STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT

REPORT TO:	**Infrastructure and Recreation Committee**
MEETING DATE:	**June 11, 2013**
REPORT NO.:	**EPW.13.043**
SUBJECT:	**Water Section Operations Update – January to April 2013**
PREPARED BY:	**Meg Boyd, Compliance & Efficiency Coordinator**

A. Recommendations

THAT Council receive Staff Report EPW.13.043 entitled "Water Section Operations Update – January to April 2013" for their information.

B. Background

Ensuring the safety and quality of the Town's drinking water system is not only the responsibility of the Water Operators who operate and maintain the system but also the Members of Municipal Council and Municipal Officials who exercise decision-making authority regarding the system.

Similar to previous Quarterly Reports, the purpose of Attachment # 1 – Water Operations Update is to provide up to date information with regards to the status and operation of the Town's drinking water system and to report on water quality issues for the period of January to April 2014.

Topics such as an Overview of the Town's drinking water system were provided in the initial report, and as such will only be included intermittently to remind Council of the drinking water system components.

This report addresses:

- Raw and Treated Water Quality Data
- Staff Training
- Distribution System Summary
- Summary of Plant Flows
- Watermain Break Summary
- Incidents of Adverse Water Quality
- Water Quality Concerns / Resident Complaints

The Thornbury WTP and associated distribution system continue to operate within Ministry of the Environment Guidelines and Provincial Legislation.

The attached report demonstrates that Water Operators continue to provide quality drinking water to its residents while ensuring long-term sustainability of the system through regular preventative maintenance programs.

C. The Blue Mountains' Strategic Plan

The acceptance of this Report by Council furthers the Town Strategic Plan Goal # 6 "Providing a Strong, Well-Managed Municipal Government."

D. Environmental Impacts

None

E. Financial Impact

None

F. In Consultation With

None

G. Attached

1. Water Section Operations Update – January to April 2013

Respectfully submitted,

Meg Boyd
Meg Boyd
Compliance & Efficiency Coordinator
Engineering & Public Works
Office: 519-599-3131
Fax: 519-599-7723
mboyd@thebluemountains.ca

Reg Russwurm
Reg Russwurm
Director, Engineering and Public Works

Water Section Operations Update

January to April 2013

Introduction

Ensuring the safety and quality of the Town's drinking water system is not only the responsibility of the Water Operators who operate and maintain the system but also the Members of Municipal Council and Municipal Officials who exercise decision-making authority regarding the system.

The purpose of this report is to provide Council with a brief overview of the Town's drinking water system and to report on water quality issues for the period of January to April 2013.

This report will address the following:

- Raw, Treated and Distribution Water Quality Data
- Staff Training
- Distribution System Summary
- Summary of Plant Flows
- Watermain Break Summary
- Incidents of Adverse Water Quality
- Water Quality Concerns / Resident Complaints

System Information

Drinking Water System Number:	**220001762**
Drinking Water System Name:	**The Blue Mountains Drinking Water System**
Drinking Water System Owner:	**Town of The Blue Mountains**
Drinking Water System Category:	**Large Municipal Residential**
Water Treatment Subsystem Class:	**Class 2 Certificate No. 1758**
Water Distribution Subsystem Class:	**Class 3 Certificate No. 1759**
Municipal Drinking Water Licence:	**111-101**
Municipal Drinking Water Permit:	**111-201**

Raw, Treated and Distribution Water Quality Data

Ontario Regulation 170/03 specifies guidelines for the number of samples to be taken, the frequency of sampling and the actions to be taken if any of the sample results indicate adverse water quality.

Schedule 10 of Ontario Regulation 170/03 requires weekly sampling and testing for E.Coli, Total Coliform and Heterotrophic plate count.

Weekly samples are collected for raw and treated water from the Thornbury WTP and analyzed by an accredited laboratory.

An overview of the raw water sampling data for the period of January to April 2013 is presented in Table 1:

Table 1 – Raw Water

Parameter	Result Range (Min – Max)
E.Coli	**0 to 49**
Total Coliform	**0 to 1360**

An overview of the treated water sampling data for the period of January to April 2013 is presented in Table 2:

Table 2 – Treated Water

Parameter	Result Range (Min – Max)	Limit
E.Coli	**0**	**0**
Total Coliform	**0**	**0**
HPC[1]	**0 to 1**	**N/A**

[1] Schedule 10 of Ontario Regulation 170/03 requires testing for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC). There are no reporting or corrective action requirements specified in O. Reg 170/03 following HPC test results. HPC's are a good indicator of overall drinking water quality but not water safety.

Drinking water quality is further monitored throughout the distribution system by a comprehensive sampling and analysis program involving weekly sampling at designated sampling stations as well as reservoirs and booster stations.

An overview of the distribution sampling data for the period of January to April 2013 is presented in Table 3:

Table 3 – Distribution

Parameter	Number of Samples	Result Range (Min – Max)	Parameter Limit
E.Coli	**184**	**0**	**0**
Total Coliform	**184**	**0**	**0**
HPC[1]	**144**	**0 to 67**	**N/A**

Staff Training

In accordance with Ontario Regulation 128/04, all Water Treatment and Distribution Operators possess operating licences appropriate to the class of facility where they are employed. As the Town's distribution system is a Class 3 subsystem, Operators are required to complete, at a minimum, 26 hours of on the job practical training and 14 hours of formal Continuing Education Units (CEU) training per year.

A summary of the courses attended from January to April 2013 by Operators is provided in Table 4:

Table 4 – Training Overview

Operator Name	Training Course Attended
Rob Gilchrist	Georgian Bay Waterworks Spring Conference Surface Miner Course: - Work Safety in Job Environment - Perform Lock Out and Tag Out on Prime Movers and Other Related Equipment - Operate Hand and Power Tools
Kevin McGuire	Gas Chlorination Georgian Bay Waterworks Spring Conference Book 7 Training Course Surface Miner Course: - Work Safety in Job Environment - Perform Lock Out and Tag Out on Prime Movers and Other Related Equipment - Operate Hand and Power Tools
Stephanie Cole	Book 7 Training Course
Scott Hill	Chlorine Emergency Repair Kit Training Treating and Distributing Safe Drinking Water (Mandatory Renewal Course)
Don McArthur	Chlorine Emergency Repair Kit Training Treating and Distributing Safe Drinking Water (Mandatory Renewal Course) Georgian Bay Waterworks Spring Conference
Scott Marritt	Gas Chlorination Book 7 Training Course Surface Miner Course:
Meg Boyd	Health & Safety Certification Part 1

Distribution System Summary

The following table provides a breakdown of the Water Meter Field Service calls for January to April 2013:

Table 5 – Water Meter Field Services Summary

Nature of Call	No. of Calls
Frozen meters	2
Replace/Repair jammed meter	5
Replace/Repair remote touchpads	26
Repair meter other (leaks, reversed, etc.)	3
Meter Inspections (re-inspections, renovations, new construction)	41
Billing verification, hand deliveries (notices, bills)	484
Install radio units	4
Backflow inspections	6
Thermal Expansion calls	1
Customer meetings (usage, complaints, etc.)	30
Closing readings	81
Commercial meter change outs	2

The following table provides a breakdown of the Water Distribution Work Orders completed for January to April 2013:

Table 6 – Distribution Work Orders

Work Order Description	No. Completed
Watermain Repairs	3
Valves Operated	140
Valves Replaced / New	0
Outstanding Deficiencies arising from fire hydrant inspections (including painting)	23
Service Connection Repairs Complete	3
Service Connection Repairs Outstanding	0
Service Connection Installations	0
Pressure Reducing Valve Inspections	2
Air Relief Valve Inspections	76
Fall and private hydrant flushing program	122

Dead End Flushing program (to maintain residuals in the distribution system)	132
Water and Sewer Locates	60 + 11 Emergency
Automatic flushing stations – weekly check of chlorine residuals	289
Service Drawings (new) completed	35
Hydrants Flushed (Hidden Lake)	2
Hydrants Flushed (Wensley Drive)	4

Summary of Plant Flows

A summary of the WTP Raw, Treated and supplemental flow supply received from the Town of Collingwood is presented in Table 4:

Table 4:

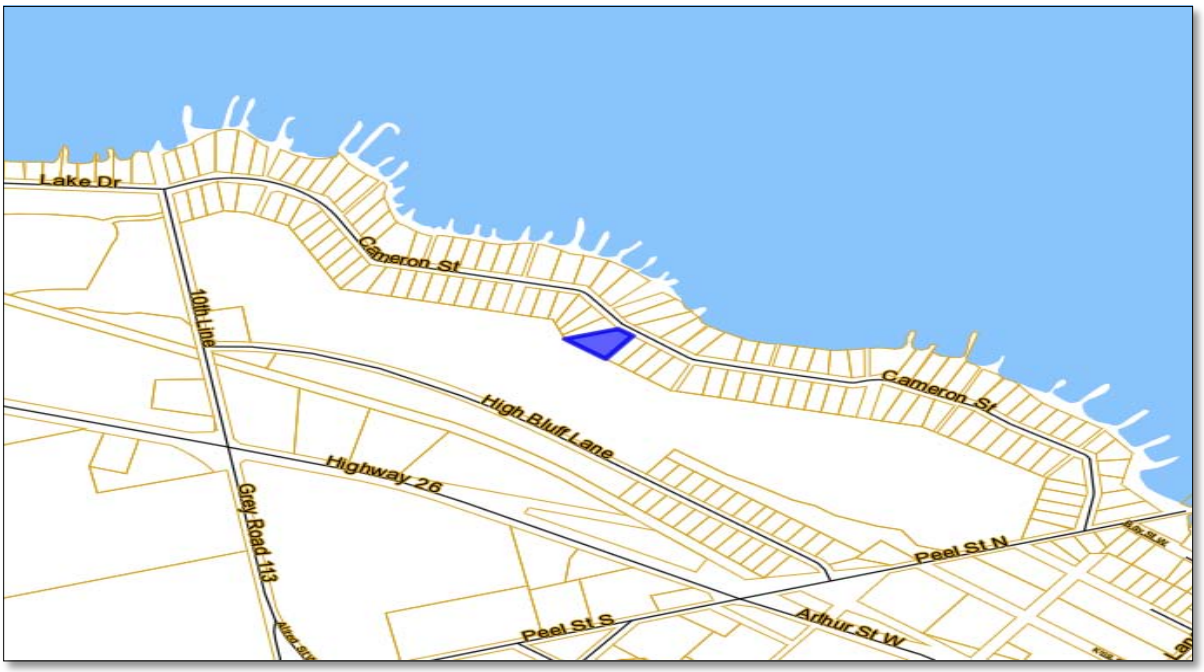
Month	Town of The Blue Mountains' Raw Water Flows				Town of The Blue Mountains' Treated Water Flows				Supplemental Flows Received from the Town of Collingwood			
	Monthly Total (m^3)	Daily Average (m^3)	Maximum Day (m^3)	Minimum Day (m^3)	Monthly Total (m^3)	Daily Average (m^3)	Maximum Day (m^3)	Minimum Day (m^3)	Monthly Total (m^3)	Daily Average (m^3)	Maximum Day (m^3)	Minimum Day (m^3)
January	53,525	1,727	2,438	998	46,468	1,499	2,166	875	69,666	2,247	4,014	873
February	52,966	1,892	4,351	764	44,891	1,603	3,867	648	65,868	2,352	3,730	732
March	48,942	1,579	2,356	522	42,390	1,367	1,986	416	68,527	2,211	3,733	1,084
April	44,352	1,478	2,181	785	38,618	1,287	1,950	697	46,685	1,556	2,221	730
Total	**199,785**				**172,367**				**250,746**			
Max	**53,525**		**4,351**				**3,867**				**4,014**	
Min	**44,352**			**522**				**416**				**730**

Watermain Break Summary

Watermain breaks are typically reported by the public, other Town Staff or discovered during visual inspections by Operators. In most instances, watermain breaks are repaired by Operators and at times, with the assistance of outside contractors or Staff from the Town's Roads Department.

For the period of January 1 to April 30th, 2013, there were three watermain breaks as summarized below:

Figure 1

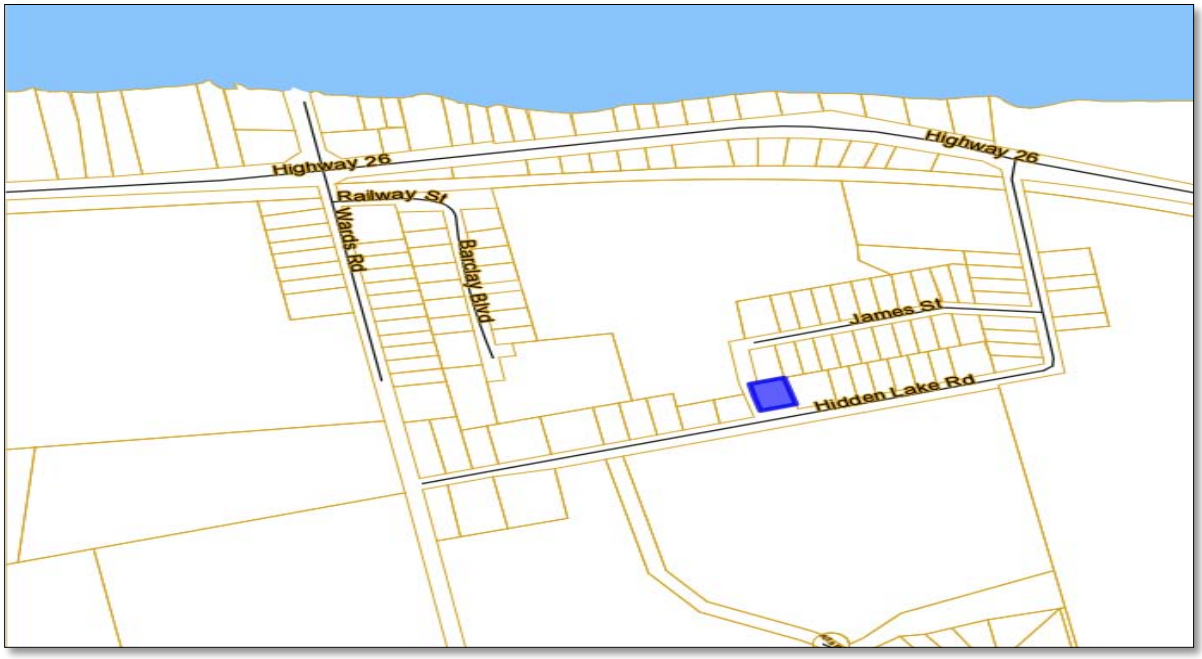


On February 19, 2013, Operators observed a watermain break on Cameron Street. The 150mm cast iron water line is in the ditch so there was no damage to the road. The watermain was repaired under line pressure.

Figure 2

On March 15, 2013, Staff from the Roads Department reported a watermain break on Craigmore Crescent, east of Grey Road 19. An old repair clamp had started to leak. The watermain was located in the travel portion of the road.

Figure 3



On April 19, 2013, a homeowner reported a watermain break on Hidden Lake Road. A curb stop blew apart and a new union coupling and curb stop was installed. The hill is moving causing the water line to break apart.

Incidents of Adverse Water Quality

This section describes all Adverse Water Quality Incidents (AWQI). This term 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. A single adverse water quality incident does not necessarily mean that drinking water from the system is unsafe – it indicates that, on at least one occasion, a water quality standard was not met.

The Town's drinking water system is operated in accordance with Ontario Regulation 170/03 and Operators follow the direction of this regulation when dealing with incidents of adverse drinking water.

On February 1, 2013 Operators informed the Ministry of the Environment and the Grey Bruce Owen Sound Health Unit that the monthly turbidity average for Rack # 3 was less than 99%.

Turbidity is a measurement used to assess the cloudiness of water caused by suspended particles such as clay, silt, finely divided organic and inorganic matter, plankton and other microscopic organisms. Ontario Regulation 170/03 requires membrane filtration plants to achieve 0.1 NTU in 99% of the monthly turbidity measurements.

Multiple Integrity Tests (IT) and membrane filtration start-ups were performed in the month of January which created short term air spikes. This lead to a monthly performance average of 98.66% being achieved in January. Bacteriological samples were collected on February 1, 2013 and February 2, 2013 and both results were returned with 0 Total Coliform and) E-Coli.

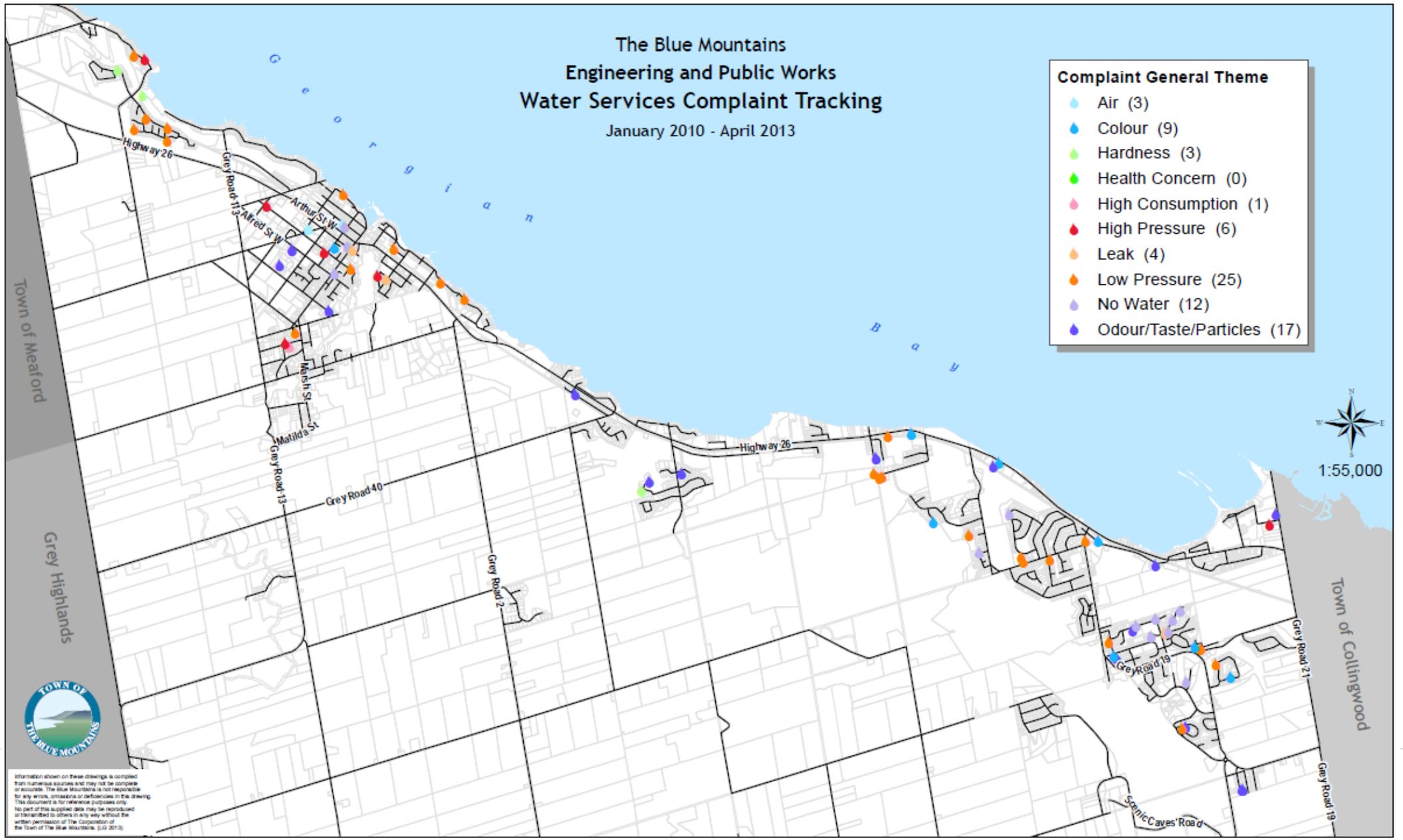
To remedy the problem, Operators have changed out valves on the trains and worked with the Pall Membrane Manufacturer troubleshooting IT issues, which has led to some program changes. The monthly performance average was 99.71% in the month of February which indicated the problem had been remedied.

Water Quality Concerns/ Resident Complaints

Staff record information relating to water quality issues on the Resident Water Quality Concern Form and then forward data to the GIS Coordinator for tracking. If required, Operators attend the location of concern to collect samples or access the nature of the concern.

The ongoing analysis of the water quality data is useful in determining if the water quality is changing throughout the distribution system over time. As an example, taste and odour complaints may indicate that the watermain in a particular area is deteriorating.

A map detailing the water quality concerns received from January 2010 to April 2013 is included on page 12.


The Blue Mountains
Engineering and Public Works
Water Services Complaint Tracking
January 2010 - April 2013
Complaint General Theme
Air (3)
Colour (9)
Hardness (3)
Health Concern (0)
High Consumption (1)
High Pressure (6)
Leak (4)
Low Pressure (25)
No Water (12)
Odour/Taste/Particles (17)
1:55,000
Georgian Bay
Town of Meaford
Grey Highlands
Town of Collingwood
Highway 26
Grey Road 13
Alfred St W
Arthur St W
Marsh St
Matilda St
Grey Road 40
Grey Road 2
Grey Road 19
Grey Road 21
Scenic Caves Road
TOWN OF THE BLUE MOUNTAINS