

STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT

REPORT TO: Infrastructure and Recreation
 Committee

MEETING DATE: May 14, 2013

REPORT NO.: EPW.13.045

SUBJECT: 2012 Water and Wastewater
 Capacity Assessment Year End
 Report

PREPARED BY: John Caswell, Manager of Water
 and Wastewater Services

A. Recommendations

THAT Council receive Staff Report EPW.13.045 entitled “2012 Water and Wastewater Capacity Assessment Year End Report”;

AND THAT Council approve forwarding the 2012 Water and Wastewater Capacity Assessment Year End Report to the Grey County Planning Department.

B. Background

The Town is required to provide an annual year end water and wastewater capacity assessment report to the upper tier government being 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 and also provides current information on flows from existing development. The annual Water and Wastewater Capacity Assessment Year End Reports are prepared by Town Staff.

WATER SUPPLY

The number of water connections within the Town of The Blue Mountains has increased variably over the past 5 years. Figure 1 provides a historical breakdown of the number of water connections within the municipality from 2005 to 2012. From 2011 to 2012 the number of water connections increased by 44 units for a total of 7,641 connected units.

Although the number of connected units increased by 44 units from 2011 to 2012, the overall number of connected units in Figure 1 increased further due to changes in planning and development, as well as errors that were corrected. Therefore; the overall number of connected units may change year to year based on numerous factors. Staff have established that the total number of connected units is correct up to 98% of the total connected unit count.

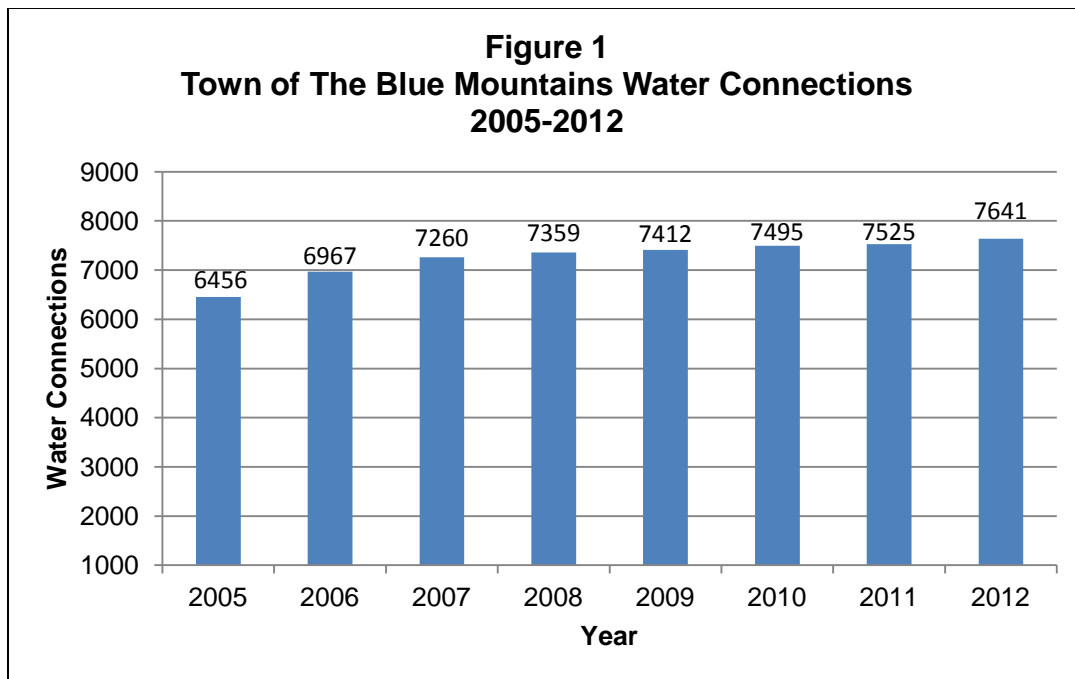
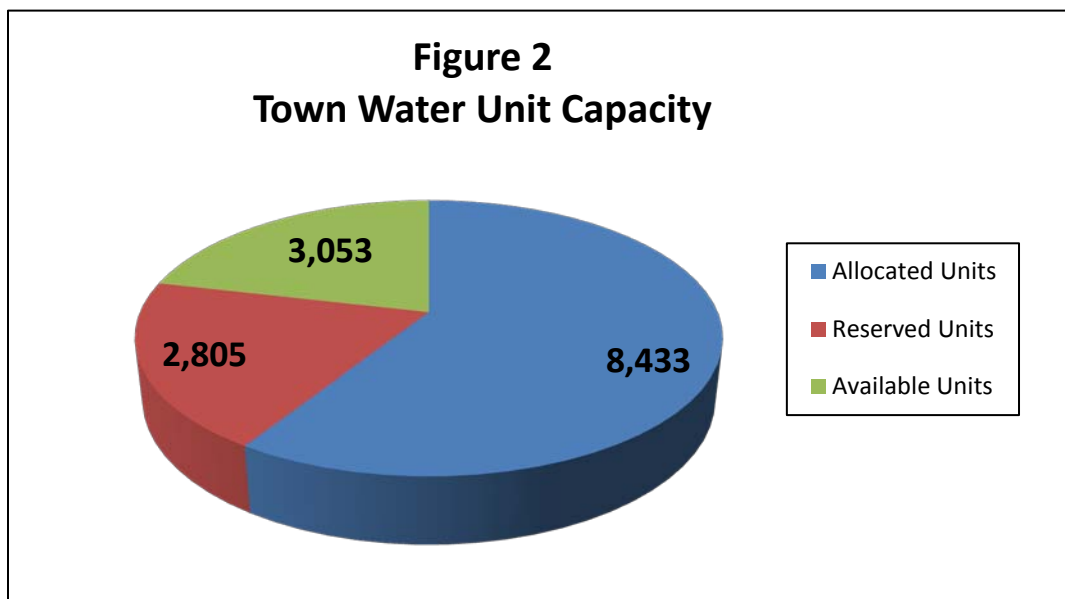
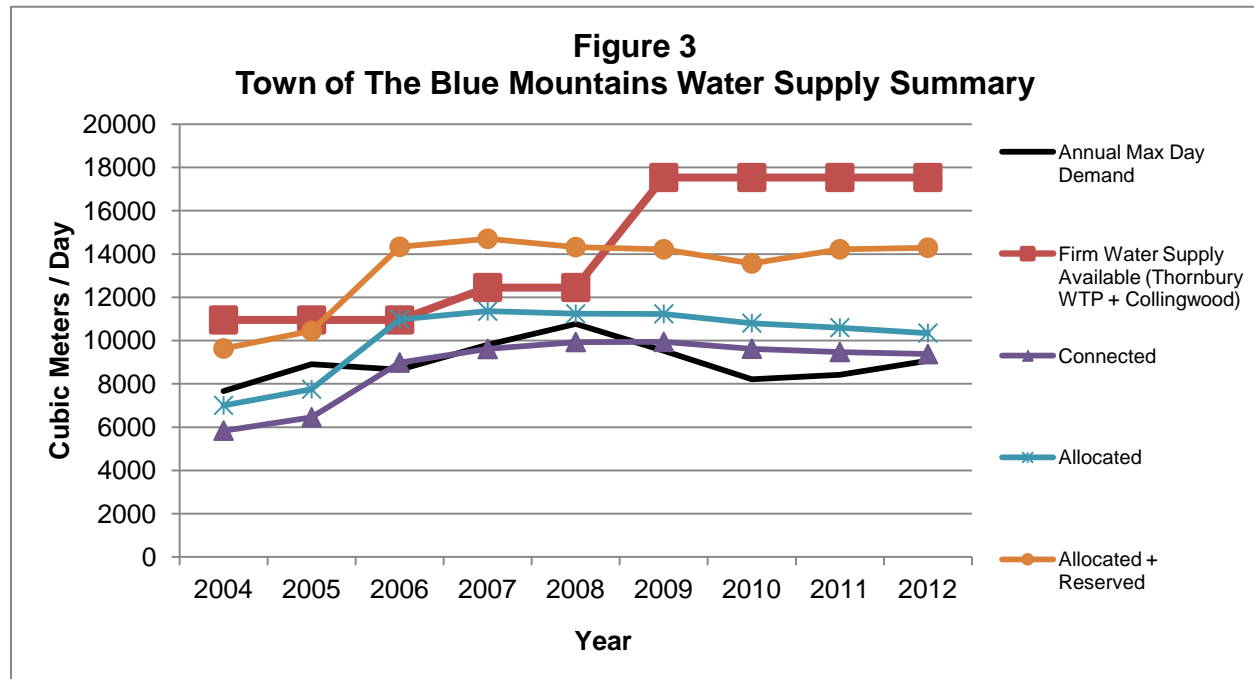


Figure 2 illustrates the 2012 unit capacity for the Town’s Water System. Of the total built capacity (14,292 units), 8,433 units are allocated and 2,805 units are reserved. This leaves 3,053 available units.



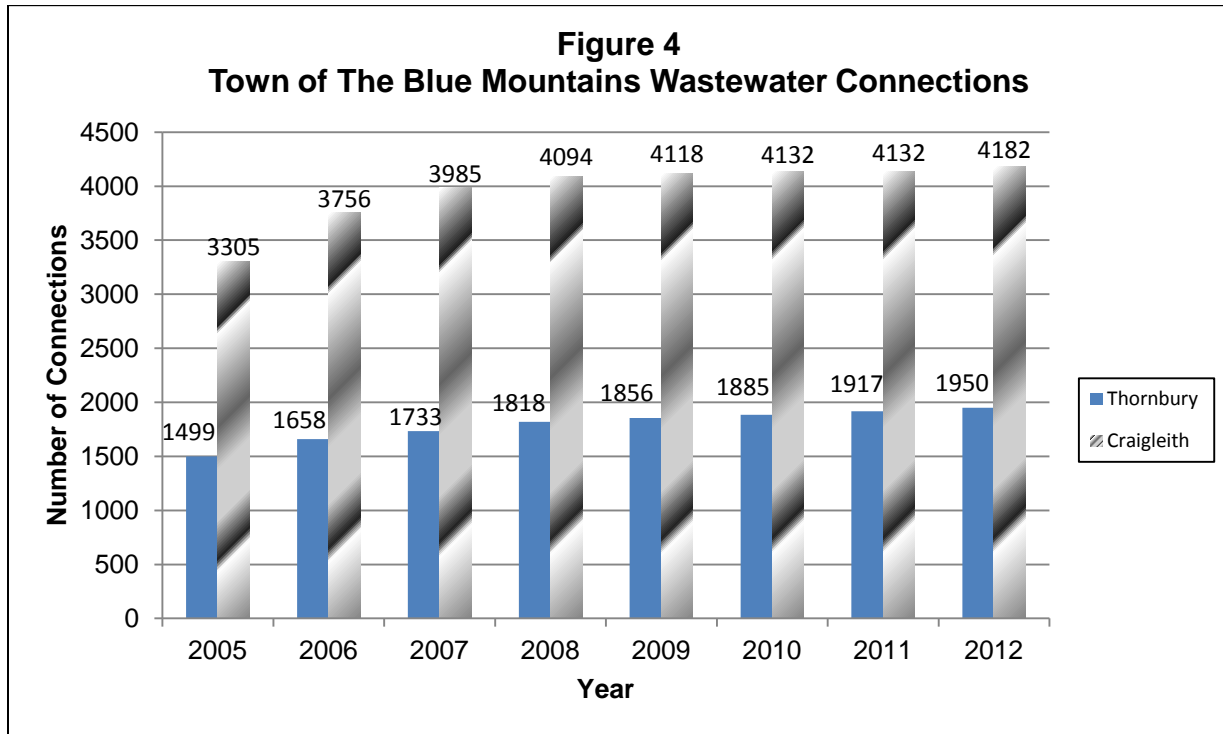
The Town's Water Supply, including the supplemental supply received from the Town of Collingwood, continues to adequately meet the Town's water demands. Figure 3 illustrates that the Town's water supply is capable of meeting the demands of the existing connections as well as those that have been allocated and reserved for future connection. The Town currently has enough capacity to service an additional 3,053 units with water.



The Thornbury Water Treatment Plant continues to deliver a high quality of drinking water which adheres to all Provincial Regulations and stringent testing requirements. There were no significant water quality concerns arising from the 2012 reporting period.

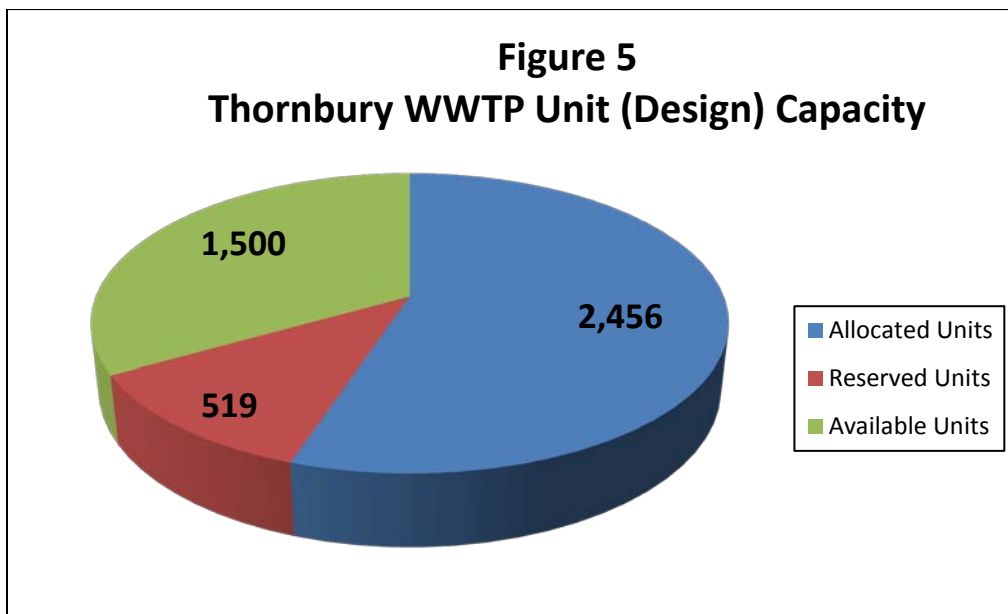
WASTEWATER

The number of wastewater connections within the Town of The Blue Mountains has increased steadily over the past 5 years. Figure 4 provides a historical breakdown of the number of wastewater connections within the municipality from 2005 to 2012. From 2011 to 2012 the number of wastewater connections in the Thornbury area increased by 23 units for a total of 1,950 connected units. In the Craigeith area the number of wastewater connections increased by 22 units in 2012 for a total of 4,182 connected units.



Thornbury Wastewater Treatment Plant

Figure 5 illustrates the 2012 unit capacity for the Thornbury WWTP. Of the total design capacity (4,475 units), 2,456 units are allocated and 519 units are reserved. This leaves 1,500 available units.



Although the Thornbury Wastewater Treatment Plant (WWTP) currently has enough capacity to treat the waste being received from the existing wastewater connections in

the Thornbury area, the built capacity of the plant can only treat an additional 31 units worth of flow. However, when the plant capacity reaches 80%, the Town has committed to Grey County and the Ministry of the Environment to expand the Thornbury WWTP in order to accommodate development and system growth. The Town has completed the preliminary design for the plant expansion and has received the associated Certificate of Approval from the Ministry of the Environment. Figure 6 illustrates that the Thornbury WWTP is reaching capacity based solely on the number of allocated and reserved units, and not on the current connections and flow. Wastewater allocations and reservations in the Thornbury area are being closely monitored.

The 2012 average daily influent flow is 2,031 m³/day, which is 38% of the plant's design capacity. Therefore, the Town does not need to take measures to initiate the final design. At current influent rates, the Thornbury WWTP is expected to reach 80% capacity around 2022.

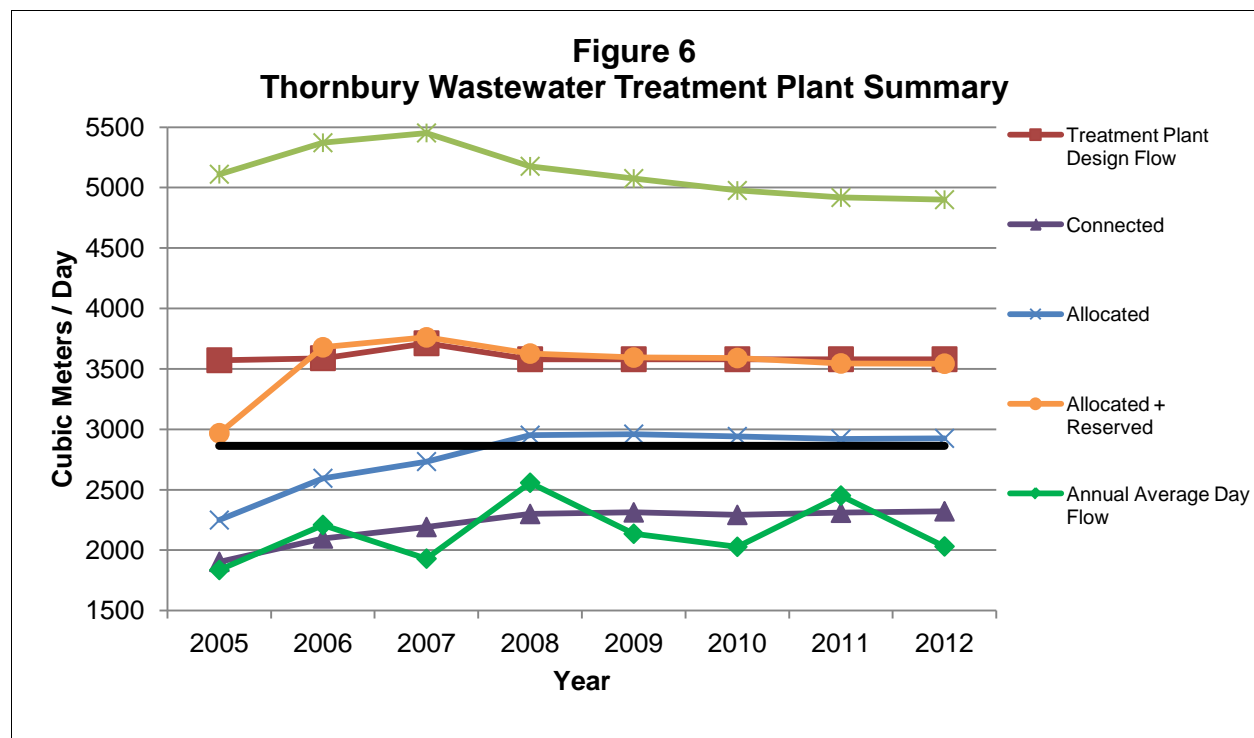


Figure 7 illustrates the 2012 unit capacity for the Craigleith WWTP. Of the total built capacity (12,267 units), 4,519 units are allocated and 3,121 units are reserved. This leaves 4,627 available units.

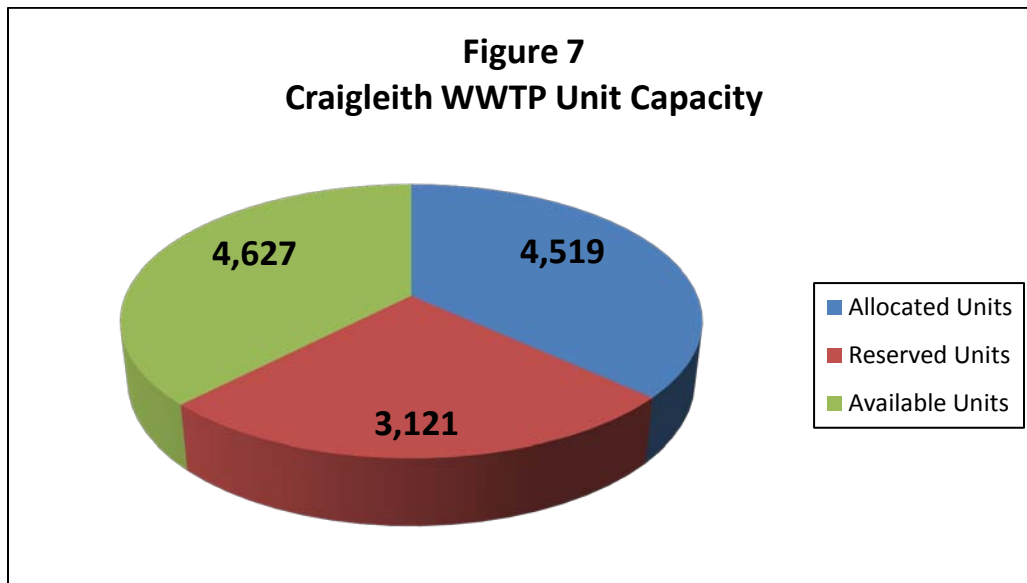
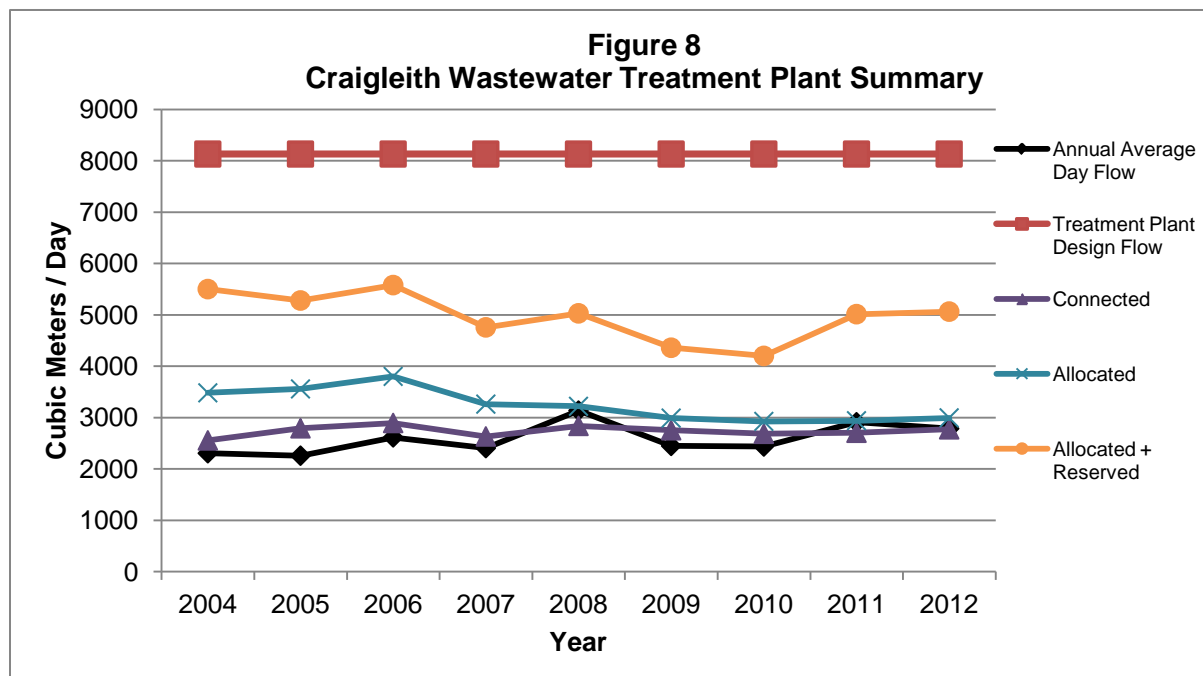


Figure 8 illustrates that the Craigleith Wastewater Treatment Plant has more than enough capacity to treat the waste being received from the existing wastewater connections in the Craigleith area as well as from allocated and reserved future connections. The Town currently has enough capacity to service an additional 4,627 units with wastewater in the Craigleith area.

The 2012 Water and Wastewater Capacity Assessment Year End Report Executive Summary is provided as Attachment 1 to provide a summary of the report. The entire



document is available upon request. The 2012 Water and Wastewater Capacity Assessment Year End Report has been prepared in conjunction with the Town's Building and Planning Department.

Staff recommend that the 2012 Water and Wastewater Capacity Assessment Year End Report be sent to the Grey County Planning Department.

C. The Blue Mountains' Strategic Plan

The 2012 Water and Wastewater Capacity Assessment Year End Report furthers the Town's Strategic Goal #2, "Addressing the Town's municipal infrastructure needs".

D. Environmental Impacts

The 2012 Water and Wastewater Capacity Assessment Year End Report provides the baseline data required for reporting and forecasting and is integral to development of the water and wastewater services for the Town. It is instrumental in environmental compliance reporting and in reducing the municipality's impact on the ecology of Georgian Bay.

E. Financial Impact

None directly, however; the 2012 Water and Wastewater Capacity Assessment Year End Report forecasts the need for capital expansions in both water and wastewater.

F. In Consultation With

Shawn Postma, Planner II

G. Attached

Attachment 1 2012 Water and Wastewater Capacity Assessment Year End Report Executive Summary.

Respectfully submitted,

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Executive Summary

This report provides an assessment of water and wastewater treatment systems capacity within the Town of The Blue Mountains (Town) for 2012. Current Town water supply and wastewater treatment infrastructure includes:

- Thornbury Wastewater Treatment Plant
- Craigleith Wastewater Treatment Plant
- Thornbury Water Treatment Plant
- Supplemental water supply from the Town of Collingwood

In addition, this report provides a review of the capacity of water storage reservoirs, WBS, WWPS and forcemains, and identifies current or proposed system upgrades or expansion projects.

There are expansion projects planned for the Thornbury Wastewater Treatment Plant once a certain capacity is reached. However; the Thornbury Water Plant, Craigleith Wastewater Treatment Plant and the Thornbury Wastewater Treatment Plant are all operating with spare capacity at this time.

The following pages summarize the status of the Town's Water Supply, Thornbury Wastewater Treatment Plant and the Craigleith Wastewater Treatment Plant:

Water Supply (Thornbury Water Treatment Plant & Collingwood Supply)

1. Average Day and Maximum Day Water Demands

2012 Average daily demand is 4,537 m³/day. The 5 year rolling average is 0.595 m³/unit/day.
2012 Maximum daily demand is 9,069 m³/day. The 5 year rolling average is 1.227 m³/unit/day.

2. Total Water Supply

The maximum installed capacity available from the Thornbury WTP is 13,536 m³/day. The supplemental supply from the Town of Collingwood is 4,000 m³/day. The total supply available is 17,536 m³/day (14,292 units).

3. Total Water Connections

A total flow of 9,376 m³/day (7,652 units) is currently connected to the water system. These connected units are using 53% of the water supply, leaving 47% of the water supply available for future connections.

4. Total Water Allocations

A total flow of 10,348 m³/day (8,433 units) is currently connected or allocated to the water system.

5. Available Water Supply

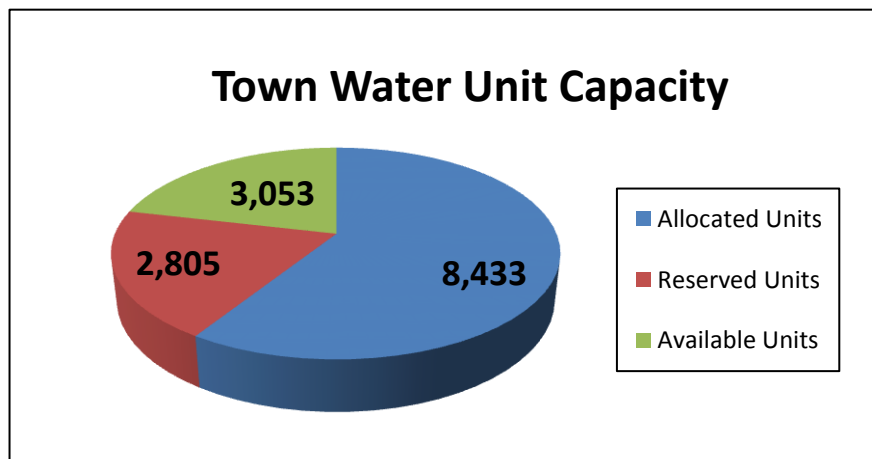
Of the total water supply, 59% has been allocated to those units that can connect (units that front the service but are not connected) or have been committed (approved and existing development), leaving 41% (5,859 units) of the water supply is available for future allocation.

6. Total Water Reservations

A total flow of 3,442 m³/day (2,805 units) is currently reserved.

20% of the water supply is reserved. These units include those that are existing but not fronting and not serviced and those lands designated that currently have draft plan approval under the Planning Act.

Of the 14,292 total units of water supply available, there are currently 11,238 allocated or reserved. Therefore, the current available capacity of the Town's water supply is 3,746 m³/day (3,053 units).



Thornbury Wastewater Treatment Plant

1. Average Day Flow and Peak Day Flow

2012 Average day flow is 2,031 m³/day. The 5 year rolling average is 1.191 m³/unit/day.

2012 Peak day flow is 6,286 m³/day. The 5 year rolling average is 3.956 m³/unit/day.

2. Total Wastewater Plant Capacity

The Thornbury WWTP has an average day flow capacity of 3,580 m³/day and a peak day flow capacity of 7,196 m³/day.

A total of 3,006 units can be serviced by the Thornbury WWTP.

3. Total Wastewater Connections

A total flow of 2,322 m³/day (1,950 units) is currently connected to the Thornbury WWTP.

Of the 3,006 units that can be serviced by the Thornbury WWTP, 65% of the WW Plant's capacity is being used leaving 35% (1,056 units) of the WW Plant's capacity available for future connections.

4. Total Wastewater Allocations

A total flow of 2,925 m³/day (2,456 units) is currently connected or allocated to the Thornbury wastewater system.

5. Available Wastewater Capacity

Of the total Thornbury WWTP capacity, 82% has been allocated to units that can connect (lands that front the service but are not yet connected) or have been committed capacity (through an agreement). This leaves 18% (550 units) of the Thornbury WWTP capacity available for future allocation.

6. Total Wastewater Reservations

A total flow of 618 m³/day (519 units) is currently reserved for the Thornbury WWTP. The units in this category only include *designated active lands* which currently have draft plan approval under the Planning Act. Units identified as *existing not fronting, not serviced* are not counted as reserved.

7. Future Projections

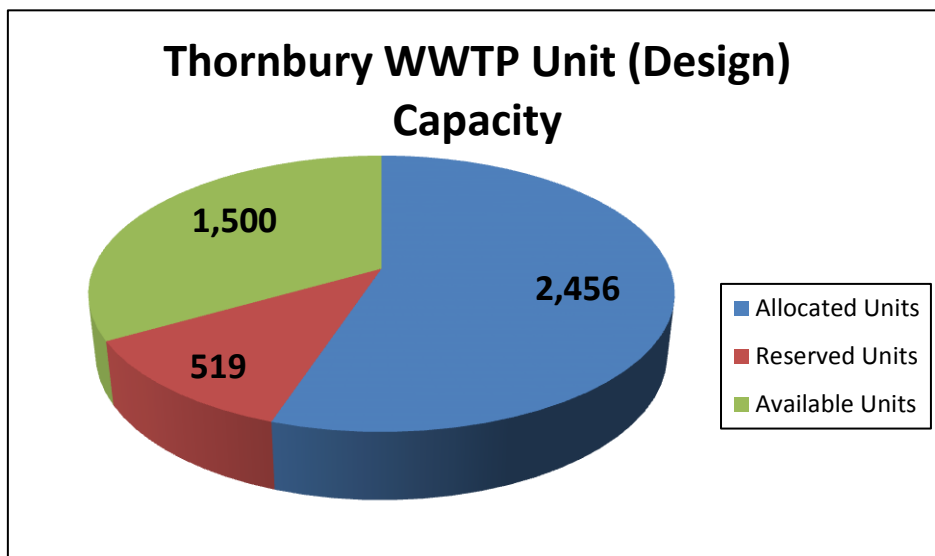
The Town has committed to provide annual updates on the future projections of the Thornbury WWTP.

Estimates contained in the 2012 Year End report include:

1. Connected units are estimated at 43 new connections per year (based on a 5 year average)
2. Allocated units are estimated to increase based on projected local servicing projects plus an estimated 43 units that will be registered and/or given Plant capacity per year

It is noted that market conditions, the five year rolling average and other economic factors will influence the actual connections and actual allocations per year. The five year rolling average has dropped over the past five years, further deferring the estimated year of plant expansion. In this regard, all year end reports will review year end data and update the estimated future projections.

Based on 2012 estimates, the Plant is operating at 28% flow capacity and the Plant will reach 80% flow capacity in 2024. As indicated, the Town has committed to commencing construction of the expansion of the Plant the year after the Plant reaches 80% flow of its built capacity (2,864 m³/day or 2,405 units). The Town has an agreement with Grey County and the MOE for the Town to utilize existing available capacity at the Thornbury WWTP through a modified method of calculating capacity status. The Town has prepared the preliminary design and has received a C of A for the future Phase 1A expansion of the Plant.



Craigeith Wastewater Treatment Plant

1. Average Day Flow and Peak Day Flow

2012 Average day flow is 2,787 m³/day. The 5 year rolling average is 0.663 m³/unit/day.

2012 peak day flow is 8,415 m³/day. The 5 year rolling average is 2.343 m³/unit/day.

2. Total Wastewater Plant Capacity

The Craigeith WWTP has an average day flow capacity of 8,133 m³/day and a peak day flow capacity of 19,640 m³/day.

A total of 12,267 units can be serviced by the Craigeith WWTP.

3. Total Wastewater Connections

A total flow of 2,773 m³/day (4,182 units) is connected to the Craigeith WWTP.

34% of the WW Plant's capacity is being used leaving 66% of the WW Plant's capacity available for future connections.

4. Total Wastewater Allocations

A total flow of 2,996 m³/day (4,519 units) is connected and allocated to the Craigeith wastewater system.

5. Available Wastewater Capacity

Of the total Craigeith WWTP capacity, 37% has been allocated to units that can connect (units that front the service but are not connected) or have been committed (approved and existing development). This leaves 63% of the Craigeith WWTP capacity available for future allocation.

6. Total Wastewater Reservations

A total flow of 2,069 m³/day (3,121 units) is reserved for the Craigeith WWTP.

The units in this category include units that are existing but not fronting and not serviced and those lands designated for approval with current draft plan approval under the Planning Act.

The current available capacity of the Craigeith Plant is 3,068 m³/day (4,627 units).

