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Staff Report

Infrastructure & Public Works

Report To: Committee of the Whole
Meeting Date: August 22, 2016
Report Number: CSPW.16.014
Subject: 2015 Year End Water & Wastewater Capacity Assessment Report
Prepared by: John Caswell, Manager of Water & Wastewater Services

A. Recommendations

THAT Council receive Staff Report CSPW.16.014 entitled, "2015 Year End Water & Wastewater Capacity Assessment Report";

AND THAT Council approve forwarding the 2015 Year End Water & Wastewater Capacity Assessment Report to the Grey County Planning Department.

B. Overview

The appended annual report is submitted to Grey County in order to comment on the status of connections to the Town's Water Distribution System and Wastewater Collection System. The report also provides information on the capacity status of the Water Treatment Plant and the Thornbury & Craigeith Wastewater Treatment Plants.

C. Background

Town of The Blue Mountains (Town) is required to provide an annual year end water & wastewater capacity assessment report to the upper tier government, being the Grey County Planning Department. This report is used as a monitoring tool for the provision of allocation and reservation of water and wastewater capacity for new development. It also provides current information on flows from existing system users.

The Year End Reports are prepared by Town Staff.

D. Analysis

An overview of the 2015 Year End Water & Wastewater Capacity Assessment Report (2015 Year End Report) is provided below and the Executive Summary is appended as Attachment #1.

Water

From 2014 to 2015 the number of water connections in the Town increased by 89 units for a total of 7,853 connected units. See Figure 1 below.

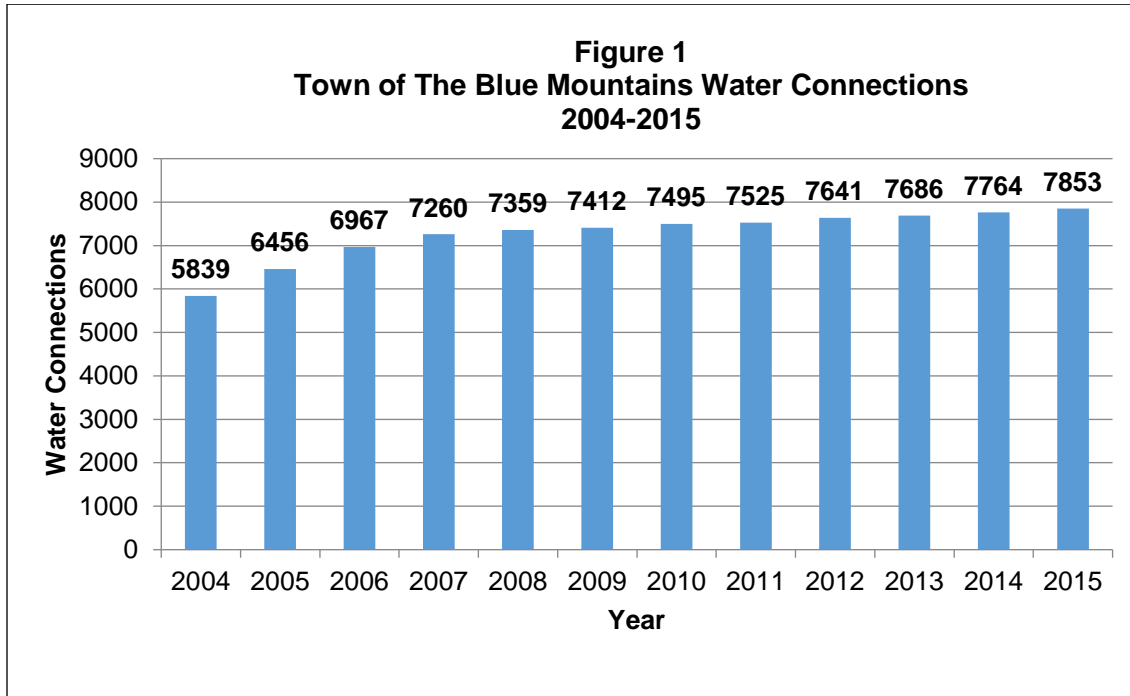
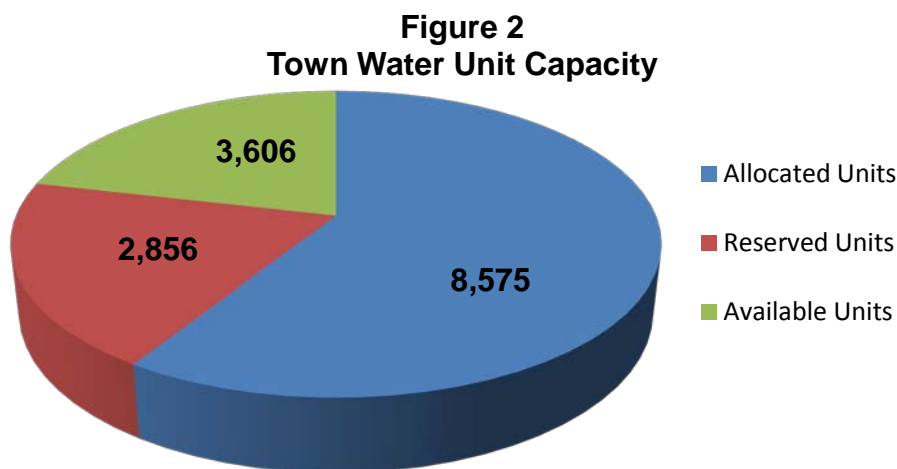
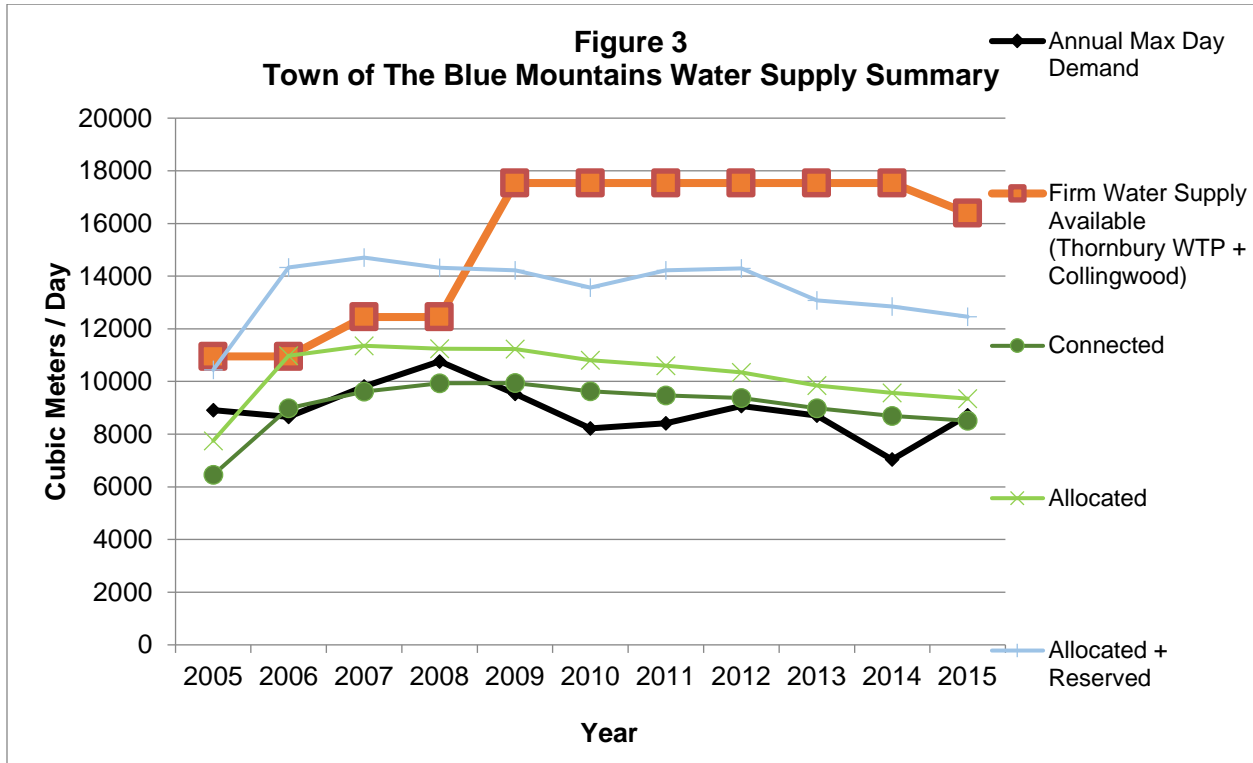


Figure 2 below illustrates the unit capacity for the Town’s water system. Of the total system capacity (15,037 units), 8,575 units are allocated and 2,856 units are reserved. This leaves 3,606 available units.



The Blue Mountains total firm water supply capacity available is 16,390 m³/day or 15,037 units based on the five year rolling MDD of 1.09 m³/unit/day. The 16,390 m³/d includes 1,250m³/day received from the Town of Collingwood.

Figure 3 below illustrates that the Town’s water supply is capable of meeting the demands of existing connections as well as those that have been allocated and reserved for future connection.

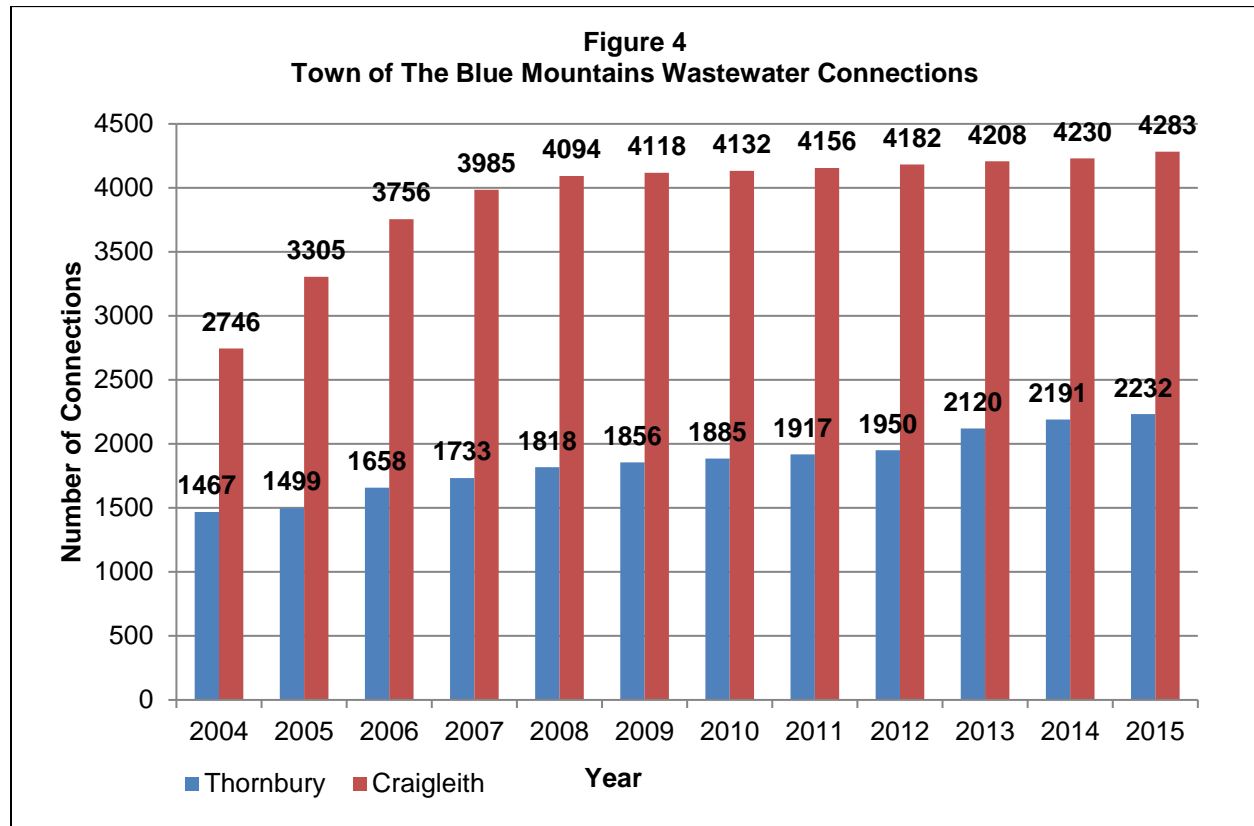


The Blue Mountains Water Treatment Plant (WTP) continues to deliver a high quality of drinking water and adheres to all Provincial Regulations and stringent testing requirements. There were no significant water quality concerns arising from the 2015 reporting period.

Wastewater

Figure 4 provides a historical breakdown of the number of wastewater connections from 2004-2015.

From 2014 to 2015 the number of wastewater connections in the Thornbury Service Area increased by 41 units for a total of 2,232 connected units while in the Craighleith Service Area, the number of wastewater connections increased by 53 units for a total of 4,283 connected units.



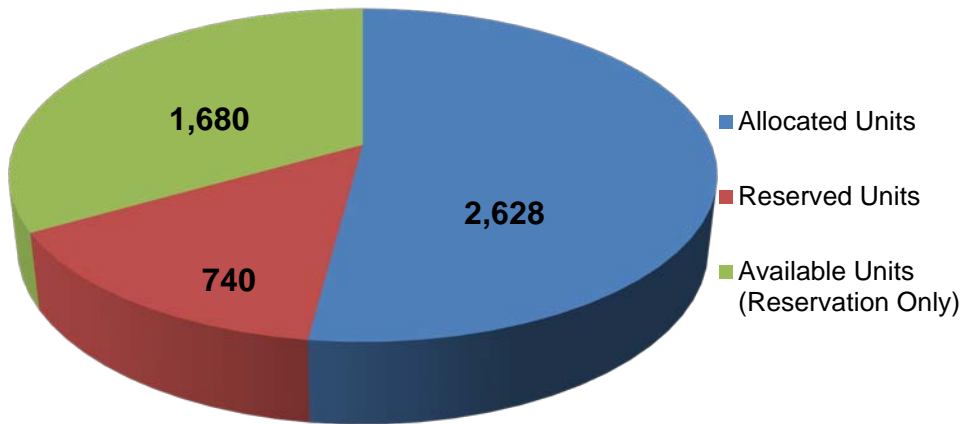
Thornbury Wastewater Treatment Plant

The Thornbury Wastewater Treatment Plant (WWTP) firm built capacity is 3,580 m³/day or 3,390 units based on the historical five year rolling average day flow (ADF) of 1.056 m³/unit/day.

In 2010, the Town acquired an Environmental Compliance Approval (ECA) for the construction of Phase 1A of the Thornbury WWTP upgrades to enable the expansion in flow to the Thornbury WWTP once it reaches 80% of built capacity. The ECA expired in 2015. Prior to expiry, the Town resubmitted an ECA application for the MOECC’s review and consideration to extend the ECA. The application has been approved by the MOECC with an expiry date of December 2017. The Town has committed to begin final design and expansion of the WWTP the year after it reaches 80% flow (2,864 m³/day) of its current capacity of 3,580 m³/day and proceed to construction immediately thereafter. When Phase 1A expansion is completed, it will increase the ADF capacity of the WWTP from the current 3,580 m³/day to 5,330 m³/day.

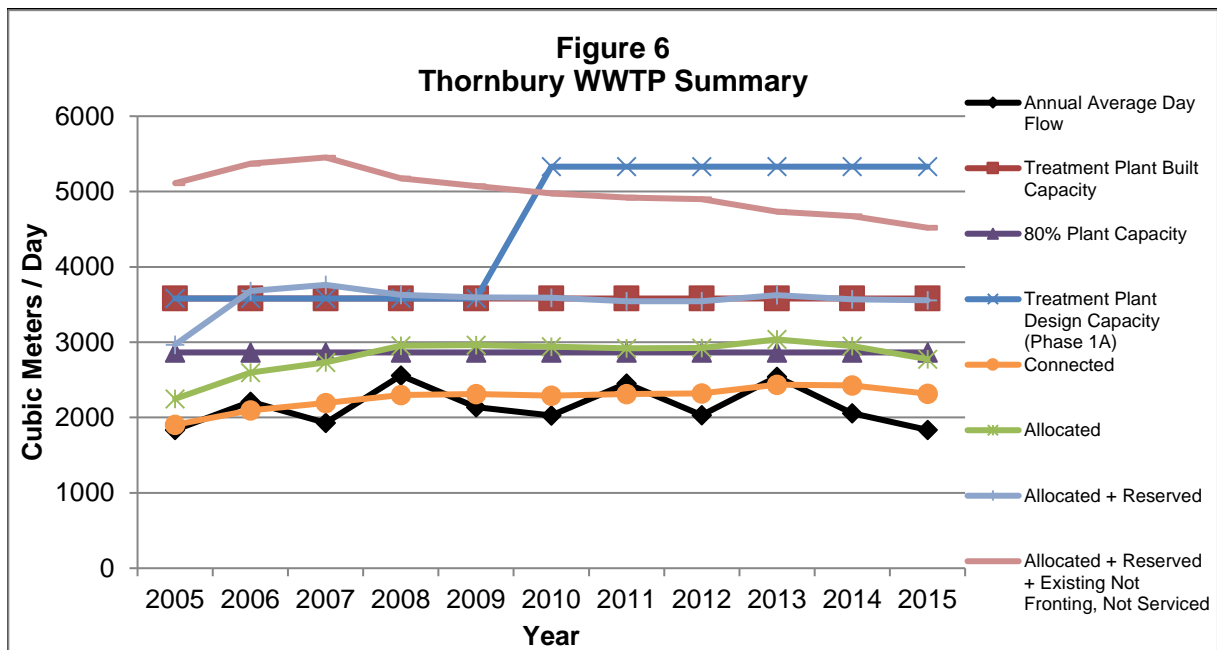
Currently, there are 2,628 units (2,775 m³/day) allocated to the Thornbury WWTP and 740 units (781 m³/day) reserved. As the Town is able to reserve units based on the Phase 1A design expansion of 5,330 m³/day the Thornbury WWTP has a remaining total reservation of 1,680 units (1,773 m³/day). Figure 5 below illustrates the 2015 unit (design) capacity for the Thornbury WWTP.

**Figure 5
Thornbury WWTP Unit (Design) Capacity**



The Thornbury WWTP's 5 year rolling ADF is 2,183 m³/day which means that the flows are utilizing 61% of the Thornbury WWTP built capacity. Based on this information the Town does not need to take immediate measures to initiate final design. Continued measures to reduce inflow and infiltration of storm and groundwater into the wastewater collection system will further delay the Thornbury WWTP expansion. Staff estimate that it will be 10 years or 2026 before the Phase 1A expansion will be required.

Figure 6 below illustrates that the Thornbury WWTP has capacity based on the number of allocated and reserved units. The annual ADF remains below the 80% WWTP capacity threshold. Wastewater allocations and reservations in the Thornbury Service Area are monitored closely.



In 2015 the Town's Landfill Site was expanded to include a new lined cell. Leachate is currently being hauled from the Landfill Site to the Craigleith Main Wastewater Pumping Station (WWPS) for treatment at the Craigleith Wastewater Treatment Plant. Staff are initiating an Environmental Assessment (EA) to manage leachate at the Landfill Site. One option is to install infrastructure to convey leachate from the Landfill Site to the Thornbury WWTP. Staff currently estimate that leachate from the Landfill Site will account for 75 Equivalent Units per year beginning in 2018. Further information regarding leachate transfer and loading will be available for the 2016 Year End Report. This information will provide a more accurate determination of leachate load and potential impact on the Thornbury WWTP expansion.

Craigleith Wastewater Treatment Plant

The Craigleith Wastewater Treatment Plant (WWTP) firm built capacity is 8,133 m³/day or 11,569 units based on the historical five year rolling ADF of 0.703 m³/unit/day.

Figure 7 below illustrates the 2015 built unit capacity for the Craigleith WWTP. Of the total built capacity (11,569 units), 4,650 units are allocated and 3,038 units are reserved. This leaves 3,881 available units.

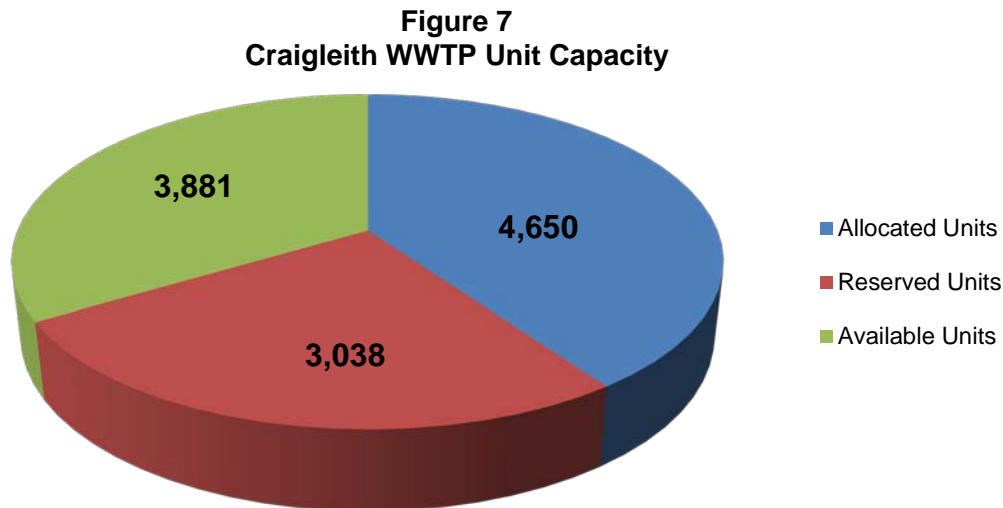
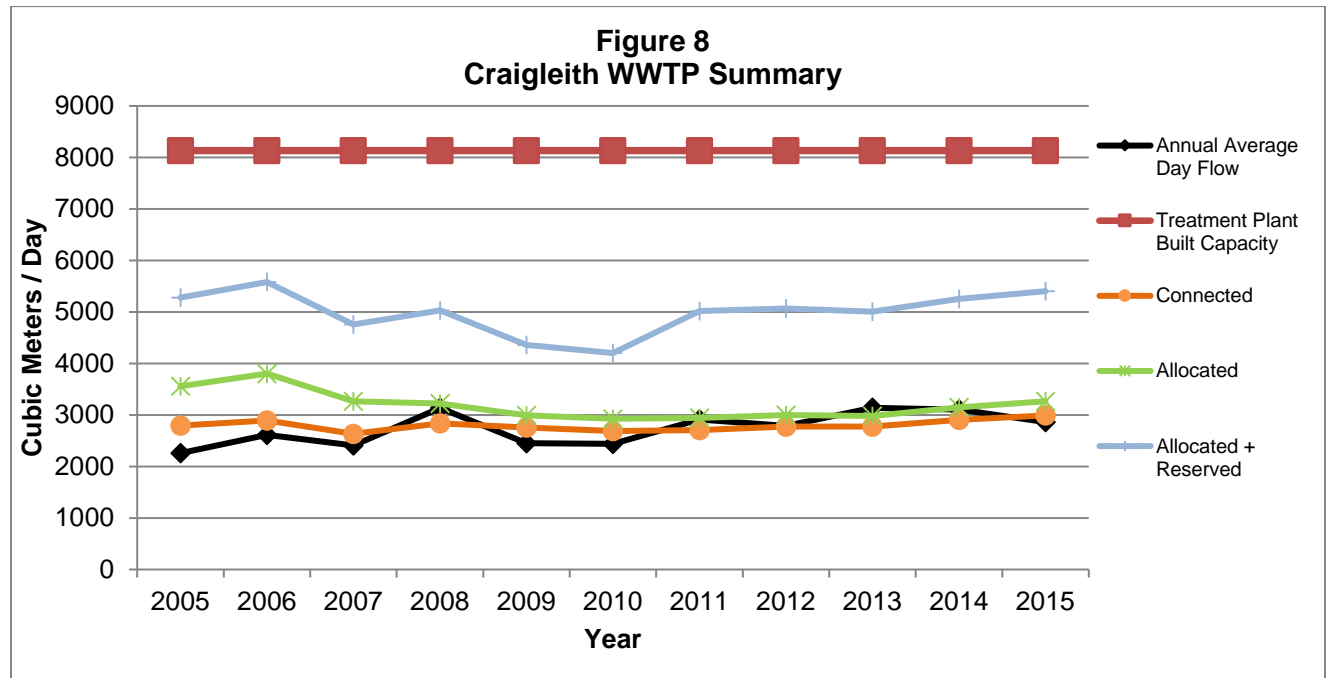


Figure 8 below illustrates that the Craigleith WWTP has available capacity and is able to treat waste being received from the existing wastewater connections in the Craigleith collection area as well as from allocated and reserved future connections. The Town currently has enough capacity to service an additional 3,881 units with wastewater in the Craigleith collection area.



The 2015 Year End Water & Wastewater Capacity Assessment Report Executive Summary is provided as Attachment #1 to provide an overview of the Report. The document in its entirety is available upon request.

Staff recommend that the 2015 Year End Water & Wastewater Capacity Assessment Report be forwarded on to the Grey County Planning Department.

E. The Blue Mountains Strategic Plan

Goal #5: Ensure our Infrastructure is Sustainable

F. Environmental Impacts

The 2015 Year End Report provides the baseline data required for reporting and forecasting. It is integral to the development of water and wastewater services within the Town. The 2015 Year End Report is instrumental in environmental compliance reporting and for monitoring the municipality's impact on the ecology of Georgian Bay.

G. Financial Impact

The 2015 Year End Report does not have a direct financial impact however it forecasts the need for future capital expansions in both water and wastewater.

I. In consultation with

Shawn Postma, Senior Policy Planner

Aaron Roninen, GIS/Planning Technician

Ruth Prince, Director of Finance & IT Services/Treasurer

J. Attached

1. 2015 Water & Wastewater Capacity Assessment Executive Summary, issued August 10, 2016

Respectfully submitted,

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The Blue Mountains

Water and Wastewater Capacity Assessment

2015 Year End Report



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Issue Date: August 10, 2016

Executive Summary

This report provides an assessment of water and wastewater treatment systems capacity within the Town for 2015. Current Town water supply and wastewater treatment infrastructure includes:

- The Blue Mountains Water Treatment Plant & Distribution System
- Supplemental water supply from the Town of Collingwood
- Thornbury Wastewater Treatment Plant & Collection System
- Craigleith Wastewater Treatment Plant & Collection System

According to MOECC Guideline D-5-1 entitled “Calculating and Reporting Uncommitted Reserve Capacity at Sewage and WTPs”, “The number of lots in approved plans of subdivisions, developments committed by virtue of approved zoning, new official plans or site-specific official plan amendments, should not exceed the design capacity of the sewage and/or water system. In order to ensure that capacity is not exceeded it is necessary to determine what uncommitted reserve capacity is available. This report provides a means for determining uncommitted reserve capacity”.¹

¹ MOECC Guideline D-5-1 entitled “Calculating and Reporting Uncommitted Reserve Capacity at Sewage and WTPs”, Updated March 1995.

Water Supply

1. Total Blue Mountains WTP Capacity

The firm capacity available from the Blue Mountains WTP is 15,140 m³/day. The Town receives 1,250 m³/day supplemental supply from the Town of Collingwood.

Therefore, the total firm water capacity available is 16,390 m³/day or 15,037 units based on the 5 year rolling MDD of 1.09 m³/unit/day.

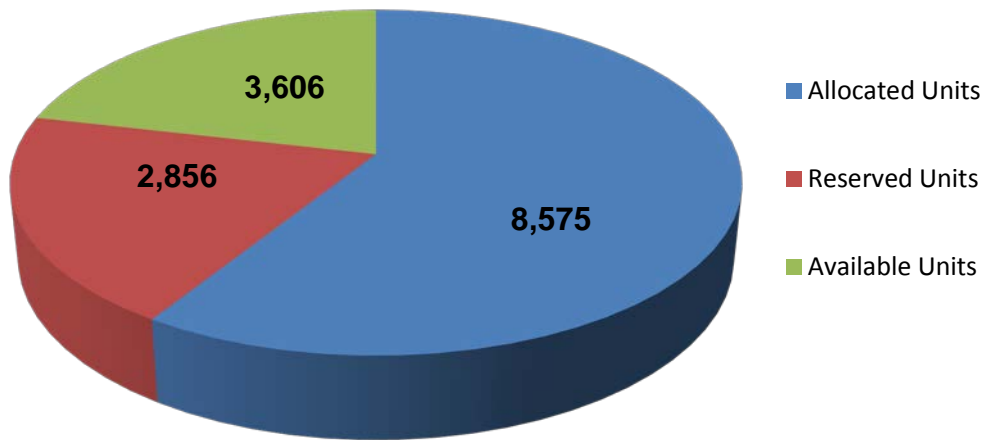
2. Available Water Capacity

A total demand of 9,346 m³/day (8,575 units) is currently connected or allocated to the water system, based on a 5 year rolling average maximum daily demand of 1.09 m³/unit/day.

A total flow of 3,113 m³/day (2,856 units) is currently reserved at 1.09 m³/unit/day.

Of the 15,037 total units of water supply available, there are currently 11,431 units allocated and reserved. Therefore, the current available capacity of the Town's water supply is 3,606 units.

Town Water Unit Capacity



Thornbury Wastewater Treatment Plant

1. Total Thornbury WWTP Capacity

The total firm ADF built capacity available at the Thornbury WWTP is 3,580 m³/day or 3,390 units based on the 5 year rolling ADF of 1.056 m³/unit/day.

2. Available Wastewater Capacity

A total flow of 2,775 m³/day (2,628 units) is currently connected or allocated to the Thornbury WWTP based on a 5 year rolling ADF. There are currently 2,628 units allocated and 740 reserved. Therefore, the current available uncommitted reserve capacity based on built capacity is 22 units.

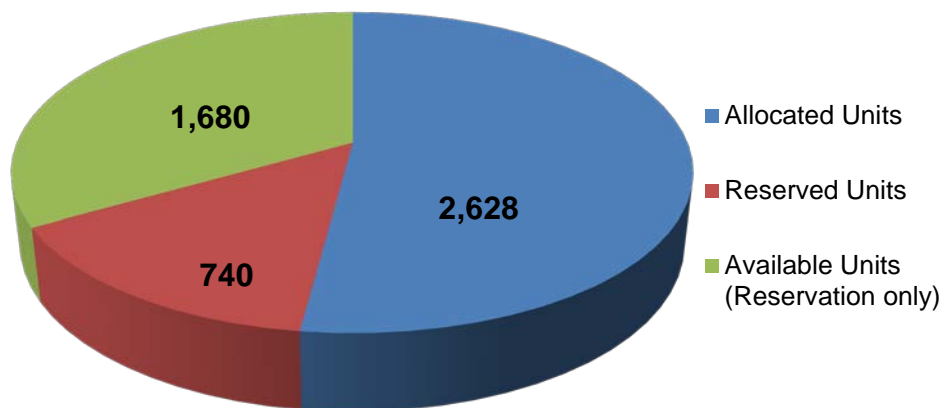
Although the Thornbury WWTP appears to be at capacity based on allocated and reserved units, there are 1,175 units (740 reserved + 435 can connect) which are not physically connected to the Thornbury WWTP.

The ADF Design Capacity available is 5,330 m³/d or 5,047 units based on an ECA received in 2016. Therefore, the current available uncommitted reserve capacity based on design capacity is 1,680 units.

3. Thornbury WWTP Estimated Expansion Timeline

The Town is required to expand the Thornbury WWTP when influent reaches 80% of the built capacity. The Thornbury WWTP is operating at 61% of the built capacity and it is estimated that the WWTP will reach 80% of the built capacity in 2026.

Thornbury WWTP Unit (Design) Capacity



Craigleith Wastewater Treatment Plant

1. Total Craigleith WWTP Capacity

The total firm ADF built capacity available at the Craigleith WWTP is 8,133 m³/day or 11,569 units based on the 5 year rolling ADF of 0.703 m³/unit/day.

2. Available Wastewater Capacity

A total flow of 3,269 m³/day (4,650 units) is currently connected or allocated to the Craigleith WWTP, based on a 5 year rolling ADF. There are currently 4,650 allocated and 3,038 units reserved. Therefore, the current uncommitted reserve capacity on built capacity is 3,881 units.

3. Craigleith WWTP Estimated Expansion Timeline

Based on the 2015 five year rolling ADF of 2,961 m³/day, the Craigleith WWTP is operating at 36% of the built capacity. The expansion of the Craigleith WWTP will not be required within the next twenty years based on the current rate of development.

Craigleith WWTP Unit Capacity

