

March 20, 2024

# Town of The Blue Mountains East Pressure Zones Municipal Class Environmental Assessment



Platinum  
member

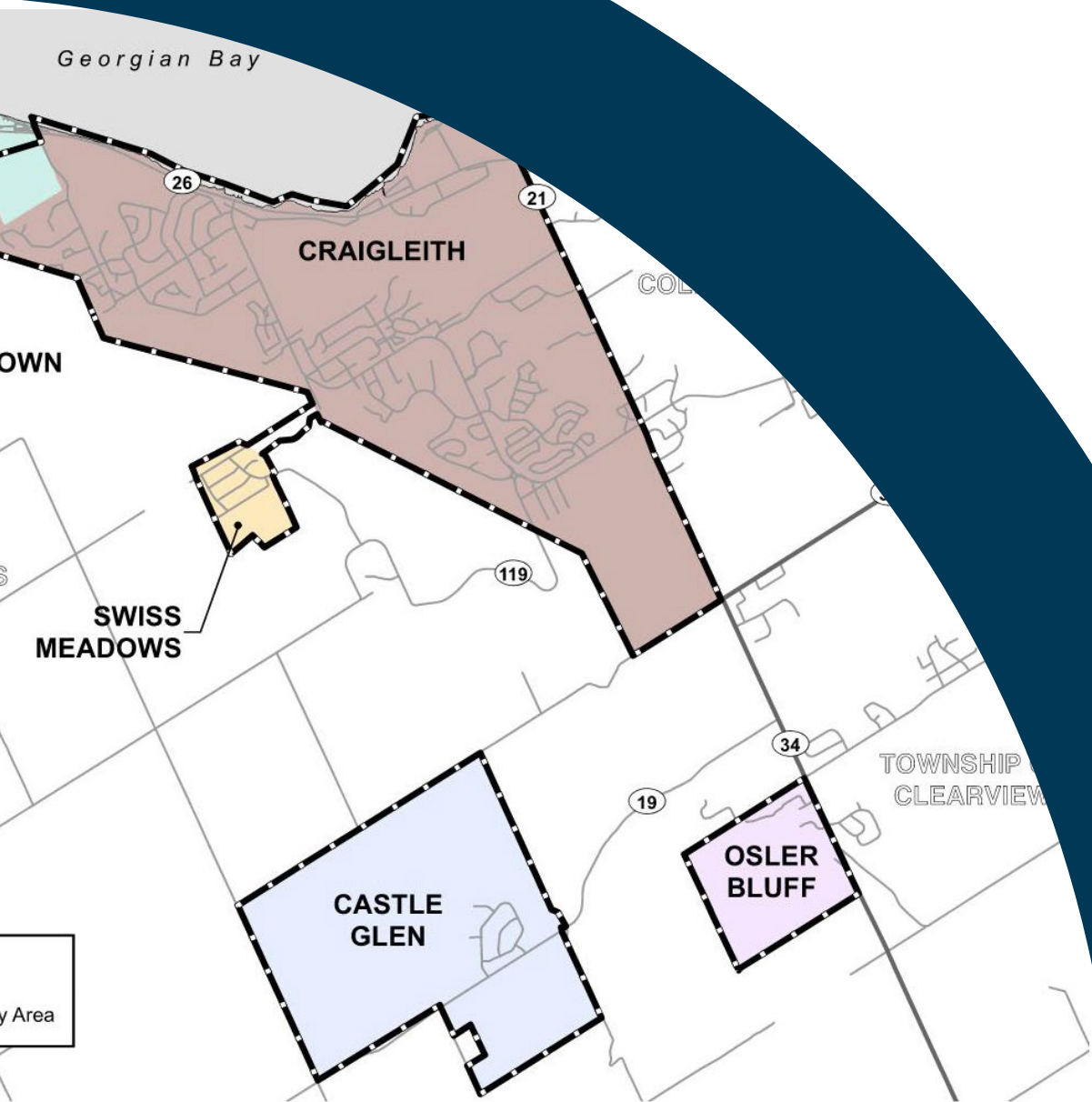


**J.L. Richards**

ENGINEERS · ARCHITECTS · PLANNERS



# Project Overview

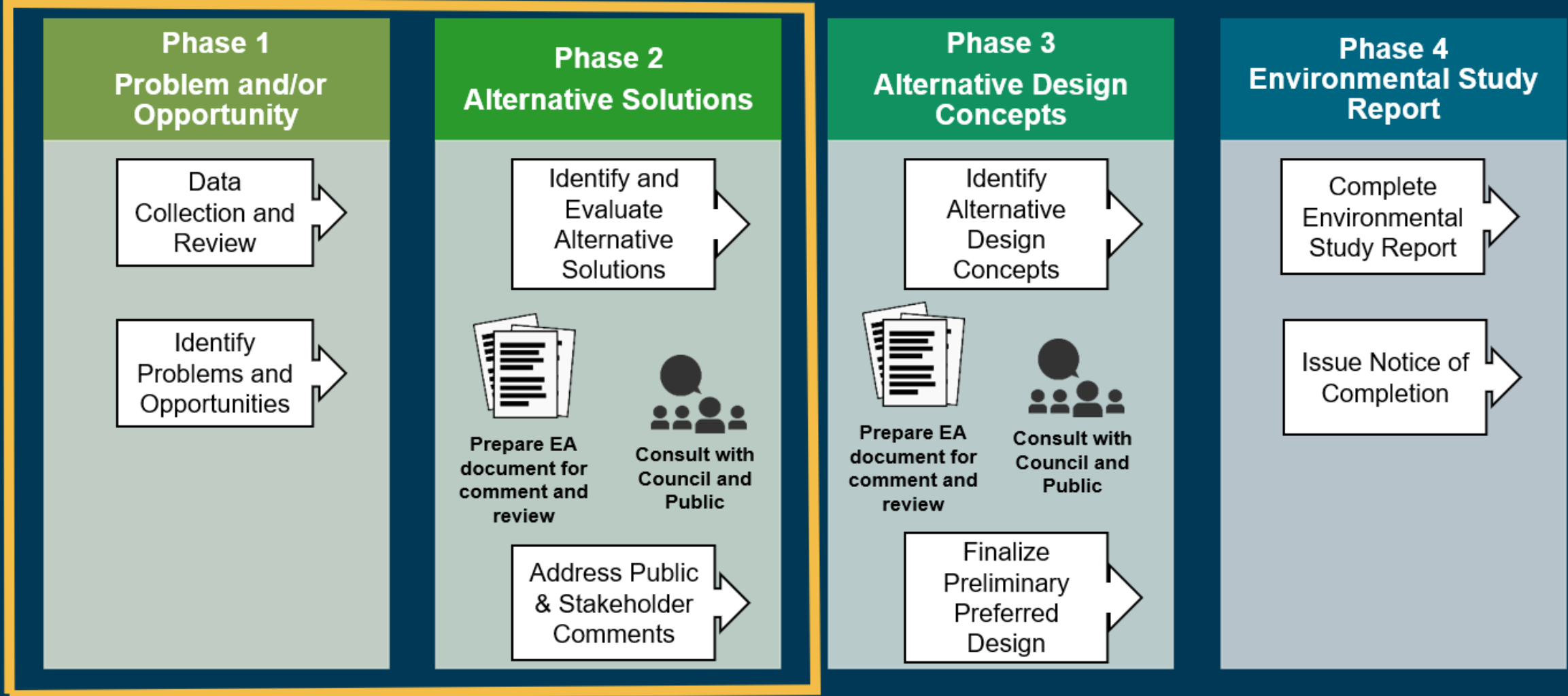


The Town is undertaking this Municipal Class Environmental Assessment to establish a long-term solution to identified supply and storage deficiencies in the eastern pressure zones:

1. **Supply Deficit:** Under the build-out scenario, there is a water supply deficit of 9,863 m<sup>3</sup>/day.
2. **Transfer of Water from West to East:** The volume of water supply that can be transferred from west to east is limited by the capacity of the Highway 26 feedermain and the Arrowhead BPS.
3. **Storage Deficit:** There is a future storage deficiency of 3,445 m<sup>3</sup> in the eastern pressure zones.



# MCEA Process Overview

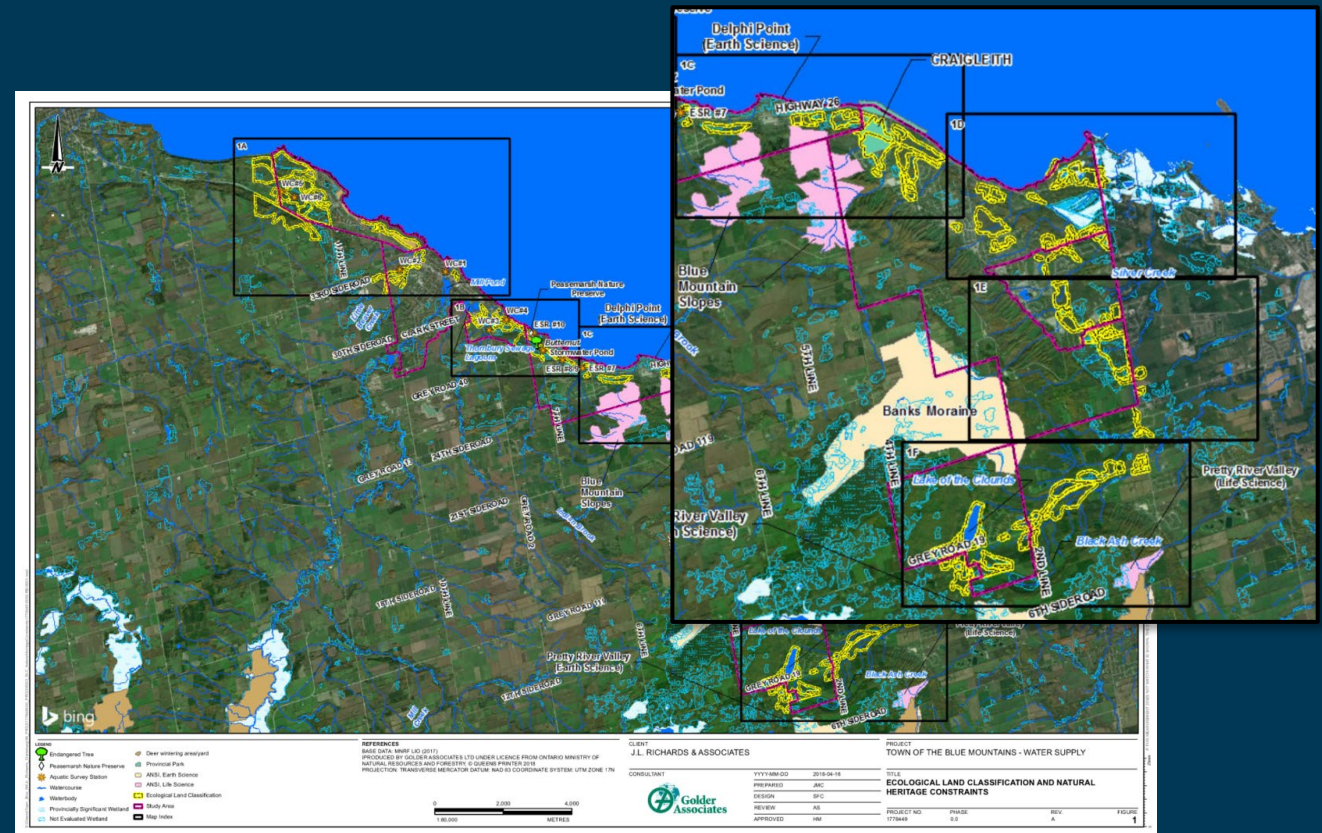


# Environmental Considerations

Several natural features were identified in the Environmental Impact Study conducted for the Town (Golder, 2018). Potential impacts to the identified natural features must be assessed and mitigated during design and planning of the proposed alternative:

- Moderate to high potential of habitat for 12 endangered or threatened species,
- Several watercourses and two (2) ponds suitable to provide fish habitat,
- One (1) Provincially Significant Wetland (Silver Creek Wetland Complex),
- Significant woodlands throughout the area,
- Three (3) significant valleylands, and
- Two (2) provincially designated Areas of Natural and Scientific Interest (ANSI).

Craigleith Service Area

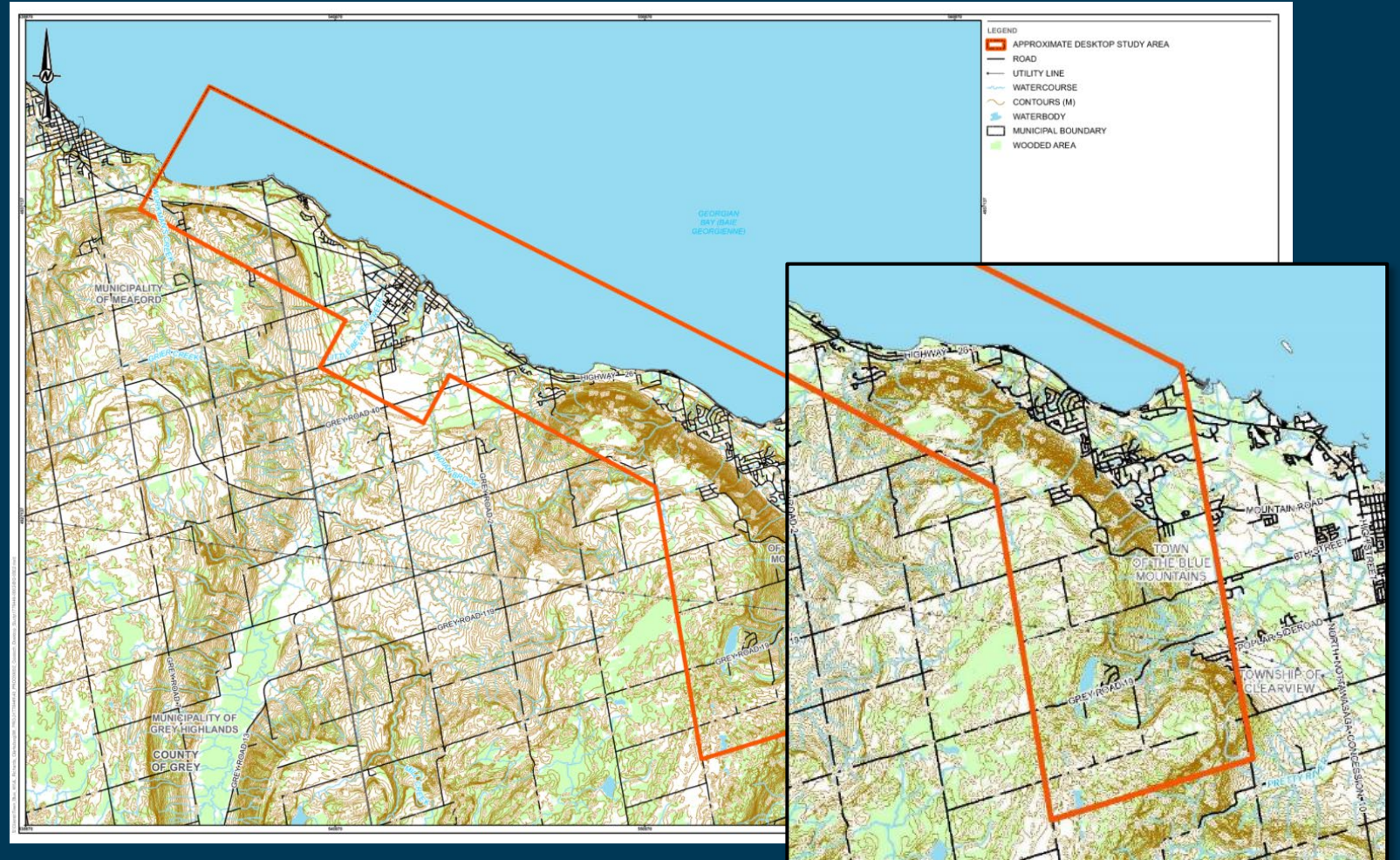




# Geologic & Hydrogeologic Considerations

Bedrock elevations in the project area (particularly in the Craigleith Service Area) may present design and construction challenges.

Geotechnical and excess soils management investigations will be conducted as part of detailed design of the preferred alternative.

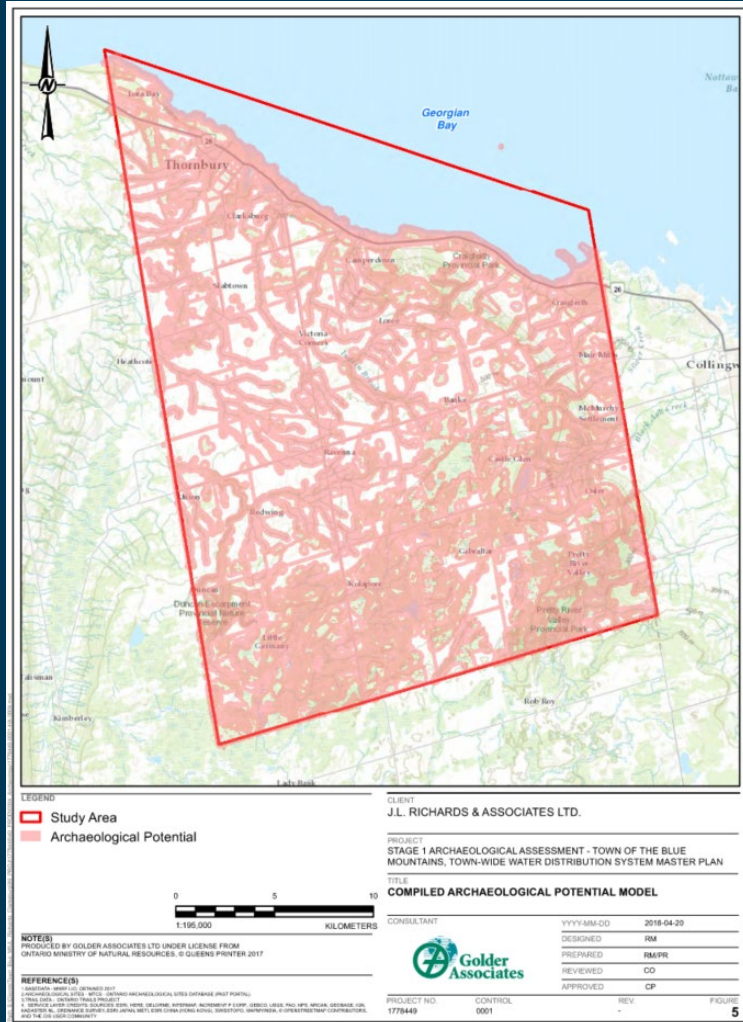


Craigleith Service Area

# Archaeological Considerations

Several areas in the Town were found to contain moderate to high archaeological potential:

- All proposed sites for future water infrastructure were determined to have archaeological potential based on the Stage 1 Archaeological Assessment (Golder, 2018)
- If ground disturbance of previously un-disturbed areas is associated with the preferred alternative, a Stage 2 Archaeological Assessment will be required to identify any archaeological resources on the proposed property.

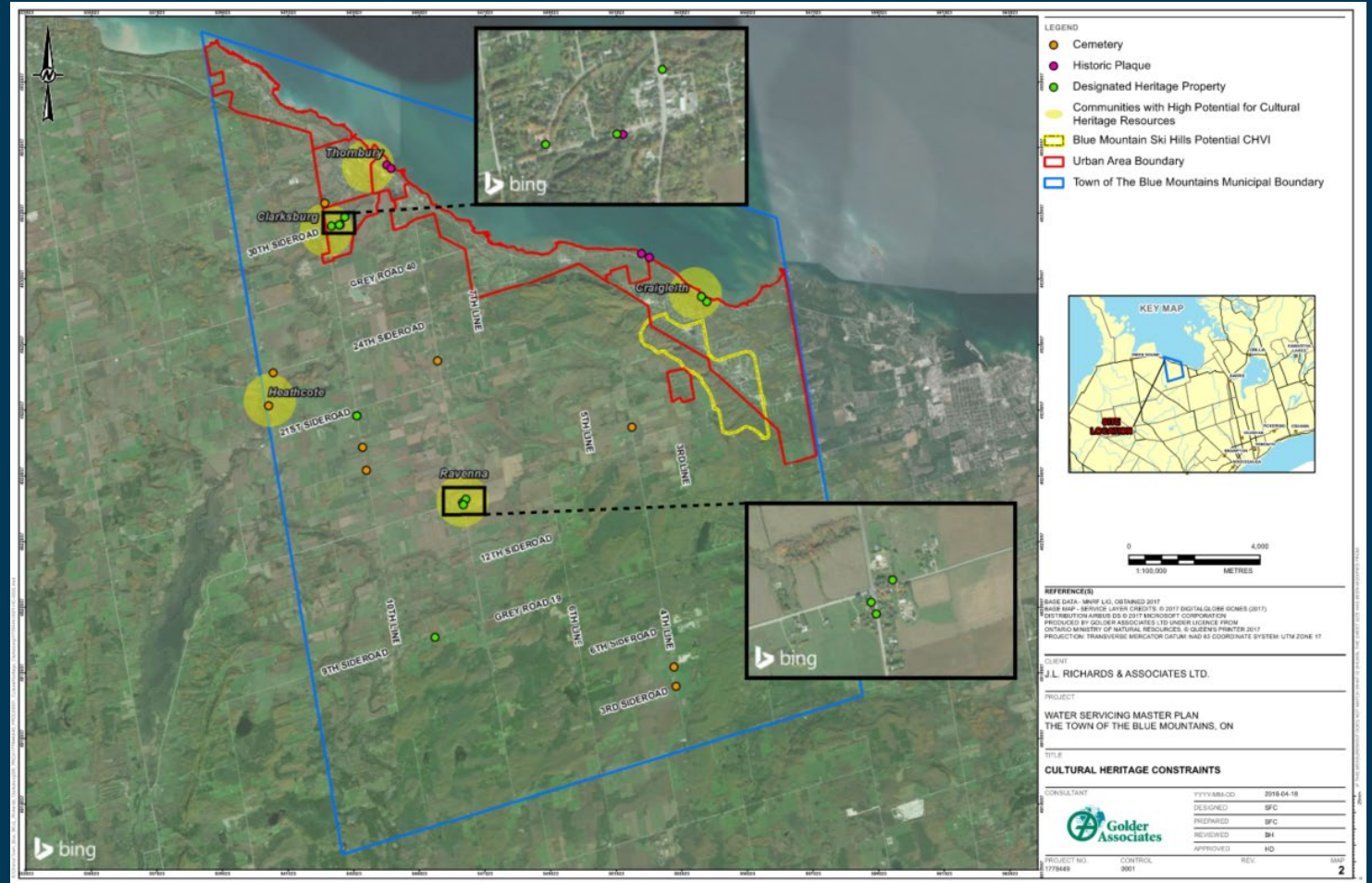




# Cultural Heritage Considerations

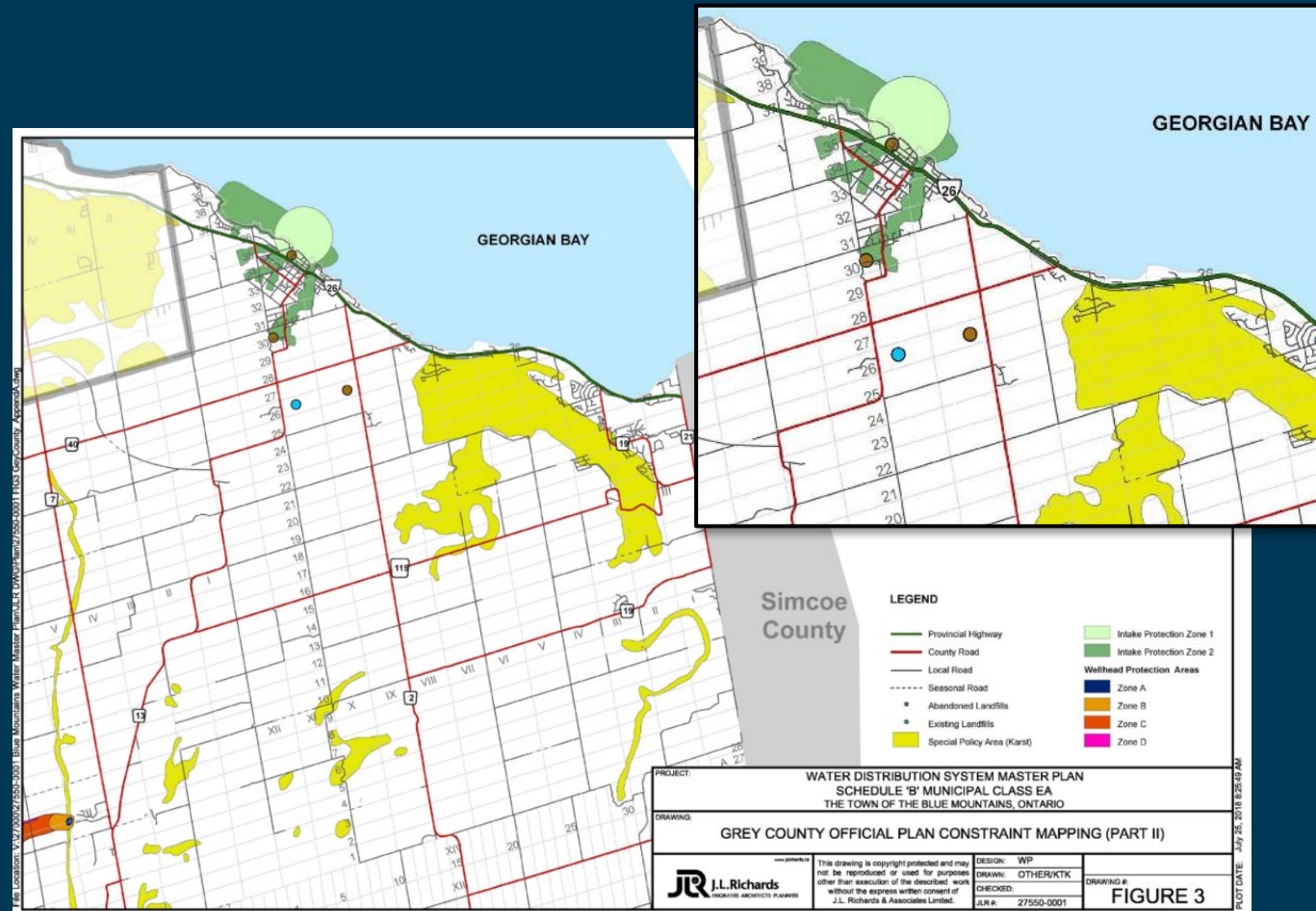
Craigleith was found to contain high potential for cultural heritage value or interest:

- Development at protected heritage properties should be avoided
- If changes are proposed to a structure >40 years old, a Cultural Heritage Evaluation Report (CHER) is required to be conducted prior to construction to determine if the building is of cultural heritage value.
- The existing Thornbury WTP and Arrowhead Road BPS are > 40-years old.



# Source Water Protection

- The study area is within the Saugeen Valley, Grey Sauble, Northern Bruce Peninsula Source Protection Region and South Georgian Bay Lake Simcoe Source Protection Region.
- The Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Plan was adopted in July 2016.
  - It identifies Intake Protection Zones (IPZs) to protect the source water for municipal residential drinking water systems.
- Under all alternatives, works have been proposed at the Thornbury WTP, which is within the IPZs for the Town's drinking water.
  - Consultation with the local Source Protection Regions is required to ensure that the proposed upgrades do not negatively impact water supplies in the area.



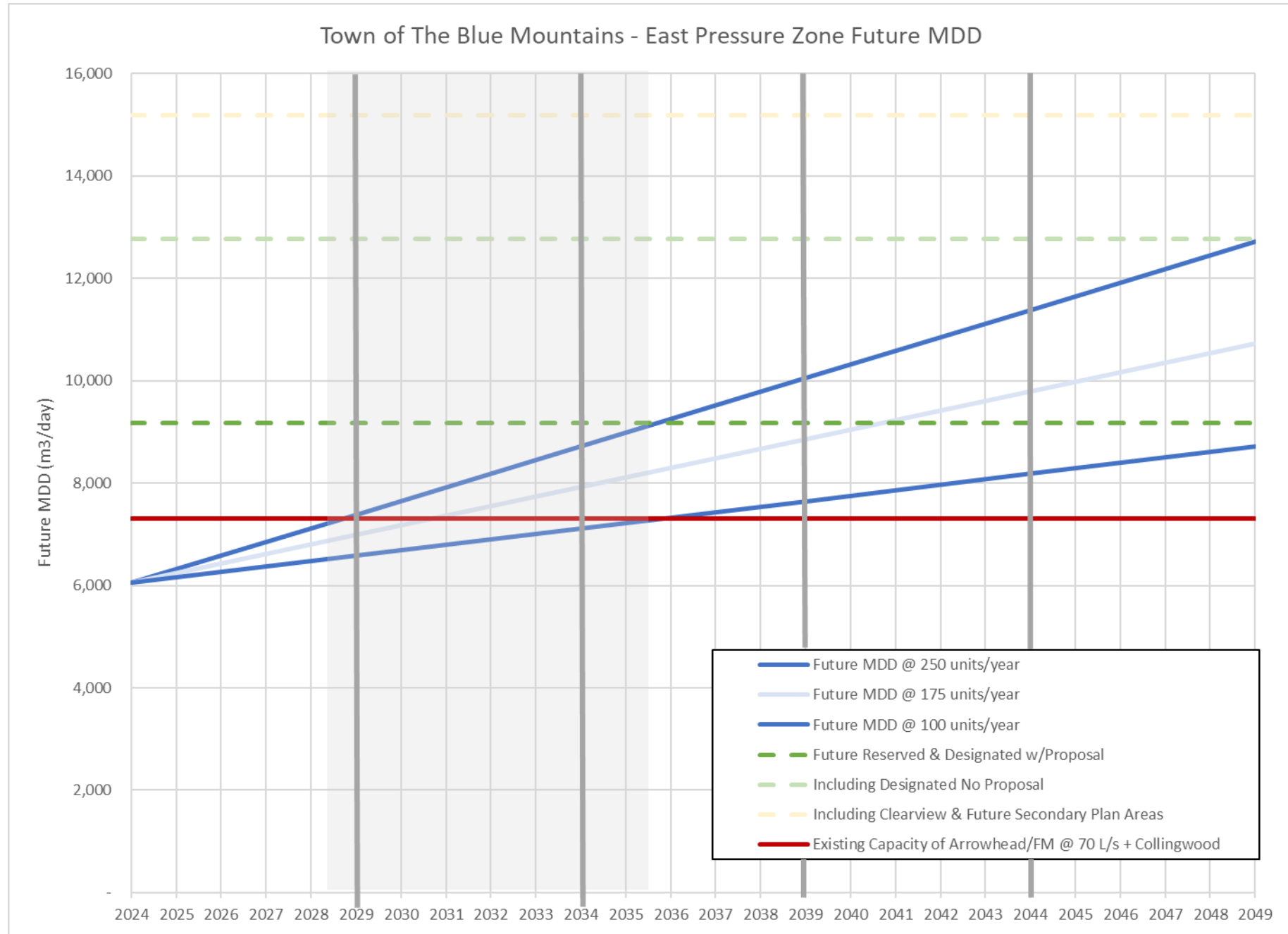


# Population Projections

Category	Craigleith	Castle Glen	Swiss Meadows	Osler Bluff: Town of The Blue Mountains	Osler Bluff: Clearview Township	Clearview Township	Eastside Sub-total	Westside Sub-total <sup>(2)</sup>	Grand Total
<b>Existing</b>									
Residential - Connected	3,598	0	114	0	0	0	3,712	3,176	6,888
Non-Residential - Connected (EU)	2,405	0	2	0	0	0	2,407	688	3,095
Existing Sub-total	6,003	0	116	0	0	0	6,119	3,864	9,983
<b>Future Allocated &amp; Reserved</b>									
Residential - Can Connect	235	0	13	0	0	0	248	416	664
Non-Residential - Can Connect (EU)	57	0	0	0	0	0	57	25	82
Residential – Not Fronting	24	86 <sup>(3)</sup>	2	0	0	0	112	450 <sup>(4)</sup>	562
Non-Residential – Not Fronting (EU)	0	1 <sup>(3)</sup>	0	174 <sup>(5)</sup>	0	0	175	108 <sup>(4)</sup>	283
Reserved	1,613 <sup>(6)</sup>	0	0	0	0	0	1,613	247	1,860
Designated (With Proposal)	717 <sup>(6)</sup>	0	0	0	0	0	717	719	1,436
Designated (No Proposal)	1,468 <sup>(6)</sup>	1,900 <sup>(3)</sup>	0	0	0	0	3,368	2,948	6,316
Outside of Town Boundary	0	0	0	0	127 <sup>(7)</sup>	145 <sup>(8)</sup>	272	0	272
<b>Future Allocated &amp; Reserved Sub-total</b>	<b>4,114</b>	<b>1,987</b>	<b>15</b>	<b>174</b>	<b>127</b>	<b>145</b>	<b>6,562</b>	<b>4,913</b>	<b>11,475</b>
<b>Future Secondary Plan Areas</b>									
Future Secondary Plan Areas – Included in MCEA	0	0	0	0	0	0	0	1,250 <sup>(9)</sup>	1,250
Future Secondary Plan Areas – Excluded in MCEA	2,003	0	0	0	0	0	2,003	1,252	3,255
<b>Total Existing and Future Demand for MCEA <sup>(10)</sup></b>	<b>10,117</b>	<b>1,987</b>	<b>131</b>	<b>174</b>	<b>127</b>	<b>145</b>	<b>12,681</b>	<b>10,027</b>	<b>22,708</b>
<b>Grand Total</b>	<b>12,120</b>	<b>1,987</b>	<b>131</b>	<b>174</b>	<b>127</b>	<b>145</b>	<b>14,684</b>	<b>11,279</b>	<b>25,963</b>

# 25-Year East Pressure Zone Demands

East	250 Units Per Year Scenario	100 Units Per Year Scenario
5-year	1,400 m <sup>3</sup> /day (+150 m <sup>3</sup> /day)	600 m <sup>3</sup> /day (n/a)
10-year	2,700 m <sup>3</sup> /day (+1,450 m <sup>3</sup> /day)	1,100 m <sup>3</sup> /day (n/a)
15-year	4,100 m <sup>3</sup> /day (+2850 m <sup>3</sup> /day)	1,600 m <sup>3</sup> /day (+350 m <sup>3</sup> /day)
20-year	5,400 m <sup>3</sup> /day (+4150 m <sup>3</sup> /day)	2,200 m <sup>3</sup> /day (+950 m <sup>3</sup> /day)
25-year	6,700 m <sup>3</sup> /day (+5,450 m <sup>3</sup> /day)	2,700 m <sup>3</sup> /day (+1,450 m <sup>3</sup> /day)





# Summary of Alternatives

Supply Option 1:  
Increase Capacity  
of Thornbury WTP

Supply Option 2:  
New Craigleith  
WTP

Supply Option 3:  
Increase  
Collingwood Supply

Storage Option A:  
Storage at Site 2/5  
(Arrowhead)

**Alternative 1A**

**Alternative 2A**

Storage Option B:  
Storage at Site 9  
(Grey Road)

**Alternative 1B**

Storage Option C:  
Storage at Site 12  
(Mountain Road)

**Alternative 3C**

# Alternative 1A: Increase Thornbury WTP Capacity and Build Storage at Site 2/5



- Some potential for phasing of WTP capacity
- If new storage reservoir and BPS is at site 5, proposed infrastructure is on Town owned land



- **New intake** at existing Thornbury WTP
- **Limited available space** at Thornbury WTP for further expansions
- Feedermain construction has potential to be **disruptive and technically challenging**

## Additional EA Work and Required Studies:

- Schedule C MCEA for Increasing Thornbury WTP
- Ecological studies to determine potential impact of new intake at Thornbury WTP; Preliminary SWP Work
- Archaeological Assessment for Site 2/5
- Potential for Archaeology and Cultural Heritage Assessment at Thornbury WTP
- Cultural Heritage Assessment for Arrowhead BPS

**Class D Capital Costs: \$57M**

**This alternative is the least expensive alternative.**



# Alternative 1B: Increase Thornbury WTP Capacity and Build Storage at Site 9



- Some potential for phasing of WTP capacity
- New storage reservoir and BPS is on Town owned land (Site 9)



- **New intake** at existing Thornbury WTP
- **Limited available space** at Thornbury WTP for further expansions
- Feedermain construction has potential to be **disruptive and technically challenging**



## Additional EA Work and Required Studies:

- Schedule C MCEA for Increasing Thornbury WTP
- Ecological studies to determine potential impact of new intake at Thornbury WTP; Preliminary SWP Work
- Archaeological Assessment for Site 9
- Potential for Archaeology and Cultural Heritage Assessment at Thornbury WTP
- Cultural Heritage Assessment for Arrowhead BPS

**Class D Capital Costs: \$61M**

This alternative is **6% more expensive** than the least expensive alternative



# Alternative 2A: New Craigleith WTP and Storage at Site 2/5



- High potential for phasing and expansion beyond current planning horizon
- High level of redundancy with 2 WTPs
- If new WTP, reservoir, and BPS are at site 5, infrastructure is on Town owned land
- No new intake at Thornbury WTP

• Increase Thornbury WTP to 18,165 m<sup>3</sup>/day

• New 7,133 m<sup>3</sup>/day WTP at Site 2/5  
 • New 5,000 m<sup>3</sup> at-grade reservoir and 285 L/s BPS at Site 2/5  
 • Decommission Arrowhead Road BPS

• 5 km watermain twinning from Site 2/5 to Happy Valley Reservoir

• 1.5 km watermain twinning from Happy Valley Reservoir to East of PZ 4

Maintain 1,250 m<sup>3</sup>/day from Collingwood WTP



- **New intake** at new Craigleith WTP, will require further studies will property acquisition or easements
- **Operations and maintenance of two WTPs will be required**



### Additional EA Work and Required Studies:

- Schedule C MCEA for Increasing Thornbury WTP and Building New Craigleith WTP
- Ecological studies to determine potential impact of new intake and route; Preliminary SWP Work
- Archaeological Assessment for Site 2/5
- Potential for Archaeology and Cultural Heritage Assessment at Thornbury WTP
- Cultural Heritage Assessment for Arrowhead BPS

Class D Capital Costs: **\$66M**  
 This alternative is **15% more expensive** than the least expensive alternative



# Alternative 3C: Increase Supply from Collingwood and Storage at Site 12



- High level of redundancy with supply from western/eastern side
- New storage reservoir and BPS is on Town owned land (Site 12)
- Collingwood is responsible for operations



- Limited potential for phasing as long-term agreement would be established up front
- Complex agreements/funding arrangement for supply and conveyance
- Timing and cost of distribution upgrades and Ultimate expansion is unfinalized and would be contingent on Collingwood and partner municipalities

• Increase Thornbury WTP to 18,165 m<sup>3</sup>/day



• 10 km of watermain upgrades from Collingwood WTP to Site 12

• 4.5 km watermain twinning from Site 12 to Happy Valley

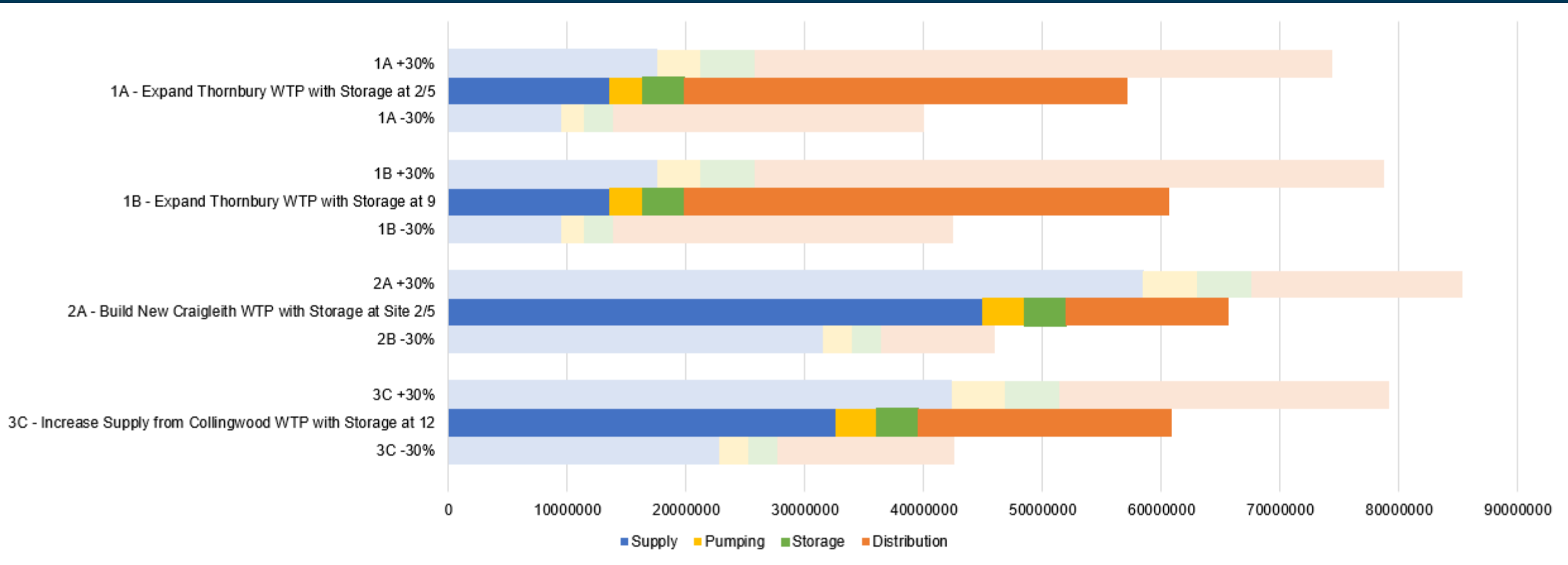
• Increase Collingwood Supply to 8,383 m<sup>3</sup>/day  
 • New 5,000 m<sup>3</sup> at-grade reservoir at Site 12  
 • New 190 L/s BPS at Site 12

### Additional EA Work and Required Studies:

- Schedule C MCEA for Increasing Thornbury WTP
- Archaeological Assessment for Site 12 (may be exempt)
- Potential for Archaeology and Cultural Heritage Assessment at Thornbury WTP

Class D Capital Costs: **\$61M**  
 This alternative is **6% more expensive** than the least expensive alternative.

# Summary of Capital Costs



\*Class 'D' Opinion of Probable Construction Costs developed for this project are expected to be within +/- 30% accuracy



# Summary of Detailed Evaluation

	<b>ALTERNATIVE 1A</b> Increase Thornbury WTP Capacity And Build Storage At Site 2/5	<b>ALTERNATIVE 1B</b> Increase Thornbury WTP Capacity And Build Storage At Site 9	<b>ALTERNATIVE 2A</b> Construct New WTP With Storage At Site 2/5	<b>ALTERNATIVE 3C</b> Increase Supply From Town Of Collingwood And Build Storage At Site 12
<b>SUMMARY OF EVALUATION</b>	<ul style="list-style-type: none"> <li>• <b>Potential for phasing</b></li> <li>• Proposed infrastructure is on <b>Town owned land</b> (Site 5)</li> <li>• <b>New intake</b> at existing Thornbury WTP</li> <li>• <b>Limited available space</b> at Thornbury WTP for future expansions</li> <li>• Feedermain construction has potential to be <b>disruptive and technically challenging</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Potential for phasing</b></li> <li>• Proposed infrastructure is on <b>Town owned land</b> (Site 9)</li> <li>• <b>New intake</b> at existing Thornbury WTP</li> <li>• <b>Limited available space</b> at Thornbury WTP for further expansions</li> <li>• Feedermain construction has potential to be <b>disruptive and technically challenging</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>High potential for phasing</b> and expansion beyond current planning horizon</li> <li>• High level of <b>redundancy</b> with 2 WTPs</li> <li>• Proposed infrastructure is on <b>Town owned land</b> (Site 5)</li> <li>• <b>New intake</b> at new WTP</li> <li>• <b>Operations and maintenance of 2 WTPs will be required.</b></li> </ul>	<ul style="list-style-type: none"> <li>• High level of <b>redundancy</b></li> <li>• With storage at site 12 <b>work is on Town owned land</b></li> <li>• <b>Collingwood responsible</b> for operations</li> <li>• <b>Limited potential for phasing</b> as long-term agreement would be established up front</li> <li>• <b>Complex agreements/funding arrangement</b></li> <li>• <b>Timing and cost split</b> of distribution and ultimate expansion is <b>unknown</b></li> </ul>
<b>Class D Capital Costs (+/-30% accuracy)</b>	<b>\$57M</b> This option is <b>the least expensive alternative.</b>	<b>\$61M</b> This option is <b>6% more expensive</b> than the least expensive alternative.	<b>\$66M</b> This option is <b>15% more expensive</b> than the least expensive alternative.	<b>\$61M</b> This option is <b>6% more expensive</b> than the least expensive alternative.
<b>OVERALL EVALUATION</b>	MODERATE POSITIVE	MODERATE POSITIVE	<b>HIGHEST POSITIVE</b>	MODERATE POSITIVE

# Preliminary Preferred Alternative:

## Alternative 2A: New Craigleith WTP and Storage at Site 2/5

- Increase Thornbury WTP to 18,165 m<sup>3</sup>/day

- New 7,133 m<sup>3</sup>/day WTP at Site 2/5
- New 5,000 m<sup>3</sup> at-grade reservoir and 285 L/s BPS at Site 2/5
- Decommission Arrowhead Road BPS

- 1.5 km watermain twinning from Happy Valley Reservoir to East of PZ 4

- 5 km watermain twinning from Site 2/5 to Happy Valley Reservoir

- Maintain 1,250 m<sup>3</sup>/day from Collingwood WTP



- High potential for phasing and expansion beyond current planning horizon
- High level of redundancy with 2 WTPs
- If new WTP, reservoir, and BPS are at site 5, infrastructure is on Town owned land
- No new intake at Thornbury WTP



- **New intake** at new Craigleith WTP, will require further studies will property acquisition or easements
- **Operations and maintenance of two WTPs will be required**

### Additional Required EA Work:

- Schedule C MCEA for Increasing Thornbury WTP and Building New Craigleith WTP
- Archaeological Assessment for Site 2/5
- Potential for Archaeology and Cultural Heritage Assessment at Thornbury WTP

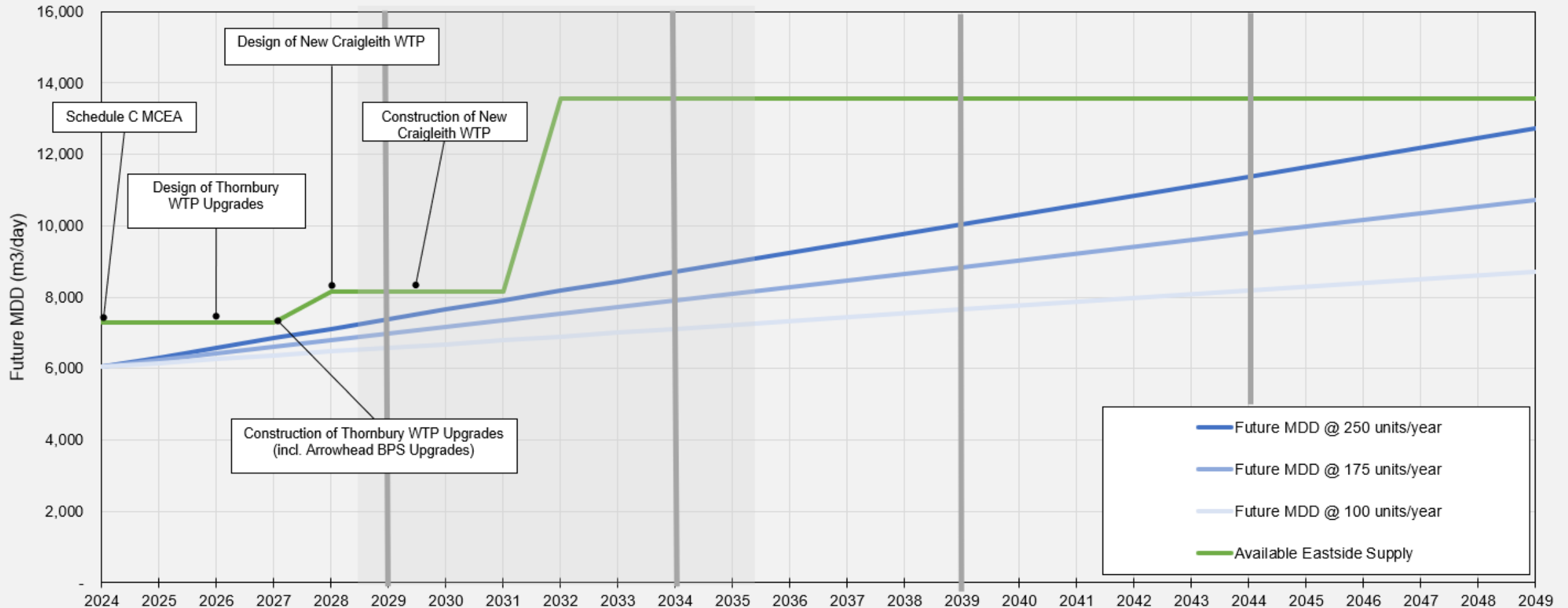
Class D Capital Costs: **\$66M**

This alternative is **15% more expensive** than the least expensive alternative



# Preliminary Preferred Alternative: 2A - New Craigleith WTP and Storage at Site 2/5

Town of The Blue Mountains - Timeline of Available Eastside Supply (Alternative 2A)



# Preliminary Preferred Alternative: Development Charges Funding

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- The current [Development Charges By-law](#) was passed by Council on April 24, 2019, in accordance with the requirements of the *Development Charges Act, 1997*.
- All proposed work is anticipated to be subject to development charges.
- Development Charges By-law and Consolidated Development Charges Background Study are underway and include funding for storage and supply related infrastructure.



# MCEA Process Overview

**Phase 1  
Problem and/or Opportunity**

Data Collection and Review

Identify Problems and Opportunities

**Phase 2  
Alternative Solutions**

Identify and Evaluate Alternative Solutions

Prepare EA document for comment and review

Consult with Council and Public

Address Public & Stakeholder Comments

**Phase 3  
Alternative Design Concepts**

Identify Alternative Design Concepts

Prepare EA document for comment and review

Consult with Council and Public

Finalize Preliminary Preferred Design

**Phase 4  
Environmental Study Report**

Complete Environmental Study Report

Issue Notice of Completion



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