average daily demand (i.e., remove seasonal uses like irrigation)
- Total daily savings of 528 m³/day estimated

Measure	Annual Savings, m³	Average Annual Day Savings, m³/day	
Street sweeping	3,175	8.7	
Sewer flushing	11,223	30.7	
Urban applications	168,168	460.7	
Construction	10,160	27.8	
Municipal irrigation	8,800	24.1	
Golf course irrigation	147,000	402.7	
Total	348,526	955	
Total without Irrigation	192,736	528	







- Overall reduction of 7.3% in 2051 demand
- Reduction of $\sim 4,900 \text{ m}^3/\text{day vs.}$ Scenario 1
- Associated cost estimate: \$15.04 M or \$3,000 m³/day; \$586,000/a operating costs

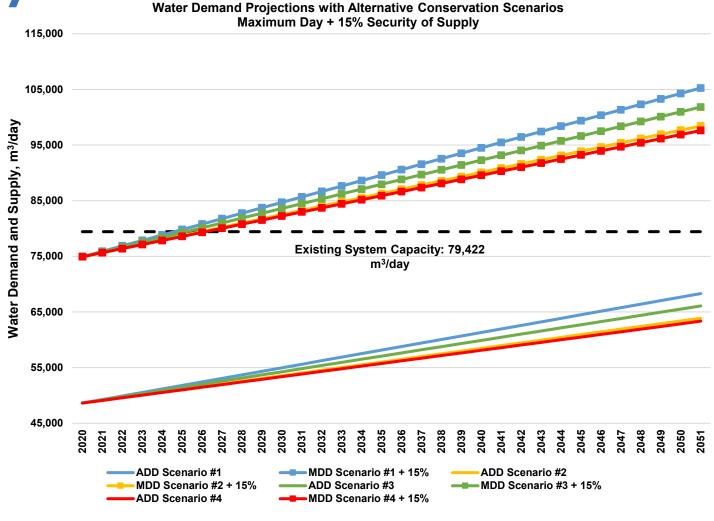
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
			Total Potable	63,882
			Minus Estimated Water Reuse Savings	-528
			Total Potable Minus Reuse	63,354







Conservation/ Efficiency Programming Scenario Summary



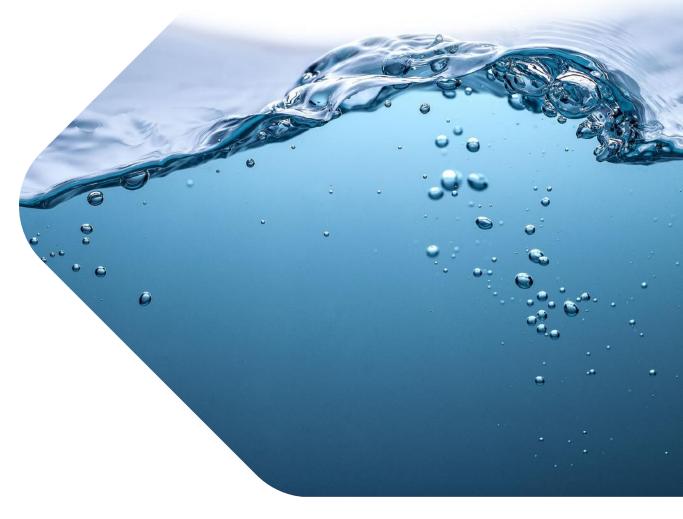








Water Supply Master Plan
Update
Water Supply
Alternatives –
Groundwater Sources









Groundwater Alternatives

The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources
- Restore existing off-line municipal wells
- Develop existing municipal test wells
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes

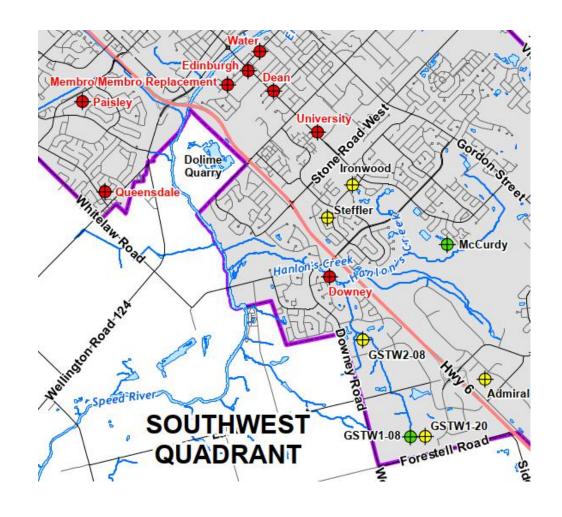






Optimize existing operating municipal wells

- Reviewed optimization opportunities through historical well performance and discussions with Operations staff
- Potential for additional capacity from Downey Well
 - Located within southwest quadrant
 - Must be evaluated alongside test wells in quadrant
 - Consideration of Dolime Pond Level Management
 - Detailed assessment of additional water supply to be completed through Southwest Guelph Water Supply EA









Optimize existing operating municipal wells

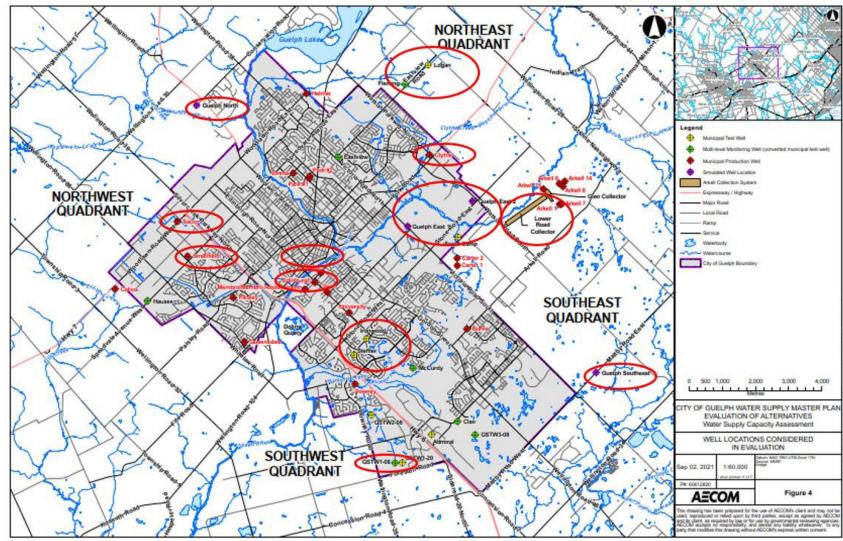
- Recommendations:
 - Confirm capacity where uncertain (Arkell 1)
 - General maintenance, rehabilitation, replacement of equipment where required
 - Replace Calico well (same capacity anticipated)
 - Opportunity to increase Arkell recharge system within existing permit
 - Assessed using groundwater flow model
 - Primary benefit to supporting collector peak flow rates
 - Significant increase to flow rates during period of no artificial recharge not expected
 - Upgraded system would benefit new Lower Road Collector
- Review of previous recommendation to replace Glen Collector
 screened out through preliminary modelling







Off-line/ New Sources









Restore existing off-line municipal wells

Quadrant	Well	Required Upgrades	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m³/d
Northeast	Clythe	Well house upgrade; H2S, Fe&Mn treatment (EA complete)	1,180-3,400	\$6.8M	\$2,000
Northwest	i Sacco/Smailheid	wellhouse upgrade; VOC treatment	850-2,560	\$13.1M	\$5,100
Southeast	Lower Road Collector	new perforated pipe system & associated infrastructure	4,000	\$14.67M	\$3,700
	•	Total	6,030		

- Uncertainty about Clythe Creek requires additional field program to address as part of PTTW
- Sacco/ Smallfield alternative assumes combined treatment facility on Smallfield property; MECP correspondence: achieving clean
 up goals (i.e. ODWQS by 2051) is unlikely
- Full re-construction of Lower Road Collector anticipated; additional modelling recommended to optimize design; would benefit from recharge system upgrades
- · Additional capacity in table represents modelled long-term average
- · Costing developed for maximum capacity where existing data are available







Develop existing municipal test wells

Quadrant	Well	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Guelph South	SWG EA/OTP; land acquisition; well house; connect to distribution	2,250-4,300	\$5.3M	\$1,200
Southwest		SWG EA/OTP; well house; disinfection; connect to distribution	2,250-8,000	\$5.1 to 6.2M	\$650 to 1,700
Northeast	Logan/ Fleming	new well; well house; connect to distribution	4,180-4,700	\$10.1M	\$2,150
Northwest	Hauser	new well; property in area; well house; connect to distribution	425-900	\$6.6M	\$7,300
Total	,		9,105		

- Modelled long-term average additional capacity of 4,500 m³/day in SWQ (with active Dolime Quarry dewatering)
- Southwest Guelph EA initiated to assess additional water supply in SWQ in detail
- City has initiated project on Logan site to re-construct and test well







Assessment of Dolime Pond Level Management

- City has agreement in place to take over quarry water management
- Potential opportunity to increase municipal water supply while managing water quality concerns
- Maintain flow divide around quarry to isolate quarry water
- Quarry inflow ranges 8,000 11,000 m³/day
- Managing quarry pond will allow for capture of additional water by surrounding wells or directly from quarry
- Modelling indicates 3,000 m³/day of available capacity
- SWG Water Supply EA will assess available capacity, associated potential impacts and costs in detail









Assessment of Dolime Pond Level Management

Quadrant	Source	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Dolime	SWG EA/OTP; pumping station; WTP (if supply is direct from quarry); connect to distribution	3,000	\$18.9M	\$6,300

- SWG Class EA will assess optimal strategy for capturing available water
- Water quality assessment will determine treatment requirements
- Capture of quarry water would reduce current artificial discharge to Speed River – not relied upon for WWTP assimilative capacity
- Cost would be reduced if additional capacity is captured by surrounding wells







Install new wells outside City boundaries – Guelph North

- Approximate location G-E Township North of the City (City does not currently own land here)
- Consultation and collaboration with G-E Township
- Rationale proximity to an area with high transmissivity within the Gasport aquifer
- Estimated available capacity 2,935 m³/day on an average basis
- Model output: >10% baseflow reduction to Marden Creek; near the Marden South PSW Complex
- Field study would assess potential for interference with G-E Township wells, private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$12.8 M, \$4,375/m³









Install new wells outside City boundaries – Guelph Southeast

- Approximate location in Puslinch Township southeast of the City (City does not own land here)
- Consultation and collaboration with Puslinch Township
- Rational Proximity to area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 1,600 m³/day on an average basis
- Model output: <10% baseflow reduction to Mill Creek; near Arkell Bog PSW Complex
- Field study would assess potential for interference with private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$10.3 M, \$6,400/m³









Install new ASR wells inside City

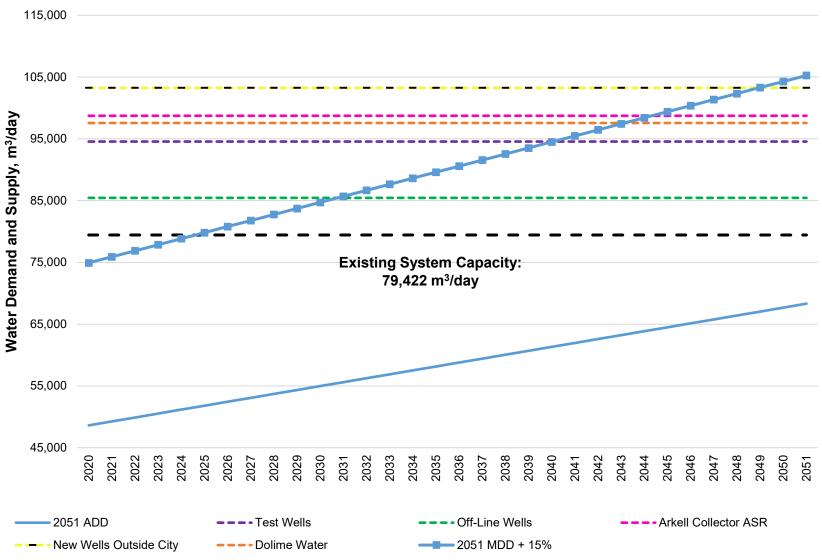
Will be discussed under surface water alternative section







Alternative #2 Summary



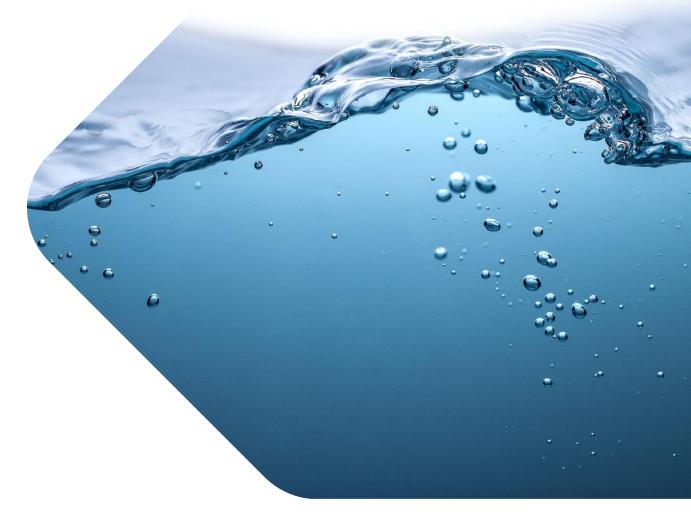








Water Supply Master Plan Update
Surface Water Alternatives
Assessment









Summary – Guelph Lake Water Treatment Plant

Location	WTP at Guelph Lake or NE part of City		
Description	Surface WTP consisting of conventional/ advanced treatment and distribution pipeline		
Intake Rate (m³/d)	te Rate (m³/d) 12,960 (continuous annual base taking of 150 L/s)		
Distribution Rate (m³/d)	12,300		
Existing Approvals	None		
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNRF/ MECP - PTTW (Surface Water) ECA/ DWL GRCA 		
Water Quality Issues	High turbidity, colour, odour		
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features		
Past Studies/Work	st Studies/Work GRCA review of water taking reliability		
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA 		
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main 		
Estimated Capital Cost	red Capital Cost \$ 51,322,000		
Cost per m³/day	\$3,960		

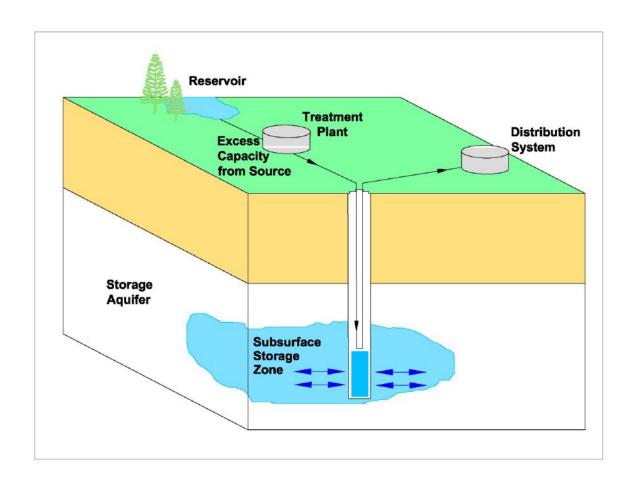






Install new ASR wells inside City

 Aquifer Storage and Recovery (ASR) injection of potable water into an aquifer for later recovery and use



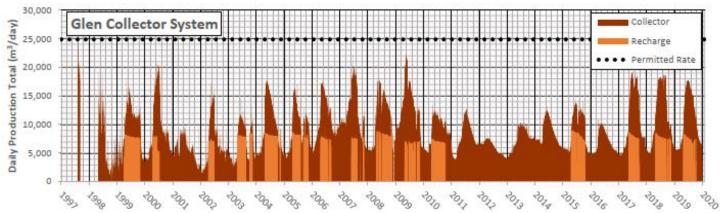


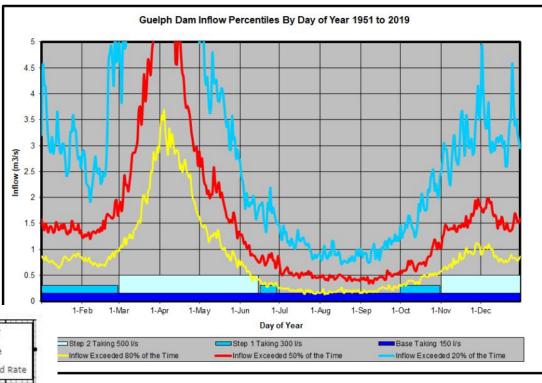




Aquifer Storage and Recovery

- Two potential sources: Guelph Lake following future potential WTP plant construction; Arkell collector system
- Estimated annual excess volume: Arkell – 451,000 m³; Guelph Lake – 941,000 m³





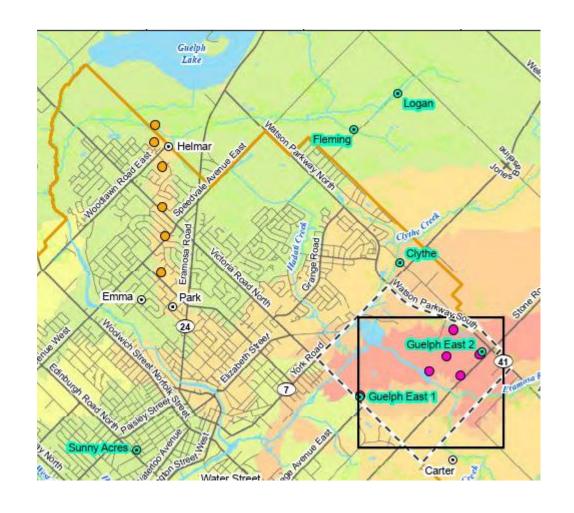






Aquifer Storage and Recovery

- Two injection locations assessed: NE Guelph – between Helmar and Emma/Park wells; East Guelph in area of simulated production wells
- All ASR wells simulated as injection and extraction
- Impact assessment:
 - Sustainability of surrounding production wells
 - Water level elevation during injection
 - Changes to stream baseflow









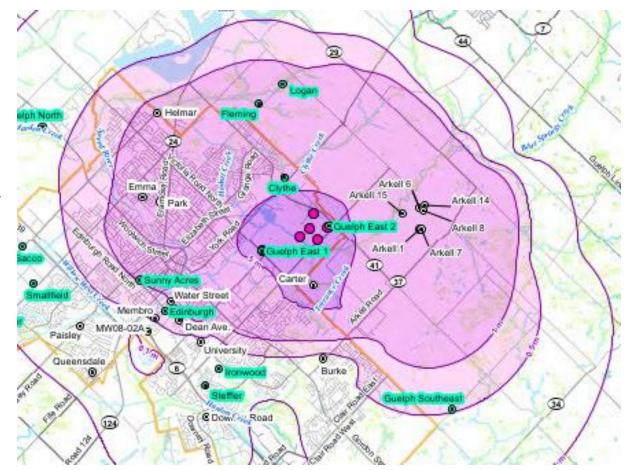
Aquifer Storage and Recovery

• Results:

- Model predicts large area of injection influence (area of water level increase)
- Extraction of 60% of injection volume to maintain function of existing wells

• Interpretation:

- With well field approach, system efficiency is below target
- System optimization study is required to effectively utilize production wells for recovery
- Focus on core of City to minimize influence beyond boundary
- Arkell ASR cost: \$25.3M; \$21,600/m³
- Further study required to evaluate optimized system, fewer ASR wells and increased recovery efficiency will reduce cost









Summary – Guelph Lake WTP + ASR

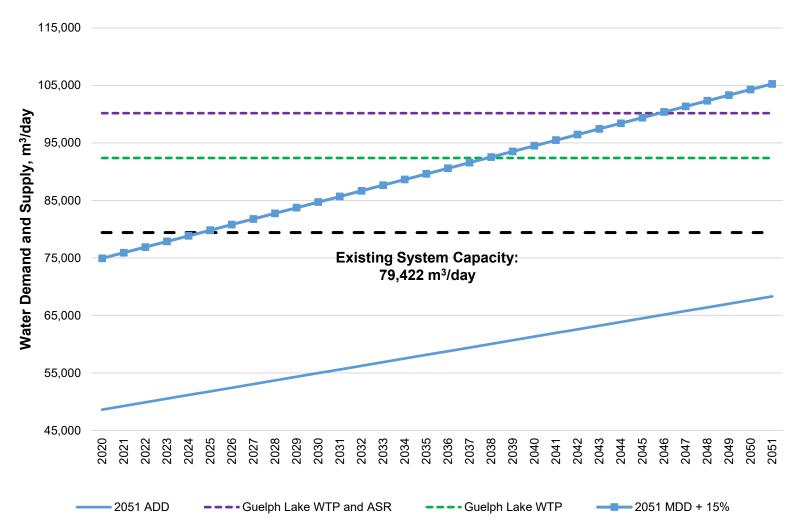
Location	WTP at Guelph Lake/dam, ASR wells at NEQ in the vicinity of Park/Emma wells		
Description	A surface water treatment plant consisting of conventional treatment and distribution pipelines, ASR wells		
Intake Rate (m³/d)	12,960 – 25,920		
Distribution Rate (m³/d)	Up to 25,825 m³/day (subject to ASR optimization)		
Existing Approvals	None		
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNR/MECP - PTTW (Surface Water/ Groundwater); ECA/DWL GRCA 		
Water Quality Issues	High turbidity, colour, odour		
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features		
Past Studies/Work	GRCA review of water taking reliability		
Required Studies	• Field investigations; environmental baseline/ impact • Feasibility Studies • Treatment study • Class EA		
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main; ASR well facilities 		
Estimated Capital Cost	\$ 57,283,000		
Cost per m³/day	\$4,420		







Alternative #3 Summary

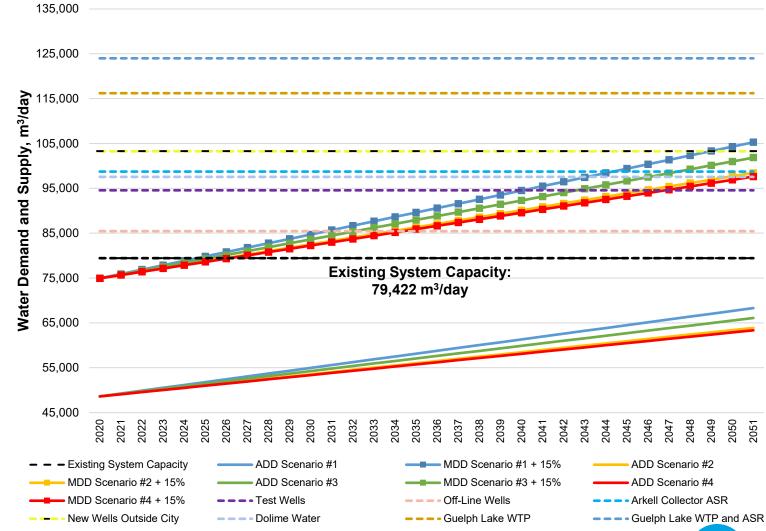








All Water Supply Alternatives Summary









Other Alternatives

Limit Growth / Do Nothing

- Represents what would likely occur if none of the alternative solutions were implemented
- Reduction in future water supply needs by limiting the extent, density, type and/or location of future residential, industrial, commercial and institutional growth in the City below levels identified in recent planning studies
- Implementation of this alternative would require change to municipal planning documents which would not meet Provincial growth targets
- Will have a significant impact on the growth potential for the City
- Does not meet EA challenge and opportunity statement

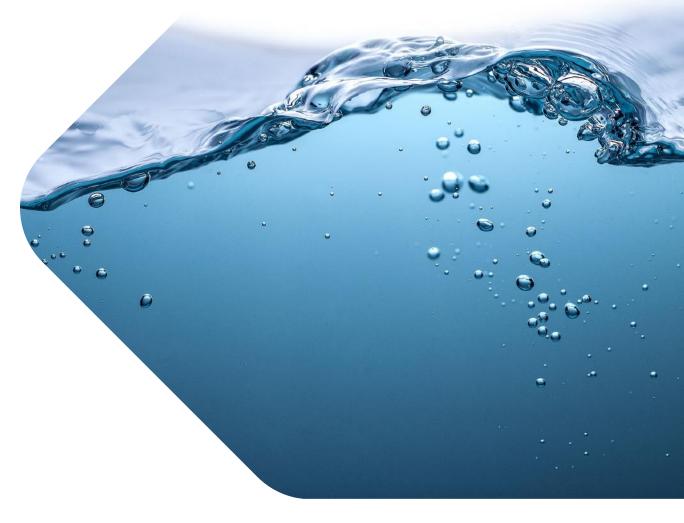








Water Supply Master Plan Update Preliminary Evaluation of Alternatives









Evaluation Summary Tables







We'd Like Your Input...

Are there additional factors that should considered in the evaluation? Is there anything you would evaluate differently or change?

Should any alternatives be prioritized differently? Why?









We'd Like Your Input...

Provide your thoughts on public acceptance of the different alternatives – e.g. conservation; off-line sources; ASR; wells outside the City; surface water.

What advice do you have for presenting this information at the upcoming virtual Open House?



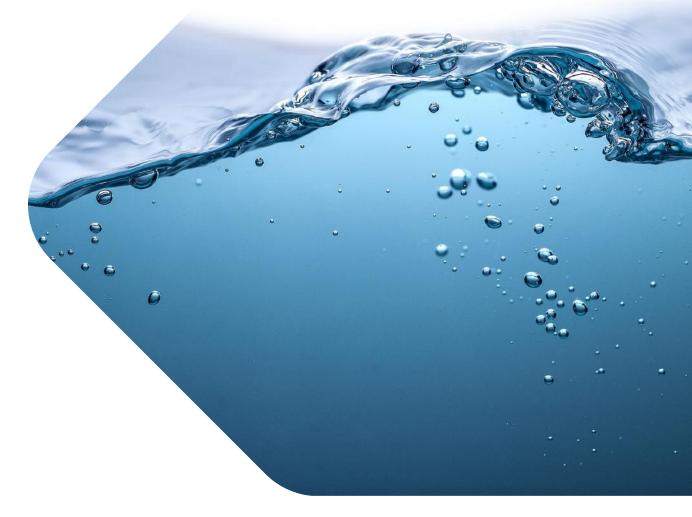








Next Steps









Next Steps

- Incorporate/ consider feedback from this meeting
- Prepare meeting summary and circulate to attendees
- Meeting with Mississaugas of the Credit First Nation in October
- Water Conservation & Efficiency Public Advisory Committee Meeting September 28th
- Community Open House #2 September 29th
- Refine assessment/ evaluation based on feedback received
- Update Master Plan document









Visit our website: guelph.ca/WSMP







Water Supply Master Plan Update Community Liaison Group #3 – Summary

Date and Time of Meeting: September 22, 2021 from 7:00 to 9:00pm

Location: Virtual teleconference using Microsoft Teams

Overview

The City of Guelph is updating its Council-approved Water Supply Master Plan (WSMP), from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2051. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Part of our WSMP update includes a Community Liaison Group (CLG). The CLG includes members from a wide cross-section of the community including community and environmental groups, agricultural organizations, business leaders, and residents from in and outside the City. This was the final of three (3) meetings to share ideas and perspectives on ways to improve the WSMP update. The purpose of the CLG meeting was to review and provide input on major technical task progress related to the Master Plan and the Class Environmental Assessment, including:

- Water supply requirements
- Work completed since meeting #2
- Assessment of water supply alternatives
- Evaluation of water supply alternatives

There were twelve (12) participants, along with six (6) City staff and three (3) AECOM consultants.

The format of the workshop included a presentation and opportunities for discussion and questions.

Attendance

The following CLG members were present:

· Andrea Williams, Guelph resident



- Brady Deaton, University of Guelph
- · Brendan Bumbaco, Sleeman Breweries
- Carol Tyler, Guelph resident
- Corey Woods, Guelph Eramosa Township
- Grant Parkinson, Guelph Water Conservation and Efficiency Public Advisory Committee
- Janet Harrop, Wellington Federation of Agriculture
- Lin Grist, Council of Canadians, Guelph resident, Guelph Wellington Coalition for Social Justice
- Ron East, Council of Canadians
- Susan McSherry, Wellington Water Watchers
- Steve Chomyc, Resident
- Steve Nyman, University of Guelph

Dave Belanger, Scott Cousins, Wayne Galliher and Jennifer Rose from the City of Guelph were present. Matthew Alexander, Alicia Evans and Kathryn Ross from AECOM were also present.

The following members were unable to attend:

- Angela Kroetsch, Guelph Wellington Development Association
- Beth Parker, University of Guelph
- Matthew Bulmer, Puslinch Township
- Maya Wariyar, Guelph resident
- Sheri Longboat, Guelph resident
- William Castledine, Cargill Meat Solution

Meeting Format

Dave Belanger (City of Guelph) opened with a Statement of Territorial Acknowledgement and acknowledged Truth and Reconciliation Day and the importance of honouring Indigenous Peoples.



Alicia Evans (AECOM) provided an overview of the meeting and asked attendees to introduce themselves. Attendees were provided with a copy of the presentation in advance. The presentation was delivered by Matthew Alexander (AECOM). Alicia Evans (AECOM) facilitated the discussions and Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) responded to questions during discussions.

The presentation included:

- Brief summary of the water supply requirements
- Work completed since meeting #2
 - Assessment of water supply alternatives
 - Water conservation and demand management
 - Optimize and expand existing groundwater systems
 - Establish a new surface water supply
 - Limit growth / do nothing
 - Preliminary evaluation of water supply alternatives
- Next Steps

Discussion questions related to the content provided in the presentation were asked at various points during the meeting. Attendees shared their questions/ comments with the group and had the opportunity to ask additional questions related to the specific presentation topics.

The discussion captured throughout the meeting is summarized in the sections that follow. Questions are noted with a "Q", answers with "A", comments with a "C" and responses with an "R". Answers were provided by Matthew Alexander (AECOM) and Dave Belanger (City of Guelph).

It is recommended to review the discussion below alongside the presentation; notes are provided under applicable sections below when the presenter added additional details that are not captured in the presentation.

Summary of Water Supply Requirements

An review of projected population growth from now until 2051, the existing water supply capacity, and the required water supply capacity to meet the projected demand of the population in 2051 was provided.



Task 4 – Water Supply Alternatives

An overview was provided for the following proposed water supply alternatives under consideration:

- Water conservation, efficiency and demand management
- Groundwater sources
- Surface water sources
- Limit growth / do nothing

Additional context:

Water Conservation, Efficiency and Demand Management

A reminder of the analysis completed to evaluate non-revenue water and the fact that the City is currently at or near the Economic Level of Leakage. Therefore, the conservation, efficiency and demand management scenarios include a static non-revenue water value.

As part of the water conservation, efficiency and demand management alternative, four scenarios were established to evaluate potential future demand reduction and associated costs.

- 1. Scenario One: Static Demands
 - Baseline scenario where City ceases non-mandatory programming and therefore does not achieve demand reduction.
 There is no cost associated with this scenario.
- 2. Scenario Two: Demand Reduction of 6.5% by 2051
 - Continue current level of effort in programming, with routine program review to replace ones that are no longer effective or have matured. Assumes similar level of demand reduction to that achieved by the City between 2015 and 2019.
- 3. Scenario Three: Demand Reduction of 3.25% by 2051
 - Implementation of effective conservation programming makes reduction more challenging with success. This scenario assumes that programming is scaled back in response to a slowing demand reduction trend, with a switch in focus to less efficient and higher demand customers. Lower demand reduction at a lower cost to the City.



- 4. Scenario Four: Demand Reduction of 7.3% by 2051
 - Scenario Two with additional water reuse opportunities. Most aggressive approach with highest demand reduction and highest estimated cost.

Groundwater Sources

The following groundwater alternatives were discussed in detail:

- Optimize existing operating municipal sources: review of existing municipal sources to identify any that could potentially contribute additional capacity. The Downey well was identified as a possibility but would have to be considered alongside other existing and potential new sources in southwest Guelph.
- Restore existing off-line municipal sources: evaluated the possibility of restoring the Clythe, Sacco, and Smallfield wells and the Lower Road Collector.
- Develop existing municipal test wells: considered three test wells in southwest Guelph (Ironwood, Steffler, Guelph South) and the Dolime Quarry, one test well in northwest Guelph (Hauser) and two test wells in Northeast Guelph (Logan and Fleming).
- Install new wells inside City boundaries: evaluated one well location in the City included within the 2014 WSMP; however, the location was screened out through preliminary modelling.
- Install new wells outside City boundaries: considered one potential well location north of Guelph within Guelph-Eramosa Township and one potential well location south of Guelph in Puslinch Township.
- Install new ASR wells inside City: Aquifer Storage and Recovery (ASR) system to collect excess water from the Arkell Collectors, treat to potable standards and inject into the deep aquifer for later recovery and use.

Surface Water Alternatives Assessment

Guelph Lake was reviewed as a potential source of surface water for direct treatment and distribution and as a potential source for an ASR system to capitalize on peak flow.



Q&A – Water Supply Alternatives

- Q1. All Water Supply Alternatives Summary: were these plotted in priority sequence based on some evaluation?
- A1. No, they reflect the order that they were evaluated. In the preliminary evaluation tables (4-3, 4-5, 4-7) that we will review next, we will talk about prioritization of the alternatives.
- Q2. Regarding the Dolime Quarry, the assimilative capacity was not a factor, but should it be?
- A2. It has not been considered in the past because it's a permitted discharge by the Ministry of Environment, Conservation and Parks (MECP). The quarry dewatering permit has an expiry and the quarry itself has a lifespan, so we know that it's not a permanent practice. Further, the way the MECP requires the assimilative capacity to be calculated is based on upstream flows. There needs to be adequate upstream flows to dilute the wastewater being discharged. With changes to the water management on site, there's going to be variability in the discharge to the Speed River and ultimately we're anticipating that it will significantly reduce as that water is targeted for supply.
- Q3: Because of climate change there is going to be an increased need for farmers to irrigate their land as opposed to relying on rainfall. In the presentation the suggestion is to go outside the city limits for Guelph's water supply. How has the position of farmland and the possibility of them requiring irrigation been factored in the plans?
- A3: Under the Source Water Protection process, we are having discussions with MECP to ensure that we have adequate supplies for drinking water, and water supply in the future. We have also undertaken studies to look at climate change impacts on groundwater over the next 50 years; preliminary work indicates that there may be more groundwater recharge, and this is because as the temperature increases there will be more freeze/thaw events in winter which generates recharge, and this is more than we lose from evaporation in the summer.
- We're also working with MECP to develop a water resources strategy for in and around Guelph to ensure we are using the water to its greatest efficiency to meet the communal needs of everyone.
- Q4:Regarding the Dolime Quarry, it is my understanding than an agreement has been entered into with the City, Province, and quarry where the City will try and reseal the aquitard at a cost of \$20m, and that the citizens of Guelph will fund the process. It has been presented to citizens (and the local MP, MPP) that this



is an imminent threat to our water supply and must be handled immediately. Is the quarry / breach of the aquitard an imminent threat to our water supply? Why have we not approached the Province long ago to mediate the problem.

- A4: There is a threat to the water supply if the quarry shuts down and stops dewatering. It they stop the dewatering it could fill with water that contains bacteriological contaminants that would threaten the water supply. The plan is not to seal the breach; our plan is to continue with the dewatering operations to maintain inward flow into the quarry and maintain the groundwater divide so that we can get more water quantity and protect the quality. We have had a lot of discussion with the quarry owners (who are operating with a legal license). The City is in a position where we needed to come up with an appropriate solution to protect the water supply; which is why we will annex the property and the City will take over the water management so that we can protect the water supply. We have some idea of what the required costs will be for the pumping station and monitoring program but will complete an operational testing program and environmental assessment (Southwest Guelph Water Supply Class EA) to refine the costs and discuss the alternatives with the public before reaching a conclusion.
- Q5: Is there modeling for a Greywater usage and / or recovery plan? Or any incentive for people to continue to, or more actively use Greywater?
- A5: Greywater is definitely a component of the Water Efficiency Strategy stemming from the Water Supply Master Plan. It hasn't been a mandated component because we have to look at integrated water management, and there are other implications from a wastewater perspective. We have an active greywater reuse rebate program through Blue Built Home, and through a number of rebates that the City offers; however there is a lot of management and work on the homeowners' side in participating in the initiatives and adoption is not an easy process.

Regarding the pricing of the water, we want to ensure a fair price and it's been carefully monitored through the Master Plan update process.

Preliminary Evaluation of Alternatives

A summary of the evaluation tables were presented for Water Supply Alternatives including Conservation / Limit Growth / Do Nothing (Table 4-3), Groundwater Sources (Table 4-5), and Surface Water Sources (Table 4-7).

For each table the alternatives were considered using the following criteria categories: First Nations, Metis, and Inuit Peoples, Technical (ability to achieve



demand and reduction), Natural Environment, Built Environment, Social / Cultural Environment, Legal / Jurisdictional, and Financial.

For Conservation, Efficiency and Demand Management, Limit Growth, Do Nothing (Table 4-3)

The most favourable alternative for the short-term strategy is to maintain the current level of effort (Scenario Two). For the medium-term the preferred alternative is to shift focus to less efficient and high demand customers (Scenario Three). For the long-term, Scenario Four with water reuse is preferred. The least favourable alternatives, not included in the preferred solution are, Scenario One (cease programming), limit growth / do nothing.

- Q6: Are there efforts to develop a pricing strategy that addresses your concern but helps conservation efforts?
- A6: We have done some work in the past and will revisit with each update to the water efficiency strategy, and we'll continue to pursue research as long as it coincides with one of the conservation scenarios. We've determined that a conservation pricing scheme has not necessarily had the effect in Guelph that we'd like to see based on modelling, but we continue to look at that as we go through a rate analysis, balancing affordability and similar considerations.
- Q7: Is there any consideration to halting or limiting any major consumers of water?
- A7: Through the review of applications for new businesses within the City, the associated water consumption requirements are reviewed. If a proposed business has a high water demand it may not be feasible to approve it for operation in the City.
- Significant water taking has to be granted with a permit (Permit to Take Water) issued by the province. As part of our source protection programs, we're working with the province to undertake water quantity studies to develop appropriate programming that manages the quantity of water available in Guelph and the surrounding area. This would consider the water taking collectively within the City and surrounding area.

For Groundwater (Table 4-5)

All the five groundwater alternatives are recommended for inclusion in the preferred solution with various limitations. For leveraging the Existing Municipal Offline Sources, uncertainty surrounding the extent of the contamination affecting the Smallfield and Sacco wells and whether it can be remediated, dictates that it cannot be relied upon within the 2051 planning horizon. For the Municipal Test Well alternative, the water quality conditions would need to be confirmed around the Hauser well location; the Southwest Guelph Water Supply Class EA study is



required to evaluate the capacity of test wells within southwest Guelph under Dolime Pond Level Management. For the Arkell Collectors and ASR, modelling and hydrogeological studies would be needed to assess efficiency and confirm infrastructure and costs. For New Wells Outside the City, this is not a priority alternative as the City has committed to first developing the available water within the City. After the available water within the City has been integrated into the system, sources outside of the City will be considered.

For the Surface Water Source (Table 4-7)

Both alternatives were preferred as part of the overall solution, although they have a lower priority than Conservation, Efficiency and Demand Management and development of the groundwater sources. Significant study will be required to develop the Guelph Lake Water Treatment Plant alternative and modelling and hydrogeological studies would be needed to assess efficiency and confirm infrastructure and costs associated with ASR.

- Q8: Regarding climate change modelling, what average temperature increase is anticipated?
- A8: A report on the Grand River Conservation Authority (GRCA) website provides more detail on the climate change modelling work that was completed as part of the Tier 3 Water Budget and Local Area Risk Assessment, which is part of our Source Protection Program conducted with the GRCA under the Clean Water Act.
- Climate Change Report https://www.sourcewater.ca/en/source-protection-areas/resources/Documents/Grand/15072-527-Climate-Change-R-2018-11-21-final-V1.0.pdf
- Q9: Regarding the aquifer storage and recovery, if the current pipeline is filled to 100% capacity, why wouldn't you use the current supply versus borrowing from additional wells?
- A9: ASR is an opportunistic strategy that would be employed when we have maxed out the capacity of groundwater wells in the system. It captures additional capacity from surface water or shallow groundwater sources when it is available but not required to meet demand, treats it to a potable standard and stores it in the deep aquifer until it is required during high demand periods.

Next Steps and Adjournment

The project team reminded participants to reach out to Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) if they had any questions, comments or concerns about the technical information presented. Participants were



encouraged to provide additional feedback to the discussion questions in the presentation.

Next steps in the project include incorporating and considering feedback from this meeting.

Upcoming engagement opportunities include:

• Community Open House #2 – September 29th, 2021

The meeting was adjourned at 9:00 pm.





Appendix G

Agency and Municipality Workshop #1 and #2

- Workshop #1 Presentation
- Workshop #1 Discussion Guide
- Workshop #1 Summary
- Workshop #2 Presentation
- Workshop #2 Summary

Water Supply Master Plan 2019 Update

Workshop No. 1









Agenda

- Welcoming & Opening Remarks
- Water Supply Master Plan Update Overview
- Guelph's Current Water Supply System
- City Updates since 2014 Water Supply Master Plan (WSMP)
- Water Supply Master Plan Update
- Next Steps







Meeting Purpose

- To review and provide input on key aspects of the Master Plan and the Class Environmental Assessment (EA), including:
 - Objectives and scope of the Master Plan Update
 - Issues and opportunities to be addressed
 - Alternative solutions to be assessed
 - Evaluation criteria to be applied







Check-In

- Find someone you don't yet know (or know well).
- In pairs, introduce yourself and answer the check-in question.
- In one sentence, introduce your partner to the large group.

What am I bringing to this group? (i.e. experience/ knowledge of water supply)

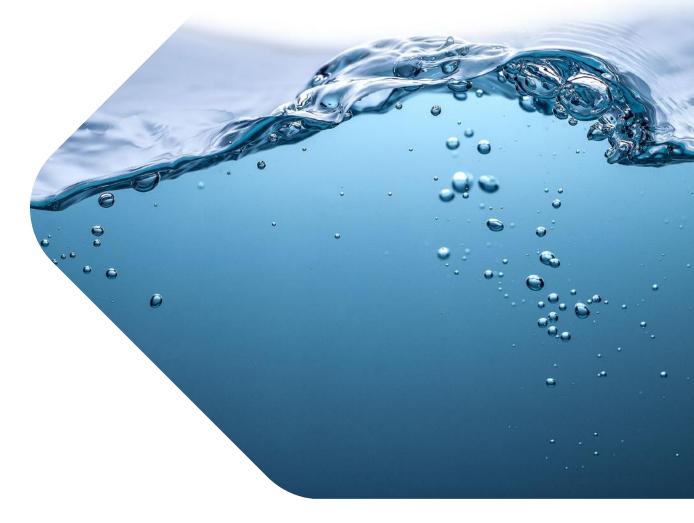








Water Supply Master Plan Update Overview









Water Supply Master Plan Update

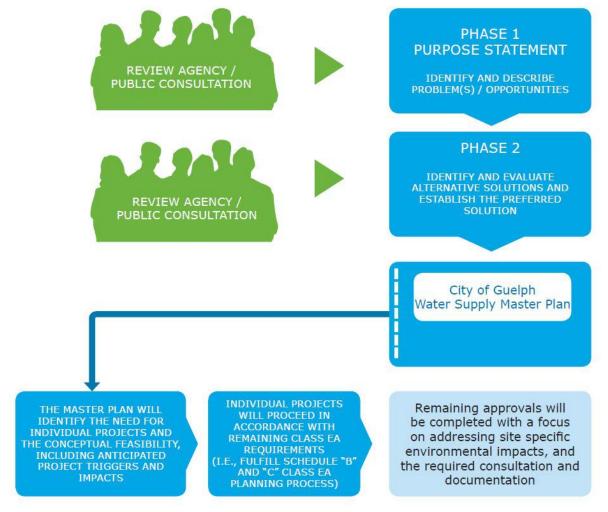
- Will define where and how City gets safe and reliable water for residential and Industrial, Commercial and Institution (ICI) use to the year 2041 and identify challenges beyond this timeframe
- We'll review Guelph's demand forecast and existing water supply and discuss with the community how to continue to meet the City's needs
- Additional sources to supplement our existing supply will be identified. As will alternative
 ways to conserve supply and manage demands
- When investigating existing and new water supply options we'll consider things like climate change, water quality and quantity, economic factors, social/ cultural environment, and any relevant regulations
- Regardless of source, our water supply will continue to meet the service requirements of Guelph and the high standards set by the Ministry of the Environment, Conservation and Parks (MECP), including Source Water Protection requirements
- Short-term, mid-term and long-term water supply options will be recommended







Master Planning Process



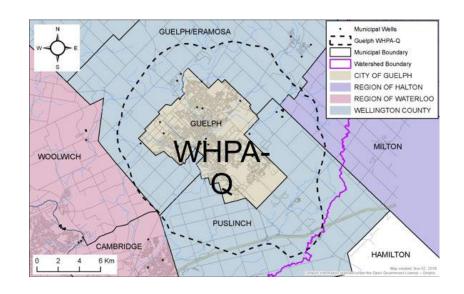






2019 WSMP - Special Issues

- Tier 3 Water Budget and Local Area Risk Assessment
 - Designation of Wellhead Protection Area Quantity and Significant Risk under 2031 demand and drought
 - Potential for impacts on surface water
- Contaminated Sites
 - Northwest Quadrant Smallfield and Sacco Wells
 - May need to abandon wells and "write-off" area for new supply
- Dolime
 - o PTTW appeal water quality and quantity concerns
 - Ironwood and Steffler test wells at risk
 - Settlement pathway proposed





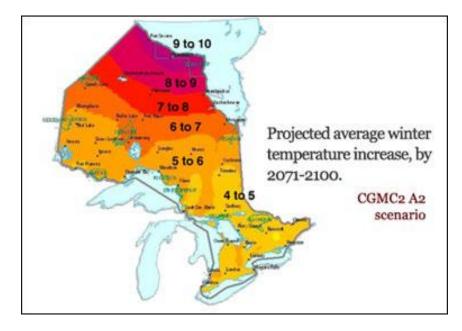




2019 WSMP - Special Issues

Surface Water Impacts

- Tier 3 Water Budget shows potential impacts on surface water with additional groundwater takings
- Firm Capacity and Security of Supply
 - Typically consider drought and loss of supply due to contamination event
 - o Is 10 % "security of supply" allowance sufficient?
- Climate Change
 - Modelling studies indicate more recharge in future will supplement water supplies
 - Climate not expected to be a supply issue
 - Expectation that it be addressed in the WSMP









We'd Like Your Input...

What other questions, issues or concerns related to water supply should we consider while updating the Water Supply Master Plan?

- 1-2-4-All:
- Individual silent reflection 2 mins
- Discuss in pairs or groups of three, building on reflection – 3 mins
- Shareback 10 mins



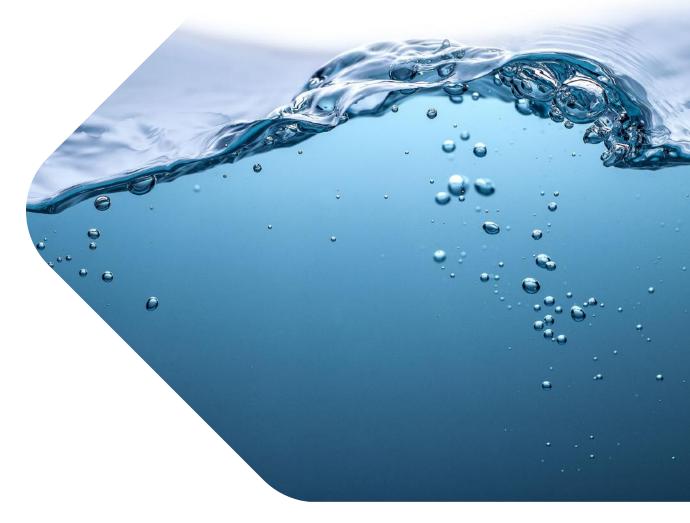








Maintaining a Safe and Sustainable Supply Guelph's Current Water Supply









Overview of Our Existing System

- Groundwater-based water supply since 1879
- Guelph's water supply system includes production wells installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells, 21 wells in continuous operation 4
 wells offline due primarily to water quality concerns
 - A shallow groundwater system that collects spring water in the Arkell Spring Grounds
 - Eramosa River Intake and Recharge system (seasonal): river water pumped to a infiltration pond and trench; where it is captured by a subsurface collector system; availability is subject to river flow conditions (i.e., lower flow in summer)

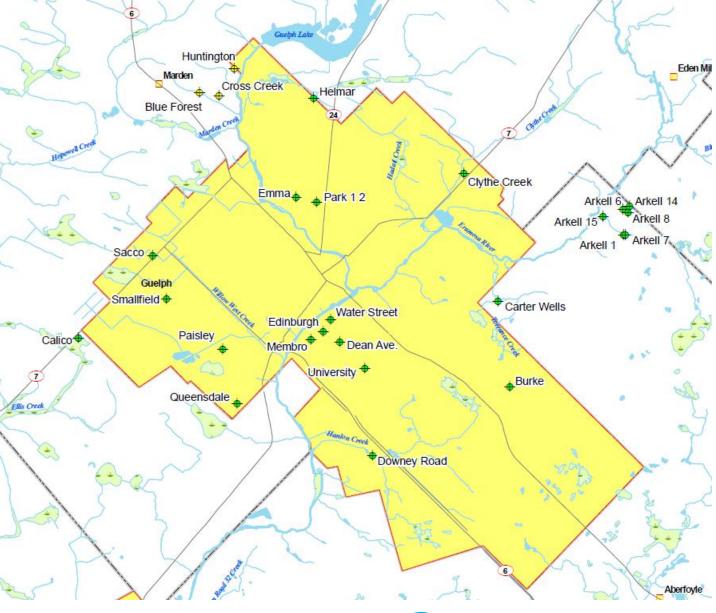








Overview of Our Existing System

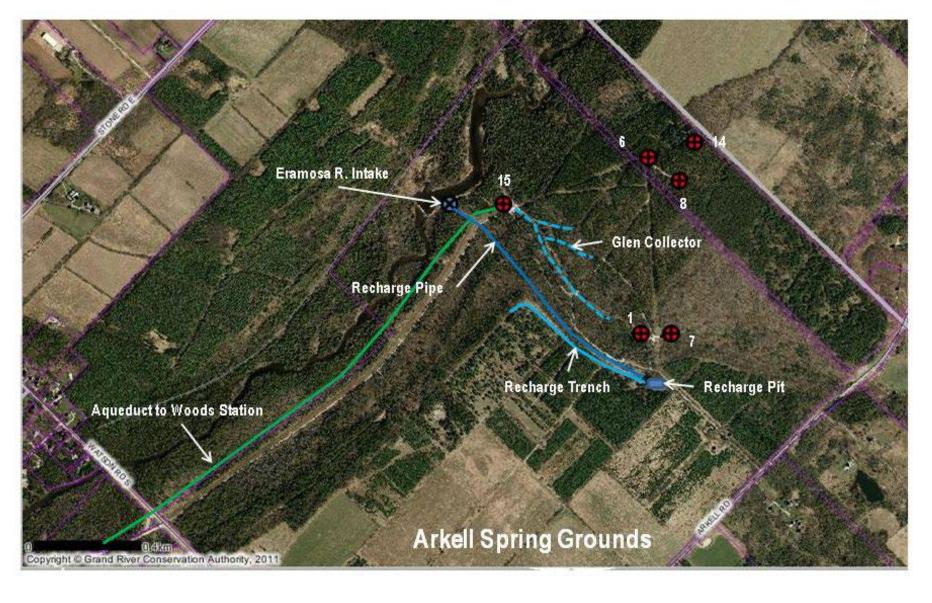








Arkell Spring Grounds









Overview of Our Existing System

2014 WSMP

Well/ System Capacities (m³/day)

	Arkell 1	2,000		Park 1	0.000						
	Arkell 6			Park 2	8,000						
	Arkell 7		NE Quadrant	Emma	2,800						
	Arkell 8	28,800	Quadrant	Helmar	1,500						
	Arkell 14			Clythe Creek	0						
SE	Arkell 15			Paisley	1,400						
Quadrant	Burke	6,500		Calico	1,400						
	Carter 1	E E00	NW	Queensdale	1,100						
	Carter 2	5,500	Quadrant	Sacco	0						
	Arkell Infiltration Galleries - Glen Collector	6,900		Smallfield	0						
	Membro	6,000									
	Water Street	2,700									
SW Quadrant	Dean	1,500	Total Sustainable Capacity – 83,836 m³/day								
Quadrant	University	2,500		5,050 m / day							
	Downey	5,236									

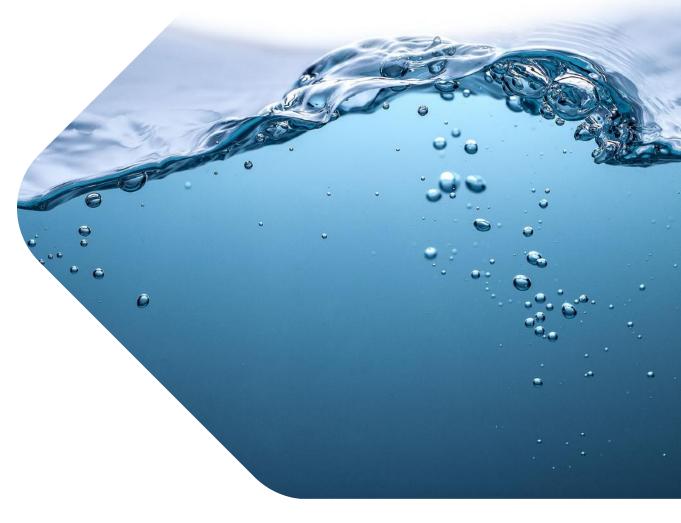








A lot has been going on... Progress Since 2014 WSMP









2014 WSMP Preferred Solution and Timeline

- 1 Conservation & Demand Management
- Implementation is on-going

2A – Groundwater: Existing Off-Line Municipal Wells

 Clythe in 2024, Sacco in 2029, Smallfield in 2030

2B – Groundwater: Municipal Test Wells

 SWQ in 2019, Logan in 2027, Scout Camp 2036, Hauser post-2038

2C – Groundwater: New Well Inside City

• Sunny Acre in 2033

2D - Arkell Collectors & ASR Wells

Collector in 2031, ASR post-2038

2E - Groundwater: New Wells Outside City

Guelph South and North post-2038

3A – Surface Water: Guelph lake Water Treatment Plant

post-2038

3B - Surface Water: Guelph lake Water Treatment Plant & ASR Wells

post-2038







Water Conservation & Demand Management

Progress 2006 to 2014

- City of Guelph has invested \$10.2 million+ in water conservation programming.
- Delayed the need for close to \$40.6 million+ in water and wastewater infrastructure by using less water.
- Saved \$534,000+ per year in operational costs.
- Decreased peak day water use by 11,800 m³ since 1999.
- Decreased non-revenue water lost to the "system" before reaching customers by almost 50 per cent.



Water conservation and efficiency remain **most cost effective form of "new" supply** to assist in meeting Provincial growth targets.





Water Conservation & Demand Management

2016 Water Efficiency Strategy

2014 Water Supply Master Plan demand reduction target of 9,147 m³/day by 2038.

Water Efficiency Strategy community demand management, efficiency and conservation goals:

- Reduce water use as part of new growth
- Develop/ pilot new technologies to save water
- Reduce water use in existing buildings
- The technology is proven and easily implementable in the City
- Stimulate the Guelph economy
- Minimize costs to the City

Final strategy endorsed by Council in September of 2016.

- 10 year, \$13.6 million community-driven water efficiency and demand management programming
- Goal: Reduce water use by 6.2
 Million Litres per Day by 2026

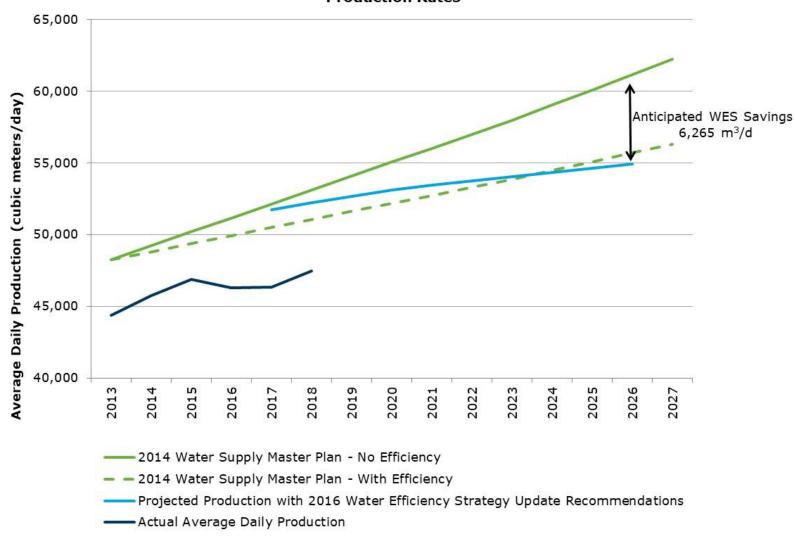






Water Supply Master Plan (2014) and Water Efficiency Strategy (2016) Production Rates

Water Conservation & Demand Management









Water Efficiency 5Year Program Participation & Savings

	5-Year	Totals
Water Efficiency and Conservation Program	Number of Audits or Rebates	Average Daily Water Savings (m3/day)
Blue Built Home Certification	42	40
eMERGE Home Visits	1,300	52
Multi-Residential Audit Program	13	7
Multi-Residential Sub-metering Program	20	1
Municipal Facility Upgrades	4	36
Royal Flush Rebate Program	4,702	409
Smart Wash Rebate Program	756	58
Water Smart Business Program	9	456
Leak Detection Program	-	10,333
Grand Total	6,846	11,393







City-Wide Studies

Progress since 2014

Tier 3 Water Budget and Local Area Risk Assessment (2017)

- Identified Significant risk level to Guelph groundwater supply system under drought conditions
- Applies to Well Head Protection Area Quantity (WHPA-Q) and Intake Protection Zone Quantity (IPZ-Q)
- Water Quantity Threats Management Strategy completed to guide water quantity policy development

Drinking Water Source Protection Plan and Policies

- Source Protection Plan amended in August 2019
- Includes policies to address drinking water quality threats
- Policies to address water quantity threats currently under development







Arkell Spring Grounds

Progress since 2014

Arkell Adaptive Management Plan and Operational Testing Program (2011 - 2016)

- Increase water taking from the Arkell bedrock wells from 19,584 to 28,800 m³/day
- OTP did not result in any drawdown in the aquifer below Blue Springs Creek
- No impacts (water level drawdown, change in hydraulic gradient, water temperature impacts) to Blue Springs Creek were observed
- Permit-To-Take-Water (PTTW) issued by MECP for the requested 28,880 m³/day

Arkell Spring Glen Collector Improvements

- Trench upgrades completed to improve the capacity of the groundwater recharge system
- Testing and monitoring completed to optimize pumping and recovery







Clythe Well Class EA & Membro Well Replacement

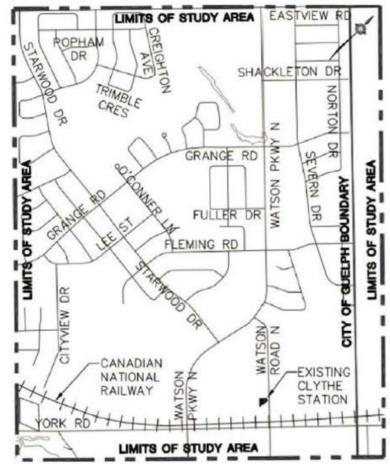
Progress since 2014

Clythe Well Class EA (2018):

- Location selected for water treatment facility
- Conceptual design of facility and raw & treated watermains
- Detailed design in 2019/ 2020
- Construction of project in 2021

Membro Well Replacement:

- Drilled in 2016 to depth of 49 m
- Addressed well diameter constraints for higher pumping rates to 6,000 m³/day
- Well testing to be conducted in 2020









Southwest Quadrant Groundwater Investigations

Ironwood/Steffler Wells (2016)

- Class EA put on hold due to concerns on Dolime Quarry
- Modelling studies to evaluate quality protection and additional quantity

Guelph South Groundwater Supply Investigation (2019)

- GSTW-1 high potential supply source
- Convert to large diameter production well test program
- Target capacity of ~5,200 m³/day



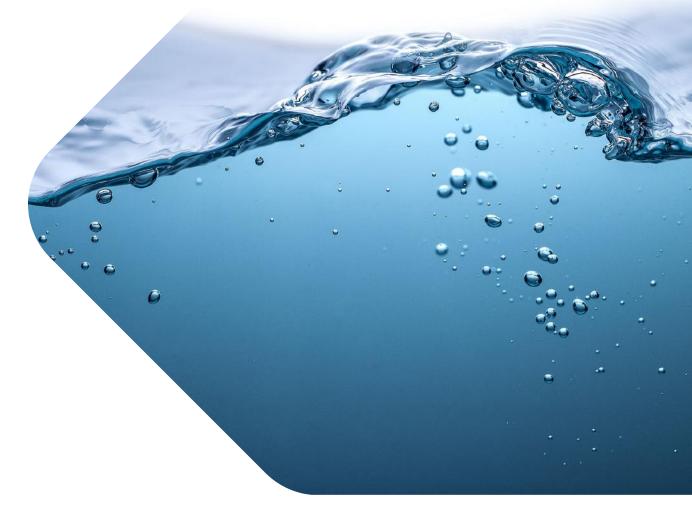








Take 10 minutes to relax! Break



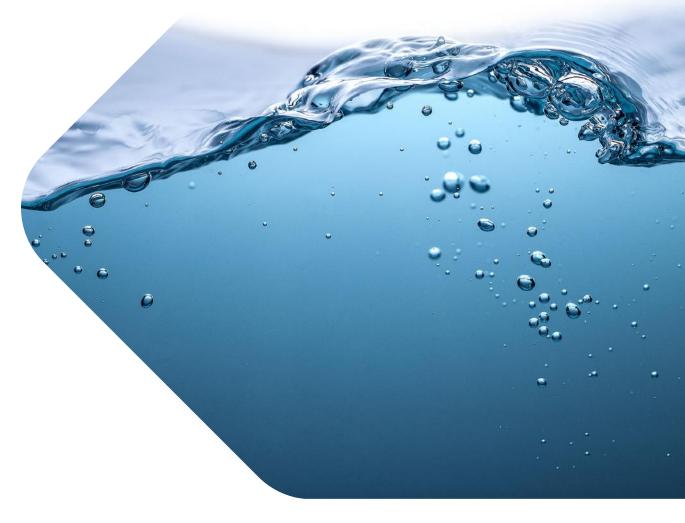








Ensuring a sustainable supply to 2041
2019 WSMP Update









Objectives

- To provide a community-endorsed framework for provision of an adequate and sustainable supply of water to meet the current and future needs of all customers; to the year 2041
- To coordinate with other City master plans in developing a sustainable water/wastewater strategy
- To develop a "strategic plan" for implementation of specific projects (future works/ developments) in a phased approach with identified triggers
- To provide the basis for individual studies under the Class EA process







Purpose Statement

The City of Guelph is committed to develop a reliable and sustainable supply of water to meet the current and future needs of all residents, industrial, commercial and institutional customers.

The 2014 WSMP confirmed that the existing water supply capacity will not meet future demands. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required.

The proposed implementation strategy must deliver an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.







Scope of Work – WSMP Update

Task 1 - Public Consultation

- Community Liaison Group (CLG) meetings (2 or 3)
- Workshops (2)
- · Community Open Houses (2)

Task 2 – Population and Water
Demand Forecasts

- Develop population projections residential and ICI (employment)
- Incorporate Provincial Growth Plan targets
- · Develop water demand projections

Task 3 – Existing Water Supply Capacity Assessment

- Update the assessment of existing well performance, maximum capacity and potential constraints for each supply source
- · Comparison of existing capacity with demand forecast

Task 4 – Water Supply Alternatives

- Demand management & efficiency programs
- Groundwater sources inside city
- · Groundwater sources outside city
- Local surface water supply & Aquifer Storage and Recovery
- Do nothing

Task 5 – Water Supply Master Plan Update

- Evaluation of alternatives
- Risk assessment
- Develop WSMP Update Report







Proposed WSMP Update Project Schedule

TASK / TIMING		2019													2020																								
TASK / TIMING	Sept		Oct			Nov			Dec			Jan		T	Feb			March			April			May		Ju		une		July		Aug			Sep				
Task 1 - Public Consultation																T			T														Т			П		Т	Π
Open House No. 1															•					П			П													П		T	Т
Open House No. 2			П	T				П	$ \top $			П							\top	П			П										\top				•		Т
Agency Workshop No. 1			П	T	\top		Τ	П				П				\top		П	T	П		Τ	П						П		Τ	\top	\top	П		П	\top	T	T
Agency Workshop No. 2			П		\top			П				П				T			T	П			П													П		T	T
CLG Meetings			П	T				П								T			\top	П			П												•	П			
Task 2 - Population and Water Supply Demand Forecast																		•		П			П											П		П		Т	Т
Task 3 - Water Supply Capacity																						•	П													П			Т
Task 4A - Demand Management			П	Т	\top		Г	П		T		П				T							П										\top	П		П		T	Т
Task 4B - Groundwater Sources			П	T			Г	П	\Box			П				T				П														П		П		Т	Т
Task 4C - Surface Water Sources			П						\Box			П				\top				П			П													П		T	Т
Task 5 - Update WSMP				\neg	T							\sqcap				T																							•
Task 6 - Project Management																																							









Community Engagement Goals

- Engage the Guelph community to develop a shared vision for managing the City's water supply
- Generate a broad awareness of the Water Supply Master Plan and the opportunities for participation
- Obtain an understanding of the community's aspirations/concerns relating to water management
- Keep key stakeholders informed of WSMP activities, and communicate in a timely and clear manner
- Affirm the City's commitment to community engagement and open planning processes, and demonstrate the impact of engagement efforts on the Master Plan Update and the Class EA process







Class EA Phase 1

Class EA Phase 2

Additional groundwater & alternative municipal supplies are identified

Constraints / opportunities identified, and evaluation methodology /criteria defined.

Servicing strategies identified

CLG #3

Preferred alternatives determined and Draft Plan submitted

Environmental Assessment Process

Notice of Project CLG #2 Initiation Workshop #2 Notice of Completion **CLG Recruitment Notice of Public** Agency Meeting #2 Notifications Public Meeting #2 CLG #1 Newsletter/ Media Workshop#1 Release #2 Notice of Public Meeting #1 Public Meeting #1 Newsletter/ Media Release #1

Stakeholder Meetings & Presentations

Communications and Social Media

Issue Management, Tracking, and Reporting







We'd Like Your Input...

Group A: Is the proposed project consultation appropriate for engagement of Indigenous Communities?

How can it be adjusted/ improved?

Group B: How can residents outside of Guelph be properly consulted to evaluate water supply sources outside of the City?

Small Group Discussions:

- Split into Group A or Group B according to your interest
- Discuss in groups, and record on the flipchart 15 mins



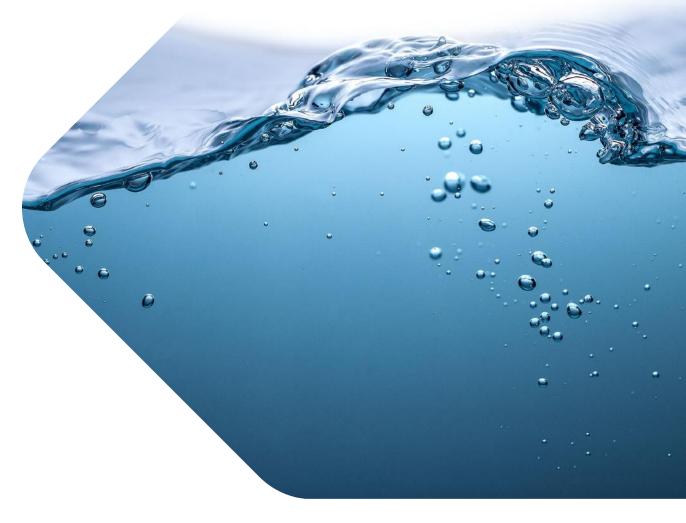








Maintaining a Safe and Sustainable Supply to 2041 Work Underway



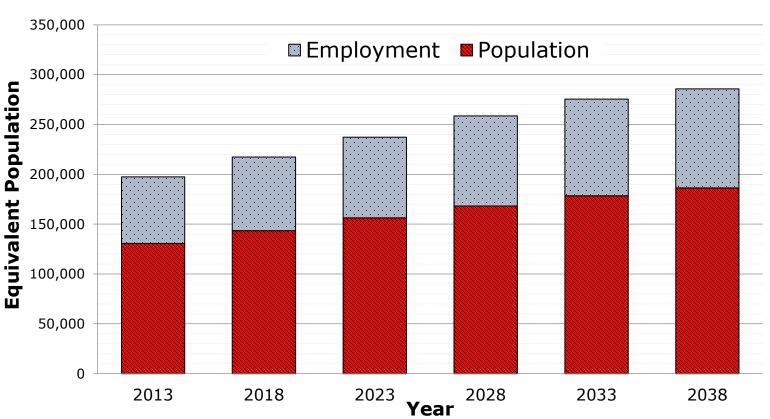






Population and Water Supply Demand Forecasts

Population Projection (2013-2038):



Develop population projections – residential and ICI

- Projections included in 2014 WSMP
- 2019 WSMP will update projection to reflect Ontario 2019 Growth Plan (191,000 residents and 101,000 jobs by 2041)





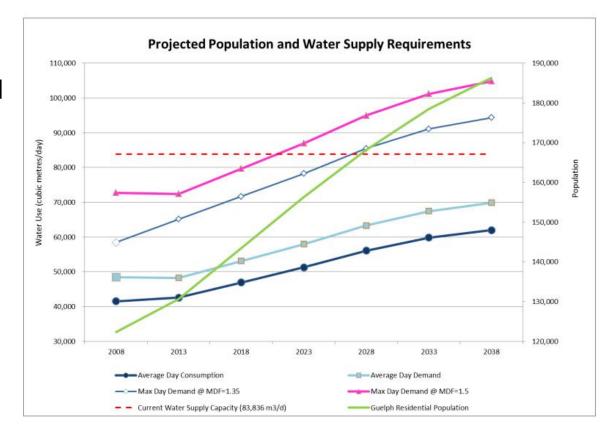
November 28, 2019



Population and Water Supply Demand Forecasts

Develop water demand projections – Proposed Methodology

- Review water consumption (billings) and production (pumping) data
- By sector: Residential + Employment + Non-Revenue Water
- Quantify reduction attributed to City's efficiency initiatives
- Develop a new conservative baseline for each sector
- Develop projected demand
- Determine design Maximum Day Factor
- Comparison to existing capacity









Existing Water Supply Capacity Assessment

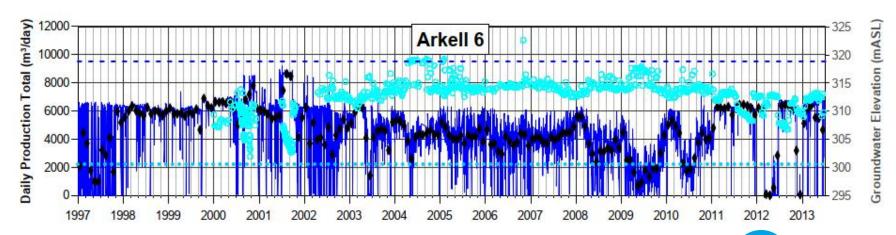
Existing Well Capacity Assessment

- Review historical operational data for assessment of well performance
- Waterworks Operations Workshop to identify constraints
- Determine maximum capacity for each supply source

Review Range of System Capacity

 Predictive / modeling assessment to review scenarios: loss of supply well, drought and short term high demand.

Comparison of Capacity Assessment with Demand Forecast









Developing Water Supply Alternatives

Scope of Work

Demand Management/ Efficiency Programs

- Maintain commitment to these initiatives and 2016 WES
- Determine range of realistic goals, and cost to implement
- Develop means of measurement to evaluate

Groundwater Sources In & Outside of City

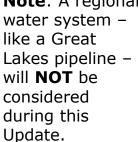
- Restore lost capacity through optimization of existing well supplies (i.e. infrastructure improvements)
- Restore existing wells with treatment
- Identify new potential water supply areas
- Dolime Quarry groundwater/surface water source

Note: A regional water system -

- Establish feasibility/ risks of surface water alternatives including Aquifer Storage and Recovery
- Assessment areas include: Eramosa River/ Guelph Lake

Do Nothing

- Undertake no improvements or changes
- Significant impact on the growth potential for the City would be expected with this alternative









Water Supply Alternatives

Recommended Groundwater Supplies (2014)

New Sources Inside City:

Sunny Acre

New Sources Outside City:

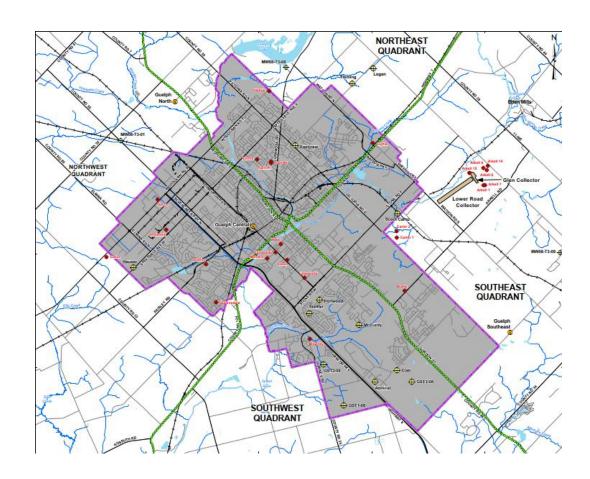
- Guelph North
- Guelph South

Re-establish Off-Line Supplies:

- Clythe
- Sacco
- Smallfield

Municipal Test Wells:

- SWQ Ironwood/ Steffler/ Guelph South
- Logan
- Scout Camp
- Hauser







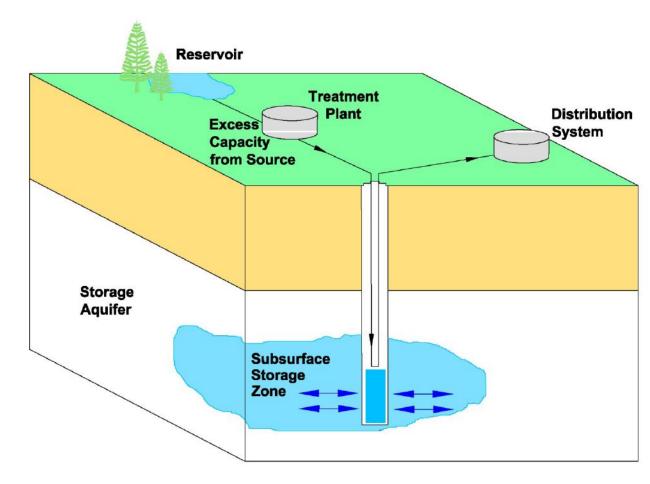


Water Supply Alternatives

Aquifer Storage and Recovery (**ASR**) - re-injection of potable water back into an aquifer for later recovery and use

Will include consultation with GRCA – assessment of quantity of surface water available through the year in Guelph Lake and Eramosa River

- Base level water taking
- Additional volumes and duration









We'd Like Your Input...

Do you have concerns regarding any of the alternatives presented? Should any of these not be considered?

Are there other water supply alternatives that should be considered by the project team?

Gallery Walk:

- Each alternative is identified on a flipchart
- Write down your concerns and ideas using the sticky notes provided
- Project team members are available to answer questions



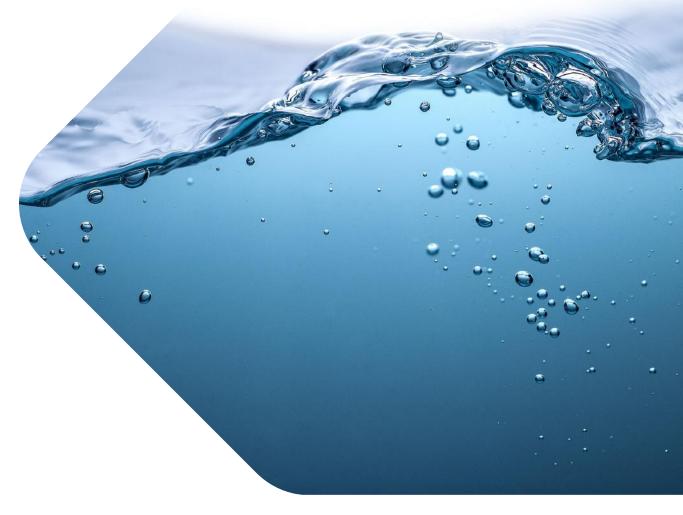








Maintaining a Safe and Sustainable Supply to 2041 Assessing Alternatives









How We Will Assess Alternatives

Scope of Work

- Each potential alternative will be assessed using a consistent approach and evaluation criteria
- A short-list of alternatives will be ranked and further evaluated. This may include screening by:
 - Primary Criteria (e.g., ability to meet regulations, costs, technical feasibility, environmental or social affects)
 - Secondary Criteria (e.g., manageable impacts like construction truck traffic)
 - The technical assessment will include use of the Tier 3 Groundwater model to assess well system optimization and potential impacts related to development of new supplies
 - Comparisons and trade-offs will be made between alternatives and will form the rationale for the identification of the preferred solution or water strategy







Evaluation Criteria

Public Health and Safety	Ability to meet provincial requirements
Natural Environment	Potential effects to natural environment Potential impacts to water resources Potential impacts to natural heritage features Environmental management planning considerations
Social and Cultural Resources	Land use impacts Short-term construction impacts Potential impacts from operations Potential impacts to Indigenous Peoples and values
Economic and Financial Considerations	Estimated capital costs Estimated operations and maintenance costs, including energy consumption
Legal / Jurisdictional Considerations	Location of facility relative to city boundaries Land requirements Ability to address outside control
Technological Considerations	Ability to implement and meet peak demand Constructability, schedule and timing, and maintaining operations during construction Water quality Allowance for future treatment needs Expandability Ability to respond to changes in regulations Ability to utilize existing infrastructure







We'd Like Your Input...

What are the benefits and drawbacks of using the Tier Three Groundwater model for evaluation of the water quantity impacts of source development?

Large Group Discussion:

Share your thoughts!



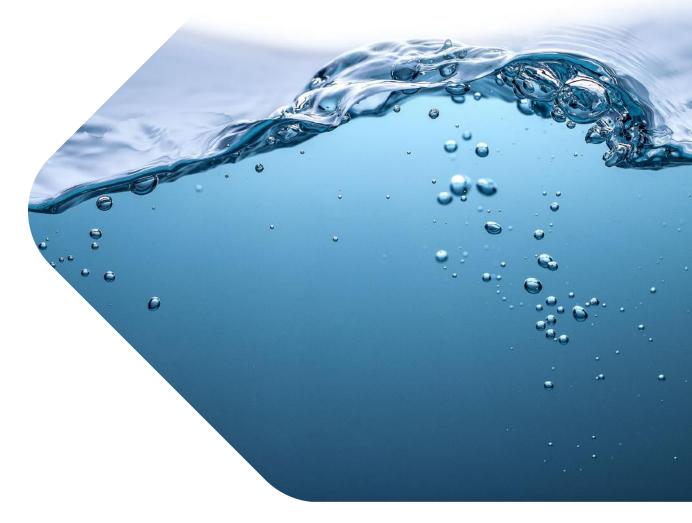








Next Steps









Next Steps

- Incorporate/ consider feedback from this workshop
- Complete current work and develop water supply alternatives
- Conduct preliminary evaluation of alternatives
- On-going Community Engagement
 - Community Liaison Group Meeting #1 Wednesday Dec. 4
 - Community Open House #1 late January 2020 (tentative)
 - CLG # 2 Aug 2020 (tentative)
 - Workshop #2 Aug 2020 (tentative)





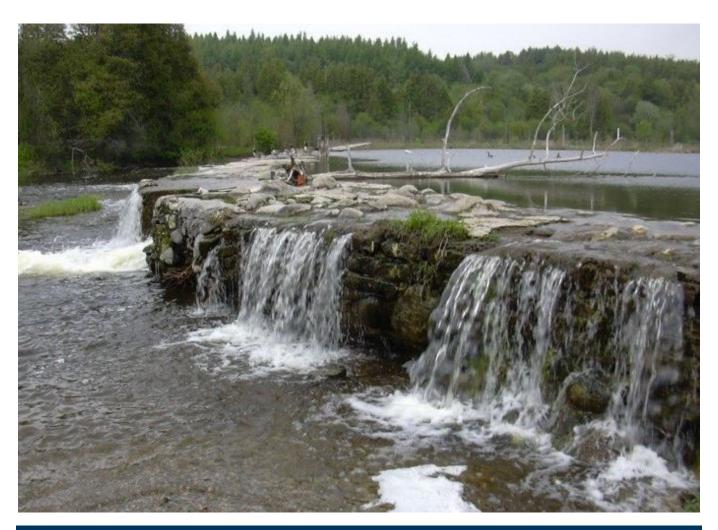












Guelph's Water Supply Master Plan Update Discussion Guide – Fall 2019

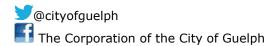


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Why Update the Water Supply Master Plan?

The City of Guelph is updating its council-approved Water Supply Master Plan, from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2041. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Today, our existing water supply fulfills the City's commitment to provide a safe and reliable supply of water. Our updated Master Plan will provide short-term, midterm and long-term water supply options to meet Guelph's predicted demand for water in the future. Guelph is a growing community, and new water supply will be required to support the City's continued growth. In keeping with the 2014 Water Supply Master Plan, any development of water supply options outside of the City will only be considered with the co-operation and participation of the County and the relevant Township/Town.

When investigating existing and new water supply options—like new groundwater sources in and outside of the City, and local surface water sources—we'll consider things like water quality and quantity, economic factors, environmental and social/cultural concerns and any relevant regulations. Regardless of source, our water supply will continue to meet the service requirements of the Guelph community and the high regulatory standards of the Ontario Ministry of the Environment, Conservation and Parks (MECP).

What's Included in this Discussion Guide?

	Page
Why Update the Water Supply Master Plan?	1
Getting the Conversation Started	2
Everything you wanted to know about Master Planning	3
Water Efficiency and Demand Management	11
Updating our Water Supply Master Plan	12
Proposed Alternatives (Preliminary)	13
Evaluating our Options - Evaluation Criteria	14
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Discussion Topics and Questions – Workshop #1	17



Getting the Conversation Started

Community input is an essential part of our Water Supply Master Plan update process. We know that people care about where our water comes from, and that they want to maintain a safe and sustainable supply for present and future generations.

That's why we're making it easy for people to get involved. We'll be gathering input and suggestions from people and organizations in a number of ways to help update the Water Supply Master Plan:

- A **Community Liaison Group** (CLG) is in place to provide feedback to the project team throughout the process. The CLG has members from a wide cross-section of the community including residents, community groups, local government and business leaders. They will meet on at least three occasions to share ideas and perspectives on ways to improve the Water Supply Master Plan update.
- Two **Workshops** are planned to gather crucial input from the perspective of **Indigenous Communities**, **Municipalities and Agencies** to help ensure that concerns and interests are considered and addressed, and that the Water Supply Master Plan process meets all local and provincial By-laws and Acts, as well as environmental assessment and approval requirements.
- Two **Community Open Houses** are planned for the wider community to participate. These events will give interested individuals and groups an opportunity to review plans, ask questions directly to the project team members, and provide feedback.

In addition, we will be offering various online feedback opportunities at https://www.haveyoursay.quelph.ca/ throughout the process.

The Water Supply Master Plan update process is designed with you in mind. If you have any questions, comments, or concerns, please contact either Dave Belanger or Matt Alexander by telephone or email. We can also add you to the project email list if you would like to receive project notifications.



Everything you wanted to know about Master Planning

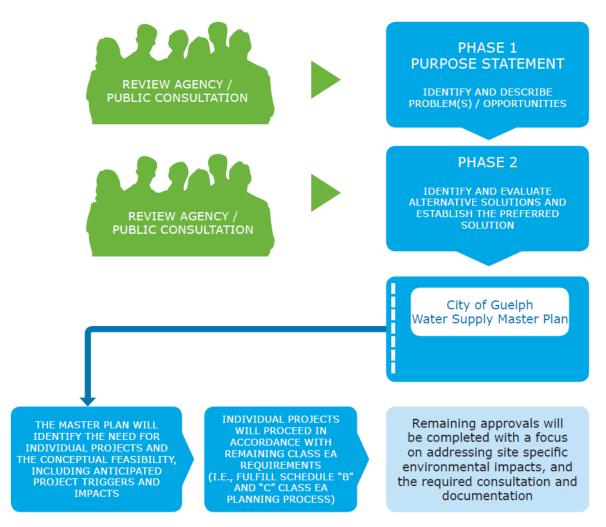
Our update follows the requirements of a Municipal Class Environmental Assessment (Class EA). When we are finished — after our Water Supply Master Plan Update is reviewed by the Guelph community and approved by Council — we will have identified constraints and opportunities related to our existing water supply system. We'll also have evaluated and prioritized a number of individual projects to increase the capacity of our existing system.

Master Plans differ from project specific studies. They:

- **Are broad in scope.** They analyze a system in order to develop a framework for the provision of future works and development.
- Recommend Individual Projects. Specific projects recommended in a Master Plan are part of the larger management system and may be distributed geographically throughout the study area. The implementation of specific projects may occur over an extended time frame. These individual projects will also follow the Municipal Class EA process.
- Must Satisfy Requirements of the Class EA. According to the Class EA document, a Master Plan must at least satisfy the requirements of Phases 1 and 2 of the Class EA process. Figure 1 illustrates the Class EA Master Planning Process.



Figure 1: The Master Planning Process



The Master Plan will include an Implementation Plan that will recommend a series of Class EA water supply projects required to achieve the preferred solution. The Municipal Engineers Association (MEA) Class EA document classifies projects as either Schedule "A", "B" or "C" according to the type of environmental effect(s) anticipated. Each of these classifications requires a different level of review to complete the requirements of the Class EA, and comply with the Environmental Assessment Act:

■ **Schedule 'A' Projects** are limited in scale, have minimal adverse effects and include the majority of municipal sewage, stormwater management and water operations and maintenance activities. These projects are approved and may be implemented without following the Class EA planning process.



Schedule 'A' projects typically include normal or emergency operational maintenance activities. Examples of Schedule "A" projects include facilities that are located within a municipal road allowance or an existing utility corridor.

The sub-classification, Schedule 'A+', ensures that people are notified of certain projects that are pre-approved under the Municipal Class EA. For example, it would be appropriate to notify the public of planned construction in their area. This allows people the opportunity to direct questions or concerns to their municipal council.

Schedule 'B' Projects have the potential for some adverse environmental effects. The proponent is required to conduct a screening process that involves contact with directly affected public and relevant review agencies to ensure that they are aware of the project and that their concerns are addressed.

Schedule 'B' projects require that Phases 1 and 2 of the Class EA planning process be followed and an Environmental Screening Document be prepared and submitted for review by the public and relevant agencies. If there are no outstanding concerns raised by the public and/or review agencies, then the proponent may proceed to project implementation. If, however, the screening process raises a concern that cannot be resolved, then the Part II Order procedure (commonly referred to as a "bump-up") may be invoked.

Schedule **'B'** projects generally include improvements and expansions to existing facilities where there is the potential for some adverse environmental impacts. Examples of Schedule "B" projects include activities such as siting of water storage facilities or new municipal wells (including wellhead protection).

• **Schedule 'C' Projects** have the potential for significant environmental effects and must proceed under the full planning and documentation procedures (Phases 1 to 4) specified in the MEA Class EA document.

Schedule **'C'** projects require that an Environmental Study Report (ESR) be prepared and submitted for review by the public. If concerns are raised that cannot be resolved, then the Part II Order procedure may be invoked.

Schedule **'C'** projects typically include the siting and construction of new facilities, such as water treatment plants, and major expansions to existing facilities.



Guelph's Current Water Supply System

The City of Guelph relies almost exclusively on groundwater to meet the municipality's residential and industrial, commercial and institutional (ICI) water demands. Other municipal water uses including fire fighting, street washing, and watermain flushing. The following describes the City's water supply system and its capacity.

The City has used groundwater as its primary source of water since 1879. Guelph's water supply system includes production wells installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system. The locations of the various wells and the collector are shown on **Figure 2** – Existing Water Supply System.

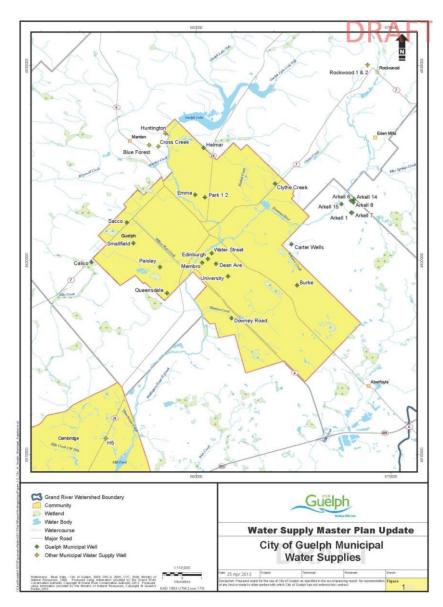


Figure 2: City of Guelph Municipal Water Supplies



There are currently 25 production wells in the municipal supply system. In 2019, 21 municipal wells were operated on a near continuous basis while the other four wells were offline, due primarily to water quality concerns. **Table 1** Municipal Production Wells – Operational Status summarizes the operational status of the individual production wells.

In addition to the municipal wells, there is a shallow groundwater system, called the Glen Collector, that collects spring water in the Arkell Spring Grounds. The City has the infrastructure to augment flow in the collector system during summer months by pumping water from the Eramosa River to a drainage area to recharge the groundwater where it is captured by the collector system. This system is occasionally shut down under low river flow conditions resulting in less water to the system at times when the water is most needed (i.e., summer demand).





Table 1: Municipal Production Wells – Operational Status

Quadrant	Pumping Well	Service Dates	Status in 2019
Northeast Quadrant	Emma Street Well PW1/31(COG)	1931 to present	continuous operation
	Park Wells PW1/37(COG) & PW1/47(COG)	1937 to present	continuous operation
	Clythe Creek Well PW2/76(COG)	1984 to present	off line for treatment upgrade (back on line 2022 est.)
	Helmar Well PW6/66(COG)	1975 to present	continuous operation
Northwest Quadrant	Sacco Well PW8/52(COG)	1953 to 1991	removed from service, low level volatile organic compound contamination
	Paisley Road Well PW4/59(COG)	1962 to present	continuous operation
	Smallfield Well PW3/66(COG)	1970 to 1993	removed from service, low level volatile organic compound contamination
	Queensdale Well PW1/70(COG)	1973 to present	continuous operation
	Calico Well PW4/76(COG)	1979 to present	continuous operation
Southwest Quadrant	Membro Well PW1/53(COG)	1997 to present	continuous operation
	Edinburgh Road Well PW2/53(COG)	1955 to 1996	removed from service, low level volatile organic compound contamination
	Dean Avenue Well PW3/58(COG)	1972 to present	continuous operation
	Water Street Well PW16/53(COG)	1956 to present	continuous operation
	Downey Road Well PW5/67(COG)	1980 to present	continuous operation
	Univ. of Guelph PW1/73(COG)	1970 to present	continuous operation



Quadrant	Pumping Well	Service Dates	Status in 2019
Southeast Quadrant	Carter Wells PW2/62(COG) & PW1/89(COG)	1963 to present	continuous operation
	Arkell 6 PW6/63(COG)	1967 to present	continuous operation
	Arkell 7 PW7/63(COG)	1964 to present	continuous operation
	Arkell 8 PW8/63(COG)	1989 to present	continuous operation
	Arkell 1 PW1/66(COG)	1967 to present	continuous operation
	Arkell 14	2012 to present	continuous operation since 2015 (end of Operational Testing Program)
	Arkell 15	2012 to present	continuous operation since 2015 (end of Operational Testing Program)
	Burkes Well PW2/66(COG)	1975 to present	continuous operation



We've made improvements since our 2014 WSMP

Since the completion of the Water Supply Master Plan in 2014, the City has initiated several projects recommended in the Master Plan.

The Arkell Spring Grounds Operational Testing Program, designed to evaluate potential impacts associated with increased groundwater pumping, was successfully completed between 2011 and 2015. The result is an increase in the City water supply capacity by about 9,000 m³/day. For more information visit http://guelph.ca/plans-and-strategies/water-supply-master-plan/arkell-spring-grounds/.

The Membro production well (PW1/53) was replaced in 2016 with a new well (Membro Replacement Well). The original Membro Well contained a liner which reduced the diameter of the well and the size of the pump that could fit into the well. The Replacement Well was constructed at a larger diameter for increased pumping up to the permitted amount of 6,050 m³/day. Long term testing of the replacement well will be conducted in 2020.

Structural improvements have been made to the Clythe Well to improve water quality. This well is expected to be online in 2022, following construction of a new water treatment facility and associated watermains. The Clythe well is currently limited to 3,396 m³/day. However, subject to a testing program assessing potential impacts to surface water and groundwater users, the permitted rate may be increased to 5,237 m³/day.

Improvements have been made to the Glen Collector at the Arkell Spring Grounds. This includes trench upgrades that have increased the capacity of the groundwater recharge system.

The City is currently undertaking a project in the Southwest Quadrant to upgrade a test well into a test production well and conduct long-term testing of the well capacity and monitoring of associated pumping effects on the aquifer/natural environment. If this becomes a production well site, it will add to the overall system capacity.

A proposal for the future use of the Dolime Quarry lands is currently under consideration by the City. The proposal includes the protection of the quality and quantity of the primary aquifer system utilized by the City for water supply. Alternatives will consider how to potentially capture and treat a portion of the $11,000 \, \text{m}^3/\text{day}$ of groundwater that is extracted during quarry operations for City supply.

In addition to these ongoing projects, the City is actively implementing source protection programs to protect its existing water supply and to prevent loss of



water supply capacity in the future. These Source Protection programs included the Tier Three Water Budget Assessment, conducted in association with the Grand River Conservation Authority (GRCA), to determine the amount of water that may be available for municipal water supply. This assessment resulted in a Significant water quantity risk rating for the City's supply. Subsequently, an assessment was completed to develop a strategy for managing the identified water quantity risk. In addition to this strategy, the City is working with MECP, GRCA and Wellington County to develop Source Protection Policies to help manage groundwater resources within the delineated vulnerable area (WHPA-Q). For more information on the City's source protection programs visit the following websites:

- http://guelph.ca/plans-and-strategies/drinking-water-source-protection/
- https://www.sourcewater.ca/en/source-protection-areas/Guelph-and-Guelph-Eramosa-Tier-3.aspx
- https://www.sourcewater.ca/en/source-protectionareas/resources/Documents/Grand/GGET-Threats-Management-Strategy-2018-06-14-final.pdf

Water Efficiency and Demand Management

In Guelph we depend mostly on groundwater for our water supply, so we know it makes sense to use our water wisely. Water efficiency and demand management will be as important during this Master Plan Update as they were during the 2014 Water Supply Master Plan. We are committed to using less water per capita than comparable Canadian cities! Since 2006, because of our many successful water conservation initiatives, we have reduced our community's average daily water production by twelve per cent, with Guelph residents using 20 per cent less water per person per day than the average person in Ontario. For more information regarding Guelph's current water efficiency opportunities and initiatives, go to http://guelph.ca/ourstoconserve.

The 2016 Guelph Water Efficiency Strategy Update identifies the preferred program, policy and resource requirements to achieve and sustain the water use reduction targets of the City's Water Supply Master Plan, Community Energy Plan and City Council's Strategic Plan. This report can be found at: http://guelph.ca/plans-and-strategies/water-efficiency-strategy/.



Updating our Water Supply Master Plan

Our updated Water Supply Master Plan will provide a community endorsed framework for ensuring an adequate and sustainable supply of water to meet current and future needs of all our customers, until the year 2041 and will identify challenges beyond this timeframe. It will be our strategic plan for implementing – in a phased manner – specific projects to increase our current water supply capacity and will provide the basis for individual studies under the Class EA process.

The Master Plan will be a key document considered during the Municipal Comprehensive Review (MCR), which will be completed by the City between 2020 and 2021. Through the MCR, the City will bring its Official Plan into conformity with the Provincial document "A Place to Grow: The Growth Plan for the Greater Golden Horseshoe" (the Growth Plan). The Master Plan update will incorporate the population targets to 2041 outlined in the Growth Plan.

Our Proposed Purpose Statement

Phase 1 of the Class EA planning process requires proponents to consider why a change is required and to document their reasons. This leads to the development of the Purpose Statement: a clear statement that identifies the problems, deficiencies and opportunities to be investigated. The Purpose Statement is the principle starting point of a Class EA study and becomes the central theme and integrating element of the project. It also assists in setting the scope of the project.

The **Purpose Statement** in the previous WSMP has been updated to provide a starting point for discussion:

The City of Guelph is committed to manage population growth as it continues to develop strategies for ensuring adequate water supply. The goal is to develop a reliable and sustainable supply of water to meet the current and future needs of all residential, industrial, commercial and institutional customers.

The 2014 Master Plan confirmed that the existing water supply capacity will not meet future demands and set out a strategy for meeting future demand. It is, therefore, prudent to undertake an update to the water demand forecast, the existing water system capacity and the status of ongoing projects, in order to review the plan and make adjustments as required. The proposed implementation strategy must deliver, through to 2041, an adequate amount of water in a safe and cost-effective manner and ensure that environmental sustainability is not compromised.



This 2019 update will build on the recommendations made during the 2014 Water Supply Master Plan, including water conservation/efficiency measures and additional sources of water supply.

Proposed Alternatives (Preliminary)

To identify the optimal water supply system to go forward with, we'll start by updating the alternatives considered in the 2014 WSMP. We'll consider the following:

- 1. Water Efficiency & Demand Management: Reducing or reusing water can have the same effect as increasing water supply each litre of water saved by an existing customer can be made available for the growth needs of the community. Water conservation and demand management will be as important during this Master Plan update as it was during the 2014 Water Supply Master Plan.
- 2. Groundwater Sources In & Outside of the City: We'll update information related to existing supplies and new supply sources recommended in the 2014 study, as well as investigate new water supply areas, including:
 - a. Increasing water takings from established sources
 - b. Re-establishing sources (includes treatment) that are currently not used because of poorer water quality
 - c. Water takings from new sources
- **3. Local Surface Water Sources:** New local surface water sources with or without Aquifer Storage & Recovery (ASR) will be considered, including possibly the Speed River, Eramosa River and Guelph Lake.
- **4. Do Nothing:** Assumes no improvements to the current water supply system. It is expected that this alternative would have significant impact on the City's growth potential and would be contrary to the City's Official Plan.



Evaluating our Options – Evaluation Criteria

The Water Supply Master Plan (2014) provided a process to evaluate the proposed water supply options. This same process is intended to be used again during this update.

A detailed evaluation of each water supply alternative will be completed to assess the impact, if any, to each of the following environmental components¹:

- **Public Health & Safety.** Addresses public's health and safety.
- **Natural Environment.** Addresses the protection of significant natural and physical elements of the environment (i.e., air, land, water, plants and animal life) including natural heritage environmentally-sensitive policy areas.
- Social / Cultural. Evaluates potential effects on residents, neighbourhoods, businesses, Indigenous Peoples and values, community character, social cohesion, community features and historical/archaeological and heritage components, in addition to municipal development objectives.
- **Economic / Financial.** Addresses the potential effect on water supply system capital costs and operating and maintenance costs.
- **Legal / Jurisdictional.** Considers regulatory and land requirements for each water supply alternative (and has regard to political boundaries).
- **Technical.** Considers technical suitability and other engineering aspects of the water supply system.

^{1.} The Environmental Assessment Act (Section 1. (c) (i) to (vi)) defines the "environment" as: "air, land, water, plant and animal life including humans; the social and cultural conditions that influence the life of humans or a community; any building, structure, machine or other device or thing made by humans; any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or; any part of combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario." This definition of the environment is used and is reflected in the environmental components used in the Phase 2 evaluation.



In keeping with our 2014 Water Supply Master Plan, we are proposing to use the following evaluation criteria to assess the feasibility of the identified water supply alternatives.

Evaluation Category	Evaluation Criteria
Public Health & Safety Considerations	Ability of Alternative to meet provincial water quality and security requirements
Natural Environmental Considerations	 Potential effects to natural environment including siting/routing considerations and/or constraints.
	 Potential impacts to water resources (e.g., stream crossings, stream base flow, aquifer groundwater levels).
	 Potential impacts to natural heritage features, including provincially significant wetlands (PSWs), environmentally significant areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), and sensitive species habitat.
	• Environmental management planning considerations.
Social / Cultural Considerations	 Short-term construction related impacts including dust, traffic, access, and noise.
	 Potential siting/routing considerations including cultural/heritage (e.g., archaeological) and/or tourist recreational resources.
	 Potential impacts to Indigenous Peoples and values.
	 Potential impacts from operations including impacts to groundwater and surface water users.
Economic / Financial	Estimated capital costs.
Considerations	 Estimated operations and maintenance costs, including energy consumption.
Legal / Jurisdictional Considerations	 Location inside vs. outside City boundaries and associated jurisdictional issues.
	Land requirements
	 Ability to address outside control (independence and reliability) of City with respect to participation in decision making, rate structures and risk related to location/position on proposed water supply scheme (e.g., end of pipe). Consideration towards Political Boundaries.
	- Consideration towards i officer boundaries.



Evaluation Category	Evaluation Criteria
Technical	Ability to implement alternative
Considerations	Maintaining operation during construction
	Minimizing disruptions/ downtime
	Constructability
	Schedule and Timing
	Water quality – requirement for treatment
	Allowance for future treatment needs
	Expandability
	 Ability to respond to change in regulatory treatment requirements/standards
	Ability of alternative to use existing infrastructure



City of Guelph – Water Supply Master Plan Update

Agenda

Water Supply Master Plan Update Workshop #1

November 28, 2019 from 1:00 to 4:00 pm Guelph City Hall, 1 Carden Street, Meeting Room B

Time	Agenda Item
12:45 pm	Registration and Welcome • Participants will be welcomed at the door and asked to sign-in
1:00 pm to 4:00 pm	 Workshop Opening Remarks WSMP - Overview Guelph's Current Water Supply System City Updates - Since 2014 WSMP WSMP Update - Objectives / Scope of Work Next Steps Discussion Ample opportunity for discussion will be provided - and encouraged - throughout the meeting.
3:50 pm	Next Steps & Adjournment

Discussion Topics and Questions – Workshop #1

Guelph primarily depends on groundwater for its water supply, so we know it makes sense to use this finite but renewable resource wisely. Keeping our Water Supply Master Plan up to date gives Guelph short-term, mid-term and long-term water supply options to meet predicted demand.

We want people to join the conversation! We understand that good planning involves the community so we're making it easy for people from Guelph, the



County, Townships and Town of Milton to be involved and kept up-to-date on our progress. Today, we want to gather your perspectives on many topics. Today's meeting will focus primarily on planning aspects of the Water Supply Master Plan update, such as the:

- Current level of water supply service provided, and any overall concerns or issues
- Proposed Purpose Statement for the WSMP
- Preliminary water supply alternatives we are considering
- Evaluation Criteria and Methodology we will use

Providing your Feedback

The following sheets include many of the questions we will be discussing today. Although we will be documenting much of the meeting conversation, it would valuable to also receive your individual feedback, including for those questions we do not discuss. Feel free to make note of your thoughts. A team member will gather your feedback at the end of the meeting. All feedback will be used to prepare recommendations to improve the Water Supply Master Plan update project and will be included in the Consultation Summary Report for the project.

General Questions

1.	Are you aware of pressing issues or concerns related to water supply that we should consider while updating the Water Supply Master Plan?

Evaluating Existing System Capacity and Security of Supply

2. Certain City supply wells are pumped at maximum permitted (PTTW) rates during high demand periods or to make up capacity when other supply wells are shut down.



current and/or future demand. Does well use, in this manner, support PTTW renewal at the established maximum values?
The City's well system was developed over an 85+ year period and permits were issued for each well based on environmenta
conditions at the time of construction. In the absence of a demonstrated environmental impact caused by a well, should additional environmental study be required to renew a PTTW?
demonstrated environmental impact caused by a well, should
demonstrated environmental impact caused by a well, should
demonstrated environmental impact caused by a well, should

the City consider adding treatment to the wells to remove the

contaminants, or should the wells be removed from the

assessment of existing system capacity?

On average, these wells pump below the permitted



Fne	gagement Plan
5.	Do you have any suggestions to improve our community engagement plans?
6.	Is the proposed project consultation appropriate for engagement of Indigenous Communities? How can it be adjusted/improved?

7. How can residents outside of Guelph be properly consulted to evaluate water supply sources outside of the City?



Do you have concerns regarding any of the alternatives presented? Should any of these not be considered through the Water Supply Master Plan update?
Are there other water supply alternatives that should be considered by the project team?

environmental impact of some extent, what level of potential

Guelph

	environmental impact related to municipal water supply is acceptable?		
11.	Do you believe it is appropriate for the project team to consider obtaining water from sources that required treatment to remove contaminants (i.e., natural or industrial)? (Assumes that all regulatory standards are met after treatment)		
F	Justine Criteria O Mathedale		
	Are the evaluation criteria suitable for this study? Is there anything you would like to add or change?		



13.	What are the benefits and drawbacks of using the Tier Three Groundwater model for evaluation of the water quantity impacts of source development?		
Im	plementation Plan		
14.	MEA has proposed amendments to the MCEA process. Is it anticipated that these amendments will be adopted during the course of this project (approx. Q2/Q3 2020)?		
Λn	/thing Else?		
	Is there anything else you think is important as we move forward with this process?		



Water Supply Master Plan Update Workshop #1 – Summary

Date and Time of Workshop: November 28, 2019 from 1:00 to 4:00pm

Location: Guelph City Hall, 1 Carden Street, Meeting Room B

Overview

The City of Guelph is updating its Council-approved Water Supply Master Plan (WSMP), from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2041. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Part of our WSMP update includes two (2) workshops to bring organizations together, providing a forum to discuss plans for the 2019 WSMP update and to gather input. The purpose of the first workshop was to review and provide input on key aspects of the Master Plan and the Class Environmental Assessment, including:

- Objectives and scope of the Master Plan Update
- Issues and opportunities to be addressed
- Alternative solutions to be assessed
- Evaluation criteria to be applied

There were 10 participants from six (6) organizations, along with four (4) City staff and four (4) AECOM consultants.

The format of the workshop included a presentation and opportunities for discussion and reflection.

Attendance

In addition to those listed below, the following organizations were invited: Wellington County, Township of Centre Wellington, Region of Waterloo, Ministry of Natural Resources and Forestry, Six Nations of the Grand River First Nation, Haudenosaunee Confederacy Chiefs Council, Mississaugas of the Credit First Nation, and Wellington-Dufferin-Guelph Public Health.



Organization	Name
Grand River Conservation Authority	Sonja Stynatka
Guelph/Eramosa Township	Harry Niemi
Ministry of the Environment, Conservation and Parks	Barbara Slattery
Ministry of the Environment, Conservation and Parks	Corrine Taylor
Ministry of the Environment, Conservation and Parks	Cynthia Doughy
Ministry of the Environment, Conservation and Parks	Lisa Williamson
Town of Milton	Nancy Reid
Township of Puslinch	Stan Denhoed
Wellington Source Water Protection	Emily Vandermeulen
Wellington Source Water Protection	Kyle Davis
City of Guelph	Dave Belanger
City of Guelph	Mary Angelo
City of Guelph	Scott Cousins
City of Guelph	Wayne Galliher



Organization	Name
AECOM	Alicia Evans
AECOM	Matthew Alexander
AECOM	Patricia Quackenbush
AECOM	Kathryn Ross

Meeting Format

Dave Belanger (City of Guelph) opened with a Statement of Territorial Acknowledgement and Alicia Evans (AECOM) provided an overview of the meeting and asked attendees to introduce themselves. Attendees were provided with copies of the PowerPoint presentation and Discussion Guide. The presentation was delivered by Dave Belanger (City of Guelph) and Matthew Alexander (AECOM). Alicia Evans (AECOM) facilitated the discussion.

The main sections of the presentation included:

- Overview of the WSMP Update and 2019 Special Issues
- Guelph's Current Water Supply
- Progress Since the 2014 WSMP
- Details About the 2019 WSMP Update
- Work Underway
- Assessing Alternatives
- Next Steps

Discussion questions related to the content provided in the presentation were asked at various points during the workshop. Attendees shared their comments with the group and had the opportunity to ask additional questions related to the specific presentation topic.

The discussion captured throughout the workshop is summarized in the sections that follow. Questions are noted with a "Q", answers with "A", comments with a



"C" and responses with an "R". Answers were primarily provided by Dave Belanger (City of Guelph).

Overview of the WSMP Update and 2019 Special Issues

Discussion Question: What other questions, issues or concerns related to water supply should we consider while updating the WSMP?

Growth

- Impacts on surrounding industry, including expanding employment lands
- Interest in how the WSMP update will impact aspirational growth and growth plans of surrounding municipalities
- Consider how growth could impact sewage capacity and receiving waters

Security of Supply and Risk Assessment

- Look to other groundwater-based communities to see how they have addressed security of supply and risk assessments
- Consider how the Tier 3 Water Budget Study could provide input into determining the acceptable level of risk and whether the 10% security of supply allowance is enough or if it should be higher

Identifying B and C Projects

Consider at what point it is appropriate to approach property owners who
may find themselves near a Wellhead Protection Area (WHPA) that they
weren't previously in. This should happen early in the process during the
Master Plan process or wait until subsequent Class EA B or C projects

Tier 3 Water Budget Study

• The City might be updating its Tier 3 Water Budget Study. Consider how the update may impact the WSMP update

Permit-To-Take-Water

- Private takings within the City and the cumulative impacts tied into some of the Tier 3 Water Budget Study impacts
- Consider impacts of non-permit-to-take-water takings, including agriculture



 Consider the City's ability to optimize and maximize water takings and minimize water loss from their system

Other

- Impacts to physical infrastructure outside of City boundaries
- Salt in drinking water has not been mentioned yet in the Master Plan update

C1: The Project Team should consider what the minimum level of technical assessment is to demonstrate the viability of Class EA B and C projects identified in the Master Plan and represent only viable projects to the public and other stakeholders.

R1: The City typically conducts field programs to assess the feasibility of a new supply such as it is doing today in the SW quadrant (Guelph South well). Other projects in the Master Plan will be assessed at the desktop level.

Q1: Would you engage other Agencies, including Grand River Conservation Authority, and landowners in terms of newly identified Wellhead Protection Areas?

R1: Yes. We would engage with the landowners first. Typically, contact with land owners would occur as part of a Class EA project once preliminary Wellhead Protections Areas have been identified.

Q2: Will the WSMP coordinate with other Master Plans related to wastewater and sewage?

A2: We will coordinate this Master Plan with other concurrent Master Plans, including wastewater.

Details About the 2019 WSMP Update

Discussion Question: Is the proposed project consultation appropriate for Indigenous Communities?

- Be extra diligent about reaching out for feedback to Indigenous Communities
- Engage the communities early in the project and consider asking for specific feedback
- Be more direct in communication and ask for impacts
- Lessons learnt from previous projects are that notices are sent out early in the Environmental Assessment process and continuous follow-up is conducted to solicit a response



- Municipalities do not act on behalf of the Crown and the Duty to Consult still lies with the Crown
- Feedback from an Indigenous Community on another project was that the problem statement should include issues around land claims or treaty rights

 consideration of this feedback this requires early response from Indigenous Communities
- Ministry of the Environment, Conservation and Parks is available to help if there are questions about how to move forward/address communication received from Indigenous Communities
- The City's community engagement team is defining consultation within its own boundaries; the strategy is to supplement the MECP process requirements with additional local engagement
- Financial assistance is often requested for Indigenous Communities to assess issues

Details About the 2019 WSMP Update

Discussion Question: How can residents outside of Guelph be properly consulted to evaluate water supply sources outside of the City?

- Consider mail-outs, council presentations and public meetings
- Consider including Halton Region and the Town of Erin
- Engage directly with people living and working within a 100-metre distance of a Wellhead Protection Area

Q3: Where are the Class Environmental Assessment projects on the schedule? **A3:** Those would not appear on the schedule. The schedule is only showing tasks related to the WSMP update. The WSMP prepares a priority list of Class EA projects and each Class EA project would have its own schedule. Not all the Class Environmental Assessment projects will be feasible. They could be downgraded or pushed into the future.

C2: Some of the Class Environmental Assessment projects will impact neighbours.

R2: Some projects will have greater impacts than others. WSMP considers impacts at a high level. Detailed impacts considered in the Class EA projects



C3: Provide more concise understanding of what potential projects will mean for neighbouring communities and what types of policies can be expected.

R3: Any potential projects outside of the City will be done in cooperation with other municipalities.

Work Underway

Discussion Question: Do you have concerns regarding any of the alternatives presented? Should any of these not be considered? Are there other water supply alternatives that should be considered by the project team?

Alternative #1 Demand Management/ Efficiency Programs

- Demand management and efficiency programs is an obvious alternative to consider, and should be the first priority
- The WSMP mentions that the City has water losses (e.g., leaks), therefore fixing infrastructure is an important element
- Consider how much the City can realistically expect the public to take on in terms of more water conservation efforts
- Consider efficiency on the consumer side; there are still gains to be made in terms of demand management and loss prevention

Q4: Are conservation measures dictated by building codes?

A4: Yes, to some extent. Building codes, such as water efficient fixtures, support conservation. There is interests for grey water use, however, incentives are local and cannot be mandated as part of growth. We do have conservation advocates for grey water use, but it is a big undertaking and is cost prohibitive.

Alternative #2 Groundwater Sources In and Outside the City

- Groundwater sources inside the City is an obvious alternative it is the City's land and supply
- Milton isn't close in terms of an urban area
- Maximize sources inside the City
- Concerns about going outside of the City
 - Response: The Tier 3 Water Budget Study concluded that staying in the boundaries could create impacts on surface water; the issue



becomes staying in the boundaries and creating impacts versus spreading water-takings out beyond the boundaries and reducing impacts

- Financial impacts on people and businesses outside of the City
- Consider opportunities in the south-end for new wells beyond Ironwood,
 Steffler and Guelph South Test Well-1
- Consider impacts of auto scrap yard near the Logan test well and if it will increase the Wellhead Protection Area

Q5: There are a few wells in the north end of Guelph that are approaching 85 to 90 years old. How are updates to water supply infrastructure being considered? **A5:** We continually optimize and maintain our water supply system. Even though these wells have been in use long-term, they are in good condition. They are bedrock wells that do not have the same issues related to aging well screens that sand and gravel wells do. The City regularly has rehabilitation programs that maintain the wells.

Q6: Are you looking at the Edinburgh well?

Q6: We are — any well within the City is currently under review during this Master Plan process. It's surrounded by other wells but is currently offline due to historical trichloroethylene impacts. There is an opportunity for use of the Edinburgh well to spread water takings out.

Q7: Are there any plans to look at getting rid of nitrates? For example, nitrate produced by horses in nearby agricultural areas.

A7: It is the City's understanding that some of the farms that may have contributed to nitrate impacts are no longer active. Nitrate concentrations have levelled off in the affected wells, this may be related to land use changes in the area.

Alternative #3 Local Surface Water Sources

- Quality concerns about the impact of nearby farmland on surface water (e.g. algae blooms)
- Water will be cleaner if source water is spring-fed

Q8: Does the definition of 'local surface water' mean Guelph Lake? **A8:** Yes, although it's not the most readily accessible. If water were to be taken out of Guelph lake it would need to be when there is lots of water available (during high flow conditions). There are limitations—spring and fall have significant highs and lows, and there are constraints to how much water we can take. The Eramosa River is also a proposed option.



Q9: Is piping water from Lake Ontario off the table?

A9: We were directed by Council that a Great Lakes pipeline is not to be considered in the WSMP.

Other Alternatives

- Closed loop systems
- Harvesting grey water

Assessing Alternatives

Discussion Question: What are the benefits and drawbacks of using the Tier Three Groundwater model for evaluation of the water quantity impacts of source development?

Benefits

- Use the Tier 3 model to look at non-municipal sources and permits-totake-water
- The model would be useful to demonstrate physical and policy implications
- A Tier 3 model was used in the Centre Wellington WSMP and it worked well in terms of evaluating potential water supply sources. The model can provide input to where feasible locations might be versus traditional best alternatives.
- The City has the benefit of having the model in-house so it can be run more cost efficiently

Drawbacks

- Consider whether the existing model has a large enough domain for the WSMP study area.
 - Response: When we originally set up the model, we purposely extended the model boundaries as far as we could to avoid boundary effects.

Q10: What is the model assessment graph showing on the Existing Water Supply Capacity Assessment slide?

A10: This graph is looking at existing capacity — what the wells produce and where the water levels are in the well. We will use the model for analysis as it is the best comprehensive tool to do the evaluation. The model was used during



the 2014 WSMP update to look at environmental impacts of water-takings and the effects on the water table and base flows.

Q11: Which wells have you not done a field test on to assess viability? **A11:** The Guelph North and Guelph South locations identified in the 2014 WSMP. The Sunny Acres Park location was based on a monitoring well constructed by the City. Guelph North and Guelph South were generated by the model. These theoretical wells will require full field programs and feasibility studies to confirm viability.

Evaluation Criteria

Q12: Have you considered whether each evaluation criteria will be weighted equally? Or will you ask stakeholders about ranking criteria? It's common for some Environmental Assessments to have issues about where communities place greater importance on evaluation criteria and re-evaluations are required. **A12:** A slide about the evaluation methodology was removed from the presentation because it is too early in the process. We will introduce the topic in future rounds of consultation. The previous WSMP update in 2014 took a qualitative approach. There can be issues with everyone agreeing on how to score evaluation criteria quantitatively.

C4: Consider including climate adaptability and resilience as evaluation criteria.

Next Steps and Adjournment

The project team reminded participants to fill out the discussion guide and submit their feedback and comments.

Next steps in the project include developing water supply alternatives, conducting a preliminary evaluation of alternatives and on-going community engagement.

Upcoming engagement opportunities include:

- Community Liaison Group Meeting #1 on Wednesday, December 4
- Community Open House #1 in late January 2020 (tentative)
- Community Liaison Group Meeting #2 in late April 2020 (tentative)
- Workshop #2 in August 2020 (tentative)

The workshop was adjourned at 4:00 pm.



Water Supply Master Plan 2021 Update

Agency and Municipality Workshop No. 2









City of Guelph Territorial Acknowledgement

As we gather, we are reminded that Guelph is situated on treaty land that is steeped in rich indigenous history and home to many First Nations, Inuit and Métis people today.

As a City we have a responsibility for the stewardship of the land on which we live and work.

Today we acknowledge the Mississaugas of the Credit First Nation of the Anishinaabek Peoples on whose traditional territory we are meeting.







Agenda

- Welcome & Check-In
 - a) Opening remarks
 - b) Meeting purpose and objectives
 - c) Introductions
- 2. Project Update Presentation Q&A and Discussion
 - a. Review of WSMP Objectives Purpose Statement and Objectives
 - b. Overview of Major WSMP Tasks
 - c. Major Task Progress Update
 - i. Task 1 Summary of Consultation Conducted to Date
 - ii. Task 2 Review of Population Targets and Water Supply Demand Forecasts
 - iii. Task 3 Review of Existing Water Supply Capacity Assessment
 - iv. Task 4 Review of Draft Evaluation of Alternatives
 - d. Interactive Discussion Evaluation of Alternatives
- 3. Next Steps







Housekeeping

Teams features

- Camera, microphone, raise hand, chat (speech bubble)
- If using a computer access the features by hovering the mouse over the screen
- If using a phone or tablet tap on the screen to access features (may need to click on '...')
- If using a phone or tablet you can change the orientation and zoom in as needed
- Attendees will be muted until the discussion periods
 - Press the 'raise hand' button if you wish to speak and we will prompt you when it is your turn (be sure to enable
 your device's audio function and unmute when speaking)
 - Add questions and comments in the chat box
- If you have technological issues, please type your issue into the chat box
- Meeting recorded for purpose of preparing meeting summary







Introductions

Share your name and if you are representing an organization or group.

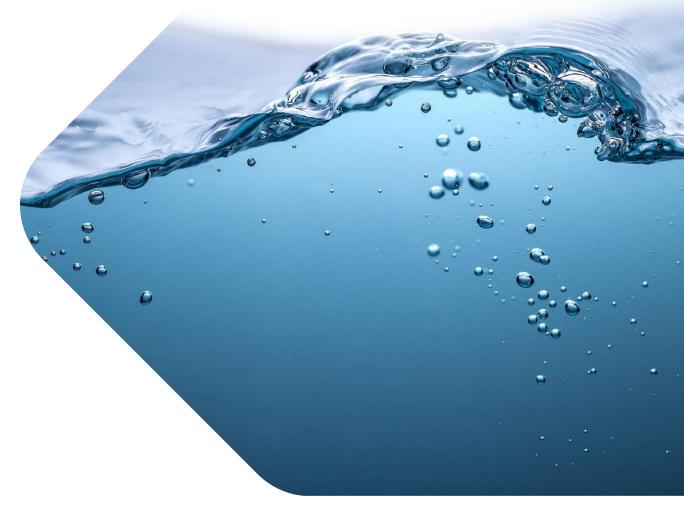








Water Supply Master
Plan Update
Project Objectives
and Major Tasks









Water Supply Master Plan Update

- Will define where and how City gets safe and reliable water to the year 2051 and identify challenges beyond this timeframe
- Will review Guelph's water supply demand forecast and existing water supply and discuss with the community how to continue to meet the City's needs sustainably
- Additional sources to supplement our existing supply will be identified. As will alternative
 ways to conserve supply and manage demands
- When investigating existing and new water supply options we will consider things like climate change, water quality and quantity, economic factors, social/ cultural environment, and any relevant regulations
- Regardless of source, the water supply will continue to meet the service requirements of Guelph and the high standards set by the Ministry of the Environment, Conservation and Parks (MECP), including Source Water Protection requirements
- Short-term, mid-term and long-term water supply options will be recommended







Scope of Work - WSMP Update

Task 1 - Public Consultation

- Indigenous engagement
- WSMP Community Liaison Group (CLG) meetings (3)
- Municipality / Agency workshops (2)
- Community Open Houses (2)
- Water Conservation and Efficiency Public Advisory Committee

Task 2 – Population and Water Demand Forecasts

- Develop population projections residential and ICI (employment)
- Develop water supply demand projections

Task 3 – Existing Water Supply Capacity
Assessment

- Update the assessment of existing well performance, maximum capacity and potential constraints for each supply source
- · Comparison of existing water supply capacity with demand forecast

Task 4 - Water Supply Alternatives

- Demand management & efficiency programs
- · Groundwater sources inside city
- Groundwater sources outside city
- · Local surface water supply & Aquifer Storage and Recovery
- · Do nothing

Task 5 – Water Supply Master Plan Update

- Evaluation of alternatives
- Risk Assessment
- Develop WSMP Update Report

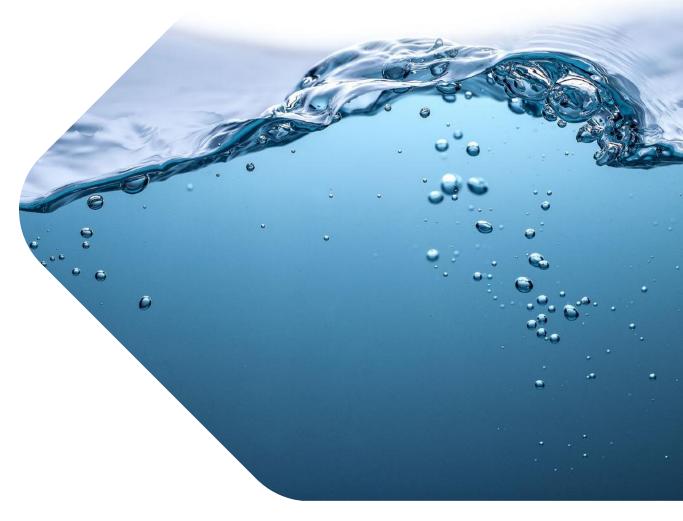








Water Supply Master
Plan Update
Task 1 - Public
Consultation To Date









Public Consultation Round #1

- Guelph Wellington Development Association and Guelph and District Home Builders' Association – Nov 7, 2019
 - the City Staff Technical Liaison Committee met with the Guelph Wellington Development Association and Guelph and District Home Builders' Association
- Our community, our water open house Nov 26, 2019
 - Regarding a proposed solution between the City and the owners of the Dolime Quarry
- Agency & Municipality Workshop #1 Nov 28, 2019
 - 10 participants from 6 organizations, along with 4 City staff and 4 AECOM consultants
- Community Liaison Group Meeting #1 Dec 4, 2019
 - 13 of 17 members attended, along with 4 City staff and 3 AECOM consultants
- Community Open House #1 Feb 13, 2020
 - Attended by 17 members of the general public, including several students from a university class
- Water Conservation & Efficiency Public Advisory Committee Meeting Sept 16, 2020







Public Consultation Round #1

- Project notifications and invitations to meet provided to:
 - Six Nations of the Grand River
 - Haudenosaunee Confederacy of Chiefs
 - Mississaugas of the New Credit First Nation
- In July 2021 City had opportunity to meet with Six Nations of the Grand River to discuss the water-related master plans being completed, including an introduction to the WSMP Update project







Feedback from Consultation Round #1

- Prioritizing conservation;
- Protecting the natural environment;
- Managing growth and development;
- Controlling groundwater impacts from large water users;
- Monitoring emerging contaminants;
- Limiting impacts to aquatic and terrestrial wildlife; and,
- Valuing the agency of water.

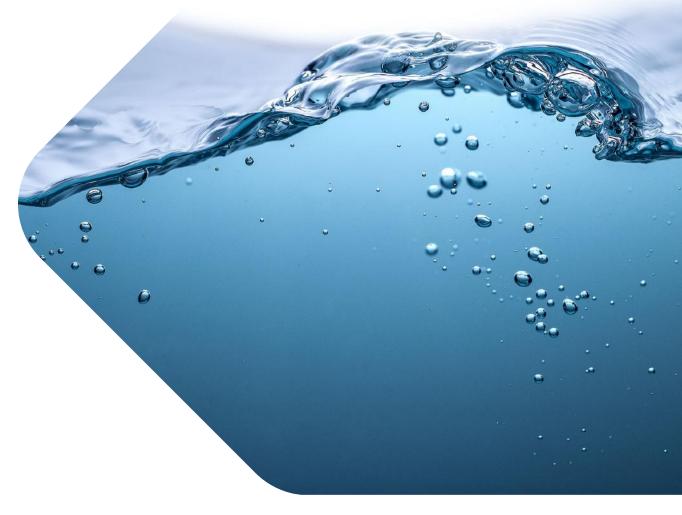








Water Supply Master
Plan Update
Task 2 - Population
and Water Supply
Demand Forecasts









Task 2 Summary

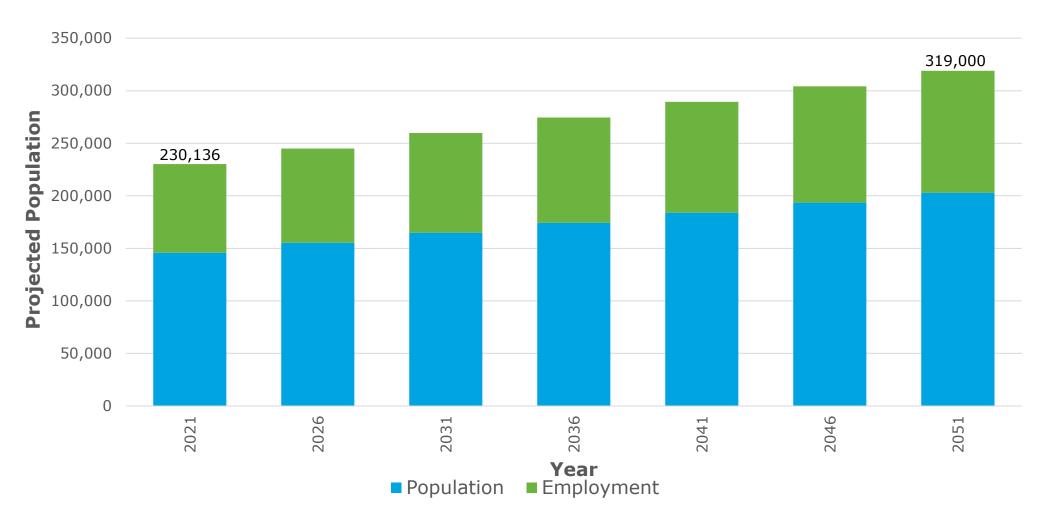
- Population projections changed in the middle of the project to 2051 (30 years)
 - In August 2020, the Province of Ontario provided updated population forecasts for the City of Guelph to 2051 (203,000 residential population, 116,000 employment population)
 - Prior to this update, the WSMP Update project planning period extended to 2041 and considered the associated growth targets
- Review of City historical water supply demand data
- Design basis for projecting future water supply demand, including:
 - Residential
 - Industrial, Commercial and Institutional (ICI)
 - Non-Revenue Water (NRW)
- Projected water supply demands to 2051







"Reference" Population Projections: 2021 - 2051

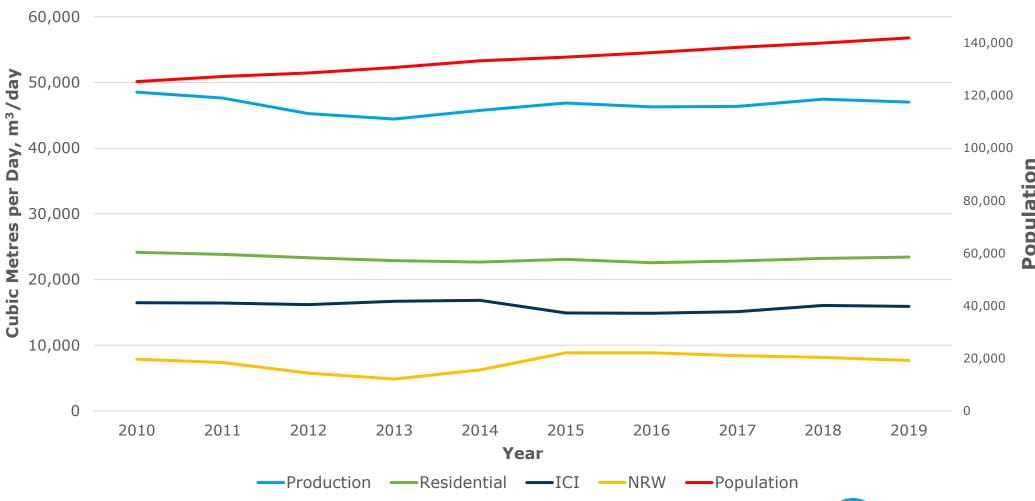








Average Annual Day Production, Demand, NRW & Population

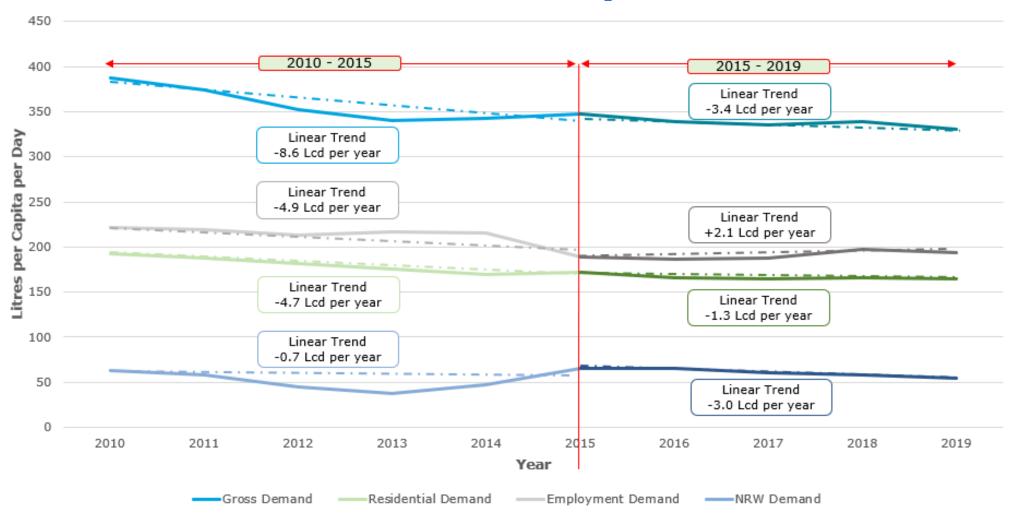








Average Annual Day Per Capita Water Production, Demand and NRW Trend Analysis









Water Demand Projections – Design Basis

Average Per Capita Day Demand (2015-2019)

• Average per capita residential demand rate 2015-2019: **167** Litres per capita per day (Lcd)

• Average per capita employment demand rate 2015-2019: **191** Lcd

• Average per capita NRW rate 2015-2019: **61** Lcd

Maximum Day Demand

Average Maximum Day Demand Factor (2010-2019): 1.24

• Design Maximum Day Demand Factor: **1.34** (Highest value, 2010-2019)

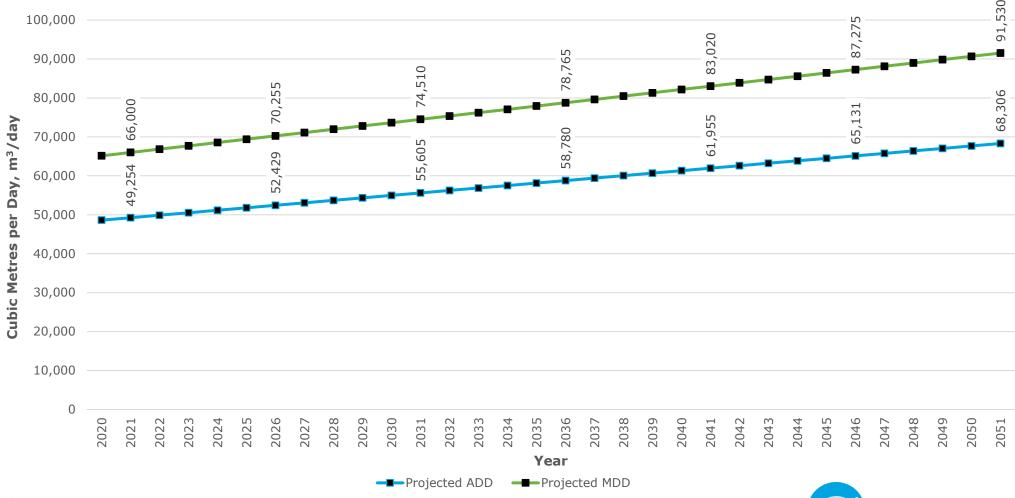
Year	Total Average Day Demand (m³/d)	Max Day Demand @ 1.34 MDF (m³/d)
2021	49,254	66,000
2026	52,429	70,255
2031	55,605	74,510
2036	58,780	78,765
2041	61,955	83,020
2046	65,131	87,275
2051	68,306	91,530







Projected "Reference" Growth Average Day and Maximum Day Demands



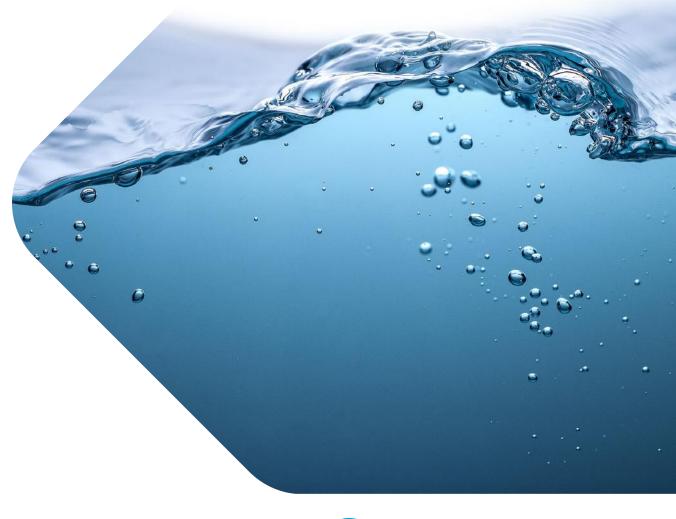








Water Supply Master Plan
Update
Task 3 – Existing Water
Supply Capacity
Assessment









Task 3 Summary

This task includes:

- Evaluation of the maximum capacity of each individual City well (how much each well can pump each day);
- The total sustainable capacity of the existing water supply system (how much can the entire system pump each day); and
- An assessment of the potential risks to the system (Security of Supply)







Overview of Guelph's Existing Water Supply System

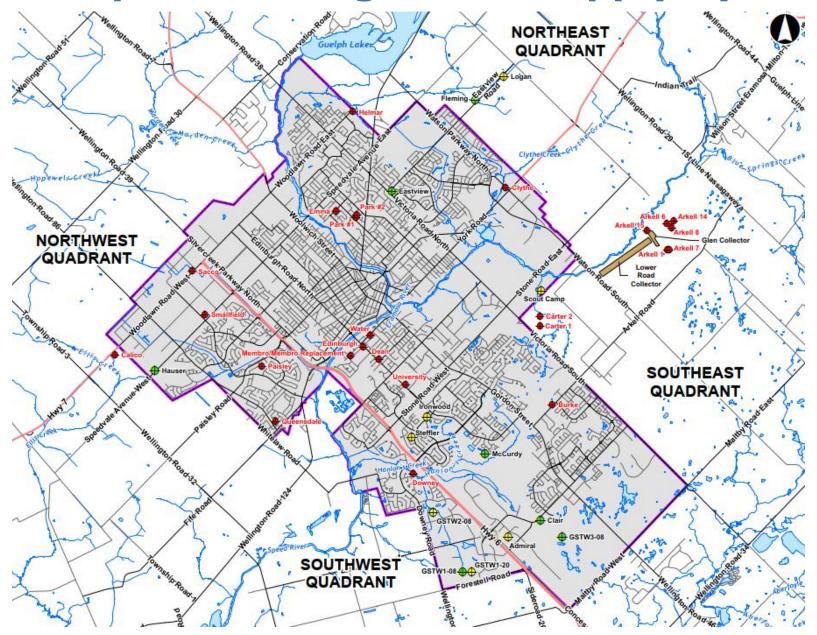
- Reliance on groundwater to meet the City's water demands since 1879
- Guelph's water supply system includes production wells primarily installed in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:
 - 25 production wells in the municipal supply system, with 21 wells in continuous operation - 4 wells offline due primarily to water quality concerns
 - Glen Collector captures shallow spring water in the Arkell Spring Grounds
 - Artificial recharge system: water is pumped from the Eramosa River to an infiltration pond/ trench – water infiltrates into the ground and some is captured by the collector system







Map of Guelph's Existing Water Supply System



Arkell Spring Grounds









Well Capacity Assessment – Summary

City Quadrant	2014 WSMP (m³/day)	WSMP Update (m³/day)	Net Change
SE	49,700	47,584	2,116 m ³ /d reduction
SW	17,936	16,338	1,598 m ³ /d reduction
NE	12,300	11,600	700 m ³ /d reduction
NW	3,900	3,900	Unchanged
TOTAL	83,836	79,422	4,414 m³/d reduction

- Glen Collector (SE) capacity reduced to reflect available year-round flow
- Carter Wells (SE) capacity reduced to balance groundwater pumping with ecosystem function
- Water Street Well Field (SW) capacity reduced to reflect available flow with all wells pumping
- Other reductions reflect lower well performance (Helmar NE)







Existing System Capacity vs. 2051 Demand

Demand/Capacity	2019	2051
Average Daily Demand (m³/day)	47,015	68,306
Maximum Daily Demand (m³/day)	58,441	91,530
Total Existing System Capacity (m³/day)	79,422	79,422
Surplus/Deficit (m³/day)	20,981	-12,108

- Existing system capacity has not been field-tested
- Pumping individual wells effects other wells in system, overall system function at maximum rates is uncertain
- Modelled steady-state capacity ~67,000 m³/day
- Security of supply assessment completed to address risks and uncertainties in evaluation







Security of Supply Assessment

- Reviewed several risks to the City water supply:
 - Prolonged drought conditions
 - Contamination event
 - Loss of supply (well failure, damage, etc.)
 - Regulatory reduction in permitted pumping rate(s)
- Estimated reduction in capacity associated with each risk
- Evaluate amount of required "reserve" supply

Scenario	Capacity (m³/day)	Capacity Reduction
Existing System Capacity	79,422	-
Prolonged Drought	71,477	10%
Contamination Event/ Loss of Well	71,422 to 78,022	2 to 10%
Reduction to Permitted Rate(s)	72,801 to 76,385	4 to 8%







Additional System Risks

- Additional potential risks to the system were reviewed:
 - Drought combined with largest supply out of service
 - Regular maintenance/ mechanical failures combined with largest supply out of service
 - Distribution disruption/ damage
 - Specific contamination events (i.e. quarry, Eramosa River, contaminated sites, etc.)
- Most of the reviewed additional risks are currently managed by the City:
 - Demand management during drought conditions
 - Climate change models
 - Scheduling of maintenance
 - Response plan for watermain breaks
 - Source water protection
- Ultimately, 15% security of supply allowance was recommended

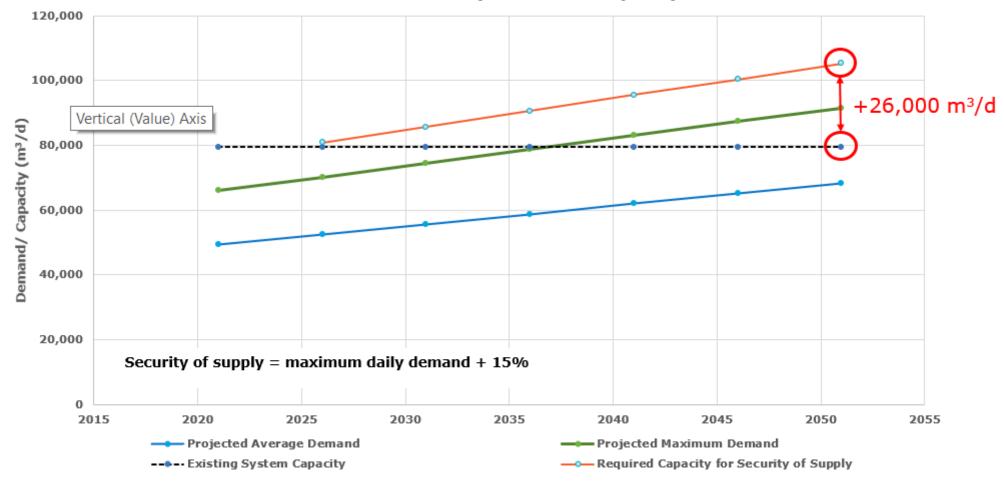






Required Capacity for Security of Supply

Water Demand & Required Total Capacity



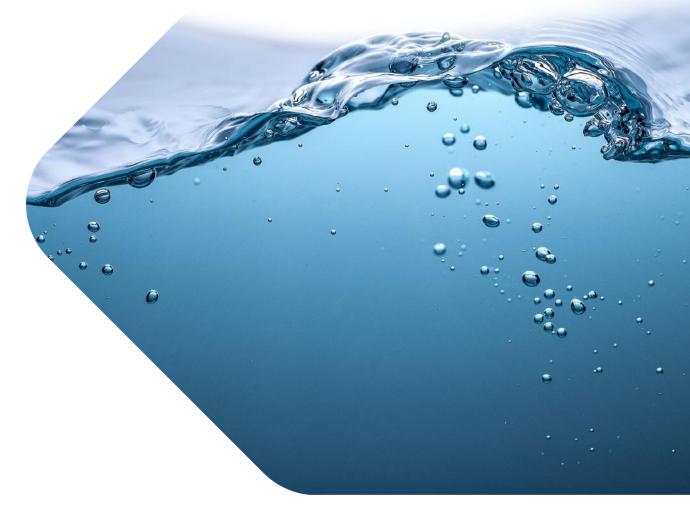








Questions or comments about Tasks 1-3?



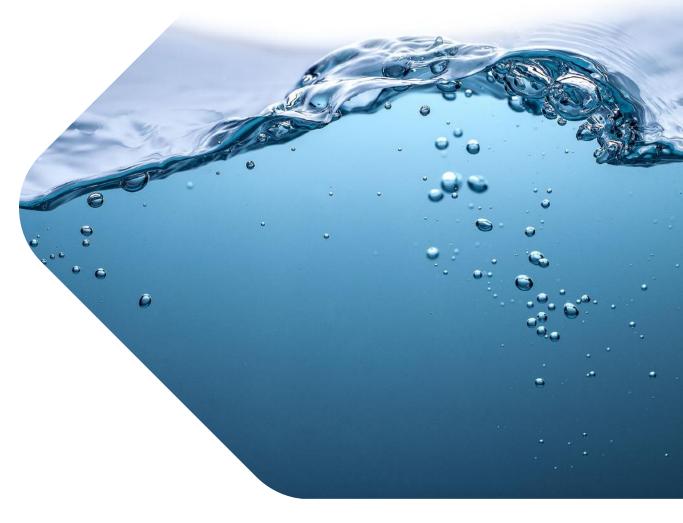








Water Supply Master Plan
Update
Task 4 - Water Supply
Alternatives
Assessment









Alternatives Assessment

Assessment of proposed water supply alternatives under consideration:

- 1 Water conservation and demand management/ water reuse
- 2 Optimize and expand existing groundwater system
- 3 Establish new surface water supply
- 4 Limit growth/ do nothing

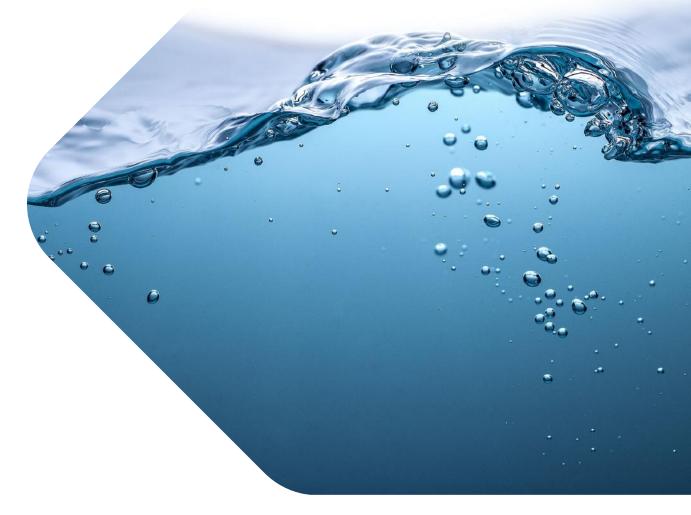








Water Supply Master Plan
Update
Water Supply
Alternatives – Water
Conservation and
Efficiency









Conservation/ Efficiency Programming Scenarios

- Four scenarios to investigate future demand reduction and associated costs:
 - 1 Static Residential and ICI per capita demands
 - 2 Demand Reduction of 6.5% in 2051
 - 3 Demand Reduction of 3.25% in 2051
 - 4 Demand Reduction of 7.3% in 2051







Non-revenue Water

Economic Level of Leakage (ELL): point at which the cost of lost water (leakage) = costs of leakage prevention programs

Infrastructure leakage index (ILI) = Real Losses / Unavoidable Real Losses

- ILI=2.0 for Guelph in 2019
- Other jurisdictions (UK, Australia) have reported ELL when the ILI is below 3
- Results indicate that Guelph is near or at its ELL
- Recommended focus in future is to maintain the ILI, or improve where possible







- Assumes the City ceases non-mandatory programming
- Sets a baseline against which to compare scenarios
- Based on effort City has put into educating public, no resulting increase in demand is anticipated
- 2051 demands match Task 2 projections
- No cost associated with scenario

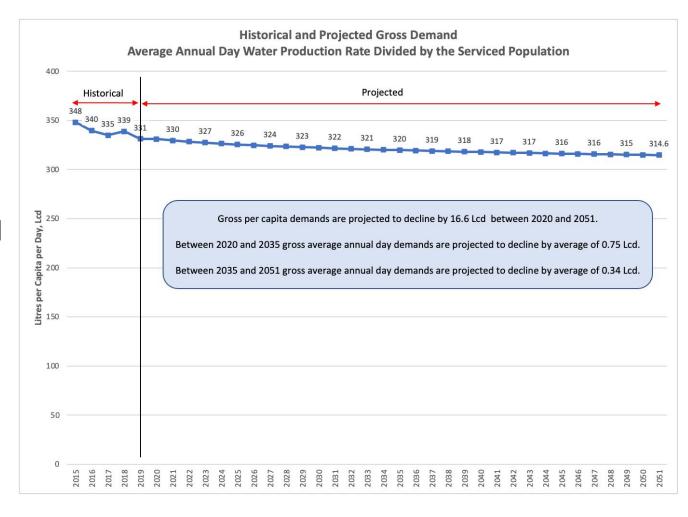
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	166.6	203,000	33,814
Employment	191.0	191.0	116,000	22,155
NRW	60.8	60.8	203,000	12,338
			Total	68,306







- Continuation of current level of programming
- Decline in per capita demands has slowed over time
- Apply avg. rate of per capita demand decline observed from 2015-2019 as target for future decline
- Requires regular review of programs, replace those no longer effective
- Assume matching target reductions for residential and ICI









- Results in 6.5% decline in 2051 demand
- Reduction of $\sim 4,400 \text{ m}^3/\text{day vs.}$ Scenario 1
- Associated cost estimate: \$11.41 M or \$2,578 m³/day; \$380,000/a operating costs

Sector	2020, Lcd	2051 , Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
			Total	63,882







- Acknowledges that effective conservation programming becomes more challenging with success
- City may elect to focus programs on high water use customers if per capital demand trend continues to stabilize
- Approach would result in lower demand reduction at a lower cost to City
- Overall reduction of 3.25% in 2051 demand
- Reduction of $\sim 2,200 \text{ m}^3/\text{day vs.}$ Scenario 1
- Associated cost estimate: \$4.73 M or \$2,132 m³/day; \$158,000/a operating costs

Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	159.9	203,000	32,460
Employment	191.0	183.5	116,000	21,288
NRW	60.8	60.8	203,000	12,338
			Total	66,086







- Addition of water reuse opportunities to Scenario 2 demand reductions
- Most aggressive option highest demand reduction and program costs
- Review of water reuse options previously compiled
- Consideration of those most likely to reduce average daily demand (i.e. remove seasonal uses like irrigation)
- Total daily savings of 528 m³/day estimated

Measure	Annual Savings, m³	Average Annual Day Savings, m³/day
Street sweeping	3,175	8.7
Sewer flushing	11,223	30.7
Urban applications	168,168	460.7
Construction	10,160	27.8
Municipal irrigation	8,800	24.1
Golf course irrigation	147,000	402.7
Total	348,526	955
Total without Irrigation	192,736	528







- Overall reduction of 7.3% in 2051 demand
- Reduction of $\sim 4,900 \text{ m}^3/\text{day vs.}$ Scenario 1
- Associated cost estimate: \$15.04 M or \$3,037 m³/day; \$586,000/a operating costs

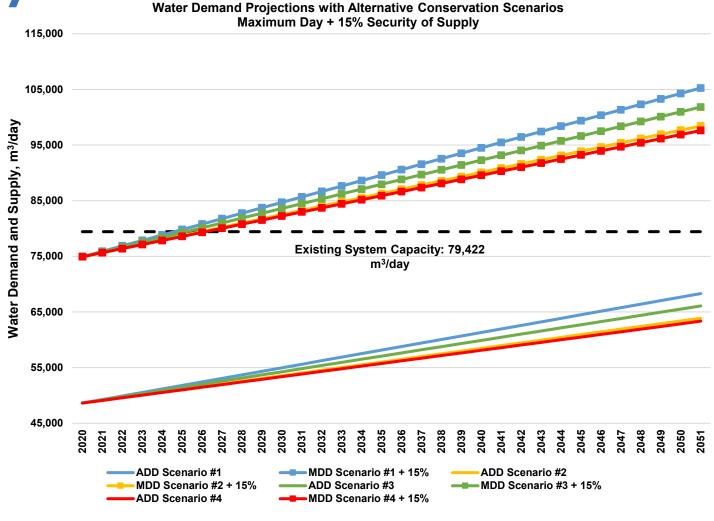
Sector	2020, Lcd	2051, Lcd	2051 Population	2051, m³/day
Residential	166.6	153.4	203,000	31,140
Employment	191.0	175.9	116,000	20,404
NRW	60.8	60.8	203,000	12,338
			Total Potable	63,882
			Minus Estimated Water Reuse Savings	-528
			Total Potable Minus Reuse	63,354







Conservation/ Efficiency Programming Scenario Summary



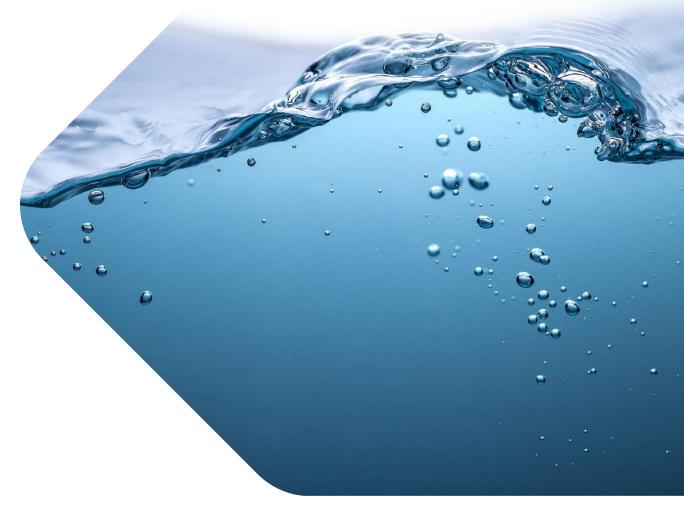








Water Supply Master Plan
Update
Water Supply
Alternatives –
Groundwater Sources









Groundwater Alternatives

The potential opportunities for expansion of the existing groundwater supply system are grouped into the following alternatives:

- Optimize existing operating municipal sources
- Restore existing off-line municipal wells
- Develop existing municipal test wells
- Install new wells inside City boundaries (screened out through prelim. modelling)
- Install new wells outside City boundaries
- Install new ASR wells inside City to optimize excess Arkell Collector system volumes







Optimize existing operating municipal wells

- Reviewed optimization opportunities through historical well performance and discussions with Operations staff
- No significant additional capacity identified
- Recommendations:
 - Confirm capacity where uncertain (Arkell 1)
 - General maintenance, rehabilitation, replacement of equipment where required
 - Replace Calico well (same capacity anticipated)
 - Opportunity to increase Arkell recharge system within existing permit
- Review of previous recommendation to replace Glen Collector
 screened out through preliminary modelling







Upgrades to Arkell Recharge System

Recharge System Modelling

- Three flow rates assessed: existing, 2x rate, 3x rate (all within existing permit)
- Max. flow rates increase; min. flow rates do not vary significantly between scenarios
- Field testing/ upgrades required to increase recharge
- Replacement of Lower Road Collector would improve system efficiency

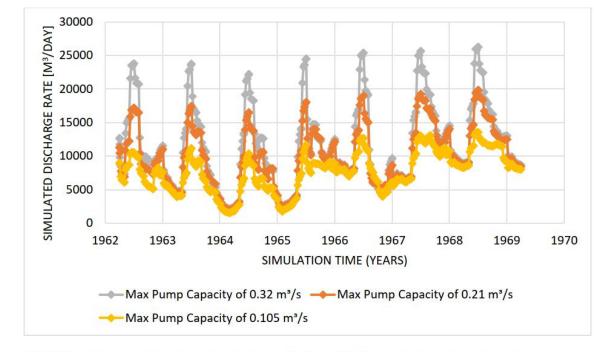


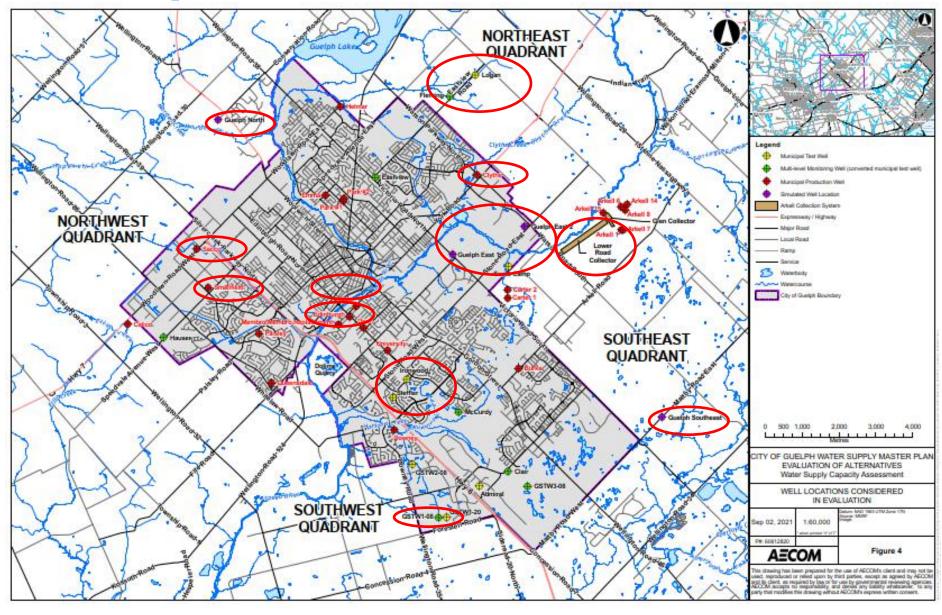
CHART 2 Simulated Transient Glen Collector Discharge Under the Various Pump Capacity Scenarios







Off-line/ New Sources



Restore existing off-line municipal wells

Quadrant	Well	Required Upgrades	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Northeast	Clythe	Well house upgrade; H2S, Fe&Mn treatment (EA complete)	1,180-3,400	\$6.8M	\$2,000
Northwest	Sacco/ Smallfield	wellhouse upgrade; VOC treatment	850-2,560	\$13.1M	\$5,100
Southeast		new perforated pipe system & associated infrastructure	4,000	\$14.67M	\$3,700
		Total	6,030		

- · Uncertainty about Clythe Creek requires additional field program to address as part of PTTW
- Sacco/ Smallfield alternative assumes combined treatment facility on Smallfield property; MECP correspondence: achieving clean up goals (i.e. ODWQS by 2051) is unlikely
- Full re-construction of Lower Road Collector anticipated; additional modelling recommended to optimize design; would benefit from recharge system upgrades
- Additional capacity in table represents modelled long-term average
- Costing developed for maximum capacity where existing data are available







Develop existing municipal test wells

Quadrant	Well	Required Infrastructure	Approximate Additional Capacity (m³/d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Guelph South	SWG EA/OTP; land acquisition; well house; connect to distribution	2,250-4,300	\$5.3M	\$1,200
Southwest	Ironwood/ Steffler	SWG EA/OTP; well house; disinfection; connect to distribution	2,250-8,000	\$5.1 to 6.2M	\$650 to 1,700
Northeast	Logan/ Fleming	new well; well house; connect to distribution	4,180-4,700	\$10.1M	\$2,150
Northwest	Hauser	new well; property in area; well house; connect to distribution	425-900	\$6.6M	\$7,300
Total			9,105		

- Modelled long-term average additional capacity of 4,500 m³/day in SWQ (with active Dolime Quarry dewatering)
- Southwest Guelph EA initiated to assess additional water supply in SWQ in detail
- · City has initiated project on Logan site to re-construct and test well

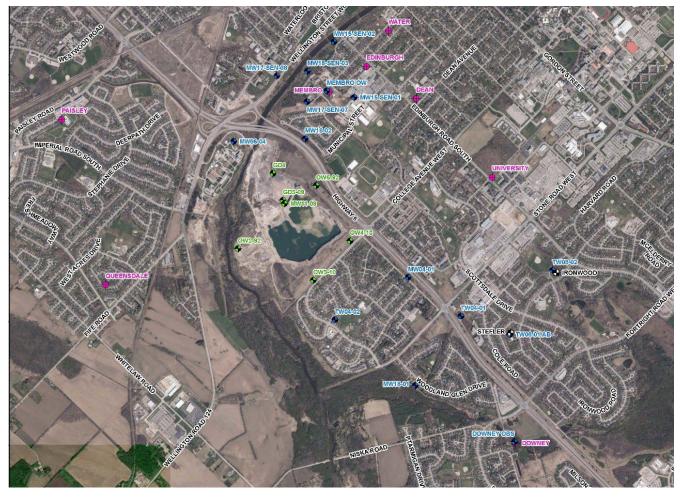






Assessment of Dolime Pond Level Management

- City has agreement in place to take over quarry water management
- Potential opportunity to increase municipal water supply while managing water quality concerns
- Maintain flow divide around quarry to isolate quarry water
- Quarry inflow ranges 8,000 11,000 m³/day
- Managing quarry pond will allow for capture of additional water by surrounding wells or directly from quarry
- Modelling indicates 3,000 m³/day of available capacity
- SWG Water Supply EA will assess available capacity, associated potential impacts and costs in detail









Assessment of Dolime Pond Level Management

Quadrant	Source	Required Infrastructure	Approximate Additional Capacity (m ³ /d)	Estimated Capital Cost	Cost per m ³ /d
Southwest	Dolime	SWG EA/OTP; pumping station; WTP (if supply is direct from quarry); connect to distribution	3,000	\$18.9M	\$6,300

- SWG Class EA will assess optimal strategy for capturing available water
- Water quality assessment will determine treatment requirements
- Capture of quarry water would reduce current artificial discharge to Speed River – not relied upon for WWTP assimilative capacity
- Cost would be reduced if additional capacity is captured by surrounding wells







Install new wells outside City boundaries – Guelph North

- Approximate location North of the City (western limit of Conservation Road; City does not currently own land here)
- Rationale proximity to an area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 2,935 m³/day on an average basis
- Model output: >10% baseflow reduction to Marden Creek; near the Marden South PSW Complex
- Field study would assess potential for interference with G-E Township wells, private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$12.8 M, \$4,375/m³









Install new wells outside City boundaries – Guelph Southeast

- Approximate location southeast of the City (Maltby Rd. east of Victoria Road; City does not own land here)
- Rational Proximity to area with high transmissivity within the Gasport aquifer and limited local groundwater usage
- Estimated available capacity 1,600 m³/day on an average basis
- Model output: <10% baseflow reduction to Mill Creek; near Arkell Bog PSW Complex
- Field study would assess potential for interference with private wells
- Fe&Mn treatment assumed as conservative cost assumption
- Estimated capital cost: \$10.3 M, \$6,400/m³









Install new ASR wells inside City

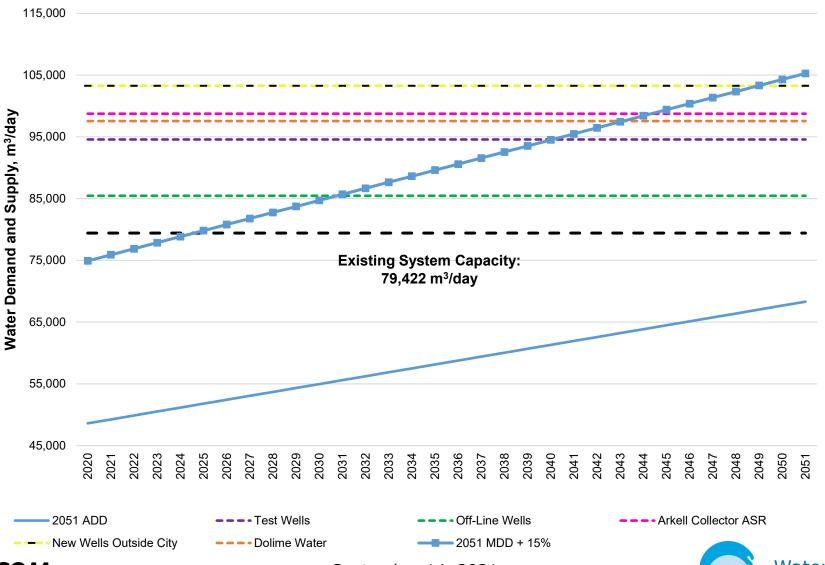
Will be discussed under surface water alternative section







Alternative #2 Summary

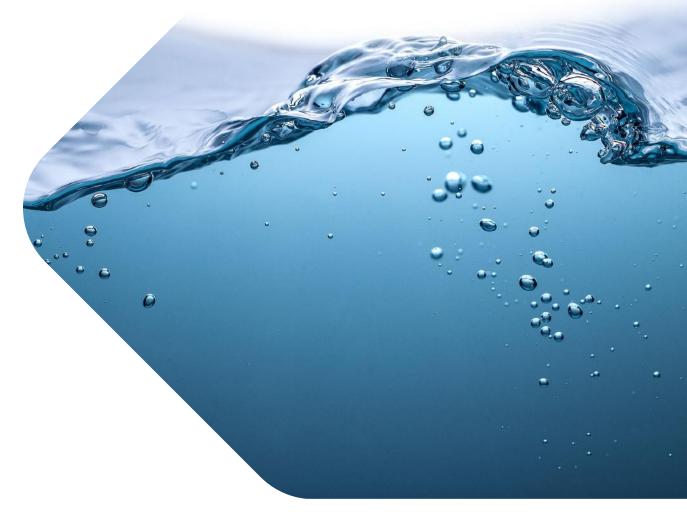








Water Supply Master Plan Update
Surface Water Alternatives
Assessment









New Surface Water Supply

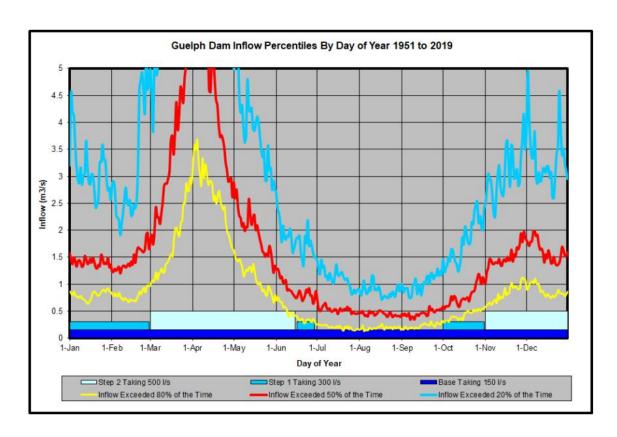
- Two possible local surface water sources for water taking
 - Guelph Lake upstream of the dam
 - Eramosa River at Arkell
- Alternatives:
 - Treatment & direct continuous flow into the distribution system
 - Treatment & store in ASR wells; recovery as required
- New water treatment plant (WTP) required to fully treat the surface water to meet Ontario Drinking Water Quality Standards (ODWQS)
- Assumptions conventional treatment with treatment for taste and odour on a seasonal basis, as required
- Wastewater treatment plant assimilative capacity study (underway) will be considered in evaluation







Surface Water - Guelph Lake



Guelph Lake Yield Analysis (GRCA):

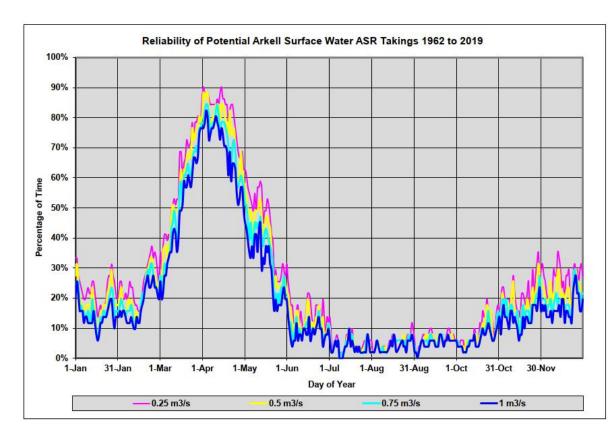
- Modelling results indicate that there is a potential for proposed stepped taking: 150 L/s and 300 L/s
- 500 L/s step dismissed for two reasons:
 - not practical to build a WTP for three months
 - flow cannot be injected in a reasonable number of ASR wells
- ASR alternative assumes base taking of 150 L/s with increase to 300 L/s for nine months of the year







Surface Water - Eramosa



Eramosa River Yield Analysis (GRCA)

- Continuous flow not available for providing a constant rate supply to the distribution system
- Very limited potential for significant increased takings beyond the existing Arkell PTTW at any time other than the spring period







Summary – Guelph Lake

Location	WTP at Guelph Lake or NE part of City	
Description	Surface WTP consisting of conventional/ advanced treatment and distribution pipeline	
Intake Rate (m³/d)	12,960 (continuous annual base taking of 150 L/s)	
Distribution Rate (m³/d)	12,300	
Existing Approvals	None	
Required Approvals	 Class EA - Schedule C Municipal - City and Township MNRF/ MECP - PTTW (Surface Water) ECA/ DWL GRCA 	
Water Quality Issues	High turbidity, colour, odour	
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features	
Past Studies/Work	GRCA review of water taking reliability	
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA 	
Required Infrastructure	 Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main 	
Estimated Capital Cost	\$ 51,322,000	
Cost per m³/day	\$3,960	

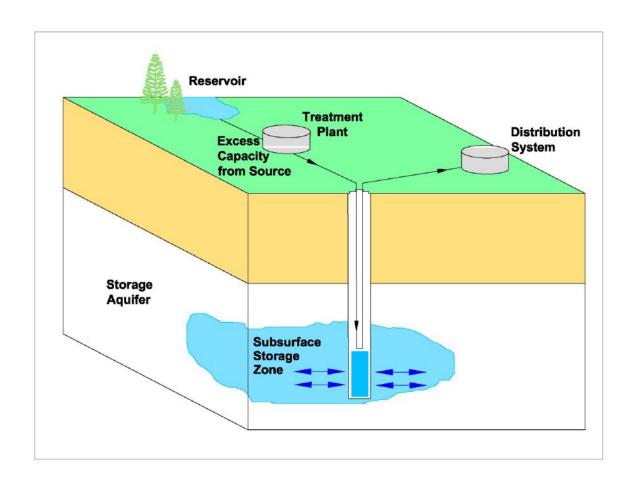






Install new ASR wells inside City

 Aquifer Storage and Recovery (ASR) - reinjection of potable water back into an aquifer for later recovery and use



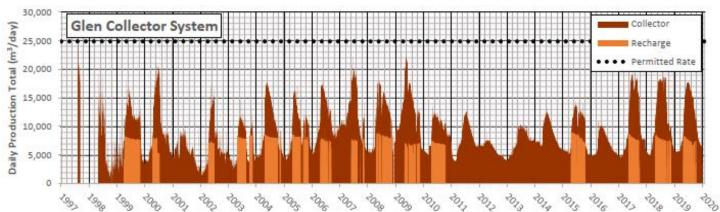


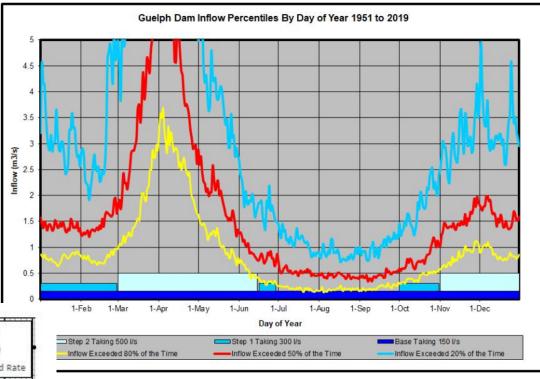




Aquifer Storage and Recovery

- Two potential sources: Guelph Lake following future potential WTP plant construction; Arkell collector system
- Estimated annual excess volume: Arkell – 451,000 m³; Guelph Lake – 941,000 m³





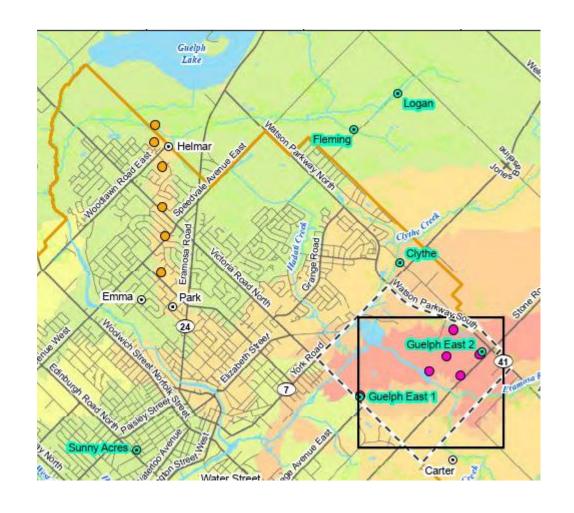






Aquifer Storage and Recovery

- Two injection locations assessed: NE Guelph – between Helmar and Emma/Park wells; East Guelph in area of simulated production wells
- All ASR wells simulated as injection and extraction
- Impact assessment:
 - Sustainability of surrounding production wells
 - Water level elevation during injection
 - Changes to stream baseflow









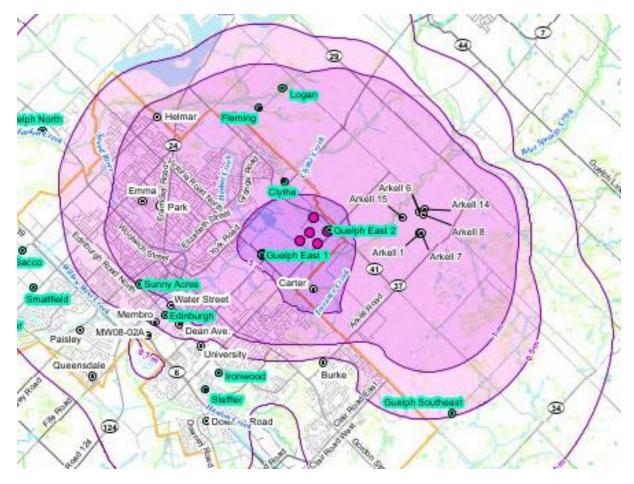
Aquifer Storage and Recovery

Results:

- Model predicts large area of injection influence (area of water level increase)
- Extraction of 60% of injection volume to maintain function of existing wells

• Interpretation:

- Efficiency of ASR well field approach with injection/ extraction wells below target
- System would have to be optimized in City to utilize production wells for recovery
- Focus on areas of existing wells, core of City to minimize influence beyond boundary
- Arkell ASR cost: \$25.3M; \$21,600/m³
- Further study required to evaluate optimized system, fewer ASR wells and increased recovery efficiency will reduce cost









Summary – Guelph Lake + ASR

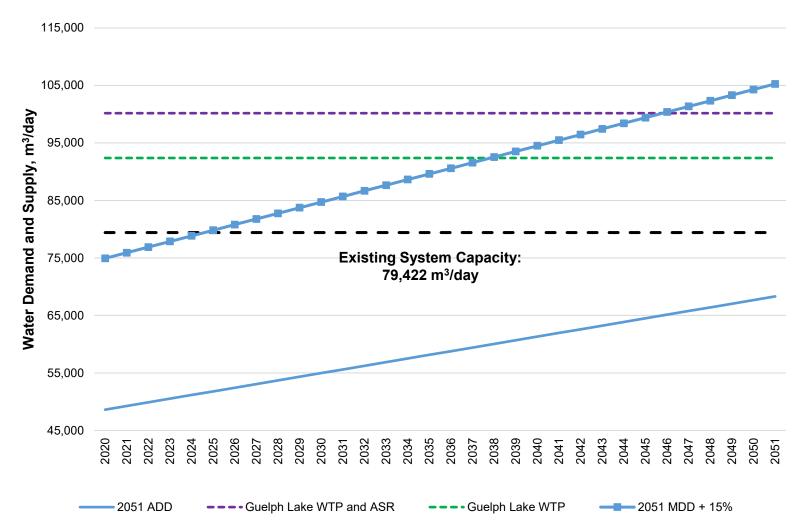
Location	WTP at Guelph Lake/dam, ASR wells at NEQ in the vicinity of Park/Emma wells	
Description	A surface water treatment plant consisting of conventional treatment and distribution pipelines, ASR wells	
Intake Rate (m³/d)	12,960 - 25,920	
Distribution Rate (m³/d)	Up to 25,825 m³/day (subject to ASR optimization)	
Existing Approvals	None	
Required Approvals	 Class EA – Schedule C Municipal – City and Township MNR/MECP - PTTW (Surface Water/ Groundwater); ECA/DWL GRCA 	
Water Quality Issues	High turbidity, colour, odour	
Environmental Constraints	Area affected includes Guelph Lake and its associated wetland and aquatic features	
Past Studies/Work	GRCA review of water taking reliability	
Required Studies	 Field investigations; environmental baseline/ impact Feasibility Studies Treatment study Class EA 	
Required Infrastructure	Water intake structure Surface water treatment plant & associated infrastructure Connection to distribution water main; ASR well facilities	
Estimated Capital Cost	\$ 57,283,000	
Cost per m³/day	\$4,420	







Alternative #3 Summary

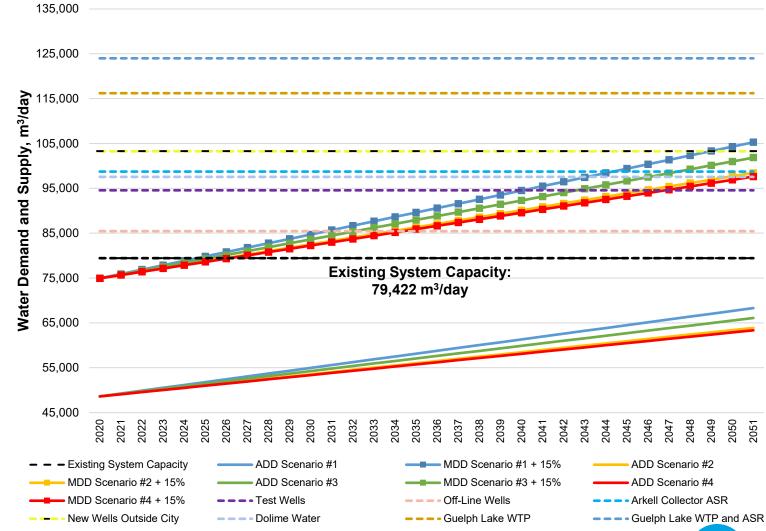








All Water Supply Alternatives Summary









Other Alternatives

Limit Growth / Do Nothing

- Represents what would likely occur if none of the alternative solutions were implemented
- Reduction in future water supply needs by limiting the extent, density, type and/or location of future residential, industrial, commercial and institutional growth in the City below levels identified in recent planning studies
- Implementation of this alternative would require change to municipal planning documents which would not meet Provincial growth targets
- Will have a significant impact on the growth potential for the City.

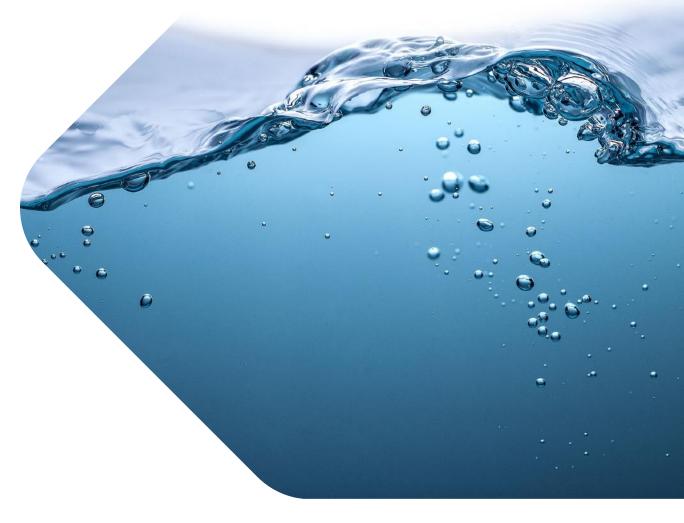








Water Supply Master Plan Update Preliminary Evaluation of Alternatives









Evaluation Summary Tables







We'd Like Your Input...

Are there additional factors that should considered in the evaluation? Is there anything you would evaluate differently or change?

Should any alternatives be prioritized differently? Why?









We'd Like Your Input...

Provide your thoughts on public acceptance of the different alternatives – e.g. conservation; off-line sources; ASR; wells outside the City; surface water.

What advice do you have for presenting this information at the upcoming virtual Open House?



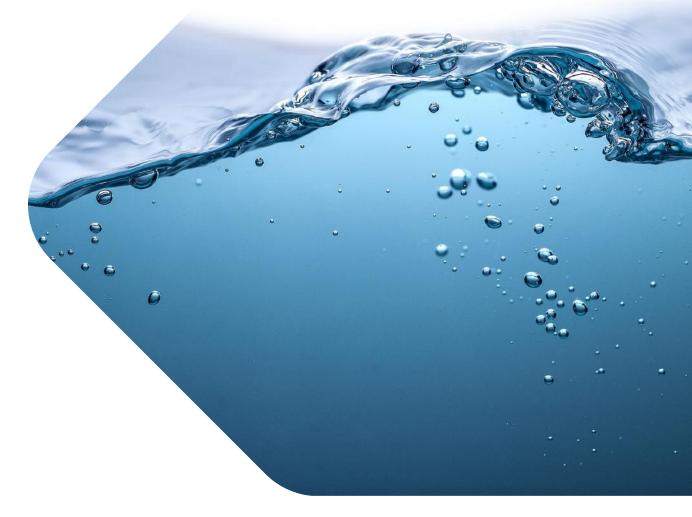








Next Steps









Next Steps

- Incorporate/ consider feedback from this workshop
- Prepare meeting summary and circulate to attendees
- Additional communications with First Nation communities
- Refine assessment/ evaluation based on feedback received
- Additional Community Engagement
 - Community Liaison Group Meeting #3 –September 21st
 - Community Open House #2 September 28th









Visit our website: guelph.ca/WSMP







Water Supply Master Plan Agency and Municipalities Workshop #2 – Summary

Date and Time of Meeting: September 14, 2021, 1:00pm - 4:00pm

Location: Virtual teleconference using Microsoft Teams

Overview

The City of Guelph is updating its Council-approved Water Supply Master Plan (WSMP), from 2014, to define how we will continue to access a sustainable supply of water — to meet residential, industrial, commercial and institutional demands — to the year 2051. Reviewing our existing water supply system is an opportunity to discuss with Guelph and surrounding communities how best to manage this vital supply so that we continue to provide the high level of service Guelph residents have come to expect.

Part of our WSMP update includes two (2) workshops to bring agencies and municipalities together, providing a forum to discuss plans for the 2021 WSMP update and to gather input. The purpose of this meeting was to:

- Provide an update on the technical work completed to date
- Review and get feedback on the Draft Evaluation of Alternatives

The format of the workshop included a presentation and opportunities for discussion and questions.

Attendance

The following participants were present:

Organization	Name
GoodLabs Studio	Donald McGillivray
Ministry of the Environment, Conservation and Parks	Corrine Taylor



Organization	Name
Ministry of the Environment, Conservation and Parks	Joan Del Villar Cuicas
Ministry of the Environment, Conservation and Parks	Lisa Williamson
Ministry of the Environment, Conservation and Parks	Pamela Grande
Ministry of Natural Resources and Forestry	Ian Thornton
Township of Puslinch	Stan Denhoed
Wellington Source Water Protection	Emily Vandermeulen
Wellington Source Water Protection	Kyle Davis
City of Guelph	Dave Belanger
City of Guelph	Emily Stahl
City of Guelph	Heather Yates
City of Guelph	Mari MacNeil
City of Guelph	Scott Cousins
City of Guelph	Wayne Galliher
AECOM	Alicia Evans



Organization	Name
AECOM	Matthew Alexander
AECOM	Tracey McKenna

Meeting Format

The meeting was conducted virtually on September 14, 2021 from 1:00pm – 4:00pm. Dave Belanger (City of Guelph) opened with a Statement of Territorial Acknowledgement and spoke to the lapse of time since the first agency and municipality workshop (pre-COVID-19). Dave also referenced the change in the planning horizon timeline from 2041 to 2051 and the importance of exploring whether the population targets in this new timeline can be met while still maintaining sustainable groundwater supply. Alicia Evans (AECOM) provided an overview of the meeting and asked attendees to introduce themselves. Attendees were provided with a copy of the presentation and the preliminary evaluation matrix in advance. The presentation was delivered by Matthew Alexander (AECOM). Alicia Evans (AECOM) facilitated the discussions and Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) responded to questions during discussions.

The main sections of the presentation included:

- Review of WSMP objectives
- Overview of major WSMP tasks
- Major task overview and progress update
 - Summary of consultation conducted to-date
 - Review of population targets and water supply demand forecasts
 - Review of existing water supply capacity assessment
 - Review of technical assessment of alternatives to-date
- Review of the preliminary evaluation of alternatives
- Next steps

Attendees shared their questions/ comments with the group and had the opportunity to respond to discussion questions related to the content provided in the presentation.



The discussion captured throughout the meeting is summarized in the sections that follow. Questions are noted with a "Q", answers with "A", comments with a "C" and responses with an "R". Answers were provided by Matthew Alexander (AECOM) and Dave Belanger (City of Guelph).

It is recommended to review the discussion below alongside the presentation; notes are provided under applicable sections below when the presenter added additional details that are not captured in the presentation.

Matt presented the "Water Supply Master Plan 2021 Update". Please see attached for more details.

Project Objectives and Major Tasks

An overview of objectives including where and how the City gets safe and reliable water to the year 2051; the water supply demand forecast; water supply sources to supplement the existing supply; and short-term, mid-term and long-term water supply options.

Task 1 – Public Consultation To-Date

An overview of results and feedback from the first round of public consultation was provided. Consultation included Indigenous Engagement, Community Liaison Group meetings, Agency and Municipality workshops, and Community Open Houses. It was also noted that the Phase 1 Engagement Summary Report is <u>available online</u> and contains more detailed information than what is presented.

Task 2 – Population and Water Supply Demand Forecasts

A summary of task 2 – population and water supply demand forecasts – was provided, including population projections changing to 2051 instead of 2041, a review of historical water supply demand, the design basis for projecting future water supply demand and projected water supply demands.

Task 3 - Existing Water Supply Capacity Assessment

A summary of task 3 – existing water supply capacity assessment – was provided, including an overview of Guelph's existing water supply system, how the 2021 system capacity compares to 2051 demand projections, a security of supply assessment, additional system risks and required capacity for security of supply.



Additional context for slide 25's well capacity assessment table to explain where reductions in capacity were identified relative to 2014:

- The existing capacity within the southeast quadrant was reduced to reflect the capacity that is available year-round. The Glen collector system captures the highest flow during the artificial recharge period and the lowest flow when artificial recharge does not occur. As the timing of the maximum demand is variable in Guelph and cannot be precisely known, the City needs to be prepared to supply the maximum demand any day of the year. Therefore the capacity of the Glen Collector was reduced to reflect the minimum reliable flow available from this system
- Within the southwest quadrant, the Water Street well field includes four active wells that experience mutual interference. The cumulative capacity for these four wells was reduced to reflect the maximum reliable flow that can be pumped from the well field simultaneously.
- The full system has not been tested at the identified existing capacity it is not feasible to do so. There is confidence in the number based on the available performance records but there are uncertainties in how the system would perform under maximum system-wide conditions.

Task 4 – Water Supply Alternatives Assessment

A summary of task 4 – the assessment of proposed water supply alternatives – was provided. Alternatives include:

- water conservation, efficiency and demand management,
- optimizing and expanding the existing groundwater system,
- establishing a new surface water supply, and
- limiting growth / doing nothing.

Water Conservation, Efficiency and Demand Management

A description of the analysis completed to evaluate non-revenue water and the fact that the City is currently at or near the Economic Level of Leakage. Therefore, the conservation, efficiency and demand management scenarios include a static non-revenue water value.



As part of the water conservation, efficiency and demand management alternative, four scenarios were established to evaluate potential future demand reduction and associated costs.

- 1. Scenario One: Static Demands
 - Baseline scenario where City ceases non-mandatory programming and therefore does not achieve demand reduction.
 There is no cost associated with this scenario.
- 2. Scenario Two: Demand Reduction of 6.5% by 2051
 - Continue current level of effort in programming, with routine program review to replace ones that are no longer effective or have matured. Assumes similar level of demand reduction to that achieved by the City between 2015 and 2019.
- 3. Scenario Three: Demand Reduction of 3.25% by 2051
 - i. Implementation of effective conservation programming makes reduction more challenging with success. This scenario assumes that programming is scaled back in response to a slowing demand reduction trend, with a switch in focus to less efficient and higher demand customers. Lower demand reduction at a lower cost to the City.
- 4. Scenario Four: Demand Reduction of 7.3% by 2051
 - Scenario Two with additional water reuse opportunities. Most aggressive approach with highest demand reduction and highest estimated cost.

Groundwater Sources

The following groundwater alternatives were discussed in detail:

- Optimize existing operating municipal sources: review of existing
 municipal sources to identify any that could potentially contribute
 additional capacity. The Downey well was identified as a possibility but
 would have to be considered alongside other existing and potential
 new sources in southwest Guelph.
- Restore existing off-line municipal sources: evaluated the possibility of restoring the Clythe, Sacco, and Smallfield wells and the Lower Road Collector.



- Develop existing municipal test wells: considered three test wells in southwest Guelph (Ironwood, Steffler, Guelph South) and the Dolime Quarry, one test well in northwest Guelph (Hauser) and two test wells in Northeast Guelph (Logan and Fleming).
- Install new wells inside City boundaries: evaluated one well location in the City included within the 2014 WSMP; however, the location was screened out through preliminary modelling.
- Install new wells outside City boundaries: considered one potential well location north of Guelph within Guelph-Eramosa Township and one potential well location south of Guelph in Puslinch Township.
- Install new ASR wells inside City: Aquifer Storage and Recovery (ASR)
 system to collect excess water from the Arkell Collectors, treat to
 potable standards and inject into the deep aquifer for later recovery
 and use.

Surface Water Alternatives Assessment

 Review the Guelph Lake and Arkell collector system as potential sources for aquifer storage and recovery systems to capitalize on peak flow.

Preliminary Evaluation of Alternatives

A summary of the evaluation tables was presented for the Water Supply Alternatives including Conservation / Limit Growth / Do Nothing (Table 4-3), Groundwater Sources (Table 4-5), and Surface Water Sources (Table 4-7).

For each table the alternatives were evaluated using the following criteria: Effect on Indigenous values, culture and Traditional use for First Nations, Métis, and Inuit Peoples, Technical (ability to achieve demand and reduction), Natural Environment, Built Environment, Social / Cultural Environment, Legal / Jurisdictional, and Financial.

For Conservation, Limit Growth, Do Nothing (Table 4-3)

The most favourable alternatives for the short-term strategy is to maintain the current level of effort (Scenario 2), for the medium-term strategy a focus on high demand customers was identified (Scenario 3) and add in additional water reuse programming (Scenario 4). The least favourable alternatives are the baseline of cease conservation, efficiency and demand management programs, limit growth and do nothing.



For Groundwater (Table 4-5)

Each of the five alternatives are preferred with various limitations

- For leveraging the existing municipal off-line sources, additional investigation and work would be required. In addition, the uncertainties regarding remediation of contamination affecting the Smallfield Well and the Sacco Well, to a lesser extent, mean that returning these wells to service may not be feasible prior to 2051;
- 2. For municipal test wells, Class EA studies would need to be conducted to confirm feasibility and evaluate potential impacts;
- 3. for the Dolime Quarry, the Southwest Guelph Water Supply Class EA would confirm the feasibility of managing the quarry water supply and capturing water currently dewatered and discharged to the Speed River;
- for the Arkell Collectors and Aquifer Storage and Recovery, modelling and hydrogeological studies would be needed to assess efficiency and confirm infrastructure and costs,
- 5. and for New Wells Outside the City, communicating with Townships regarding project feasibility, followed by groundwater field investigation to assesses feasibility and impact.

For the Surface Water Source (Table 4-7)

Both alternatives are preferred as part of the overall solution. Guelph Lake Wastewater Treatment Plant (WTP) is undergoing preliminary treatability studies and ecological impact investigations. Guelph Lake WTP and ASR requires addition modelling and hydrogeological studies to assess efficiency.

Questions and Answers: Preliminary Evaluation of Alternatives

- Q1: Will there be wells in the Clair Maltby area in the southeast? If not, why was the area not considered?
- A1: Wells will not be put in this area. In the past the Clair Maltby area
 was considered but based on a review of the geology and existing
 water supply wells in that area there was not good aquifer materials.
 In addition, the area could have a lot of environmental impacts, so it
 was screened out.



- Q2: Can you confirm assimilative capacity of the Speed River not depending on Dolime Quarry discharge water?
- A2: Assimilative capacity studies do not consider the Dolime Quarry water. Assimilative capacity is considered based on the upstream flow, not the flow downstream of the plant, so there must be a certain flow past the wastewater treatment plant to assimilate the effluent from the plant. There is an on-going study to update the assimilative capacity, and we expect to see a final report shortly.
- Q3: The City has maximized internal sources and there's limited potential for increase. It's likely city boundary or exterior sites will be considered as alternatives to make up the water supply. How are legal and jurisdictional rights of the Townships including land use restrictions, water use restrictions, and employment opportunities (both current and future) being factored into the Environmental Assessment? How do we navigate so that Townships are not restricted, or unfairly compensated as a result of the source water protection restrictions associated with the Municipal Water Supply plan?
- A3: The City has targeted sources within city limits as the primary source for the required water supply. In the future, there is going to be a lot of consultation and engagement so that all can benefit, and we can achieve our mandated growth targets. We will also be working with the Townships to review land restriction policies to ensure that the Townships are fairly compensated and resourced accordingly when planning potential wells. We're also trying to develop the resource as a whole, to understand where water supply might be available and where it might have the least amount of impact.
- Q4: How can community members outside of Guelph be properly consulted to evaluate water supply sources outside of the City?
- A4: Public perception varies depending on what's in the news. If the media picks it up there will certainly be more influence over the public perception and there may be additional push back.
- Q5: How can Townships to respond or be involved with the WSMP?
- A5: A letter would work. If you get it to a member of the project team, we will consider the feedback and record it. In the past we've made offers to



come and talk to Township councils, and we're open to honouring those offers.

• C1: Public acceptance changes depending on the amount of personal impact. The greater the impact, the less likely the public is to be accepting. In addition, if there is media focus on the topic, the public is more likely to react and have some push back.

Next Steps and Adjournment

Participants were invited to reach out to Dave Belanger (City of Guelph) and Matthew Alexander (AECOM) if they had any questions, comments or concerns about the technical information presented.

Next steps in the project include incorporating and considering feedback from this meeting, preparing a meeting summary to circulate to attendees, additional communications with First Nation communities, refining assessment / evaluation based on feedback received.

Upcoming engagement opportunities include:

- Community Liaison Group Meeting #3 September 21st, 2021
- Community Open House #2 September 29th, 2021

The meeting was adjourned at 4:00 pm.





Appendix H

Indigenous Engagement

- Mississaugas of the Credit First Nation meeting briefing note
- Mississaugas of the Credit First Nation meeting briefing note - Questions
- Mississaugas of the Credit First Nation meeting presentation
- Mississaugas of the Credit First Nation meeting minutes
- Haudenosaunee Confederacy Chiefs Council Letter
- Six Nations of the Grand River meeting #1 minutes
- Six Nations of the Grand River meeting #2 minutes

Briefing Note



Water Supply Master Plan Update

October 6, 2021

Summary

The 2021 Water Supply Master Plan (WSMP) (https://guelph.ca/plans-and-strategies/water-supply-master-plan/) for the City of Guelph is intended to update the 2014 WSMP. Guelph Water Services have followed the same approach used in the past, consistent with the provincial Municipal Class Environmental Assessment (EA) process and the direction from City Council in 2003: "That the focus of the Water Supply Master Plan establish a sustainable water supply to regulate future growth". The WSMP update considers the provincial population growth forecasts to 2051 and develops water supply demand forecasts to meet growth for the planning horizon. The demand forecasts are compared to the City's existing water supply capacity under several security of supply scenarios. Deficits – the difference between the demand forecast and the existing supply capacity for average day and maximum day demand – are addressed through the development of a master plan of projects to bring on new water supply capacity, as it is needed through to 2051. Details are provided below.

Guelph's Existing Water Supply System

Guelph's water supply is groundwater based. We have 21 existing water supply wells, which draw water primarily from a deep bedrock aquifer, called the Gasport Formation. The City also has a shallow groundwater collector system in the Arkell Spring Grounds to the east of the City that draws groundwater from soil overlying the bedrock (called shallow overburden deposits) adjacent to the Eramosa River. From mid-April to mid-November, the shallow groundwater collector system can be supplemented with water from the Eramosa River that is pumped into an infiltration pond and trench that recharges into the shallow overburden deposits. Groundwater from the Arkell Spring Grounds is piped into the City through gravity drainage in an aqueduct. Guelph's current (2020) water supply demand is approximately 45,000 cubic metres per day (m³/day or 45,000,000 L/day). Our current maximum day demand is approximately 60,000 m³/day.

Population and Water Demand Forecasts

Population and employment growth rates were based on 2051 residential and employment populations of 203,000 and 116,000 persons, respectively, as per Ontario's *A Place to Grow Growth Plan* for the Greater Golden Horseshoe. Based on Guelph's historical water demand, average residential demand and average employment demand were estimated as 167 and 191 Litres per person per day respectively. The City's Water Efficiency Strategy has been highly successful to date; however, we are at the point in which we do not expect to see the average daily residential demand continue to be significantly lowered year over year. For this reason, to calculate the 2051 water demands, the current average residential demand (167 L/person) and employment demand (191 L/person) were used to determine a total estimated 2051 average day demand of approximately 68,300

Briefing Note Page 1 of 3

m³/day and a maximum day demand of approximately 91,500 m³/day. The City will continue its Water Efficiency programming, including education and outreach, rebate incentives for water reduction technology, and research into new programmes aimed at furthering reductions (see - https://guelph.ca/plans-and-strategies/water-efficiency-strategy/).

Existing Water Supply Capacity

An assessment was conducted at each of the City's individual groundwater supply sources (i.e., 21 existing water supply wells and the shallow groundwater collector system) to identify constraints to operating at the maximum and sustainable capacity of the overall water supply system. The assessment also considered "security of supply" scenarios such as drought/climate change and loss of supply source(s) to ensure that, under extreme events, the water supply system was capable of meeting the 2051 supply demand. The assessment determined the existing supply capacity is approximately 79,000 m³/day with a range between 65,000 to 79,000 m³/day when accounting for drought conditions or loss of supply source(s). The difference between the existing supply capacity and the 2051 demand (i.e., the water supply deficit) is approximately 3,000 m³/day for average day demand and 26,000 m³/day for maximum day demand. The water supply deficit is the amount of new water supply capacity that will be required to meet the provincial growth targets to 2051. In addition, the City proposes to reserve an additional 15% of water capacity for security of supply to accommodate maintenance, unplanned service interruptions, drought or a contamination event.





Example – Municipal Wellhouse (Arkell 15)

Example – Wellhouse interior

Water Supply Alternatives

Based on the water supply deficit, the WSMP Update will develop sustainable water supply alternatives for consideration. The evaluation is in progress; however, the potential 2021 water supply alternatives are similar to the groundwater alternatives proposed in the 2014 WSMP. The Water Efficiency Strategy remains a high priority alternative and we strongly support the City's water conservation and efficiency programs to maintain our low water supply demand and to defer the need for new supply sources. Specifically, focusing efforts on demand and water loss management and system optimization driven by the highest water consumers (i.e., the Industrial/Commercial/Institutional sectors) provide the greatest potential. As in 2014, the WSMP has assessed potential groundwater sources inside the City or on City-owned property. The Clythe Well (3,400 m³/day), an existing well taken offline due to water quality issues, is scheduled to be returned to service with treatment in 2023. The Ironwood and Steffler Test Wells (~6,000 m³/day) are potential new supply alternatives subject to the proposed operational testing

program for Pond Level Management of the Dolime Quarry pond. Additional potential, high priority sources are located in the Hanlon Creek Business Park (Guelph South Test Well -~4,300 m³/day) in the southwest and the City-owned Logan property (Logan Test Well -~4,700 m³/day) to the east of the City. All potential new groundwater sources inside or outside of the City have the potential to cause environmental impacts to surface water systems in and around the City. Following Council approval of the WSMP, future projects will be conducted as individual Class EA's to solicit public engagement and assess potential environmental impacts and sustainability concerns. The WSMP and potential water supply projects are updated every five years approximately.

Engagement Approach

To date, the City has pursued Indigenous engagement for this Master Plan with potentially interested First Nations as per the procedure prescribed in the Municipal Class EA process. The City did not receive any responses through these initial channels. We are therefore appreciative of the Mississaugas of the Credit First Nation's (MCFN) indication of interest via other work streams. We welcome the ability to engage on the WSMP to obtain your input, and to listen to any concerns or ideas. Moving forward, we would welcome MCFN's feedback on how best to continue engagement over the course of this project.

The WSMP Update is also being conducted under a public engagement plan consistent with Guelph's Community Engagement Framework (https://guelph.ca/plans-and-strategies/community-engagement-framework/). The current plan consists of a Community Liaison Group, multi-agency and community workshops, public information centres and online and social media engagement. Phase 1 engagement has been completed and Phase 2 engagement will be completed this fall to present the results of the project. The draft WSMP Update Report will be presented to Guelph City Council in late 2021.

Primary Contacts

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Briefing Note



Response to questions related to the City of Guelph's conservation and efficiency programs

October 6, 2021

Summary

The City of Guelph wishes to provide responses to the questions asked by the Mississaugas of the Credit First Nation regarding efforts to date related to water conservation and efficiency programs.

Key facts

Since 1999, the City of Guelph has made water conservation and efficiency a priority while meeting the Provincial population growth targets; ensuring the sustainable use of the water supply required to meet the needs of the growing community.

The 2016 Water Efficiency Strategy (https://guelph.ca/plans-and-strategies/water-efficiency-strategy/) recommends programs, pilots and research – that both directly and indirectly – help residents, businesses and the municipality use water wisely – this document also outlined the reduction in water use gained by the community by participating in the City's programs.

The City estimates that between 2003 and 2020 previous and present water conservation programs have resulted in a cumulative reduction of $6,379,166 \text{ m}^3$ of water. The cumulative daily reduction during the same time period is estimated at $17,477 \text{ m}^3/\text{day}$.

Spokesperson

Heather Yates, Supervisor, Environmental Programs Environmental Services 519-822-1260 extension 2831 heather.yates@guelph.ca

Background

- Since 1999 the City of Guelph has made water conservation and efficiency a
 priority while meeting the Provincial population growth targets; ensuring the
 sustainable use of the water supply required to meet the needs of the growing
 community.
- The Water Efficiency Strategy evaluates past programs and water savings achieved since the 2009 Water Conservation and Efficiency Strategy Update and projects proposed programs currently being undertaken to save water.

Briefing Note Page 1 of 3

Questions and answers

What incentives does the City make available to encourage our residents to conserve water?

The City administers several programs that target residential water conservation. The following programs focus on at least one of the following conservation options; installation of reuse systems (greywater/rainwater harvesting), upgrade or retrofit of high efficiency fixtures and appliances (low water usage), implementation of technology to find leaks or inform residents on specific water usage (audits and sub-metering) and lastly public engagement and education that focuses on water conservation options such as implementing drought resistant landscaping:

eMERGE Home Tune-Up – emergeguelph.ca

Blue Built Home Rebate and Certification Program - bluebuilthome.ca

Multi-residential Water Audit -

guelph.ca/living/environment/water/rebates/multi-residential-water-audit-program/

Residential Water Sub-meter Rebate -

https://guelph.ca/living/environment/water/rebates/sub-water-meter-rebate-program/

Healthy Landscape Program Visits – guelph.ca/healthylandscapes

Royal Flush Toilet Rebate Program – quelph.ca/royalflush

Outside Water Use Bylaw and Program –guelph.ca/living/house-and-home/lawn-and-garden/outdoor-water-use-and-restrictions-in-guelph/

Public and Youth Outreach, Engagement and Education (outlined in the Water Efficiency Strategy) - guelph.ca/plans-and-strategies/water-efficiency-strategy/

The specific details of these programs are available on the City's website. Direct program links, where available, are included above.

What is the City doing to conserve water in our own facilities?

The City has completed upgrades and retrofits across its own facilities to improve water use on an ongoing basis. Since 2013 the estimated total savings for these projects is 119 m³/day. Some past projects include splash pad recirculation systems, pool heat recovery system, toilet, and faucet aerator upgrades.

In 2014, the Guelph Transit Bus Wash Rainwater Harvesting project was completed which demonstrates that rainwater is a resource and can help reduce water usage. After the first four months of operation, 120,000 litres of rainwater was captured which offset one third of the municipal water normally required for the final rinse. More efficient spray nozzles also helped reduce approximately 1.9 million litres worth of municipal water at an estimated cost of \$6,225 annually.

Furthermore, every five to seven years, the City completes water use reviews on all City owned facilities, to ensure leaks are addressed and recommendations for water-using fixtures, systems and processes are completed.

With respect to ensuring water infrastructure optimization, the City has administered an active leak detection program of its water mains throughout the City since 2011. The City inspects the entire distribution system (pipes, valves, hydrants, etc.) annually and when a leak is confirmed the City repairs it to prevent further water loss. Since program initiation the City estimates that the average daily volume of servicing capacity reclaimed through locating and fixing these leaks is 404 m³/day. Water loss management factors into the update of the Water Supply Master Plan, as well.

What is the City doing to encourage water conservation in local industry?

The City administers the Water Smart Business program that specifically targets industrial, commercial and institutional (ICI) water customers to save water and money. The City helps cover the cost of water audits, calculates a payback period, and may offer financial incentives to support water saving technology investments. Two recent projects have resulted in process water use improvements resulting in a 360 m3/day saved, and an annual utility cost savings of approximately \$276,168. The City provided one-time financial incentives totaling \$99,796 to assist the implementation of these two projects.

For more information on the Water Smart Business program, including case studies, please visit guelph.ca/watersmart

Prepared by

Heather Yates, Supervisor, Environmental Programs Environmental Services 519-822-1260 extension 2831 heather.yates@guelph.ca

Nathan McFadden, Water Efficiency Technician Environmental Services 519-822-1260 extension 2405 nathan.mcfadden@guelph.ca



Water Supply Master Plan Update

Mississaugas of the Credit First Nations Meeting

October 6, 2021



Water Supply Master Plan Update

Update of the 2014 WSMP – consistent with Guelph City Council 2003 direction "that the focus of the Water Supply Master Plan establish a sustainable water supply to regulate future growth"

Five parts of the WSMP:

- How much water do we have now?
- How much water do we need in the future?
- What are the water supply alternatives?
- What is the plan for new supply?
- How are we engaging on the WSMP Update?



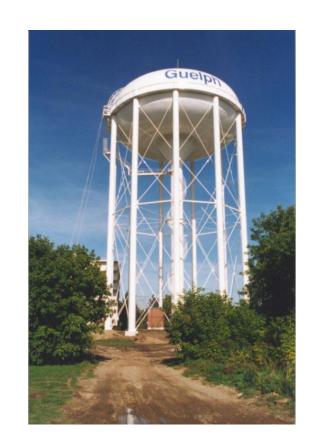


Overview of Our Existing System

Groundwater-based water supply since 1879

Water supply system - production wells in the Guelph-Gasport bedrock aquifer and the Arkell Spring Grounds collector system:

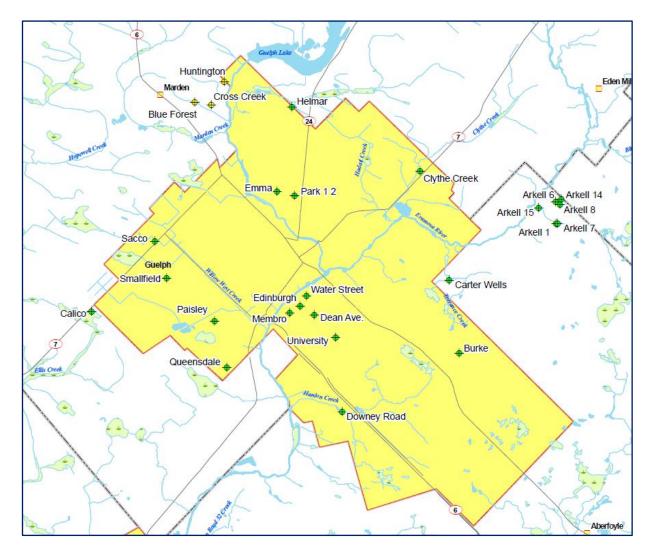
- 21 wells in continuous operation 4 wells offline due primarily to water quality concerns
- A shallow groundwater collector system that collects spring water in the Arkell Spring Grounds
- Eramosa River Intake and Recharge system (seasonal): river water pumped to an infiltration pond and trench provides water to the collector system; subject to river flow conditions







Overview of Our Existing System – Existing Supply Sources









Overview of Our Existing System – Arkell Spring Grounds





How much water do we have now?

Water supply capacity:

- "Normal" conditions: 79,422 m³/day
- Drought conditions: 65,447 m³/day
- Loss of source: 73,437 to 76,200 m³/day
- Regulatory approvals: 73,300 to 77,200 m³/day

For planning purposes:

• 65,447 to 79,422 m³/day

Current water supply demand:

- Average day 45,000 m³/day
- Maximum day $-61,000 \text{ m}^3/\text{day}$







How much water do we need in the future?

Provincial Places to Grow projections to 2051

Guelph 2051 population:

- Residential 203,000
- Employment 116,000

Per person water demand:

- Residential 167 Litres per day
- Employment 191 L/day

2051 Water demand:

- Average day 68,300 m³/day
- Maximum day 91,500 m³/day

Water supply deficit:

- Average day $\sim 3,000 \text{ m}^3/\text{day}$
- Maximum day \sim 26,000 m³/day





What are the water supply alternatives?

Water Efficiency Strategy

- Most important component of the WSMP
- Guelph is a leader in water conservation
- Reductions of 11,500 m³/day (2014 2020)
- Additional details on WES provided separately

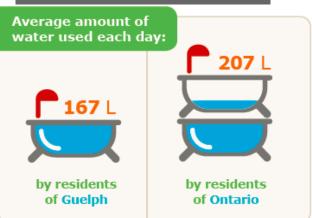
Short-term Alternatives – Steffler/Ironwood, Guelph South, Logan Test Wells, plus Dolime Quarry

Other new sources inside/outside the City (long-term)

Plan for new supply:

- New supply projects Class EA process to evaluate environmental, social, and economic impacts (such as impacts to surface water systems and sustainability) in and around the City
- Draft Water Supply Master Plan Update Report to be presented to Council in late 2021
- Update WSMP every 5 years approximately

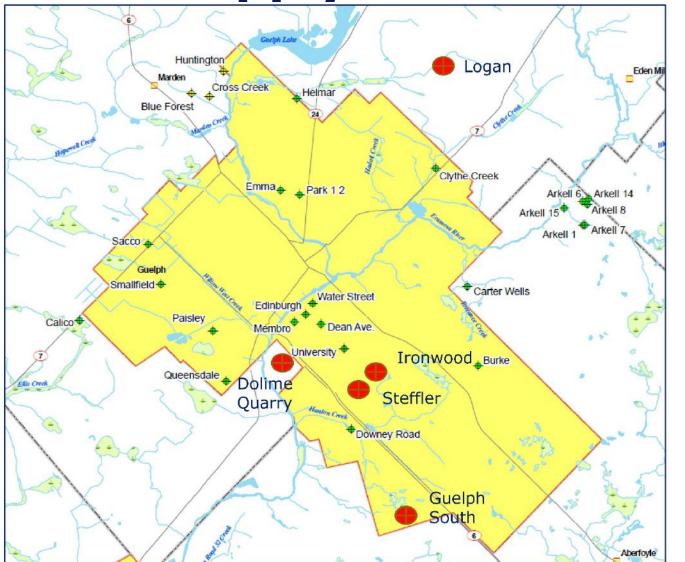


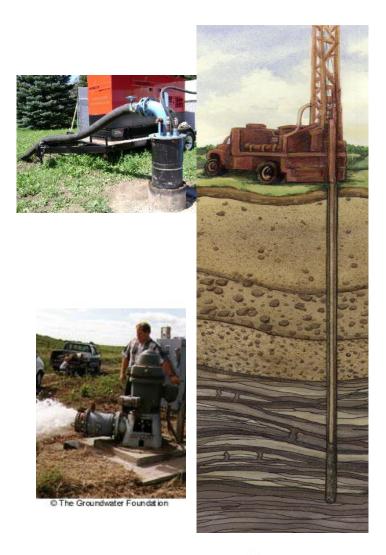






New Supply - Test Wells







How are we engaging on the WSMP?

Guelph Community Engagement Framework Community engagement plan:

- 3 Community Liaison Group meetings
- 2 Multi-agency workshops
- · 2 Public information centres
- Online and social media engagement
- Completion of Community Engagement Fall, 2021

Indigenous Engagement: How would Mississaugas of the Credit First Nations like to be engaged on this Master Plan?

Project web page – https://guelph.ca/plans-andstrategies/water-supply-master-plan/

Have your say Guelph https://www.haveyoursay.guelph.ca/water-relatedmaster-plans





Questions?

Comments?

Thank you!

Meeting Minutes



City of Guelph and Mississaugas of the Credit First Nation Environmental Water Master Plans Meeting Mississaugas of the Credit First Nation

Date: Wednesday, October 6, 2021

Location: WebEX **Time**: 10:00 a.m.

Hosts: City of Guelph: Leslie Muñoz, Scott Cousins, Wayne Galliher, Dave

Belanger, Jennifer Rose, Kelly Guthrie, Heather Yates, Tim Robertson, Emily Stahl,

Marina Grassi, Bibiana Bartokova

Attendees: Mississaugas of the Credit First Nation: Fawn Sault, Hilary Chamberlin

Meeting Minutes

Leslie oversaw everyone's introductions, thanked the representatives of the Mississaugas of the Credit First Nation for their willingness to meet.

1. Overview of the Wastewater Treatment & Biosolids Management Master Plan

Tim began the presentation by introducing the item for discussion, the Wastewater Treatment & Bio-solids Management Master Plan. He also described the roles of Environmental Services and Wastewater Services at the City of Guelph.

- Environmental Services: Stewards and professionals deliver reliable services to the community, while sustaining Guelph's finite resources for future generations with care for the environment.
- Wastewater services: provides Guelph with innovative service, while meeting current and future environmental needs.

Tim stated that the current Wastewater Treatment and Bio-Solids Management Master Plan is a combination of two existing master plans:

- 2009 Wastewater Treatment Master Plan
- 2006 Bio-solids Management Master Plan

The current Wastewater Treatment and Bio-solids Management Master Plan is expected to be reviewed and updated every 5 years.

Tim introduced the goals of the Master Plan. The Master Plan shall ensure that the City's wastewater is managed in a way that is sustainable and protects the environment and waterways. The Master Plan is expected to support the needs of the City up to 2051, given anticipated population growth to 203,000 residents and the associated impacts of this growth on the existing system.

Tim discussed the current existing conditions of the City's wastewater treatment and biosolids management system. The current system supports a flow rate of 64 MLD and its next expansion is approved through the latest EA update for up to 73.3 MLD. Tim stated that the Grand River Conservation Authority has recognized the City of Guelph with the Silver Level Award for successfully meeting water quality discharge targets below what is regulated by the facilities Environmental Compliance Approval The City is proud of it's bio-solids management. Tim explained that and the City is currently diverting 100% of this waste stream from landfill. Biolsolids are being beneficially reused through a Canadian Food Inspection Agency approved grade fertilizer.

Tim provided a Wastewater Treatment & Biosolids Management Master Plan progress update. The City initiated the Wastewater Treatment & Biosolids Management Master Plan in January 2020 which has a 2051 planning horizon. The Master Plan includes recommendations and identifies actions to address population growth and maintain environmental health.

Tim stated that the health of the Speed River is important to City of Guelph. As a result, the City has conducted a study on the Speed River to further understand how to best maintain the health of the waterway. The information provided through this study shall be worked into the final report of the Wastewater Treatment & Biosolids Management Master Plan.

Tim mentioned that it has been determined that there is adequate space for future expansion needs regarding wastewater treatment and biosolids management at the existing location.

Tim shared the next steps of the master plan. A Final Report shall be completed and reviewed. The report shall include findings from the studies as well as a prioritized project list and an implementation plan. Alternate technologies to support high quality discharge shall be included in the plan. This work will be presented to Council in December 2021.

Following approval of the plan, the following will occur:

- o Policy and program recommendations shall be carried out,
- Existing wastewater infrastructure shall be maintained,
- o Infrastructure shall be built and updated; and the
- Health of the Speed river and the environment shall be maintained and protected.

Tim concluded the presentation by asking the attendees if they had any questions regarding the content that was shown in the Wastewater Treatment & Bio-solids Management Master Plan Update presentation. No questions were asked by Fawn, Hilary or the hosts.

Leslie added a final comment stating that the City is currently developing a funding application for Infrastructure Canada's Disaster Mitigation and Adaptation Fund (DMAF) to secure federal dollars for upgrades to the existing wastewater treatment facility. It was mentioned that the upgrades shall further help protect the rivers and

environment within the City of Guelph. Leslie offered to send a high-level description of the application to Fawn, which Fawn accepted.

2. Overview of the Water Supply Master Plan Update

Dave started the presentation by introducing the Water Supply Master Update. Dave stated that the current Water Supply Master Plan Update is an update of the existing 2014 Water Supply Master Plan. The current master plan has a focus on sustainable water supply for future growth in the City of Guelph. The Master plan's goals are to address the following questions:

- How much water do we have?
- How much water do we need in the future?
- What are the water supply alternatives?
- What is the plan for new supply?
- How are we engaging on the WSMP Update?

Dave continued the presentation with an overview of the existing system in Guelph. Dave spoke to the fact that the City is a groundwater-based community and its system includes 21 wells within the Guelph-Gasport Bedrock Aquifer, a shallow groundwater collector system and the Eramosa Rive Intake (seasonal). In addition, Dave explained that out of the 21 production wells, 4 are currently offline.

Dave proceeded to show a map of Guelph which displayed the existing system including the well locations as well as other water supply sources. The next map he showed was of the Arkell Spring Grounds where he described the Glen Collector system and the Eramosa River recharge system. Any water that is not picked up by the system is returned to the watercourse. He then proceeded to explain that the aqueduct on the site uses gravity to send water to the F.M. Woods station, which is used to service the City of Guelph.

Dave addressed the various water supply conditions including normal, drought, loss of source and regulatory approval scenarios. Currently under normal conditions the City has 79,422 m³/day, a value that is expected to decrease under the other conditions and scenarios. For planning purposes, the City uses a range of 65,447 to 79,422 m³/day, which is determined by anticipated drought conditions for the minimum value and normal conditions for the maximum value. Dave stated that the City wants to make sure that they always have enough water supply available to meet the demand.

Dave described that the current water supply demand is based on average daily demand and maximum daily demand. The average daily demand in 2020 was approximately 45,000 m³/day and the maximum daily demand was 61,000 m³/day. It was mentioned that the maximum demand is 34-35% higher than the average, but due to the success of City of Guelph water conservation programs, the maximum value continues to be lower than typical rates.

Dave continued by explaining the provincial growth projection to 2051 and how much water the City of Guelph will require to sustain this growth. The population is expected to increase to 203,000 people and 116,000 jobs by this timeframe. Given this anticipated population growth and an estimated demand of 167 L/day and 191

L/day for residential and employment respectively, the estimated 2051 water supply demand would be approximately 68,300 m³/day. The Water Supply Master Plan is expected to address this increasing requirement for water.

Dave introduced the Water Efficiency Strategy as the most important component of the Water Supply Master Plan. The water efficiency strategy is used to promote water conservation and has already resulted in reductions of 11,500 m³/day between 2014 and 2020. Dave further explained that due to the Water Efficiency Strategy, water demand in Guelph has remained relatively flat.

The identification of additional water supply is part of the master plan update and Dave explained both the short term and long term solutions. Short term solutions including using the Dolime Quarry, Steffler/Ironwood, Guelph South and Logan test wells, while long terms solutions would involve finding additional supply sources both inside and outside of the City. Dave showed a map which displayed the locations of the supply test wells.

Dave then spoke to the plan for the new supply. It was stated that the Master Plan is a collection of water supply projects and, for each project, the City would conduct a Class Environmental Assessment to evaluate potential impacts. A draft Water Supply Master Plan Update report shall be presented to Council on December 15th, 2021. The Water Supply Master Plan is expected to be updated approximately every five years.

Dave provided some information on how the City is engaging on the Water Supply Master Plan. Dave listed the following, which is aligned to Guelph's Community Engagement Framework:

- 3 community liaison group meetings
- o 2 multi-agency/municipality workshops
- 2 public information centers
- Online and social media engagement
- Completion of community engagement (Fall 2021 Wrap Up)
- Looking for discussions with the Mississaugas of the Credit First Nations

3. Water Supply Master Plan Update Discussion

To conclude Dave asked if there were any further questions regarding the presentation.

Leslie added a final comment stating that there is currently another grant application under development by the City for Infrastructure Canada's DMAF program for funding to upgrade the F.M. Woods station. A description of this project will be sent along with the description of the Wastewater facility upgrades project. Both Leslie and Dave confirmed that the proposed work solely involves upgrades to the existing asset and will not be breaking new ground. MCFN did not raise any issues.

Fawn asked: when the City is planning for growth, how does the City plan the growth around the areas that they are trying to protect? How does the City factor in

impermeable surfaces in their plan? To address this question Dave stated these factors are a part of the City's Source Protection Plan. The Source Protection Plan has been developed to maintain recharge as Guelph relies on groundwater. This means that every land development project has to maintain the same amount of water recharge post-development when compared to pre-development. To support Dave's response Leslie stated that the Planning Services team at the City works closely with Water Services to ensure factors like this are considered in the development approval process and in the official plan review process. Scott added further that there are pre-development and post-development requirements as well as best management practices for mitigation strategies.

Fawn asked: when the City speaks about water usage does that include agriculture? To respond to the question, Dave stated that water usage only speaks to water that is taken out of the City's distribution system and includes water lost or that didn't make it for usage as a result of leaks. He said there are no significant agricultural areas within the City of Guelph. Agriculture is still taken into consideration when referring to how much water is available. The City uses a 3-D groundwater flow model as a part of the Source Protection and water budget studies that includes details from surrounding areas. The model gets updated regularly.

Fawn also asked about Nestle. Dave responded by stating that Blue Triton, which took over Nestle, is still at its location but they are downgradient from the City. The plant is still within the City's Well Head Protection Area for water quantity. Blue Triton is closely monitored to assure they have reliable data. Fawn asked to have Blue Triton's contact information and Dave said he could provide that to Fawn (Dave sent contact information to Fawn on October 8).

4. Next Steps

Leslie asked Fawn how she and the Mississaugas of the Credit First Nations would like to continue to be engaged. Leslie explained that there are some tight timelines due to the council meeting scheduled in December, but that the Master Plans will continue to be reviewed every 5 years.

Fawn stated that she is okay with receiving updates on a yearly basis, but specified that she would like the Mississaugas of the Credit First Nations to be involved and contacted whenever there is a field study, breaking ground, or new infrastructure being put in place. Upgrades and internal process do not require the involvement of the Mississaugas of the Credit First Nation. Yearly updates should include where the City is at and where they are going regarding the Master Plans.

To address Fawn's comments, Dave stated that each individual project goes through a municipal Class Environmental Assessment and he would like to engage with the Mississaugas of the Credit First Nation at each project.

Heather then stated that the City will be developing a strategy on expanded water stewardship and conservation in the year ahead, indicating the MCFN may have an interest in this work. Fawn asked to be kept in the loop.

Leslie concluded the meeting by thanking the Fawn and Hilary for joining the discussion as well as all the hosts, presenters and participants.



October 18, 2021

Haudenosaunee Confederacy Chiefs Council 2634 6th Line Road, RR#2Ohsweken, Ontario N0A 1M0

Dear Haudenosaunee Confederacy Chiefs Council,

RE: Guelph Water Supply Master Plan Update – Virtual Meeting

It has been some time since we discussed the City of Guelph Water Supply Master Plan Update. Our last correspondence was in June 2020. As a reminder, the goal of the Water Supply Master Plan Update is to review our water supply sources and identify priorities, including sustainable municipal supply options, from now until 2051. Our work for the Project continues, including our desire to engage with Haudenosaunee Confederacy Chiefs Council, the public and those who may be impacted and/or interested in the project. For more information, you can visit our webpage or stay involved with our engagement page.

If Haudenosaunee Confederacy Chiefs Council is interested, we would like to offer a virtual project meeting for yourself and other members of Haudenosaunee Confederacy Chiefs Council consultation team. The intent of this meeting would be to re-introduce the project, gain any input and insight your community may have related to water supply in Guelph and answer any questions you may have.

If you are interested in meeting, please reply at the contact information below with a preferred date and time. We can set up the meeting using Microsoft Teams or another preferred meeting platform. Also, you are welcome to share any questions or concerns that you may have in advance so we can address them in our meeting.

If you have any questions, comments or concerns related to the Water Supply Master Plan or would like to meet virtually to discuss the project, please do not hesitate to contact me at dave.belanger@guelph.ca or (519) 822-1260 ext. 2186 or AECOM's Project Manager, Matthew Alexander, at matthew.alexander@aecom.com or (226) 821-4906.

Please note that we will also follow up by phone to confirm receipt of this letter and see if you have any questions or comments.

Sincerely.

Dave Belanger, M.Sc., P.Geo.

Water Supply Program Manager

Water Services

Infrastructure, Development and Enterprise

City of Guelph

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Meeting Minutes



Wastewater Treatment and Biosolids Management & Water Supply Master Plans Indigenous Engagement Meeting

Six Nations of the Grand River

Date: Monday, July 12, 2021 **Location**: Microsoft Teams

Time: 11:00 a.m.

Hosts: City of Guelph: Leslie Muñoz, Scott Cousins, Wayne Galliher, Dave

Belanger, Kelly Guthrie, Marina Grassi, Tim Robertson, Michael Lanc

Attendees: Six Nations of Grand River: Lonny Bomberry, Robbin Vanstone, Bethany Wakefield, Peter Graham, Taylor Hill, Tanya Hill-Montour, Phil Montour

Meeting Minutes

Leslie oversaw everyone's introductions, thanked the representatives of the Six Nations of the Grand River for their willingness to meet, and acknowledged that Six Nations has expressed water as an area of particular interest.

1. Brief overview of Wastewater Treatment & Biosolids Management MP Tim begins a presentation overviewing the updates to the City's Wastewater Treatment and Biosolids Management Master Plan.

Tim explained the City treats wastewater domestic and commercial wastewater before discharging it to the Speed River.

The Wastewater Treatment & Biosolids Management MP connects to two mandates:

- 1. Environmental Services: Stewards and professionals deliver reliable services to the community, while sustaining Guelph's finite resources for future generations with care for the environment.
- 2. Wastewater services: provides Guelph with innovative service, while meeting current and future environmental needs.

Tim shared the goal of this Master Plan, stating that it is to ensure Guelph's wastewater is managed in a way that is sustainable and protective of our waterways and environment. It aims to meet Guelph's needs moving toward 2051, considering the City's population growth and advancing technologies.

Tim offered the context of this Master Plan update, stating it is updating two previously separate Master Plans. This single Master Plan will be updated every five years.

The current average flow of the WWTP is approximately 53,000 m³/d. The WWTP uses Anammox, a biological process that treats 80% of the ammonia in the facility.

Tim shared the WWTP has received recognition from the Grand River Conservation Authorities Award program through a Silver level award.

Tim detailed the existing conditions of biosolids management. For the past several years, the facility has diverted 100% of biosolids from the landfill. All biosolids are either processed on site or sent to the Lystek facility in Dundalk and then applied as a CFIA approved fertilizer, recycling potassium, phosphorus, and nitrogen back into the environment.

Tim provided a progress update on the Master Plan. In January 2020, the City initiated the Wastewater Treatment and Biosolids Management update, which identifies recommendations for a proposed roadmap for future capital investment. To manage growth and environment health, an investment in current technologies and infrastructure is necessary.

Bethany asked about the safety of the fertilizer coming out of the plant. Tim stated he would address this at the end of the presentation.

Tim stated "The health of the Speed River is important to all of us". In 1996, a desktop ACS study was conducted to determine the conditions of the Speed River. The study recommended the plant expand to 73,300 m³/d. In 2020-21 a thorough assimilative capacity of the river study is coming to a close to better understand the current conditions of the river and verify possible future effluent discharge limits.

Tim addressed the future needs of the WTTP. The current site has adequate space for future expansion needs. The alternatives and the evaluation process were communicated to the community and the public through website updates and a virtual public open house.

The next steps for the Master Plan were shared. The final report for the ACS will be reviewed, with an implementation plan based on the findings to be prepared. The City plans to incorporate alternate technologies in the WTTP. The Master Plan update will be presented to Council on December 6, 2021.

Tim stated that following approval, the city will:

- initiate the implementation of the strategy identified in the Master Plan,
- carry out policy and program recommendations,
- maintain existing wastewater infrastructure,
- build new infrastructure
- Continue to strive for the best quality effluent in order to protect the Speed River and surrounding environment

Tim concluded the presentation and asked if Six Nations had any questions or comments.

2. Discussion of Wastewater Treatment & Biosolids Management MP

Feedback on Master Plan:

Tim addressed Bethany's earlier question regarding the safety of the fertilizer. Tim stated that it meets CFIA fertilizer requirements. It is 15% solid and is applied subsurface to reduce runoff, allowing the nutrients to go back into the land.

Bethany asked if there is any contamination of the biosolid product. Tim stated that it is sent to the CFIA for testing, and it meets their standards.

Bethany stated that biosolids are allowed in agriculture, only in small amounts, because they contaminate. She asked how this is dealt with. Tim stated that the biosolids are stabilized through anaerobic digestion and then undergo thermal hydrolysis through the Lystek process producing a pathogen free product to apply to land. This land application step is contracted out to ensure it is responsibly applied to land, and is CFIA approved. Bethany asked Tim if he could share the documents detailing the technology involved, as well as the list of CFIA standards. Tim stated the City would send them after the meeting.

Peter asked about the anticipated discharge limits in the future, and what the planned technologies and processes are. Tim stated that when flow rates increase, it is expected that the allowable concentration limits will have to go down so that the overall loading to the river is not negatively impacted. Among other parameters, the regulated overall limit of ammonia released to the river will decrease.

Additional concerns or issues:

Lonny asked how old the WTTP is. Tim stated that the plant was initially built in 1903, with infrastructure renewals occurring over time. The newest renewals occurred in 2002. The MP is not aiming to build a new plant but looking to enhance the existing plant to recognize the full potential of existing infrastructure. Lonny asked if the facility gets overrun in extreme flooding. Tim stated that in extreme scenarios the tertiary level of treatment utilized at the plant ensures that the final effluent is still very good. The primary and secondary systems with disinfection and dechlorination continue to function under worse case scenarios of very high flow rates.

3. Brief Overview of Water Supply Master Plan

Dave began a presentation overviewing the City's Water Supply Master Plan.

Dave provided an update of the Water Supply Master Plan. The City is currently updating the 2014 Water Supply Master Plan, which is an update to the 2007 Master Plan.

The focus of the Water Supply Master Plan is to establish a sustainable water supply to regulate future growth.

The Water Supply Master Plan aims to address five questions/concerns:

- How much water do we have now?
- How much water do we need in the future?
- What are the water supply alternatives?
- What is the plan for new supply?
- How are we engaging on the WSMP Update?

Dave shared an overview of the City's existing water supply system. Guelph has a groundwater-based water supply, with production wells in the Guelph-Gasport

bedrock aquifer and the Arkell Spring Grounds collector system. There are 21 wells in continuous operation, with 4 wells currently offline due to water quality concerns. The Eramosa River Intake and Recharge system is seasonal, pumping river water to an infiltration pond, and a trench provides water to the collector system.

Dave shared a map identifying the locations of the water supply wells in Guelph. The Arkell Spring Grounds is located outside of the City; a photo of its notable features were displayed.

Dave addressed the City's water demand levels. For planning purposes, the City measures this by taking anticipated drought conditions and anticipated normal conditions and creating a range, which is 65,447 to 79,422 m³/day.

The City has determined approximately how much water Guelph will need in the future using the Provincial Places to Grow projection up to 2051. Assuming Guelph reaches a population of 203, 000 people and 116,000 jobs in 2051, and uses 68,300 m³/day, the City will be at a deficit of ~3,000 m³/day. The Water supply Master Plan aims to make up this deficit.

Dave shared the City's water supply alternative. The Water Efficiency Strategy is the most important component of the Water Supply Master Plan, reducing approximately 11,500 m³/day of water usage from 2014 to 2020. New test wells have been created as a near-term solution, with the acquisition of other water sources inside/outside the City is a long-term solution.

The draft Water Supply Master Plan Update Report will be presented to Council in late 2021, and the WSMP will be updated every 5 years.

Dave shared a map identifying the locations of the City's new supply test wells.

Dave provided a number of ways the City has engaged on the Water Supply Master Plan. The City completed Phase One of engagement, which included multi-agency workshops, the formation of public information centers, and online and social media engagement. Phase Two of engagement will begin in Fall of 2021, as COVID has set back engagement progress. Dave also asked Six Nations to consider how they would like to be engaged on the WSMP in the future.

Dave concluded the presentation and asked Six Nations if they had any questions or issues to bring up.

4. Discussion of Water Supply Master Plan

Feedback on Master Plan:

Bethany asked if the water from the aquifer is being completely replaced or if it is net depletion. Dave stated that the City only takes a small fraction of water from the aquifer, making it sustainable. The City recognizes that outtake will increase while supply will remain the same, and will look to manage this.

Bethany stated that as of 2013, 44% of water in Guelph is industrial, asking if there is any way to lower this. Wayne stated that the City has had a buyback program since 2012 with significant success.

Bethany expressed concern about the aquifer and the necessity to have permeable services to save source water.

Bethany also asked how the water budget was derived. Dave stated it is the product of a 7-8 year study, examining inputs and future growth scenarios.

Additional concerns or issues:

Lonny asks whether the wells go into rock, and how deep they go into the ground. Dave stated that the wells go to bedrock below the city, 60-70 meters at their deepest. They are in a confined bedrock aquifer, protected from surface contamination. Lonny asked how contamination occurred. Dave stated that groundwater is sometimes contaminated as a result of nearby industrial sites.

Bethany stated that there is a good opportunity for water services to get their planning aligned, as there is currently a lot of water wasted. Technologies that could save water are not being used and future projects should be required to use them to better save water. Dave stated that City programs are comprehensive and that the City does have water/wastewater saving initiatives. Wayne added that in household trials of new technologies in 2011, challenges included high price points for technologies, requirement for a tech-savvy owner, and the inability to enforce via the local building code. Bethany asked if it would be more efficient to implement these on a neighborhood level instead of the individual level. Wayne stated that there are no construction standards to regulate this.

Bethany expressed concern that the City is only looking at what affects us rather than what effects everything. It is important to protect plants that use the aquifers as well. Dave stated that the city shares this concern. Bethany asked if these considerations were added to the current budget and whether Six Nations can have access to the water budget studies. Dave stated that it is available online and the City can send it to Six Nations. Leslie added that the City often advocates to the province on issues of water quality.

Bethany recommended the City reopen the investigation into water technologies. Leslie stated that the city is bound to the building code and must follow the province. The City can incentivize but never force partners to comply.

5. Next Steps

Leslie stated that both Water Master Plans are to be reviewed and sent to Council in Q4 of 2021, and asked Six Nations what they want engagement to look like leading up to this. Robbin stated that Six Nations will want to see what the City is proposing to Council and want the option to add any last minute comments/requests. Six Nations would like to see the final drafts before they are sent to Council.

Bethany stated that it would be beneficial for Six Nations to be involved in the actual planning and development of the Master Plans.

Leslie stated that after the City gets approval for the Master Plans, implementation is next. Leslie stated that the City would be happy to engage again. Marina added that continuous engagement makes sense.

Leslie stated that they will compile the requested documents and send them to Bethany. They will also ensure Six Nations sees the MP drafts before they are sent to Council. The City will connect with Six Nations again at the implementation phase.

Leslie concluded the meeting by stating that Dolime quarry is a priority for the City, and the city appreciates Six Nations taking the meeting to learn about the details and possibly support the City.