

STAFF REPORT: Engineering & Public Works Department



REPORT TO: Council
MEETING DATE: July 12, 2010
REPORT NO.: EPW.10.042
**SUBJECT: Water and Wastewater Capacity
 Assessment – 2009 Year End Report**
**PREPARED BY: John Caswell, Manager of Water &
 Wastewater Services/Asst. Director**

A. Recommendations

THAT Council receive the Staff Report EPW.10.042 entitled Water and Wastewater Capacity Assessment – 2009 Year End Report for their information.

AND FURTHER THAT Council approve forwarding the 2009 Year End Report to the Grey County Planning Department as outlined in Report EPW.10.042 “Water and Wastewater Capacity Assessment- 2009 Year End Report.”

B. Background

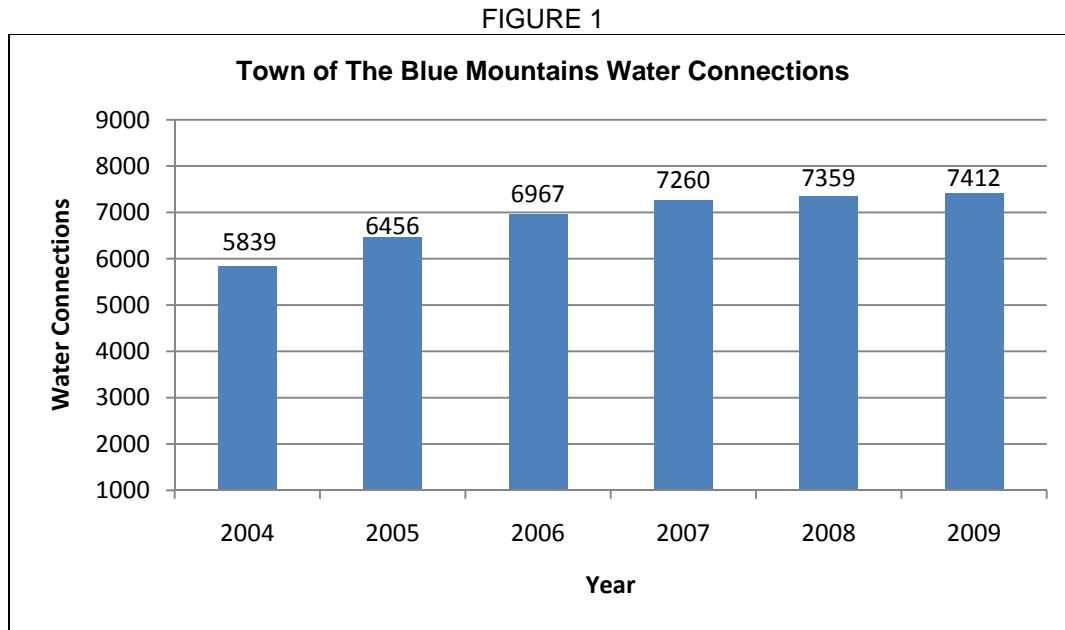
The Town is required to annually complete a year end water and wastewater capacity assessment report and provide the report to the upper tier government being Grey County Planning Department. This report is used as a monitoring tool for the provision of allocation and reservation of water and wastewater capacity for new development and also provides current information on flows from existing development.

The Water and Wastewater Capacity Assessment – 2009 Year End Report was prepared by Town staff.

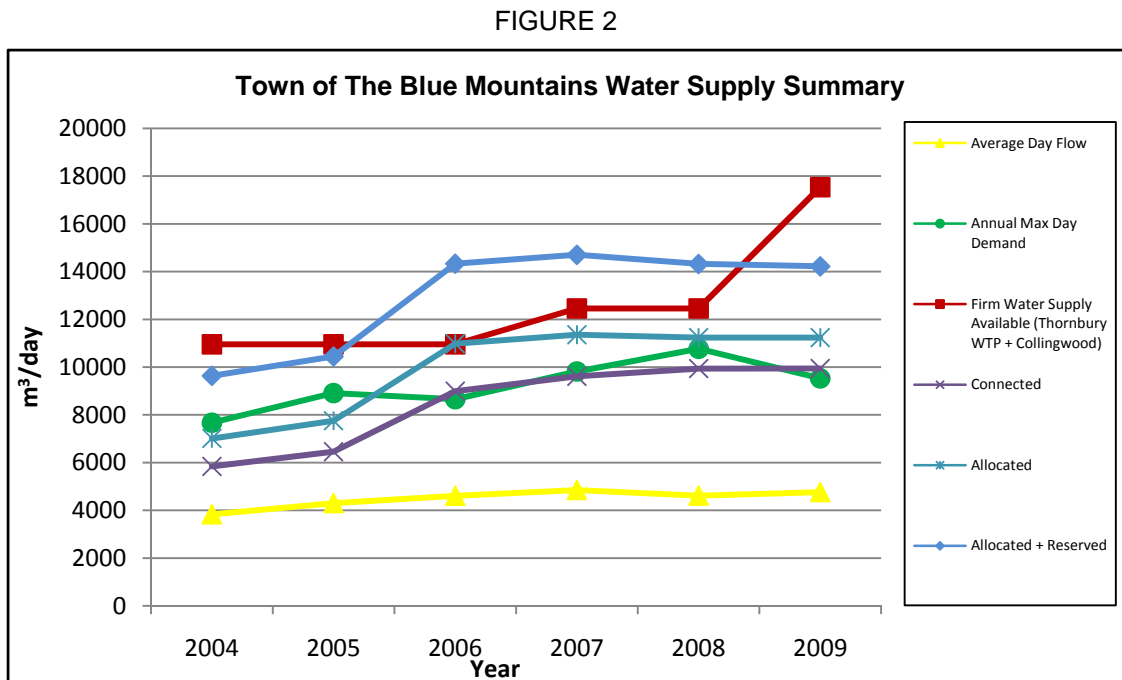
In 2008, a revised method of counting and tracking all water and sewer units was developed by the Town. Geographic Information Systems technology (GIS) was used to record the total number of water units and sewer units for each and every property in The Blue Mountains. These total units were then divided among one or more “development categories” based on connection status (connected, can connect, committed, reserved, existing not fronting, designated with proposal, designated no proposal and future development). Using the GIS technology, data within each of these categories was accurately displayed, maintained and analysed as either maps (display format) or spreadsheet (data format) interchangeably. In 2009, this format was continued.

WATER SUPPLY

The number of water connections within the Town of The Blue Mountains has increased variably over the past 5 years. The following graph provides a historical breakdown of the number of water connections within the municipality from 2004 to 2009.



The Town's Water Supply, including supplemental supply from the Town of Collingwood, continues to adequately meet the Town's water demands. The following graph 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 (Year End Report page 34).



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 2009 reporting period.

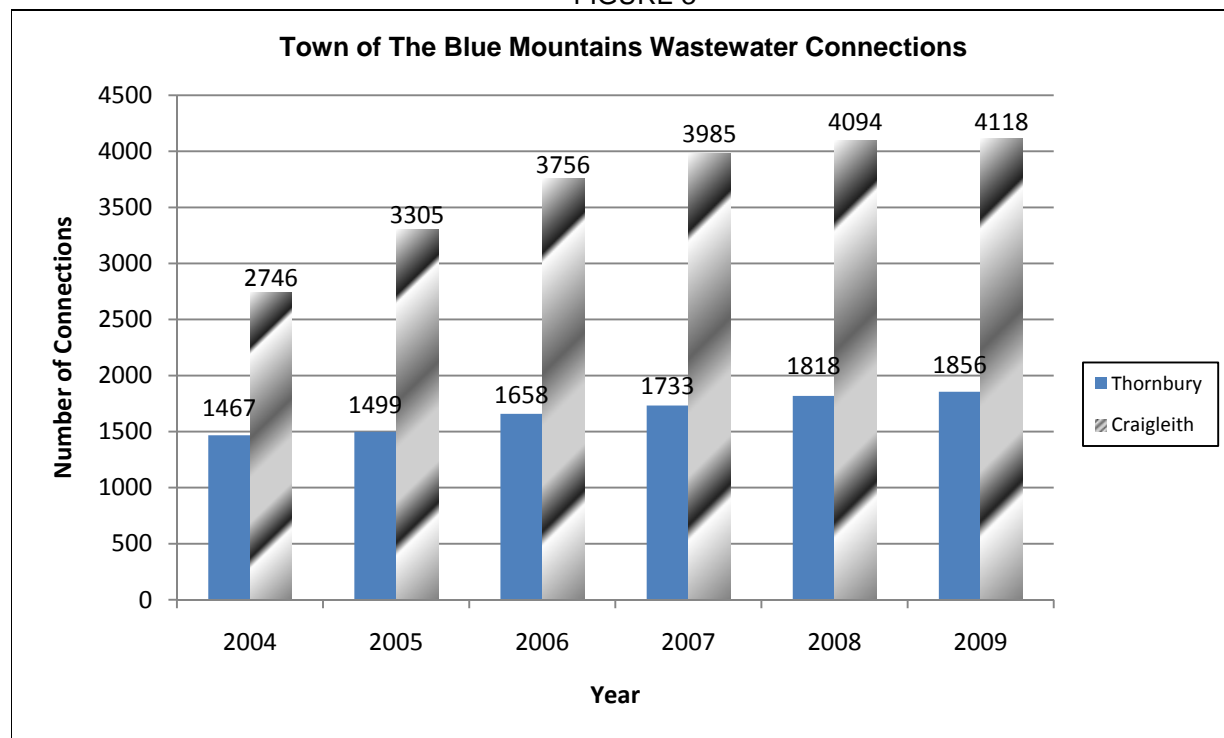
The following works are proposed:

- The need for additional water storage was identified in the Master Servicing Plan. Hydraulic Water Modeling is required to confirm the need and size for additional storage. Once the model is finalized, appropriate studies will be undertaken to determine the final site for reservoirs and lead to construction and implementation.

WASTEWATER

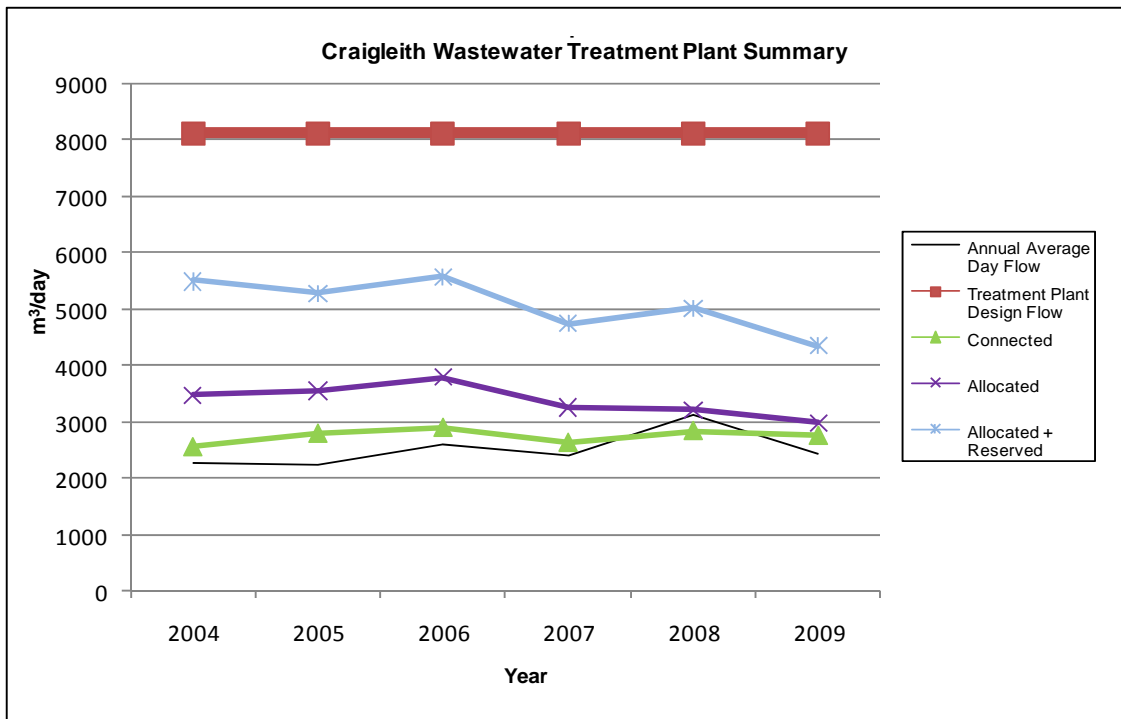
The number of wastewater connections within the Town of The Blue Mountains has increased steadily over the past 5 years. The following graphs provide a historical breakdown of the number of wastewater connections within the municipality from 2004 to 2009.

FIGURE 3



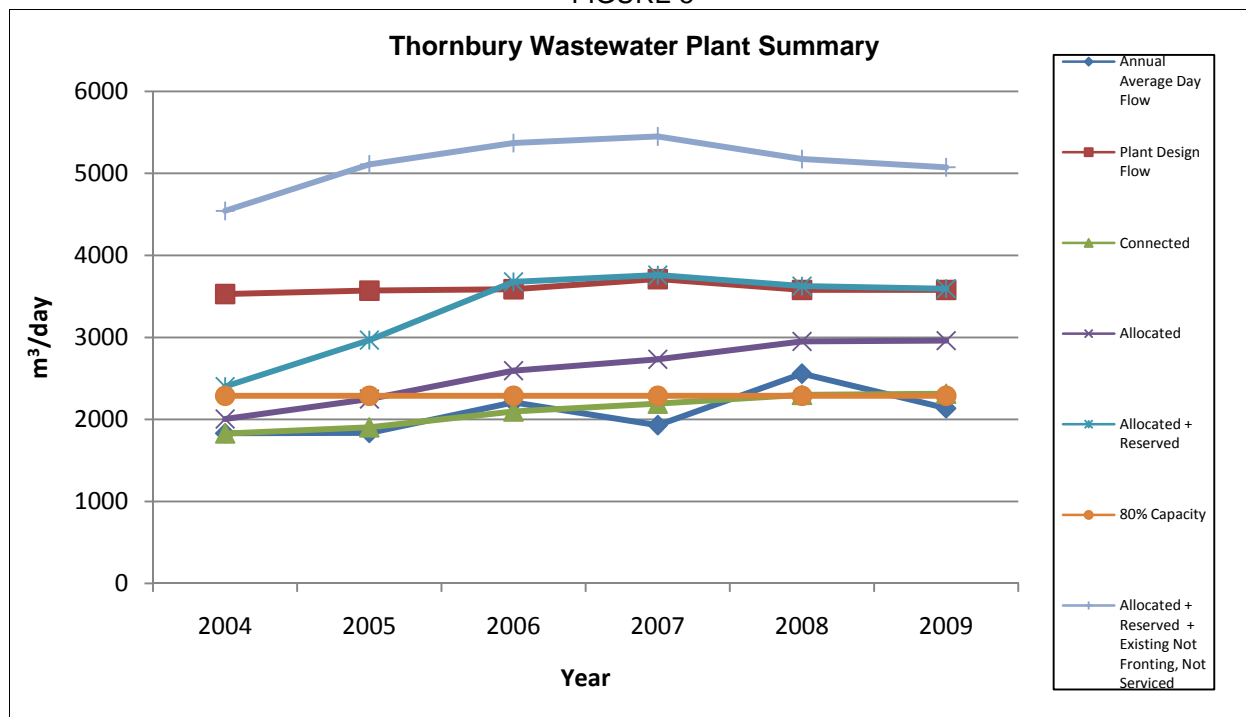
The Craigleith Wastewater Treatment Plant has more than enough capacity to treat the waste being received from the existing wastewater connections in the Craigleith area as well as from allocated and reserved future connections. A future phase is anticipated to accommodate full build out development.

FIGURE 4



Although the Thornbury Wastewater Treatment Plant 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. However, when the plant capacity reaches 80%, the Town is committed to expanding the Thornbury Wastewater Treatment Plant in order to accommodate development and system growth. The Town has received a Certificate of Approval from the Ministry of the Environment for an increase of ___ m³/day. Wastewater allocations and reservations in the Thornbury area are being closely monitored.

FIGURE 5



Both the Thornbury Wastewater Treatment Plant and the Craigeith Wastewater Treatment Plant continue to achieve a high degree of suspended solids, BOD₅ and phosphorous removal. As a result, both facilities operate well within their Certificate of Approval design objectives.

The Executive Summary of the Water and Wastewater Capacity Assessment – 2009 Year End Report is provided as Attachment #1 to provide a summary of the report. The complete Water and Wastewater Capacity Assessment - 2009 Year End Report is available for review.

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 – 2009 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 – 2009 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. Budget Impact

None directly, however, the Water and Wastewater Capacity Assessment – 2009 Year End Report forecasts the need for capital expansions in both water and wastewater.

F. Attached

Attachment #1 – 2009 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 2009. Current Town water and wastewater supply and 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)

1. Average Day and Maximum Day Water Demands

The average daily demand for water for 2009 is 4,756 m³/day. The 5 year rolling average is 0.653 m³/unit/day.

The maximum daily demand decreased in 2009 to 9,526 m³/day. The 5 year rolling average decreased slightly in 2009 to 1.341 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 effective January 5, 2009. Therefore, the total supply available is 17,536 m³/day.

Using the 1.341 m³/unit/day (as identified above) a total of 13,077 units can be supplied with water.

3. Total Water Connections

A total of 7,412 units are connected to the water system. This represents a total flow of 9,939 m³/day.

Based on these connections 60% of the water supply is being used leaving 40% of the water supply available for future connections.

4. Total Water Allocations

A total of 8,379 units are connected or allocated to the water system. This represents a total flow of 11,236 m³/day.

Based on this allocation 64% 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 only 36% of the water supply available for future allocation.

5. Total Water Reservations

A total of 2,217 units are reserved in 2009. This represents a total flow of 2,973 m³/day.

This reservation represents 17% 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.

Of the 2,217 units that are reserved, allocation is available for 4,698 units. Therefore, after the 2,217 reserved units receive allocation 2,481 units remain available for allocation.

Thornbury Wastewater Treatment Plant

1. Average Day Flow and Peak Day Flow

The 2009 average day flow has decreased from 2,558 m³/day in 2008 to 2,136 m³/day. The 5 year rolling average is 1.246 m³/unit/day.

The 2009 peak day flow decreased from 8,652 m³/day in 2008 to 7,695 m³/day. The 5 year rolling average has decreased slightly from 2008 to 4.514 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.

Using the 1.246 m³/unit/day (as identified above) a total of 2,873 units can be serviced by the Thornbury WWTP.

3. Total Wastewater Connections

A total of 1,856 units are connected to the Thornbury WWTP. This represents a total flow of 2,313 m³/day.

Based on these connections 64% of the wastewater Plant's capacity is being used leaving 36% (1,017 units) of the Wastewater Plant's capacity available for future connections.

4. Total Wastewater Allocations

A total of 2,376 units are allocated to the Thornbury wastewater system (including connected units). This represents a total flow of 2,961 m³/day.

Based on this allocation 83% 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 497 units (17%) of the Thornbury WWTP capacity available for future allocation.

5. Total Wastewater Reservations

A total of 508 units are reserved for the Thornbury WWTP. This represents a total flow of 633 m³/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 497 units will be distributed prior to Plant expansion.

The Town has met with Grey County and the MOE to discuss enabling the Town to utilize existing available capacity at the Thornbury WWTP through a modified method of calculating capacity status (see section 4.3.3). The Town has planned and is actively pursuing the future expansion of the Plant. In this regard, the Town completed a comprehensive Environmental Assessment/Phase 4 Environmental Study Report (EA) in March 2006. This EA forms the foundation of the recently submitted C of A application 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 (2,873 units) to 5,330 m³/day (4,278 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 2,298 units). Until such time as the Plant reaches 80% capacity (estimated late 2014), the Town will utilize the Phase 1A Plant design capacity as the reserved

capacity. Therefore, with 2,376 allocated units and 508 reserved from the total capacity of 4,278, an additional 1,394 units are available now for reservation.

6. Future Projections

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

Estimates contained in the 2009 yearend report include:

1. Connected units are estimated at 82 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 future year end reports will review all year end data and update all estimated future projections. Based on 2009 estimates, the Plant will reach 80% capacity in late 2014. 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 2,298 units). (See Graph 4.6)

Craigleith Wastewater Treatment Plant

3. Average Day Flow and Peak Day Flow

The 2009 average day flow has decreased from 3,137 m³/day in 2008 to 2,450 m³/day. The 5 year rolling average has decreased slightly over the previous years to 0.669 m³/unit/day.

The 2009 peak day flow decreased from 12,609 m³/day in 2008 to 9,107 m³/day. The 5 year rolling average is 2.332 m³/unit/day.

4. Total Wastewater Plant Capacity

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

Using the 0.669 m³/unit/day (as identified above) a total of 12,157 units can be serviced by the Craigleith WWTP.

5. Total Wastewater Connections

A total of 4,118 units are connected to the Craigleith WWTP. This represents a total flow of 2,755 m³/day.

Based on these connections 33.9% of the wastewater Plant's capacity is being used leaving 66.1% of the wastewater Plant's capacity available for future connections.

6. Total Wastewater Allocations

A total of 4,470 units are allocated to the Craigleith wastewater system (including connected units). This represents a total flow of 2,991 m³/day.

Based on this allocation 36.8% of the Craigleith 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 63.2% of the Craigleith WWTP capacity available for future allocation.

7. Total Wastewater Reservations

A total of 2,048 units are reserved for the Craigleith WWTP in 2009. This represents a total flow of 1,370 m³/day.

This reservation represents 16.8% of the total available capacity at the Craigleith 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.

Of the 2,048 units that are reserved, allocation is available for 5,639 units. Therefore, 3,591 additional units can reserve capacity at the Craigleith WWTP for future development.