



GUELPH'S WATER SUPPLY MASTER PLAN UPDATE

OVERVIEW PRESENTATION

PROVIDED TO GUELPH-ERAMOSIA AND PUSLINCH TOWNSHIP COUNCILS

CITY OF GUELPH
WATER SUPPLY MASTER PLAN UPDATE:
COMMUNITY OPEN HOUSE

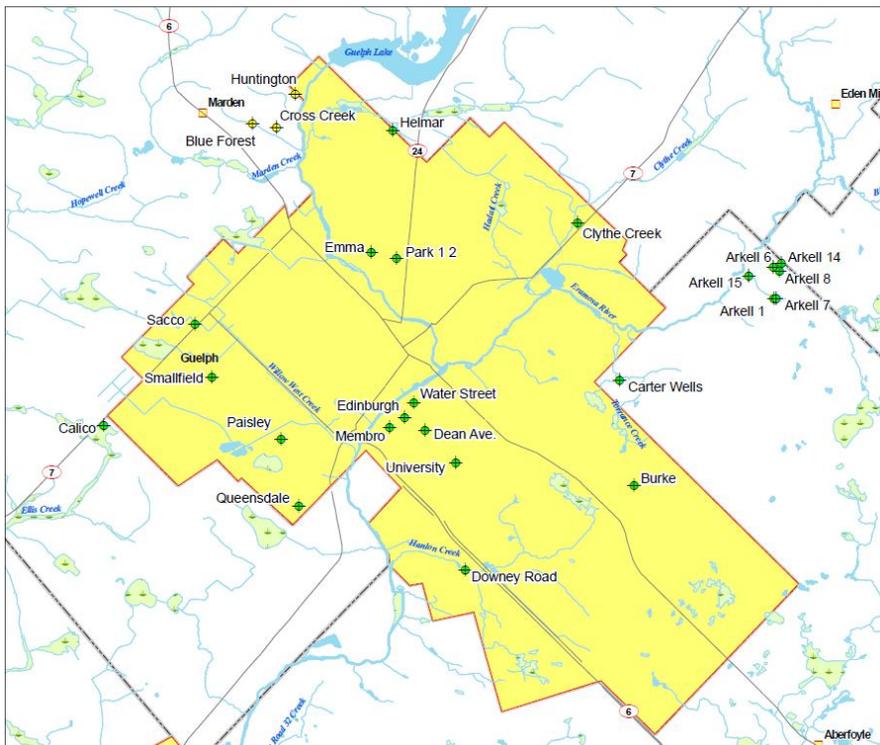
OCTOBER 10, 2013

guelph.ca/water



WHERE DO WE GET OUR WATER?

And how much water is there?



- Guelph has relied on groundwater to meet water demands since 1879
- Our water supply comes from production wells installed in the *Gasport Formation* deep bedrock aquifer and the *Arkell Spring Grounds* collector system
- There are 25 production wells in Guelph's municipal supply system:
 - 21 wells are in continuous operation
 - 4 wells are offline because of water quality concerns
- Guelph's current water supply is about 83,000 m³/day
 - Guelph's total water supply in 2007 was about 75,000 m³/day
 - Since 2007, two new wells (Arkell 14 and Arkell 15) were constructed to provide additional capacity

Ensuring that Guelph has enough water to support current and future needs is an important reason to update the 2007 Water Supply Master Plan.

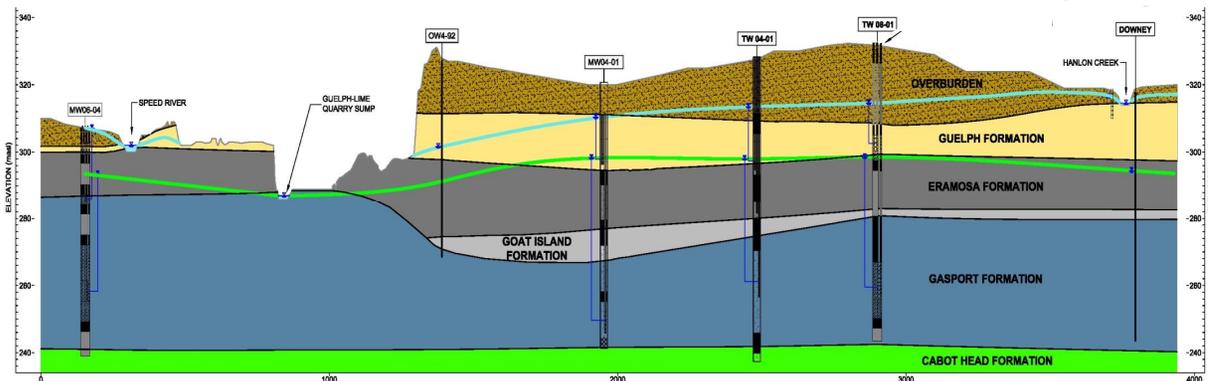
Guelph Municipal Production Wells Capacity (m³/day)

Northwest		Northeast	
Paisley	1,400	Park#1	8,000
Calico	1,100	Park#2	
Queensdale	2,000	Emma	2,800
Sacco	0	Helmar	1,500
Smallfield	0	Clythe Creek	0
Southwest		Southeast	
Membro	6,000	Arkell 1	2,000
Water	2,700	Arkell 6	6,500
Dean	1,500	Arkell 7	6,500
University	2,500	Arkell 8	6,500
Downey	5,100	Arkell 14	new
Edinburgh	0	Arkell 15	new
Arkell Infiltration Galleries	6,900	Burke	6,500
		Carter-1	5,500
		Carter-2	



GUELPH'S WATER SUPPLY

A closer look at our groundwater supply



Legend:
 TW: Test Well
 MW: Municipal Well

- Private wells and municipal production wells do not draw from the same source.
 - Private wells in Guelph and the surrounding area take water primarily from the Guelph Formation, a shallow bedrock aquifer.
 - Municipal production wells are drilled much deeper, and take water primarily from the Gasport Formation. This deep bedrock aquifer is the source of Guelph's main groundwater supply.
- This means there is very little potential for interference between private wells and the municipal water supply.



The Arkell Spring Grounds

- Natural springs discharge along the south side of the Eramosa River Valley; the City has used these springs as a water source since 1908. This shallow groundwater supply is now augmented with six (6) production wells.
- A seasonal *Groundwater Recharge* system augments flow in the collector system by pumping water from the Eramosa River to a pit and trenches. This water recharges the groundwater, making more water available for our use.



PROGRESS SINCE GUELPH'S 2007 WATER SUPPLY MASTER PLAN

CITY OF GUELPH
WATER SUPPLY MASTER PLAN UPDATE:
COMMUNITY OPEN HOUSE

OCTOBER 10, 2013

guelph.ca/water

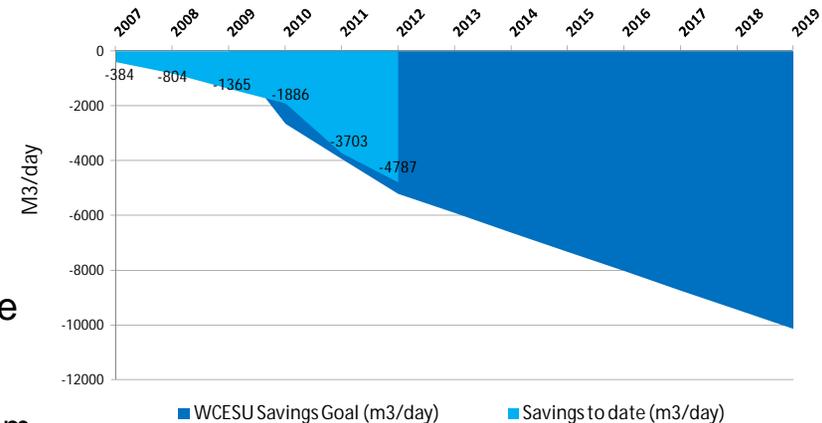


CONSERVATION IS KEY!

Water Conservation and Demand Management Progress since 2007

- In May 2009, when Guelph City Council endorsed the **Water Conservation and Efficiency Strategy** they committed to:
 - Fund the development of a 10 year, \$20 million Community Water Sustainability Strategy
 - Reduce water use by 8.7 Million Litres per Day (MLD) by 2019m
- By late 2011, the Strategy had been fully implemented, including the following Water Conservation Programs and Resources:

<ul style="list-style-type: none"> • Outside Water Use By-law/Program • Toilet Rebate Program • Clothes Water Rebate Program • ICI Capacity Buyback Program • Municipal Leak Detection Program • In-School Education / Partner in Waterloo/Wellington Children's Water Festival 	<ul style="list-style-type: none"> • Rainwater Harvesting Rebate Program • Greywater Reuse Rebate Program • Healthy Landscapes Program • Blue Built Home Program • City Facility Water Efficiency Upgrades & Demonstration Projects
---	--



Estimated Annual Savings vs. Annual Program Reduction Targets

We know it makes sense to use our water wisely. Since 2006, we've reduced our average daily water production by 12% , with Guelph residents now using 20% less water per person per day than the average Ontarian.



WATER SUPPLY STUDIES IN GUELPH AND AREA SINCE 2007

Guelph Tier 3 Water Budget and Local Area Risk Assessment

- Evaluated the sustainability of City of Guelph's water supply system from a quantity perspective
- Identified potential threats to sustainability
- Helps the City manage its reliable water supply system now and in future
- Provided an accurate model of Guelph's municipal aquifer system in and outside the City.

Guelph Drinking Water Source Protection Plan and Policies

- Developed policies to protect existing and future drinking water sources from unwanted impacts and harmful contaminants
- Ensures compliance with the Clean Water Act requirement to develop local and watershed based Source Protection Plans

New Supply & Treatment Projects

- Guelph Southwest Quadrant Water Supply Class EA
- Clythe Well Class EA
- Clythe and Helmar Treatability Assessment
- Clythe Well Rehabilitation and Assessment

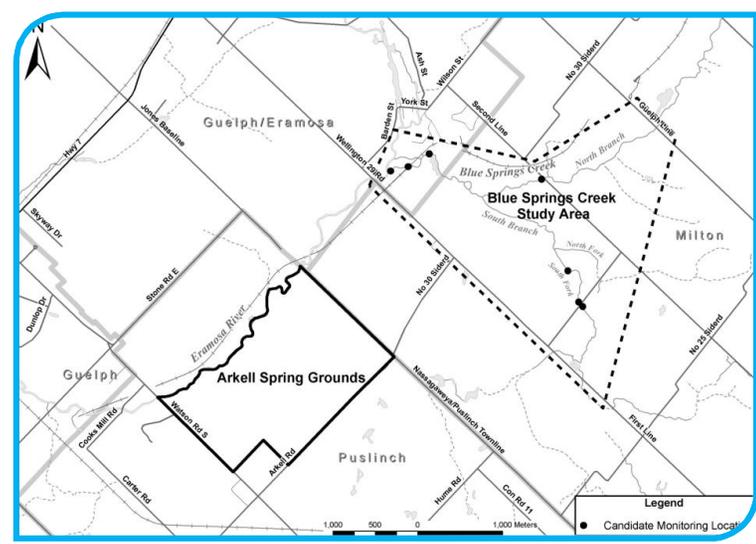
Hydrogeological Investigations & Studies

- Smallfield and Sacco Production Wells – Well Rehabilitation and Hydrogeological Assessment
- Guelph South Groundwater Supply Investigation
- Arkell Spring Grounds – Hydrogeological Study in Support of a Caisson Collector System



NEW WATER SUPPLY INFRASTRUCTURE SINCE 2007

- Guelph constructed two new wells in 2011 to increase municipal supply. This was a key recommendation of the 2007 Water Supply Master Plan.
- The **Arkell Adaptive Management Plan** – which includes an Operational Testing Program and a Groundwater Monitoring Program – were launched in 2011 and will run until 2014.
 - These programs will ensure that water taking in the Arkell Spring Grounds is sustainable, while avoiding impacts on the Blue Spring Creek ecosystem (located 2 km Northeast of the Arkell Spring Grounds) and local domestic wells.





CITY OF GUELPH WATER SUPPLY MASTER PLAN UPDATE

MAINTAINING A SAFE AND SUSTAINABLE SUPPLY TO 2038

CITY OF GUELPH
WATER SUPPLY MASTER PLAN UPDATE:
COMMUNITY OPEN HOUSE

OCTOBER 10, 2013

guelph.ca/water



WHY UPDATE GUELPH'S WATER SUPPLY MASTER PLAN?

Guelph is seeking to:

- Define how the City will get its safe and reliable water – for residential, industrial, commercial and institutional use – over the next 25 years.
- “Establish a sustainable water supply to regulate future growth.”
City of Guelph Council Resolution, October 20 2003
- Consider changes – since 2007 – to predicted population growth, available water supply, and the demand for water.

The City of Guelph is committed to managing population growth and developing strategies for ensuring an adequate water supply for now into the future.

Draft Problem / Opportunity Statement

Problem

- Recent analysis confirms that Guelph's existing water supply will not meet future demands. It is, therefore, prudent to update the previous Master Plan (2007) to identify strategies to increase the capacity of the City's water supply system.

Approach

- The strategies must ensure that an adequate amount of water is provided in a safe and cost-effective manner, while ensuring that environmental sustainability is not compromised. This update will build on the recommendations made during the 2007 Water Supply Master Plan, including those pertaining to additional sources of water supply and water conservation and efficiency measures.

Study Objective

- 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 residents, industrial, commercial and institutional customers over the next 25 years.

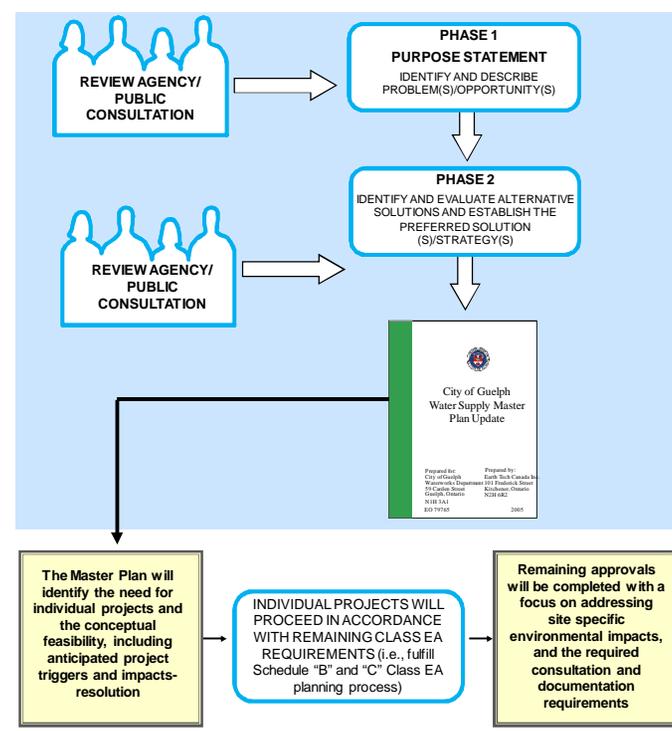


THE MUNICIPAL CLASS EA PROCESS AND OUR CONSULTATION PLAN

- The Water Supply Master Plan is being developed according to the Municipal Class Environmental Assessment process.
- There are many opportunities for public and review agency comments throughout the process.
- This Community Open House is one of two planned for this project. As well, three Community Liaison Committee meetings and two Municipality & Agency Workshops are planned.

Provide comments, stay involved, and help the City of Guelph ensure a sustainable supply of water for current and future uses!

Municipal Class EA Process





WHAT'S INVOLVED IN THE MASTER PLAN UPDATE?

- **Population Projection:** Guelph's population – including residential and industrial, commercial and institutional – will be projected to 2038.
- **Estimate Demand:** The City's demand for water over the next 25 years will be estimated.
- **Determine Need:** The amount of water the City's current water supply system can provide will be assessed, and compared to the estimated future demand for water.
- **Identify and Evaluate Alternatives:** Alternative sources of water, and ways to conserve supply and manage demand will be identified.
- **Develop Preferred Solution:** Short, mid and long-term recommendations will include implementation of defined projects.

Proposed Alternative Solutions

Demand Management and Conservation Programs

- Maintain commitment to conservation initiatives
- Determine realistic conservation goals, and costs for program implementation
- Develop means to measure effectiveness

Groundwater Sources In & Outside of City

- Restore lost capacity by making infrastructure improvements and optimizing existing well supplies
- Restore existing wells with treatment
- Identify new potential water supply areas

Local Surface Water Sources

- Establish feasibility / risks of surface water alternatives, including Aquifer Storage Recovery (ASR)
- Assessment areas include:
 - Eramosa River
 - Guelph Lake

Do Nothing

- Consider no improvements or changes
- Significant impact on the growth potential for the City is expected with this alternative



STAY INFORMED AND ENGAGED!

Thank you for your interest in learning about the City of Guelph's Water Supply Master Plan update.

Next Steps

- Complete ongoing work to estimate population projections, water supply capacity and future water demand.
- Further develop water supply alternatives
- Conduct preliminary evaluation of alternatives
- Continue community engagement

- There are many ways to stay informed:
 - Visit the Water Supply Master Plan update website at www.guelph.ca/water
 - Attend a Community Liaison Committee meeting
 - Join us at the next community Open House. Meeting dates will be advertised on our website and in local newspapers.