

JOINT MUNICIPAL WATER MANAGEMENT AGREEMENT

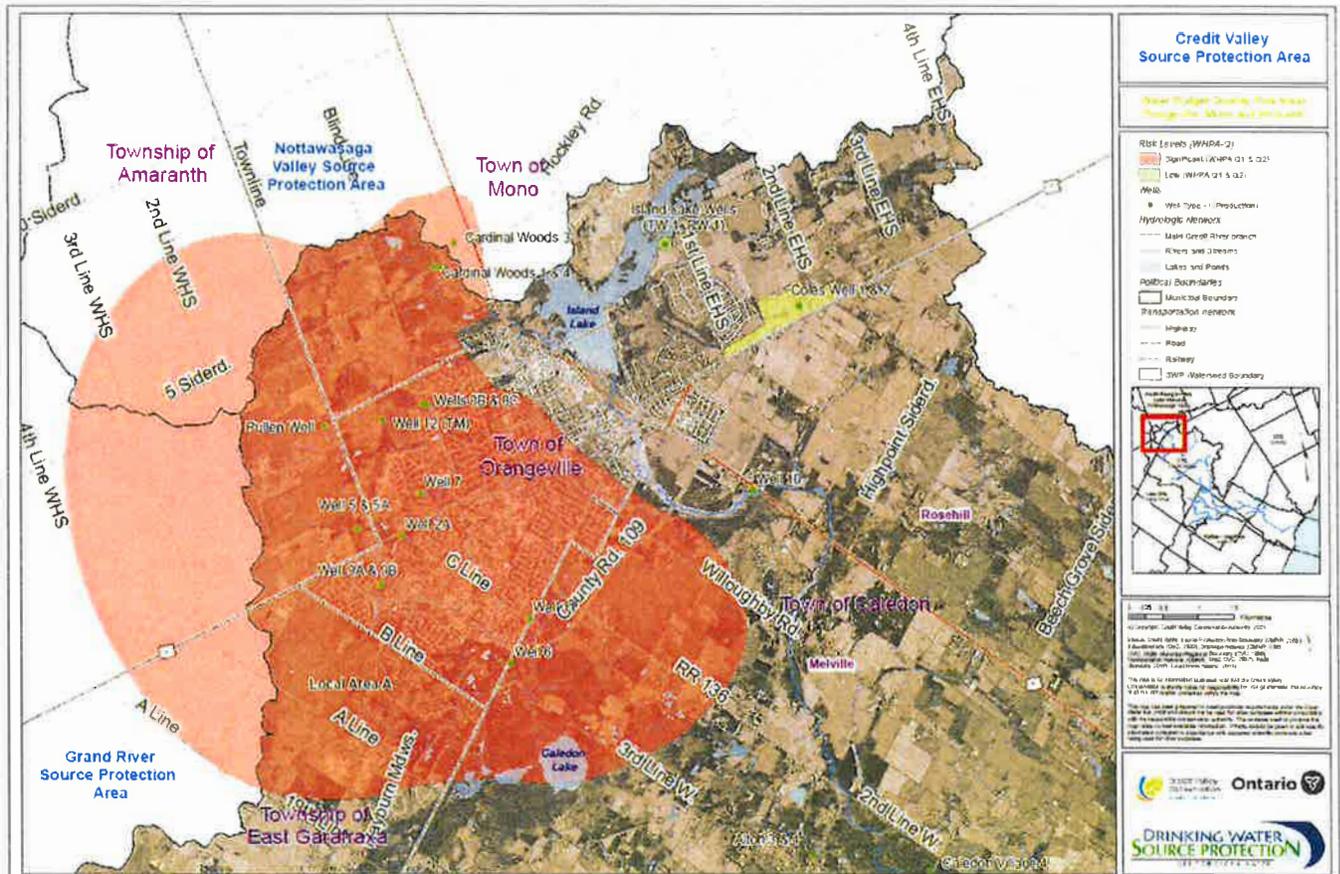
This **Joint Water Supply Management Model** agreement is made between:

THE TOWNSHIP OF EAST GARAFRAXA, THE TOWNSHIP OF AMARANTH, THE TOWN OF MONO AND THE TOWN OF ORANGEVILLE

Background:

Through the research and analysis of groundwater supplies completed as part of the Source Water Protection Assessment process, a subwatershed within the Credit Valley, Toronto Region and Central Lake Ontario Source Protection Region was identified as having moderate to significant potential for water quantity stress. The subwatershed, known as Subwatershed 19, includes lands within the municipalities of East Garafraxa, Amaranth, Town of Mono, and Town of Orangeville. A Tier 3 Water Budget was completed for the subwatershed to examine the groundwater response to different climate, pumping and recharge scenarios. The result of the Tier 3 study was the identification of an area within Subwatershed 19, referred to as 'Local Area A' where drinking water quantity threats are characterized as being at significant risk. Local Area A encompasses existing and planned municipal well supplies for Amaranth, Mono and Orangeville.

Local Area A



Given the results of the Tier 3 Water Budget, the three Source Protection Regions that are located within Local Area A, implemented specific policies for Local Area A within their Source Protection Plans. The policies require the four municipalities with lands located in Local Area A to develop a Joint Municipal Water Supply Management Model and an agreement to implement the recommendations of the approved Model. The Model is to facilitate planning and management of the shared groundwater resource and to ensure water quality and quantity is maintained or improved and that activities are not and do not become significant drinking water quantity threats.

To address the requirements of the Source Protection Plans, the four municipalities joined with Dufferin County to form a working group. On behalf of the County, B. M. Ross and Associates was retained to identify and evaluate existing water management models, develop and recommend a model to meet the requirements of the Source Protection Policy in the context of the existing municipal water supplies.

This agreement has been developed from the recommendations from the consultants and subsequent negotiations between the four municipalities as a basis for implementation of approved recommendations.

The complete form of this agreement is comprised of an agreement with one schedule (A).

The following terms represent the general intent and a framework for the proposed four-party agreement:

1. Each municipality agrees to manage water taking and aquifer recharge to minimize impacts to the groundwater resource. They commit to do this by implementing established Risk Management Measures and Best Practices for both water taking and controlling recharge reduction.
2. Each municipality commits to accumulate and share information annually, regarding both municipal water taking and new development or re-development within the Local Area boundaries.

Model Update Frequency Triggers and Conditions

3. At least once every four years, and at least eighteen months prior to the end of a term of Council, representatives of each municipality will meet and determine the necessity to initiate a process to update and re-run the hydrologic and hydrogeologic models to determine if the threat to the groundwater resource has changed. Model updates will additionally abide by the following threshold triggers and conditions:
 - a. If annual water taking for the entire Local Area, based on a running average of the previous four years, has increased by 5% or more since the previous review, the decision will normally be to update and re-run the models.
 - b. If new development or re-development has occurred on 5% or more of the lands within the Local Area, the decision will normally be to update and re-run the models.
 - c. The recommendation to proceed or defer the update and re-run of the models must be communicated to each Council for a Resolution.
 - d. A decision to proceed will require the consent of at least three municipalities.
 - e. A decision to defer will require the unanimous consent of all four municipalities.
 - f. In the event of a dispute regarding any clauses captured under Section 3, the municipalities will proceed to third party arbitration to come to a resolution.
 - g. The first meeting shall occur no later than May 31st, 2025.

Risk Assessment and Peer Review

4. The update and re-run of the Models shall establish if the percentage impact to each municipality as a result of municipal pumping and land development and shall provide a review of the risk management measures undertaken including an opinion of their effectiveness. These conclusions will be presented to Council with the all relevant technical details per section 3.
5. The decision as to who undertakes the actual work of updating and re-running the models and managing the process can be made by a majority of the municipalities. They can choose to have a 3rd party undertake the assignment including management. The decision as to who undertakes the work of updating and re-running the models will be determined through a pre-established RFP Evaluation Process. As part of the work, the Credit Valley Source Protection Authority (CVSPA) in collaboration with the other Source Protection Regions (SPRs) with related policies, may be requested to provide oversight to ensure

that all technical and Source Protection Plan requirements are covered by the consultant Terms of Reference.

6. The update and re-run of the Models shall be based on the most recently updated versions per confirmation by the CVSPA or their agent in collaboration with the other relevant SPRs.
7. Upon completion, any, and all new updates will be peer reviewed by the CVSPA or their agent in collaboration with the other relevant SPRs.
8. Each consecutive model update must be dated, affixed a version number, and shared with the participating Municipalities, the CVSPA or its agent for storage, future use and incorporation into the authoritative model suite for the CTC Source Water Protection Region.

Communications

9. The consultant who has been retained to complete the update and re-run of the model will be responsible for making recommendations to the municipalities and the municipalities will be responsible for the determination of how to adopt and implement the recommendations.

Costs

Cost allocation, as suggested in the terms of the BM Ross study, may be addressed in two ways. Costs may be allocated based on a formula considering both water taking and new development, both of which contribute to groundwater risk. The allocation should also recognize a minimum cost to municipalities, reflecting that management of the groundwater resource benefits all. A cost allocation methodology is presented in Schedule A as an example of the recommended apportionment of costs. This will serve as the default formulation notwithstanding the ability of the Municipalities to make alternate arrangements for a particular study.

10. The costs of updating and re-running the models will be based on a formula that considers both water taking and the area of development and re-development that has occurred since the previous review and decision.
11. Notwithstanding schedule A a minimum of \$1000 for the cost of updating and re-running the models will be borne by each municipality irrespective of if a taking or the development is inside the boundaries of any of the municipalities that are party to this agreement.
12. No municipality shall contribute less than the pre-defined amount of the cost of updating and rerunning the models.

Dispute Resolution

13. If the required consensus, as set out above, cannot be reached the municipalities agree to enter into mediation to resolve the matter.
14. If mediation is not successful, the parties agree that the matter will be settled in accordance with Section 15 of the Municipal Arbitrations Act, R.S.O. 1990, c. M.48..

15. All costs of mediation and further review, if necessary, shall be shared in the same manner as the cost of updating and re-running the models.

Township of Amaranth

Signature: [Signature]
Name: Bob Currie
Title: Mayor
Date: _____

Signature: [Signature]
NAME: Nicole Martin
TITLE: CAO/ Clerk
Date: January 22, 2022

Town of Mono

Signature: [Signature]
Name: JOHN E. CREECHMAN
Title: MAYOR
Date: 22 FEB. 2022

Signature: [Signature]
NAME: FRED SIMPSON
TITLE: CLERK
Date: 10 FEB 2022

Township of East Gafaraxa

Signature: [Signature]
Name: Guy Garthouse
Title: Mayor
Date: Jan. 25/2022

Signature: [Signature]
NAME: SUSAN M. STONE
TITLE: CAO/CLERK
Date: January 25, 2022

Town of Orangeville

Signature: [Signature]
Name: LISA POST
Title: MAYOR
Date: FEB 24, 2023

Signature: [Signature]
NAME: CAROLINA KHAN
TITLE: CLERK
Date: FEB. 16, 2023.

I/We have authority to bind the Corporation

SCHEDULE A
COST ALLOCATION APPROACH

The terms of agreement address cost allocation and include two main principles:

- The formula will allocate costs considering both water taking and new development. Both components contribute to the risk.
- There is a minimum cost to each municipality recognizing the fact that all benefit from management of the groundwater resource. Further, as set out in the terms of agreement, each municipality has a single vote regarding a decision to incur costs (i.e. update and re-run the models). To be fair, equal participation in the decision must come with a financial commitment.

To determine an appropriate split between water taking and new development, reference was made to Table 3 in the Risk Management Pilot Study report (Matrix Solutions Inc, 2014) which identified the percentage of the safe additional drawdown that would occur at each well as a consequence of both water taking and recharge reduction resulting from development. To understand the relative importance of each activity the average percent impact at the well sources was calculated. Table 1, summarizes the information.

Table 1
Predicted Impacts of Water Taking and Recharge Reduction

Well	Predicted % Impact	
	Water Taking	Recharge Reduction
2A	47	17
5/5A	18	77
6	79	12
7	46	9
8B	19	6
8C	19	6
9A/9B	8	49
11	43	5
12	40	7
Pullen	9	3
Carinal Woods 1	8	5
Cardinal Woods 2	986	11
Average %	35.2	17.3

Notes: Values taken from Risk Management Pilot Study Report, Table 3.

Based on the above Table 1, and considering a minimum cost to each municipality, water taking is approximately twice as significant as recharge reduction related to development. It is agreed that 67% of the balance of allocated costs be assigned to increased Municipal well pumpage and 33% to approved development/re-development.

It is agreed that water taking would be the current running average of the annual flows over the previous four years. This will smooth out usage values impacted by growth or environmental conditions (e.g. a dry summer with increased lawn watering). Only wells within the Local Area would be considered.

It is agreed that development would be measured as hectares of development or re-

development that has occurred since the modelling was previously completed.

Example Calculation

The following provides an example of how costs will be allocated. For his example, we have assumed the modelling expense will be \$100,000. This example is for illustration purposes only and the actual amounts allocated by each municipality will be determined when modeling is undertaken based on the actual details of water taking and development.

Scenario Details

Municipality	Water Taking ¹ (m ³ /d)	Development ² (ha)
Amaranth	0	25.3
East Garafraxa	0	0
Mono	336 ³	0
Orangeville	7,904 ⁴	5.5
Totals	8,240	30.8

- Notes:
1. Water taking is the average of 4 previous years.
 2. Development (including re-development) is the total since previous modelling.
 3. Cardinal Woods Wells only.
 4. Excludes Well 10.

Allocation Rules and Assumptions

- 67% is allocated to water taking
- 33% is allocated to development
- Total cost to update and re-run models is \$100,000
- Minimum allocation is \$1000

Amaranth Cost

- For water taking $\frac{0}{8240} \times 0.67 \times \$100,000 = \$0$
- For Development $\frac{25.3}{30.8} \times 0.33 \times \$100,000 = \$27,107$
- Total for Amaranth \$27,107

Orangeville Cost

• For water taking	$\frac{7904}{8240} \times 0.67 \times \$100,000$	=	\$64,268
• For Development	$\frac{5.5}{30.8} \times 0.33 \times \$100,000$	=	\$5,893
	Total for Orangeville		<u>\$70,161</u>

Summary for Example

Municipality	Initial Calculation	Adjusted for 5% Minimums
Amaranth	\$27,107	\$26,836
East Garafraxa	\$0	\$1,000
Mono	\$2,732	\$2,705
Orangeville	\$70,161	\$69,459
Total	\$100,000	\$100,000

- The above analysis is an example of how the breakdown of costs per \$100,000 per this agreement as it relates to sharing of expenses related to updating and re-running the models.