

COMMITTEE AGENDA



TO **Infrastructure, Development & Enterprise Committee**

DATE March 3, 2015

LOCATION Council Chambers, Guelph City Hall, 1 Carden Street

TIME 5:00 p.m.

DISCLOSURE OF PECUNIARY INTEREST AND GENERAL NATURE THEREOF

CONFIRMATION OF MINUTES – February 3, 2015 Open Meeting Minutes

APPOINTMENT OF VICE-CHAIR

PRESENTATIONS (Items with no accompanying report)

a) None

CONSENT AGENDA

The following resolutions have been prepared to facilitate the Committee's consideration of the various matters and are suggested for consideration. If the Committee wishes to address a specific report in isolation of the Consent Agenda, please identify the item. The item will be extracted and dealt with separately. The balance of the Infrastructure, Development & Enterprise Committee Consent Agenda will be approved in one resolution.

ITEM	CITY PRESENTATION	DELEGATIONS	TO BE EXTRACTED
IDE-2015.4 2014 Annual and Summary Water Services Report (Compliance)	<ul style="list-style-type: none">Peter Busatto, General Manager – Water Services		√

Resolution to adopt the balance of the Infrastructure, Development & Enterprise Committee Consent Agenda.

ITEMS EXTRACTED FROM CONSENT AGENDA

Once extracted items are identified, they will be dealt with in the following order:

- 1) delegations (may include presentations)
- 2) staff presentations only
- 3) all others.

STAFF UPDATES AND ANNOUNCEMENTS

ADJOURNMENT

NEXT MEETING – April 8, 2015

**Infrastructure, Development & Enterprise Committee
Held in the Council Chambers, Guelph City Hall
Tuesday, February 3, 2015 at 5:00 p.m.**

Attendance

Members: Chair B. Bell
Mayor C. Guthrie
Councillor D. Gibson

Absent: Councillor L. Piper
Councillor M. Salisbury

Staff: Mr. A. Horsman, Deputy CAO – Infrastructure, Development & Enterprise
Mr. P. Sheehy, Program Manager – Zoning, Building Services
Mr. B. Bond, Zoning Inspector III/Senior By-law Administrator, Building Services
Ms. D. Black, Council Committee Coordinator

Call to Order (5:02 p.m.)

Chair Bell called the meeting to order.

Disclosure of Pecuniary Interest and General Nature Thereof

There were no disclosures.

Confirmation of Minutes

1. Moved by Mayor Guthrie
Seconded by Councillor Gibson

That the open meeting minutes of the Planning, Building, Engineering and Environment Committee held on August 5, 2014 be confirmed as recorded.

VOTING IN FAVOUR: Mayor Guthrie, Councillors Bell and Gibson (3)

VOTING AGAINST: (0)

CARRIED

Consent Agenda

2. Moved by Councillor Gibson
Seconded by Mayor Guthrie

That the balance of the February 3, 2015 Infrastructure, Development & Enterprise Committee Consent Agenda, as identified below, be adopted:

IDE-2015.1 Sign By-law Variances – 5 Gordon Street

1. That the report from Infrastructure, Development and Enterprise dated February 3, 2015 regarding sign by-law variances for 5 Gordon Street, be received.

2. That the request for variances from the Sign By-law for 5 Gordon Street to permit six signs (poles with banners perpendicular to the building face) to project 0.63 metres over the public road allowance and range from a height of 1.4m to 2.37m above the ground surface, be approved.

IDE-2015.2 Sign By-law Variances – 80 Stone Road West

1. That the report from Infrastructure, Development and Enterprise dated February 3, 2015 regarding sign by-law variances for 80 Stone Road West, be received.
2. That the request for variances from the Sign By-law for 80 Stone Road West to permit one (1) sign with an area of 15.15m² to be located on the second storey of a building face fronting a public road allowance, be approved.
3. That the request for variances from the Sign By-law for 80 Stone Road West to permit two (2) signs, each with an area of 15.15m² to be located on the second storey of a building face and fronting an adjacent property, be approved.

IDE-2015.3 Sign By-law Variances – 400 Speedvale Avenue East

1. That the report from Infrastructure, Development and Enterprise dated February 3, 2015 regarding sign by-law variances for 400 Speedvale Avenue East, be received.
2. That the request for variances from the Sign By-law for 400 Speedvale Avenue East to permit one (1) sign on the second storey of the building face with an area of 3.5m², be approved.

VOTING IN FAVOUR: Mayor Guthrie, Councillors Bell and Gibson (3)

VOTING AGAINST: (0)

CARRIED

Appointment of the Vice-Chair

3. Moved by Mayor Guthrie
Secoded by Councillor Gibson

That the appointment of the Vice-Chair of the Infrastructure, Development & Enterprise Committee be deferred to the March 3, 2015 committee meeting.

VOTING IN FAVOUR: Mayor Guthrie, Councillors Bell and Gibson (3)

VOTING AGAINST: (0)

CARRIED

Staff Updates and Announcements

There were no staff updates or announcements.

Adjournment (5:07 p.m.)

7. Moved by Councillor Gibson
Seconded by Mayor Guthrie

That the meeting be adjourned.

CARRIED

Dolores Black
Council Committee Coordinator

**INFRASTRUCTURE, DEVELOPMENT & ENTERPRISE COMMITTEE
CONSENT AGENDA**

March 3, 2015

Members of the Infrastructure, Development & Enterprise Committee.

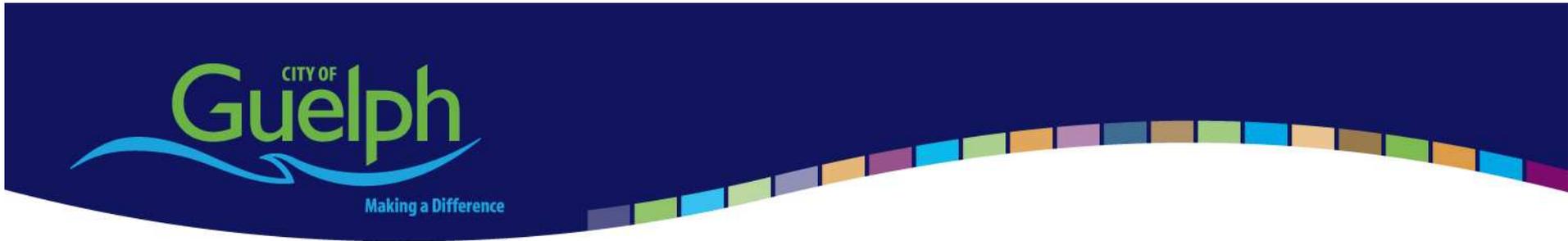
SUMMARY OF REPORTS:

The following resolutions have been prepared to facilitate the Committee's consideration of the various matters and are suggested for consideration. If the Committee wishes to address a specific report in isolation of the Consent Agenda, please identify the item. The item will be extracted and dealt with immediately. The balance of the Infrastructure, Development & Enterprise Committee Consent Agenda will be approved in one resolution.

A Reports from Administrative Staff

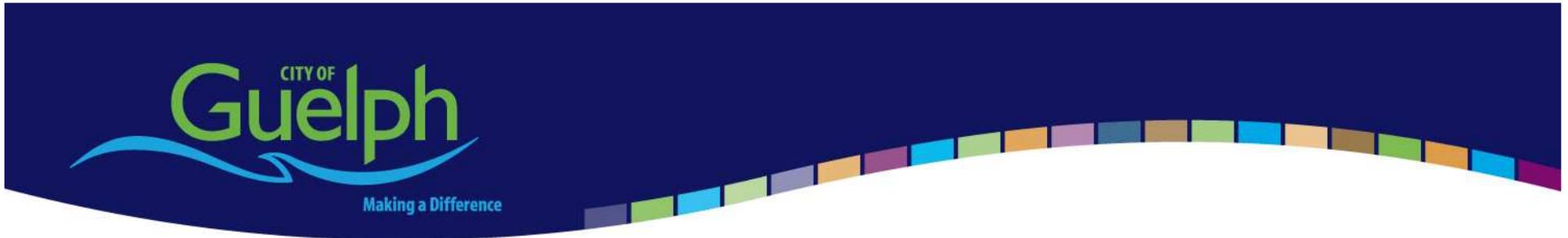
REPORT	DIRECTION
IDE-2015.4 2014 ANNUAL AND SUMMARY WATER SERVICES REPORT (COMPLIANCE) 1. That Guelph City Council receives and endorses the 2014 Annual and Summary Water Services Report (compliance).	Approve

attach.



Guelph Water

2014 ANNUAL AND SUMMARY WATER SERVICES REPORT



A&S Report Purpose

1. Provide information to several stakeholders:

- The Ministry of the Environment & Climate Change
- City of Guelph and Township of Guelph / Eramosa (Owners)
- The public

2. Satisfy Safe Drinking Water Act requirements:

- O. Reg. 170/03 Drinking Water Systems - Section 11 and Schedule 22

3. Scope:

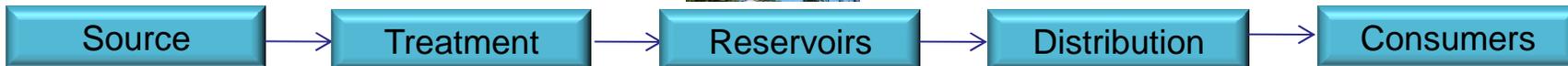
- Guelph Drinking Water System (Guelph DWS)
- Gazer Mooney Subdivision Distribution System (Gazer Mooney SDS)

Multi-Barrier Approach

CLEAN WATER ACT, 2006

**ONTARIO WATER RESOURCES ACT,
1990**

SAFE DRINKING WATER ACT, 2002

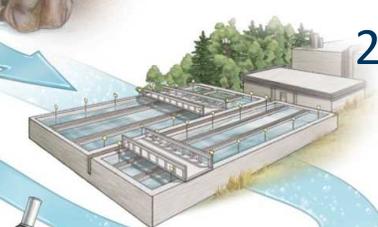


A Multi-Barrier Approach

1. Source Water Protection



2. Effective Treatment



3. Secure Distribution



4. Effective Monitoring & Reporting



5. Effective Management



Source: Conservation Ontario, 2009

Safe Drinking Water: A Shared Responsibility



1. The Province:

The Ministry of the Environment & Climate Change
The Ministry of Health and Long-Term Care



Wellington-Dufferin-Guelph
Public Health

2. Public Health:

Wellington-Dufferin-Guelph Public Health (WDGPH)



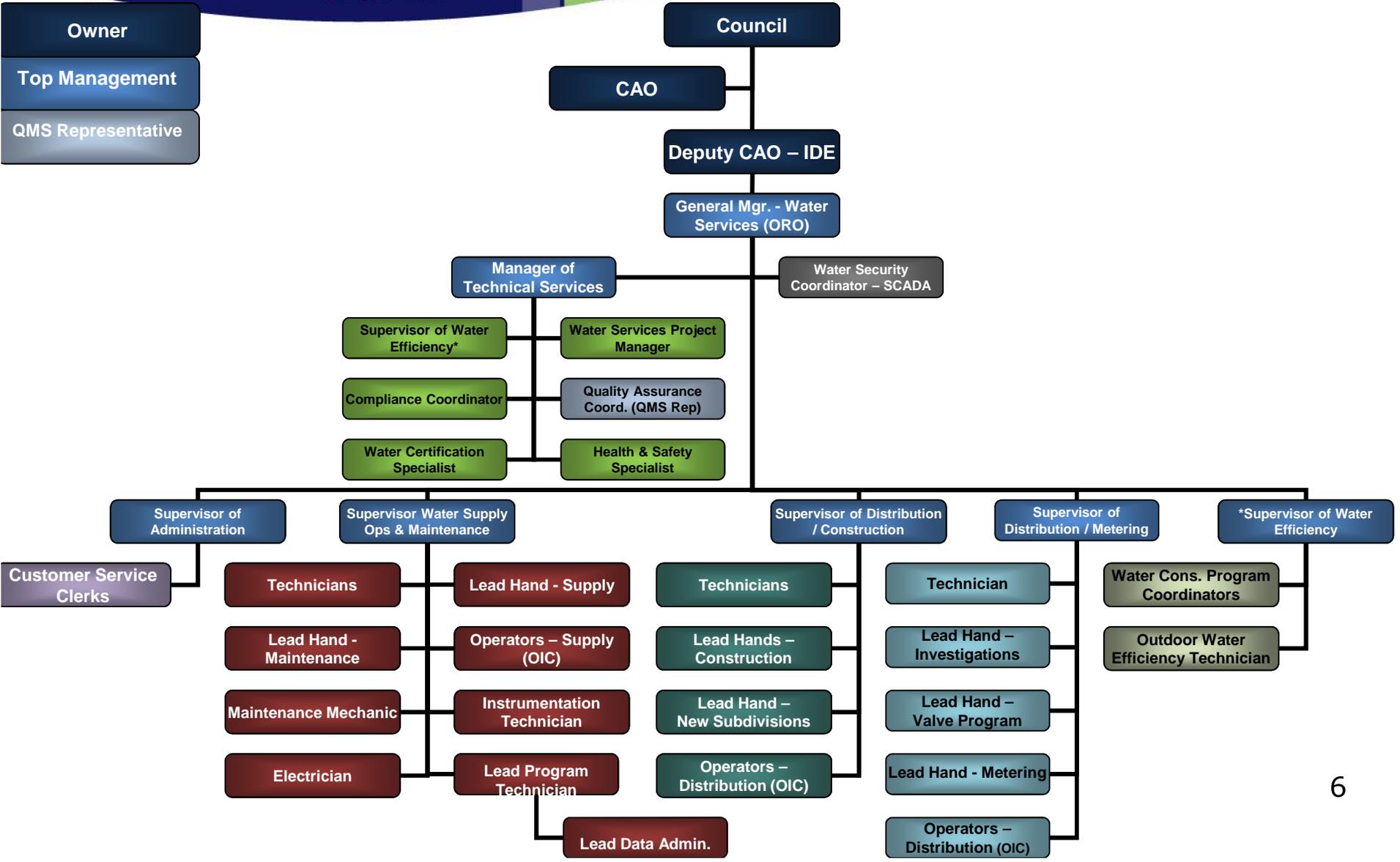
3. Drinking Water System Owner:

City of Guelph Council and CAO (Guelph DWS)
Township of Guelph / Eramosa (Gazer Mooney SDS)

4. Accredited Operating Authority:

Guelph Water Services

Owner
Top Management
QMS Representative



Safe Drinking Water: A Shared Responsibility

Owners and Operating Authorities are responsible for ensuring their drinking water systems:

Provide water that meets all drinking water quality standards.

Operate in accordance with the Safe Drinking Water Act and its regulations.

Are kept in a fit state of repair.
\$

Are appropriately staffed and supervised by qualified persons.

Comply with all sampling, testing and monitoring requirements.

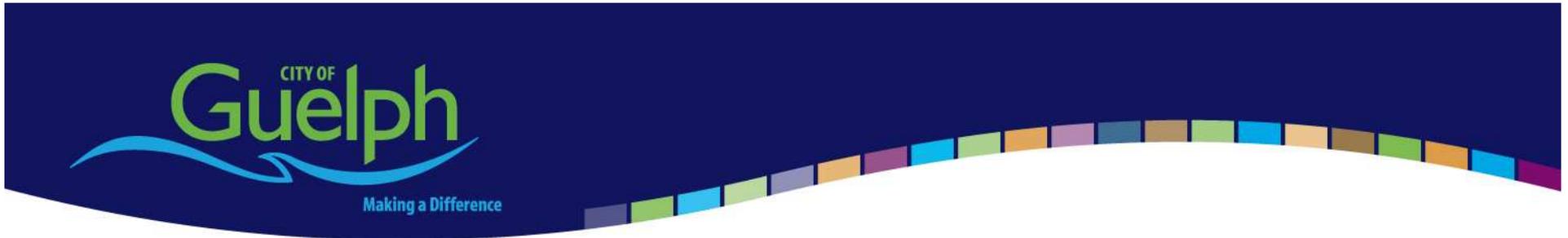
Meet all notification and reporting requirements.

The Annual & Summary Report

MOST IMPORTANT SECTIONS TO REVIEW:

REPORT CONTENTS

INTRODUCTION	1
GOVERNANCE STRUCTURE	2
OUR DIVISION	3
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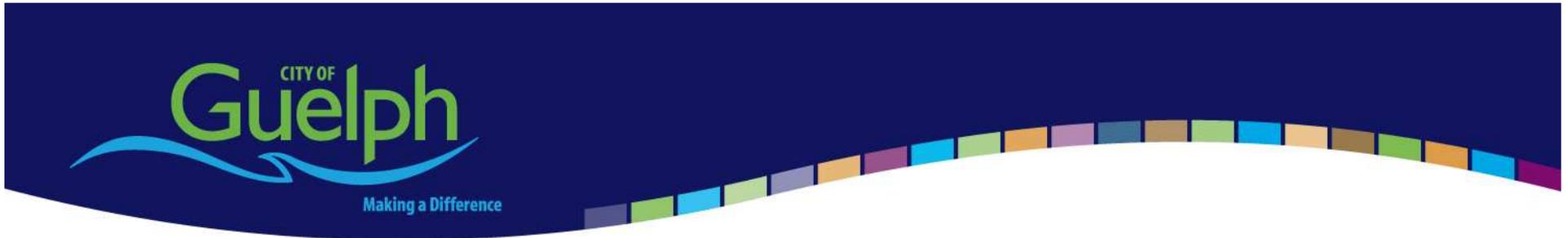
Incidents of Non-compliance

- There were no incidents of noncompliance in 2014.
- The results of the 2014 Ministry of the Environment and Climate Change (MOECC) Annual Inspection Report for the Guelph DWS and Gazer Mooney SDS are still pending.

AWQI's:

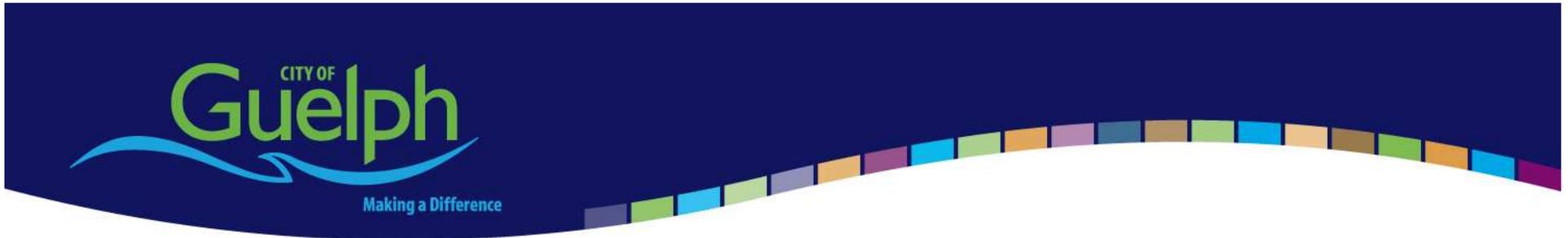
#	Date	Guelph DWS AWQI #	Location	Description	Corrective Action	Resample Results Good	Deviation from Critical Control Point
1	Jan 28	115902	Burkes POE Sample Tap (S002)	Total Coliform (TC) colony count of 9 at Burkes POE Sample Tap (S002)	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Re-sample results showed non-detect results for TC, E. coli and background at upstream and downstream locations (including S001, D005, and D0250 sample locations). No further action required.	Yes	No
2	Feb 24	116157	Eleven samples at various locations	Sodium results ranging from 23 mg/L to 130 mg/L.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Resample results are comparable to initial results. No further action required.	No	No
3	Oct. 6	120786	F. M. Woods	UV Reactor #3 shut down and stopped providing UV dosage for 46 minutes due to UV control systems failure.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. GUDIEF sources were diverted. UV disinfection was quickly re-established (with continued chlorination). Surge protection and a power transfer switch fed by two different breakers was installed. No further was action required.	NA	Yes
#	Date	GMSDS AWQI #	Location	Description	Corrective Action	Re-sample Results Good	Deviation from Critical Control Point
1	Feb 24	116159	Gazer Mooney Lift Station (GM223)	Sodium sample and resample results were 26 mg/L and 25 mg/L.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Resample results are comparable to initial results. No further action required.	No	No

Process	Hazardous Event	RISK RATING	City Physical Control Measures	City Operational Control Measures	External Control Measures (if applicable)
Water Supply	Source Degradation & Contamination: Private Sources	Moderate	Not Within City Control	+	Private Contamination Sources Regulated by Ontario Ministry of the Environment
	Source Degradation & Contamination: City Sources	Moderate			Ontario Environmental Protection Act, Source Protection Plans
	Source Water Infrastructure Failures	Moderate	+		-
Treatment (Chlorination at all sites + UV disinfection where applicable)	Inadequate Chemical Supply	Low			NSF Certification of Chemicals
	Treatment Infrastructure Failure	Low			-
	Insufficient Primary Disinfection	Moderate			-
Storage	Insufficient Secondary Disinfection	Low	+	+	-
	Storage Infrastructure Failure	Low	-	+	-
Distribution	Distribution Infrastructure Failure	Moderate	+		-
	Cross-connection or backflow	Moderate	+	+	-
	Insufficient Secondary Disinfection	Moderate	+	+	-
Security	Unauthorized Entry	Low	+		-
Monitoring & Reporting	Failure of Monitoring Equipment	Low			-
Power	Power Failure	Moderate			Mutual Aid Agreements



Annual QMS Activities

- Internal audits completed in May.
 - Audit findings were related to QMS orientation training updates for current and new staff.
- External audit completed in June.
 - Noted opportunities for improvement by the auditor were related to improving the following processes: communications and tracking improvement items.
- Emergency Response Testing took place:
 - Feb. 2014 – AWQI Tabletop Exercise
 - Winter 2014 – with 76 Frozen Services (normally, there are 6 frozen services)



Major Maintenance Work

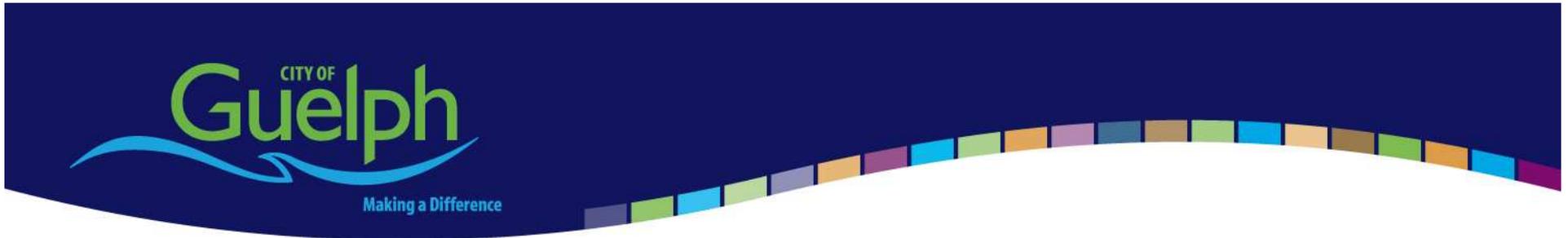
The A&S Report Card includes table summaries of both Distribution and Supply maintenance work, including:

- Appurtenance (hydrants, valves) repairs and replacements
- Meter installations and exchanges
- Service repairs
- Watermain break repairs
- Diesel generator and electrical improvements
- Site security improvements
- Water tower repair and inspection

Operational and Microbiological Sampling						
Parameter	Location	# Analyses	Criteria	# Outside Criteria*	Results Range	Regulatory Reference
Free Chlorine Residual	Guelph Zone One	367	0.05-4.0 mg/L	0	0.54-1.06 mg/L	O. Reg. 170/03 Schedule 7-2
Free Chlorine Residual	Guelph Zone Two	361	0.05-4.0 mg/L	0	0.56-0.98 mg/L	O. Reg. 170/03 Schedule 7-2
Raw – E. coli	Raw sources, no disinfection	897	n/a	n/a	0-72 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw – Total Coliform	Raw sources, no disinfection	897	n/a	n/a	0-75 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw – HPC	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw – Background	Raw sources, no disinfection	897	n/a	n/a	0-240 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw River – E. coli	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River – Total Coliform	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River – HPC	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River– Background	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
POE – E. coli	Disinfected ("treated") water at point of entry (POE)	542	0	0	n/a	O. Reg. 170/03 Schedule 10-3
POE – Total Coliform	Disinfected ("treated") water at point of entry (POE)	542	0	1	0-9 cfu/100 mL	O. Reg. 170/03 Schedule 10-3
POE – HPC	Disinfected ("treated") water at point of entry (POE)	541	n/a	n/a	0-4 cfu/mL	O. Reg. 170/03 Schedule 10-3
POE – Background	Disinfected ("treated") water at point of entry (POE)	542	n/a	n/a	0-5 cfu/100 mL	O. Reg. 170/03 Schedule 10-3
POE – Free Chlorine Residual	Disinfected ("treated") water at point of entry (POE)	530	0.05-4.0 mg/L	0	0.56-1.29 mg/L	O. Reg. 170/03 Schedule 6-3
Dist. – E. coli	Disinfected ("treated") water in Distribution System	1,712	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– Total Coliform	Disinfected ("treated") water in Distribution System	1,712	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– HPC	Disinfected ("treated") water in Distribution System	855	n/a	n/a	0-160 cfu/100 mL	O. Reg. 170/03 Schedule 10-2
Dist.– Background	Disinfected ("treated") water in Distribution System	1,712	n/a	n/a	0 – 2,000 cfu/100 mL	O. Reg. 170/03 Schedule 10-2
Dist.– Free Chlorine Residual	Disinfected ("treated") water in Distribution System	1,709	0.05-4.0 mg/L	0	0.25–1.30 mg/L	O. Reg. 170/03 Schedule 6-3
Raw Source Turbidity	Raw sources, no disinfection	869	n/a	n/a	0.01-0.39 ntu	O. Reg. 170/03 Schedule 7-3
POE – Free Chlorine Residual	Over 20 monitoring devices – continuous monitoring	1:5mins	0.05 mg/L	0	n/a	O. Reg. 170/03 Schedule 6-5
UV Dose F.M. Woods	Over 1 monitoring device – continuous monitoring	1:5mins	24 mJ/cm ²	AWQI #120786	n/a	MOECC UV Treatment Criteria
UV Dose Urban Wells	Over 20 monitoring devices – continuous monitoring	1:5mins	40 mJ/cm ²	0	n/a	MOECC UV Treatment Criteria

Chemical Sampling
(all data reported in mg/L)

Parameter	# Samples	Sampling Frequency	Criteria MAC	Criteria ½ MAC	# Outside Criteria	Results Range		Average	Regulatory Reference
						Min	Max		
Trihalomethanes – Distribution System Samples	8	1:3 months	0.100 ^A	n/a	0	0.0221	0.0548	0.0367	O. Reg. 170/03 Schedule 13-6
Nitrate + Nitrite (as nitrogen)	40	1:3 months	10	5	0	< 0.10	2.53	1.140	O. Reg. 170/03 Schedule 13-7
Nitrate + Nitrite (as nitrogen) – Woods’ Raw Sources (Operational Sampling)	26	1:3 months	n/a	n/a	n/a	0.27	3.76	1.385	O. Reg. 170/03 Schedule 13-7
Nitrate + Nitrite (as nitrogen) – Paisley Raw Source (Operational Sampling)	1	1:3 months	n/a	n/a	n/a	1.9	1.9	1.9	O. Reg. 170/03 Schedule 13-7
Tetrachloroethylene (perchloroethylene)	137	1:3 months	0.03	0.015	0	< 0.0001	0.0001	0.0001	O. Reg. 170/03 Schedule 24
Trichloroethylene	137	1:3 months	0.005	0.0025	0	< 0.0001	0.00219	0.00095	O. Reg. 170/03 Schedule 24
Trihalomethanes ^B	144	1:3 months	0.100 ^A	n/a	0	< 0.0002	0.0548	0.01447	O. Reg. 170/03 Schedule 24
Antimony	1	1:36 months	0.014	0.007	0	< 0.0005	< 0.0005	n/a	O. Reg. 170/03 Schedule 23
Arsenic	1	1:36 months	0.025	0.0125	0	< 0.001	< 0.001	n/a	O. Reg. 170/03 Schedule 23
Barium	1	1:36 months	1.0	0.5	0	0.047	0.047	0.047	O. Reg. 170/03 Schedule 23
Boron	1	1:36 months	5.0	2.5	0	0.012	0.012	0.012	O. Reg. 170/03 Schedule 23
Cadmium	1	1:36 months	0.005	0.0025	0	0.00011	0.00011	0.00011	O. Reg. 170/03 Schedule 23
Chromium	1	1:36 months	0.05	0.025	0	< 0.005	< 0.005	n/a	O. Reg. 170/03 Schedule 23
Mercury	1	1:36 months	0.001	0.0005	0	< 0.0001	< 0.0001	n/a	O. Reg. 170/03 Schedule 23
Selenium	1	1:36 months	0.01	0.005	0	< 0.002	< 0.002	n/a	O. Reg. 170/03 Schedule 23
Uranium	1	1:36 months	0.02	0.01	0	0.00064	0.00064	0.00064	O. Reg. 170/03 Schedule 23
Sodium	27	1:12 months ^C	20 & 200 ^D	n/a	27	21	150	58.037	O. Reg. 170/03 Schedule 13-8
Fluoride	20	1:60 months	1.5 & 2.4 ^E	n/a	0	0.13	0.77	0.292	O. Reg. 170/03 Schedule 13-9



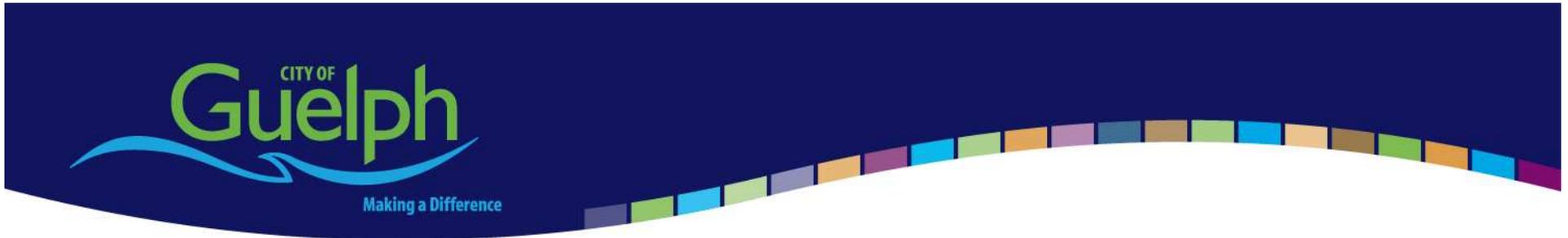
Water Quality / Supply Initiatives

A&S REPORTS PROGRAM UPDATES ON THE FOLLOWING:

- Water Conservation and Efficiency Strategy
- Water Supply Master Plan
- Source Water Protection Plan
- Arkell Springs Forest Stewardship Project
- Lead Reduction Project
- Municipal Drinking Water Licences, Drinking Water Works Permits
- Permits to Take Water
- Operator Certification Compliance Management
- Expected future changes that could affect the Drinking Water System (including an update of Legal & Other Requirements)
- Results of Infrastructure Review
- Staff Suggestions

Consumer Feedback

Type	Number of Calls
	2014
Number of Locates	8,943
Mainbreak	124
Hydrant	46
Water Quality	144
Service Line Issues	306
Other	199
Pressure	146
Flushing/Swabbing	32
Well Interference Complaints	2



Conclusions

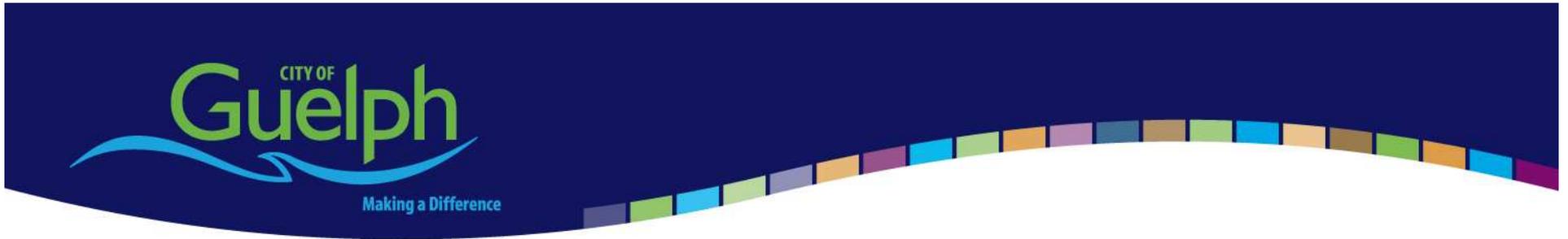
POLICY DIRECTION:

- Owner oversight of major policy areas and programs:
 - Financial Plans
 - Budgets – Resources and Staffing
 - Infrastructure Master Planning
 - Major Programs
 - Emergency Response
 - Customer Service

Council Orientation Workshop

MAY 27, 2015:

- Statutory Standard of Care training for councilors on May 27, 2015.
- “Taking Care of Your Drinking Water” guide for members of municipal councils is used as basis for the workshop, covering:
 - Duties of Owners and Operating Authorities
 - Statutory Standard of Care
 - Guelph Drinking Water System overview
 - Municipal Drinking Water Licence requirements



Guelph Water

THANK YOU!

For more information, see
guelph.ca/water

STAFF REPORT



TO Infrastructure, Development and Enterprise Committee

SERVICE AREA Infrastructure, Development and Enterprise

DATE March 3, 2015

**SUBJECT 2014 Annual and Summary Water Services Report
(compliance)**

REPORT NUMBER

EXECUTIVE SUMMARY

PURPOSE OF REPORT

As required by provincial legislation, this 2014 Annual and Summary Water Services report (the Report) is a compilation of information that demonstrates to the water system Owner and all stakeholders the ongoing delivery of an adequate and safe supply of drinking water to customers located within the City of Guelph Drinking Water System (Guelph DWS) and the Gazer Mooney Subdivision Distribution System (Gazer Mooney SDS, located in the Township of Guelph/Eramosa). Through the Report, system owners, senior leaders, and customers are informed of the performance of the Water Services Department for the period January 1 to December 31, 2014.

KEY FINDINGS

In 2014, Water Services maintained a high level of regulatory compliance and fulfilled its mandate to deliver both an adequate and safe supply of drinking water to its customers in the City of Guelph and Guelph/Eramosa Township. The results of the 2014 Ministry of the Environment and Climate Change (MOECC) Annual Inspection Report for the Guelph DWS and Gazer Mooney SDS are still pending.

FINANCIAL IMPLICATIONS

All financial implications related to the Report are accounted for in the approved Water Services Operating and Capital Budgets.

ACTION REQUIRED

As mandated by provincial legislation, that Guelph City Council endorse the findings of the Report.

That Water Services continues to comply with applicable regulations and follows industry best practices. That Water Services identifies and prepares for emerging regulations and evolving best practices to ensure the continued cost-effective, efficient provision of adequate and safe municipal drinking water.

RECOMMENDATION

1. That Guelph City Council receives and endorses the 2014 Annual and Summary Water Services Report (compliance).

BACKGROUND

As required by provincial legislation, and in conformance with Water Services' **Quality Management System 12-01 Reporting to Owner** policy, Water Services is presenting information to support the Owner's compliance with section 19 of the **Safe Drinking Water Act, 2002: Standard of care, municipal drinking water system**. The "Owner" is defined as City Council, the CAO, and the Deputy CAO – Infrastructure, Development and Enterprise. Under the standard of care, the Owner is required to endorse annual water system reports prepared by the system operator (Guelph Water Services).

REPORT

Water Services is requesting that the Owners review the attached **Summary Water Services Report – Report Card**. The full report is available on the City's website at: <http://guelph.ca/living/environment/water/drinking-water/water-testing/>. Click on the link for "Annual & Summary Water Services Report – 2014". Significant highlights of the report are as follows:

- Water Services had no health-related exceedances of provincial water quality parameters;
- Water Services took reasonable precaution and effort to comply with all provincial regulations;
- Water Services (as the Operating Authority) maintained the requirements for Accreditation, as required under the provincial Municipal Drinking Water Licensing Program, with no significant issues;
- All regulatory microbiological and chemical quality samples were taken by certified operators;
- All tests were performed by accredited, licensed laboratories on water samples collected throughout the drinking water system;
- The system provided approximately 16.6 million cubic meters of treated water (16.6 billion litres) in 2014;
- Implementation of SDWA s.19 "Standard of Care" - On December 31, 2012, Standard of Care provisions under Section 19 of the Safe Drinking Water Act (SDWA), 2002, came into force. City staff, the Mayor and Council received training on this subject in 2011, and will receive a refresher in 2015;
- Water Services experienced three events that were considered "adverse water quality incidents" as defined by the Safe Drinking Water Act; all events were resolved to the satisfaction of the Ministry of the Environment (see Table 1 in the Annual and Summary Report);
- There were no incidents of non-compliance (described in Section A of the Annual and Summary Report) associated with the Guelph Drinking Water System in 2014.

STAFF REPORT



- The results of the 2014 MOECC Annual Inspection Report results for the Guelph DWS and Gazer Mooney SDS are still pending.

CORPORATE STRATEGIC PLAN

- 1.2 Develop collaborative work teams and apply whole systems thinking to deliver creative solutions;
- 1.3 Build robust systems, structures and frameworks aligned to strategy;
- 2.3 Ensure accountability, transparency and engagement.

DEPARTMENTAL CONSULTATION

Feedback from Water Services staff (e.g. management, supervisory, compliance, conformance, technical, and operations) was requested on the contents of this report. Comments and feedback submitted have been incorporated into this report.

COMMUNICATIONS

Water Services will continue to make regular reports to Council (i.e. the drinking water system Owners) on the continuing suitability, adequacy and effectiveness of Water Services' quality management system to ensure the ongoing delivery of an adequate and safe supply of drinking water. Copies of both the Report and Report Card are available on the City's web site.

ATTACHMENTS

- Attachment 1 Annual & Summary Water Services Report – Report Card
Attachment 2 The full report is available on the City's website at:
<http://guelph.ca/living/environment/water/drinking-water/water-testing/>
Click on the link for "Annual & Summary Water Services Report – 2014".

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2014

Water Services Annual & Summary Report Card



As per the Accessibility for Ontarians with Disabilities Act (AODA), this document is available in an alternate format by e-mailing waterservices@guelph.ca or by calling 519-837-5627.

INTRODUCTION

The purpose of this report card is to provide a high-level summary of the 2014 Annual & Summary Report to several stakeholders. The full version of this report can be accessed online at www.guelph.ca/water.

Any inquiries can be made by e-mailing waterservices@guelph.ca or by calling 519-837-5627.

This report card includes information from both the **Guelph Drinking Water System** and the **Gazer Mooney Subdivision Distribution System** for the period of Jan.1 to Dec. 31, 2014 (unless otherwise noted). This report provides information related to responsibilities, scope and accomplishments of the Water Services division. This report also illustrates performance through dashboard and scorecard reporting on key performance indicators.

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GOVERNANCE STRUCTURE

The governance structure at the City of Guelph has the departments reporting through standing committees to City Council.

The Water Services Department of the Infrastructure, Development and Enterprise Service Area reports through the Infrastructure, Development and Enterprise (IDE) Committee to City Council.

Owner (City Council, CAO and CAO-IDE) oversight of Water Services' major policy areas and programs include:

- Financial Plans
- Budgets – Resources and Staffing
- Infrastructure Master Planning
- Major Programs
- Emergency Response
- Customer Service



Safe Drinking Water is a shared responsibility between

- **The Province:**
 - the Ministry of the ENVIRONMENT & CLIMATE CHANGE and
 - the Ministry of HEALTH AND LONG-TERM CARE
- **Public Health:**
 - Wellington-Dufferin-Guelph Public Health (WDGPH)
- **The Municipality's Drinking Water System Owner:**
 - City of Guelph Council and CAO (Guelph Drinking Water System)
 - Township of Guelph / Eramosa (Gazer Mooney Sub. Dist. Syst.)
- **The Operating Authority:**
 - Guelph Water Services (Accredited Operating Authority)



OUR DIVISION

Water Services is comprised of four functional areas. Divisional goals & objectives are described below:

Management of Water Supply includes:

- Water quality monitoring
- Redundant equipment for critical processes
- Provincially certified operators
- Additional treatment where necessary
- Supply facilities monitored continuously and checked daily
- Treatment systems facilities fully automated and redundant
- Protection from power failures through uninterruptable power supplies and electrical generators
- SCADA system provides for system security and alarms to on-call operator for after-hours issues

Distribution goals are:

- Effective design and build
 - o Max. daily use for residential & ICI customers
 - o Fire fighting demand
 - o Operational redundancy
- Effective operation
 - o Pressure management
 - o Chlorine residual
 - o Flushing and cleaning
- Effective maintenance
 - o Timely response to breakdowns
 - o Preventive to ensure infrastructure longevity and reliability of service
- Mitigation of distribution system failures
 - o Automated monitoring and alarming
 - o Competent and trained operators
 - o Standard operating procedures
 - o After-hours on-call and response program
 - o Water Services Emergency Response Plan

Water Services' Organizational Structure



OUR ROLE

This section illustrates the scope of responsibility and activities conducted by Water Services.

1. Source Water Protection

- Grand River Source Protection Plan
- Guelph Source Water Protection Program
- Arkell Springs Forest Stewardship Project (42,945 trees planted since 2007)
- Water Conservation & Efficiency Strategy Programs
 - Residential Rebate Programs
 - Blue Built Home
 - ICI Capacity Buyback
 - Water Wagon and tap water promotion
 - Rainwater Harvesting
 - "H2O GO Festival"
- Outside Water Use By-law
- Leak Detection Program identified 1,024 m³/day in loss reduction

3. Secure Distribution

- 6.38 kms aqueduct;
- ~ 50 million litres water storage capacity:
 - 5 storage reservoirs (~ 48 million litres);
 - 3 water towers (~ 11.2 million litres);
- 542 kms watermain;
- 4,062 watermain valves;
- 2,698 fire hydrants;
- 41,653 water services and water meters;
- 2,652 ICI and multi-residential buildings and structures with:
 - 6,149 backflow prevention devices
 - 1,860 premise isolations.

4

2. Effective Treatment

- Class IV Water Distribution & Supply Subsystem
 - 31 facilities for water: sources, supply, treatment, storage or transfer
 - 21 operational groundwater wells and a shallow groundwater collector system
 - 10 sites use chlorination for primary disinfection
 - 3 sites use UV + chlorination for multi-barrier primary disinfection
- 16.6 billion litres treated (Jan. 1-Dec. 31)
- 45.5 million litres (avg. daily demand)
- Automation & redundancies built-in

4. Effective Monitoring & Reporting

- Continuous monitoring
- all regulatory microbiological and chemical quality samples were taken by certified operators and tests performed by accredited, licensed laboratories, as required by Safe Drinking Water Act

5. Effective Management

- Municipal Drinking Water Licence,
 - Drinking Water Works Permit,
 - Permits to Take Water,
 - Financial & Infrastructure Plans,
 - DWQMS Accreditation,
 - Risk & Emergency Management,
 - 35 Certified Operators & 24/7 coverage,
 - Quarterly reports to Management to ensure Operators' ongoing certification,
 - NSF Certification of parts & chemicals,
 - Continual Improvement



Map of Guelph's Drinking Water System

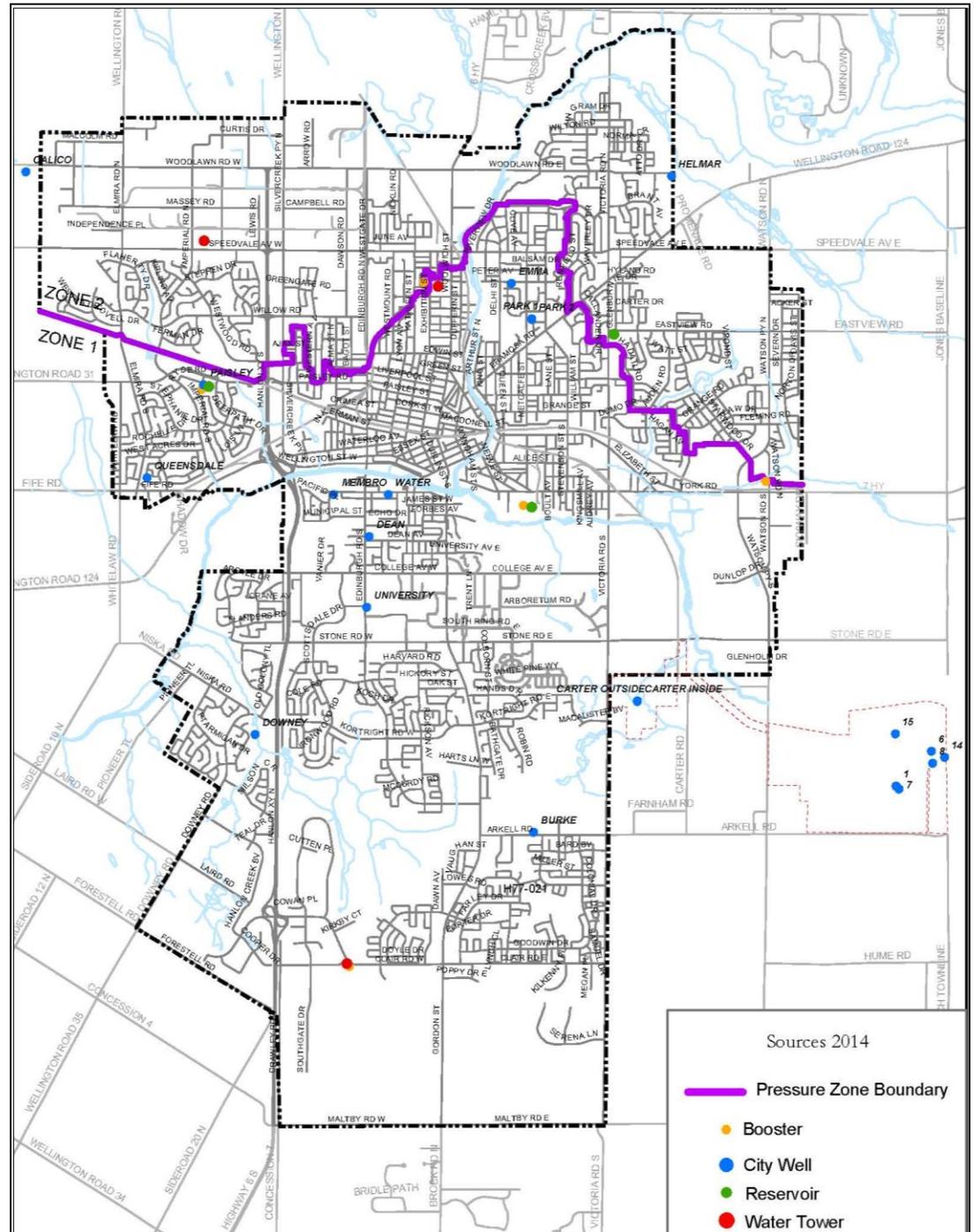
The map included on this page depicts the two pressure zones that exist in Guelph's Drinking Water System, along with the location of booster stations, wells, reservoirs and water towers.

There are two main water sources for Guelph's drinking water system:

- True groundwater, requiring chlorination and
- GUDI-WEF (groundwater under the direct influence of surface water with effective in-situ filtration) requiring chlorination + UV

Owners and Operating Authorities are responsible for ensuring their drinking water systems:

- Provide water that meets all drinking water quality standards.
- Operate in accordance with the Safe Drinking Water Act and its regulations.
- Are kept in a fit state of repair.
- Are appropriately staffed and supervised by qualified persons.
- Comply with all sampling, testing and monitoring requirements.
- Meet all notification and reporting requirements.



PERFORMANCE SCORECARDS

The performance scorecards for Water Services consist of both KPIs and Statistics. Both types of measurements are needed to effectively manage the division. Additional information is included in the full version of this update report that can be accessed online at www.guelph.ca/water. Performance summaries are provided in the following categories:

- a) Incidents of Regulatory Non-Compliance
- b) Incidents of Adverse Drinking-Water Tests
- c) Deviations from Critical Control Point (CCP) Limits and Response Actions
- d) The Efficacy of the Risk Assessment Process
- e) Internal and Third-Party Audit Results
- f) Results of Emergency Response Testing
- g) Operational Performance and Statistics
- h) Raw and Treated Water Quality – Guelph Drinking Water System
- i) Treated Water Quality – Gazer Mooney Subdivision Distribution System
- j) Status of Ongoing and Emerging Water Quality/Supply Initiatives
- k) Expected Future Changes That Could Affect the DWS or the QMS
- l) Consumer Feedback
- m) The Resources Needed to Maintain the QMS
- n) The Results of Infrastructure Review
- o) Operational Plan Currency, Content and Updates
- p) Staff Suggestions

DEFINITIONS

Key Performance Indicator (KPI): *A measurement of the degree or status of progress towards goals and objectives. It is a measurement that you can impact.*

Statistic: *A measurement that provides information on trends or events. You often have minimal impact on statistics, such as number of customer calls or quantity of visits. Statistics inform activity that can impact the key performance indicators.*

Status:



The results are positive and within target, no action is necessary.



The results are in range of the target, but not yet achieving target, some mitigating action may be necessary.



The results are outside the target range and corrective actions/initiatives are required to correct performance.

A) INCIDENTS OF REGULATORY NON-COMPLIANCE

There were no incidents of non-compliance associated with the Guelph Drinking Water System in 2014 (Jan. 01 to Dec. 31).

The results of the 2014 Ministry of the Environment and Climate Change (MOECC) Annual Inspection Report for the Guelph DWS and Gazer Mooney SDS are still pending.

B) INCIDENTS OF ADVERSE DRINKING WATER TESTS

“Adverse Water Quality Incidents” (AWQI) refers to any unusual test result from treated water that does not meet a provincial water quality standard, or situation where disinfection of the water may be compromised. An AWQI indicates that on at least one occasion, a water quality standard was not met. From Jan. 1 – Dec. 31, 2014, there were three adverse water quality incidents (AWQIs) in the Guelph Drinking Water System (DWS) and one AWQI in the Gazer Mooney Subdivision Distribution System (GMSDS). A summary is included below.

#	Date	Guelph DWS AWQI #	Location	Description	Corrective Action	Resample Results Good	Deviation from Critical Control Point
1	Jan 28	115902	Burkes POE Sample Tap (S002)	Total Coliform (TC) colony count of 9 at Burkes POE Sample Tap (S002)	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Re-sample results showed non-detect results for TC, E. coli and background at upstream and downstream locations (including S001, D005, and D0250 sample locations). No further action required.	Yes	No
2	Feb 24	116157	Eleven samples at various locations	Sodium results ranging from 23 mg/L to 130 mg/L.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Resample results are comparable to initial results. No further action required.	No ¹	No
3	Oct. 6	120786	F. M. Woods	UV Reactor #3 shut down and stopped providing UV dosage for 46 minutes due to UV control systems failure.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. GUDIEF sources were diverted. UV disinfection was	NA	Yes

¹ The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

#	Date	Guelph DWS AWQI #	Location	Description	Corrective Action	Resample Results Good	Deviation from Critical Control Point
					quickly re-established (with continued chlorination). Surge protection and a power transfer switch fed by two different breakers was installed. No further was action required.		
#	Date	GMSDS AWQI #	Location	Description	Corrective Action	Re-sample Results Good	Deviation from Critical Control Point
1	Feb 24	116159	Gazer Mooney Lift Station (GM223)	Sodium sample and resample results were 26 mg/L and 25 mg/L.	Wellington-Dufferin-Guelph Public Health (WDGPH), MOECC, and Spills Action Centre (SAC) notified. Resample results are comparable to initial results. No further action required.	No ²	No



C) DEVIATIONS FROM CRITICAL CONTROL POINT (CCP) LIMITS AND RESPONSE ACTIONS

This section describes any deviation from essential steps or points in the drinking water system at which control can be applied to prevent or eliminate a drinking water hazard or to reduce it to an acceptable level. These essential steps or points are known as critical control points (CCPs). CCPs are used to identify control measures to address hazards and hazardous events. CCPs are in part stipulated by regulation and in part derived through risk assessment of the Drinking Water System. Deviations from the CCPs are reported to both the Owners and Top Management, and are summarized in the tables included in Section B) Incidents of Adverse Drinking Water Tests. **There was one confirmed deviation from CCP Limits in 2014 from January to December, reported as AWQI #120786** (see Section B above).

Water Services' Critical Control Points include:

- primary disinfection,
- secondary disinfection, and
- backflow prevention.

² The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

D) THE EFFICACY OF THE RISK ASSESSMENT PROCESS

The annual risk assessment review described in "QMS 07 Risk Assessment" was conducted by members of Water Services' Continuous Improvement Team on Feb. 12, 2014, subsequently approved at a Management Review Meeting on Apr. 11, 2014 and presented in the "Executive Summary of Risk Assessment Outcomes" table:

Process	Hazardous Event	RISK RATING ³	City Physical Control Measures	City Operational Control Measures	External Control Measures (if applicable)
Water Supply	Source Degradation & Contamination: Private Sources	Moderate	Not Within City Control	+ ⁴	Private Contamination Sources Regulated by Ontario Ministry of the Environment
	Source Degradation & Contamination: City Sources	Moderate			Ontario Environmental Protection Act, Source Protection Plans
	Source Water Infrastructure Failures	Moderate	+		-
Treatment (Chlorination at all sites + UV disinfection where applicable)	Inadequate Chemical Supply	Low			NSF Certification of Chemicals
	Treatment Infrastructure Failure	Low			-
	Insufficient Primary Disinfection	Moderate			-
Storage	Insufficient Secondary Disinfection	Low	+	+	-
	Storage Infrastructure Failure	Low	-	+	-
Distribution	Distribution Infrastructure Failure	Moderate	+		-
	Cross-connection or backflow	Moderate	+	+	-
	Insufficient Secondary Disinfection	Moderate	+	+	-
Security	Unauthorized Entry	Low	+		-
Monitoring & Reporting	Failure of Monitoring Equipment	Low			-
Power	Power Failure	Moderate			Mutual Aid Agreements

³ Risk Ratings are based on the risk calculation (likelihood rating x consequence rating), as included in the "QMS 08 Risk Assessment Outcome" document: "Low" risk: 1 to 5; "Moderate" risk: 6 to 11; "High" risk: 12 or higher

⁴ Cells with **GREEN** highlights indicate that Water Services has determined there are sufficient control measures to adequately control the risks. Items highlighted in **YELLOW** and **RED** indicate risk areas that are not sufficiently addressed through existing control measures, and require additional work. + - Improvement being made

E) INTERNAL AND THIRD-PARTY AUDIT RESULTS

Internal auditing and third-party auditing is performed to fulfill the mandatory requirements of the Drinking Water Quality Management Standard (DWQMS). The internal audit is completed using trained internal staff. The purpose of audits is to evaluate the level of conformance of Water Services to the DWQMS. Audits identify both conformance and non-conformance with the DWQMS as well as opportunities for improvement.

The 2014 internal process audits were completed on May 15 to 23, 2014. Internal audit findings are related to QMS orientation training updates for current and any new staff (QMS 04). Various opportunities for improvement suggested by staff were also noted in the internal audit report.

Third-party external on-site audits were completed on Jun. 10 to Jun. 12, 2014. There were no nonconformities identified during this audit. Noted opportunities for improvement by the auditor were related to improving the following processes: communications (QMS 12) and tracking improvement items (QMS 21). These opportunities for improvement will be followed-up on by the auditor at the next on-site audit in Jun. 9-11, 2015.

F) RESULTS OF EMERGENCY RESPONSE TESTING

Emergency response testing is regularly completed as a component covered by the Water Services' Quality Management System (QMS) to ensure that Water Services maintains a reasonable readiness to deal with emergencies. The ability to deal with emergencies is critical in demonstrating that Water Services has taken a diligent approach to operating the Guelph Drinking Water System. Feedback from this testing and from actual events is gathered during debriefing sessions and improvement items are incorporated into the Water Services Emergency Plan and /or daily operations.

During the winter of 2014, Guelph experienced seventy-six frozen services (with sixty temporary lines installed); the greatest number in one season since 1993. Typically, there have been an average of six frozen service lines per winter season. For each frozen service event, immediate actions were taken by staff to prevent any further complications.

Water Services staff continue to work on closing corrective actions initiated from debriefing sessions related to Winter 2014's frozen services and ice storm events that occurred in 2013.

Follow-up on longer-term corrective and improvement actions is in progress.

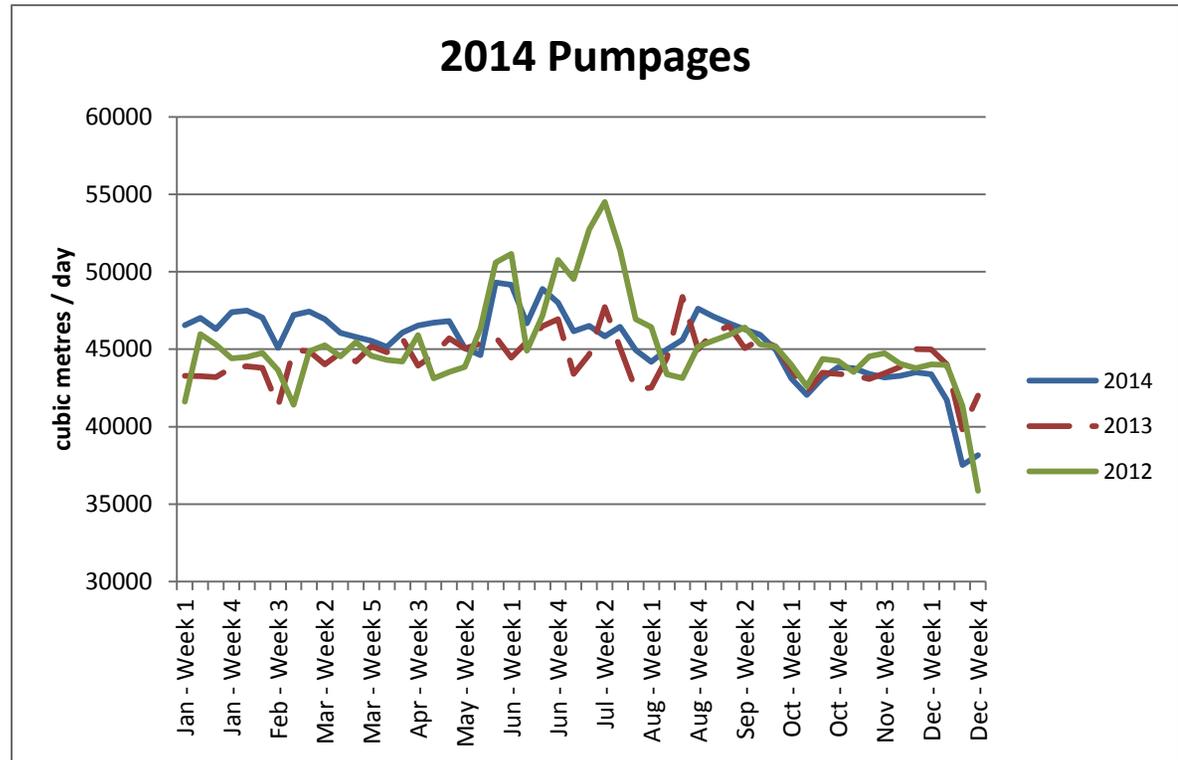
G) OPERATIONAL PERFORMANCE AND STATISTICS

This section describes the various pieces of information that are used to gauge the performance of the Drinking Water System, including reasoning for changes or observations. The following information is related to pumpages:

Summaries of total water pumped, instantaneous flows and capacity (flows and volumes compared to rated capacities) by the City of Guelph from Jan. 01 to Dec. 31 can be found in the full version of the report available at www.guelph.ca/water.

Water Services processed

16,594,145 cubic metres (16.6 billion litres) of water to the distribution system in 2014 (Jan. 01 to Dec. 31). This represents 2.4 per cent more water being supplied to the distribution system in 2014 as compared to the same time period in 2013 and 0.5 per cent more water than in 2012. The average daily water demand was 45,463 cubic metres (45.5 million litres). The maximum day production of water in 2014 was 52,614 cubic metres (52.6 million litres) and occurred on Jun. 17, 2014. The minimum day production of water in the same time period was 32,644 cubic metres (32.6 million litres) and occurred on Dec. 26, 2014.



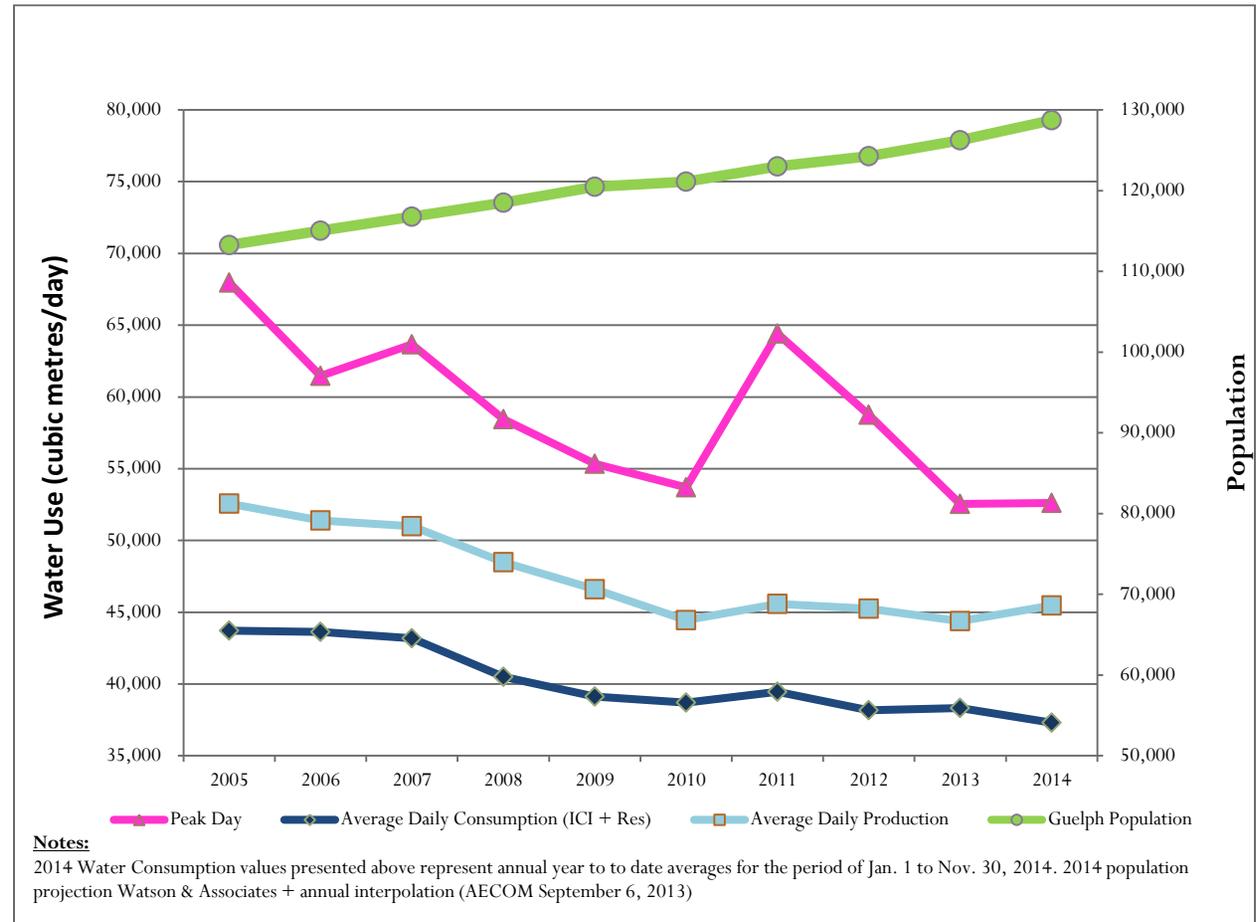
Water Production vs. Water Consumption vs. Population

The table below depicts the annual maximum pumpages (peak water days), average daily water production, and average daily water consumption rates in cubic metres per day (m³/day) as compared against Guelph's population.

Water Production vs. Water Consumption vs. Population

Water Conservation & Efficiency Program goals include:

- Reduce water use by **8.7 MLD by 2019**
- **Affordability:** most cost effective source of new water capacity and limit capital and O&M costs
- **Source Sustainability:** sustainability of water supplies, limit impacts of growth and expand life of public supply infrastructure assets
- **Source Optimization:** reduce operational and environmental impacts of peak season demands
- **Compliance:** maintain compliance requirements for PTTWs and Water Opportunities Act.
- **Community Awareness:** foster community awareness regarding water use and stewardship.
- **Emergency Preparedness:** short-term management of water demand and public engagement in emergency scenarios
- **Future Readiness:** best position for City for climate change resiliency



Collector Flows

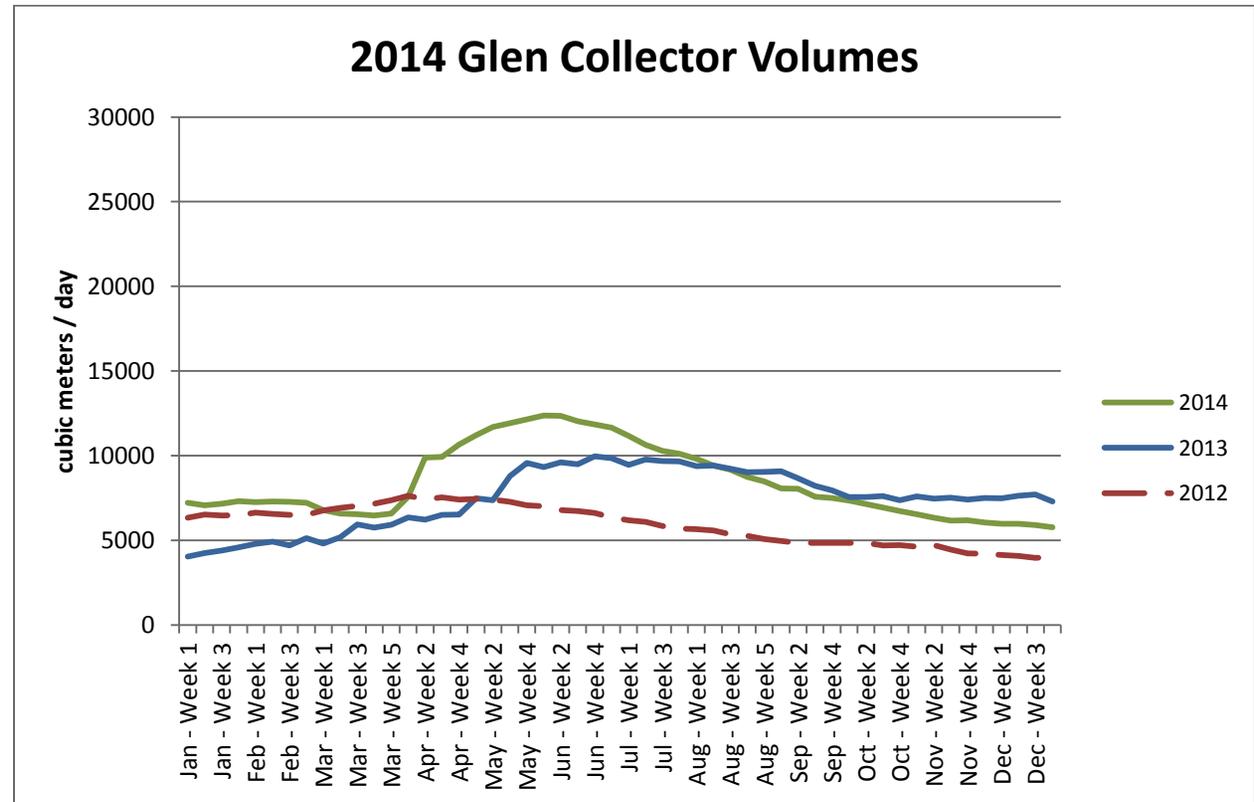
The Arkell Spring Grounds Collectors ("Collectors"), one of Guelph's many water sources, consist of a gravity-fed under-drain system that collects shallow overburden groundwater. This system has been in use since the early 1900s and can represent as much as 40 per cent of the total city-wide daily water production. When the output of this source is reduced, Water Services is required to make up the difference from other water supplies.

The following "Glen Collector Volumes" graph depicts the Glen Collector flow rate in cubic metres per day (m³/day) that is averaged each week.

Throughout the year, the production from this water supply varies from an approximate low of 4,000 cubic metres (4 million litres) up to an approximate high of 20,000 cubic metres (20 million litres) per day.

The Collectors can also be used as a measurable index of the state of the environment (i.e. very dry to very wet) as they respond to rainfall and other environmental conditions.

The volume of water that the Collectors produce is one of the benchmarks used in the decision-making process to determine the appropriate level of outside water use for the City.



The Collectors have produced 3,076,164 cubic metres (3.0 billion litres) of water in 2014 (Jan. 01 to Dec. 31). This represents 13.6 per cent more water as compared to the same time period in 2013 and 42.7 per cent more water than in 2012.

Major Water Supply Maintenance (Jan. 1 to Dec. 31):

SUPPLY MAJOR MAINTENANCE ACTIVITY	Well Site(s)
Arc Flash & Coordination Study	All sites
Automatic Transfer Switch parts replacement and connection clean-up	Paisley
Automatic Transfer Switch Asco controller replacement	Paisley
Dam Rehabilitation	Arkell Spring Grounds
Diesel Generator Automatic Transfer Switch Install	Robertson Booster Station
Diesel Generator Rentals	Burkes, Arkell #14, Robertson Booster Station
Diesel Generator Service	F.M. Woods (for Caterpillar Generator)
Diesel Generator Service and Load Test	All Sites
Door Replacement	F.M. Woods
Emergency Power Supply Load Break Switch & Connection Cabinet Install	F.M. Woods
Fence Enclosure Installation for Two Manholes	Private Property (McKenzie Bros., Watson Rd.)
Gate Installation	Arkell Spring Grounds Main Entrance and Carter Farm Main Entrance
Gate Repairs	Various sites
Heater Rental	Speedvale Tower
Heater Diesel Fuel	Speedvale Tower
HVAC Preventive Maintenance (annual)	F.M. Woods
MCC Fuses (6-130 A 5,000 V; and 8-100 A 5,000 V)	F.M. Woods
MCC Servicing	F.M. Woods, Paisley
Pump & Motor Rebuild	Paisley (across the line pump #2)
Pump starter installation with wiring	Paisley (pump #7)
Pump Piping Replacement	Eramosa River
Reliability-Centered Maintenance Program (RCMP, ongoing)	All sites
Shower and Eyewash Station Installations	Various sites
Snow Removal (seasonal)	Various sites
Tower Repair with Inspection & Maintenance	Speedvale Tower
Transformer Replacement	F.M. Woods
Transformer Servicing	F.M. Woods, Paisley
Tree Removal (of those that could damage hydro lines)	Arkell Spring Grounds, Carters
UPS Preventive Maintenance	F.M. Woods
UV Maintenance	Emma and Water Street Wells
Waste Line Connections	From Arkell #7 at Waste Line for Arkell #15
Well Pump Replacement	Helmar Well
Zone 2 Closed System Upgrade	Paisley Booster Station, Robertson Booster Station, Clythe Booster Station

Distribution System Maintenance (Jan. 1 to Dec. 31):

DISTRIBUTION JOB TYPE	2014
Acoustic Leak - Dry	3
Blow Off Install	2
Dig to find leak	3
Hi/Low Jumper Install	0
Hydrant Install (WW)	0
Hydrant Remove	1
Hydrant Repair	33
Hydrant Repair Hit	2
Hydrant Replace (WW)	6
Hydrant Replace Hit	2
Leak Detection (km of metallic watermains)	287
Main Break	77
Other (e.g. exploratory excavations, miscellaneous repairs, etc.)	10
Re-route Watermain	0
Sample Station Install	0
Sample Station Replace	0
Service Cut Off	12
Service Lowered	3
Service New Install	0
Service Repair	116
Service Replace Lead	3
Service Replace Non-Lead	18
Valve Install (WW)	2
Valve Remove	0
Valve Repair	14
Valve Replace (WW)	22
Meters New	417
Meters Exchanged	617
Hydrants new/replaced by Eng.	24
Total City Hydrants	2,698
Valves new/replaced by Eng.	28
Total City Main Valves	4,062
Watermains new/replaced by Eng. (km)	3.25
Total Watermains Excluding Aqueduct (km)	542.1
Watermains Cleaned (km)	195.3
Watermains Re-lined (m)	0



H) RAW AND TREATED WATER QUALITY

Under the Safe Drinking Water Act (SDWA), municipalities are required to monitor both the raw and treated quality of the source water supplied. This monitoring is performed for both regulatory compliance and due diligence. Any results outside criteria in the table below are reported under section B) Adverse Water Quality Incidents.

Operational and Microbiological Sampling						
Parameter	Location	# Analyses	Criteria	# Outside Criteria*	Results Range	Regulatory Reference
Free Chlorine Residual	Guelph Zone One	367	0.05-4.0 mg/L	0	0.54-1.06 mg/L	O. Reg. 170/03 Schedule 7-2
Free Chlorine Residual	Guelph Zone Two	361	0.05-4.0 mg/L	0	0.56-0.98 mg/L	O. Reg. 170/03 Schedule 7-2
Raw – E. coli	Raw sources, no disinfection	897	n/a	n/a	0-72 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw – Total Coliform	Raw sources, no disinfection	897	n/a	n/a	0-75 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw – HPC	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw – Background	Raw sources, no disinfection	897	n/a	n/a	0-240 cfu/100 mL	O. Reg. 170/03 Schedule 10-4
Raw River – E. coli	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River – Total Coliform	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River – HPC	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
Raw River– Background	Raw sources, no disinfection	0	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-4
POE – E. coli	Disinfected (“treated”) water at point of entry (POE)	542	0	0	n/a	O. Reg. 170/03 Schedule 10-3
POE – Total Coliform	Disinfected (“treated”) water at point of entry (POE)	542	0	1	0-9 cfu/100 mL	O. Reg. 170/03 Schedule 10-3
POE – HPC	Disinfected (“treated”) water at point of entry (POE)	541	n/a	n/a	0-4 cfu/mL	O. Reg. 170/03 Schedule 10-3
POE – Background	Disinfected (“treated”) water at point of entry (POE)	542	n/a	n/a	0-5 cfu/100 mL	O. Reg. 170/03 Schedule 10-3
POE – Free Chlorine Residual	Disinfected (“treated”) water at point of entry (POE)	530	0.05-4.0 mg/L	0	0.56-1.29 mg/L	O. Reg. 170/03 Schedule 6-3
Dist. – E. coli	Disinfected (“treated”) water in Distribution System	1,712	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– Total Coliform	Disinfected (“treated”) water in Distribution System	1,712	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– HPC	Disinfected (“treated”) water in Distribution System	855	n/a	n/a	0-160 cfu/100 mL	O. Reg. 170/03 Schedule 10-2
Dist.– Background	Disinfected (“treated”) water in Distribution System	1,712	n/a	n/a	0 – 2,000 cfu/100 mL	O. Reg. 170/03 Schedule 10-2
Dist.– Free Chlorine Residual	Disinfected (“treated”) water in Distribution System	1,709	0.05-4.0 mg/L	0	0.25–1.30 mg/L	O. Reg. 170/03 Schedule 6-3
Raw Source Turbidity	Raw sources, no disinfection	869	n/a	n/a	0.01-0.39 ntu	O. Reg. 170/03 Schedule 7-3
POE – Free Chlorine Residual	Over 20 monitoring devices – continuous monitoring	1:5mins	0.05 mg/L	0	n/a	O. Reg. 170/03 Schedule 6-5
UV Dose F.M. Woods	Over 1 monitoring device – continuous monitoring	1:5mins	24 mJ/cm ²	AWQI #120786	n/a	MOECC UV Treatment Criteria
UV Dose Urban Wells	Over 20 monitoring devices – continuous monitoring	1:5mins	40 mJ/cm ²	0	n/a	MOECC UV Treatment Criteria

The table below includes relevant information about chemical, organic and inorganic sampling results due to their presence or significance within the Guelph Drinking Water System. Only parameters with Ontario Drinking Water Quality Standards (ODWQS) Maximum Allowable Concentration (MAC) limits and above minimum detection limits (MDL) are included. There was no instance of an adverse result in 2014 (Jan. 1 – Dec. 31). The full version of the Annual & Summary Report provides results for all chemical sampling. Any results outside criteria in the table below are reported under section B) Adverse Water Quality Incidents.

Chemical Sampling (all data reported in mg/L)									
Parameter	# Samples	Sampling Frequency	Criteria MAC	Criteria ½ MAC	# Outside Criteria	Results Range		Average	Regulatory Reference
						Min	Max		
Trihalomethanes – Distribution System Samples	8	1:3 months	0.100 ^A	n/a	0	0.0221	0.0548	0.0367	O. Reg. 170/03 Schedule 13-6
Nitrate + Nitrite (as nitrogen)	40	1:3 months	10	5	0	< 0.10	2.53	1.140	O. Reg. 170/03 Schedule 13-7
Nitrate + Nitrite (as nitrogen) – Woods' Raw Sources (Operational Sampling)	26	1:3 months	n/a	n/a	n/a	0.27	3.76	1.385	O. Reg. 170/03 Schedule 13-7
Nitrate + Nitrite (as nitrogen) – Paisley Raw Source (Operational Sampling)	1	1:3 months	n/a	n/a	n/a	1.9	1.9	1.9	O. Reg. 170/03 Schedule 13-7
Tetrachloroethylene (perchloroethylene)	137	1:3 months	0.03	0.015	0	< 0.0001	0.0001	0.0001	O. Reg. 170/03 Schedule 24
Trichloroethylene	137	1:3 months	0.005	0.0025	0	< 0.0001	0.00219	0.00095	O. Reg. 170/03 Schedule 24
Trihalomethanes ^B	144	1:3 months	0.100 ^A	n/a	0	< 0.0002	0.0548	0.01447	O. Reg. 170/03 Schedule 24
Antimony	1	1:36 months	0.014	0.007	0	< 0.0005	< 0.0005	n/a	O. Reg. 170/03 Schedule 23
Arsenic	1	1:36 months	0.025	0.0125	0	< 0.001	< 0.001	n/a	O. Reg. 170/03 Schedule 23
Barium	1	1:36 months	1.0	0.5	0	0.047	0.047	0.047	O. Reg. 170/03 Schedule 23
Boron	1	1:36 months	5.0	2.5	0	0.012	0.012	0.012	O. Reg. 170/03 Schedule 23
Cadmium	1	1:36 months	0.005	0.0025	0	0.00011	0.00011	0.00011	O. Reg. 170/03 Schedule 23
Chromium	1	1:36 months	0.05	0.025	0	< 0.005	< 0.005	n/a	O. Reg. 170/03 Schedule 23
Mercury	1	1:36 months	0.001	0.0005	0	< 0.0001	< 0.0001	n/a	O. Reg. 170/03 Schedule 23
Selenium	1	1:36 months	0.01	0.005	0	< 0.002	< 0.002	n/a	O. Reg. 170/03 Schedule 23
Uranium	1	1:36 months	0.02	0.01	0	0.00064	0.00064	0.00064	O. Reg. 170/03 Schedule 23
Sodium	27	1:12 months ^C	20 & 200 ^D	n/a	27	21	150	58.037	O. Reg. 170/03 Schedule 13-8
Fluoride	20	1:60 months	1.5 & 2.4 ^E	n/a	0	0.13	0.77	0.292	O. Reg. 170/03 Schedule 13-9

A – This standard is expressed as a running annual average

B – This subset of trihalomethane samples represents sampling from treated sources and does not refer to the previous distribution system sampling

C – Sodium is sampled on a more frequent basis due to the fact that for every treated source except F.M. Woods (currently), sodium levels are above the lower reportable limit of 20 mg/L

D – The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

E – Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.



I) TREATED WATER QUALITY – GAZER MOONEY SUBDIVISION DISTRIBUTION SYSTEM

Related to Section H) Raw and Treated Water Quality, this section describes the Regulatory water quality monitoring that has been collected in the Gazer Mooney Subdivision Distribution System in 2014 (Jan. 01 to Dec. 31, 2014). Any results outside criteria in the table below are reported under section B) Adverse Water Quality Incidents.

Operational and Microbiological Sampling						
Parameter	Location	# Analyses	Criteria	# Outside Criteria*	Results Range	Regulatory Reference
Free Chlorine Residual	Gazer Mooney	365	0.05-4.0 mg/L	0	0.57-1.06 mg/L	O. Reg. 170/03 Schedule 7-2
Dist. – E. coli	Disinfected (“treated”) water in Distribution System	52	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– Total Coliform	Disinfected (“treated”) water in Distribution System	52	0	0	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– HPC	Disinfected (“treated”) water in Distribution System	52	n/a	0	0-22 cfu/mL	O. Reg. 170/03 Schedule 10-2
Dist.– Background	Disinfected (“treated”) water in Distribution System	52	n/a	n/a	n/a	O. Reg. 170/03 Schedule 10-2
Dist.– Free Chlorine Residual	Disinfected (“treated”) water in Distribution System	365	0.05-4.0 mg/L	0	0.57-1.06 mg/L	O. Reg. 170/03 Schedule 10-2

Chemical Sampling (all data reported in mg/L)									
Parameter	# Samples	Sampling Frequency	Criteria MAC	Criteria ½ MAC	# Outside Criteria*	Results Range		Average	Regulatory Reference
						Min	Max		
Trihalomethanes	5	1:3 months	0.100 ^A	n/a	0	0.0157	0.0257	0.019	O. Reg. 170/03 Schedule 13-6
Sodium	3	1:12 months	20 & 200 ^B	n/a	3	25	26	25.3	O. Reg. 170/03 Schedule 13-8

A – This standard is expressed as a running annual average

B – The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.



J) STATUS OF ONGOING AND EMERGING WATER QUALITY / SUPPLY INITIATIVES

Water Conservation and Efficiency Strategy & Water Supply Master Plan Updates

Water Services continues to implement recommendations of the 2009 Water Conservation and Efficiency Strategy. The following is a summary of aspects implemented between Jan. 1 to Dec. 31, 2014:

- Celebrated Canada Water Week with the second annual H2O GO Festival that included over 400 participants of all ages.
- In collaboration with community partners, organized H2Awesome for 800 students from Guelph elementary schools.
- Completed the review of the City’s Outside Water Use By-law that came into effect Apr. 1, 2014.
- Guelph Transit’s bus wash was constructed to utilize harvested rainwater; where a 40% reduction in water is expected.

- Implemented six district metered areas as part of the City’s Leak Detection Program.
- Annual leak detection program was launched that found 1,024 m³/day from three significant watermain breaks.
- Optimizing existing conservation programs (e.g. Residential Rebate Programs, Blue Built Home, ICI Capacity Buyback)

Source Water Protection Plan

- The Lake Erie Source Protection Committee (LESPC) submitted the Proposed Grand River Source Protection Plan to the Ministry of the Environment and Climate Change (MOECC) for review and approval. The LESPC anticipates that the Grand River Source Protection Plan will be approved by the Minister in 2016.
- Currently, City staff are working on: the development of education and outreach materials for stakeholders, development of guidelines for the preparation of risk management plans, and working with internal City of Guelph departments to ensure conformance with the proposed policies in the Source Protection Plan. The City is also assessing the data management and information needs that will be required to administer the program once the Source Protection Plan is approved. For more information visit: guelph.ca/sourcewater

Arkell Springs Forest Stewardship Project

- The Arkell Spring Grounds cover an area of 804 acres. The area is comprised of old and new forested areas, which makes it necessary for monitoring, maintenance and new planting plans. The objective of the Arkell Springs Forest Stewardship Project is to manage past plantings and prevent losses while monitoring general forest health. Delicate forest stands require continued maintenance and observation to ensure the prevention of any unnecessary and undesired losses.
- Since 2007, the Community Environmental Leadership Program (CELP, on a volunteer basis) has planted 16,500 trees on 18 acres, and Bartram Woodlands (on-site contractor) has planted 21,200 trees on another 16 acres. In addition, funding was secured through the Ontario Ministry of Natural Resources’ 50 Million Tree Program—part of the United Nations Billion Tree Campaign. The Ontario portion of the fund is committed to planting 50 million trees by 2025. This funding allowed the City to plant 5,245 seedlings in fields adjacent to Watson Road.

Lead Reduction Plan

- In January 2014, based on the success of the MOECC-approved Lead Reduction Plan (LRP), the City formally requested an amendment to its Municipal Drinking Water Licence to remove the references to the regulatory requirements and reporting associated with the City’s lead program.
- Regulatory relief from Schedule 15.1 (in its entirety) in exchange for the continued operational programs outlined in the LRP, was granted in Schedule D of the City’s Municipal Drinking Water Licence issue number 6.
- 89 Lead Verification samples were collected where 6.7% were above 5 µg/L indicating presence of a lead service line, and 5.6% of these samples also exceeded the ODWQS of 10 µg/L.
- 11 Lead Service Lines were replaced; for a total of 185 privately-owned lead service lines replaced since 2010.

Additional information about all programs under the Lead Reduction Plan can be accessed in the full version of this report at www.guelph.ca/water.



K) EXPECTED FUTURE CHANGES THAT COULD AFFECT THE DWS OR THE QMS

Licensing Renewal Process – The renewal application for the Guelph Drinking Water System Municipal Drinking Water Licence (#017-101) was submitted on Feb. 25, 2014. The application included:

- a) the completed Licence Renewal Application Form;
- b) the Council Resolution related to the approval of the updated Financial Plan (#017-301);
- c) a copy of the e-mail confirming submission of the Financial Plan to MMAH;
- d) a copy of the updated Operational Plan (#017-401);
- e) the Status of Permits to Take Water application for renewals;
- f) updated Raw Water Assessment; and
- g) Guelph Drinking Water System’s Distribution System Information.

Correspondence with the MOECC regarding the finalization of the updated Municipal Drinking Water Licence and Drinking Water Works Permit took place over June and July, 2014. Final documents were issued in August (MDWL) and September (DWWP) and expire in 2019.

Operational Testing Plan and Adaptive Management Plan (OTP / AMP) – The purpose of the OTP / AMP is to carry-out a detailed assessment (over three years) of both the Arkell area aquifer and pumping conditions related to the aquifer to determine a sustainable capacity with respect to environmental considerations in the area. Monitoring and data collection / assessment is ongoing, and further extensive monitoring is being performed at Arkell Well #15 to confirm its source water characteristic classification as groundwater.

GUDI (Groundwater Under the Direct Influence of surface water) Terms of Reference are under review and may result in classification changes to source waters. The GUDI Terms of Reference are expected in 2016.

Operator Certification Compliance Management – the Water Certification Specialist reports to Management on a quarterly basis (and to the Owner bi-annually through this report) regarding the status of Operators’ Certifications. Verifications of qualification are completed 6-months prior to certificate expiries to ensure lead time for Operators’ continued certifications.

Carter Monitoring Program – The Permit to Take Water for Carter Well requires that the Carter Wells be operated at increased levels in conjunction with monitoring in the Torrence Creek Subwatershed. The purpose of the monitoring is to attempt to quantify impacts within this subwatershed.

Water Supply Master Plan – Council unanimously voted to approve an update to the City’s 2007 Water Supply Master Plan on July 28th, 2014. This update forecasts and makes plans for water use and access to a safe and sustainable water supply for our growing community—residential, industrial and commercial—over the next 25 years.

Conservation and demand management remain the key options for meeting our current and future water supply needs, with new groundwater supplies from existing, offline wells, test wells and new wells inside the city limits also helping to meet future needs. Other recommendations and options include improvements to the water planning and approval process, a by-law to restrict new private groundwater supply wells within the City limits, and a possible far future treatment plant for a surface water supply from Guelph Lake.

For more information, please visit guelph.ca/water and follow the Water Supply Master Plan link.

Expiring Permits to Take Water (PTTWs) – Six PTTWs were renewed in 2014. Three PTTWs are scheduled for review and/or renewal in 2015. These include:

- | | |
|--|---|
| 1. Admiral PTTW (exp. 2014/01/31) | 6. Edinburgh Well PTTW (exp. 2014/10/31) |
| 2. Clythe Well PTTW (exp. 2014/03/31) | 7. Arnell Well No. 1 PTTW (exp. 2015/05/31) |
| 3. Queensdale PTTW (exp. 2014/03/31) | 8. Burke Well PTTW (exp. 2015/05/31) |
| 4. Smallfield Well PTTW (extended exp. 2014/06/30) | 9. Carter Wells PTTW (exp. 2015/05/31) |
| 5. Sacco PTTW (exp. 2014/10/31) | |

Mandatory Ontario 1Call participation – Under the “Ontario Underground Infrastructure Notification System Act 2012”, all municipal infrastructure owners must register by June 19, 2014. Guelph registered for Ontario 1Call by the deadline.

Legal and Other Requirements Update

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Jan. 9	The Star	<u>West Elgin water system employee jailed for falsifying records</u> A former West Elgin county water system operator has been sentenced to 30 days in jail and fined \$15,000 for falsifying records for a period of five years and failing to report dangerously low chlorine levels. Additionally, two other employees received \$6,000 and \$4,500 in fines and the municipality was fined \$129,000.	No action required. This information was shared among Water staff.

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Feb. 2	Internal E-mail (Compliance Coord. re: conversation with MOECC)	<u>Compliance Alert – NSF 60/61 are changing.</u> NSF 60/61 Standards that are listed in our MDWL and DWWP are changing. The change is regarding what "low lead" and "no lead" means. MOECC has indicated that if we have inventory (such as meters or brass) that meets the current standards, we will be able to use them up until we renew our License (this year) after which we will have to comply with the new standards regardless of existing inventory. This may impact our purchasing and inventory control.	Feb. 6 - Water Distribution Technician confirmed that our current meter supplier has been compliant to this new standard for years. We specified compliance to NSF 61 Annex F&G as well as NSF 372 in our recent meter tenders.
Feb. 10	<u>Health Canada re: Toluene, Ethylbenzene and Xylenes in Drinking Water</u>	<u>Toluene, Ethylbenzene and Xylenes in Drinking Water</u> The Federal-Provincial-Territorial Committee on Drinking Water (CDW) has assessed the available information on toluene, ethylbenzene and xylenes with the intent of establishing drinking water guidelines. The purpose of this consultation is to solicit comments on the proposed guideline...Interested parties are encouraged to provide comments and suggestions by March 31st, 2014.	No action required.
Feb. 13	<u>Willms & Shier Article: New Voluntary "Excess Soil" Guidelines</u>	<u>MOECC Encourages Industry, Municipalities and Conservation Authorities To Implement New Voluntary "Excess Soil" Guidelines</u> The Ontario Ministry of the Environment and Climate Change (MOECC) has released new voluntary guidelines for the handling, transport and temporary storage of "excess soil" generated during construction or redevelopment activities (Guidelines). The MOECC is encouraging municipalities and Conservation Authorities to consider the <u>Management of Excess Soil – A Guide for Best Management Practices</u> when establishing by-laws and issuing permits or approvals. The MOECC anticipates that industry will develop complementary codes of practice to support the Guidelines.	Forwarded the guideline to staff overseeing excavated soil management.
Mar. 3	OWWA e-mail	<u>MOECC/OWWA/OMWA executive meeting - a follow-up on drinking water quality standards discussion</u> The drinking water quality standards discussion at the February 11 OWWA executive meeting resulted in a few action items for MOECC and the associations. Some information was put together for coordination with core team for their feedback on the proposed standards and potential impacts on drinking water systems.	Water Supply Technician confirmed for applicable chemicals, Water Services' 220 sample results are below the lab's minimum detection limit.
Mar. 6	OMWA E-mail Communi-cation	<u>Operator-in-Training Exams at Municipal Operating Authority Sites</u> The Ministry of the Environment will be discontinuing operator certification exams at municipal and operating authority sites as of March 31st, 2014. After this date, applicants must write Operator-in-Training (OIT) exams at a Program Administrator (OWWCO) examination site. OWWCO exam dates and locations are posted at www.owwco.ca. Students enrolled in a college program may still write at an approved college examination site.	No action required.
Mar. 12	MOECC E-mail	<u>Issue 5 of the Municipal Drinking Water Licensing Program Bulletin</u> Includes: Upcoming DWQMS Workshops; DWQMS Workshops – Best Practices; Innovative Operations – DR3 Program; Accreditation Related Appeals – How & Why; Financial Plan Requirements for Municipal Drinking Water Licences	No action required.
March	Ontario.ca	<u>Ministry of the Environment: Minister's Annual Report on Drinking Water 2013</u> The Minister's Annual Report on Drinking Water 2013 includes an overview of Ontario's drinking water systems' performance, highlights of our efforts to protect the Great Lakes, and our first report on the progress we have made under the Water Opportunities Act.	No action required.

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
April	Ontario.ca	<u>Chief Drinking Water Inspector Annual Report 2011-2012</u> Ontario continues to be a world leader on the environmental stage in drinking water protection, conservation and innovative clean water technologies. Our programs complement Ontario's rigorous legislative requirements. Together, these comprehensive measures and regulations help ensure the safety of our drinking water in Ontario. In reading the report, you will also find that Ontario continues to set the bar for excellence in drinking water protection.	No action required.
Apr. 7	AWWA e-mail	<u>Newly Revised AWWA Standard M28 – Rehabilitation of Water Mains is available.</u>	Apr. 11 - Ordered two copies for the two Supervisors of Distribution.
Apr. 10	Ontario.ca Newsroom	<u>Protecting Timmins-Area Drinking Water</u> Ontario has approved the Mattagami Region Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan was developed by the Mattagami Region Source Protection Committee, made up of municipal and community partners, with implementation scheduled for fall 2014.	No action required.
Apr. 15	<u>Health Canada re: Guidance for Issuing and Rescinding Boil Water Advisories</u>	<u>Guidance for Issuing and Rescinding Boil Water Advisories</u> The Federal-Provincial-Territorial Committee on Drinking Water (CDW) has assessed the available information on issuing and rescinding boil water advisories for drinking water supplies with the intent of establishing a drinking water guidance document. The purpose of this consultation is to solicit comments on this guidance document...All comments must be received before June 16, 2014.	Submitted comment by deadline on behalf of the province-wide Municipal Water / Wastewater Regulatory Committee (MWWRC).
Apr. 15	OETC Newsletter	<u>Ontario MOECC – Drinking Water Website – Changes</u> The MOECC has once again changed their website portal for acquiring forms, documents and interacting with the MOECC. Unfortunately, this change breaks all previous links to documents. Every guideline and form now has a new web address and location within the MOECC website. This change is not for the better as it is now much more difficult to find documents. Over the coming weeks OETC will begin the process of searching out the new locations for these documents and update our website accordingly. Reminder – Deadline approaching for municipal registration under Ontario Underground Infrastructure Notification Systems Act – June 19, 2014 deadline for municipal registration. \$10,000 penalty for non-compliance.	Need to revisit all internal document links to MOECC forms and update links. Ensured registration to Ontario 1 Call by Jun. 19.
Apr. 25	MOECC E-mail	<u>Open for your comments: A Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program</u> The Ministry of the Environment is pleased to let you know that a draft version of "A Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program" is now posted on Ontario's Environmental Registry for public comment for 45 days.	Apr. 16 - confirmed with Manager of Inspection Services that Guelph's program meets or exceeds the elements contained in the guide.
May 9	City Media Release	<u>Media Release: Tribunal grants City's request for hearing; opens opportunity to address Dolime quarry risks</u> The Environmental Review Tribunal has granted the City's application for leave to appeal the Ministry of Environment's decision to grant River Valley Developments Inc.'s amended permit to take water at the Dolime quarry. The decision, made May 2, opens up an opportunity to address the City's long-standing concerns about the risks posed to the City's water supply by the quarry operations at Wellington Road and the Hanlon Expressway.	

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
May 12	U of Waterloo e-mail	<p><u>Ontario MOECC releases Optimization Guidance Manual for Drinking Water Systems</u> The Optimization manual for Drinking Water Systems was developed in response to the increasing need to improve performance, increase capacity and/or reduce operating costs associated with existing Ontario drinking water systems. Operating authorities, consultants, regulatory personnel and others can use this manual to achieve compliance or more consistent and efficient performance from existing water treatment plants and distribution systems. The document is available through MOECC's Public Information Centre which can be reached toll free at 1- 800-565-4923. Any questions regarding the document itself can be directed to the Project Manager, George Lai, at (416) 327-3528 or George.Lai@ontario.ca</p>	Document shared with staff internally.
Jun. 18	U of Waterloo e-mail	<p><u>Water Safety in Distribution Systems</u> The WHO has recently released a 147 page report entitled 'Water Safety in Distribution Systems.' It is being described as a reference tool which "has been developed to help water suppliers and regulators who are familiar with the Water Safety Plan approach, enhance their risk assessment and management and investment planning for their water distribution systems."</p>	Shared with Water Services staff and Manager of Inspection Services.
Jun. 24	Ontario.ca Newsroom	<p><u>Ottawa Company Fined \$35,000 for Drinking Water System and Sewage Work Violations</u> Brockville - Following an investigation, 7064512 Canada Ltd. and Tony Guiseppa Coccimiglio were fined \$35,000 for failing to comply with regulatory requirements and a ministry order involving a drinking water system and a ministry approval for a municipal sewage works ... Ministry staff conducted inspections of the Westport drinking water system. The inspections revealed that the operator's certificate for Mr. Coccimiglio was not displayed as required. The log book for the facility was not available during the inspection. There also were missing entries and data for the entire facility and the alarm for the low chlorine residual was improperly set. They also failed to comply with a ministry order to report the daily minimum free chlorine residual results and provided false information that the minimum chlorine residual was always above 1 mg/L when in fact it had fallen below that level on numerous occasions.</p>	No action required.
Summer	OETC Newsletter	<p><u>Operator Certification Bulletin - Summer 2014</u> <u>Includes:</u> Requirement Changes for Renewing Drinking Water Operator and Analyst Temporary Certificates; Enhanced Drinking Water Renewal Notifications; CHEATING... Definitely Not Worth The Risk; Updates from the Walkerton Clean Water Centre; Ridgeway College's Water Quality Technical Program Graduates Have Greater Employability; Training Tools You Can Use; Operator Certification Working Group - Topics at their most recent meetings; Modernizing the Environmental Compliance Approvals Process for Sewage Works; Information - Drinking Water System Owners & Operators on Blue-Green Algae; OIT Exams at Non-municipal Sites...</p>	No action required.
Aug. 28	Ontario.ca Newsroom	<p><u>Protecting Mississippi-Rideau-Area Drinking Water</u> - Ontario has approved the Mississippi-Rideau Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Mississippi-Rideau Source Protection Committee, will take effect Jan.1, 2015.</p>	No action required.
Sep. 11	Ontario.ca Newsroom	<p><u>Protecting Quinte-Area Drinking Water</u> - Ontario has approved the Quinte Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Quinte source protection committee, will take effect</p>	No action required.

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		Jan. 1, 2015.	
Sep. 11	Ontario.ca Newsroom	<u>Protecting Kettle Creek-Area Drinking Water</u> – Ontario has approved the Kettle Creek Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Lake Erie region source protection committee, will take effect Jan. 1, 2015.	No action required.
Sep. 25	AMO E-mail / <u>Ontario Newsroom</u>	<u>2014 Mandate Letter: Environment and Climate Change</u> : Premier’s instructions to the Minister on priorities for the year 2014. Related to Guelph’s drinking water system, the most relevant statement is related to: “Enhancing Polluter Responsibility” where the legislative framework will be reviewed to ensure that there is a comprehensive approach to holding polluters responsible for decisions that affect the environment.	No action required.
Sep. 25	AMO E-mail / <u>Ontario Newsroom</u>	<u>2014 Mandate Letter: Natural Resources and Forestry</u> : Premier’s instructions to the Minister on priorities for the year 2014. Related to Guelph’s drinking water system, the most relevant statement is related to: “Managing Aggregates” where stakeholders will be engaged to address the recommendations of the Standing Committee on General Government’s Report on the Review of the Aggregate Resources Act.	No action required.
Sep. 30	Ontario.ca Newsroom	<u>Protecting Sudbury-Area Drinking Water</u> - Ontario has approved the Sudbury Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by municipal and community partners on the Sudbury source protection committee, will take effect Apr. 1, 2015.	No action required.
Sep. 30	Ontario.ca Newsroom	<u>Protecting Catfish Creek-Area Drinking Water</u> - Ontario has approved the Catfish Creek Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Lake Erie region source protection committee, will take effect Jan. 1, 2015.	No action required.
Oct. 31	Ontario.ca Newsroom	<u>Protecting Trent Conservation Coalition Region Drinking Water</u> - Ontario has approved the Trent Conservation Coalition Source Protection Plans to strengthen local source-to-tap drinking water protection. The plans, developed by local municipal and community partners on the Trent Conservation Coalition source protection committee, will take effect Jan. 1, 2015.	No action required.
Oct. 31	Ontario.ca Newsroom	<u>Protecting Raisin-South Nation Region Drinking Water</u> - Ontario has approved the Raisin-South Nation Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Raisin-South Nation source protection committee, will take effect April 1, 2015.	No action required.
Nov. 7	UW NSERC E-mail	<u>Updated Guidelines for Canadian Drinking Water Quality - Summary Table</u>	No action required.
Nov. 8	St. Albert Gazette	<u>Tap water release nets \$185,000 fine</u> - \$185,000 fine (\$5,000 under Fisheries Act and \$180,000 to Environment Canada’s Environmental Damages Fund) issued to Norelco Contractors Ltd. after 35,000 litres of chlorinated water overflowed into the Sturgeon River from a watermain break in 2012. In a similar recent case, Clark Builders was fined \$285,000 for releasing 12 million litres of chlorinated water into the North Saskatchewan River in 2009.	No Action Required
Nov. 27	Ontario.ca Newsroom	<u>Protecting Kingston-Area Drinking Water</u> - Ontario has approved the Cataraqui Source Protection Plan to strengthen local source-to-tap drinking water protection. The plan, developed by local municipal and community partners on the Cataraqui source protection	No action required.

Date - 2014	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		committee, will take effect April 1, 2015.	
Dec. 3	MOECC Operator Certification E-mail	<p><u>Requirement Changes for Drinking Water Operator and Water Quality Analyst Temporary Certificates</u> – Outline of Operator and Analyst training requirements for certificate renewal. From Jan. 1, 2015, if training requirements are not met before certificate expiry, an Operator or Analyst may apply for a temporary certificate with a letter that explains why you could not complete the required training prior to certificate expiry. The Director may issue a temporary certificate renewal for the following reasons: extended illness (documented by physician); severe operational issues which resulted in planned training being cancelled or postponed; training was cancelled by provider; on-the-job practical training submitted was not accepted; Operator / Analyst was on extended leave of absence during the last year of certificate; other reasons approved by the Director.</p>	E-mail was forwarded to all members of Top Management, Technicians and the Training & Certification Coordinator
Dec. 13	<u>Ontario Gazette</u>	<p><u>Updates to OWRA O. Reg. 387/04 – “Water Taking and Transfer”</u></p> <p>1. Amendments to Ontario Regulation 387/04 under OWRA to:</p> <ul style="list-style-type: none"> - Manage water takings according to provisions of the Agreement; - Regulate new or increased transfers of water from one Great Lake watershed to another based on standards of the Agreement; and - Retain existing exemptions for watering livestock or for domestic purposes unless a new or increased transfer of 379,000 litres per day or more is established. <p>2. Amendments to Classification of Proposals for Instruments Regulation (O. Reg 681/94 under the Environmental Bill of Rights) to identify that proposals for water transfers would be subject to posting on the Environmental Registry in a manner consistent with existing rules for posting water-taking proposals, including existing exemptions.</p>	No action required.
Dec. 17	MOECC E-mail	<p><u>The Ministry of the Environment and Climate Change has released a new technical bulletin on taking samples from plumbing.</u> This bulletin discusses O. Reg. 170/03 requirements for reporting adverse drinking water test results when a municipality takes chlorine and/or microbiological samples from plumbing in response to customer complaints. Read the new technical bulletin to better understand reporting requirements. For inquiries about this technical bulletin contact:</p> <p style="text-align: center;">Safe Drinking Water Branch, MOECC – 40 St. Clair Avenue West, Toronto ON M4V 1L5 - 416-314-4599</p>	Forwarded internally to all applicable staff. Confirmed that regular policy still applies: no samples to be taken from internal plumbing in response to customer complaints.
Jan. 5, 2015	MOECC E-mail	<p><u>Municipal operating authorities are required to use AWWA Standard C651 (Disinfecting Water Mains)</u> for addition, replacement or repair of pipes forming the distribution system, as per condition 2.3.2 of Drinking Water Works Permits. The province has worked with stakeholders to clarify the requirements of C651, and to develop alternative procedures to be used during emergency repairs. The Watermain Disinfection Procedure will result in some changes to the procedures. The document outlines minimum requirements for compliance, and operating authorities will be able to use their discretion to adopt more stringent standard operating procedures. Requirements for disinfection will also apply to temporary watermains, as well as service pipes of 100 mm diameter or greater.</p>	Forwarded internally to all Top Management, Compliance, Technicians, Supply staff. Confirmed at Management Review Meeting on Jan. 27, 2015 that no additional comments are required.

Changes Affecting the Quality Management System (QMS)

QMS 05 – Various initiatives related to Document & Records Control are being implemented, including The Ontario Municipal Records Management System (TOMRMS); requirements to ensure compliance with the Municipal Freedom of Information and Protection of Privacy Act; expiry date tracking of essential documents.

QMS 09 – Water Services is currently working through an organizational review. The Supervisor of Supply Operations and Maintenance and the Manager of Technical Services positions were filled late 2014.

QMS 18 – Employee training on the updated Water Services Emergency Plan (now including incident management systems guidelines) took place in February 2014. Critical Customers Lists are being updated and Crisis Communications guidelines continue to be updated with the help of Wellington-Dufferin-Guelph Public Health.



L) CONSUMER FEEDBACK

The table below represents all customer calls received during office hours and after hours in 2014:

Type	Number of Calls		
	2012	2013	2014
Number of Locates	1,320	3,835 ⁵	8,943 ⁶
Mainbreak	43	56	124
Hydrant	18	18	46
Water Quality	72	113	144
Service Line Issues	189	146	306
Other	61	93	199
Pressure	55	85	146
Flushing/Swabbing	25	22	32
Well Interference Complaints	0	6	2

⁵ Previous years would count the number of locate requests (which could include 20 service locates); and as of 2013, the total number of locates is tallied (no longer by locate requests).

⁶ Under the "Ontario Underground Infrastructure Notification System Act 2012", all municipal infrastructure owners must register by June 19, 2014. Guelph registered to Ontario 1Call by the deadline. The City received 4,955 locate requests from Jun. 19 – Dec. 31.

M) RESOURCES NEEDED TO MAINTAIN THE QMS

Water Services currently has one full-time Quality Assurance Coordinator, who is also the Quality Management System Representative, and access to three Water Services Technicians, the Compliance Coordinator, and a Customer Service Clerk for reporting and documentation requirements of the QMS.

Challenges continue to drive the need for additional resources (such as lead, frozen services, Ontario 1Call, metering, etc.).

N) THE RESULTS OF INFRASTRUCTURE REVIEW

On a monthly basis, Guelph's Engineering and Water Services departments review the condition of supply and distribution infrastructure and review: inventory, age, CAPS (capital asset prioritization system), criticality, soil type and diameter. From this evaluation, Engineering and Water Services develop a list of priority projects that also considers the priorities of wastewater and road reconstruction projects so that these projects can share the costs of excavation and rehabilitation. The priority list is updated (with considerations included) and presented in Annual Operating Budget and the Tri-Annual Capital Budget processes. New linear infrastructure reviews are primarily driven by Engineering Services.

Annual summaries of road reconstruction, sewer and watermain projects are identified annually on an infrastructure map that is released early spring each year.

An Asset Update Report was prepared to develop a funding strategy and to rate sustainability for various infrastructure programs across the City. Water Services' sustainability rating is A-.

On July 28th, Guelph City Council unanimously approved the Water Supply Master Plan update. The Master Servicing Study is another infrastructure plan that is updated every five years and is used to identify new and replacement infrastructure priorities to include in the budgeting process. The development of a Facility Master Plan is also in progress, along with new initiatives related to property planning for expansions of facilities or to implement new facilities, as required. The Owner (Council, CAO and Deputy CAO) is updated regarding any deficiencies or gaps.

Backflow Prevention Program

Preservation of drinking water quality within Guelph's infrastructure is supported by the City of Guelph's *Backflow Prevention Regulations* ("By-law", Number (2008) - 18660). As per the By-law, "Backflow" means the flowing back of or reversal of the normal direction of flow of water. The By-law requires that no connections are made to the City's water supply without the installation of a backflow prevention device to isolate premises, sources, and zones to prevent cross-

connections in every building or structure where a City water supply or other potable water supply exists. Related to backflow prevention devices, the By-law requires owners to:

- ensure a qualified person conducts annual testing of backflow prevention devices,
- submit test reports within 14 days of the test being conducted for each backflow prevention device,
- survey and resurvey with respect to buildings' or structures' cross-connections (1:5 years)

2014 Backflow Report - Number of Letters Sent out for Annual Testing and Re-survey

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
Annual Testing - 1st Letter	89	110	93	197	291	166	136	161	129	136	164	124	1,796
Annual Testing - 2nd Letter	46	62	60	79	96	175	59	75	77	71	70	75	945
Annual Testing - 3rd Letter	18	20	19	27	29	28	28	30	19	7	34	11	270
Re-survey & Testing (combined) - 1st Letter	30	30	30	29	30	19	30	20	16	1	29	6	270
Re-survey & Testing (combined) - 2nd Letter	16	30	24	26	24	24	18	23	17	12	0	12	226
Re-survey & Testing (combined) - 3rd Letter	2	6	9	8	1	1	2	9	3	1	2	1	45
Water Service Disconnected	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of permits for new installations	2	4	8	3	1	7	8	2	5	6	5	1	52
Number of new devices installed	5	4	10	4	3	7	10	3	6	8	6	1	67



O) OPERATIONAL PLAN CURRENCY, CONTENT AND UPDATES

See section "k) Expected Future Changes That Could Affect the DWS or the QMS" for Operational Plan updates.



P) STAFF SUGGESTIONS

Staff suggestions are discussed during staff and operational meetings and taken into account during annual budget processes. The table below includes a listing of various improvement items that were implemented by staff and communicated across Water Services.

Improvement Actions Summary

OFI #	Suggestion Title	Improvement Action Description
14-01	New SCADA Operator duties	The new SCADA Operator role was created to improve efficiencies in data review. Supply Operators will be rotated into this position on a monthly basis.
14-02	Improvements to Supply's 2014 Work Orders	Supply facilities are now task-based so that these designations remain the same from year to year and the type of work is designated with the Work Order #. Maintenance work orders now have four subcategories: emergency, urgent, corrective and preventive. New tasks include Water Quality Monitoring for SCADA Operator and for Non-Compliance Investigative Sampling.

OFI #	Suggestion Title	Improvement Action Description
		Operator-based Operations Maintenance is a new work order added.
14-03	Installation of Pressure Reducing Valve	Installation of Pressure Reducing Valve at Paisley Well for Queensdale Subdivision isolation - Installed a Pressure Reducing Valve at Paisley Well so that the Queensdale Subdivision could be isolated to allow for a watermain repair on a transmission main.
14-04	Improved Snow Clearing at Arkell with McKenzie Bros.	Contacted McKenzie Brothers to assist with large amount of snow clearing at Arkell Spring Grounds.
14-05	Improved Meter Inventory Tracking	A new sign-out program exists for improved tracking of the meter inventory. The name, date and meter serial number is tracked; and meter installation sheets are now submitted through the Water Distribution Technician.
14-06	Returned Speedvale Tower PLC and heater to station power and replaced unreliable UPS	The Speedvale Tower PLC and heater was returned to station power to prevent communications to fail repeatedly. The unreliable UPS was also replaced in the PLC cabinet.
14-07	Improved "Source and Distribution Sampling Procedure"	The "Source and Distribution Sampling Procedure" was improved to include three new elements: 1. Nitrile gloves while handling sample bottles and during the sampling process; 2. Place the necessary empty sample bottles for the sampling event (including a few extra) in plastic re-sealable zipper storage bags within an appropriately sized cooler; 3. When a station POE Booster Pump must be started prior to sampling, allow to run for a minimum of one hour before a sample(s) is taken.
14-08	Improved University Well Setpoints	Since University's contribution to overall volume and pressure is more relevant at night, University's fill and draw time cycles will be run in reverse at night. This will help optimise the low zone performance overnight and keep Burke's station off.
14-09	Distribution Map Book in PDF	The Water Distribution Technician has created (in PDF) an electronically searchable distribution map book. A new grid now exists so that all pages are the same scale and at a scale that is easier to read than the previous books. On the first page (of 195 pages) is the index map. Clicking on a grid on this page will take you to that map page. In the bottom-right corner of each map page, is a link to the "Index Map" on the first page.
14-10	Increased response to "Frozen Services"	With the increase in frozen services this past winter (due to extreme cold leading to deeper than average frost depth), staff spent considerable time investigating frozen services, thawing service lines or installing temporary water services where possible. A web page dedicated to answering frequently asked questions was also developed.
14-11	New logsheet in Facility Logbooks to document quarterly verifications of facility colorimeters.	A new logsheet exists in the Facility Logbooks to document the quarterly verification of facility colorimeters. The Water Services Master Logbook has a similar section for Operators' Colorimeter reference checks - these checks are performed by the owners of the individual Colorimeters. Entries for three quarters are provided for in the Logbook and the fourth quarter is covered by the Annual Calibration schedule.
14-12	Paisley Well Operations & Maintenance Manual clarification re: pump run combinations; and SCADA logic also updated.	Clarified the maximum number of Pumps/Combinations at Paisley Well so as not to exceed the power draw that trips the 400 amp breaker that feeds all of the Booster Pumps (1, 2, 3, 4, 5, 6 and 7) <u>and the Well Pump</u> ; as well as the maximum number of Pumps/Combinations <u>with the Well Pump off</u> . Also, the auto logic was updated in SCADA so that when running Vertical Turbine Pumps in Auto, duty pump 4 will no longer start - in order to meet electrical code legal requirements.
14-13	Clarification of Well Minimum Pumping Levels	Operations and Maintenance Manual sections that refer to the MPLs (Minimum Pumping Levels) at a given site have been replaced by the Operators to reflect the standard '3 metres above pump inlet'. There are some Logbooks where the MPL is referenced on each page of the 'Weekly P.M. Data Sheet' - the Logbook electronic files were updated to reflect the changes.
14-14	Various upgrades towards possibility for Zone 2 "Closed Pressure System"	Various upgrades towards implementation of the Zone 2 "Closed Pressure System" includes installation of new equipment; diesel generators' automatic transfer switches wired and tested; training; pressure monitoring through installation of data loggers at hydrants; and replacement of valves at Robertson Booster Station inlet and point-of-entry. A draft control narrative for Paisley and Robertson under a Zone 2 Closed Pressure System is also proposed.
14-15	Larger network cabinet implemented	In order to accommodate growing computer & networking needs, the IT department removed the main network cabinet from the Library to a new larger network cabinet in the SCADA server room.
14-16	eRIS SCADA upgrade to new 1.2 release	New features in the 1.2 release are: <ul style="list-style-type: none"> • Upgraded Data Query tag selection interface • Upgraded Data Query Charts with new selection features and zoom capabilities

OFI #	Suggestion Title	Improvement Action Description
		<ul style="list-style-type: none"> Upgraded Calculation interface with easier user ability New eRIS support forum with embedded access in eRIS
14-17	Manual Booster Operation on Station Re-start Checklist	The 'Manual Booster Operation Re-start Checklist' was created to cover all the compliance procedures and necessary documentation required to bring a Facility back on-line after the following: <ol style="list-style-type: none"> Post Auto Low Chlorine Shutdown Condition. Facility off-line resulting in non-representative values @ Analyzer
14-18	Water Meter Testing Pilot	Installed a meter testing station at Water Services for a demonstration project that the metering group is developing.
14-19	Expansion of the Rainwater Harvesting Rebate Program	The Rainwater Harvesting Rebate Program now offers two different rebates: <ol style="list-style-type: none"> Seasonal outdoor system: Install an approved rainwater harvesting seasonal tank and receive a one-time rebate of \$0.10/litre of tank storage (to a maximum of \$400); or All-season indoor/outdoor system: Install an approved all-season rainwater harvesting system and receive a \$2,000 rebate.
14-20	Improved process for Operator comments regarding alarms	The SCADA Operator now completes the twice daily eRIS Facility Trend Reviews; and alarm comments can be limited to "reportable" or "non-reportable" with an indication as to where more information can be found.
14-21	Increased Emma's VOC Sampling Schedule to Quarterly	In response to Emma reaching ½ MAC (half of maximum allowable concentration) for VOC's, the related sampling schedule has been increased to quarterly.
14-22	Updated Supply Processes using manufacturer instructions to include new MDWL UV requirements.	Updated Supply Processes using manufacturer instructions, to include new requirement in the Municipal Drinking Water Licence (MDWL) related to tracking UV lamp hours so that "...continuous pass-through UV dose is maintained throughout the lifetime of the UV lamps..." Trojan recommends UV sensor verification on a monthly basis and re-calibration of the reference sensor every three years (however, more stringent requirement of annually is required by the MDWL).
14-23	New Security System at all Water Services Sites	New security system is implemented to keep buildings, equipment and water supply and treatment system safe. By-law will be able to monitor the cameras remotely 24/7 as they already do for many other satellite sites throughout the City to help keep us secure and aware of intruders. Certain staff will also be able to monitor our cameras from here ourselves. Camera recording usage and data retention time will remain consistent with City policy.
14-24	Arkell Well Houses Inspected and Repaired for Safety Issues	Found snakes' points of entry at Arkell Well Houses (e.g. #1, #6, #15) and repaired (filled with foam) to prevent re-entry.
14-25	Chemical-resistant (e.g. Viton) gaskets, o-rings, etc. installed	Outlet four-bolt flanges plumbed in sodium hypochlorite storage tanks leaked when the gaskets (that were evidently not chemical-resistant) broke down. The leaking gaskets were replaced with a chemical resistant product (e.g. Viton) to prevent future leaks. Future replacements of gaskets and o-rings will be of a chemical-resistant nature (e.g. Viton) when they're interacting with chemicals.
14-26	Numbered fire extinguishers to better track monthly fire extinguisher inspections	All fire extinguishers now have a numbered identifier. Floor plans are updated with the location of each numbered extinguisher. The information is also organized with extinguisher numbers by building location to facilitate inspection.
14-27	Paisley monitoring screen updates	Paisley screen updated to show inlet valves Local/Remote status on the main screen. Also cleaned up some font sizes.
14-28	Zone 2 closed pressure system tested & work instructions developed	Tested new equipment and programming associated with the 'Zone 2 Closed Pressure System'. The two testing periods (one evening and one weekend) confirmed that Zone 2 could be successfully run as a closed pressure system.
14-29	Verney Tower cable restraint system inspection	Unistrut performed the inspection of the cable restraint system at Verney Tower.

WATER SERVICES' KEY CHALLENGES

1. Financial sustainability and affordability.
2. Water demand reduction, optimization and development of local groundwater supplies to support provincially mandated growth.
3. Source protection to ensure quality and quantity sustainability of existing supplies.
4. Infrastructure sustainability and asset management.
5. Maintaining and growing an effective work force.
6. Existing system optimization, including:
 - Adding redundancy to distribution system
 - Adding treatment for Iron & Manganese removal
 - Potential to add treatment for VOC removal
 - Optimization of chlorination to improve water taste
7. Ensuring a lead free water system.
8. Maintaining and improving customer service.
9. Reduction of non-revenue water through leak reduction and accurate metering.