Appendix ‘G’
Phase 2 Council Presentation
Community of Clarksburg
Water and Wastewater Servicing Master Plan

Presented by: J.L. Richards & Associates
Date: May 22, 2019
JLR No.: 27430
Class EA Process Overview

Data Collection and Review → Identify Problems and Opportunities → Identify and Evaluate Solutions

Phase 1 – Problem/ Opportunity

• Under the Environmental Assessment Act, municipalities must consider potential environmental effects before a potential water and/or wastewater project begins.

• The streamlined MEA Class EA process allows municipalities to consider impacts without having to obtain project-specific approval under the Environmental Assessment Act.

WE ARE HERE Consult with Review Agencies and Public

Select Preferred Alternative → Issue Project File Report for 30-day Review Summer 2019

Phase 2 – Alternative Solutions
Problem and Opportunity Statement

The Town of The Blue Mountains is undertaking a Master Plan under the Municipal Class EA framework to evaluate the need for and the feasibility of improving the water and wastewater services for properties in the Clarksburg community. There are two main issues that this Class EA will consider. The first is (1) the quality and quantity of drinking water and the second is (2) the adequacy of wastewater treatment.
Study Area Boundary
Study Area Overview

Existing properties

• 368 properties in total
• 245 properties have private wells
• 301 properties have private septic systems
• 33 properties are vacant (single unit per lot)
• 18 properties are for future development (could be subdivided)

Door-to-door and telephone surveys were completed in fall/winter of 2017

• 181 developed lot owners were surveyed
• 5 vacant lot owners were surveyed by phone
• 88 properties on private wells provided a tap water sample
Key Issue #1 – Groundwater Source Constraints

Tap water used for drinking (i.e. treated or untreated well water) was tested in a total of 88 homes in the Community. Well water that failed the standards for safe consumption was found broadly throughout Clarksburg and in both drilled and dug wells.
Key Issue #1 – Groundwater Source Constraints

Of the 25 tap water samples that failed, 11 residents reported well water as their primary drinking water source. This means in Clarksburg, people in 30 homes out of 245 on wells are at risk of drinking potentially unsafe water.

<table>
<thead>
<tr>
<th>Status</th>
<th>Number of Samples</th>
<th>Percent of Samples</th>
<th>Estimated Number of Homes</th>
<th>Level of Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Passed Test</td>
<td>63</td>
<td>72%</td>
<td>175</td>
<td>Low</td>
</tr>
<tr>
<td>Failed Ontario Water Standard - Drink Bottled Water</td>
<td>7</td>
<td>8%</td>
<td>19</td>
<td>Low-Moderate</td>
</tr>
<tr>
<td>Failed Health Unit and Ontario Standard - Drink Bottled Water</td>
<td>7</td>
<td>8%</td>
<td>19</td>
<td>Low-Moderate</td>
</tr>
<tr>
<td>Drink Tap Water that Failed Only Ontario Water Standard</td>
<td>7</td>
<td>8%</td>
<td>19</td>
<td>Moderate</td>
</tr>
<tr>
<td>Drink Tap Water that Failed Health Unit and Ontario Standard</td>
<td>4</td>
<td>5%</td>
<td>11</td>
<td>High</td>
</tr>
</tbody>
</table>

Drink Water that Failed Only Ontario Drinking Water Standard
Drink Water that Failed Health Unit and Ontario Drinking Water Standard
Key Issue #2 – Septic Age and Performance

The useful life of a well maintained septic system is 15 to 40 years (Reference: OMFRA). For study purposes, it has been assumed that septic systems require replacement after 30 years. There are approximately 84 septic systems in Clarksburg that are already more than 30 years old. Over the next 20 years a total of 276 septic systems will reach their anticipated replacement age of 30 years old.

* Includes percentage of septic systems surveyed of an unknown age (assumed to be 10 years old)
Key Issue #2 – Septic Age and Performance

Septic system standards have changed and replacement systems will have to meet current standards. For many homes to accommodate a replacement septic system to current standards a 3,500 sq.ft area free of accessory structures and trees is required on the property. Due to soil conditions in Clarksburg, the beds will have to be raised approximately 1.2m (4ft) above existing grade.

There are 54 properties with septic systems in Clarksburg this size or smaller (20% of lots).
Key Issue #2 – Septic Age and Performance

- Small lots are distributed throughout Clarksburg.
- For these properties the septic system may take up all of the available yard or put limits the amount of building enhancement that can occur (i.e. adding bedrooms or bathrooms).
- Due to the small lot size, an enhanced treatment system with a smaller footprint may be preferred to replace the existing system.
Key Issue #3 – Downtown Business Opportunities

Current servicing downtown impacts the types of business that can operate and there are a number of practical and regulatory challenges associated with shared wells and septic systems arrangements.
Key Issue #4 – Community Growth

- A significant component of strong active communities is development and re-development. New development in Clarksburg will mean:
  - Increased revenue from property taxes
  - Improved economies of scale for providing community services
  - Opportunities for economic growth

- Growth targets are assigned to Clarksburg as part of the Town’s long-term growth and development plan. However, residential growth is limited by lack of services.

- If serviced by private well and septic systems there is a maximum of approximately 40 new units possible in Clarksburg.

- Clarksburg cannot currently reach the growth targets set by the Official Plan.
Shortlisted Alternatives

1. Do Nothing
2. Septic Re-Inspection and Education
3. Community Wide Water and Wastewater
4. Downtown Only Water and Wastewater
5. Partial Services: Water Community Wide And Wastewater Downtown Only
Costing Approach

- At the Class EA level costing is done for evaluation purposes and does not represent actual construction cost. These costs are called Class D estimates, and although they are reasonable estimates they are only considered accurate within +/- 30%.

- Costs have been allocated on a very simple per property basis (Total Cost/(Existing + Future Units). The cost split may be more complicated than that which may change the amount allocated on a per lot basis and the proportion paid by existing lots vs. future.

- There are many factors that will effect the final per property cost:
  - Amount of funding from Town, County, Province, Federal Government
  - The actual construction value (only known after construction)
  - The number of future units allocated and the distribution of costs
  - Cost of debenture (i.e. interest rates) and length (20 year, 25 year, 30 year)
  - Etc.
**Option 1 – Do Nothing**

Residents may be consuming tap water that does not meet safety requirements.

Old and poorly maintained septic systems will continue to pose a risk to the environment and ground water quality.

It will not address servicing constraints in the downtown core.

Future permitted growth estimated at 75 new residential units.

**Overall Score:**

No new actions would be taken under this option.
### Option 1 – Do Nothing: 20-Year Lifecycle Costing

Costs associated with this option are:
- New well and UV treatment system ($15,000/unit)
- New septic system ($20,000/unit)
- New UV treatment system for existing wells ($1,200/unit)
- UV and septic maintenance costs (~$210/unit/year, $4,200 over 20 years)

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Cost per Unit</th>
<th>No. of Units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Residential Unit – Install New Well with UV and Septic System</td>
<td>$39,200</td>
<td>75</td>
<td>$2,940,000</td>
</tr>
<tr>
<td>Existing Residential Unit – Install UV System and Replacement Septic</td>
<td>$25,400</td>
<td>20</td>
<td>$508,000</td>
</tr>
<tr>
<td>Existing Residential Unit – Do Not Install UV or Replacement Septic</td>
<td>$4,200</td>
<td>278</td>
<td>$1,167,600</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>373</strong></td>
<td><strong>$4,615,600</strong></td>
</tr>
</tbody>
</table>
Option 2 – Septic Re-Inspection

Increased well testing may help to reduce the potential for exposure to contaminated well water.

Septic issues will be found and addressed. However, replacing septic systems will be challenging on smaller lots.

Future permitted growth estimated at 75 new residential units.

It will not address servicing constraints in the downtown core.

Overall Score: 

Septic systems would be inspected throughout the whole community. A voluntary education and water sampling program would be developed.
Option 2 – Septic Re-Inspection: 20yr Lifecycle Costing

Costs associated with this option are:
- New well and UV treatment system ($15,000/unit)
- New septic system ($20,000/unit)
- UV treatment system for existing wells ($1,200/unit)
- UV and septic maintenance costs (~$240/unit/year, $4,800 over 20 years)
- Septic inspection ($300/unit every 5 years, $1,200 over 20 years)

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Cost per Unit</th>
<th># of Units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Residential Unit – Install New Well w/UV and Septic System</td>
<td>$41,000</td>
<td>75</td>
<td>$3,075,000</td>
</tr>
<tr>
<td>Existing Residential Unit – Install UV System and Replacement Septic</td>
<td>$27,200</td>
<td>274</td>
<td>$7,452,800</td>
</tr>
<tr>
<td>Existing Residential Unit – Do Not Install UV or Replacement Septic</td>
<td>$6,000</td>
<td>24</td>
<td>$144,000</td>
</tr>
</tbody>
</table>

Total: $10,671,800

* Not included: Education Program ($8000/year total, $160,000 20-year lifecycle costs)
Option 3 – Community Wide Servicing

- All homes will have safe tap water.
- The loading to the environment from septic systems will be eliminated.
- Commercial opportunities downtown can be expanded (e.g. café)
- Future permitted growth will allow for density targets to be achieved.
- Impact of construction on community
- The main drawback of this option is the very high initial capital cost.

Overall Score:

The municipal water and gravity sewer system would be extended throughout the entire Community.
## Option 3 – Community Servicing: 20yr Lifecycle Costing

Costs associated with this option are:
- Municipal Connection Charge ($96,000/unit)
- Plant Connection Charge ($8,729/unit)
- Service Laterals to Unit ($15,000/unit)
- Decommission Wells and Septic ($1,500/unit)
- Annual Water and Sewer Rates ($1,028/unit/year, $20,560 over 20 years)

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Cost per Unit</th>
<th># of Units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Residential Unit – Connect to Water and Wastewater</td>
<td>$141,789</td>
<td>239</td>
<td>$33,887,571</td>
</tr>
<tr>
<td>Existing Residential Unit – Connect to Water and Wastewater</td>
<td>$141,789</td>
<td>185</td>
<td>$26,230,965</td>
</tr>
<tr>
<td>Existing Residential Unit – Connect to Wastewater Only (Existing Water)</td>
<td>$76,449</td>
<td>56</td>
<td>$4,281,144</td>
</tr>
<tr>
<td>Downtown Residential Unit or Commercial – Connect to Water and Wastewater</td>
<td>$141,789</td>
<td>60</td>
<td>$8,507,340</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>540</strong></td>
<td><strong>$72,907,020</strong></td>
</tr>
</tbody>
</table>
Option 4 – Downtown Only Servicing

- Increased well testing outside of downtown may help to reduce the potential for exposure to contaminates.
- Septic issues will be found and addressed. However, replacing septic systems will be challenging on smaller lots.
- Commercial opportunities downtown can be expanded (e.g. café)
- Future permitted growth will allow for density targets to be achieved.
- Impact of construction on community
- Very high initial capital cost relative to the number of properties improved.

Overall Score:

The municipal water and gravity sewer system would be extended downtown.
Option 4 – Downtown Only Servicing: 20yr Lifecycle Costing

Costs associated with this option are:

- Municipal Connection Charge ($128,000/unit)
- Plant Connection Charge ($8,729/unit)
- Service Laterals to Unit ($15,000/unit)
- Annual Water and Sewer Rates ($1,028/unit/year, $20,560 over 20 years)
- Decommission Wells and Septic ($1500/unit)
- Outside of Downtown same as Option 2

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Cost per Unit</th>
<th># of Units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Residential Unit – Install New Well w/UV and Septic System</td>
<td>$41,000</td>
<td>75</td>
<td>$3,075,000</td>
</tr>
<tr>
<td>Existing Residential Unit – Install UV System and Replacement Septic</td>
<td>$27,200</td>
<td>214</td>
<td>$5,820,800</td>
</tr>
<tr>
<td>Existing Residential Unit – Do Not Install UV or Replacement Septic</td>
<td>$6,000</td>
<td>24</td>
<td>$144,000</td>
</tr>
<tr>
<td>Downtown Residential Unit or Commercial – Connect to Water and Wastewater</td>
<td>$173,789</td>
<td>60</td>
<td>$10,427,340</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>373</td>
<td>$19,467,140</td>
</tr>
</tbody>
</table>
Option 5 – Water Community Wide and Wastewater Downtown Only

All homes will have safe tap water.

Septic issues will be found and addressed. However, replacing septic systems will be challenging on smaller lots.

Commercial opportunities downtown can be expanded (e.g. café)

Future permitted growth will allow for density targets to be achieved.

Impact of construction on community

Very high initial capital cost relative to the number of properties improved.

Overall Score: 23

The municipal water system would be extended community wide and the gravity sewer system would be extended downtown.
Option 5 – Water Community Wide and Wastewater Downtown Only: 20-Year Lifecycle Costing

Costs associated with this option are:

- Municipal Connection Charge – Water Only ($98,000/unit)
- Municipal Connection Charge – Water & WW ($179,000/unit)
- Plant Connection Charge ($800/unit for water only, $8,729/unit for both)
- Service Laterals to Unit ($7,500/unit for water only, $15,000/unit for both)
- Annual Water and Sewer Rates ($552/unit/year, $11,040 water only; $1,028/unit/year, $20,560 for both)
- Outside of downtown similar to Option 2 (septic only)

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Cost per unit</th>
<th># of units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Residential Unit – Connect to Water (New Septic)</td>
<td>$140,740</td>
<td>75</td>
<td>$10,555,500</td>
</tr>
<tr>
<td>Existing Residential Unit – Connect to Water (Replace Septic)</td>
<td>$140,740</td>
<td>158</td>
<td>$22,236,920</td>
</tr>
<tr>
<td>Existing Residential Unit – Connect to Water (Do Not Replace Septic)</td>
<td>$120,740</td>
<td>24</td>
<td>$2,897,760</td>
</tr>
<tr>
<td>Existing Residential Unit – Water Already Connected (Replace Septic)</td>
<td>$22,400</td>
<td>56</td>
<td>$1,254,400</td>
</tr>
<tr>
<td>Downtown Residential Unit or Commercial – Connect to Water and WW</td>
<td>$224,789</td>
<td>60</td>
<td>$13,487,340</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>373</strong></td>
<td><strong>$50,431,920</strong></td>
</tr>
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</table>
### Other Options Considered

<table>
<thead>
<tr>
<th>Option</th>
<th>Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communal (cluster) private wells and septic systems</td>
<td>This option has not been carried forward because it requires more land than is available in the community and has complex legal and regulatory requirements.</td>
</tr>
<tr>
<td>Wastewater community wide and water downtown only</td>
<td>This option has not been carried forward as it may not be permitted under the 2014 Provincial Policy Statement and it can be technically impractical as metering is complicated without municipal water service.</td>
</tr>
<tr>
<td>Construct new privately owned wastewater plant/system for downtown</td>
<td>The management and operation of a private system of this size would be legally complex. Due to the relatively short distance to the existing WW collection system and the small volume of wastewater to be treated, this option does not offer an economic advantage.</td>
</tr>
<tr>
<td>Municipal water services provided without fire protection</td>
<td>The cost of providing fire protection is modest compared to the overall project cost, and the associated risk of not providing fire protection has insurance implications.</td>
</tr>
</tbody>
</table>
Preferred Option – Community Wide Servicing

Based on the detailed evaluation of the five (5) shortlisted alternatives, the highest ranking alternative is **Option 3 – to extend municipal water and gravity sewer services to all properties in the Community**.

The main advantages and disadvantages of the preferred solution (Option 3), are:

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The loading from septic systems to the environment will be eliminated.</td>
<td>• River crossings are required and may impact fish habitat during and after construction</td>
</tr>
<tr>
<td>• Future development can conform to the vision laid out in the Official Plan.</td>
<td>• Mitigation measures may be required to maintain access to downtown businesses during construction.</td>
</tr>
<tr>
<td>• Commercial opportunities downtown can be expanded to include higher demand water/wastewater users (e.g. café or restaurant).</td>
<td>• This option has very high capital and lifecycle costs compared to other alternatives.</td>
</tr>
<tr>
<td>• Below grade infrastructure will not significantly impact residential landscaping or accessory structures after construction.</td>
<td></td>
</tr>
<tr>
<td>• The potential for exposure to pathogen contaminated drinking water will be reduced to a very low level.</td>
<td></td>
</tr>
<tr>
<td>• Municipal water supply systems are highly regulated and many safeguards are in place to eliminate / mitigate the risk of system failure.</td>
<td></td>
</tr>
</tbody>
</table>
Preferred Option – System Components

Legend

Watermain
- Proposed Watermain
- Watermain Upgrade
- Existing Watermain

Sanitary Sewer
- Proposed Pumping Station
- Proposed Force Main
- Proposed Wastewater Sewer
- Existing Sewer

Service Area
Area Already Serviced
Unserviced Development
Future Development
Preferred Option – Who Pays for What

Shares of Water

- The actual share is to be based on the number of existing and development lots share of local system
- As an estimate assume existing and new units pay the same share
- 50.8% of lots without water services are new
- Development share = 50.8% of $22M = $11M

Shares of Wastewater

- The actual share is based on development lots share of local system
- As an estimate assume existing and new units pay the same share
- 44.5% of lots without wastewater services are new
- Development share = 44.5% of $27M = $12M

Town Share of Roads

- General Taxation Share of Town Roads = $6M
Preferred Option – Who Pays for What

If 20% of existing property owners pay upfront the Town will carry a total of $49.8 M initially.
Full Servicing – Detailed Cost Breakdown

<table>
<thead>
<tr>
<th>System Component</th>
<th>Water ($/property)</th>
<th>Wastewater ($/property)</th>
<th>Total ($/property)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Water/Sewer Main Capital Cost</td>
<td>$45,000</td>
<td>$51,000</td>
<td>$96,000</td>
</tr>
<tr>
<td>Treatment Plant Connection Charge (1)</td>
<td>$800</td>
<td>$7,929</td>
<td>$8,729</td>
</tr>
<tr>
<td>Private Service Line</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$15,000</td>
</tr>
<tr>
<td>Decommission Well and Septic</td>
<td>$1,000</td>
<td>$500</td>
<td>$1,500</td>
</tr>
<tr>
<td><strong>Estimated Capital Cost Per Property</strong></td>
<td><strong>$54,300</strong></td>
<td><strong>$66,929</strong></td>
<td><strong>$121,229</strong></td>
</tr>
</tbody>
</table>

(1) Cost of the water and wastewater connection fee from the 2019 Town Development Charges Pamphlet.
Full Servicing – Annual Payment (20-Year Debenture)

<table>
<thead>
<tr>
<th>System Component</th>
<th>Water ($/property)</th>
<th>Wastewater ($/property)</th>
<th>Total ($/property)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Capital Debenture Payment</td>
<td>$3,180</td>
<td>$3,912</td>
<td>$7,092</td>
</tr>
<tr>
<td>Annual Water/Sewer Rates</td>
<td>$552</td>
<td>$467</td>
<td>$1,019</td>
</tr>
<tr>
<td>Private Service Line–Paid Upfront</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Decommission Well &amp; Septic–Paid Upfront</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total Cost Per Property</strong></td>
<td><strong>$3,732</strong></td>
<td><strong>$4,379</strong></td>
<td><strong>$8,111</strong></td>
</tr>
</tbody>
</table>
Preferred Option – Factors Effecting Final Cost

• The actual construction value current costs are ESTIMATES (+/- 30%)

• Additional funding from:
  • Town
  • County, Province, Federal Government
  • Other grants or sources

• Final split between development share and existing lots
  • Assumed equal split

• The number of future lots costs are allocated to
  • Assumed 239 new units, other projections anticipate up to 460 units

• Period of Debenture (20 vs. 35 years) and Interest Rates (3%)
Implementation and Project Phasing

• With this EA study completed, the Town is in a strong position to make a “shovel ready and funding worthy” grant application to offset projects to make it affordable.

• The project will only advance to design and construction when the Town Council deems the project affordable, or an order is received from provincial authority to do so by regulation.

• Town has ten (10) years to start construction, or the EA study will have to be updated.

• Project can be constructed in phases (i.e. downtown or other priority area first), however, cost sharing and tracking may be complicated.
Interim Measures

Immediately

• Implement voluntary well maintenance and testing program
  • Develop in consultation with Heath Unit and residents
  • Drop off bottles and literature at all properties with wells
  • Establish temporary sample collection point 3x per year
• Apply for grants or alternative funding to off-set costs

5 – 10 years

• Consider phased project implementation
• Consider implementing septic re-inspection program
Possible Construction Phases
Possible Schedule

- Year 1 – Pre-design
- Year 2 – Final Design Downtown (Phase 1)
- Year 3 – Construction Downtown (Phase 1) and Final Design Phase 2 & 3
- Year 4 – Construction Phase 2 and Final Design Phase 4,5 & 6
- Year 5 – Construction Phase 3 and Phase 4
- Year 6 – Construction Phase 5
- Year 7 – Construction Phase 6
- Year 8 – Project Wrap-Up
- Year 9 – Final Cost Allocation By-Law

* There is the potential to combine phases, but this may result in more construction disturbances and traffic interruptions during implementation
Mitigation – Impacts to Natural Environment

There is the potential of impacting endangered or threatened species throughout construction. Up to three river crossings are required, which may negatively impact fish populations.

To mitigate and reduce these impacts, the following steps should be taken:

- Possible impacts should be reduced or eliminated wherever possible
- Adjust timing of work in water
- Use of directional drilling to tunnel under the river
- Use erosion control and tree protection measures
- Restoration planting
- Etc.
Mitigation – Challenges to Businesses

During construction access to downtown businesses may be restricted. Possible mitigation measures that will reduce the impact of construction on businesses include:

- Considering servicing from the back of lots during design
- Timing the construction appropriately, ex. during low business periods
- Maintaining pedestrian traffic throughout the construction period
Next Steps

1. Incorporate comments from the public and agencies into the Phase 2 Report
2. Draft Project File report to be presented to Council
3. ‘Notice of Completion’ to be issued by Town for 30-day Review
4. If no request for a ‘Part II Order’ is received, the Phase 1 & 2 of the Class EA will be complete
5. Town can consider Project Implementation (Phase 5) of the preferred alternatives
Questions?