

**Summary of Community Liaison Group Comments and Responses  
on the  
Centre Wellington Tier 3 Water Budget and Local Area Risk Assessment  
Draft Final Water Quantity Threats Analysis  
and Climate Change Assessment**

Prepared by Grand River Conservation Authority,  
Township of Centre Wellington,  
Wellington Source Water Protection,  
and Matrix Solutions Inc.

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## 1 Introduction

The Centre Wellington Tier 3 Water Budget Study provided a quantitative assessment of current and future risks to the Township’s municipal drinking water wells. The study also resulted in the delineation of a Water Quantity Wellhead Protection Area for the Township’s municipal wells, also referred to as a WHPA-Q.

The Water Budget Study showed that all future groundwater takings, and land use changes which limit the ability of water to soak into the ground (called groundwater recharge), could potentially affect the availability of water for the Township’s municipal supply. This does not mean that groundwater takings located within the WHPA-Q necessarily impact groundwater levels at the municipal wells, but signifies that additional study is needed for new water takers within the WHPA-Q.

To support future water supply and help ensure future water availability, the outcomes of the Tier 3 study support the development of water quantity policies under the Clean Water Act within the WHPA-Q. The objective of these policies is to improve the sustainability of future supplies as they are developed. Tier 3 study results do not direct the Township with the development of future water supply or timelines.

Stakeholder and community consultation has been an important component of the Centre Wellington Tier 3 Study. A [Community Liaison Group](#) (CLG) was formed at the outset of the project; the group is comprised of local stakeholders and residents. The purpose of the CLG is to provide feedback and advice to the Tier 3 Project Team at key milestones in the study, and support efforts to keep the broader community informed about the project and its progress.

A draft [Water Quantity Threats Analysis](#) and [Climate Change Assessment](#) were prepared in early 2020, representing a key milestone in the project process. These studies mark the completion of technical work for the Tier 3 study.

## 2 Summary of Community Liaison Group Comments and Questions

The draft Water Quantity Threats Analysis and Climate Change Assessment were presented to CLG members in May 2020. Time was provided for the CLG to review and comment on the contents of the reports before the documents were finalized. Seventeen (17) correspondences, containing broad and detailed comments were received by members of the CLG as listed below. The attached Appendix contains a complete list of comments and questions received.

1. May 18, 2020; Subject line: Centre Wellington Tier 3 comment; Sent to: Sonja Strynatka, Martin Keller, Kyle Davis, Colin Baker, Kathryn Baker
2. May 19, 2020; Subject line: Comments on climate change report; Sent to: Sonja Strynatka

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3. May 22, 2020, Subject line: Centre Wellington Tier 3 Preliminary Threats Analysis, Sent to Sonja Strynatka, Martin Keller, Colin Baker
4. May 23, 2020, Subject line: correction from Friday – C.W. Tier 3 Threats Analysis, Sent to Sonja Strynatka, Martin Keller, Colin Baker
5. May 23, 2020; Subject Line: Community Liaison Group – Meeting follow up; Sent to: Sonja Strynatka, Martin Keller, Kyle Davis, Colin Baker, Sarah Wilhelm
6. May 28, 2020, Subject line: Centre Wellington’s May 25 Council Meeting, Sent to Sonja Strynatka, Martin Keller, Kyle Davis, Colin Baker and Kathryn Baker;
7. May 28, 2020, Subject line: Fwd: Centre Wellington’s May 25 Council Meeting, Sent to Centre Wellington Mayor and Council members (Kelly Linton, Ian MacRae, Kirk McElwain, Neil Dunsmore, Steven VanLeeuwen, Stephen Kitras, Bob Foster), Andrew Goldie, Colin Baker and Kyle Davis
8. May 29, 2020, Subject line: Fwd: Centre Wellington’s Tier 3 Water Budget, Sent to Sonja Strynatka, Martin Keller, Kathryn Baker, Colin Baker, Kyle Davis
9. June 1, 2020, Subject line: the Tier 3 and WSMP numbers, Sent to Sonja Strynatka, Martin Keller, Colin Baker, Kyle Davis; Plan
10. June 3, 2020; Subject line: Community Liaison Group – Meeting follow up; Sent to: Sonja Strynatka
11. June 3, 2020, Subject line: Tier 3 comments, Sent to Sonja Strynatka, Martin Keller, Kyle Davis
12. June 7, 2020, Subject line: May 20<sup>th</sup> meeting, Sent to Martin Keller, Sonja Strynatka, Kyle Davis
13. June 15, 2020, Subject line: Centre Wellington tier 3 (series of four emails to send the two Hunter letter reports, Appendix A Part 1 and 2 and Appendix B), Sent to Sonja Strynatka, Martin Keller, Kyle Davis, Colin Baker, Kathryn Baker
14. June 25, 2020, Subject line: Centre Wellington’s water system, Sent to Aldo Salis, Sarah Wilhelm
15. July 8, 2020, Subject Line: Centre Wellington Tier 3, Sent to Sonja Strynatka, Martin Keller

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16. July 13, 2020, Subject line: Fwd: Centre Wellington Tier 3, Sent to Colin Baker and Kyle Davis

17. July 13, 2020, Subject line: Update Report on the Township's water system, Sent to Brett  
Salmon

Based on the emails received, the following themes were identified:

- Water Supply Master Plan and the Tier 3 Study Connections
- Water Quantity Threats Analysis
- Tier 3 Data
- Climate Change
- Growth, Development, and Water Management Connection
- Water Quantity Policy Development
- Prioritization of Water for Agriculture Use
- Best Management Practices
- Groundwater Monitoring
- Source Water Quality Wellhead Protection Areas

The following are the project team's responses to address the comments received for each of these themes.

### **Water Supply Master Plan and the Tier 3 Study Connections**

The Tier 3 Study and Water Supply Master Plan (WSMP) are scoped under different frameworks but are moving towards the same goal - ensuring there is enough water for the Township of Centre Wellington to meet the water demands of the communities of Elora and Fergus. The conclusions of both studies are the same, new water supplies are needed to service population and employment growth in the Township. The WSMP has identified that, based on growth projections, new water supplies may be needed by 2026 to meet peak demands whereas the Tier 3 study identifies new water supplies may be needed between 2031 to 2036 to meet average annual demand. As a result, the Township has already started work, with Council approval, on various options to increase the Township's water supply. The projects have benefited from shared resources as Township staff led the WSMP and were active participants on the Tier 3 project. Additionally, Matrix Solutions, the water budget consultants, were involved in both projects.

The Tier 3 study used average annual demand to complete a higher level analysis to determine whether the existing municipal system was at risk of not being able to meet existing and future average annual demands. Average annual demand is the recognized approach to calculating Risk Assessments in Tier 3 studies (<http://www.waterbudget.ca/waterbudgetguide; page 98>). Average annual demand is used for modelling purposes as peak or permitted rates are often not a rate that a well can sustain on a continuous basis but are required for short-term variations in demand. The average annual demand of 9,060 cubic metres used for the Tier 3 analysis is taken directly from the Water Supply Master Plan (2019). Through the WSMP, municipalities determine the preferred solution to obtain additional water supply (i.e., water conservation and efficiency,

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optimization of existing water supply wells, and additional groundwater wells), when those water supplies are needed, and identifies where new water supplies could be located. The WSMP has identified that, based on growth projections, new water supplies may be needed by 2026 to meet peak demands whereas the Tier 3 identifies new water supplies may be needed between 2031 to 2036 to meet average annual demand. Although different dates, new water supplies are needed, at the earliest by 2026. As a result, the Township has already started work, with Council approval, on various options to increase the Township water supply.

The results of the Tier 3 analysis identified an area (the WHPA-Q) that needs additional measures to ensure the Township has enough water for future growth and demand. Source Protection Plan policies are currently being developed in a process led by the Township and Wellington County. Policies, once included in a revised Plan supported by the Lake Erie Source Protection Committee and approved by the Minister of the Environment, Conservation and Parks, will direct the Township, County and the Ministry to take actions to ensure the Township is able to meet future demands.

The Township also calculates future water demands based on existing peak water demands, approved but yet to be constructed development units, infill/intensification, and re-zoning applications as set out in provincial guidance documents [D-5 Planning for Sewage and Water Services](#) (1996) and [D-5-1 Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants](#) (1995). The Township updates these calculations annually to determine the surplus capacity available in, not only the water system, but also at the wastewater treatment plants in Elora and Fergus. These updated calculations were incorporated into the WSMP.

With regard to comments provided by Hunter and Associates on the WSMP, the commenting period for the WSMP is now closed and therefore comments received are outside of the WSMP environmental assessment process. Regarding the comments on the Township's 2019 water system operational data, this data is reviewed by licensed Water Operations and compliance staff and professional geoscientists. The operational data is also reported to the Ministry of the Environment, Conservation and Parks through the Drinking Water Supply System Annual Reports in accordance with requirements under the Safe Drinking Water Act and Groundwater Monitoring Program Biennial Reports in accordance with requirements under the Township's Permit To Take Water #4856-9KBH5A. If there are specific concerns that you would like to discuss related to the 2019 operational data, please contact Colin Baker, Managing Director of Infrastructure Services, at the Township to arrange a time to meet.

### **Water Quantity Threats Analysis**

The purpose of the draft Water Quantity Threats Analysis Process was to assess the root of what may have triggered the Significant Risk level for the municipal wells that was identified as a part of the Tier 3 Water Budget and Risk Assessment Study. For Centre Wellington, a current lack of municipal drinking water system infrastructure (i.e., new supply wells) to support future water needs was identified as the largest risk. As the

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Threats Analysis was being completed, the project team started with analyzing larger picture scenarios, such as changes in land use (which may lead to reduction in recharge to the deep aquifer), prolonged drought, and different water use categories such as domestic and agricultural water users, to evaluate their relative impact to the municipal supply. After these scenarios were evaluated and their potential impact compared against each other, the relative impact of domestic and agricultural water users, and changes to the amount of water recharging as a result of changing land use was minimal when compared to the increased water demand scenario related to population growth.

Unlike the Tier 3 study, the Risk Management Measures Evaluation Process is not required under the Clean Water Act but is provided as an additional tool to support policy development. The insights from the Tier 3 study allowed the project team to tailor the process to target the measures most likely to be impactful. For example, the Tier 3 study results showed that groundwater levels in the municipal wells were not highly sensitive to increases in impervious surfaces resulting from future development (e.g., roads, parking lots, buildings). As a result, the Water Quantity Threats Analysis focused on assessing the potential impact of other water takings such as agricultural and domestic water use on the municipal supply. The Water Quantity Threats Analysis results provided a better understanding of the relative impact of increased water takings to support future demand versus the various other scenarios presented in the report. Had some of the other scenarios showed a potential impact to the water supply, further study – possibly including a Risk Management Measures and Evaluation Process – would have been completed to further evaluate these scenarios and assess their relative impact in more detail.

Insights from the Tier 3 study and Water Quantity Threats Analysis results have been used to guide the development of draft water quantity policies such that these policies are most effective in addressing the risks identified within Centre Wellington.

### **Tier 3 Data**

A number of comments received provided an assessment of days in 2018 where water levels in the Centre Wellington municipal wells were, below the average annual level used in the Tier 3 study. These comments identify days where the amount of available drawdown could be less than the amount of simulated drawdown predicted as part of the Water Quantity Threats Analysis.

In practice, the Township does not pump at an average rate from each well. The Township must respond to daily operational and maintenance requirements as well as the varying maximum daily water demands of the community. Pumping a specific well to a water level that is close to its safe drawdown level likely comes with a trade-off with less pumping at another well. The Tier 3 model is helpful in assessing a more preferential pumping rate distribution at the municipal wells. However, the subtleties of day-to-day operations cannot be captured in Tier 3 modelling so optimization scenarios use average annual pumping rates to provide insights to municipalities to inform their operational planning (i.e., WSMP).

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The Tier 3 study, as with most technical studies, collected its data in the early phases of the project and therefore did not assess or incorporate 2019 pumping data. The project team is aware of the new 2019 data, and this will be included in future model updates.

### Climate Change

The potential effects of climate change on the water quantity available for the Centre Wellington municipal drinking water system was assessed during this study. The study found that climate change would likely increase winter rainfall in Southern Ontario (less precipitation as snow, fewer and shorter periods of frozen ground), which would result in increased regional groundwater levels. A climate change assessment specific to potential effects on the water needs of agricultural irrigations was outside the scope of this study. If needed, further assessment of climate change impacts could be considered in a future update to the study, as part of an iterative and continuous improvement process.

All groundwater simulations evaluated the impacts assuming future municipal pumping (i.e., “Allocated Rates” as described in the Tier Three Risk Assessment [Matrix 2020b]). Text to this effect will be added to the Climate Change Assessment’s executive summary and conclusions for improved clarity.

The following text will also be added to the executive summary to provide clarity: “While the cumulative effects related to climate change, locally reduced recharge as a result land use change within Fergus and Elora, and future municipal pumping were included in this assessment, other scenarios that include future changes to non-municipal water takings (e.g., increased agricultural takings) were not assessed at this time.” Further, the conclusions will be updated to indicate that “The future climate scenarios, representing projections of future temperature and precipitation, provide no evidence that climate change up to the period of the 2050s would reduce average annual recharge rates in Centre Wellington. No additional risk from climate change to the Centre Wellington municipal water supply wells is expected”. The text will also be further updated as “These results are based on the modelling approach employed, **the future pumping rates applied**, and the GCMs selected for this assessment.”

In the Climate Change Assessment, the simulation results suggest (see Section 2.5.2 of Matrix [2020a]) that leakage of water to the lower bedrock formations, which are interpreted to be the main source of water for the municipal wells, may range between approximately 11,000 and 13,000 m<sup>3</sup>/day. By comparison, future (2031 to 2036) average municipal demands are estimated to be on the order of 8,523 to 9,969 m<sup>3</sup>/day (AECOM 2019). This indicates that leakage to the lower bedrock formations will be more than the average municipal water pumping from the lower aquifer.

We acknowledge that increased climate variability is likely, along with increased risk of flooding. The hydrologic assessment completed to estimate effects on climate change does consider surface water effects; however, the analysis and discussion presented in the Climate Change Assessment is limited to its effect on the water balance relating to groundwater recharge. Our experience with a number of different climate

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models near the study area illustrates this variability; however, increased average groundwater recharge rates are observed across nearly all the scenarios.

This Climate Change Assessment specifically focused on the simulated impacts to groundwater quantity at the Centre Wellington municipal wells and considers multiyear periods where groundwater recharge is higher or lower than average (e.g., the 1960s drought). However, the Centre Wellington groundwater supply is currently within a deeper bedrock aquifer which is less sensitive to seasonal and annual climate fluctuations, and this is also consistent with longer term monitoring data.

### **Growth, Development, and Water Management Connection**

In drafting the water quantity policies, the project team considered the connections between growth, development, and water management. A policy framework has been proposed that seeks to work between these perceived silos. For instance, there are a number of land use planning policies directed to the County including policies that provide recommendations for changes to the Official Plan related to water taking and recharge reduction. There are also policies that encourage interagency cooperation between the different water management agencies including the municipalities, Conservation Authorities and the Province and policies directed to the Province itself related to prescribed instruments and communication with the other agencies.

Additionally, the Province recently released their [water quantity management framework](#) for public consultation (which ended August 2<sup>nd</sup>, 2020). As the Province decides on how to implement this framework, the project team will look to further link the policies to any new or revised provincial direction.

### **Water Quantity Policy Development**

Regarding comments related to policy approaches and implementation including population growth, the project team is currently organizing a further CLG meeting (tentatively scheduled for late August / early September 2020) where we will discuss draft policies. Draft policy text was presented to the [Lake Erie Source Protection Committee on June 25, 2020](#).

In drafting these policies, the project team considered the connections between growth and development and water management and have proposed a policy framework that seeks to connect the various local and provincial government agencies that have responsibilities in these areas. For instance, there are a number of land use planning policies directed to the County including policies that provide recommendations for changes to the Official Plan related to water taking and recharge reduction. There are also policies that encourage interagency cooperation between the different water management agencies including the municipalities, Conservation Authorities and the Province and policies directed to the Province itself related to prescribed instruments and communication with the other agencies.

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We suggest that all CLG members consider submitting comments related to the draft policy text following the CLG meeting. The current work addressing water *quantity* will be captured in a further update to the Wellington chapter of the Source Protection Plan and Assessment Report. Formal public consultation will be undertaken at that time and any comments received will be considered by the Lake Erie Region Source Protection Committee prior to submitting the plan update to the Ministry.

### **Prioritization of Water for Agricultural Use**

Concerns were raised that Tier 3 and Water Quantity Threats Analysis did not consider the future water needs of the agricultural community. The contemplation of these concerns was beyond the scope of our studies. However, prioritization of water use is one of the topics in the recently released [Provincial water quantity management framework](#) that was available for public consultation until August 2<sup>nd</sup>, 2020. The province has proposed that most agricultural water uses would be considered one of the highest priority uses. In the draft source protection water quantity policies for the County of Wellington, the project team identified the need for a policy related to how water uses are prioritized in Ontario. The project team is currently reviewing if the province's proposal meets local needs or if additional action regarding prioritization should still be requested of the province.

### **Best Management Practices**

The benefits of best management practices such as maintaining groundwater recharge are discussed on page 10 of the Preliminary Water Quantity Threats Analysis report. The report recommends that policies should be developed to ensure that groundwater recharge is maintained to support water levels, water quality, and ecological function. Additional text will be added: "While many best management practices, such as those implemented in the Rural Water Quality Programme, are designed to improve water quality they have the additional benefit of maintaining groundwater recharge and concurrently reducing surface water runoff."

### **Groundwater Monitoring**

The Township maintains a network of groundwater monitoring wells separate from the municipal pumping wells. The Township monitoring program includes both water quality and water level monitoring in both groundwater monitoring wells and municipal pumping wells. As part of future work to assess the capacity of the current municipal wellfield and potential new municipal well locations, it is anticipated that additional monitoring wells will be installed over the next few years. Currently, the monitoring well network is confined mostly to the urban area of Elora and Fergus; the Township is currently assessing where to expand the monitoring network including in areas outside of the urban boundary including within areas of the modelled quality WHPAs. There will be opportunity for some private well owners including farms, homes and businesses, to participate in the Township monitoring programs. This participation occurs during pumping tests for new or expanded municipal water takings. As the Township progresses with its groundwater exploration optimization programs for new water supply, the Township will reach out to you at the appropriate time to discuss this further. In the meantime, if you have any additional questions on the

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Township's monitoring program, please contact Colin Baker, Managing Director of Infrastructure Services, at the Township.

### Source Protection Water Quality and Wellhead Protection Area Concerns

The June 15, 2020 email provided comments from Gary Hunter, P. Eng., related to the water *quality* portion of work done under the Clean Water Act, 2006 to protect municipal drinking water sources; e.g., revisions to wellhead protection areas (WHPA) and Issue Contributing Area (ICA) delineation. An update to the Wellington chapter of the Grand River Source Protection Plan and Assessment Report addressing water *quality* aspects has been submitted to the Ministry of the Environment, Conservation and Parks, for their review and approval, in early May 2020. This followed pre-consultation with agencies and formal public consultation between January 13 and February 26, 2020, including two public meetings on February 6 and 12, 2020 at Elora Hall and the Marden Community Centre. All public comment received during that time, including submissions from Save Our Water, were considered by the Lake Erie Region Source Protection Committee and included in the submission package to the Ministry.

At this point, the Lake Erie Region has submitted the Grand River Source Protection Plan update respecting water *quality* for Wellington County to the Ministry for review. The project team is aware that Save Our Water has sent these comments directly to the Ministry including Source Protection Programs Branch that oversee the review of the updated and the Ministry will consider them as part of their review.

For clarity, in response to comments about the pumping rates used for delineating the quality WHPAs and ICAs, the MECP technical rules provide the project team flexibility and discretion in choosing an appropriate pumping rate. The project team proactively chose pumping rates that are higher than the current, pumping rates, to be protective of the water supply that would be required to accommodate expected population growth, but maintained rates at a level that the numerical model could still support. This resulted in WHPAs and ICAs that are larger than the current capture zones, therefore providing additional protection to the future sources of drinking water. The larger WHPAs and ICAs also will ensure that currently existing activities that would otherwise be outside the vulnerable areas can be addressed so potential impacts can be prevented or minimized.

### REFERENCES

AECOM Canada Ltd. (AECOM). 2019. 'Township of Centre Wellington, Water Supply Master Plan'. Draft prepared for The Township of Centre Wellington. Kitchener, Ontario`. July 2019.

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Matrix Solutions Inc. (Matrix). 2020b. Township of Centre Wellington Preliminary Water Quantity Threats Analysis. Version 0.5. Prepared for Grand River Conservation Authority. Guelph, Ontario. March 2020.

Ontario Ministry of the Environment and Climate Change. (MOECC). 2017. Technical Rules: Assessment Report, Clean Water Act, 2006. November 20, 2008. Amended on December 12, 2008 (administrative amendments), November 16, 2009 (EBR Posting Number EBRO10-7573), and December 2, 2013 (Technical Bulletin). Updated on June 23, 2017. Published on May 19, 2016. 2017.

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