



SOURCE WATER PROTECTION

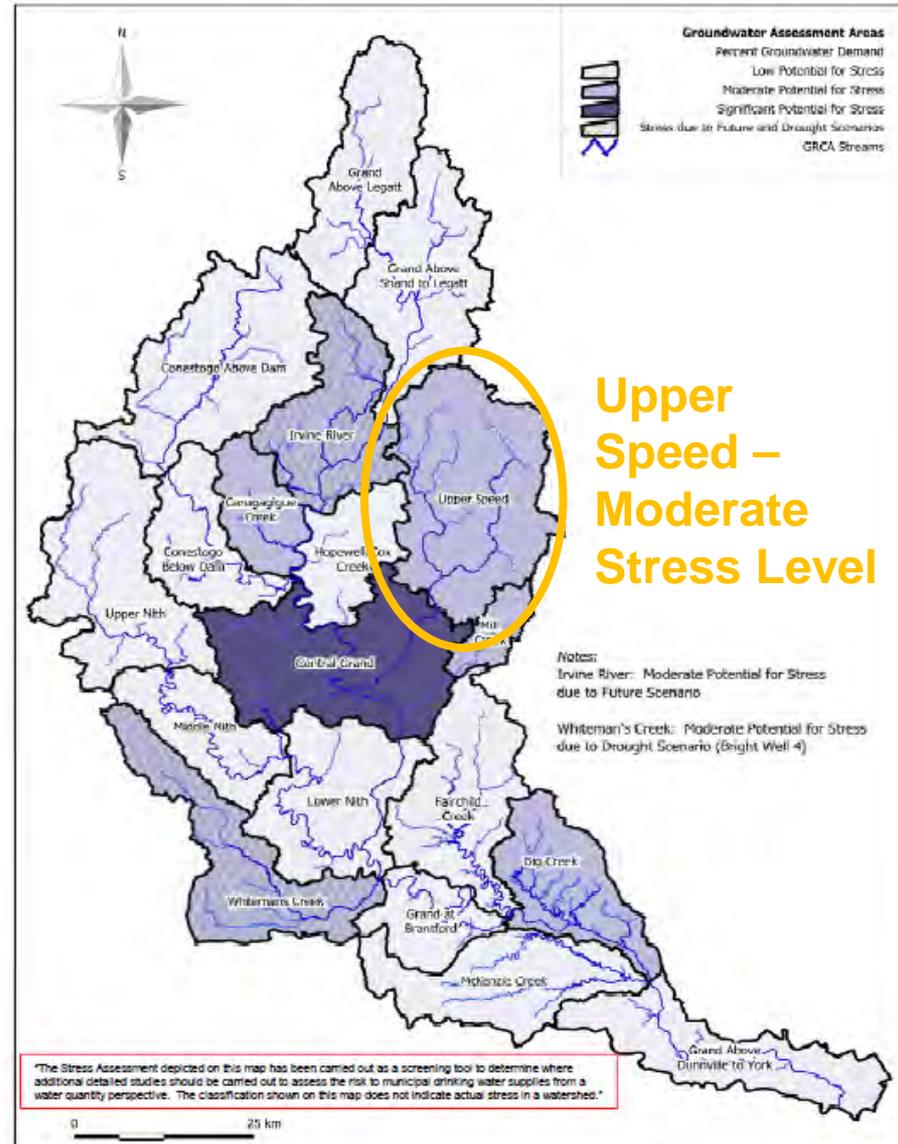
Guelph/Guelph-Eramosa Tier 3 Water Budget Study

Halton-Hamilton SPC

June 20, 2017

Tier 1 and Tier 2 Water Budgets

- Watershed-scale studies to characterize surface / groundwater supply and water demand
- Identifies subwatersheds with moderate or significant hydrologic stress
- **Upper Speed watershed assigned moderate potential for hydrologic stress**
- Tier 3 Water Budget required



Tier 3 Risk Assessment

Where?

- Tier 2 Assessment
Moderate or
Significant stress

Goal:

- Assess the ability to meet future water quantity needs under scenarios:
 1. increased demand
 2. projected land development
 3. drought conditions
- Highly detailed numerical models

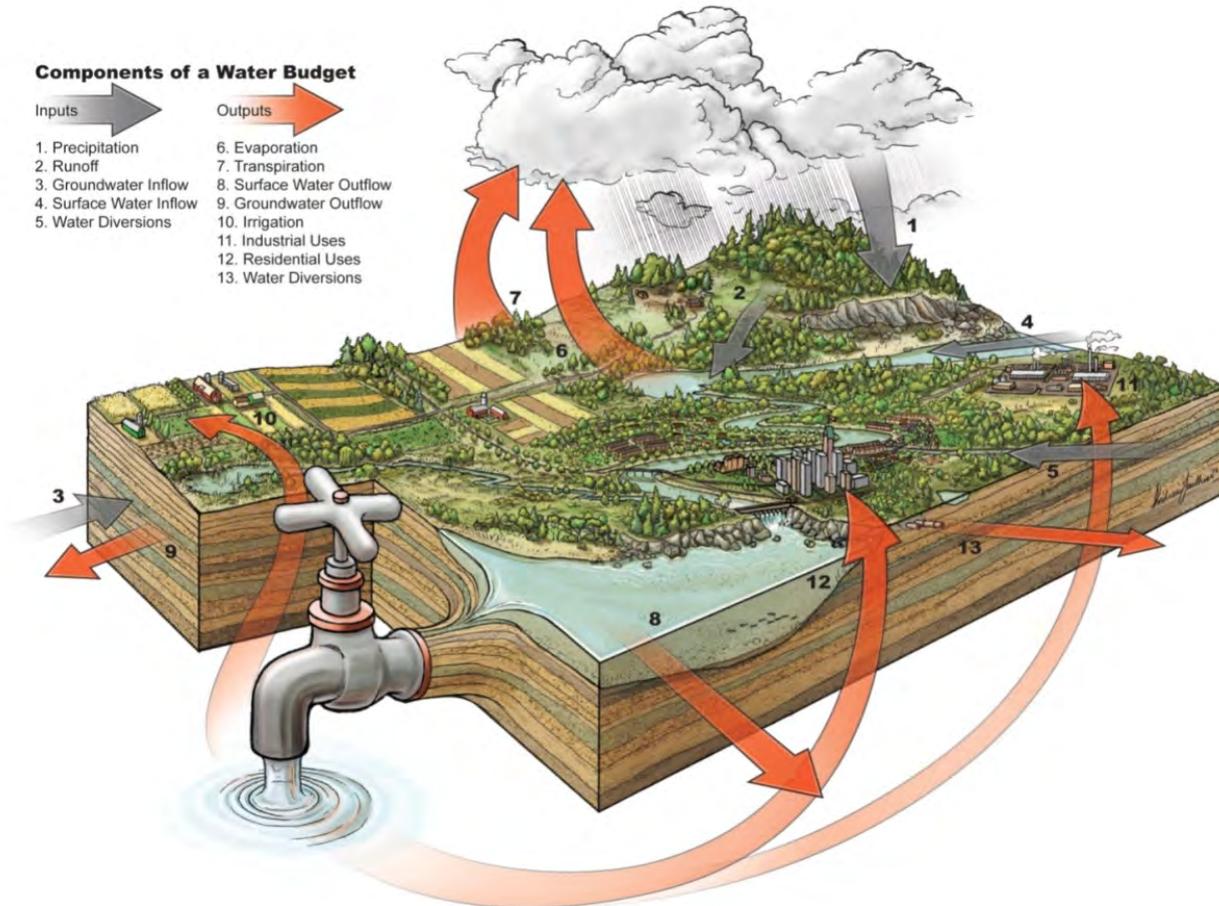
Components of a Water Budget

Inputs

1. Precipitation
2. Runoff
3. Groundwater Inflow
4. Surface Water Inflow
5. Water Diversions

Outputs

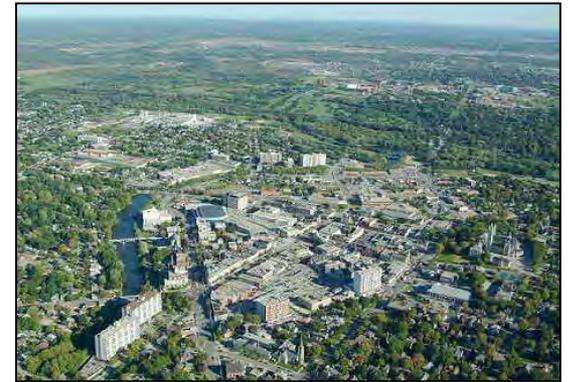
6. Evaporation
7. Transpiration
8. Surface Water Outflow
9. Groundwater Outflow
10. Irrigation
11. Industrial Uses
12. Residential Uses
13. Water Diversions



Focus shifts from subwatershed analysis to wellhead / intake analysis.

Guelph – Guelph/Eramosa Tier 3

- Initiated in 2008 as a pilot before guidance and technical rules finalized (similar to ROW Tier 3)
- Focused on the municipal water supplies for the City of Guelph (2008-2014) and the Township of Guelph-Eramosa (in Rockwood and Hamilton Drive) (2014-2017)



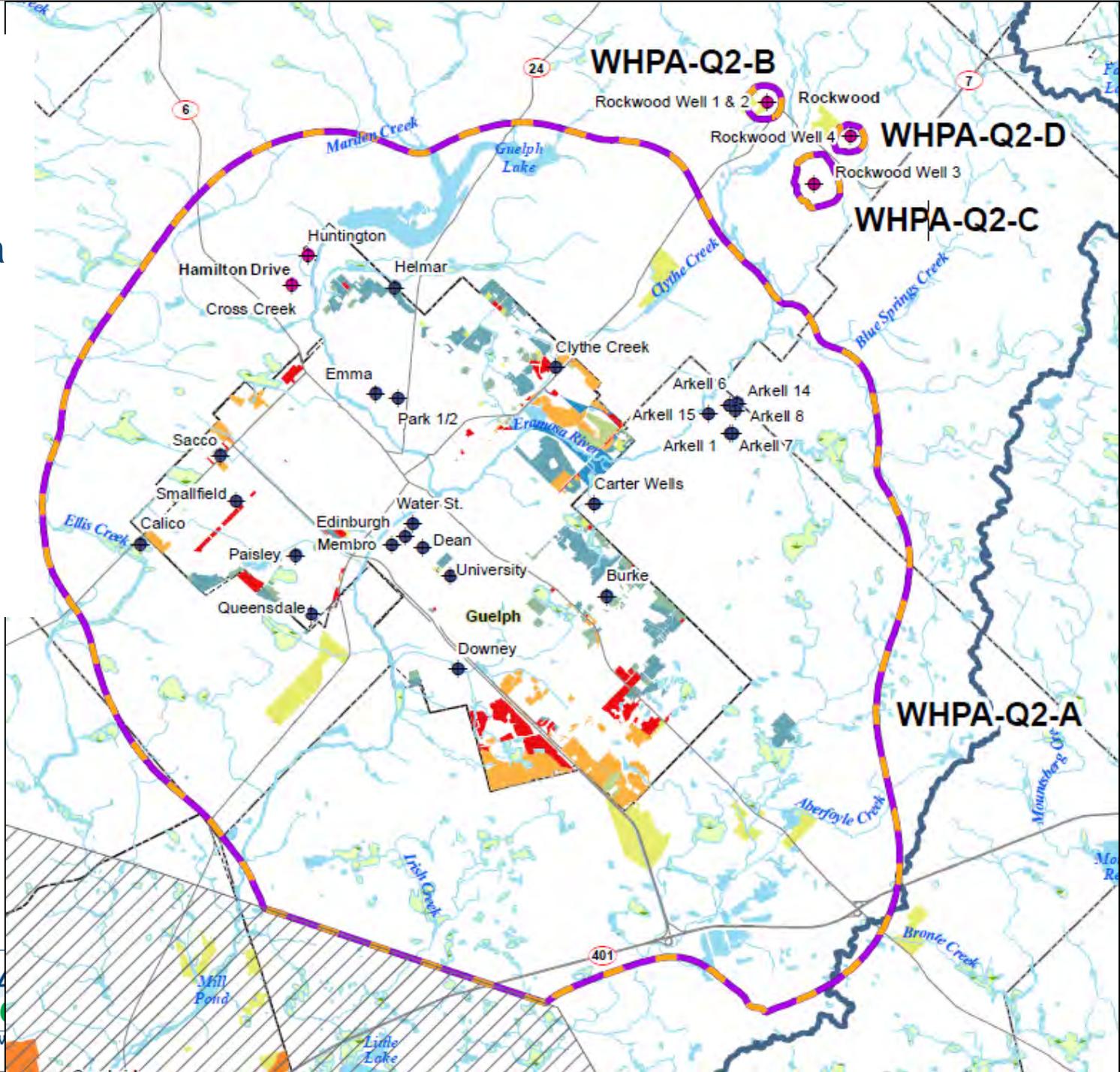
Tier 3 Results

- The City of Guelph's and Guelph/Eramosa Township's wells can meet current needs
- The City's Queensdale municipal well is predicted to not be able to meet future needs under normal climate conditions and during prolonged drought.
- Water Quantity Wellhead Protection Area (WHPA-Q) and Water Quantity Intake Protection Zone (IPZ-Q) are assigned a **significant risk level**

WHPA-Q

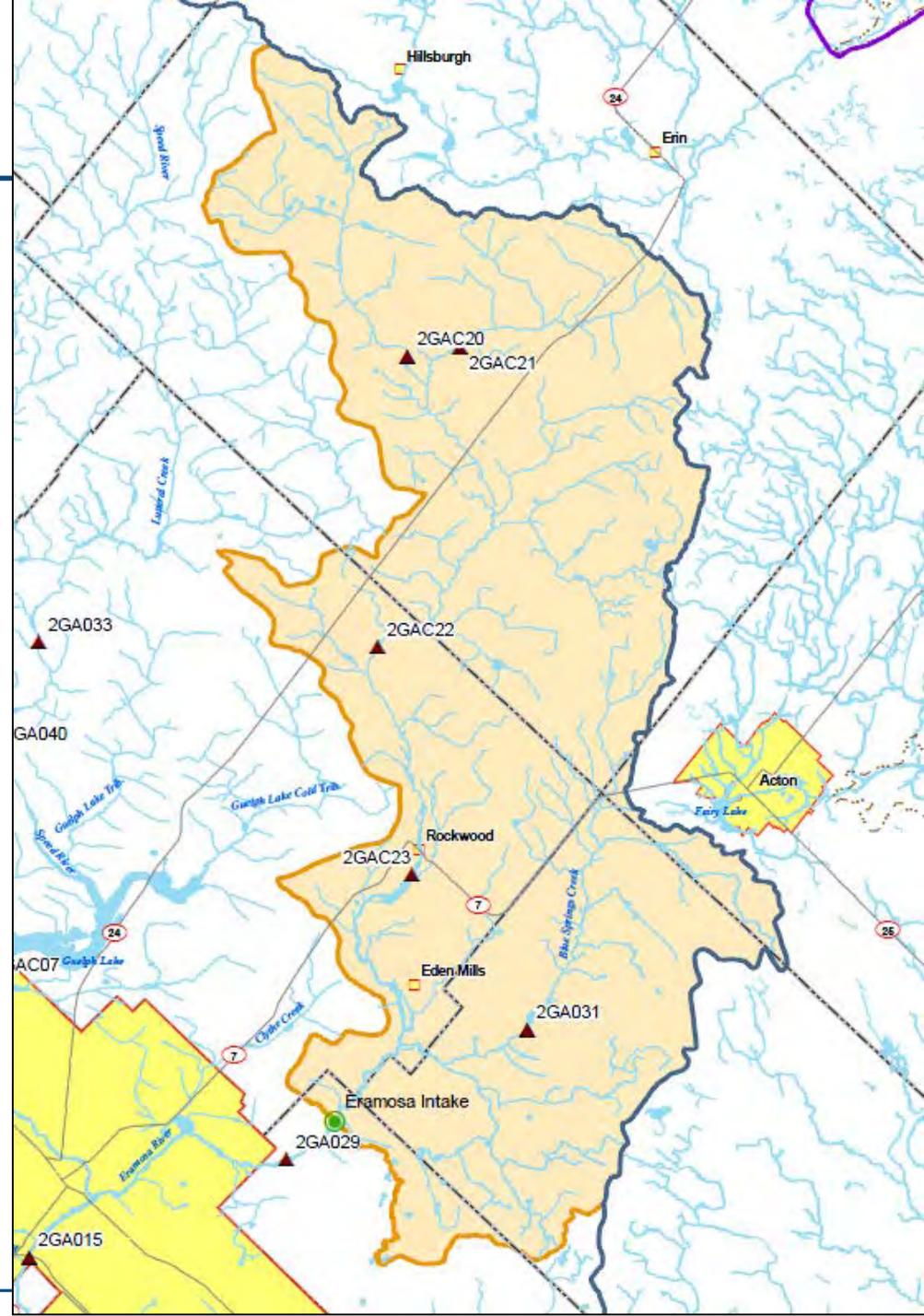
For City of Guelph and Guelph/Eramosa Township (Hamilton Drive Wells)

Assigned *significant* risk level



IPZ-Q

- Area upstream of the surface water intake on the Eramosa River
- Risk level was adopted from WHPA-Q because of interconnection through Arkell System
- Assigned *significant* risk level



Peer Review

- Tier 3 study was peer reviewed on behalf of the province by a team of highly qualified third party technical experts working in both academia and private consulting
- Local municipalities participated as municipal peer reviewers and provided comments
- Provincial peer reviewers deemed model “fit for purpose” and MOECC accepted Tier 3 study results
- Addressing outstanding concerns could be considered in future work plans

What do Tier 3 study results mean?

- Need to look closely at all existing and new water takings within WHPA-Q-A and IPZ-Q to evaluate their contribution to water quantity stress in the area.
- These water takings include:
 - Municipal wells and intakes
 - Permitted takings
- Need to look at activities that reduce groundwater recharge

Next Steps

- Undertake Risk Management Measures Evaluation Process (RMMEP)
 - Evaluate and determine water takings with greatest impact on municipal supplies
 - Exploring effective risk management measures (e.g., optimised pumping, water loss management, water conservation)
- RMMEP will be collaborative project amongst municipal partners and the Lake Erie Region
- RMMEP will begin in 2017 and help guide development of Source Protection Plan policies

Wellington Municipal Involvement

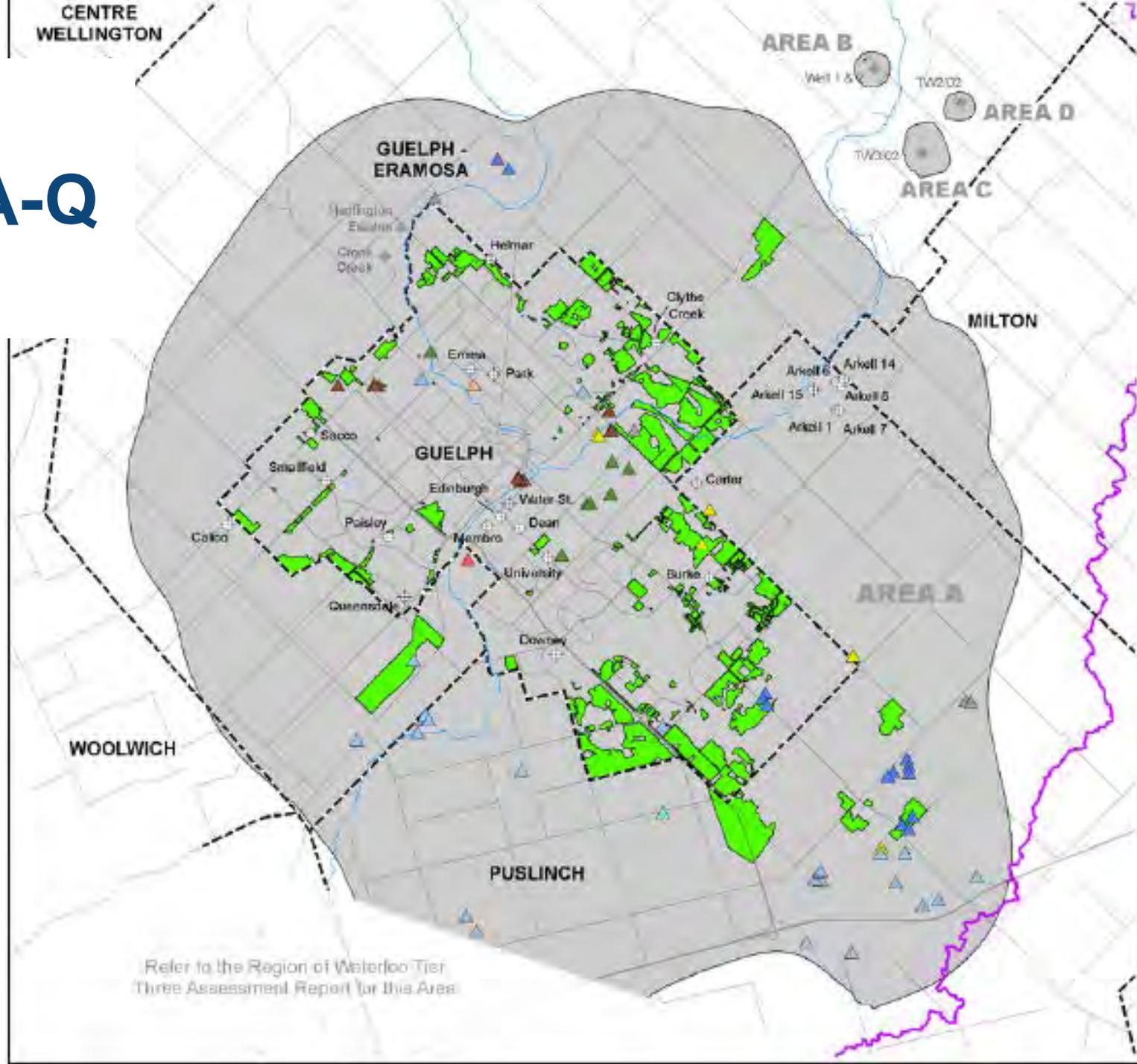
- The County and three of our local municipalities are within the WHPA-Q and / or IPZ-Q
- There is significant public, resident and Council interest in water resources issues in the County.
- Guelph / Eramosa is a water system owner within the Tier 3 study area. Puslinch, Erin and Guelph / Eramosa all have considerable area contained within the WHPA-Q.

Wellington Delegation to Lake Erie SPC

Key Points:

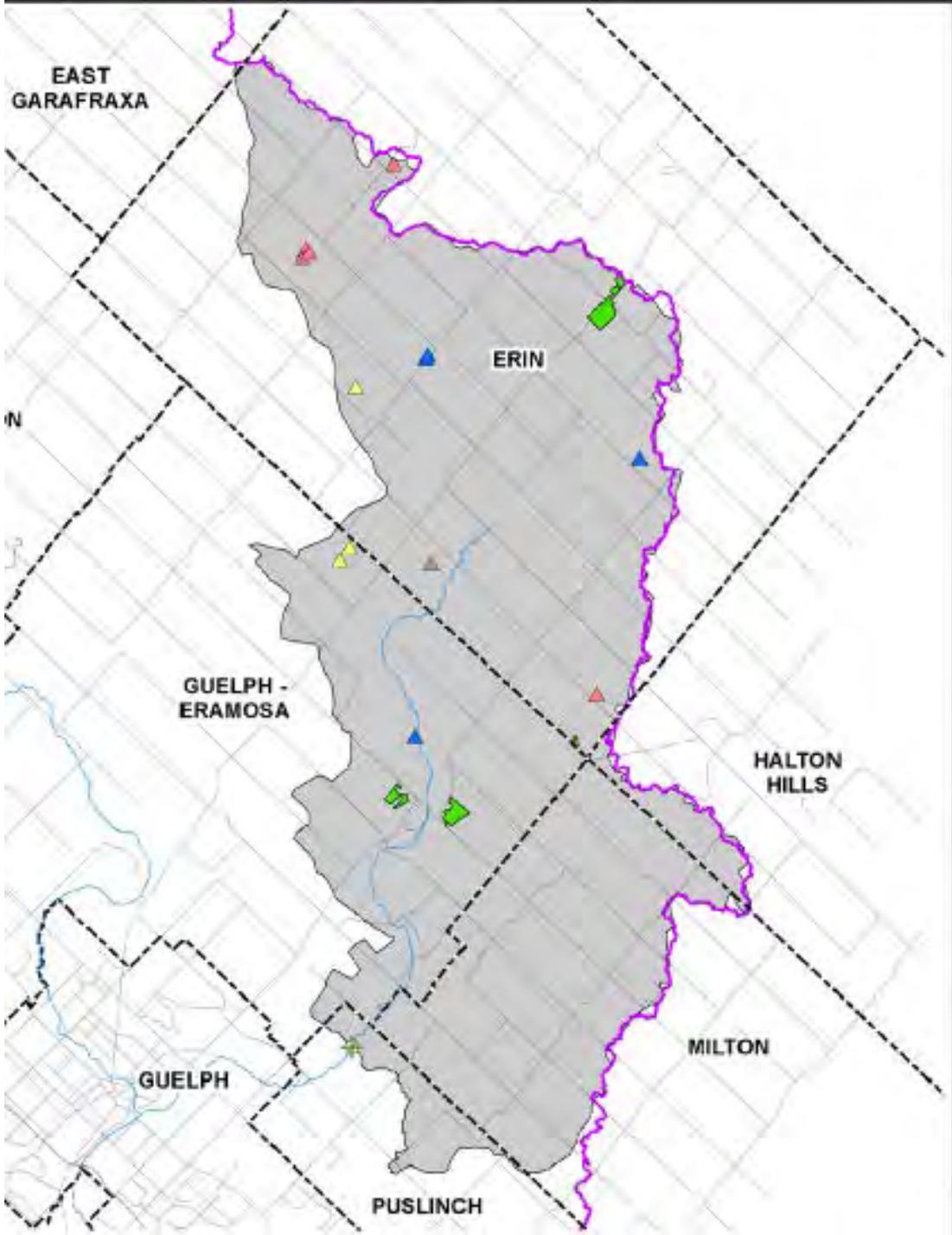
- On April 6, 2017, the Warden and RMO provided a delegation to the Lake Erie SPC
- Sufficient time is required for **thorough municipal, stakeholder and public consultation** for the RMMEP and policies
- There are key employment lands in the 401, Highway 124 and 6 corridors that are within this WHPA-Q and are privately serviced.

WHPA-Q



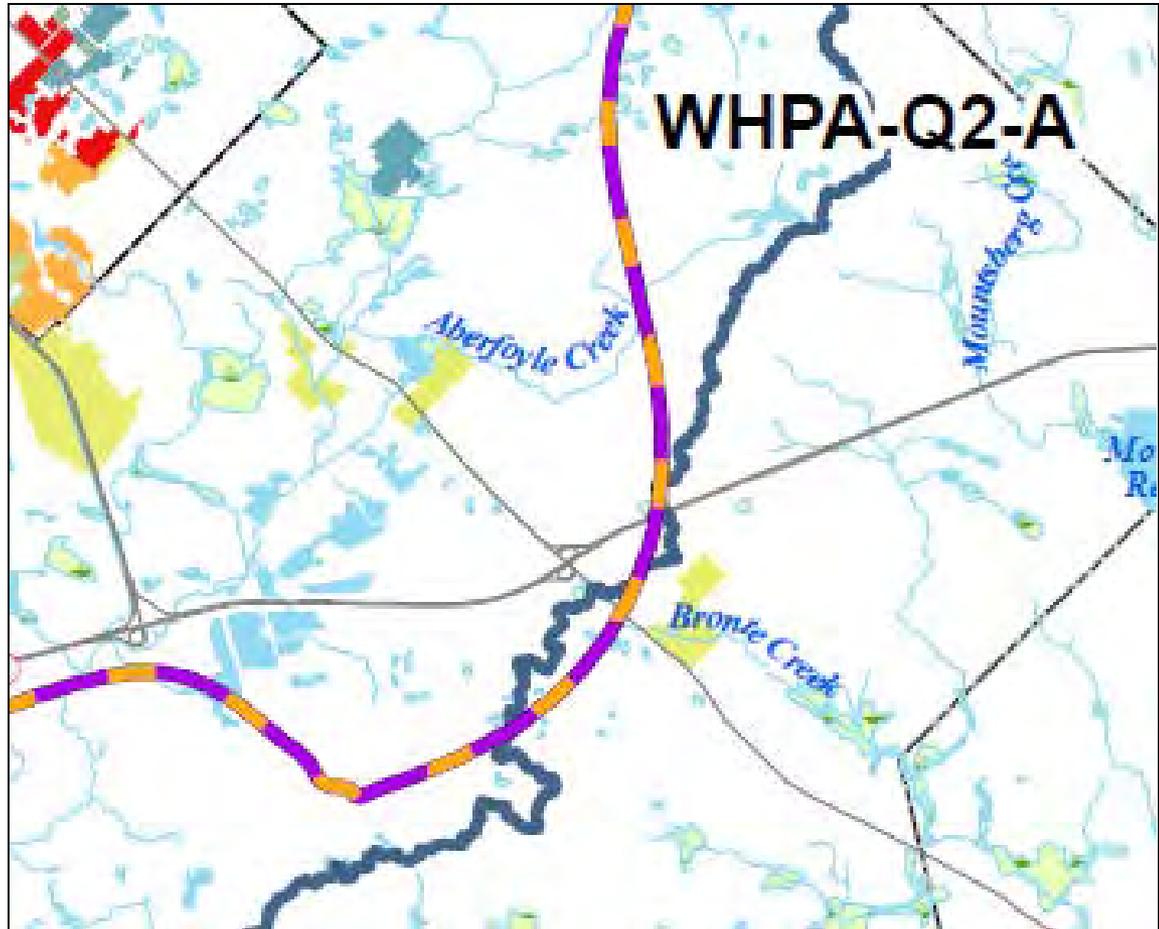
Refer to the Region of Waterloo Tier Three Assessment Report for this Area

IPZ-Q



WHPA-Q in HH SPR

There is a small portion of the WHPA-Q within the Halton-Hamilton Source Protection Region. It is located solely in the Township of Puslinch.



Conclusion

- Tier 3 Water Budget provides state of the art tool (Tier 3 Model) to develop sustainable groundwater management solutions that will benefit everyone
- Lake Erie Region committed to moving forward in collaborative fashion to protect water for everyone
- Halton-Hamilton SPR will be included in RMMEP and policy development process

Recommendation

- We recommend that the Halton- Hamilton SPC support the resolution in your agenda package:
- *THAT an update to the source protection plan based on the results of the City of Guelph and Township of Guelph/Eramosa's Tier 3 Water Budget and Local Area Risk Assessment and the related policies be included in the work plan for submission to the MOECC by November 30, 2018.*