

**STAFF REPORT:**      **Engineering & Public Works Department**



**REPORT TO:**            **Infrastructure and Recreation Committee**

**MEETING DATE:**    **May 10, 2011**

**REPORT NO.:**        **EPW.11.036**

**SUBJECT:**            **Water and Wastewater Capacity  
Assessment – 2010 Year End Report**

**PREPARED BY:**    **John Caswell, Manager of Water &  
Wastewater Services/Asst. Director**

## **A. Recommendations**

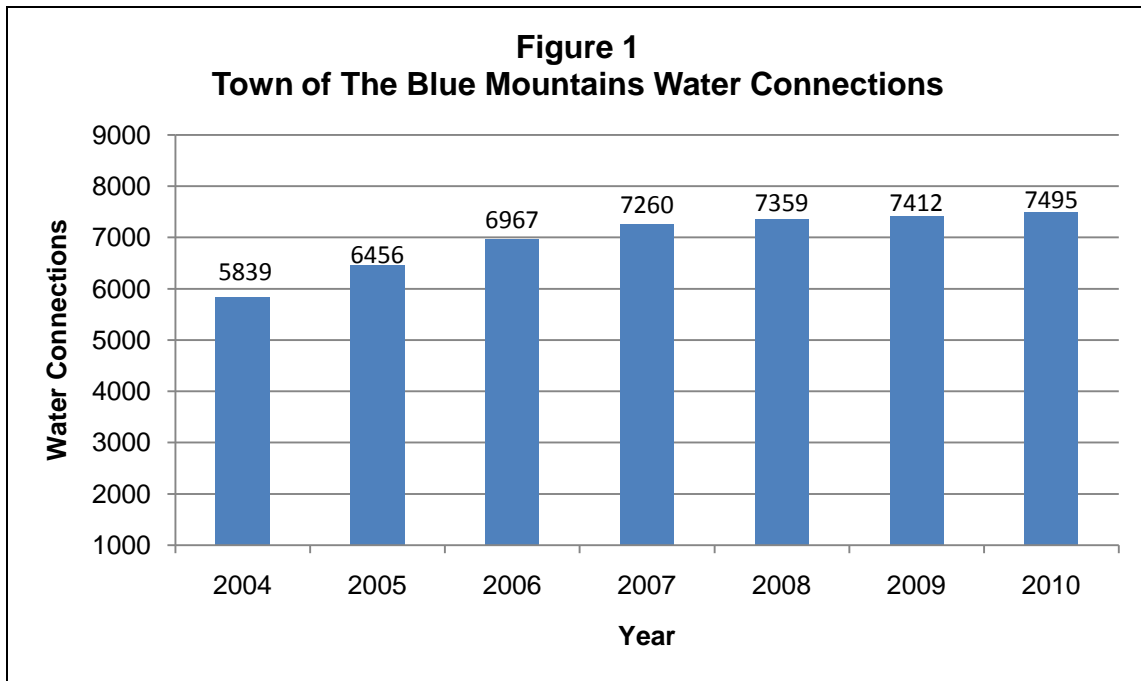
THAT Council approve forwarding the 2010 Year End Report to the Grey County Planning Department as outlined in Report EPW.11.036 "Water and Wastewater Capacity Assessment – 2010 Year End Report."

## **B. Background**

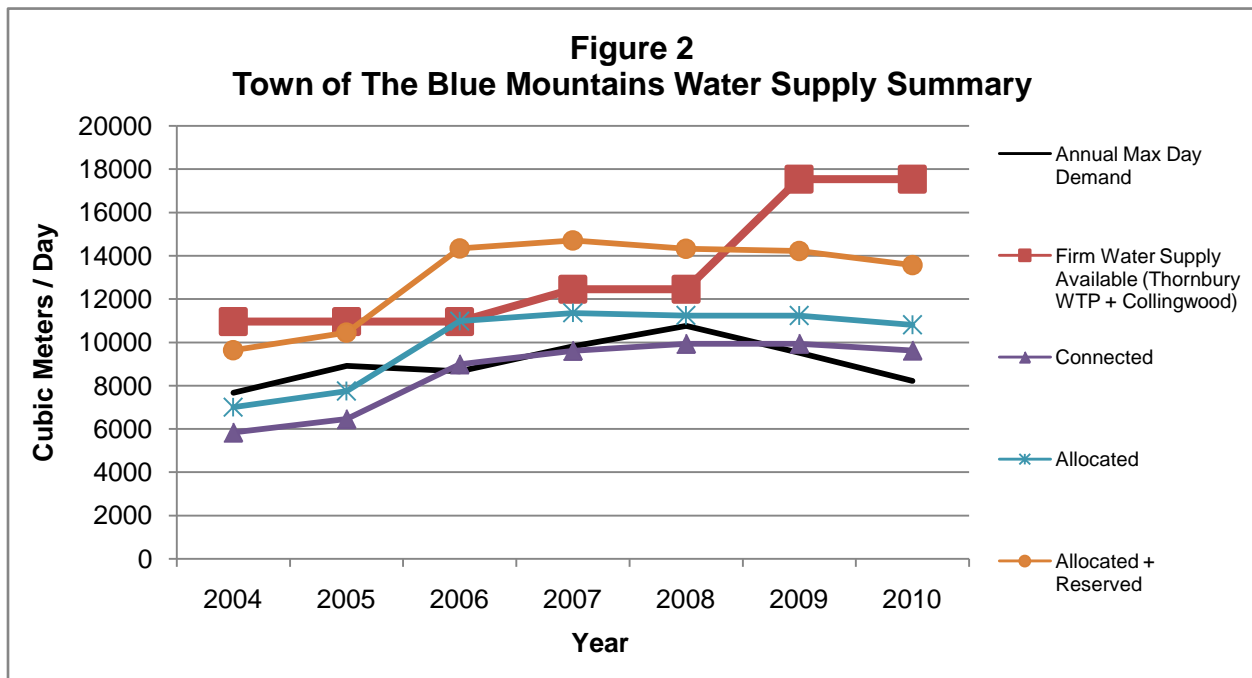
The Town is required to annually complete a year end water and wastewater capacity assessment report and provide the report to the upper tier government being Grey County Planning Department. This report is used as a monitoring tool for the provision of allocation and reservation of water and wastewater capacity for new development and also provides current information on flows from existing development. The Water and Wastewater Capacity Assessment – 2010 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 2004 to 2010. From 2009 to 2010 the number of water connections increased by 83 units for a total of 7,495 connected 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 2 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 3,094 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 2010 reporting period.

### WASTEWATER

The number of wastewater connections within the Town of The Blue Mountains has increased steadily over the past 5 years. Figure 3 provides a historical breakdown of the number of wastewater connections within the municipality from 2004 to 2010. From 2009 to 2010 the number of wastewater connections in the Thornbury area increased by 29 units for a total of 1,885 connected units. In the Craigleith area the number of wastewater connections increased by 14 units for a total of 4,132 connected units.

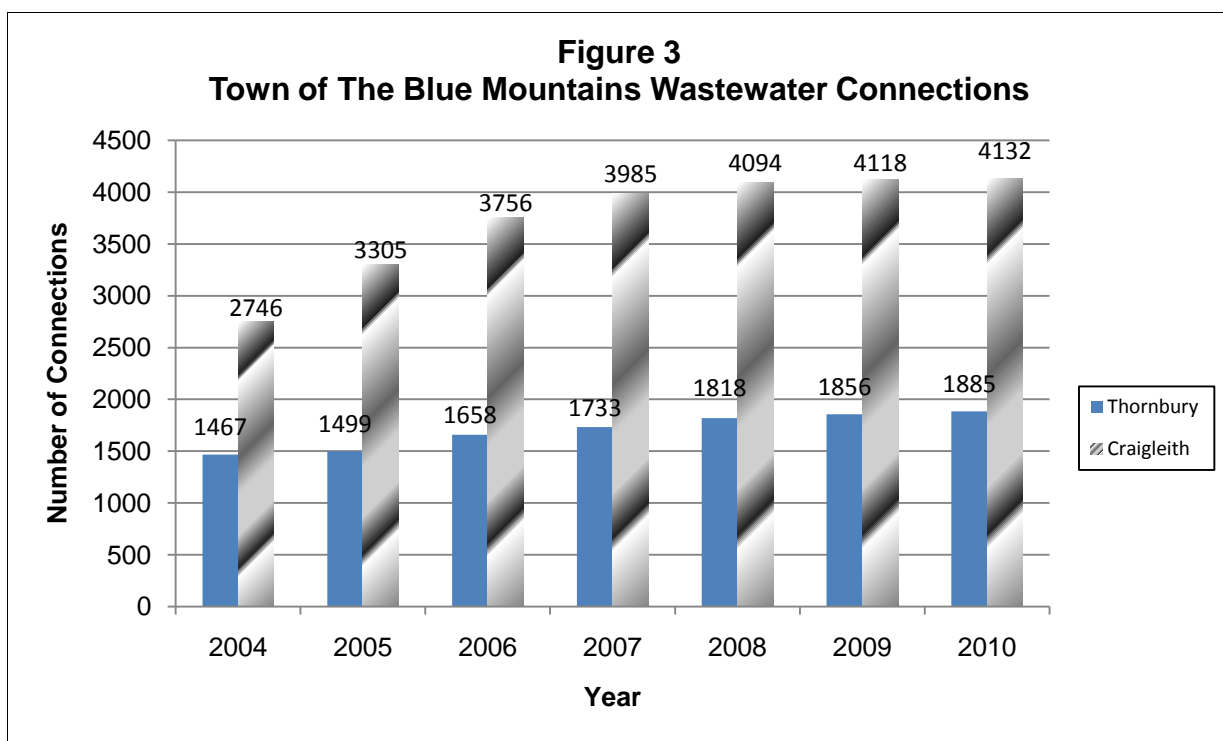
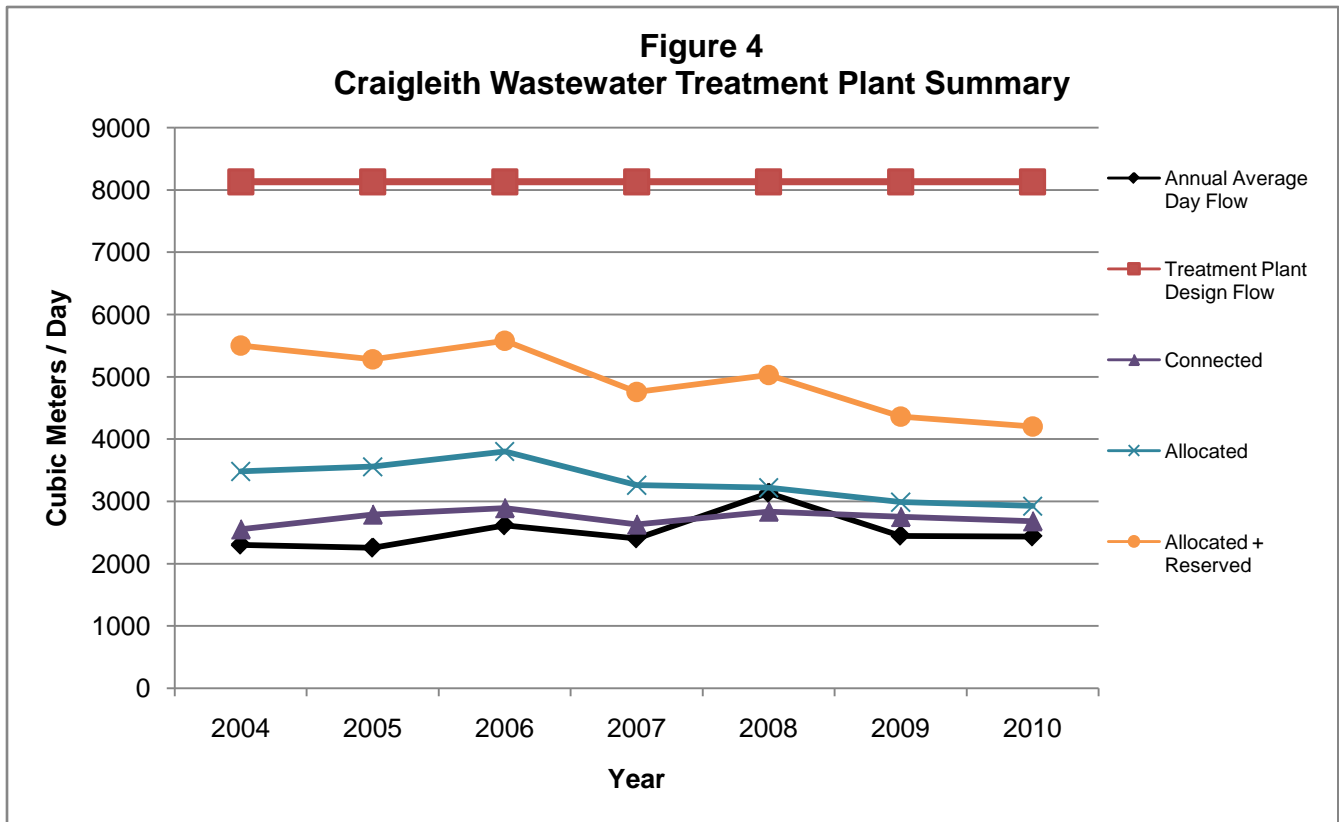
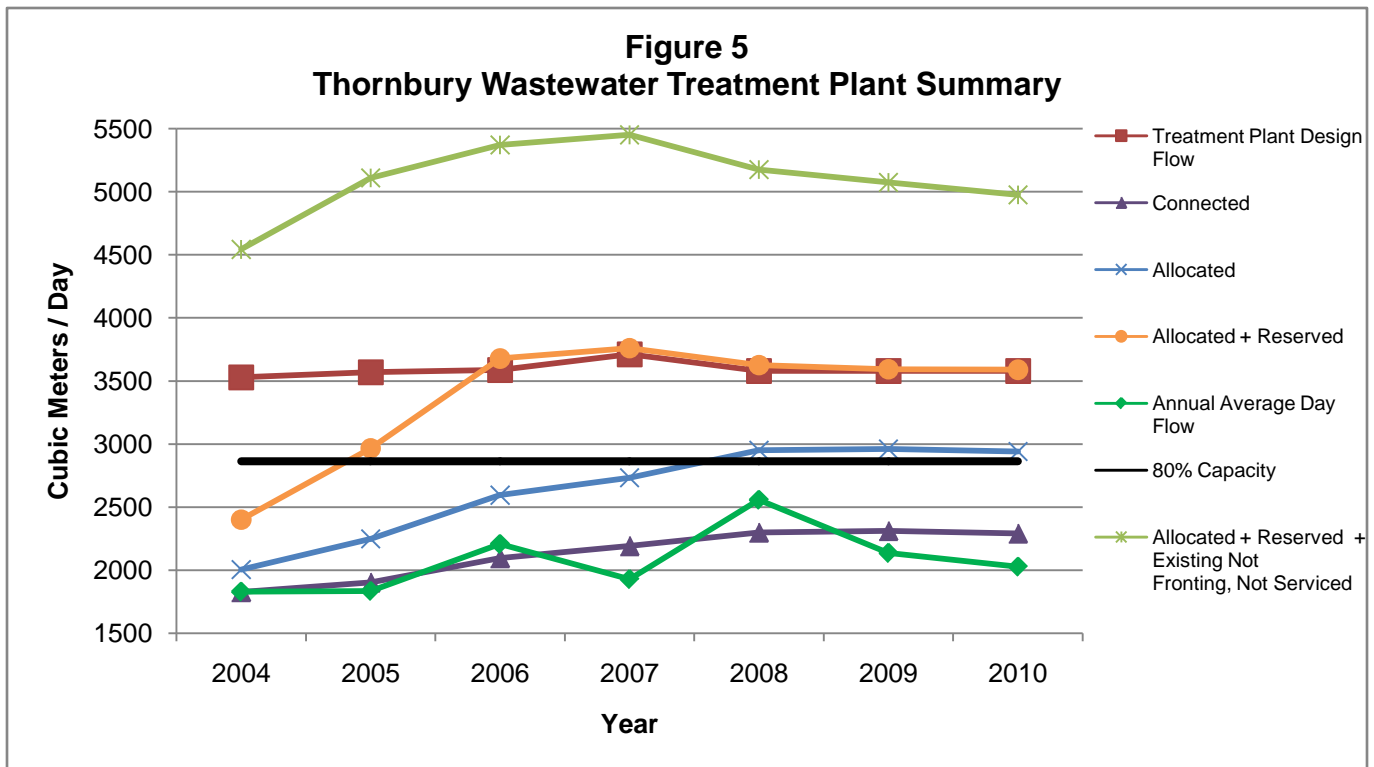


Figure 4 illustrates that the Craigleith Wastewater Treatment Plant has more than enough capacity to treat the waste being received from the existing wastewater connections in the Craigleith area as well as from allocated and reserved future connections. The Town currently has enough capacity to service an additional 6,047 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 cannot treat all of the future additional waste flows that have been allocated and reserved. Figure 5 illustrates that the built capacity at the Thornbury WWTP cannot support the reservation of additional units. 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. Wastewater allocations and reservations in the Thornbury area are being closely monitored. At current influent rates, the Thornbury WWTP is expected to reach 80% capacity in mid 2015.



The Water and Wastewater Capacity Assessment – 2010 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 – 2010 Year End Report has been prepared in conjunction with the Town’s Building and Planning Department.

Staff recommend that the report be sent to the Grey County Planning Department for their review.

**C. The Blue Mountains’ Strategic Plan**

The Water and Wastewater Capacity Assessment – 2010 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 – 2010 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 – 2010 Year End Report forecasts the need for capital expansions in both water and wastewater.

## **F. Attached**

Attachment #1 – Water and Wastewater Capacity Assessment – 2010 Year End Report Executive Summary.

Respectfully submitted,

***John Caswell***

John Caswell  
Manager, Water & Wastewater Services  
Engineering & Public Works  
Office: 519-599-3131 Ext.226  
Fax: 519-599-3664  
[icaswell@thebluemountains.ca](mailto:icaswell@thebluemountains.ca)

***Reg Russwurm***

Reg Russwurm  
Director, Engineering and Public Works  
Office: 519-599-3131  
Fax: 519-599-3664  
[rrusswurm@thebluemountains.ca](mailto:rrusswurm@thebluemountains.ca)

## Executive Summary

This report provides an assessment of water and wastewater treatment systems capacity within the Town of The Blue Mountains (Town) for 2010. 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, water booster stations, 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)**

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### **1. Average Day and Maximum Day Water Demands**

The average daily demand for water for 2010 is 4,485 m<sup>3</sup>/day. The 5 year rolling average is 0.631 m<sup>3</sup>/unit/day.

The maximum daily demand decreased in 2010 to 8,221 m<sup>3</sup>/day. The 5 year rolling average decreased in 2010 to 1.284 m<sup>3</sup>/unit/day.

### **2. Total Water Supply**

The maximum installed capacity available from the Thornbury WTP is 13,536 m<sup>3</sup>/day. The supplemental supply from the Town of Collingwood is 4,000 m<sup>3</sup>/day. Therefore, the total supply available is 17,536 m<sup>3</sup>/day.

Using the 1.284 m<sup>3</sup>/unit/day (as identified above) a total of 13,657 units can be supplied with water.

### **3. Total Water Connections**

A total of 7,495 units are connected to the water system. This represents a total flow of 9,624 m<sup>3</sup>/day.

Based on the 7,495 connections, 55% of the water supply is being used leaving 45% of the water supply available for future connections.

### **4. Total Water Allocations**

A total of 8,415 units are connected or allocated to the water system. This represents a total flow of 10,805 m<sup>3</sup>/day.

Based on this allocation 62% 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). This leaves 38% (5,190 units) of the water supply available for future allocation.

### **5. Total Water Reservations**

A total of 2,148 units are reserved in 2010. This represents a total flow of 2,758 m<sup>3</sup>/day.

This reservation represents 16% of the total water supply available. The units in this category include those units that are existing but not fronting and not serviced as well as those lands designated that currently have draft plan approval under the Planning Act.

The current available capacity of the Town's water supply is 3,094 units or 3,973 m<sup>3</sup>/day.

# Thornbury Wastewater Treatment Plant

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## 1. Average Day Flow and Peak Day Flow

The 2010 average day flow has decreased to 2,028 m<sup>3</sup>/day. The 5 year rolling average is 1.216 m<sup>3</sup>/unit/day.

The 2010 peak day flow decreased to 7,366 m<sup>3</sup>/day. The 5 year rolling average decreased slightly to 4.531 m<sup>3</sup>/unit/day.

## 2. Total Wastewater Plant Capacity

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

Using the 1.216 m<sup>3</sup>/unit/day (as identified above) a total of 2,944 units can be serviced by the Thornbury WWTP.

## 3. Total Wastewater Connections

A total of 1,885 units are connected to the Thornbury WWTP. This represents a total flow of 2,292 m<sup>3</sup>/day.

Based on these connections 64% of the wastewater Plant's capacity is being used leaving 36% (1,060 units) of the Wastewater Plant's capacity available for future connections.

## 4. Total Wastewater Allocations

A total of 2,419 units are allocated to the Thornbury wastewater system (including connected units). This represents a total flow of 2,941 m<sup>3</sup>/day.

Based on this allocation 82% of the Thornbury WWTP capacity has been allocated to those units that can connect (lands that front the service but are not yet connected) or have been committed capacity (through an agreement). This leaves 525 units (18%) of the Thornbury WWTP capacity available for future allocation.

## 5. Total Wastewater Reservations

A total of 534 units are reserved for the Thornbury WWTP. This represents a total flow of 649 m<sup>3</sup>/day. The units in this category only includes *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 allocation of new units or reserved units must only proceed under strict control. The Town shall adopt a policy to determine how and when the allocation of the available 525 units will be distributed prior to Plant expansion.

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 m<sup>3</sup>/day (2,944 units) to 5,330 m<sup>3</sup>/day (4,383 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 current capacity (or 2,355 units). Until such time as the Plant reaches 80% capacity (estimated mid 2015), the Town will utilize the Phase 1A Plant design capacity as the reserved capacity. Therefore, although there is currently no Plant capacity available, the increased design capacity will produce enough Plant capacity for 1,430 units (1,739 m<sup>3</sup>/day).

## **6. Future Projections**

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

Estimates contained in the 2010 yearend report include:

1. Connected units are estimated at 76 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 2010 estimates, the Plant will reach 80% capacity in mid 2015. 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 (or 2,355 units).

# **Craigeith Wastewater Treatment Plant**

## **1. Average Day Flow and Peak Day Flow**

The 2010 average day flow has decreased to 2,438 m<sup>3</sup>/day. The 5 year rolling average has decreased slightly over the previous years to 0.650 m<sup>3</sup>/unit/day.

The 2010 peak day flow decreased to 8,256 m<sup>3</sup>/day. The 5 year rolling average is 2.415 m<sup>3</sup>/unit/day.

## **2. Total Wastewater Plant Capacity**

The Craigeith WWTP has an average day flow capacity of 8,133 m<sup>3</sup>/day and a peak day flow capacity of 19,640 m<sup>3</sup>/day.

Using the 0.650 m<sup>3</sup>/unit/day (as identified above) a total of 12,512 units can be serviced by the Craigeith WWTP.

## **3. Total Wastewater Connections**

A total of 4,132 units are connected to the Craigeith WWTP. This represents a total flow of 2,686 m<sup>3</sup>/day.

Based on these connections 33% of the wastewater Plant's capacity is being used leaving 67% of the wastewater Plant's capacity available for future connections.

## **4. Total Wastewater Allocations**

A total of 4,503 units are allocated to the Craigeith wastewater system (including connected units). This represents a total flow of 2,927 m<sup>3</sup>/day.

Based on this allocation 36% of the Craigeith WWTP capacity 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). This leaves 64% of the Craigeith WWTP capacity available for future allocation.

## **5. Total Wastewater Reservations**

A total of 1,962 units are reserved for the Craigeith WWTP in 2010. This represents a total flow of 1,275 m<sup>3</sup>/day.

This reservation represents 16% of the total available capacity at the Craigeith WWTP. The units in this category include those units that are existing but not fronting and not serviced as well as those lands designated for approval and currently have draft plan approval under the Planning Act.

Currently, there is ample Plant capacity available at the Craigeith Plant with 6,047 units or 3,931 m<sup>3</sup>/day free for allocation.