

STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT



REPORT TO: Infrastructure and Recreation
 Committee
MEETING DATE: Tuesday May 15th 2012
REPORT NO.: EPW.12.024
SUBJECT: Water and Wastewater Capacity
 Assessment – 2011 Year End
 Report
PREPARED BY: John Caswell, Manager of Water
 and Wastewater Services

A. Recommendations

THAT Council approve forwarding the 2011 Year End Report to the Grey County Planning Department as outlined in Report EPW.12.024 "Water and Wastewater Capacity Assessment – 2011 Year End Report."

B. Background

The Town is required to annually complete a year end water and wastewater capacity assessment report and provide the 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 Water and Wastewater Capacity Assessment – 2011 Year End Report was 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 2011. From 2010 to 2011 the number of water connections increased by 30 units for a total of 7,525 connected units.

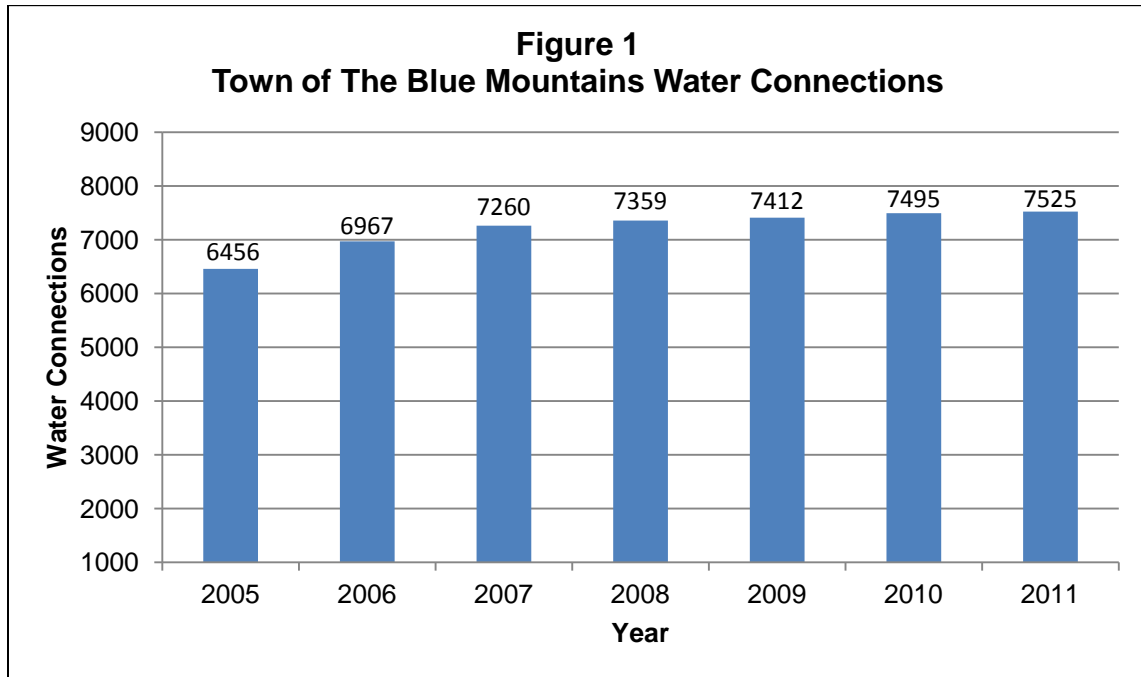
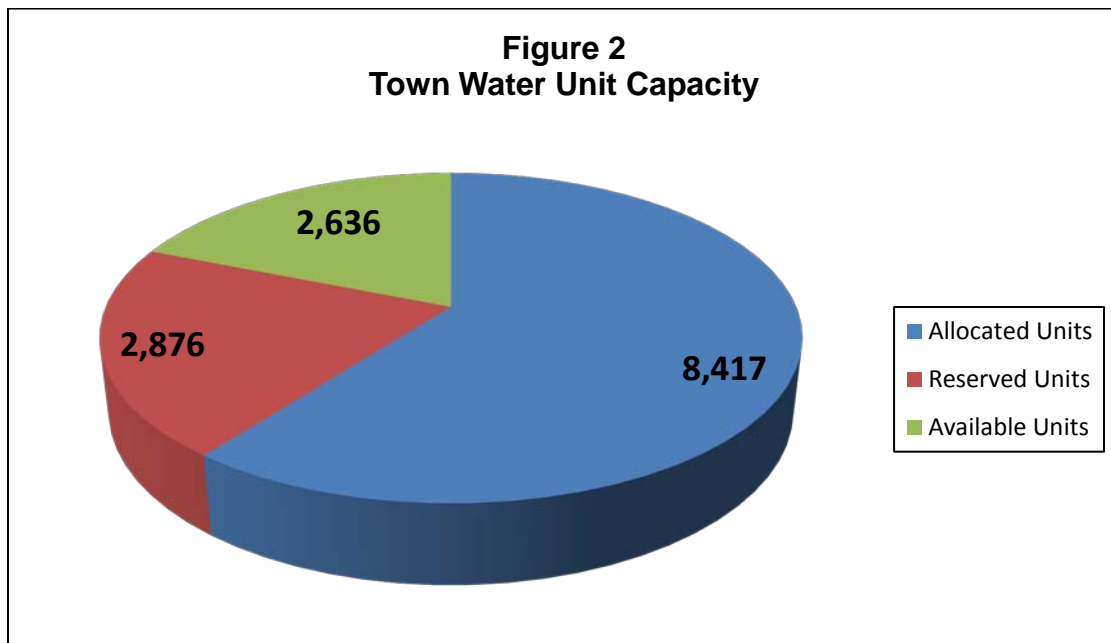
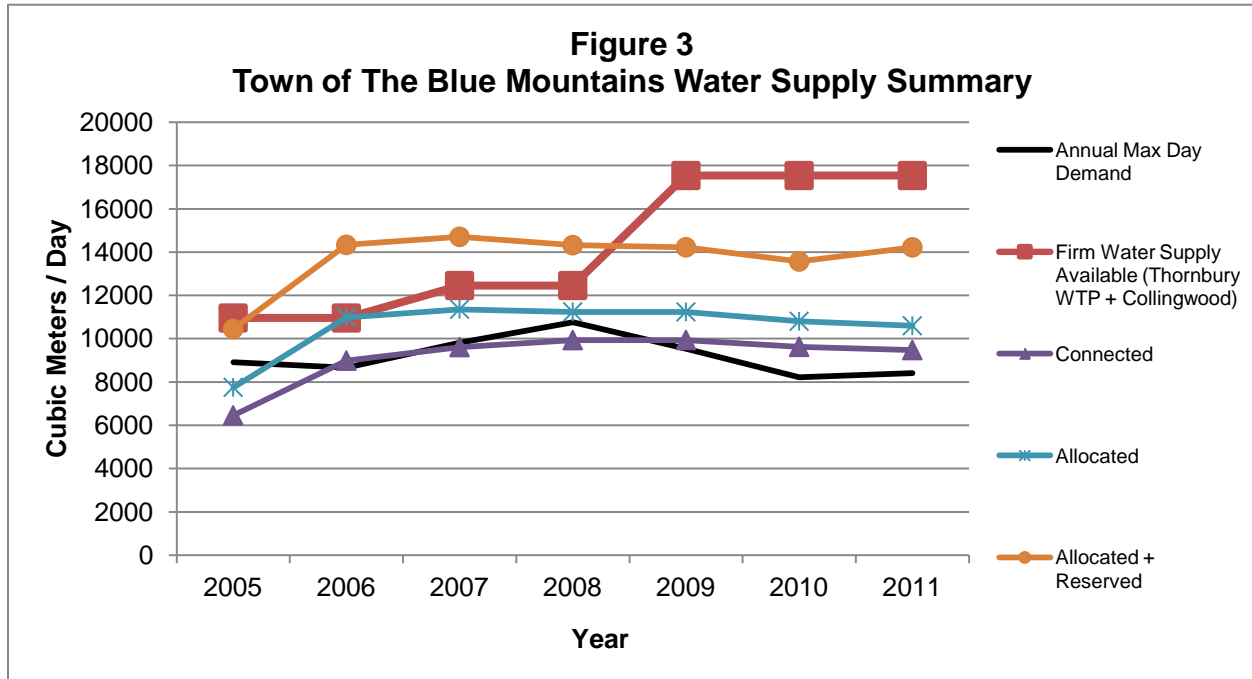


Figure 2 illustrates the 2011 unit capacity for the Town's Water System. Of the total built capacity (13,929 units), 8,417 units are allocated and 2,876 units are reserved. This leaves 2,636 available units.



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 2,626 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 2011 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 2011. From 2010 to 2011 the number of wastewater connections in the Thornbury area increased by 32 units for a total of 1,917 connected units. In the Craigeith area the number of wastewater connections increased by 24 units for a total of 4,156 connected units.

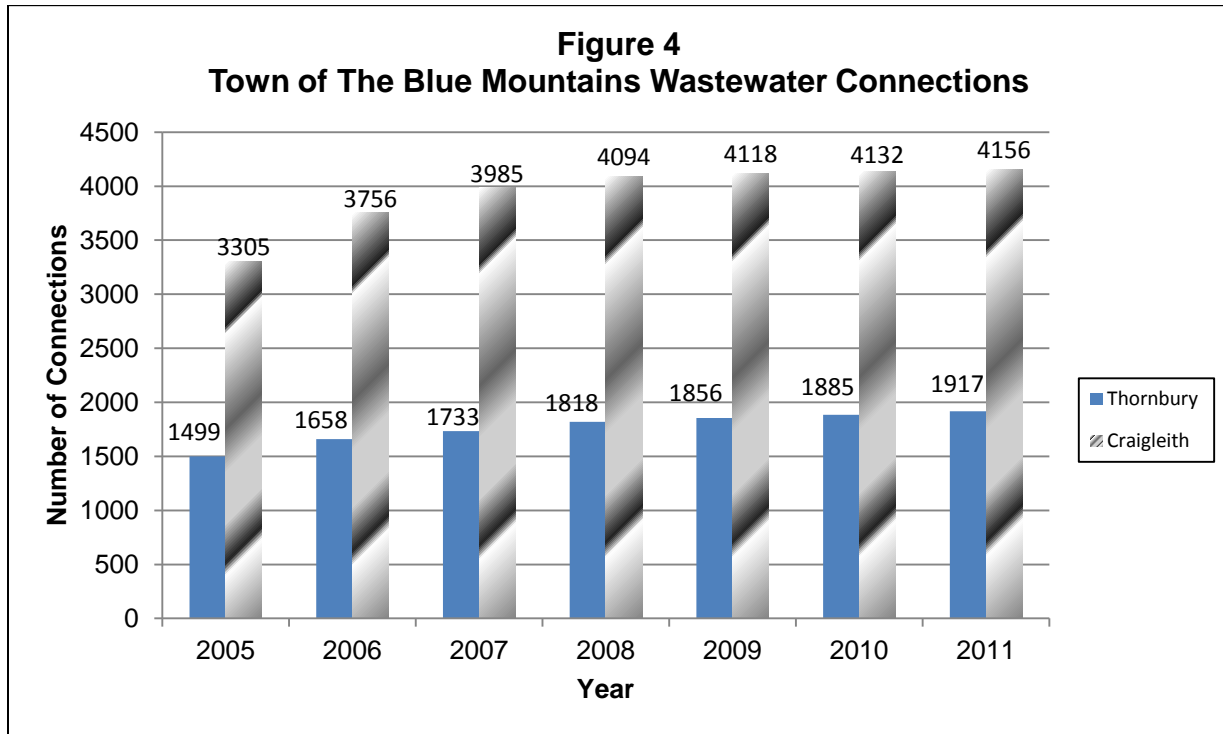


Figure 5 illustrates the 2011 unit capacity for the Thornbury WWTP. Of the total design capacity (4,423 units), 2,423 units are allocated and 519 units are reserved. This leaves 1,481 available units.

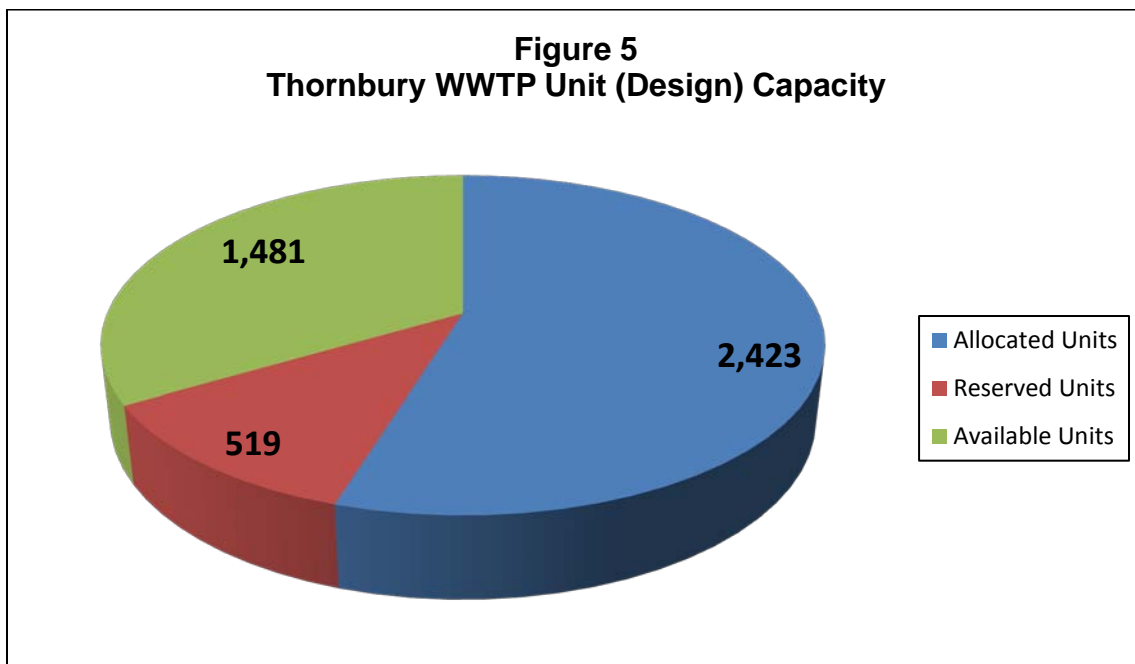


Figure 6 illustrates the 2011 unit capacity for the Craigleith WWTP. Of the total built capacity (12,493 units), 4,516 units are allocated and 3,187 units are reserved. This leaves 4,790 available units.

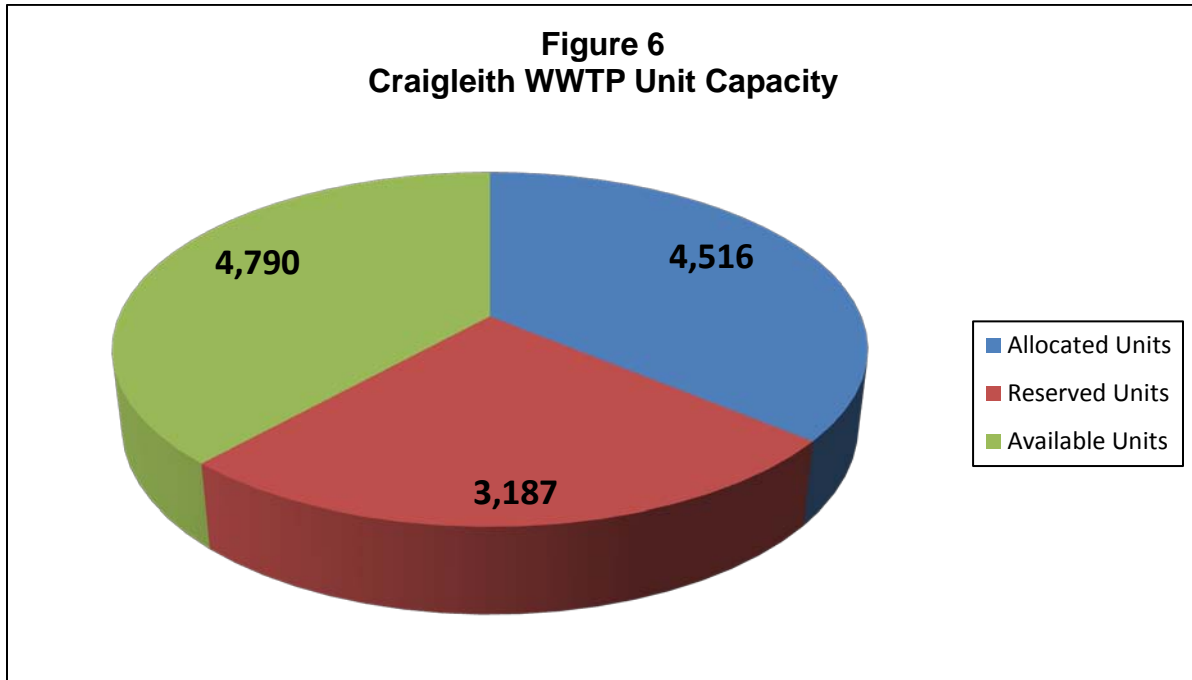
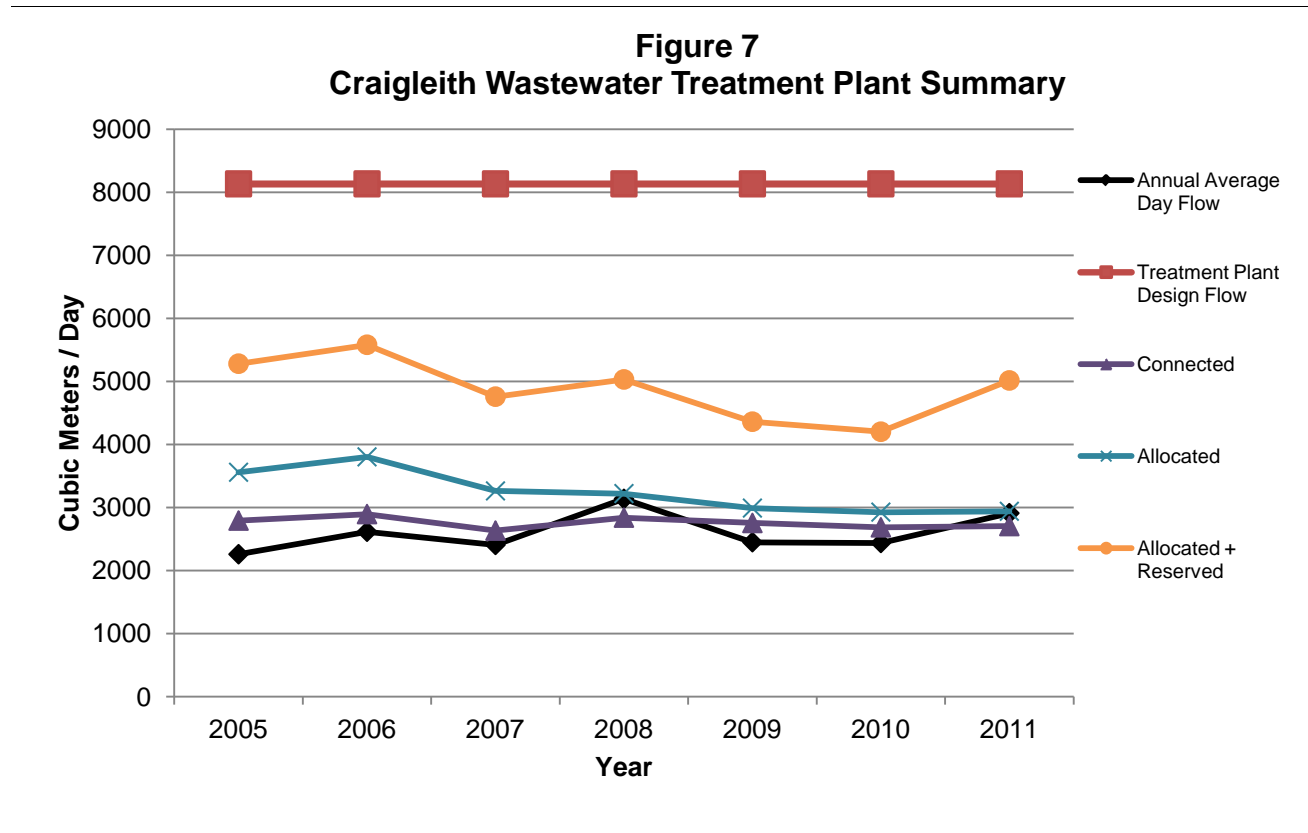
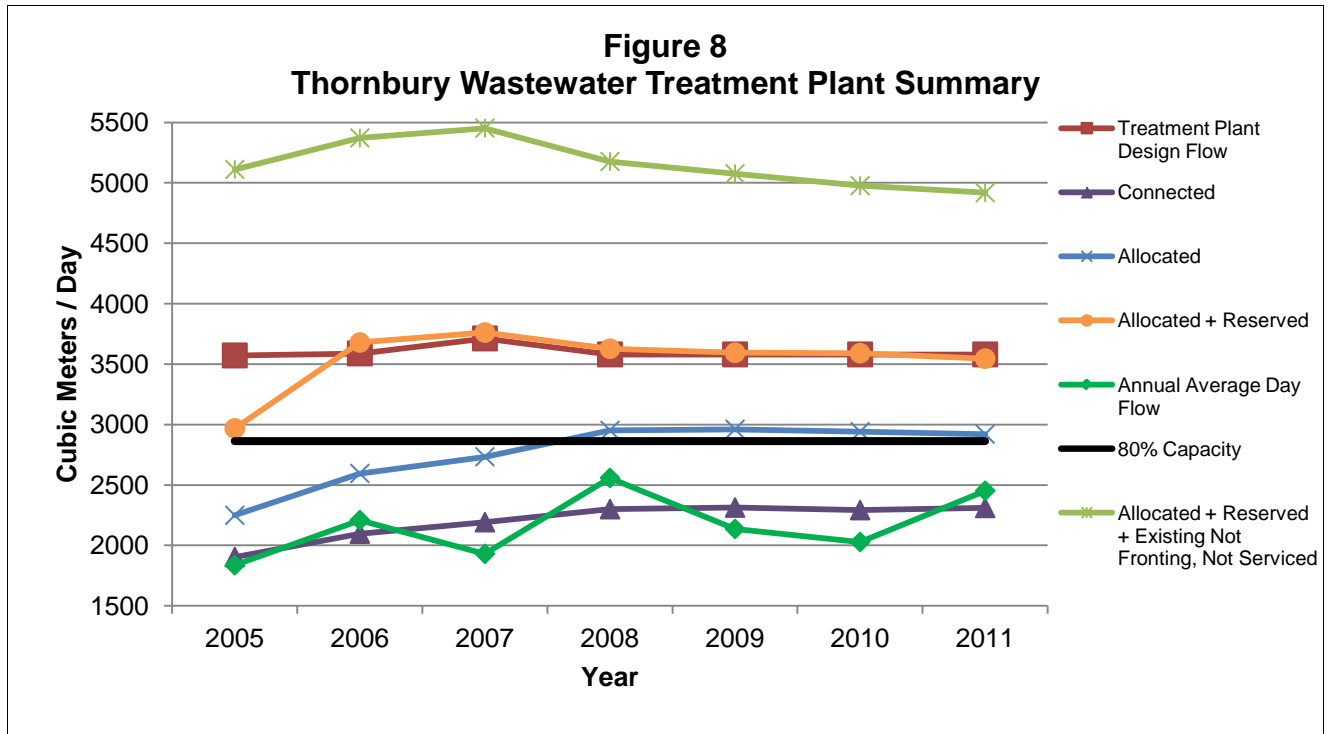


Figure 7 illustrates that the Craigleith Wastewater Treatment Plant has more than enough capacity to treat the waste being received from the existing wastewater connections in the Craigleith area as well as from allocated and reserved future connections. The Town currently has enough capacity to service an additional 4,790 units with wastewater in the Craigleith area.



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 29 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 8 illustrates that the Thornbury WWTP is reaching capacity based solely on the number of allocated and reserved units. Wastewater allocations and reservations in the Thornbury area are being closely monitored.

The 2011 average daily influent flow is 2,452 m³/day, which is 46% 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 2020.



The Water and Wastewater Capacity Assessment – 2011 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 Water and Wastewater Capacity Assessment – 2011 Year End Report has been prepared in conjunction with the Town’s Building and Planning Department.

Staff recommend that the Water and Wastewater Capacity Assessment – 2011 Year End Report be sent to the Grey County Planning Department.

C. The Blue Mountains’ Strategic Plan

The Water and Wastewater Capacity Assessment – 2011 Year End Report furthers the Town’s Strategic Goal #2, “Addressing the Town’s municipal infrastructure needs”.

D. Environmental Impacts

The Water and Wastewater Capacity Assessment – 2011 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 Water and Wastewater Capacity Assessment – 2011 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 – Water and Wastewater Capacity Assessment – 2011 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 2011. 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.

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

2011 Average daily demand is 4,174 m³/day. The 5 year rolling average is 0.610 m³/unit/day.

2011 Maximum daily demand is 8,416 m³/day. The 5 year rolling average is 1.259 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 (13,929 units).

3. Total Water Connections

A total flow of 9,474 m³/day (7,525 units) is currently connected to the water system.

54% of the water supply is currently being used leaving 46% of the water supply available for future connections.

4. Total Water Allocations

A total flow of 10,597 m³/day (8,417 units) is currently connected or allocated to the water system.

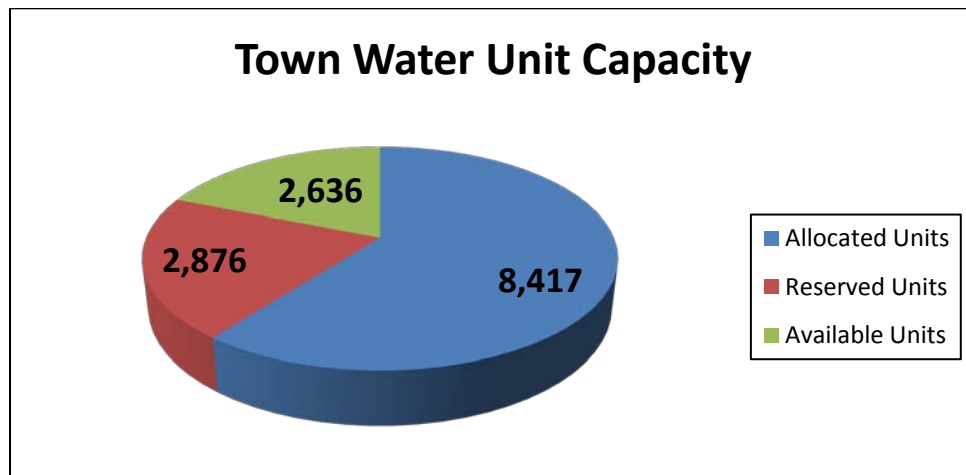
60% of the water supply has been allocated to those units that can connect (units that front the service but are not connected) or have been committed (approved and existing development). 40% (5,512 units) of the water supply available for future allocation.

5. Total Water Reservations

A total flow of 3,756 m³/day (2,876 units) is currently reserved.

21% 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.

The current available capacity of the Town's water supply is 3,319 m³/day (2,636 units).



Thornbury Wastewater Treatment Plant

1. Average Day Flow and Peak Day Flow

2011 Average day flow is 2,452 m³/day. The 5 year rolling average is 1.205 m³/unit/day.

2011 Peak day flow is 7,178 m³/day. The 5 year rolling average is 4.260 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 2,971 units can be serviced by the Thornbury WWTP.

3. Total Wastewater Connections

A total flow of 2,310 m³/day (1,917 units) is currently connected to the Thornbury WWTP.

65% of the WW Plant's capacity is being used leaving 35% (1,054 units) of the WW Plant's capacity available for future connections.

4. Total Wastewater Allocations

A total flow of 2,920 m³/day (2,423 units) is currently connected or allocated to the Thornbury wastewater system.

82% of the Thornbury WWTP capacity 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% (548 units) of the Thornbury WWTP capacity available for future allocation.

5. Total Wastewater Reservations

A total flow of 625 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.

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. The Phase 1A expansion will increase the capacity of the Plant from the current 3,580 m³/day (2,971 units) to 5,330 m³/day (4,423 units). The Town has committed to finalize design and commence construction of the expansion of the Plant the year after the Plant reaches 80% of its built capacity (2,864 m³/day or 2,377 units). Until such time as the Plant reaches 80% capacity (estimated mid 2020), the Town will utilize the Phase 1A Plant design capacity as the reserved capacity. Although the increased design capacity will produce enough Plant capacity for an additional 1,750 m³/day (1,452 units), the current available capacity at the Thornbury Plant is 350 m³/day (29 units).

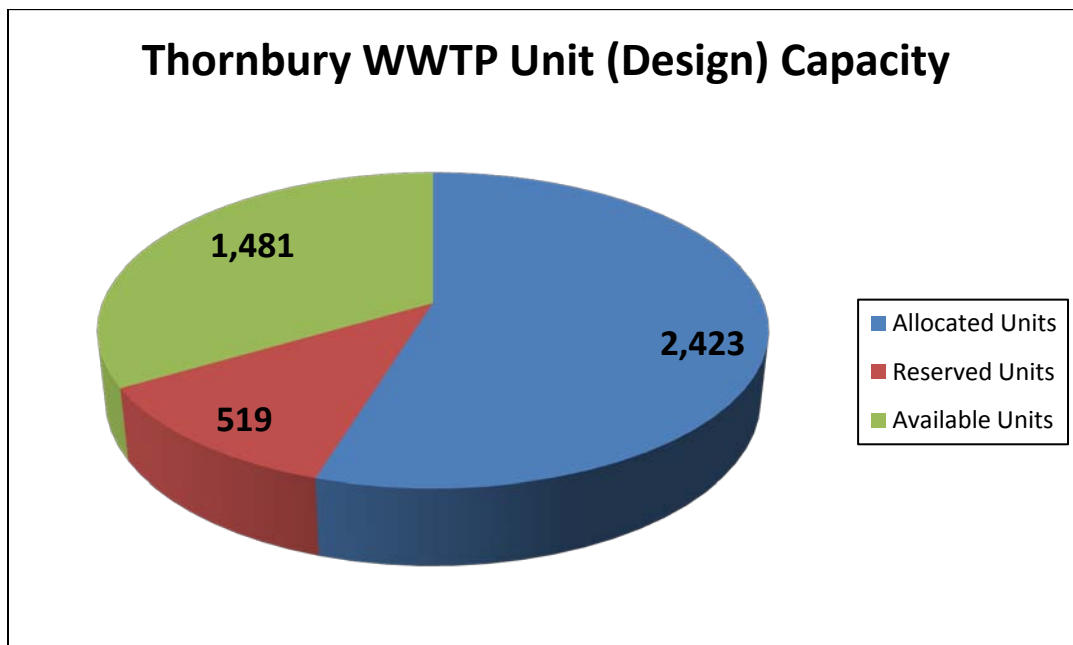
6. Future Projections

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

Estimates contained in the 2011 year end report include:

1. Connected units are estimated at 52 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 45 units that will be registered and/or given Plant capacity per year

It is noted that market conditions and other economic factors will influence the actual connections and actual allocations per year. In this regard, all year end reports will review year end data and update the estimated future projections. Based on 2011 estimates, the Plant will reach 80% capacity in 2020. As indicated, the Town has committed to commencing construction of the expansion of the Plant the year after the Plant reaches 80% of its built capacity (2,864 m³/day or 2,377 units).



Craigeith Wastewater Treatment Plant

1. Average Day Flow and Peak Day Flow

2011 Average day flow is 2,910 m³/day. The 5 year rolling average is 0.651 m³/unit/day.

2011 peak day flow is 9,901 m³/day. The 5 year rolling average is 2.476 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 12,493 units can be serviced by the Craigeith WWTP.

3. Total Wastewater Connections

A total flow of 2,706 m³/day (4,156 units) is connected to the Craigeith WWTP.

33% of the WW Plant's capacity is being used leaving 67% of the WW Plant's capacity available for future connections.

4. Total Wastewater Allocations

A total flow of 2,940 m³/day (4,516 units) is connected and allocated to the Craigeith wastewater system.

36% of the Craigeith WWTP capacity 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). 64% of the Craigeith WWTP capacity is available for future allocation.

5. Total Wastewater Reservations

A total flow of 2,075 m³/day (3,187 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 allocation capacity at the Craigeith Plant is 3,118 m³/day (4,790 units).

