

Town of Midland

Water Servicing Master Plan Update Report

Final

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Executive Summary

1. Background

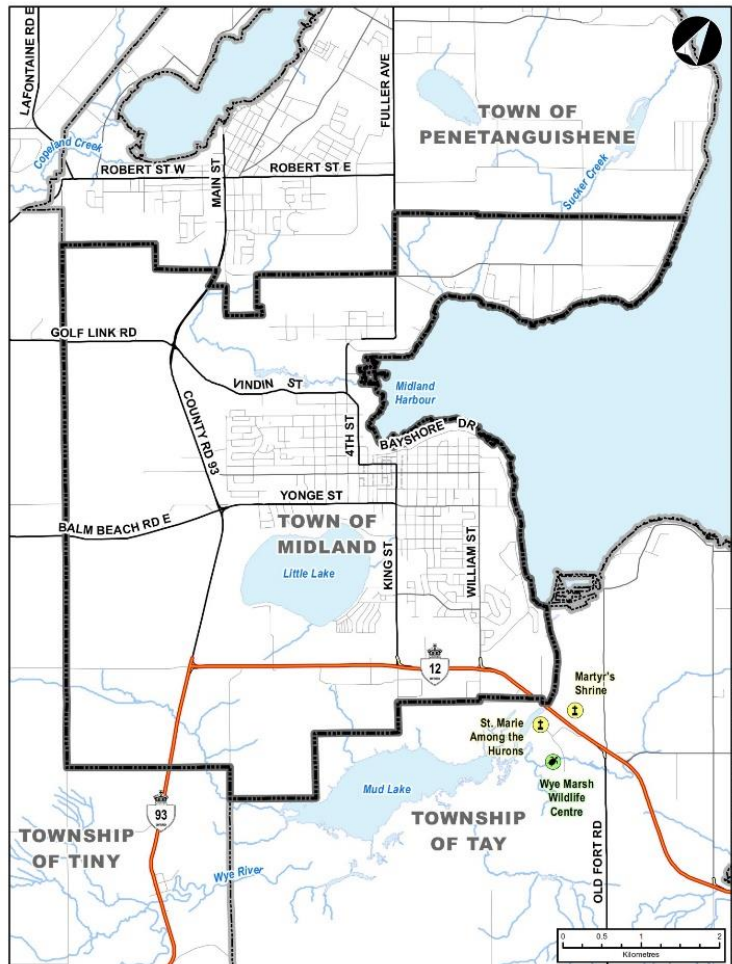
The Town of Midland (the Town), has retained AECOM Canada Ltd. (AECOM) to complete a Waterworks Master Plan (the Master Plan) study update. The study is growth focused and provides an efficient and cost-effective maintenance and expansion program for the municipal potable water supply system in the Town of Midland. The Master Plan has been developed in the context of projections on water treatment requirements and quantity needs over the next 20 years to 2041. It identifies the preferred water supply and servicing strategy, including the associated capital upgrades needed to provide sustainable municipal water to meet expected growth.

The Project Study Area encompasses the entire limits of the Town of Midland, as illustrated in **Figure ES-1**.

Since the Town of Midland also provides water services to Sainte-Marie Among the Hurons, Wye Marsh Wildlife Centre, and the Martyrs' Shrine, this portion of the neighbouring Township of Tay was also included in the study area.

The Town of Midland water system (groundwater based) serves approximately 5,400 residential and commercial customers and also supplies water for approximately 475 fire hydrants. The Town of Midland is identified as a Primary Urban Settlement Area

Figure ES-1: Project Study Area



in the Growth Plan for the Greater Golden Horseshoe (2017, amended 2020) and is anticipating continued growth and development in the community.

The Town has also initiated several other studies that include a Wastewater Master Plan, Transportation Master Plan, Parks Master Plan and Official Plan Update. Water servicing infrastructure improvements have considered the aforementioned studies to make certain that servicing infrastructure can accommodate future growth and be co-ordinated where applicable.

This Master Plan update was completed with the intent of addressing the requirements of the first two phases of the Municipal Class Environmental Assessment (MCEA) document (October 2000, as amended in 2007, 2011 and 2015), which is approved under the *Ontario Environmental Assessment Act (EAA)*. This Master Plan update has followed Approach #2 of the MCEA whereby select Schedule B projects (e.g., new booster pumping station) are considered approved following issue of the Notice of Completion for this Master Plan.

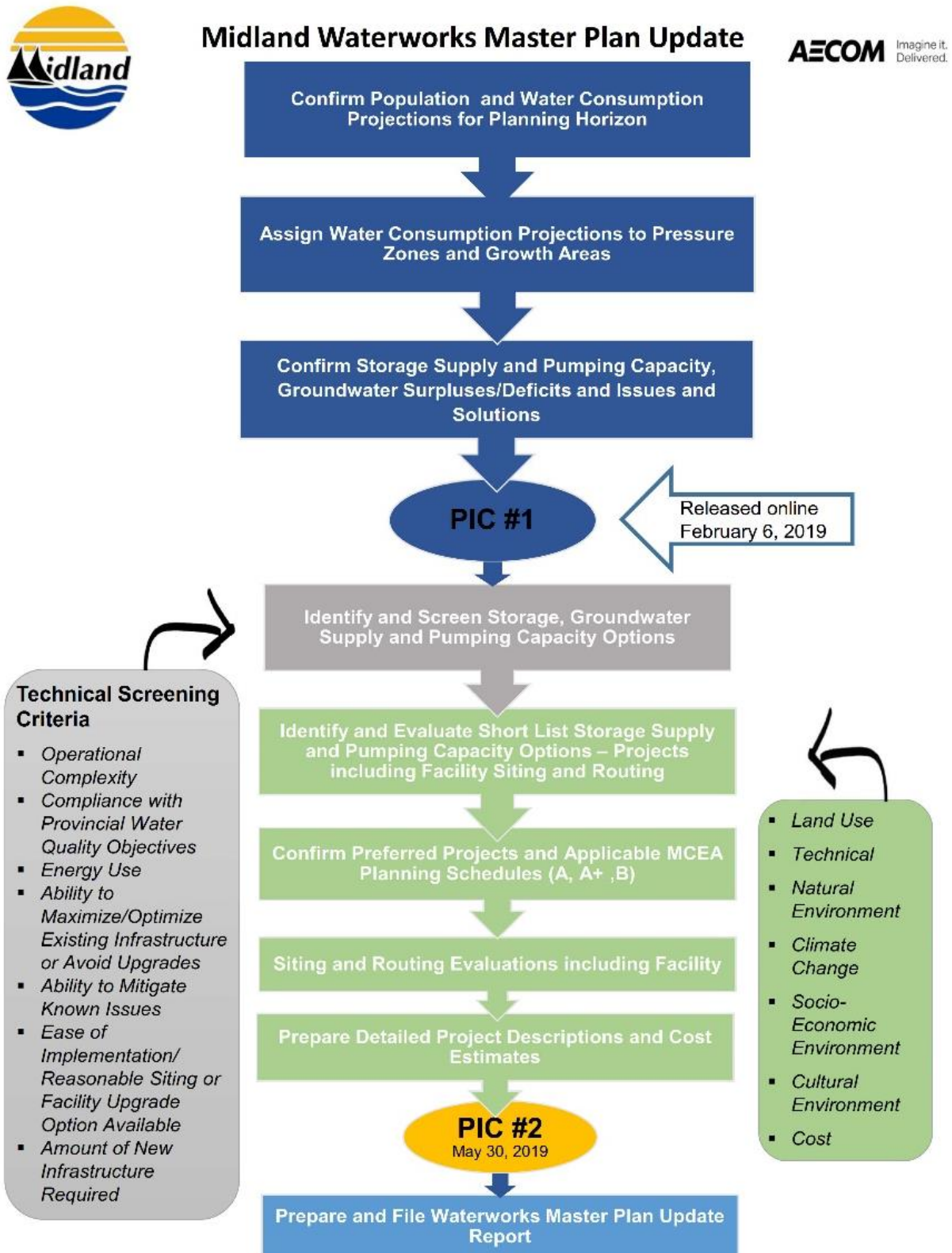
2. Master Plan Purpose and Objectives

The purpose and objectives of the Master Plan are to:

- Provide an efficient and cost-effective maintenance and expansion phasing program for the municipal potable water supply system in the Town.
- Confirm the preferred water supply and servicing strategy, including the associated capital upgrades necessary to support capital planning for key components of the water supply and distribution system.
- Ensure documentation of the study process complies with Phases 1 and 2 of the MCEA planning process.

The Master Plan is considered a “living” document that should be regularly updated as the Town continues to grow and develop. **Figure ES-2** presents the master plan update process.

Figure ES-2: Master Plan Update Process



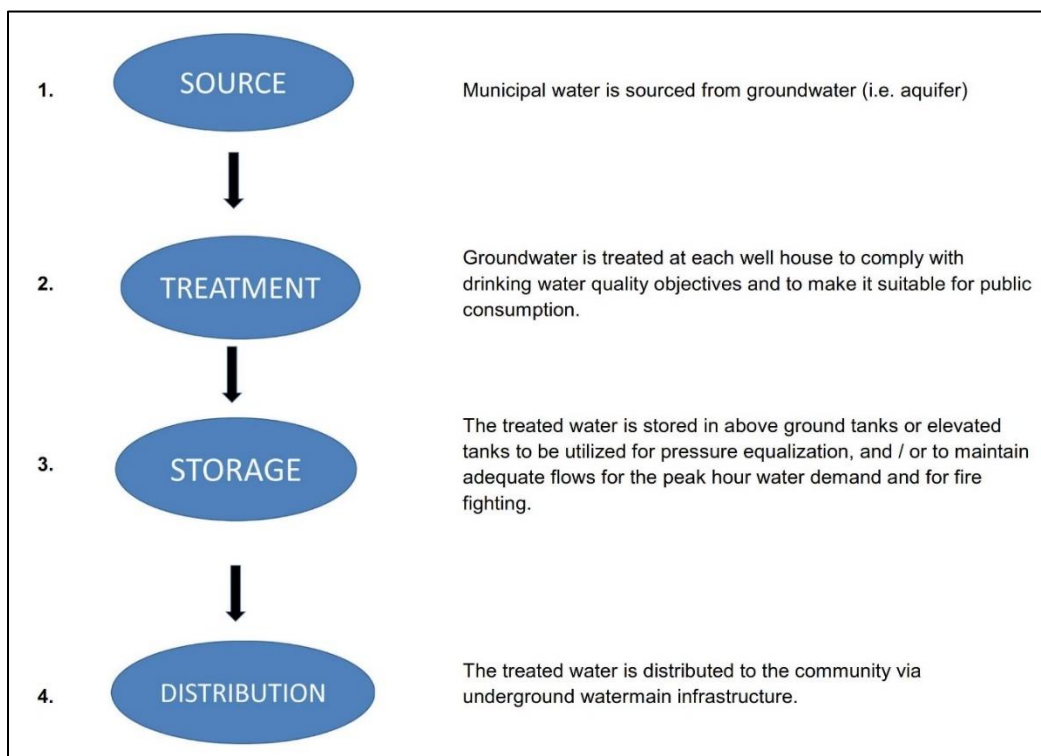
3. Midland Water Supply and Distribution System – Key Components

Key components of the existing system are summarized as follows:

- Ten Municipal wells currently supply treated municipal water to four Pressure Zones, providing service to people within the legal boundaries of the Town, in addition to customers outside the Town limits.
- Booster Pumping Stations (BPSs) – supply water to the distribution system. The Town currently operates five booster pumping stations.
- Water Storage Facilities – provide emergency water supply and help regulate pressure in the water distribution system. The Town currently operates five storage facilities consisting of either elevated tanks or standpipes.
- Water Distribution System – consists of watermains that connect the source (municipal well), pumping stations, water storage facilities and Town customers. There are approximately 120 km of watermain in the water distribution system-

The above components are identified collectively in Figure ES-3.

Figure ES-3: Town of Midland Water Supply and Distribution System – Key Components



4. Phase 1 Problem / Opportunity Statement

The Master Plan assessed the existing system through a review of municipal well, pumping capacity, and elevated tank/standpipe storage capacity, including backup pumping capacity, and pipe capacity for the entire modelled water distribution network. Town residential and employment forecasts and known/expected approved subdivision developments were integrated into the assessment of the existing system to confirm future water demands. This information also considered 2041 build out scenarios. Water demands were assigned to the pressure zones to establish where storage and pumping surpluses and deficiencies exist. Analysis of storage, pump capacity, and well production capacity concluded the following:

- East pressure zone does not have sufficient storage capacity. Requires additional storage capacity of 4.67 ML.
- Lescaut and Sunnyside pressure zones do not have sufficient pump capacity to meet projected water demands and fire flow demands.
- Insufficient well production by 2041 in the system. Requires additional well capacity of 1.37 MLD.
- Low pressure in area south of Little Lake on Highway 12 between King Street and County Road #93.
- Need for redundancy of supply in the Sunnyside zone.

Considering the expected growth and vision of the Town's Official Plan, coupled with the results of the Preliminary Hydraulic Analysis conducted for this study, the Study Team identified the following Problem and Opportunity Statement as follows:

- **Problem:** Moderate near and long-term growth is expected in the Town of Midland. As such, there is a need for improving water production/supply and servicing in a sustainable manner that can be logically phased. Additional infrastructure and improvements to the existing system must be in place in a timely and orderly manner to service approved growth. A detailed cost phasing and implementation plan is required to allow the Town to develop a capital works program and budget.
- **Opportunities:** To develop a water utility-infrastructure master plan or "road map" that will support future capital works planning and funding opportunities and meet the needs of existing and future water customers.

5. Phase 2 Alternative Solutions and Strategies

To address the identified deficiencies the project team initially developed a 'long list' of alternative solutions for each component. These were then screened based on their ability to meet Technical Criteria that included operational complexity, energy use, system optimization, constructability, capital requirements, and the ability to mitigate existing key servicing issues. Those options that were deemed technically viable were carried forward for a full evaluation as part of the short list of solutions for each component. Short listed options were then further evaluated based on the following factors:

- Land use
- Technical
- Natural Environment
- Climate Change
- Socio-Economic Environment
- Cultural Environment
- Cost

Following the receipt of input from the public, agencies and Indigenous Communities the Preferred Solutions were then selected and formulated into a recommended implementation strategy based on short, mid and long-term in-service dates as presented below:

Short Term (1-5 years)

- Upgrade Everton BPS (Alt. 3C);
- Upgrade Hanly BPS (Alt. 3A);
- Abandon Well 12 (Alt. 2A);
- Abandon Well 1A (Alt. 2A);
- Extend life of Dominion and Montreal Standpipes by 5-10 years; and
- Twin Harbourview Drive Watermain– (Alt. 5A) (Opportunity to co-ordinate with installation of twin forcemains and road improvements).

Mid Term (5-10 years)

- New Storage in the East Pressure Zone Near Wells 7A/7B (Alt. 1A). Dominion and Montreal standpipes to be decommissioned;

- New BPS for New Pressure Zone in the South (Alt. 4A); and
- New “South” Pressure Zone (Alt. 4A).

Long Term (15-20 years)

- Commission Sundowner Well (Alt. 2A);
- New BPS at Balm Beach Road for future development (Alt. 2A); and
- New trunk watermain for future growth in the West Zone along Highway 93 (Alt. 4B).

Preferred Solutions – Project Descriptions

The MCEA defines four (4) types of Project Schedules (i.e., A, A+, B, or C). The applicable schedule determines the level of MCEA planning required and will establish whether a project can proceed to implementation or whether additional MCEA study will be required. **Table ES-4** identifies the applicable MCEA Project Schedule for each of the Preferred Solutions that make up the Recommended Strategy.

Historically, projects classified as Schedule A and A+ were considered pre-approved; however, the approval of Bill 108 (*More Homes, More Choice Act*) resulted in an amendment to the EA Act so that these low impact projects are now considered exempt from the Act. Regardless, Schedule A and A+ projects can proceed to implementation without further MCEA process, except for the latter which must complete public notification prior to construction.

Master Plan Approach #2 involves the preparation of a Master Plan document (i.e., Master Plan Project File) at the conclusion of Phases 1 and 2 of the Municipal Class EA process, where the level of investigation, consultation and documentation are sufficient to fulfill the requirements for select Schedule B projects. For this study, one Schedule B project (Alt. 3A Upgrade Hanly Booster Pump Station) is being completed under the full MCEA Schedule B planning process and can therefore proceed to implementation following completion of this Master Plan process.

All identified interim and long-term Schedule B and C projects will be reconfirmed when the new MEA Municipal Class EA document is amended (anticipated in 2021) and may be subject to the next Waterworks Master Plan Update.

Table ES-4: Preferred Strategy MCEA Project Classification

Recommended Strategy	Municipal Class EA Project Schedule
Short Term (1-5 Years)	
Upgrade Everton Booster Pump Station (Alt. 3C)	Schedule A (See Class EA pg. 1-11 Item 2)
Upgrade Hanly Booster Pump Station (Alt. 3A)	Schedule A or B (depending if new structure required) (See Class EA pg. 1-11 Item 2) (See Class EA pg. 1-16 Item 4)
Abandon Well 12 & Well 1A (Alt. 2A)	Schedule A + (See Class EA pg. 1-13, Item 5)
Twin Harbourview Drive Watermain (Alt. 5A)	Schedule A+ or B (depending if within or outside right-of-way) (See Class EA pg. 1-13, Item 1) (See Class EA pg. 1-6, Item 1)
Mid Term (5-10 Years)	
New South Pressure Zone including New Booster Pump Station and associated watermain (Alt. 4A)	*Schedule B (New BPS = Sch. B – see Class EA pg. 1-16, Item 4) (New watermain = Sch. A+ or B depending if within ex. municipal property See Class EA pg. 1-13 Item 1 or pg. 1-16, Item 1)
New Storage East Pressure Zone (Alt. 1A)	Schedule B (See Class EA pg. 1-16, Item 6)
Long Term (15–20 years)	
Commission Sundowner Well (Alt. 2A)	Schedule B (See Class EA pg. 1-17, Item 8)
Decommission Dominion Storage Tank	Schedule A + (See Class EA pg. 1-13, Item 5)
Decommission Montreal Storage Tank	Schedule A + (See Class EA pg. 1-13, Item 5)
New Booster Pump Station at Balm Beach Road	Schedule B (See Class EA pg. 1-16, Item 1)
New Trunk Watermain in West Zone on Hwy 93 (Alt. 4B)	Schedule A or B (depending if within existing municipal property) (See Class EA pg. 1-13, Item 1) (See Class EA pg. 1-16, Item 1)

**NOTE: Applicable MCEA Project Schedule adjusted from Schedule C to B following PIC No. 2*

In addition to the above the study has also identified the potential to interconnect the Town of Midland and Town of Penetanguishene municipal water supply systems which can provide mutual benefits to both communities. This inter connection may be further explored through future study, subject to direction from both Town Councils.

6. Consultation

This undertaking has fulfilled the consultation requirements of the Municipal Class EA process and involves issue of three formal notices as follows:

- Notice of Commencement / Public Information Centre No. 1
- Notice of Public Information Centre No. 2
- Notice of Completion

A Project Contact List was developed for the project that included additional departments at the Town of Midland, Community organizations, the Midland development community, Emergency Services and institutions, area utilities, affected property owners/residents, area businesses, Indigenous Communities, and external agencies. During each point of contact notification was provided to the public, key stakeholders, relevant agencies and Indigenous Communities.

As this project was completed with the intent of addressing Phases 1 and 2 of the Class EA process only one PIC was required as a minimum to fulfill MCEA requirements. As two PICs were planned, it was determined that the first of the two PICs would be completed as an online version available on the municipality's website at www.midland.ca which was activated February 6, 2019. The municipality hosted Public Information Centre No. 2 on Thursday, May 30, 2019 using an informal, drop-in style format. To address stakeholder concerns the municipality also devoted the hour in advance of the main public session (from 4:00 pm to 5:00 pm) to provide opportunity for key stakeholders to discuss any concerns with team representatives. A total of 14 individuals signed in with attendees including several Land Developers, consultant representatives for property owners, area residents as well as representatives from the Town of Penetanguishene and the Martyrs' Shrine.

Following PIC No.1 one (1) agency comment was received from the Severn Sound Environmental Association. Two (2) residents submitted a comment and two (2) consultants submitted comments on behalf of their respective clients that own property within the municipality. Saugeen First Nation was the only Indigenous Community to submit a comment in response to PIC No. 1. Following PIC No. 2 five (5) comments were received from area landowners via their respective consultants and one (1) comment was submitted by a resident at the PIC. The Town's Fire Department also submitted a formal comment. No comments were received from agencies or Indigenous Communities following PIC No. 2.

An update email was also circulated to Indigenous Communities on the Project Contact List December 17, 2019 to make certain that they received the earlier notifications and were aware of the project and to generally confirm if they had any questions or concerns. A follow-up phone call was also made to each community on January 9th and 10th, 2020. In response, the Saugeen Ojibway Nation Environment Office confirmed that the project is outside their territory and directed that both communities be removed from the Project Contact List. The only other Indigenous respondent was the Huron Wendat First Nation who requested that they be kept informed regarding the initiation of any archaeological studies to be undertaken during future phases of the project.

The Project Team reviewed all input received and made modifications to the Preferred Strategy where possible to address the concerns raised. All comments and concerns

are considered addressed and there remain no outstanding public, agency or Indigenous Community concerns.

This Master Plan document was presented to Council December 9, 2020 and adopted by Council.

7. Conclusion and Next Steps

The Recommended Strategy and proposed projects resolve the problem and opportunity statement identified in this report. A preliminary evaluation of potential impacts has been included in the evaluation of alternative solutions which indicates minor and predictable impacts which can be addressed by the application of appropriate mitigation measures to be further developed during the preliminary and detailed design phase. Consultation requirements of the MCEA have been fulfilled through an online Public Information Centre and a Public Consultation Drop-in Event, agency and indigenous consultation and the submission of this Master Plan for the 30-day review period. This Master Plan update has fulfilled the MCEA requirements for the identified Schedule B project (i.e., Hanly St. BPS – Alt. 3A). Following MCEA documentation filing and clearance, the Town may proceed with implementation of the projects as identified including the preliminary/detailed design to complete the upgrades to the aforementioned Schedule B Hanly BPS (Alternative 3A) project.

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Appendices

Appendix A. Midland Waterworks Master Plan Update Preliminary Servicing Strategies
Technical Memo (AECOM, March 18, 2019)

Appendix B. Consultation

- B1. Consultation Plan
- B2. Notice of Commencement / PIC No. 1
 - Notice
 - Municipal Project Website
 - Agency / Stakeholder / Indigenous Community Notification Letters
 - PIC No. 1 Material
 - Questionnaire & Comment Sheet
 - Comments Received / Response Provided
- B3. Notice of PIC No. 2
 - Notice
 - Municipal Project Website
 - Property Owner/Indigenous Community/Agency/Stakeholder Notification Letters / Emails
 - PIC No. 2 Material
 - Comments Received / Response Provided
- B4. Indigenous Community Follow Up
 - Follow Up Email Issued December 17, 2019
 - Emails Issued Following January 9/10, 2019 Phone Calls
 - Comments Received / Response Provided
- B5. Council Meeting
 - Council Presentation
 - Staff Report
 - Comments Received / Response Provided
- B6. Notice of Completion

Appendix C. Schedule 'B' Project Technical Memorandum – Alt. 3A Pump Station
Upgrades at Hanley Street

Appendix D. Hydraulic Modelling Analysis

List of Acronyms

ADD	Average Daily Demand
BPS	Booster Pumping Station
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAA	Environmental Assessment Act
ESR	Environmental Study Report
ET	Elevated Tank
FF	Fire Flow
GAC	Granulated Activated Carbon
GGH	Greater Golden Horseshoe
GIS	Geographic Information System
HVA	Highly Vulnerable Aquifer
IPZ	Intake Protection Zone
LWL	Low Water Level
MCEA	Municipal Class Environmental Assessment
MDD	Maximum Day Demand
MEA	Municipal Engineers Association
MECP	Ministry of the Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries
MNRF	Ministry of Natural Resources and Forestry
MTCS	Ministry of Tourism, Culture and Sport
OP	Official Plan
PHD	Peak Hour Demand
PPS	Provincial Policy Statement
PVC	Polyvinyl Chloride
SGRA	Significant Groundwater Recharge Area
TAZ	Traffic Analysis Zone
TCE	Trichloroethylene
TDH	Total Dynamic Head
THM	Trihalomethanes
TWL	Top Water Level
UV	Ultraviolet
WHPA	Wellhead Protection Areas

1. Introduction

1.1 Background

The Town of Midland has retained AECOM Canada Ltd. (AECOM) to complete an update to the Town's existing 2013 Waterworks Master Plan to reflect growth in the community, planned development, and operational changes. The proposed Master Plan Update will provide a comprehensive, cost effective, and sustainable water servicing infrastructure plan for the next 20 years. It will also support the Town's Official Plan Review and Development Charges Study.

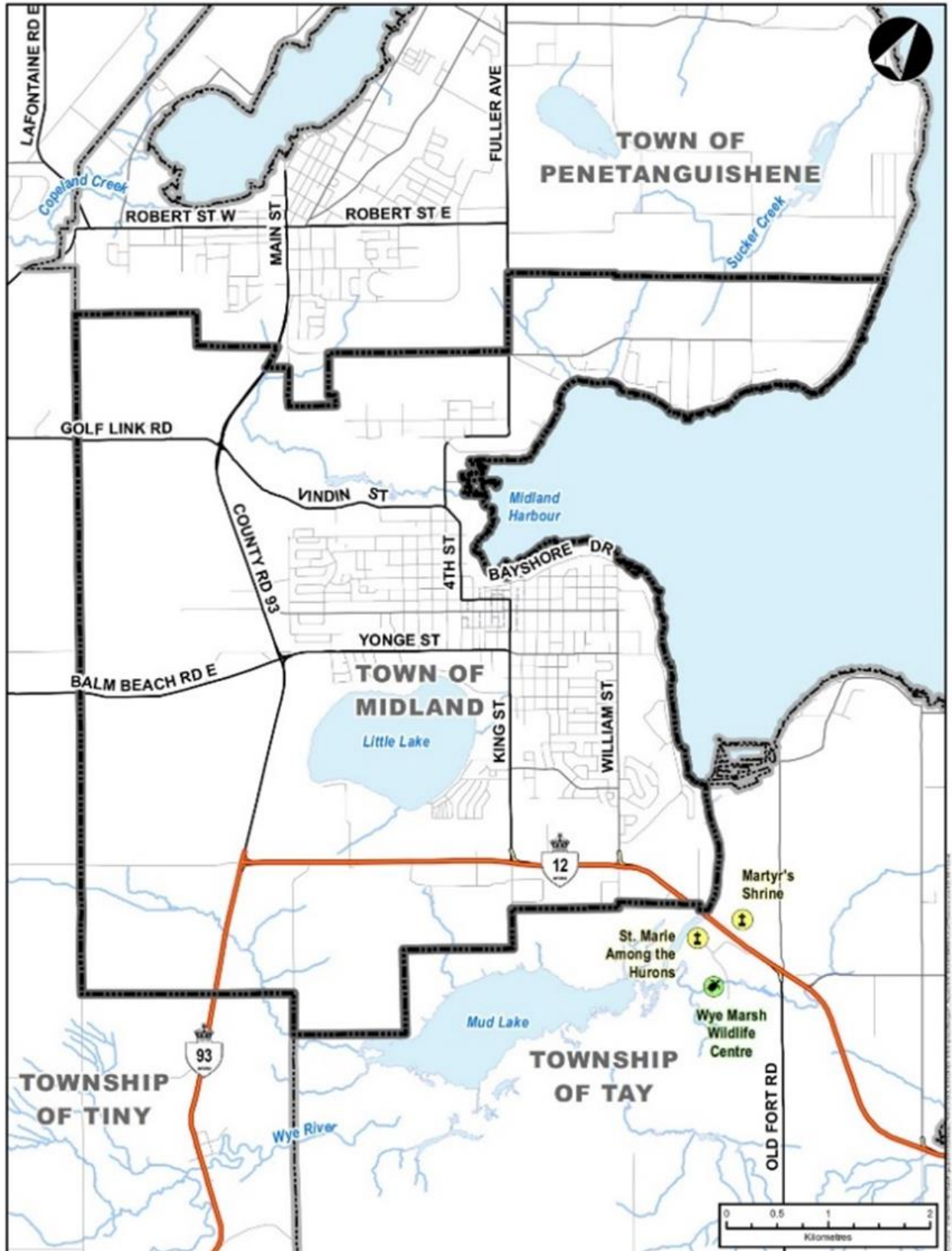
The Town of Midland water system (groundwater based) serves approximately 5,400 residential and commercial customers and supplies water for approximately 475 fire hydrants. The Town of Midland is identified as a Primary Urban Settlement Area in the *Growth Plan for the Greater Golden Horseshoe (2017, amended 2020)* and is anticipating continued growth and development in the community. The existing population of Midland is approximately 16,864 and is expected to reach 22,500 by the year 2031.

This undertaking was completed in accordance with the Municipal Class Environmental Assessment (October 2000, as amended 2007, 2011 & 2015) Master Plan Approach #2 with the intent of fulfilling EA requirements for the Schedule 'A', 'A+', and select 'B' projects identified within the document.

1.2 Study Area

As illustrated in **Figure 1**, the project study area includes the limits of the Town of Midland as well as several key stakeholders located within the neighbouring Tay Township that are currently serviced by the Town of Midland. These include St. Marie Among the Hurons, Martyr's Shrine, and Wye Marsh Wildlife Centre.

Figure 1: Project Study Area



1.3 Purpose, Objective and Planning Process

The purpose of this study is to develop a comprehensive Water Servicing Master Plan for the Town of Midland that reflects anticipated growth and development. This process involves the following key steps:

- Review of the existing municipal water system in relation to growth and future development,
- Identify deficiencies affecting the system,
- Develop alternative solutions to address the identified deficiencies,
- Selection of the Preferred Strategy, and
- Development of an implementation plan,

1.4 Study Team Organization

The Master Plan was undertaken in collaboration between AECOM and the Town of Midland. The key study team members included the following:

- Andy Campbell, Director of Engineering, Water & Wastewater Services (Town of Midland)
- Wesley Crown, Director of Planning & Building Services (Town of Midland)
- Chuck Fiddy, Manager (Town of Midland)
- André Pepin, Water Operator (Town of Midland)
- Randy Provencal, Consultant Project Manager (AECOM)
- Benny Wan, Hydraulic Modelling Lead (AECOM)
- Semyon Chaymann, Infrastructure Analyst (AECOM)
- Karl Grueneis, EA Lead (AECOM)
- Andrea Potter, EA Process and Consultation Lead (AECOM)

1.5 Comparison to Previous Master Plan

The previous Town of Midland Waterworks Master Plan was completed in 2013 and projected the water servicing requirements to 2031. Similar to the current Master Plan update, deficiencies affecting the existing system were identified, alternative solutions were developed to address the deficiencies and ultimately a Preferred Strategy was selected that included the following:

- Construct a single well facility with an approximate capacity of 53 L/s;
- Relocate existing Montreal Street Standpipe (2,881 m³ storage) to West pressure zone;

- Construct a new storage facility in the East pressure zone with an approximate capacity of 2,500 m³;
- Install new pumps at Lescaut booster station (2 duty pumps plus 1 standby - 1 x 6 L/s at 32 m TDH and 2 x 14 L/s at 32 m TDH);
- Build an 865 m long, 250 mm diameter water main on William Street and install necessary valves to allow realignment of Lescaut pressure zone boundary. This would also provide system redundancy North-South;
- Build a 2,100 m long, 300 mm diameter water main along Penetanguishene Road from Yonge Street to Heritage Drive to connect the area south of Little Lake to the existing West pressure zone;
- Build a booster station south of Little Lake to provide East-West booster redundancy (estimated 3 pumps each 34.7 L/s at 61 m TDH would be required); and
- Twin the water main (approximately 250 mm in diameter and 660 m in length) along Harbourview Drive from Vindin Street to Harmony Lane.

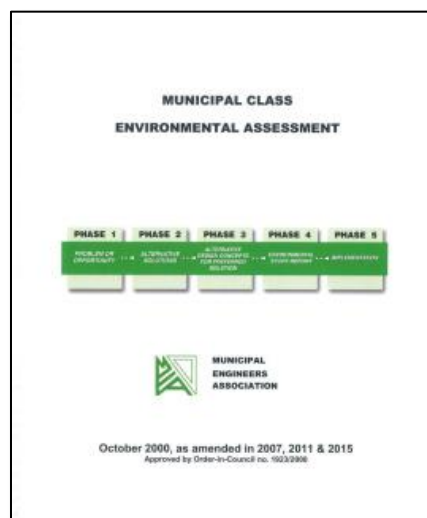
The current Master Plan update gave careful consideration to the recommended strategy of the 2013 Master Plan along with input from the Town of Midland to provide an update on the implementation strategy to meet the water infrastructure requirements up to the 2041 planning horizon. As a result, a different strategy has been identified from the 2013 Master Plan.

2. Environmental Assessment Process

2.1 Overview

The purpose of the Ontario Environmental Assessment Act (OEAA) is to provide for "...the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment." The term "environment" is broadly defined and includes the built, natural, socio-economic and cultural environments. The Act applies to provincial ministries and agencies, municipalities and public bodies (i.e., Conservation Authorities and Metrolinx).

The Class EA is a planning process that has been approved under the OEAA for a class or group of undertakings. A Class EA follows an approved process designed to protect the environment and to ensure compliance with the OEAA. A municipality is required to complete a Municipal Class Environmental Assessment (Class EA) before infrastructure improvements as proposed can be undertaken. Projects that are identified in the Class EA can proceed to implementation without further approval under the Act provided that the approved Class EA planning process is followed.



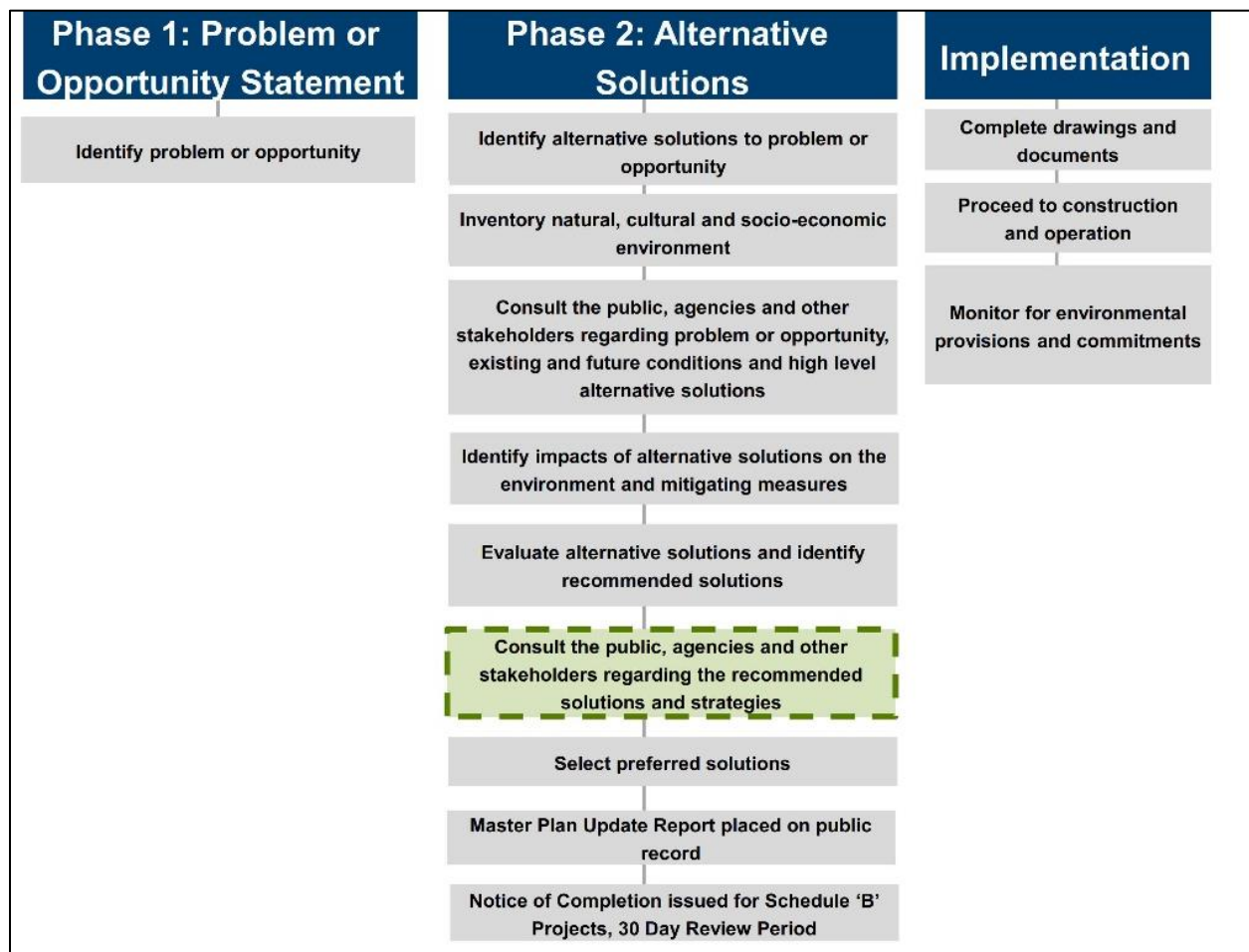
This undertaking was completed in accordance with the Municipal Class Environmental Assessment (October 2000, as amended 2007, 2011 & 2015) planning process. The Municipal Class EA process generally involves the following five phases:

- **Phase 1 – Problem or Opportunity:** Identify the problem(s) or opportunities to be addressed and the need and justification.
- **Phase 2 – Alternative Solutions:** Identify alternative solutions to address the problem / opportunity; evaluate these based on their potential to impact the area environment and establish the Preferred Solution following consideration of public and agency input.
- **Phase 3 – Alternative Design Concepts for the Preferred Solution:** Develop alternative design concepts to implement the Preferred Solution, evaluate the alternatives by giving consideration to potential environmental impacts and select the Preferred Design following the receipt of public and agency input.

- **Phase 4 – Environmental Study Report:** Documentation of the Class EA process in an Environmental Study Report (ESR) followed by a 30-day public review period.
- **Phase 5 – Implementation:** Complete contract drawings and documents, proceed to construction and operation, and monitor construction for adherence to environmental provisions and commitments.

As this undertaking is following Master Plan Approach #2, it is the intent to address Phases 1 and 2 of the Class EA process and thereby fulfill the requirements for the Schedule ‘A’, ‘A+’, and select ‘B’ projects identified within the document so that these can proceed to implementation following completion of the Class EA. **Figure 2** identifies the phases to be completed as part of the current process. The final notice for this Master Plan update will be considered the Notice of Completion for select Schedule ‘B’ projects identified within the document.

Figure 2: Class EA Master Plan Process



2.2 Class EA Schedules

The MCEA defines four (4) types of Project Schedules (i.e., A, A+, B, or C). The applicable schedule determines the level of MCEA planning required. Individual municipal infrastructure projects are categorized into one of the following based on the works proposed, the potential for environmental impact, and anticipated costs:

- Schedule A:** Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are exempt from the EA Act and may proceed to implementation without following the full MCEA planning process.
- Schedule A+:** These projects are similar to Schedule A projects and may proceed to implementation without following the full MCEA planning process; however, the public is to be notified prior to implementation. The manner in which the public is to be advised is determined by the proponent.
- Schedule B:** These projects generally include improvements and minor expansions to existing facilities and have the potential for some adverse environmental effects. The proponent is required to undertake a screening process (Phases 1 and 2) involving mandatory contact with the directly affected public, relevant review agencies and Indigenous communities to ensure that they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. At the end of Phase 2, a Project File documenting the planning process is to be prepared and made available for review.
- Schedule C:** Such projects generally include the construction of new facilities and major expansion to existing facilities. These projects have the potential for significant adverse environmental effects and must proceed under the full planning and documentation procedures (i.e., Phases 1 to 4) as specified in the Class EA document. An Environmental Study Report (ESR) is to be prepared to document the Class EA process and is to be made available for public review.

Note: Projects classified as Schedule A and A+ were historically considered pre-approved; however, the approval of Bill 108 (More Homes, More Choice Act) resulted in an amendment to the EA Act so that these low impact projects are now considered exempt from the Act.

2.3 MCEA Master Planning Process

As defined in Appendix 4 of the MCEA document, Master Plans are long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. The Master Plan approach is based on the following:

- The scope is broad and includes an analysis of the system to outline a framework for future infrastructure rather than focusing on a site-specific problem.
- The Master Plan recommends a set of works which are distributed geographically throughout the study area, some of which may be implemented over a period of time. Collectively, the proposed works are part of the larger infrastructure system.

The intent of this Master Plan update is to develop a Preferred Strategy to address the deficiencies affecting the overall water servicing system. This strategy will be comprised of individual projects that can be completed at various stages. The individual projects that constitute the Preferred Strategy are categorized into an appropriate Project Schedule (i.e., A, A+, B or C) based on the works proposed which determines whether a project can proceed to implementation or if additional MCEA planning is required prior to construction.

2.4 Co-ordination with Other Master Plan Studies

During the completion of this Master Planning process the municipality was also undertaking the following alternate studies:

- Official Plan Review
- Wastewater Master Plan Update
- Transportation Master Plan
- Parks Master Plan

2.5 Federal Impact Assessment Act

In August 2019 the Impact Assessment Act (IAA) came into force, creating the new Impact Assessment Agency of Canada (IAAC) and repealing the former Canadian Environmental Assessment Act (CEAA). The Impact Assessment Act (2019) establishes a Federal Environmental Assessment (EA) process focused on major projects that have a greater potential to have significant adverse effects on areas within federal jurisdiction. The types of activities to which the Act applies (“designated projects”) are identified in the regulation.

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The projects that formulate the Preferred Strategy for the current Master Plan do not constitute a Designated Project under the revised Act and work will not be taking place on Federal lands. As such, a Federal EA is not expected to be required under the IAA for this undertaking.

3. Planning Context

As this Master Plan will establish water servicing infrastructure requirements for the next 20 years it is important to understand the policy framework that guides land use planning and infrastructure development for the municipality. This section provides a discussion of the provincial and municipal planning documents that are applicable to this undertaking and demonstrates how this project is consistent with these policies.

3.1 Provincial Policy Statement

The 2020 Provincial Policy Statement (PPS) provides policy direction on matters related to land use planning and development and applies to any land use planning decisions made under the Planning Act by municipal councils, local boards, planning boards, provincial ministers, provincial government and agency officials. Regional and municipal planning decisions are to be consistent with the policies of the PPS.

Some of the key policies of the PPS (2020) applicable to this project are identified below:

- Section 1.1 Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns
 - *S. 1.1.1: Healthy, liveable and safe communities are sustained by:
 - g) ensuring that necessary infrastructure and public service facilities are or will be available to meet current and projected needs;
 - i) preparing for the regional and local impacts of a changing climate.*
- Section 1.1 Settlement Areas
 - *S. 1.1.3.1 “Settlement areas shall be the focus of growth and development.*
 - *S. 1.1.3.7 b): “Planning authorities should establish and implement phasing policies to ensure the orderly progression of development within designated growth areas and the timely provision of the infrastructure and public service facilities required to accommodate projected needs.”*
- Section 1.6 Infrastructure and Public Service Facilities
 - *S. 1.6.1: “Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts from a changing*

climate while accommodating projected needs. Planning for infrastructure and public service facilities shall be co-ordinated and integrated with land use planning and growth management so that they are:

- a) financially viable over their life cycle, which may be demonstrated through asset management planning; and*
- b) available to meet current and projected needs.”*
- S. 1.6.6. *Planning for sewage and water services shall:*
 - a) accommodate forecasted growth in a manner that promotes the efficient use and optimization of existing:*
 - 1. municipal sewage services and municipal water services; and*
 - 2. private communal sewage services and private communal water services, where municipal sewage services and municipal water services are not available or feasible;*
 - b) ensure that these systems are provided in a manner that:*
 - 1. can be sustained by the water resources upon which such services rely;*
 - 2. prepares for the impacts of a changing climate;*
 - 3. is feasible and financially viable over their lifecycle; and*
 - 4. protects human health and safety, and the natural environment;*
 - c) promote water conservation and water use efficiency;*
 - d) integrate servicing and land use considerations at all stages of the planning process; and*
 - e) be in accordance with the servicing hierarchy outlined through policies 1.6.6.2, 1.6.6.3, 1.6.6.4 and 1.6.6.5. For clarity, where municipal sewage services and municipal water services are not available, planned or feasible, planning authorities have the ability to consider the use of the servicing options set out through policies 1.6.6.3, 1.6.6.4, and 1.6.6.5 provided that the specified conditions are met.1: “Planning for sewage and water services shall*

■ **Section 2.1 Natural Heritage**

- S. 2.1.1: *“Natural features and areas shall be protected for the long term.”*

■ Section 2.2 Water

- *S. 2.2.1: Planning authorities shall protect, improve or restore the quality and quantity of water by:*
 - a) *using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;*
 - c) *evaluating and preparing for impacts of a changing climate to water resource systems at the watershed level;*
 - d) *identifying water resource systems consisting of groundwater features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
 - f) *implementing necessary restrictions on development and site alteration to:*
 - 1. *protect all municipal drinking water supplies and designated vulnerable areas; and*
 - 2. *protect, improve or restore vulnerable surface and groundwater, sensitive surface water features and sensitive groundwater features, and their hydrologic functions;*
 - g) *planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;*
- *S. 2.2.2: Development and site alteration shall be restricted in or near sensitive surface water features and sensitive groundwater features such that these features and their related hydrologic functions will be protected, improved or restored.*

■ Section 2.6 Cultural Heritage and Archaeology

- *S. 2.6.1: "Significant built heritage resources and significant cultural heritage landscapes shall be conserved."*

Relevance to Study: The PPS (2020) was reviewed and considered in the development of this Master Plan update. Consistent with Provincial Policy, this undertaking identifies growth planned within the Settlement Area of the municipality and proposes infrastructure improvements to provide the water servicing requirements to accommodate that growth. This Master Plan is a long-range plan which integrates water

servicing requirements for existing and future land use with principles of EA planning to minimize impacts to the natural, socio-economic, and cultural environment. The Master Plan approach allows the municipality to have a better understanding of the broader picture and to plan and implement improvements in an efficient and cost-effective manner.

3.2 Growth Plan for the Greater Golden Horseshoe

In accordance with the Places to Grow Act (2005), Growth Plans have been developed to manage long-term growth and infrastructure renewal throughout the province. This includes the *Growth Plan for the Greater Golden Horseshoe (2017, amended 2020)* which outlines the growth management policy for the Greater Golden Horseshoe area of southern Ontario which includes the County of Simcoe and the Town of Midland.

The Growth Plan is a long-term plan that promotes the revitalization of downtown cores and the creation of “complete communities” that have all amenities, housing & employment in one location with the goal of eliminating urban sprawl and reducing traffic congestion while protecting farmland and environmentally sensitive features. Lower and upper tier municipalities are required to comply with the policies of the Growth Plan and to manage growth via their respective Official Plan documents using the population and employment growth forecasts identified in the Growth Plan.

Relevance to Study: At the time that this project was initiated the 2017 version of the *Growth Plan for the Greater Golden Horseshoe* was in effect and identified the Town of Midland as a Primary Urban Settlement Area allocating a population for the municipality of 22,500 with 1,800 new jobs by the year 2031. However, during this Master Plan update the *Growth Plan for the Greater Golden Horseshoe* was subsequently amended with the new document coming into effect on August 28, 2020. Among the amendments were updates to population and employment forecasts, a shift in the planning horizon from 2041 to 2051, and other policies to be more consistent with the Provincial Policy Statement (2020). Upper Tier municipalities have until 2024 to update their Official Plans. Given that the Master Plan process was almost complete at the time of the new document coming into effect and since growth to be allocated to the Town of Midland cannot be determined until the County of Simcoe updates their OP document this Master Plan was completed using the 2017 growth forecasts.

3.3 Simcoe County Official Plan

The Town of Midland is located within the County of Simcoe. The County Official Plan (OP) outlines the land use planning and policies for a number of lower-tier municipalities that include the Town of Midland. Planning decisions in the Town of Midland are subject

to the County OP and the Town's Official Plan and Zoning By-law are to conform with the County OP. The County's current Official Plan received partial approval in April 2013 and has since been approved in phases by the Ontario Municipal Board. The County's Official Plan is consistent with Provincial policy and provides for the efficient use of land, cost-effective servicing, economic sustainability and encourages the protection and wise management of the County's resources & natural heritage features.

Relevance to Study: The growth allocated for the Town of Midland was developed between the Province and the County of Simcoe. This Master Plan update has been initiated to address water servicing deficiencies and to accommodate that growth. Servicing upgrades in the Town are in accordance with the goals and policies of the County OP.

3.4 Town of Midland Official Plan Review

The Town of Midland recently completed an Official Plan Review for the municipality which was adopted by Council on November 20, 2019. Section 6.0 of the document identifies the municipality's policies that relate to the planning and implementation of servicing infrastructure.

S. 6.1.1 b)

- i. Ensure the provision of infrastructure is planned in a responsible, efficient and cost-effective manner that is integrated with planning for growth so that these services are available to meet current and projected needs;*
- ii. Ensure that the provision of new or upgraded infrastructure supports the policies of this Official Plan, including in meeting the intensification and density targets;*
- iii. Provide sufficient infrastructure capacity in strategic growth areas;*
- iv. Optimize the use of existing infrastructure, wherever feasible, before considering developing new infrastructure;*
- v. Undertake the appropriate financial planning, including identifying full life cycle costs, to make the necessary investments in infrastructure to accommodate long term growth; and,*
- vi. Consider the impacts of a changing climate, including assessing infrastructure risks and vulnerabilities and identifying strategies to address these challenges.*

S. 6.2.1 a) Development of municipal infrastructure projects will be:

- i. *Co-ordinated and phased in a manner which is efficient, cost effective, and minimizes disruption;*
- ii. *Prioritized where investments support intensification;*
- iii. *Supported by infrastructure master plans, asset management plans, community energy plans, watershed planning, and other relevant studies, where appropriate and available;*
- iv. *Considered in the context of an assessment of infrastructure risks and vulnerabilities, including those caused by the impacts of climate change, and potential mitigative strategies; and,*
- v. *Undertaken in accordance with the Environmental Assessment Act, and the appropriate Class EA requirements.*

Relevance to Study: This Master Plan is being completed in accordance with municipal policies related to growth, development and servicing. Proposed infrastructure upgrades will improve the efficiency of the system and address growth to meet current and projected water demands in a phased manner. This Master Plan is being completed in accordance with the Municipal Class EA process to develop a servicing plan that will address the deficiencies but minimize impacts to the natural, socio-economic and cultural environment. Climate change was also considered in this Master Plan update.

3.5 Source Protection Plan

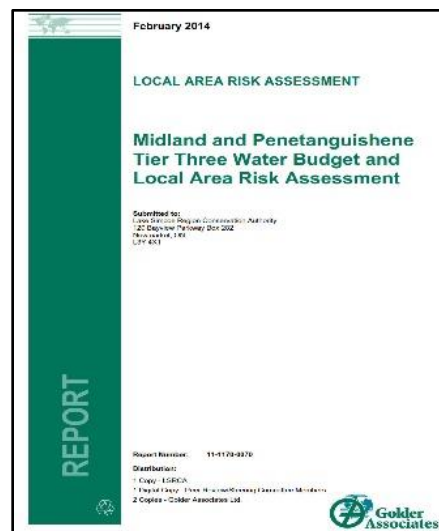
The Clean Water Act (2006) was developed to protect drinking water at the source and to safeguard human health and the environment. The Act makes certain that municipal drinking water supplies are protected by the development of a watershed-based source protection plan. The source protection plans identify vulnerable areas within each municipality that include Wellhead Protection Areas, Intake Protection Zones, Highly Vulnerable Aquifers, Significant Groundwater Recharge Areas, and Issue Contributing Areas. Source protection plans provide policies to address risks to municipal drinking water sources within these vulnerable areas.

Relevance to Study: The Town of Midland is subject to the *South Georgian Bay Lake Simcoe Source Protection Plan* and is located within the *Lake Simcoe and Couchiching/Black River Source Protection Area*. As part of this undertaking the aforementioned Source Protection Plan was reviewed to determine the potential for the proposed servicing improvements to impact a designated vulnerable area and / or adversely affect the quality or quantity of a drinking water source. If a Class EA

undertaking proposes an activity that is a threat to drinking water it must conform to the policies in the SPA that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

3.6 Source Water Protection – Midland and Penetanguishene Tier Three Water Budget and Local Area Risk Assessment

The Midland area sub-watershed was identified as being under moderate stress and was therefore subject to a Tier Three Water Budget review which was documented in the *Midland and Penetanguishene Tier Three Water Budget and Local Area Risk Assessment (Golder Associates, February 2014)*. This type of analysis identifies areas of potential water quantity stress by determining how much water enters a system and comparing it to how much water exits the system. A Water Budget evaluates the risk that a municipality may not be able to meet current or planned water demands.



The modelling completed as part of the water budget optimized pumping strategies and identified wells susceptible to reduced water levels during drought conditions.

Relevance to Study: The Tier 3 Water Budget was given consideration in the development of this Master Plan Update. The assessment identified four separate Local Areas and assigned a risk level accordingly. The Midland Well System Local Area was assigned a moderate risk based on the potential to impact Vindin Creek. The analysis also provides recommendations on monitoring groundwater supply and well systems and removal of Wells 1A and 12 from the Tier Three Budget (wells no longer providing potable water and will be decommissioned).

3.7 Climate Change

The MECP document “*Considering Climate Change in the Environmental Assessment Process*” (2017) outlines the ministry’s expectations for considering climate change during the environmental assessment process. This Guide forms part of the Environmental Assessment program’s Guides and Codes of Practice. The environmental assessment process is to consider how a project might impact climate change and how climate change may impact a project.

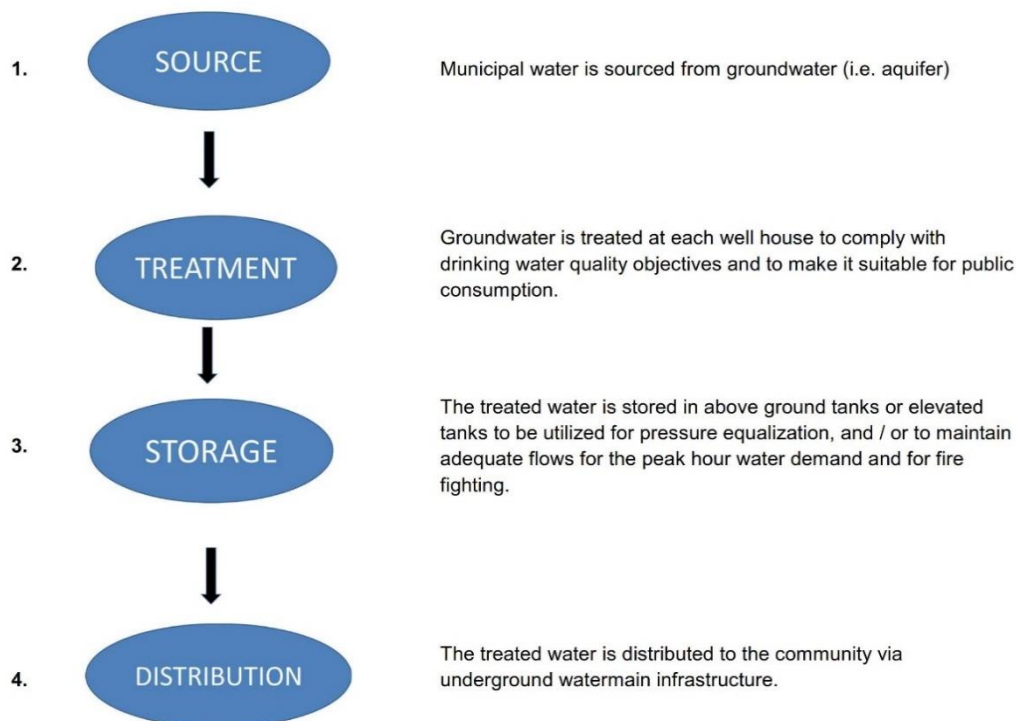
In December 2017, the Ontario government also passed an asset management planning regulation under the Infrastructure for Jobs and Prosperity Act, 2015. This legislation is known as the *Asset Management Planning for Municipal Infrastructure Regulation, O. Reg. 588/17*, and was effective January 1, 2018. This legislation was passed to address the challenges that many municipalities are facing in maintaining infrastructure given population change, aging assets and the impacts of climate change. Infrastructure within many municipalities throughout Ontario is degrading faster than it is being repaired/replaced. The intent of this legislation is to assist municipalities in planning for their infrastructure by applying a standardized and consistent approach to preparing asset management plans. Municipalities are required to maintain an inventory of asset types, replacement cost estimates, average age of assets, and asset condition.

Relevance to Study: In accordance with MECP requirements this Class EA has considered Climate Change including Ontario Regulation 588/17 (Asset Management Planning for Municipal Infrastructure). The potential for the project to impact Climate Change and for Climate Change to impact the project was considered during the development of this Master Plan update.

4. Existing Municipal Water System

4.1 Components of a Municipal Water System

A municipal water system consists of four main components that include source, treatment, storage, and distribution as detailed below:



4.2 Existing Town of Midland Municipal Water System

Treated water in the Town of Midland is distributed into four (4) main pressure zones: East, West, Sunnyside, and Lescaut. The East pressure zone is the largest and has the lowest hydraulic grade line. Water is pumped to the West, Sunnyside, and Lescaut pressure zones using booster pumping stations. Sunnyside and Lescaut are small pressure zones and do not have storage facilities directly associated with the pressure zone.

As summarized from the Town of Midland's current Waterworks Master Plan (AECOM, November 2013), the Town's water supply is currently provided from a groundwater aquifer through four Points of Entry (POE) well sites that include the Highway 12 Treatment System, Hanly Treatment System, Penetanguishene Treatment System, and Vindin (Flume) Well Field. The system consists of ten production wells, nine of which are currently active. Well 12 in the Vindin (Flume) Well Field is in poor condition and is

rarely used. The system also includes five water storage facilities, and approximately 120 km of watermain with approximately 5,848 customer connections. Of the four (4) P.O.E. stations two (2) are sites identified as Groundwater Under Direct Influence (GUDI). (From 2013 Master Plan, S. 5.1 pp. 20).

Additional details pertaining to each of the existing four treatment systems is provided below as quoted from the current *Town of Midland Waterworks Master Plan (AECOM, 2013)*:

4.2.1 Highway 12 Treatment System

This system consists of the following:

■ **Groundwater Supply System:**

Two (2) active wells as follows:

- Well 7A is equipped with a vertical turbine pump, raw water flow meter and isolation valve.
- Well 7B is equipped with a submersible well water pump, raw water flow meter, pitless adaptor and isolation valve.

■ **Pump House:**

- Two (2) duty chemical metering pumps, and one (1) 500 L sodium hypo chlorite storage tank and discharge feed connections;
- Two (2) ultraviolet reactor systems having a design dosage rate of 40 milli Joules per centimeter squared (mJ/cm^2), with automatic cleaning apparatus monitoring and alarm system; piping from the pump house to the Highway 12 existing water main, pump control valves, treated water flow meter, chlorine analyzer, turbidity analyzer and full SCADA control; and
- One (1) 330 kW Stand-by diesel generator supplying stand-by power for all pumps, analyzers, ultraviolet reactors and SCADA.

■ **Flow Capacity:**

- Maximum flow rate of 106 L/s
- Maximum daily volume of 9,158.4 m^3/d
- Well 7A is the firm well for the Midland Well Supply.

4.2.2 Vindin Treatment System

This system consists of the following:

■ **Groundwater Supply System:**

- Consists of six (6) active wells each equipped with a submersible well water pump, pitless adaptor, raw water flow meter and isolation valve.

■ **Pump House:**

- One (1) split case centrifugal high lift pump rated for 37.9 L/s vs 85.3 m TDH;
- One (1) split case centrifugal high lift pump rated for 45.5 L/s vs 79.3 m TDH;
- One (1) in-line centrifugal high lift pump rated for 37.9 L/s vs 79.3 m TDH;
- Two (2) ultraviolet reactor systems having a design dosage rate of 40 milli Joules per centimeter squared (mJ/cm^2), with automatic cleaning apparatus monitoring and alarm system;
- Two (2) duty chemical metering pumps and one (1) 500 L sodium hypo chlorite storage tank;
- One (1) 330 kW Stand-by diesel generator supplying standby power for all pumps, analyzers, ultraviolet reactors and SCADA;
- Discharge piping from the pump house to the existing water main, pump control valves, treated water flow meter, chlorine analyzer, turbidity analyzer and full SCADA control.
- Standby Generator - a 45 kW standby natural gas generator in separate building beside Well house #6 supplying standby power for four (4) wells.

■ **Flow Capacity:**

- Maximum flow rate of 90.1 L/s
- Maximum daily volume of 7,785 m^3/d

4.2.3 Hanly Treatment System

This system consists of the following:

■ **Groundwater Supply System:**

- Hanly Groundwater Supply System Consisting of one (1) active well, equipped with a submersible well water pump, pitless adaptor and isolation valve.

■ **Pump House:**

The Pump house is located at the southwest corner of Hanly Street and Russell Street and consists of the following:

- One (1) ultraviolet reactor system having a design dosage rate of 38 milli-Joules per centimeter squared (mJ/cm^2), with automatic cleaning apparatus, monitoring and alarm systems;
- Two (2) chemical metering pumps (one duty and one standby)
- One (1) 200 L sodium hypo chlorite storage tank and discharge feed connections;
- Discharge piping from the pump house to the Hanly Street existing water main, pump control valves, treated water flow meter, chlorine analyzer, turbidity analyzer and full SCADA control.

■ **Flow Capacity:**

- Maximum flow rate of 15.2 L/s
- Maximum daily volume of 1,313 m³/d
- Well 15 Point of Entry supplies treated water to the Lescaut Pressure Zone.

4.2.4 Dominion Treatment System

This system consists of the following:

■ **Groundwater Supply System:**

- Dominion Groundwater Supply System consisting of one (1) active well, equipped with a submersible well water pump, pitless adaptor and isolation valve.

■ **Pump House:**

The Pump house is located at the southeast corner of Dominion Avenue and Old Penetanguishene Road and consists of the following:

- One (1) ultraviolet reactor system having a design dosage rate of 38 milli-Joules per centimeter squared (mJ/cm²), with automatic cleaning apparatus, monitoring and alarm systems;
- Two (2) chemical metering pumps (one duty and one standby) and one (1) 200 L sodium hypo chlorite storage tank and discharge feed connections;
- One (1) electric booster fire pump, fully alarmed and monitored, to supply a fire flow capacity of 91.4 L/sec vs. 33.5 m TDH to the County Road #93 commercial distribution grid due west of the Pumping Station.
- Discharge piping from the pump house to the existing water main, pump control valves, treated water flow meter, chlorine analyzer, turbidity analyzer and full SCADA control.

■ **Flow Capacity:**

- Maximum flow rate of 23 L/s
- Maximum daily volume of 1,987 m³/d
- Well 9 Point of entry supplies treated water to the West Pressure Zone.

4.3 Midland Water Supply

As illustrated in **Table 1** the municipality has ten (10) active groundwater production wells as well as a number of observation wells or wells that are decommissioned and inactive as presented in **Table 2**.

Table 1: Midland Groundwater Production Wells

Well No.	Location	Type	Pressure Zone	Year Constructed	Depth	Diameter	Production
Well 7A	Highway 12 Treatment System, south of Highway #12	Groundwater	Well Field 7	1972	64.3 m	600 mm	57 L/s @ 103.7 m TDH
Well 7B	Highway 12 Treatment System, south of Highway #12	Groundwater	Well Field 7	1989	64.9 m	300 mm	49 L/s @ 105.5 m TDH
Well 9	Penetanguishene Treatment System, 1060 Dominion Ave	Groundwater	West	1978	93.9 m	178 mm	23 L/s @ 38 m TDH
Well 15	Hanly Treatment System, 365 Hanly Street	Groundwater	Lescaut	1985	46.6 m	200 mm	15.2 L/s @ 42 m TDH
Well 6	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1971	30.2 m	600 mm	20.8 L/s (CofA has 19 L/s @ 30m)
Well 11	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1978	35.8 m	600 mm	20.8 L/s (CofA has 22.7 L/s @ 30m)
Well 12	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1979	30.8 m	200 mm	7.6 L/s
Well 14	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1979	35.5 m	200 mm	11.4 L/s
Well 16	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1987	35.1 m	200 mm	15.2 L/s @ 30 m TDH
Well 17	Vindin (Flume) Well Field	GUDI with effective in-situ filtration	Reservoir / Flume	1987	25.6 m	200 mm	15.2 L/s (CofA has 14.2 L/s @ 30m)

Source: Town of Midland Waterworks Master Plan Update Final Report, AECOM, November 2013

Table 2: Observation, Decommissioned and Inactive Wells

Well No.	Location	Well Type	Year Constructed
Observation Well #7	Highway 12 Treatment System, south of Highway #12	Observation	1972
TRW Observation Well	Behind TRW Highway 12	Observation	1974
Hanly/Manly Test Holes 123	West end of Hanly St.	Observation	1983
Well #8	Rowing Club	Observation	1975
Observation Well #9	Penetanguishene Treatment System, 1060 Dominion Ave	Observation	1976
Observation Well #10	Penetanguishene Treatment System, 1060 Dominion Ave	Observation	1976
Observation Well #19	Sundowner & Balm Beach Rd.,	Observation	1996
Montreal Observation Well	Montreal Street Tank, 837 Montreal St	Observation	1973
Well #1a	67 Fourth Street	Inactive Production Well (22.7 L/s Capacity)	1996
Observation Well #1a	67 Fourth Street	Observation	1973
Test Well #1a	67 Fourth Street	Observation	1995
Observation Well North 1 and 2	Vindin (Flume) Well Field	Observation	1986
Observation Well #2	Vindin (Flume) Well Field	Observation	1986
Observation Well #3	Vindin (Flume) Well Field	Observation	1986
Last Pond Observation Well	Last Pond, Vindin (Flume) Well Field	Observation	1970
Observation Well #6	Vindin (Flume) Well Field	Observation	1970
Back Road Observation Well	Back Road, Vindin (Flume) Well Field	Observation	1977
Observation Well #11	Vindin (Flume) Well Field	Observation	1977
Well #13	Vindin (Flume) Well Field	De-Commissioned	
Observation Well #17	Vindin (Flume) Well Field	Observation	1986
Sunnyside Observation Well #1	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Observation	1983
Sunnyside Observation Well #2	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Observation	1983
Abandoned Tay Well	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	De-Commissioned	
#7 Test Hole 3,4,5	Highway 12, east side of Beamish Rd	Observation	1972
Well #22	Portage Park	De-Commissioned	
Well #23	Portage Park	De-Commissioned	
Well #21	Portage Park	Observation	1960
Sundowner Well	½ km south-west of end of Sundowner Road	Inactive Production Well (53 L/s Capacity)	2010
Well 20	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Standby Well, Groundwater, Artesian	1983
Well 24	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Groundwater, Artesian	1984
Well 25	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Groundwater, Artesian	1984
Well 26	Sunnyside Groundwater Supply System, 166 Sunnyside Drive	Groundwater, Artesian	1984

Source: Town of Midland Waterworks Master Plan Update Final Report, AECOM, November 2013

4.4 Midland Pumping Stations

Table 3 below identifies the Town's existing well pumps (HLP) and booster pumps (BP).

Table 3: Midland Pumping Stations

Pump Station	Location	Type	Pressure	Pumps	Rated Capacity
Penetanguishene Treatment System	1060 Dominion Ave	Emergency Fire Pumping	West	Well #9 Fire Pump	126.2 L/s
Vindin (Flume) Treatment System	Vindin St and Sunnyside Dr.	High lift pumping from Vindin (Flume) Well Field high lift well	East	Vindin (Flume) HLP #1	37.9 L/s @ 85.3 m TDH
				Vindin (Flume) HLP #2	37.9 L/s @ 79.3 m TDH
				Vindin (Flume) HLP #3	45.5 L/s @ 79.3 m TDH
Dominion Avenue Booster Station	755 Dominion Ave	Booster Station	West	Dominion BP #1	34.7 L/s @ 61 m TDH
				Dominion BP #2	34.7 L/s @ 61 m TDH
				Dominion Fire Pump	132.5 L/s @ 61 m TDH
Montreal Street Booster Station	837 Montreal Street	Booster Station	West	Montreal St. BP #1	18.2 L/s @ 61 m TDH
				Montreal St. BP #2	18.2 L/s @ 61 m TDH
				Montreal St. Fire Pump	126.2 L/s @ 40 m TDH
Everton (Sunnyside) Booster Station	300 Frontenac Street	Booster Station	Everton	Everton BP #1 Everton BP #2 Everton BP #3	7.9 L/s @ 21 m TDH 7.9 L/s @ 21 m TDH 7.9 L/s @ 21 m TDH
Sundowner Booster Station	Northwest of Everton Rd. and Frontenac Ave.	Booster Station	West	Sundowner BP #1 Sundowner BP #2	76 L/s @ 58.8 m TDH 76 L/s @ 58.8 m TDH
Hanly Booster Station	365 Hanly Street	Booster Station (with VFD)	Lescaut	Hanly BP #1 Hanly BP #2	9.47 L/s @ 69 m TDH (VFD) 9.47 L/s @ 69 m TDH (VFD)

Source: Town of Midland Waterworks Master Plan Update Final Report, AECOM, November 2013

- Notes:
1. Only two of the Vindin high lift pumps may operate at any time with a maximum allowable flow combined rate of 83.4 L/s.
 2. 1998 Master Plan has 79.3 m
 3. Diesel backup pump for emergency use only

4.5 Midland Storage Reservoirs

As illustrated in **Table 4**, the municipality's water distribution system currently has five (5) storage reservoirs that include the Dominion Standpipe, Montreal Tank, Everton (Sunnyside) Tank, Hanly Tower, and the Mountainview tank.

Table 4: Midland Storage Reservoirs

Storage Reservoir	Location	Type	Pressure Zone	Year Constructed	Capacity
Dominion Standpipe	755 Dominion	Standpipe	West	1901	713 m ³
Montreal Tank	837 Montreal St.	Cylindrical glass-fused-to-steel standpipe	West	1989	2,881 m ³
Everton (Sunnyside) Tank	300 Frontenac St.	Cylindrical glass-fused-to-steel standpipe	East	2009	5,863 m ³
Hanly Tower	365 Hanly St.	Multi column elevated tank	East	1947	950 m ³
Mountainview Reservoir	55 Wilson Rd.	Cylindrical glass-fused-to-steel standpipe	West	2010	4,430 m ³

Source: Town of Midland Waterworks Master Plan Update Final Report, AECOM, November 2013

4.6 Growth and Projected Water Demands

The Town of Midland is identified as a Primary Urban Settlement Area in the *Growth Plan for the Greater Golden Horseshoe (2017)* and is therefore anticipating continued growth and development in the community. The existing population of Midland is approximately 16,864. The Province of Ontario, through the Growth Plan has allocated a population for the Town of Midland of 22,500 with 1,800 new jobs by the year 2031. Given the growth anticipated for the municipality, it will be important that the municipal servicing infrastructure can sufficiently accommodate the demand required. **Table 5** identifies the population forecasts and employment projections for the Town of Midland for the next 20 years. The population projections for 2036 and 2041 are estimates only and have not been allocated by the County of Simcoe.

Table 5: Population and Employment Forecasts for the Town of Midland

Town of Midland	2006	2031	2036	2041
Population Forecasts	16,900	22,500	24,663	26,881
Employment Projections	12,000	13,800	15,127	16,487

Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 18, 2019).

Note: The 2036 and 2041 forecasts are estimates only and have not been allocated by the County of Simcoe.

A population trends and comparative analysis completed by the Town in January 2018 determined that growth in the municipality has been slow and steady over the past 15

years. It also revealed that the population of Midland is aging with those over the age of 65 now representing 25.17% of the total population, which is an increase of almost 7% from 2001.

In order to properly evaluate the Town of Midland water distribution system for existing and future conditions, the population projections must be distributed by pressure zones. Future growth information was gathered from the Town of Midland Planning Department. Existing and planned development and land use information was used to create theoretical parcels of land where growth is expected. This information is illustrated in **Figure 3** and presents three key layers as follows:

- **Draft Plans:** This identifies lands that are subject to Draft Plan approval and that will eventually be developed in the near future. The areas as shown include those currently under review and those that have been approved.
- **Delineated Built-Up Area:** This layer represents the concentrated developed area and includes vacant lands or lands where intensification could occur. Within settlement areas, growth is to be focused in the Delineated Built-up Areas. (Growth Plan, S. 2.2.1 c)).
- **Lands for Urban Uses:** The County of Simcoe Official Plan defines Lands for Urban Uses as lands that are not designated for agricultural uses or rural uses within the settlement area. The Lands for Urban Uses as shown represents greenfield lands / developable lands. Greenfield Areas are lands within settlement areas (outside of the Delineated Built-up Areas) that have been designated for development in the Town's Official Plan.

The type of growth (employment vs. residential) is defined by the existing land use information. For parcels where employment or residential information is not defined, a split of 75% residential and 25% employment was assumed based on the area of the parcel. The overall anticipated employment and residential growth was distributed by parcels using both land use information and the weighted ratio of residential vs. employment split calculated for the parcel with no land use information. The future population projections for growth areas is summarized in **Tables 6 and 7**. The parcel ID numbers identified in **Figure 3** are referenced in column 1 of **Table 6**. Parcels outside of the existing pressure zones were assigned to the closest existing pressure zone. No population growth was estimated for the existing built out areas of the Town. The results of the total population growth estimation are presented in the graphs identified as **Figure 4** and **Figure 5**.

The growth information as presented in this section is taken from the *Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo* (AECOM, March 18, 2019) and can be reviewed in its entirety in **Appendix A**.

Figure 3: Future Growth

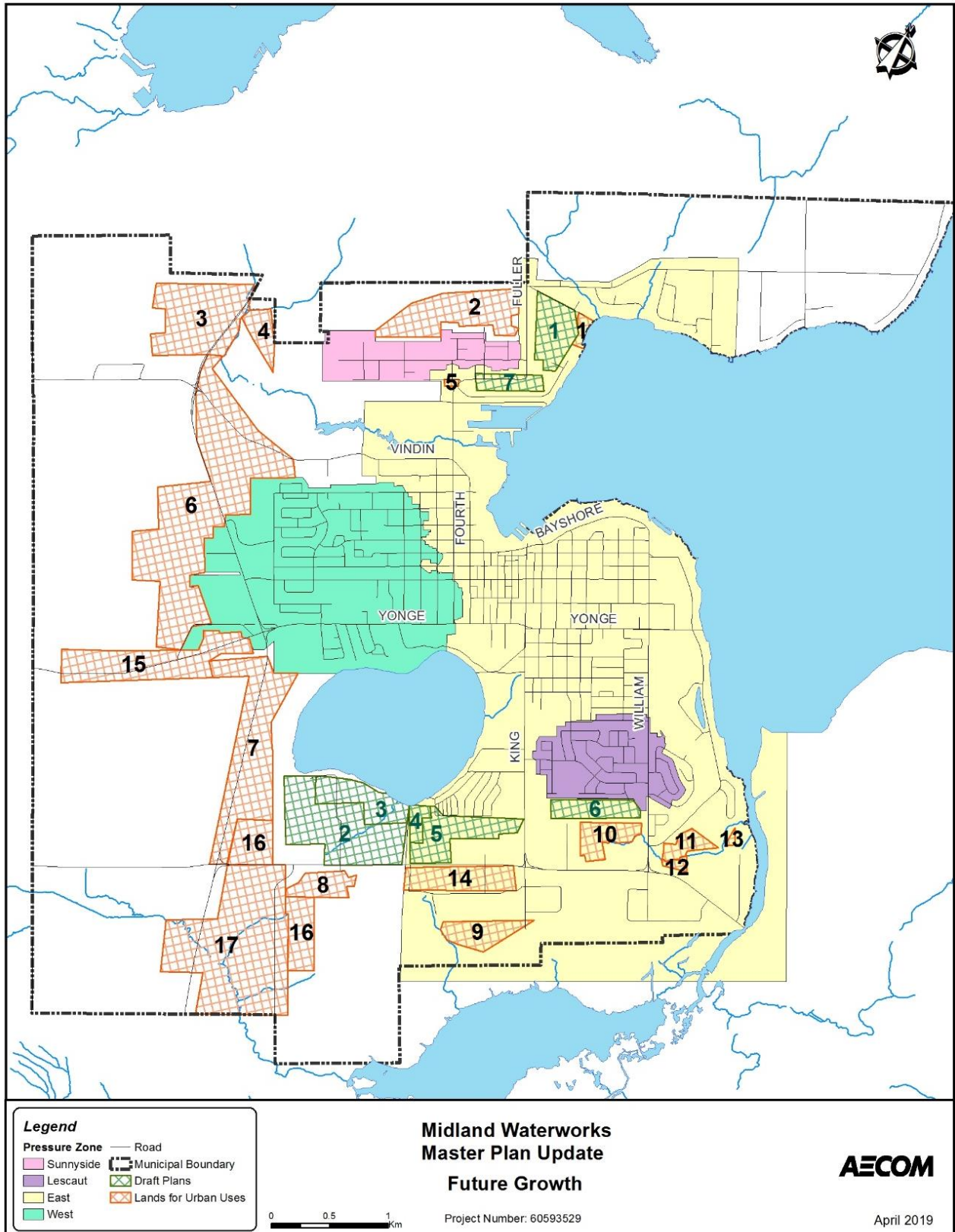


Table 6: Future Population Projections for Growth Areas

ID	Pressure Zone	Land Use*	Growth Area Type	Population										
				2021 - Res	2021 - Emp	2026 - Res	2026 - Emp	2031 - Res	2031 - Emp	2036 - Res	2036 - Emp	2041 - Res	2041 - Emp	
1	Sunnyside	Residential	Draft Plans	-	-	322	-	-	-	-	-	-	-	-
2	East	Residential		928	-	-	-	-	-	-	-	-	-	-
3	East	Open Space		928	-	-	-	-	-	-	-	-	-	-
4	East	Open Space		928	-	-	-	-	-	-	-	-	-	-
5	East	Residential		928	-	-	-	-	-	-	-	-	-	-
6	East	Residential		-	-	444	-	-	-	-	-	-	-	-
7	Sunnyside	Residential		945	-	-	-	-	-	-	-	-	-	-
1	East	Open Space	Urban Uses	-	-	-	-	-	-	-	-	-	-	-
2	Sunnyside	Residential		-	-	-	-	30	-	307	-	-	315	-
3	East	Restricted Rural		-	41	-	41	29	41	302	105	309	108	-
4	East	Restricted Rural		-	8	-	8	5	8	56	19	57	20	-
5	East	Residential		-	-	-	-	1	-	7	-	7	-	-
6	West	Restricted Rural + Employment		-	114	-	114	82	114	835	291	856	298	-
7	West	Restricted Rural + Employment		-	54	-	54	39	54	397	138	407	142	-
8	East	Employment		-	39	-	39	-	39	-	98	-	100	-
9	East	Employment		-	49	-	49	-	49	-	124	-	127	-
10	East	Employment		-	42	-	42	-	42	-	107	-	110	-
11	East	Employment		-	23	-	23	-	23	-	60	-	61	-
12	East	Employment		-	7	-	7	-	7	-	17	-	17	-
13	East	Employment		-	2	-	2	-	2	-	6	-	6	-
14	East	Employment		-	109	-	109	19	109	199	277	204	284	-
15	West	Employment		-	33	-	33	6	33	61	85	62	87	-
Total Population				4,658	522	766	522	211	522	2,163	1,327	2,218	1,360	

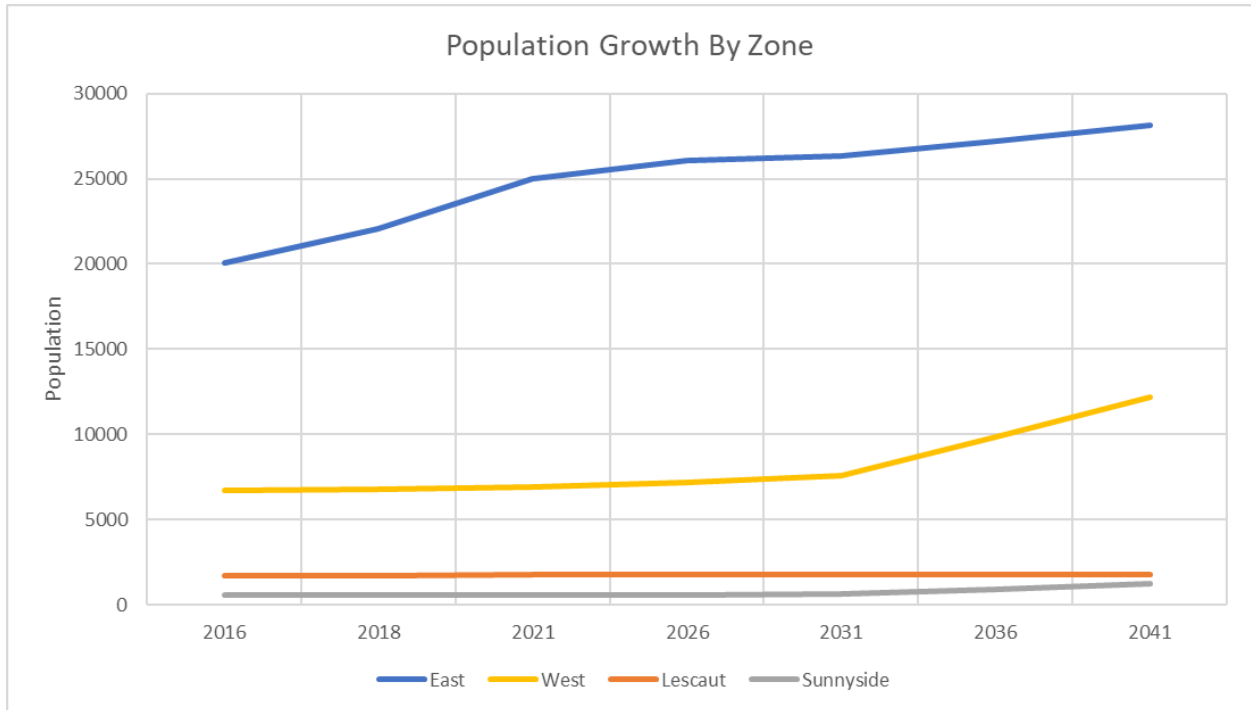
Source: Town of Midland Official Plan Amendment No. 1, Schedule A

Table 7: Town of Midland Existing and Future Estimated Population

	2016 (Existing)	2018	2021	2026	2031	2036	2041
Residential Population	16,864	18,727	21,522	22,289	22,500	24,663	26,881
Employment Population	12,233	12,442	12,755	13,278	13,800	15,127	16,487
Total Population	29,097	31,169	34,278	35,566	36,300	39,790	43,368

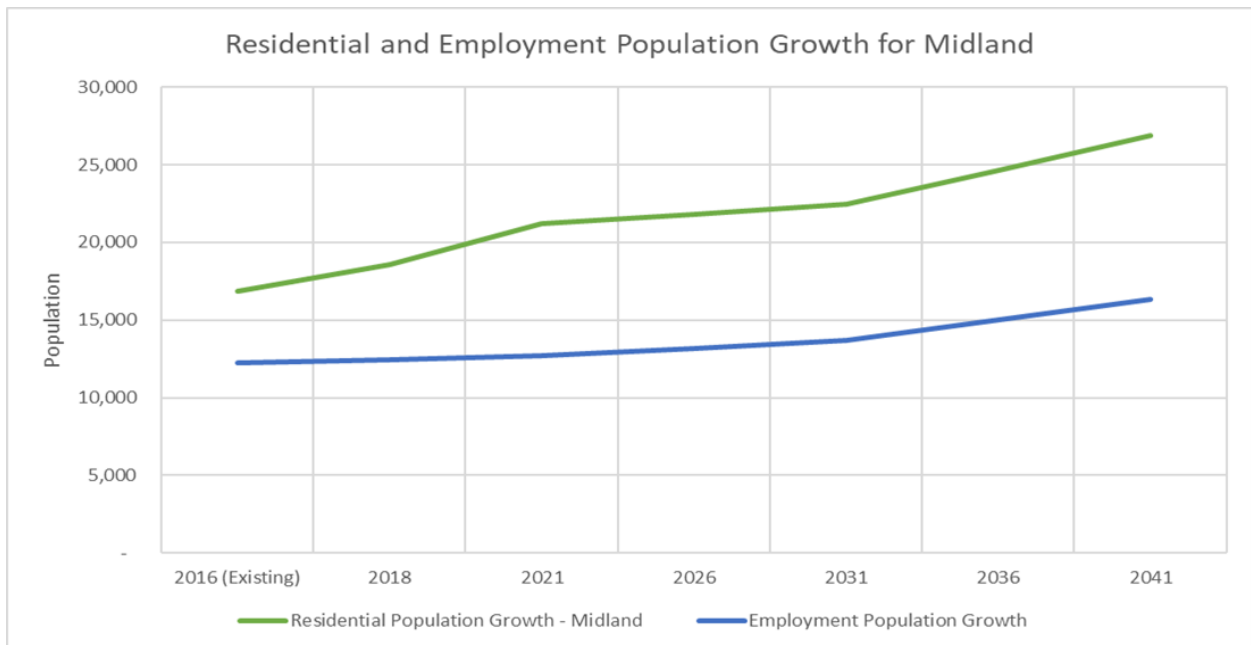
Source: Town of Midland Official Plan Amendment No. 1, Schedule A

Figure 4: Total Equivalent Population Growth by Zone



Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 18, 2019.

Figure 5: Population Growth Midland



Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 18, 2019

4.6.1 Demand Calculation Assumptions

The assumptions made to calculate the Town's water demand requirements for this Water Servicing Master Plan Update are presented in **Table 8**.

Table 8: Demand Calculation Assumptions

Description	Assumption
Per Capita Water Consumption for Existing Scenario (based on consumption records)	Residential – 200 lpcd Employment – 164 lpcd
Per Capita Water Consumption for Future Scenario (based on previous Water Master Plan estimates)	Residential – 246 lpcd Employment – 200 lpcd
Occupancy Rates (based on previous planning experience and previous Master Planning studies)	Low Density – 3.5 ppu Medium Density – 2.5 ppu High Density – 1.7 ppu Unknown – 2.2 ppu

Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 2018)

4.7 Existing Infrastructure Deficiencies

The storage, pump capacity, and well production capacity evaluation is based on the estimated population growth numbers. The Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD) conditions were determined using the population projections and demand calculation assumptions.

4.7.1 Storage Capacity Requirement Evaluation

The storage capacity evaluation is based on the Ministry of Environment, Conservation and Parks (MECP) storage requirement calculations. The detailed storage capacity calculations are presented in **Tables 9** and **10**.

- **West Zone:** The West pressure zone has two water storage facilities – Mountainview Tank (4.43 ML) and Montreal Standpipe (2.88 ML). The calculated storage requirement in 2041 is 4.00 ML. This shows that the West pressure zone has a storage surplus of 3.32 ML.
- **East Zone (including Sunnyside and Lescaut):** The East pressure zone has three water storage facilities that include the Dominion Standpipe (0.713 ML), Everton Tank (5.80 ML) and the Hanly Tank (0.95 ML). The Sunnyside and Lescaut pressure zones are direct pressure zones without floating storage therefore the storage requirement for these zones needs to be accounted for in the East Zone storage requirement calculations. The calculated storage

requirement in 2041 for the East Zone, including Sunnyside and Lescaut, is 10.37 ML. This indicates that the East pressure zone has a storage deficiency of 4.55 ML.

Required Storage Improvements: To improve storage capacity, a new water storage facility in the East pressure zone is required to provide sufficient fire, equalization, and emergency storage in the future.

4.7.2 Pump Capacity Requirement Evaluation

The required firm pump capacity depends on several factors:

- Whether there is adequate floating storage in the zone;
- If the floating storage covers fire storage requirements under the MECP fire considerations calculations; and
- If the floating storage covers equalization storage requirements under the same MECP required storage calculations.

Below is a summary of the pump capacity requirements evaluation for each zone. The detailed pump capacity calculations are presented in **Tables 9** and **10**.

- East Zone: The East pressure zone has Wells 7A/7B (9.15 MLD firm pump capacity), Flume Wellfield (6.55 MLD firm pump capacity), and Well 15 (1.31 MLD firm pump capacity) in operation for the total firm capacity of 17.02 MLD. The required firm pump capacity for 2041 scenario in the East pressure zone is 15.45 MLD. Therefore, the existing pump capacity is adequate to meet the future pump capacity requirements.
- West Zone: The West pressure zone has Well 9 (1.96 MLD firm pump capacity) and Dominion Pump Station (3.00 MLD firm pump capacity), which transfers the required volume of water from the East pressure zone. The required firm pumping capacity for 2041 scenario is 4.62 MLD. Therefore, the existing pump capacity is adequate to meet the future pump capacity requirements.
- Lescaut Zone: The Lescaut pressure zone has Hanly Booster Pump Station (0.82 MLD firm pump capacity) and, according to the previous Waterworks Master Plan, Well 15 (1.31 MLD firm pump capacity) can pump water into the zone. The required firm pumping capacity for 2041 scenario is 7.43 MLD. This value is large because there is no floating storage in this direct pressure zone. Therefore, the pumping capacity in the Lescaut pressure zone is inadequate to meet the future conditions.

Table 9: Storage, Pump Capacity, and Well Production Capacity Calculations

Zone East														
Storage Info														
	Volume (ML)	Floating?												
Dominion	0.713	yes												
Sunnyside	5.80	Yes												
Hanly	0.95	Yes												
Scenario	Population		Demand (ML/d)			MOECC Fire Considerations		Storage (ML)			Storage Requirement (ML)	Available Storage (ML)	Storage Surplus/Deficit	Adequate Storage?
	RES	EMP	ADD	MDD	PHD	Sugg. FF (L/s)	Duration (hrs)	Fire	Equalization	Emergency				
2018	13,511	8,556	4.14	7.71	11.57	250	4	3.60	1.93	1.38	6.91	7.46	0.55	Yes
2021	16,306	8,716	4.86	9.04	13.56	250	4	3.60	2.26	1.47	7.33	7.46	0.14	Yes
2026	17,072	8,987	5.10	9.49	14.24	250	4	3.60	2.37	1.49	7.47	7.46	0.00	No
2031	17,092	9,258	5.16	9.60	14.40	250	4	3.60	2.40	1.50	7.50	7.46	-0.04	No
2036	17,291	9,946	5.35	9.95	14.92	318	5	5.72	2.49	2.05	10.26	7.46	-2.80	No
2041	17,495	10,651	5.54	10.30	15.45	318	5	5.72	2.58	2.07	10.37	7.46	-2.91	No

Zone West														
Storage Info														
	Volume (ML)	Floating?												
Mountainview	4.43	Yes												
Montreal	2.881	no												
0.086														
Scenario	Population		Demand (ML/d)			MOECC Fire Considerations		Storage (ML)			Storage Requirement (ML)	Available Storage (ML)	Storage Surplus/Deficit	Adequate Storage?
	RES	EMP	ADD	MDD	PHD	Sugg. FF (L/s)	Duration (hrs)	Fire	Equalization	Emergency				
2018	3,847	2,840	1.2513	2.314	3.47	159	3	1.72	0.58	0.57	2.87	7.31	4.44	Yes
2021	3,847	3,056	1.2772	2.361	3.54	159	3	1.72	0.59	0.58	2.88	7.31	4.43	Yes
2026	3,847	3,308	1.3275	2.454	3.68	159	3	1.72	0.61	0.58	2.91	7.31	4.40	Yes
2031	4,008	3,559	1.4175	2.621	3.93	159	3	1.72	0.66	0.59	2.97	7.31	4.35	Yes
2036	5,659	4,198	1.9517	3.609	5.41	159	3	1.72	0.90	0.65	3.27	7.31	4.04	Yes
2041	7,351	4,852	2.4995	4.621	6.93	189	3	2.04	1.16	0.80	4.00	7.31	3.32	Yes

Zone Lescout														
Storage Info														
	Volume (ML)	Floating?												
Scenario	Population		Demand (ML/d)			MOECC Fire Considerations		Storage (ML)			Storage Requirement (ML)	Available Storage (ML)	Storage Surplus/Deficit	Adequate Storage?
	RES	EMP	ADD	MDD	PHD	Sugg. FF (L/s)	Duration (hrs)	Fire	Equalization	Emergency				
2018	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No
2021	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No
2026	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No
2031	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No
2036	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No
2041	1,060	713	0.3294	0.609	0.91	79	2	0.57	0.15	0.18	0.90	0.00	-0.90	No

Zone Sunnyside														
Storage Info														
	Volume (ML)	Floating?												
Scenario	Population		Demand (ML/d)			MOECC Fire Considerations		Storage (ML)			Storage Requirement (ML)	Available Storage (ML)	Storage Surplus/Deficit	Adequate Storage?
	RES	EMP	ADD	MDD	PHD	Sugg. FF (L/s)	Duration (hrs)	Fire	Equalization	Emergency				
2018	309	247	0.1025	0.189	0.28	38	2	0.27	0.05	0.08	0.40	0.00	-0.40	No
2021	309	271	0.1073	0.198	0.30	38	2	0.27	0.05	0.08	0.40	0.00	-0.40	No
2026	309	271	0.1073	0.198	0.30	38	2	0.27	0.05	0.08	0.40	0.00	-0.40	No
2031	340	271	0.1149	0.212	0.32	38	2	0.27	0.05	0.08	0.41	0.00	-0.41	No
2036	654	271	0.1921	0.355	0.53	38	2	0.27	0.09	0.09	0.45	0.00	-0.45	No
2041	975	271	0.2713	0.502	0.75	64	2	0.46	0.13	0.15	0.73	0.00	-0.73	No

Zone East					
Pump Info					
Station Name			Existing Firm Pumping Capacity (ML/d)		
Total Floating Stor			7.46		
Well 7A			4.92		
Well 7B			4.23		
Flume PS Firm Capacity			6.55		
Well 15			1.31		
			15.71		

Adequate Floating Storage?	Floating Storage Covers Fire?	Floating Storage Covers Equalization?	Design Flow Condition	Required Firm Pumping Capacity (ML/d)	Firm Capacity - No. of Largest Pumps Offline
Yes	Yes	Yes	MDD	7.71	1
Yes	Yes	Yes	MDD	9.04	1
No	Yes	Yes	Lesser of PHD and MDD+FF	14.24	2
No	Yes	Yes	Lesser of PHD and MDD+FF	14.40	2
No	Yes	Yes	Lesser of PHD and MDD+FF	14.92	2
No	Yes	Yes	Lesser of PHD and MDD+FF	15.45	2

Zone West					
Pump Info					
Station Name			Existing Firm Pumping Capacity (ML/d)		
Total Floating Stor			4.43		
Well 9 Supply (l/s)			1.96		
Dominion PS			3.00		
			4.96		

Adequate Floating Storage?	Floating Storage Covers Fire?	Floating Storage Covers Equalization?	Design Flow Condition	Required Firm Pumping Capacity (ML/d)	Firm Capacity - No. of Largest Pumps Offline
Yes	Yes	Yes	MDD	2.31	1
Yes	Yes	Yes	MDD	2.36	1
Yes	Yes	Yes	MDD	2.45	1
Yes	Yes	Yes	MDD	2.62	1
Yes	Yes	Yes	MDD	3.61	1
Yes	Yes	Yes	MDD	4.62	1

Zone Lescout					
Pump Info					
Station Name			Existing Firm Pumping Capacity (ML/d)		
Total Floating Stor			0.00		
Hanly BPS			0.82		
Well 15			1.31		
			2.13		

Adequate Floating Storage?	Floating Storage Covers Fire?	Floating Storage Covers Equalization?	Design Flow Condition	Required Firm Pumping Capacity (ML/d)	Firm Capacity - No. of Largest Pumps Offline
No	No	No	Larger of PHD and MDD+FF	7.43	2
No	No	No	Larger of PHD and MDD+FF	7.43	2
No	No	No	Larger of PHD and MDD+FF	7.43	2
No	No	No	Larger of PHD and MDD+FF	7.43	2
No	No	No	Larger of PHD and MDD+FF	7.43	2
No	No	No	Larger of PHD and MDD+FF	7.43	2

Zone Sunnyside					
Pump Info					
Station Name			Existing Firm Pumping Capacity (ML/d)		
Total Floating Stor			0.00		
Sunnyside BPS			1.37		
			1.37		

Adequate Floating Storage?	Floating Storage Covers Fire?	Floating Storage Covers Equalization?	Design Flow Condition	Required Firm Pumping Capacity (ML/d)	Firm Capacity - No. of Largest Pumps Offline
No	No	No	Larger of PHD and MDD+FF	3.47	2
No	No	No	Larger of PHD and MDD+FF	3.48	2
No	No	No	Larger of PHD and MDD+FF	3.48	2
No	No	No	Larger of PHD and MDD+FF	3.50	2
No	No	No	Larger of PHD and MDD+FF	3.64	2
No	No	No	Larger of PHD and MDD+FF	6.03	2

Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 18, 2019)

Table 10: Storage, Pump Capacity, and Well Production Capacity Calculations - Continued

Zone East		Station Name		Existing Source Capacity (ML/d)		
Source Info		Well 7A		4.92		
Flume Clearwell (MLD) 7.13		Well 7B		4.23		
Well 6 1.64		Flume Clearwell		7.13		
Well 11 1.96		Well 15		1.31		
Well 12 0.66				* 12.67		
Well 14 0.98				*Largest Well Out		
Well 16 1.31						
Well 17 1.23						
Zone East	Required Supply Capacity (ML/d)	Zone Sunnyside	Required Supply Capacity (ML/d)	Zone Lescout	Required Supply Capacity (ML/d)	Total
MDD	7.71	MDD	0.19	MDD	0.61	8.51
MDD	8.61	MDD	0.63	MDD	0.61	9.85
MDD	8.92	MDD	0.78	MDD	0.61	10.30
MDD	9.02	MDD	0.79	MDD	0.61	10.42
MDD	9.37	MDD	0.93	MDD	0.61	10.91
MDD	9.72	MDD	1.08	MDD	0.61	11.41
Zone West		Station Name		Existing Firm Pumping Capacity (ML/d)		
Source Info		Well 9		1.96		
				1.96		
Zone West	Required Supply Capacity (ML/d)	Transfer Requirement from Zone West (MLD)	Zone East Surplus Capacity (MLD)	Overall Supply Capacity Surplus (MLD)		
MDD	2.31	0.35	4.16	3.81		
MDD	2.36	0.40	2.82	2.42		
MDD	2.45	0.49	2.37	1.88		
MDD	2.62	0.66	2.25	1.59		
MDD	3.61	1.64	1.76	0.11		
MDD	4.62	2.66	1.26	-1.40		

Source: Midland Waterworks Master Plan Update Preliminary Servicing Strategies Technical Memo, AECOM, March 18, 2019

- Sunnyside Zone: Similar to the Lescaut pressure zone, the Sunnyside pressure zone is a direct pressure zone and does not have floating storage. The existing Everton Booster Pump Station (1.37 MLD firm pump capacity) is inadequate to meet the required firm pump capacity of 6.03 MLD.

Required Pump Capacity Improvements: To improve pump capacity, fire pumps at Hanly BPS and Everton BPS are required to provide sufficient fire flow supply.

4.7.3 Well Production Requirement Evaluation

The well production capacity evaluation is based on the existing source capacity. For a conservative groundwater supply, it is assumed that the largest production capacity well is out of service for the zone in which it exists.

- East Zone (including Sunnyside and Lescaut): Similar to the storage capacity evaluation, the East pressure zone combines the source water requirements for Sunnyside and Lescaut because wells located in the East pressure zone provide water to the direct pressure zones. The supply capacity requirement is based on the MDD conditions. The East pressure zone has groundwater supply from Wells 7A/7B (9.15 MLD), Flume clear well (7.13 MLD), and Well 15 (1.31 MLD). With the largest well (7A) out the supply capacity is 12.67 MLD. The required supply capacity for 2041 for the East pressure zone, including Sunnyside and Lescaut, is 11.41 MLD.
- West Zone: The West pressure zone has Well 9 (1.96 MLD) as the only groundwater well that is supplying water directly into the zone. The West pressure zone supply requirement under the MDD conditions in 2041 is 4.62 MLD. The supply deficiency is usually offset by the transfer of flow from the East pressure zone. The transfer requirement is calculated by taking the West zone supply requirement (MDD) and subtracting the Well 9 supply capacity. In 2041 the transfer requirement is calculated to be 2.66 MLD, while the East pressure zone surplus is only 1.26 MLD. Therefore, there is overall groundwater supply deficiency of 1.40 MLD by 2041.

Required Well Production Improvements: To improve overall groundwater supply security, additional well supply is required. It is important to note that because the West pressure zone relies on the transfer of flow from the East pressure zone, securing a groundwater well supply in the West pressure zone would add to the water supply security in that zone.

4.8 Problem / Opportunity Statement

Following a review of the existing water servicing infrastructure and a review of the existing and anticipated future demands the following summarizes the problem and / or opportunities to be addressed by this Class EA:

Problem

Moderate near and long term growth is expected in the Town of Midland. As such, there is a need for improving water production/supply and servicing in a sustainable manner that can be logically phased. Additional infrastructure and improvements to the existing system must be in place in a timely and orderly manner to service approved growth. A detailed cost phasing and implementation plan is required to allow the Town to develop a capital works program and budget.

Opportunities

To develop a water utility-infrastructure master plan or “road map” that will support future capital works planning and funding opportunities and meet the needs of existing and future water customers.

4.9 Comparison to 2013 Waterworks Master Plan Update

The previous 2013 Waterworks Master Plan Update identified a number of required improvements that included a new high capacity municipal well, new storage and new transmission watermains. Few, if any, of the projects were implemented as they required additional review from an operations perspective. To rectify this issue during the current Master Plan Update the Project Team included representatives from the Town’s Operations Staff who provided input regarding facility operations and performance which was therefore considered in the current update to the Master Plan. **Table 11** provides a comparison to the recommendations made in the 2013 Waterworks Master Plan Update with the current review.

Table 11: Comparison to 2013 Waterworks Master Plan Update

2013 Waterworks Master Plan Update Recommendation	Evaluated in Current Waterworks Master Plan Update	Rationale
Construct a single well facility with an approximate capacity of 53 L/s.	Yes	Sundowner Well was evaluated as an additional supply to the system.
Relocate Existing Montreal Street Standpipe (2,881 m ³ storage) to West pressure zone.	No	Montreal Standpipe requires pumping operations to provide service to the West pressure zone. With additional storage in the East pressure zone Montreal Street Standpipe is not required.
Construct New Storage Facility in the East pressure zone with an approximate capacity of 2,500 m ³ .	Yes	Additional storage facility is recommended for the East pressure zone with required capacity increased to meet future demand and decommissioning of Dominion standpipe.
Install new pumps at Lescaut booster station (2 duty pumps plus 1 standby); 1 x 6 L/s at 32 m TDH and 2 x 14 L/s at 32 m TDH.	Yes	Lescaut pressure zone requires additional pumping capacity to meet fire and emergency flow conditions (no existing water storage in Lescaut pressure zone).
Build an 865 m long, 250 mm diameter water main on William Street and install necessary valves to allow realignment of Lescaut pressure zone boundary. This would also provide system redundancy North-South.	No	No major issues were found in North/South flow transfer in the updated hydraulic model; thus, no twinning or upgrade of existing watermain on William Street is required to meet future growth.
Build a 2,100 m long, 300 mm diameter water main along Penetanguishene Road from Yonge Street to Heritage Drive. This main will connect the area south of Little Lake to existing West pressure zone.	No	There is sufficient redundancy of supply through existing Mountainview Reservoir.
Build a booster station south of Little Lake to provide East-West booster redundancy. It is estimated that 3 pumps each at 34.7 L/s and 61 m TDH would be required.	No	There is sufficient redundancy of supply through existing Mountainview Reservoir.
Twinning the water main along Harbourview Drive from Vindin Street to Harmony Lane. The length of this watermain is 660 m and the diameter is 250 mm.	Yes	Increased redundancy of supply between Sunnyside and East pressure zones

5. Existing Conditions

This section of the report provides an inventory of the natural, socio-economic and cultural environment associated with the project study area. As this undertaking is a Master Plan, the study area is quite large and includes the limits of the municipality. A screening level review of the project study area was completed at a broad level to identify any areas of environmental concern or constraint and was completed as a desktop analysis through a review of existing documents and available mapping.

5.1 Natural Environment

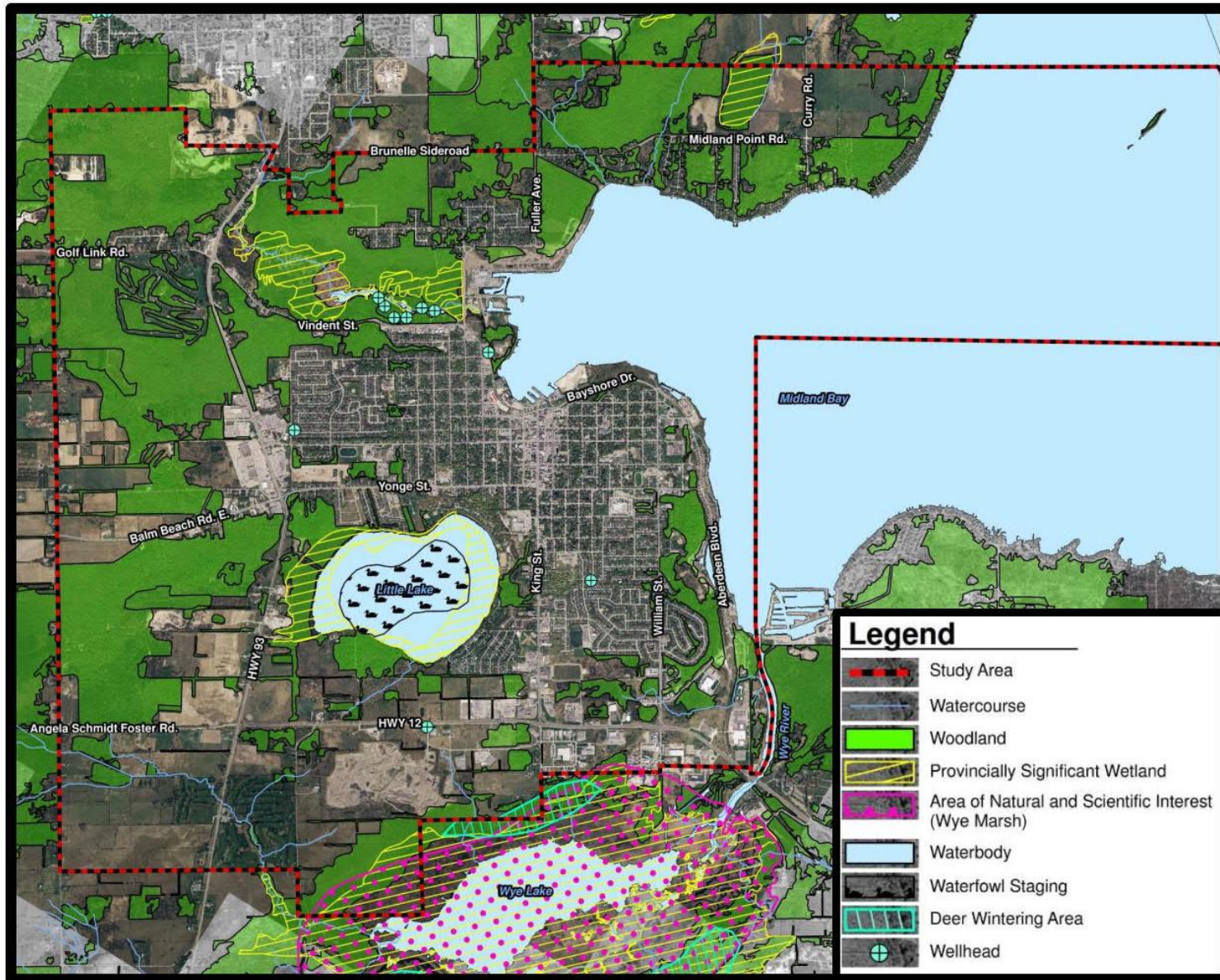
Figure 6 illustrates the key existing natural heritage features present within the project study area. These include the following:

- Woodlands, (i.e., deciduous / mixed forest and conifer plantations);
- Several Provincially Significant Wetlands;
- An Area of Natural and Scientific Interest (i.e., Wye Marsh Regional Life Science ANSI);
- Waterfowl Staging Area (i.e., Little Lake & Wye Marsh); and
- Deer Wintering Area (i.e., Wye Marsh).

The natural heritage features present within the study area may provide habitat for terrestrial and aquatic species, including Species at Risk protected under the Endangered Species Act. The key sensitive environmental features present within the study area are further described below:

- Surface Water: The Town of Midland abuts Georgian Bay and there is a small water body located south of Yonge Street and west of King Street known as Little Lake. There are also several watercourses that include the Wye River and Sucker Creek located within the area of study.
- Fish/Aquatic: The above noted water features may provide habitat for fish and other aquatic species.
- Wildlife: In addition to the water features, there are a number of natural heritage features present within the study area that include woodlands, several Provincially Significant Wetlands, an Area of Natural and Scientific Interest (i.e., Wye Marsh Regional Life Science ANSI), Waterfowl Staging Area (i.e., Little Lake & Wye Marsh) and a Deer Wintering Area (i.e., Wye Marsh) that may provide habitat for Species at Risk protected under the Endangered Species Act.

Figure 6: Existing Natural Heritage Features



Source: Official Plan review Planning Issue #1 Natural & Cultural Heritage, The Planning Partnership, August 2012

- **Vegetation:** There are a number of wooded areas (i.e., deciduous/mixed forest and conifer plantations) as well as several Provincially Significant Wetlands (i.e., Midland Little Lake, Midland Swamp, Sucker Creek and Wye Marsh) located within the study area. Unevaluated wetlands associated with closed depressions and riparian corridors are also present. There is the potential for Species at Risk vegetation (i.e., Butternut Tree) to be present within these vegetated areas. Several Provincially rare plant species (i.e., S-2 and S-3 rank) may also be found within the wetland and aquatic habitats.
- **Groundwater:** Significant Groundwater recharge areas are present within the study area as well as a sensitive aquifer and a number of drinking water wells. The Town of Midland is subject to the South Georgian Bay Lake Simcoe Source Protection Plan.
- **Designated Areas:** This project is not located within the Greenbelt Area, the Oak Ridges Moraine Area or the Niagara Escarpment Plan Area.
- **Soils:** The primary soil types within the study area are well drained Tioga loamy sand and well drained Vasey sandy loamy. Poorly drained organic mulch and marsh soils are found within the Midland Swamp, Wye Marsh and along the limits of Little Lake. Poorly drained Granby and Wauseon sandy loam soils are found in low lying areas. The well drained sandy soils provide important groundwater recharge for area wetlands, watercourses, lakes and Municipal wells.

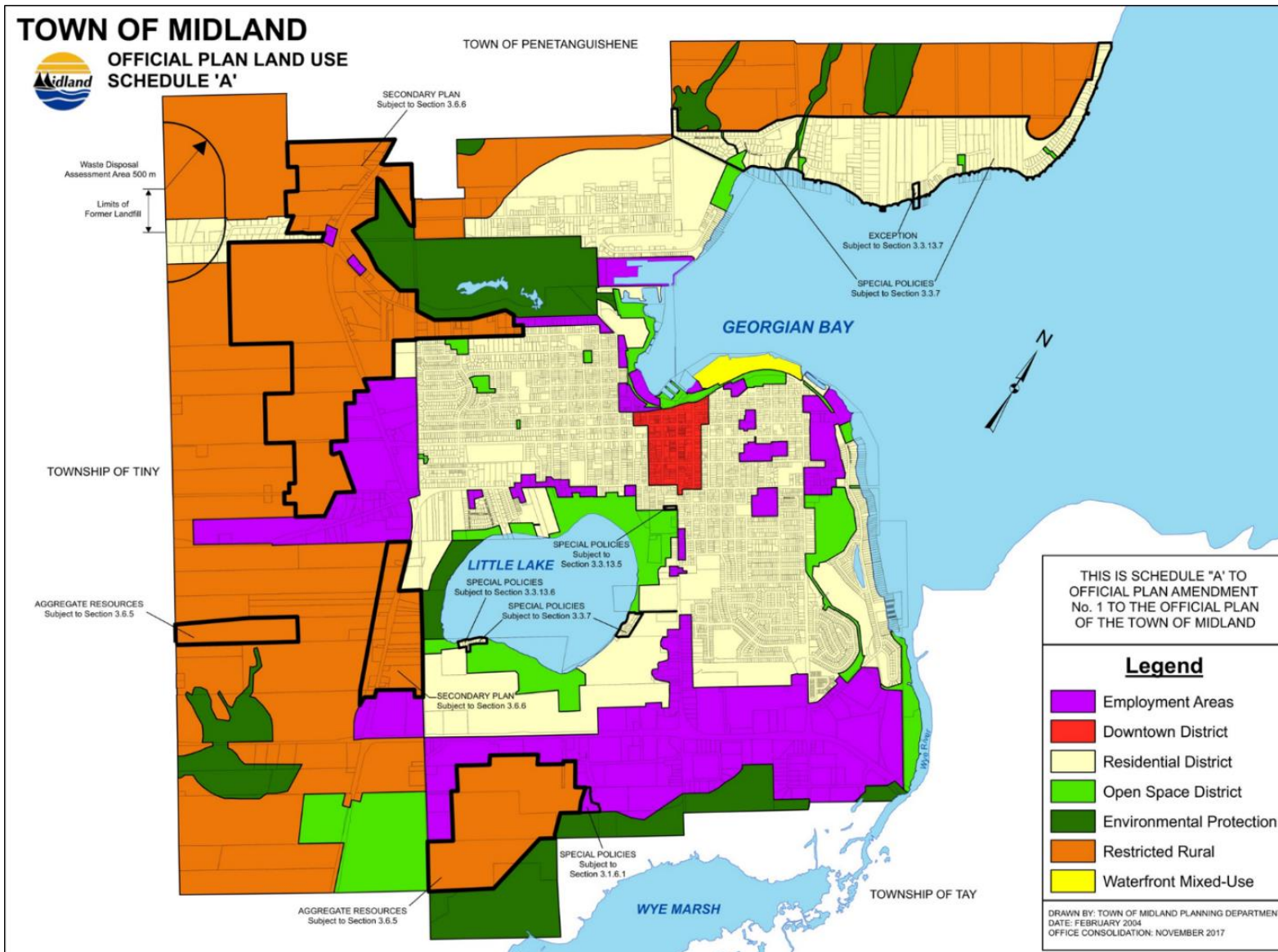
5.2 Socio-Economic Environment

5.2.1 Land Use

Figure 7 identifies the land use designations within the area of study as taken from the Town of Midland Official Plan. An Official Plan Review (OPR) was underway at the time of this study and is considering a number of factors that include waterfront development, downtown revitalization and active transportation.

The Town of Midland is situated on the shores of Georgian Bay and is a popular tourist destination. Sainte-Marie Among the Hurons, the Wye Marsh Wildlife Centre, and the Martyrs' Shrine are also located in proximity and provide economic benefit to the community.

Figure 7: Town of Midland Official Plan Land Use Schedule 'A'



Source: Town of Midland Official Plan, January 2017)

5.3 Cultural Environment

5.3.1 Built Heritage and Cultural Heritage Landscapes

Within the area of study there are several properties designated under the Ontario Heritage Act as identified below:

- Hillside Home at 310 Fifth Street
- Midland Public Library at 320 King Street
- Heritage Animal Hospital at 687 King Street
- Letherby House at 4225 King St.
- William Wilson Cemetery at 17007 Highway 12
- Drummond Wall at 353 Fuller Avenue

5.3.2 Archaeological

Parts of the study area may exhibit archaeological potential and other areas may not given previous deep and extensive land disturbance or low and wet conditions. Areas of archaeological potential may warrant localized analysis if there is the potential for impact from the proposed improvements.

The County of Simcoe has completed an Archaeological Management Plan (AMP) with the intent of identifying, protecting, and conserving the archaeological features within the County, which includes the Town of Midland. This mapping will be reviewed to determine archaeological potential for any localized areas subject to impact as projects are implemented.

6. Alternative Solutions

As part of Phase 2 of the Class EA process, multiple alternative solutions were developed to address the identified deficiencies affecting the various components of the water servicing system. The Project Team developed a “long list” of alternative solutions and evaluated these based on their technical merit before selecting a ‘short list’ of alternative solutions to carry forward for further review.

6.1 Screening of Long List Options

To address the identified deficiencies the project team initially developed a ‘long list’ of alternative solutions for each component. These were then screened based on their ability to meet Technical Criteria that included operational complexity, energy use, system optimization, constructability, capital requirements, and the ability to mitigate existing key servicing issues. Additional details for each of the Technical Evaluation Criteria are presented in **Table 12**.

Table 12: Long List Alternatives Technical Evaluation Criteria

Technical Criteria	Description
Operational Complexity	Changes in the system operation may require additional System Operating Procedures (SOPs) and staff training. Reduced operational complexity is a benefit as it becomes easier to manage and operate the water system.
Energy Use	Changes in the operation may increase or decrease overall energy use and energy required to meet the adequate service levels.
System Optimization	Ability to maximize/optimize existing infrastructure or avoid upgrades.
Capital Requirements	Amount of new infrastructure required.
Key Issue Resolution	Ability to mitigate known issues.

Those options that were deemed technically viable were carried forward for a full evaluation as part of the short list of solutions for each component. **Tables 13 to 17** included in the following sections identify the long list of alternatives that were developed to address each component and highlights those options that were short listed and carried forward for further review.

6.1.1 Storage

As illustrated in **Table 13** there were eight (8) alternative solutions initially developed to address storage deficiencies; however, only three (3) were short listed and carried forward for a full review.

Table 13: Long List Alternatives – STORAGE

ISSUE: NEED MORE STORAGE IN EAST ZONE (EAST, SUNNYSIDE, LESCAUT)	
✓	Alt. 1A New Tank in East Zone – Install new tank in area of Wells 7A/7B well field
✓	Alt. 1B New Tank in East Zone – Install new tank near intersection of Hwy 12 and King Street
×	Alt. 1C New Tank in East Zone - Flume wellfield or Well 1A
✓	Alt. 1D New Tank in East Zone – Install new tank at existing Dominion Standpipe Location
×	Alt. 1E New Tank in East Zone - Existing Hanly Elevated Tank Location
×	Alt. 1F New Tank in Sunnyside Zone - Existing Everton Tank Location
×	Alt. 1G New Tank in Lescaut Zone - William Street Location
×	Alt. 1H New Tank in New Zone - Along Highway 12 in the South of the Town

 Short Listed Alternatives

Why Alternative Not Carried Forward:

- **Alt. 1C New Tank in East Zone:** Not carried forward since it requires construction of a 45 m storage tank, which would not alleviate the low-pressure issues in parts of the municipality.
- **Alt. 1E New Tank in East Zone:** Not carried forward since it requires replacement of the existing Hanly storage tank (good condition) in a small neighbourhood setting.
- **Alt. 1F New Tank in Sunnyside Zone:** Not carried forward since there are additional concerns over supply redundancy due to a single watermain on Harbourview Dr.
- **Alt. 1G New Tank in Lescaut Zone:** Not carried forward since no suitable location was identified in the pressure zone.
- **Alt. 1H New Tank in New Zone:** Not carried forward since no suitable location found after evaluation.

6.1.2 Supply

As illustrated in **Table 14** there were six (6) alternatives initially included to address the issue of supply; however, only three (3) were deemed suitable for further consideration.

Table 14: Long List Alternatives – SUPPLY

ISSUE: NEED MORE GROUNDWATER SUPPLY	
✓	Alt. 2A Commission Sundowner Well Site – Existing Sundowner Well can be commissioned to provide supply to West Zone.
✗	Alt. 2B Commission Well 1A – Existing Well 1A can be commissioned to provide water supply to East Zone.
✓	Alt. 2C Commission New Well - Find a new well location within the Town limits to provide additional supply of groundwater into the system.
✗	Alt. 2D Increase Well 7A/7B Supply Capacity – Replace existing well pumps with higher capacity pumps. Requires geotechnical study to understand if increase in pumping is possible without impacting the groundwater aquifers
✗	Alt. 2E: Increase Well 12 Supply Capacity - Replace existing well pumps with higher capacity pumps. Requires geotechnical study to understand if increase in pumping is possible without impacting the groundwater aquifers
✓	Alt. 2F Connect to Penetanguishene via Fuller Avenue -Opportunity to connect to existing Penetanguishene water system

Short Listed Alternatives

Why Alternative Not Carried Forward:

- **Alt. 2B Commission Well 1A:** Not carried forward since Well 1A has been decommissioned by the Town.
- **Alt. 2D Increase Well 7A/7B Supply Capacity:** Not carried forward because increasing supply requires an extensive geotechnical investigation to determine suitable capacity.
- **Alt. 2E Increase Well 12 Supply Capacity:** Not carried forward because increasing supply requires an extensive geotechnical investigation to determine suitable capacity.

6.1.3 Capacity

As illustrated in **Table 15**, there were three (3) alternatives under consideration to address capacity issues and following the technical screening all three (3) options were carried forward for further consideration.

Table 15: Long List Alternatives – CAPACITY

ISSUE: NEED MORE PUMP CAPACITY IN LESCAUT AND SUNNYSIDE
✓ Alt. 3A Increase Pump Capacity in Lescaut – Install additional duty pump and fire pump with capacity of 79 l/s at existing Hanly Booster Pump Station
✓ Alt. 3B: Dedicate Well 15 to Lescaut Zone – Dedicate Well 15 to supply to Lescaut Zone and install fire pump with capacity of 79 l/s
✓ Alt. 3C: Increase Pump Capacity of Sunnyside – Install additional duty pump and fire pump with capacity of 64 l/s at Everton Booster Pump Station.

Short Listed Alternatives

- All three alternatives were carried forward for further review.

6.1.4 Low Pressure

As illustrated in **Table 16**, there were two (2) alternatives under consideration to address low pressure issues and following the technical screening both options were carried forward for further consideration.

Table 16: Long List Alternatives – LOW PRESSURE

ISSUE: LOW PRESSURE IN AREA SOUTH OF LITTLE LAKE ON HIGHWAY 12 BETWEEN KING STREET AND COUNTY ROAD #93.
✓ Alt. 4A New Pressure Zone Hwy 12 & King St. Area – Create new pressure zone near Hwy 12 & King St. area with Booster Pump Station
✓ Alt. 4B: Connect to West Pressure Zone – Connect area south of Little Lake to West Pressure Zone via County Road 93

Short Listed Alternatives

6.1.5 Redundancy

As illustrated in **Table 17**, there were three (3) alternatives under consideration to address redundancy; however, following a technical review only two (2) options were carried forward for further consideration.

Table 17: Long List Alternatives – REDUNDANCY

ISSUE: NEED REDUNDANCY OF SUPPLY IN THE SUNNYSIDE ZONE	
✓	Alt. 5A Twin Watermain on Harbourview Rd. - Twin existing 300mm watermain along Harbourview Drive between Vindin Street and Bayport Blvd.
✓	Alt. 5B Connect to Penetanguishene Water System – Provide a connection to Penetang via Fuller Avenue between Robert Street and Midland Point Road
×	Alt. 5C Commission New Well – Commission a new groundwater supply well in the Sunnyside area

 Short Listed Alternatives

Why Alternative Not Carried Forward:







- **Alt. 5C Commission New Well:** This alternative was eliminated since significant geotechnical investigation and study is required to find a new suitable well location in the area.

6.2 Evaluation of Short List Options

To assist in selection of the Preferred Solution(s) the short-listed alternatives were subject to further evaluation using criteria considered relevant to this undertaking. An evaluation matrix was prepared to compare the alternative solutions, obtain an understanding of their potential to impact the area environment (natural, socio-economic, and cultural) and to generally identify the advantages and disadvantages associated with each option. This process enables the selection of a Preferred Solution that will address the issues and deficiencies, but also keep impacts to a minimum.

Table 18 identifies the criteria used for the evaluation of the short-listed alternatives. This criterion was presented at PIC No. 1 for public review and comment.

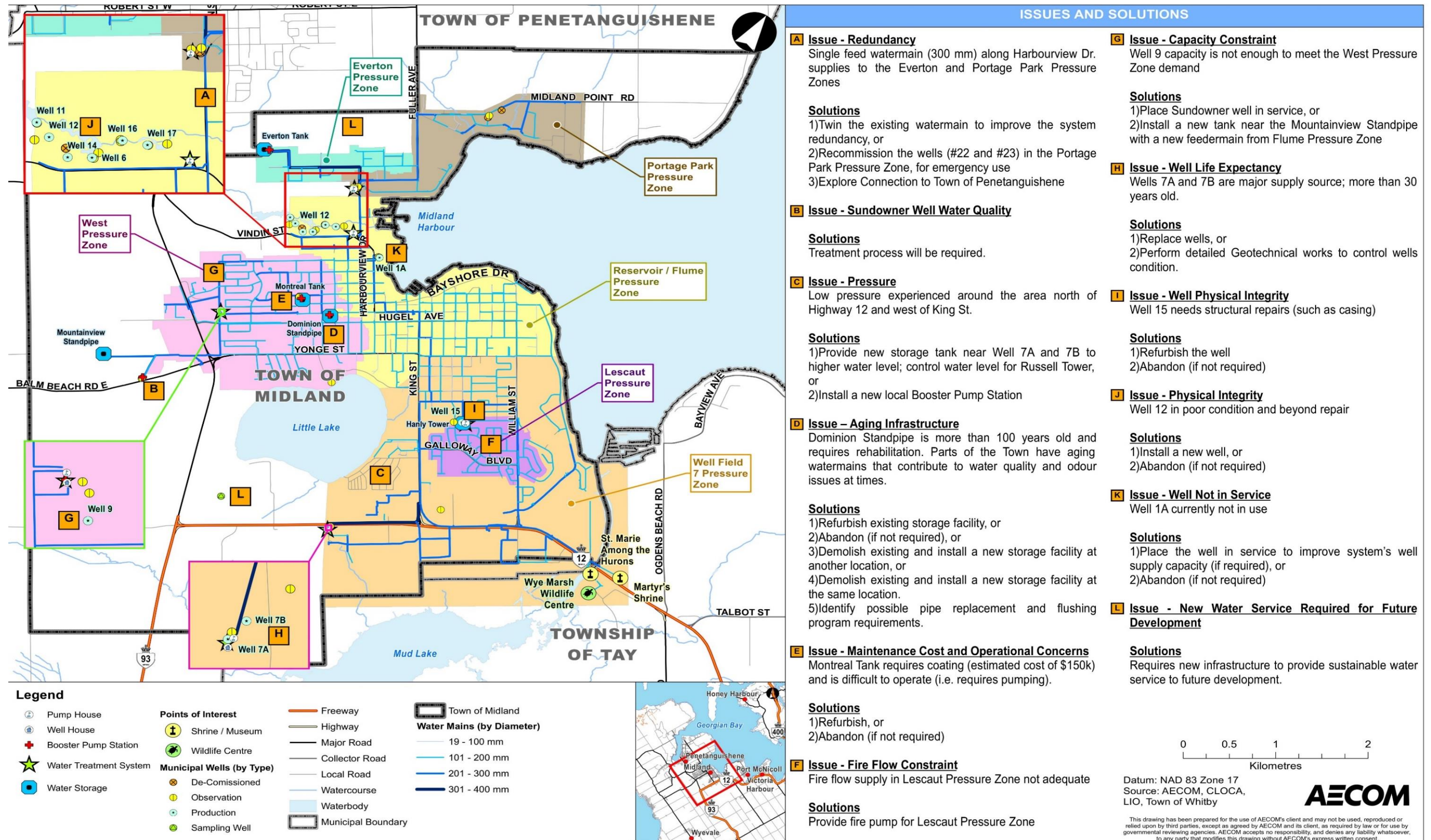
Table 18: Evaluation Criteria

	Factor	Criteria
	Land Use	<ul style="list-style-type: none"> Conformance with approved local, regional and provincial plans and policies Potential effects on approved / planned land uses Current and future operations of the land including future development plans
	Technical	<ul style="list-style-type: none"> Potential compatibility with system - requirement for system upgrades Potential constructability and minimum utility conflicts Ability to meet long-term water servicing requirements including flow, pressure and fire flow for the servicing area Potential for project to impact climate change and for climate change to impact the project
	Natural Environment	<ul style="list-style-type: none"> Potential effects on terrestrial species (fauna and flora) and habitat Potential effects on aquatic species and habitat Potential effects on Species at Risk (SAR) and SAR habitat Potential effects on surface water and groundwater Potential to encounter soil and water contamination
	Socio-economic	<ul style="list-style-type: none"> Potential effects related to disruption to residences, businesses and travelling public during construction Degree of property acquisition / easement requirements Potential effects on recreational spaces / institutional / community facilities Potential effects on noise and vibration on sensitive receptors
	Cultural Environment	<ul style="list-style-type: none"> Potential effects on archaeological resources Potential effects to built heritage resources and cultural heritage landscapes
	Cost	<ul style="list-style-type: none"> Cost of construction (including property acquisition) Cost of operations / maintenance

The evaluation of the short list options for each component carried forward are presented in **Tables 19 to 23**. A simple, visual comparison was used to illustrate the advantages and disadvantages of each alternative solution. Each alternative was rated from least preferred to most preferred in terms of its impact on the evaluation criteria. A more preferred option indicates that it will address the identified deficiency but have a reduced potential to impact the area environment (natural, socio-economic, and cultural).

Figure 8, as presented at PIC No. 2, provides a summary of the issues affecting the existing municipal water system and identifies potential solutions.

Figure 8: Summary of Issues and Potential Solutions



The following sub-sections provide a brief summary of the evaluation and highlight the rationale for selection of the Preferred Solution(s). The “Do Nothing” alternative is included as part of the Class EA process as a benchmark to gauge the potential for impact. However, the “Do Nothing” alternative does not address key deficiencies and is therefore not considered a viable option.

6.2.1 Storage

Four alternatives were shortlisted to address storage deficiencies as follows:

- Alternative 1: Do Nothing
- Alternative 1A: Install New Tank in area of Wells 7A/7B
- Alternative 1B: Install New Tank Near Intersection of Hwy 12/King Street
- Alternative 1D: Install New Tank at Existing Dominion Standpipe Location

From a technical perspective Alternatives 1A, 1B and 1D have similar advantages as illustrated in **Table 19**. All three options propose the installation of a new tank which will allow for the decommissioning of the Montreal Standpipe and Booster Pump Station which are difficult to operate. All three options will permit the Montreal Tank to be abandoned (Issue ‘E’); allow for the construction of a new storage tank with capacity of 5.38 ML that can replace the aging Dominion Standpipe (Issue ‘D’); partially address low pressure at Hwy 12 and King St (Issue ‘C’); and address additional infrastructure required to meet future development/growth (Issue ‘L’). All three options will also require a new tank and some linear infrastructure upgrades. Alt. 1D will require construction at an existing municipal site in a residential area and therefore has an increased potential to impact area residents/businesses, noise and air quality during the construction period in comparison to the other alternatives. Alts. 1A & 1B are preferable in terms of climate change since the new locations could be sited to minimize vulnerability to extreme weather events (i.e., flooding) and utilize energy efficient construction/technologies. In terms of costs, all three options will have similar operating and maintenance costs; however, Alt. 1D will incur slightly increased costs associated with the demolition of the existing facility. As such, Alts. 1A & 1B are more preferable in this regard.

As illustrated in Table 19, Alternative 1B was presented at PIC No. 2 as the preliminary Preferred Solution to address storage. However, after consultation with the public and agencies during PIC No. 2, Alternative 1A was chosen as the preferred option (as opposed to Alternative 1B) to address concerns raised. This option was further modified to site the storage tank west of Wells 7A/7B. This allows the proposed storage to be in an area with higher ground elevation and would address the lower pressure issues identified as a concern.

6.2.2 Water Supply

Four alternatives were shortlisted to address water supply issues as follows:

- Alternative 2: Do Nothing
- Alternative 2A: Commission Sundowner Well
- Alternative 2C: Commission New Well
- Alternative 2F: Connect to Penetang Water System

As illustrated in **Table 20**, Alternative 2A *Commission the Existing Sundowner Well* was selected as the Preferred Solution to address water supply deficiencies. While all the options under consideration provide for additional water supply, Alt. 2A is the most preferred option given that it utilizes an existing well site. Alt. 2C proposes a new well which would require the completion of a separate Schedule 'C' Class EA including a groundwater exploration program with test wells to find a new location and will also result in additional permitting requirements (i.e., MECP Permit to Take Water). Alt. 2F proposes to connect with the Penetang water system which is the least preferred alternative of those under consideration since it will result in an increase in operational complexity due to the need for an agreement between the two municipalities, as well as a dedicated watermain between reservoirs and a possible booster pump station. Given that Alt. 2A utilizes an established municipal location it also has a lower potential to impact natural heritage features, climate change, aesthetics, noise, and air quality compared to the other alternatives which require some new construction. While Alt. 2A will incur costs associated with water treatment it will be the least expensive alternative to implement.

6.2.3 Capacity

Four alternatives were shortlisted to address capacity deficiencies as follows:

- Alternative 3: Do Nothing
- Alternative 3A: Pump Station Upgrades at Hanly Street
- Alternative 3B: Dedicate Well 15 to Lescaut Zone
- Alternative 3C: Pump Station Upgrades at Everton

As illustrated in **Table 21**, Alternative 3A *Pump Station Upgrades at Hanly Street* and Alternative 3C *Pump Station Upgrades at Everton* were selected as the Preferred Solutions to address capacity deficiencies.

While dedicating a well as proposed with Alt. 3B will be cheaper than completing upgrades as proposed with Alts. 3A or 3C, the latter have other benefits. Alt. 3A and 3C both propose upgrades to the existing pump stations in the form of additional duty pump and a fire pump and will have a similar positive impact. Both alternatives will result in a new operating procedure and a higher pump capacity with new pumps to maintain. Alt. 3B dedicates Well 15 to the Lescaut Pressure Zone and utilizes/optimizes existing infrastructure, however, a new fire pump will still be required at the Hanly Pump Station.

Alts. 3B, 3A and 3C propose upgrades that can be accommodated at the existing location and facilitate future phasing. However, Alt. 3C will provide a more sustainable water service for future development (issue “L”). All three alternatives similarly propose upgrades that will not result in a footprint change and will therefore have a similar low potential to impact natural heritage features. Alt. 3C is situated in a rural area and the upgrades will therefore have a lower potential to impact area residents, businesses, aesthetics, and noise as compared to the other alternatives.

With regard to climate change all three options propose the use of existing infrastructure minimizing impacts to the environment and subsequently reducing impacts to climate change. The planned upgrades could also include energy efficiencies to assist in reducing impacts to climate change.

6.2.4 Low Pressure

Three alternatives were shortlisted to address low pressure deficiencies as follows:

- Alternative 4: Do Nothing
- Alternative 4A: New Pressure Zone & Booster Pump Station at Hwy 12 / King St. Area
- Alternative 4B: Connect Area South of Little Lake to West Pressure Zone via County Rd. 93

At PIC No. 2 *Alternative 4A New Pressure Zone & Booster Pump Station at Hwy 12 / King St. Area* was identified as the Preliminary Preferred Solution to address low pressure; however, as illustrated in **Table 22**, this selection was later modified to include both Alt. 4A and *Alt. 4B Connect Area South of Little Lake to West Pressure Zone via County Rd. 93* as the Preferred Solutions to address low pressure issues. Following PIC No. 2 and the receipt of comments the exact location associated with Alt. 4A was further refined to south of Highway 12, west of King Street, and west of existing Wells 7A/7B at Beamish Road.

Both Alts. 4A & 4B provide a more sustainable water service for future development (Issue "L") and address the low pressure at Hwy 12 and King St (Issue "C"). Alt. 4A requires the commission and operation of a new Booster Pumping Station (BPS) which will require backup power in case of emergency and staff training. It will require increased energy use for the new BPS but will eliminate the need to build a new watermain on County Road 93. Alt. 4B requires a new watermain on County Road 93. It will result in an increase in pumping and operation of the Dominion BPS and reliance on this BPS to supply the West Zone and area south of Little Lake. There will be increased energy usage associated with the additional pumping for the Dominion BPS, but it avoids the need to build a new BPS. One of the key drawbacks associated with Alt. 4B is that a new watermain is required under existing conditions; however, funding through development charges may not be available until development occurs along County Road 93 between Balm Beach Road and Highway 12, which may not take place until after 2031.

Since both Alts. 4A and 4B require some new construction there is an increased potential to impact natural heritage features (depending on location). Alt. 4B proposes construction within an existing right-of-way and will therefore have an increased potential to impact area residents/businesses during the construction process as construction will be required on County Road 93.

In terms of Climate Change there are pros/cons to each alternative. Alt. 4A proposes a new facility which will result in increased energy usage and the loss of some vegetation which has potential to impact climate change; however, the BPS could be sited away from a water feature to minimize its vulnerability to extreme weather events (flooding). Conversely, Alt. 4B proposes construction within an existing municipal right-of-way which minimizes vegetation removal and subsequent carbon dioxide removal and the associated road re-construction may provide opportunity to implement Low Impact Development (LID) features to increase infiltration.

Economically, Alt. 4B is preferable since Alt. 4A will require property acquisition to accommodate a BPS facility. Alt. 4A & 4B are expected to have similar construction costs, but Alt. 4B will have less operation/maintenance costs in comparison to Alt. 4A.

Both alternatives were selected for the Preferred Strategy because, combined, the two alternatives provide a short and long term solution to address low pressure issues in the system and provide for future growth.

6.2.5 Redundancy






Three alternatives were shortlisted to address low pressure deficiencies as follows:

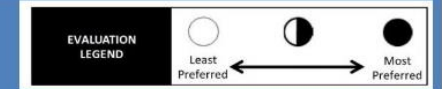
- Alternative 5: Do Nothing
- Alternative 5A: Construct Twin 300 mm watermain on Harbourview Road
- Alternative 5B: Connect to Penetanguishene Via Fuller Avenue

As illustrated in **Table 23**, Alternative 5A *Construct Twin 300 mm watermain on Harbourview Road* was selected as the Preferred Solution to address redundancy issues. Economically, Alts. 5A & 5B will have similar construction costs and similar operation/maintenance costs. Alts. 5A & 5B will also both address redundancy issues and have a similar potential to impact the natural environment, area aesthetics, noise, and air quality during the construction process. However, Alt. 5A has a number of advantages. Alt. 5A will clearly have a reduced operational complexity in comparison to Alt. 5B as the latter will require an agreement between Midland and Penetanguishene on the quantity of water to be provided as well as a dedicated watermain between reservoirs in the system and potentially a BPS. Alt. 5A can also be sized for Penetanguishene if an interconnection concept moves forward. Alts. 5A avoids a connection to Penetanguishene and the commissioning of a new well or recommissioning an old well in Sunnyside area.

With regard to climate change, both options propose construction within an existing municipal right-of-way which minimizes vegetation removal and subsequent carbon dioxide removal. Additionally, the re-construction of the corridor(s) may provide opportunity to implement Low Impact Development (LID) features to increase infiltration.

Table 19: Evaluation of Short List Alternatives – STORAGE

EVALUATION CRITERIA		ALT 1 Do Nothing	ALT 1A Install New Tank in Area of Wells 7A/7B	ALT 1B Install New Tank near Intersection of Hwy 12 / King St.	ALT 1D Install New Tank at Existing Dominion Standpipe Location	RATIONALE
	TECHNICAL ENVIRONMENT <ul style="list-style-type: none"> Operational Complexity Energy Use Ability to Mitigate Known Issues Ease of implementation/ complexity of phasing Amount of new infrastructure required 	○	◐	●	◐	<ul style="list-style-type: none"> While Alt. 1 will not result in increased energy use or new infrastructure it does not address key deficiencies affecting the system. Alts. 1A, 1B, and 1D all propose the installation of a new tank allowing for the decommissioning of the Montreal Standpipe and Booster Pump Station which are difficult to operate. Alts. 1A, 1B, and 1D will permit the Montreal Tank to be abandoned (Issue 'E'); allow for the construction of a new storage tank with capacity of 5.38ML that can replace the aging Dominion Standpipe (Issue 'D'); partially address low pressure at Hwy 12 and King St (Issue 'C'); and address additional infrastructure required to meet future development/growth (Issue 'L'). In addition, Alt. 1A will address low pressure at Hwy 12 and King St (Issue 'C'). For Alt. 1A sufficient vacant land is available in the area east of Well 7A/7B. For Alt. 1B vacant land is available near Highway 12 and King St., but negotiations will be required. Alt. 1D will maximize the existing Dominion Standpipe location; however, a large tank would take up most of the lot. Alts. 1A & 1B require a new tank (5.38 ML), some pumping upgrades at selected wells and the installation of some localized linear infrastructure for the connection of the new tank to the existing water distribution system. Alt. 1D will also require a new tank (5.38 ML) and linear infrastructure upgrades around the new tank.
	NATURAL ENVIRONMENT <ul style="list-style-type: none"> Terrestrial Wildlife (including Species at Risk) & Vegetation Fisheries / Aquatic Surface Water / Groundwater 	●	◐	◐	●	<ul style="list-style-type: none"> Since Alt. 1 proposes no new infrastructure there is no potential to impact area wildlife, vegetation, aquatic species, surface water or groundwater. Alts. 1A and Alt. 1B propose the construction of a new tank on vacant lands which has increased potential to impact area wildlife and vegetation during the construction process in comparison to Alt. 1D which proposes the re-construction of an existing tank on existing municipal property. There is a low potential for Alts. 1A, 1B & 1D to impact surface water and aquatic species given that there are no watercourses in proximity to the proposed locations. All three options will have a similar low potential to impact groundwater during construction (i.e. dewatering).
	SOCIAL ENVIRONMENT <ul style="list-style-type: none"> Land Use / Residential & Business Impacts Noise / Air Quality / Aesthetics Climate Change 	○	◐	●	○	<ul style="list-style-type: none"> Alt. 1 proposes no changes to the system so it cannot accommodate planned growth and is therefore not in conformance with land use policies. Alt. 1A, 1B, and 1D all propose improvements to accommodate planned growth and are in conformance with land use policies. Alt. 1 proposes no improvements and therefore no potential to impact noise or air quality. Alt. 1D will require construction at an existing municipal site in a residential area and has an increased potential to impact area residents/businesses, noise and air quality during the construction period in comparison to the other alternatives. Climate Change – While Alts. 1A & 1B propose construction of the facility at a new site which may result in vegetation removal, the new locations could be sited to minimize vulnerability to extreme weather events (i.e. flooding) and utilize energy efficient construction/technologies.
	CULTURAL ENVIRONMENT <ul style="list-style-type: none"> Archaeological Built Heritage and Cultural Heritage Landscapes 	●	◐	◐	●	<ul style="list-style-type: none"> Alt. 1 proposes no construction so there is no potential to impact heritage resources. Alts. 1A & 1B propose construction on vacant lands and have an increased potential to impact heritage resources in comparison to Alt. 1D which proposes construction on an existing municipal property that has been previously disturbed. Further investigation will likely be required to confirm.
	ECONOMIC ENVIRONMENT <ul style="list-style-type: none"> Construction Costs / Property acquisition & Operating & Maintenance Costs 	○	◐	◐	◐	<ul style="list-style-type: none"> Alt. 1 proposes no construction & no property acquisition is required; however, there may be increased operating and maintenance costs over time as the system deteriorates. Alts. 1A & 1B propose construction on vacant lands and require property acquisition. Alt. 1D will incur slightly increased costs associated with the demolition of the existing facility. All three options will have similar operating and maintenance costs.
	OVERALL SCORING	○	◐	●	◐	



NOTE: The "Do Nothing" alternative (Alt 1) does not address key deficiencies and is not considered a viable option. As part of the Class EA process it is included as a benchmark to gauge the potential for impact.

PREFERRED STORAGE ALTERNATIVE



PRELIMINARY PREFERRED STORAGE ALTERNATIVE (As presented at PIC No. 2)

Following the receipt of input from public and agencies the Preferred Solution was revised from Alt. 1B to Alt. 1A.

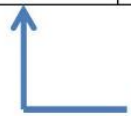




























































Table 20: Evaluation of Short List Alternatives – SUPPLY

EVALUATION CRITERIA		ALT 2 Do Nothing	ALT 2A Commission Sundowner Well	ALT 2C Commission New Well	ALT 2F Connect to Penetang Water System	RATIONALE
	TECHNICAL ENVIRONMENT <ul style="list-style-type: none"> Operational Complexity Energy Use Ability to Mitigate Known Issues Ease of implementation/ complexity of phasing Amount of new infrastructure required 					<ul style="list-style-type: none"> Alt. 2 proposes no changes to the system and while there will be no impacts to operational complexity or energy use this option does not address key deficiencies. Alt. 2A utilizes an existing licensed well with sufficient land available for expansion of well footprint, if required. Additional on-site water treatment will be required to meet water quality objectives. Alt. 2A will address several issues: Improved Sundowner Well water quality (Issue "B"); increased West Zone capacity (Issue "G"); relief from dependency on Well 7A/7B (Issue "H"); postpones refurbishing of Well 15 (Issue "I"); allows for abandonment of Well 12 (Issue "J") and Well 1A (Issue "K"); and provides more sustainable water service for future development (Issue "L"). It will result in increased energy use related to operating a new well and associated treatment process (Alt. 2A), but there will be energy savings since pumping requirements from Dominion BPS will be reduced. Alt. 2C proposes a new well site and will require new infrastructure to connect to existing system. Alt. 2A will address several issues: allow the Sundowner Well to be abandoned (Issue "B"), increase supply capacity (Issue "G"), relieve dependency on Wells 7A/7B (Issue "H") and possible abandonment of Wells 15, 1A, and 12 if new well has sufficient capacity (Issues "I", "J", "K"). It may also provide a more sustainable water service for future development (Issue "L") and allow the Town to select a site that does not need additional treatment. Alt. 2C would require the completion of a separate Schedule 'C' Class EA including a groundwater exploration program with test wells to find a new location and acquisition of MECP Permit to Take Water. It will result in increased energy use related to operating a new well, but will incur energy savings since the pumping requirements from Dominion BPS will be reduced. Alt. 2F requires approximately 2 km of 450mm diameter watermain to connect to the existing water system and possibly a booster station in Penetanguishene. Alt. 2F mitigates the redundancy issue in Sunnyside (Issue "A") and avoids the tinning of watermain along Harbourview Drive, but provides only a short term solution to mitigate shortage of supply issue. Alt. 2F may require water treatment depending on water quality transferred from Penetanguishene and will result in increased energy use if a booster pump station is required as it will need to be constructed/operated in Penetang. Alt. 2F will have a significant increase in operational complexity due to the need for an agreement between the two municipalities, a dedicated watermain between reservoirs and possibly a booster pump station.
	NATURAL ENVIRONMENT <ul style="list-style-type: none"> Terrestrial Wildlife (including Species at Risk) & Vegetation Fisheries / Aquatic Surface Water / Groundwater 					<ul style="list-style-type: none"> Since Alt. 2 proposes no changes there is no potential to impact area wildlife, fish/fish habitat, vegetation, surface water or groundwater. Alt. 2A will have a low potential to impact natural heritage features given that it utilizes an existing municipal site. Alt. 2C will have the greatest potential to impact the natural environment (depending on location) since it requires a new site. In comparison, Alt. 2F will have a reduced potential for impact since it proposes construction within an existing municipal right-of-way.
	SOCIAL ENVIRONMENT <ul style="list-style-type: none"> Land Use / Residential & Business Impacts Noise / Air Quality / Aesthetics Climate Change 					<ul style="list-style-type: none"> Alt. 2 proposes no changes to the system so it cannot accommodate planned growth and is therefore not in conformance with land use policies. Alts. 2A, 2C, and 2F all propose improvements to accommodate planned growth and are in conformance with land use policies. Alt. 2A will have the least potential to impact aesthetics, noise, and air quality given that it utilizes an existing well. Alt. 2C & 2F propose new construction and will have a similar potential for impact. Climate Change - Alt. 2A has the least potential to impact climate change given that it proposes use of an existing well.
	CULTURAL ENVIRONMENT <ul style="list-style-type: none"> Archaeological Built Heritage and Cultural Heritage Landscapes 					<ul style="list-style-type: none"> Alt. 2 proposes no construction and Alt. 2A utilizes an existing well site so there is limited potential to impact heritage resources. Alt. 2C has an increased potential for impact given that it proposes a new well site & will likely require additional study to confirm. Alt. 2F proposes construction within an existing, previously disturbed right-of-way.
	ECONOMIC ENVIRONMENT <ul style="list-style-type: none"> Construction Costs / Property acquisition & Operating & Maintenance Costs 					<ul style="list-style-type: none"> Alt. 1 proposes no construction, but operating/maintenance costs may increase over time as the system deteriorates. Alts. 2A utilizes an existing municipal property. Alt. 2C will require property and & Alt. 2F may require property to accommodate a booster pump station. Alt. 2A will incur costs associated with water treatment, but will be the least expensive to implement. Alt. 2F will incur greater costs associated with construction of linear infrastructure.
	OVERALL SCORING					
























 **PREFERRED WATER SUPPLY ALTERNATIVE**

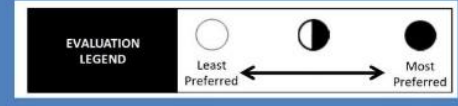
Table 21: Evaluation of Short List Alternatives – CAPACITY

EVALUATION CRITERIA		ALT 3 Do Nothing	ALT 3A Pump Station Upgrades at Hanley St.	ALT 3B Dedicate Well 15 to Lescaut Zone	ALT 3C Pump Station Upgrades at Everton	RATIONALE
	TECHNICAL ENVIRONMENT <ul style="list-style-type: none"> Operational Complexity Energy Use Ability to Mitigate Known Issues Ease of implementation/ complexity of phasing Amount of new infrastructure required 					<ul style="list-style-type: none"> Alt. 3 proposes no changes to the system so there would be no changes to the operational complexity and it would not address key deficiencies. Alt. 3B dedicates Well 15 to the Lescaut Pressure Zone and utilizes/optimizes existing infrastructure, while still requiring a new fire pump at Hanly PS Alt. 3A and 3C both propose upgrades to the an existing pump station in the form of additional duty pump and a fire pump and will have a similar positive impact. Both alternatives will result in a new operating procedure and a higher pump capacity with new pumps to maintain. Alt. 3A and 3C both propose upgrades that will result in increased energy use due to higher capacity pumps. Alt. 3B will have minimal impact on energy use. Alt. 3 proposes no improvements so existing deficiencies would continue with no optimization. Alts. 3B, 3A and 3C propose upgrades that maximize existing infrastructure. Alts. 3B & 3A will provide increased fire flow supply capacity in Lescaut Zone (issue "F") Alt. 3C will provide more sustainable water service for future development (issue "L"). Alts. 3B, 3A and 3C propose upgrades that can be accommodated at the existing location and facilitate future phasing. Alt. 3A and 3C propose upgrades and will require a similar amount of new infrastructure. Alt. 3A and Alt 3C require new duty and fire pump at the Hanly BPS and at the Everton BPS respectively. Alt. 3B requires only new fire pump.
	NATURAL ENVIRONMENT <ul style="list-style-type: none"> Terrestrial Wildlife (including Species at Risk) & Vegetation Fisheries / Aquatic Surface Water / Groundwater 					<ul style="list-style-type: none"> Since Alt. 3 proposes no changes there is no potential to impact area wildlife, fish/fish habitat, vegetation, surface water or groundwater. Alts. 3A, 3B and Alt. 3C propose upgrades that will not change the overall footprint and will therefore have a similar low potential to impact area natural heritage features.
	SOCIAL ENVIRONMENT <ul style="list-style-type: none"> Land Use / Residential & Business Impacts Noise / Air Quality / Aesthetics Climate Change 					<ul style="list-style-type: none"> Alt. 3 proposes no changes to the system so it cannot accommodate planned growth and is therefore not in conformance with land use policies. Alts. 3A, 3B, and 3C propose improvements to accommodate planned growth and are in conformance with land use policies. Alts 3A, 3B and 3C propose upgrades within an existing facility; however, Alt. 3C is situated in a rural area and will have a lower potential to impact area residents & businesses, aesthetics, noise and etc. Climate Change – All three options propose the use of existing infrastructure which will minimize impacts to the area environment which will minimize impacts to climate change. The upgrades at the pump stations could include energy efficiencies to assist in reducing impacts to climate change.
	CULTURAL ENVIRONMENT <ul style="list-style-type: none"> Archaeological Built Heritage and Cultural Heritage Landscapes 					<ul style="list-style-type: none"> Alt. 3 proposes no construction so there is no potential to impact heritage resources. Alts. 3A, 3B and Alt. 3C propose upgrades that will not change the overall footprint and will therefore have a low potential to impact heritage resources.
	ECONOMIC ENVIRONMENT <ul style="list-style-type: none"> Construction Costs / Property acquisition & Operating & Maintenance Costs 					<ul style="list-style-type: none"> Alt. 3 proposes no construction, but operating/maintenance costs may increase over time as the system deteriorates. Property acquisition is not required to accommodate any of the alternatives under consideration. Dedicating a well as proposed with Alt. 3B will be cheaper than an upgrade as proposed with Alts. 3A or 3C and will also have cheaper operating / maintenance costs.
	OVERALL SCORING					

 **PREFERRED CAPACITY ALTERNATIVES**

Table 22: Evaluation of Short List Alternatives – LOW PRESSURE
























EVALUATION CRITERIA		ALT 4 Do Nothing	ALT 4A New Pressure Zone & Booster Pump Station at Hwy 12 & King Street Area	ALT 4B Connect Area South of Little Lake to West Pressure Zone Via County Rd. 93	RATIONALE
	TECHNICAL ENVIRONMENT <ul style="list-style-type: none"> Operational Complexity Energy Use Ability to Mitigate Known Issues Ease of implementation/ complexity of phasing Amount of new infrastructure required 				<ul style="list-style-type: none"> Alt. 4 proposes no changes to the system so there would be no changes to the operational complexity. Alt. 4A requires the commission and operation of a new Booster Pumping Station (BPS) which will require backup power in case of emergency and staff training. It will require increased energy use for the new BPS, but will eliminate the need to build a new watermain on County Road 93. A BPS is required under current conditions, but there is little space available for a new BPS at Highway 12 and King St. area.. Alt. 4B requires a new watermain on County Road 93. It will result in an increase in pumping and operation of Dominion BPS and reliance on this BPS to supply the West Zone and south of Little Lake. Staff training will be required for the new configuration. There will be increased energy use associated with the additional pumping for the Dominion BPS, but it avoids the need to build a new BPS. A drawback of Alt. 4B is that a new watermain is required under existing conditions; however, funding through development charges may not be available until development occurs along County Road 93 between Balm Beach Road and Highway 12, which may not take place until after 2031. Both Alts. 4A & 4B provide a more sustainable water service for future development (Issue "L") and address the low pressure at Hwy 12 and King St (Issue "C").
	NATURAL ENVIRONMENT <ul style="list-style-type: none"> Terrestrial Wildlife (including Species at Risk) & Vegetation Fisheries / Aquatic Surface Water / Groundwater 				<ul style="list-style-type: none"> Since Alt. 4 proposes no new infrastructure there is no potential to impact area wildlife, vegetation, aquatic species, surface water or groundwater. Alt. 4A requires a new property to accommodate a new BPS and has the potential to impact natural heritage features (depending on location). Alt. 4B requires the construction of servicing infrastructure within an existing right-of-way (i.e. County Road 93) which also has the potential to impact natural heritage features during construction (i.e. water crossings, vegetation removal etc.)
	SOCIAL ENVIRONMENT <ul style="list-style-type: none"> Land Use / Residential & Business Impacts Noise / Air Quality / Aesthetics Climate Change 				<ul style="list-style-type: none"> Alt. 4 proposes no changes to the system so it cannot accommodate planned growth and is therefore not in conformance with land use policies. Alts. 4A & 4B both propose improvements that will accommodate planned growth and are in conformance with land use policies. Alt. 4A requires the construction of a new BPS facility that may have the potential to impact area aesthetics, residents and businesses (depending on location). Alt. 4B which proposes construction within an existing right-of-way will have an increased potential to impact area residents/businesses during the construction process as construction will be required on County Road 93. Climate Change – Alt. 4A proposes a new facility which will result in increased energy usage and the loss of some vegetation and has potential to impact climate change. Alt. 4B proposes construction within an existing municipal right-of-way which minimizes vegetation removal and subsequent carbon dioxide removal. The re-construction of the corridor(s) may provide opportunity to implement Low Impact Development (LID) features to increase infiltration. There is the potential to site the Alt. 4A BPS away from a water feature to minimize its vulnerability to extreme weather events (flooding).
	CULTURAL ENVIRONMENT <ul style="list-style-type: none"> Archaeological Built Heritage and Cultural Heritage Landscapes 				<ul style="list-style-type: none"> Alt. 4 proposes no construction so there is no potential to impact heritage resources.. Alt. 4A proposes construction at a new site and there is an increased potential to impact BH & CHL or archaeological resources and further investigation will likely be required to confirm. Alt. 4B which proposes construction within an existing right-of-way, an area already disturbed.
	ECONOMIC ENVIRONMENT <ul style="list-style-type: none"> Construction Costs / Property acquisition & Operating & Maintenance Costs 				<ul style="list-style-type: none"> Alt. 4 proposes no construction, but operating/maintenance costs may increase over time as the system deteriorates. Alt. 4A will require property acquisition to accommodate a BPS facility. Alt. 4B will not require property. Alt. 4A & 4B are expected to have similar construction costs, but Alt. 4B will have less operation/maintenance costs in comparison to Alt. 4A.
	OVERALL SCORING				

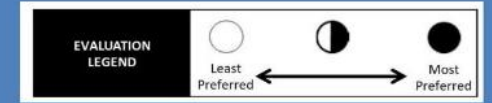


PREFERRED LOW PRESSURE ALTERNATIVES

NOTE: Following PIC No. 2 and the receipt of comments the exact location associated with Alt. 4A was further refined to south of Highway 12, west of King Street, and west of existing Wells 7A/7B at Beamish Road.

Table 23: Evaluation of Short List Alternatives – REDUNDANCY

EVALUATION CRITERIA		ALT 5 Do Nothing	ALT 5A Construct Twin 300mm watermain on Harbourview Rd.	ALT 5B Connect to Penetanguishene Via Fuller Ave.	RATIONALE
	TECHNICAL ENVIRONMENT <ul style="list-style-type: none"> Operational Complexity Energy Use Ability to Mitigate Known Issues Ease of implementation/ complexity of phasing Amount of new infrastructure required 				<ul style="list-style-type: none"> Alt. 5 proposes no changes to the system so there would be no changes to the operational complexity. Alt. 5A proposes to construct twin 300 mm watermain on Harbourview Road. ALT. 5B proposes a connection to Penetanguishene via Fuller Avenue. Alt. 5A would have a reduced operational complexity in comparison to Alt. 5B which would require an agreement between Midland and Penetanguishene on the quantity of water provided as well as a dedicated watermain between reservoirs in the system and potentially a BPS. Alts. 5A avoids a connection to Penetanguishene and the commissioning of a new well or recommissioning an old well in Sunnyside area. It may result in a possible conflict with major utilities along Harbourview Drive (hydro, sanitary sewers forcemains, existing watermain) and may require road improvement/widening. Alts. 5A and 5B would have a similar limited increase in energy use. Both Alts. 5A & 5B will equally address the redundancy issue in Sunnyside (i.e. Issue 'A'). Alt. 5B avoids twinning a watermain along Harbourview Drive and the commissioning a new well or recommissioning an old well in Sunnyside area. Alt. 5B would require the routing of a new watermain along Fuller Avenue. Alt. 5A provides opportunity to coordinate with installation of twin forcemains and road improvements. Alt. 5A can be sized for Penetanguishene if interconnection concept moves forward.
	NATURAL ENVIRONMENT <ul style="list-style-type: none"> Terrestrial Wildlife (including Species at Risk) & Vegetation Fisheries / Aquatic Surface Water / Groundwater 				<ul style="list-style-type: none"> Since Alt. 5 proposes no changes to the existing system and no new infrastructure there is no potential to impact natural heritage features. Both Alts. 5A & 5B require the construction of a new watermain within an existing right-of-way; however, Alt. 5A may require road widening which will result in an increased footprint and increased potential to impact area natural heritage features. Alts. 5A & 5B have the potential to impact water crossings and associated aquatic habitat during construction within the right-of-way. Alts. 5A & 5B have the potential for impacts during construction (i.e. dewatering).
	SOCIAL ENVIRONMENT <ul style="list-style-type: none"> Land Use / Residential & Business Impacts Noise / Air Quality / Aesthetics Climate Change 				<ul style="list-style-type: none"> Alt. 5 proposes no changes to the system so it cannot accommodate planned growth and is therefore not in conformance with land use policies. Alts. 5A & 5B propose improvements to accommodate planned growth and are in conformance with land use policies. Alts. 5A & 5B will have a similar potential to impact area aesthetics, noise, and air quality during the construction process. Climate Change – Both options propose construction within an existing municipal right-of-way which minimizes vegetation removal and subsequent carbon dioxide removal. The re-construction of the corridor(s) may provide opportunity to implement Low Impact Development (LID) features to increase infiltration. The location in proximity to a watercourse may make it vulnerable to extreme weather events (flooding).
	CULTURAL ENVIRONMENT <ul style="list-style-type: none"> Archaeological Built Heritage and Cultural Heritage Landscapes 				<ul style="list-style-type: none"> Alt. 5 proposes no construction so there is no potential to impact heritage resources. Alts. 5A & 5B require construction within an existing, previously disturbed municipal right-of-way that is unlikely to offer any further archaeological potential. Both options will have a similar low potential to impact BH & CHL resources.
	ECONOMIC ENVIRONMENT <ul style="list-style-type: none"> Construction Costs / Property acquisition & Operating & Maintenance Costs 				<ul style="list-style-type: none"> Alt. 5 proposes no construction, but operating/maintenance costs may increase over time as the system deteriorates. Alts. 5A & 5B will have similar construction costs and similar operation/maintenance costs.
	OVERALL SCORING				



 **PREFERRED REDUNDANCY ALTERNATIVE**

7. Consultation

7.1 Public Engagement Plan

At the project start a Public Engagement Plan was prepared to detail the method of notification proposed for this project and to demonstrate that the notification requirements of the Municipal Class EA process are being fulfilled. A copy of the Public Engagement Plan can be found in **Appendix B**.

A Project Contact List was developed for the project that included additional departments at the Town of Midland, Community organizations, the Midland development community, Emergency Services and institutions, area utilities, affected property owners/residents, area businesses, Indigenous Communities, and external agencies. Adjacent municipalities (i.e., Township of Tay, Town of Penetanguishene, and Township of Tiny) as well as the Township of Tay businesses serviced by the Town of Midland (i.e., Sainte-Marie Among the Hurons, Wye Marsh Wildlife Centre, and Martyrs' Shrine) were also included. The Project Contact List was maintained during the study and updated as required. During each point of contact notification was provided to the public, key stakeholders, relevant agencies and Indigenous Communities. This project involved issue of three formal notices as follows:

- Notice of Commencement / Public Information Centre No. 1
- Notice of Public Information Centre No. 2
- Notice of Completion

7.2 Notice of Study Commencement / PIC No. 1

The Notice of Study Commencement / Public Information Centre No. 1 introduced the project and informed the public of the scheduling of Public Information Centre (PIC) No. 1. As this project was completed with the intent of addressing Phases 1 and 2 of the Class EA process only one PIC was required as a minimum to fulfill MCEA requirements. As two PICs were planned, it was determined that the first of the two PICs would be completed as an online version available on the municipality's website at www.midland.ca

The PIC No. 1 presentation material defined the Project Study Area and introduced the project. The Class EA planning process was explained, and the Master Plan approach clearly identified. The material identified the growth anticipated for the community,

outlined the rationale for the study and identified the deficiencies affecting the system. An inventory of the existing natural, socio-economic, and cultural environments was also presented. Preliminary evaluation criteria to be used to evaluate the alternative solutions was also presented for public review and comment. An online survey was posted on the municipal website to gather input on water users' experience with the current water system and study scope.

The project website was activated February 6, 2019. The mail out to the public, key stakeholders, relevant agencies and Indigenous Communities was completed February 5th, 2019 with Indigenous Communities also being emailed on February 7th, 2019. Since the municipality has only one local newspaper the notice was published in two editions of the Midland Mirror on January 17 and 24, 2019. A copy of the Notice of Commencement/PIC No. 1 material can be found in **Appendix B**.

7.3 Notice of PIC No. 2

The second formal notice issued for this project announced the Town's scheduling of Public Information Centre No. 2 for Thursday, May 30, 2019 at the North Simcoe Sports and Recreation Centre from 5:00 pm to 8:00 pm. This public meeting utilized an informal, drop-in style format and displayed a total of 28 exhibits. The material presented information pertaining to the deficiencies affecting the system and the alternative solutions developed to address those deficiencies. The preliminary screening of the long list options was presented as well as a more detailed evaluation of the technically viable options that were short-listed and carried forward for further review. An Evaluation Matrix was used to illustrate the advantages and disadvantages of the short-listed options and clearly identified the Preliminary Preferred Solution(s) that form the Preliminary Recommended Strategy.

The project website www.midland.ca was updated in advance of the PIC to reflect the PIC No. 2 material. The mail out to the public, key stakeholders, relevant agencies and Indigenous Communities was completed May 16, 2019 with the notice published in two editions of the Midland Mirror on May 16 and 23, 2019.

To address stakeholder concerns the municipality also devoted the hour in advance of the main public session (from 4:00 pm to 5:00 pm) to provide opportunity for key stakeholders to discuss any concerns with team representatives. For the stakeholder correspondence, the letter included a copy of the notice and advised in bold text that the municipality was extending an invitation to attend a special hour in advance of the main public session. All stakeholders were also emailed a digital copy of the letter/notice on May 16, 2019.

A total of 14 people signed in. Attendees included several Land Developers, consultant representatives for property owners, area residents as well as representatives from the Town of Penetanguishene (Moe Lefaive, Chief Water Operator) and the Martyrs' Shrine. Comment sheets were provided, and the public was advised that the PIC material would be available for download from the Town's website.



One comment sheet was submitted at the PIC. The respondent indicated that the issues were well explained and logical and noted that they had no concerns with the Alternative Solutions or Preliminary Recommended Servicing Strategy as presented. They indicated that the justification flowed well with the proposed solutions.

Some of the key concerns and issues discussed with individuals at the meeting included the following:

- How will my land holdings be serviced?
- What is the implementation schedule for recommended projects?
- Has MTO provided any comments to date?
- How do the projects recommended today differ from the 2013 Waterworks Master Plan Study?
- Interest in extending sanitary sewer system to Tay Township-Martyrs Shrine (currently receives municipal water from Midland).
- Support for connecting the Midland and Penetanguishene municipal water systems when the time is right (recognizing there is mutual benefits to both municipalities).
- How often is the municipal water tested for complying with government guidelines? Where can the results be viewed?

A copy of the Notice of PIC No. 2 material can be found in **Appendix B**.

7.4 Public and Key Stakeholder Correspondence

For PIC No. 2 property owners within a 120 m radius of the short-listed alternatives were issued a letter and copy of the notice regarding the project. Approximately 300 residents were notified. AECOM provided the Town with maps that identified the short-listed alternatives (i.e., storage locations, new well locations, pump station upgrade locations, new Booster Pump Stations, new watermain locations). The Town's GIS Department extracted the contact information for all property owners within a 120 m radius of the proposed alternatives. For linear infrastructure this was completed using a radius of 120 m from both ends. The affected residents were added to the Project Contact List. The public was also informed through newspaper advertisements and the Town's website.

Key stakeholders that included the development community and area businesses were identified through discussion with the Town. Approximately 24 individuals were identified as a key stakeholder and invited to attend the special hour in advance of the main PIC.

Representatives from the Project Team also met with the Town of Penetanguishene on May 6, 2019 to discuss the feasibility of an interconnection with the Town of Midland. The potential for the Town of Midland to connect to the Penetanguishene water supply system for the purpose of increasing redundancy of supply in the future was discussed. A copy of the meeting agenda and minutes are included in **Appendix B**.

Following PIC No.1 one (1) agency comment was received from the Severn Sound Environmental Association. Two (2) residents submitted a comment and two (2) consultants submitted comments on behalf of their respective clients that own property within the municipality. Saugeen First Nation was the only Indigenous Community to submit a comment in response to PIC No. 1.

Following PIC No. 2 five (5) comments were received from area landowners via their respective consultants and one (1) comment was submitted by a resident at the PIC. The Town's Fire Department also submitted a formal comment. No comments were received from agencies or Indigenous Communities following PIC No. 2. All public and key stakeholder comments received during this project are summarized in **Table 24** including details demonstrating how their concerns were addressed.

7.5 Agency Correspondence

Correspondence regarding this project was circulated to the following key agencies:

- Ministry of the Environment, Conservation and Parks (MECP)

- Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI)
- Ministry of Natural Resources and Forestry (MNR)
- Severn Sound Environmental Association (SSEA)
- Community Organizations
- School Boards
- Emergency Services

Following PIC No. 1, the Severn Sound Environmental Association (SSEA) was the only agency to submit a comment. No agencies submitted comments following PIC No. 2; however, one emergency services representative (Midland Fire Department) did provide input. All agency comments received during this project are summarized in **Table 24** along with details demonstrating how their concerns were addressed.

7.6 Notice of Completion

The Notice of Completion was issued along with the Master Plan document for a 30-day public review and comment period starting June 24, 2021. It identified the Preferred Strategy and provided opportunity for the public, agencies, Indigenous Communities and key stakeholders to review the Master Plan and to submit any comments or concerns.

A total of 5 comments were submitted in response to the Notice of Completion. This included direction from Tay Township advising of a new contact. The Town of Penetanguishene advised that a connection of the Payette Water System to the Midland Water System was being explored as part of their MCEA process and requested further discussion(s). A member of the local Development Community inquired as to how the Master Plan would affect their interests. The remaining 2 comments were minor general comments (i.e. remove from mailing list, link to Master Plan, etc.). No comments were submitted by Indigenous Communities.


The above noted comments are included in the overall summary in **Table 24**. A copy of the Notice of Completion notifications and associated comments/responses can be found in **Appendix B**.

Table 24: Public, Stakeholder and Agency Comments Received

No.	Respondent Information	Comments Received	How Addressed
Agency Comments			
1.	<p>CARRUTHERS, Melissa Risk Management Official / Risk Management Inspector</p> <p>Severn Sound Environmental Association 489 Finlayson St, P.O. Box 460, Port McNicoll, ON L0K 1R0 P (705) 534-7283 ext. 205 / Fax (705) 534-7459 MCarruthers@severnsound.ca</p>	<p>Email Submitted Feb-22-2019 Following PIC No. 1</p> <ul style="list-style-type: none"> The Town of Midland should be commended on being forward thinking to ensure safe, clean, and abundant water can be provided to your residents for the next 20 years and beyond. When deciding on solutions to the highlighted problems, it is recommended requirements under the Safe Drinking Water Act, 2002, O. Reg. 205/18 and the Clean Water Act, 2006, s.48(1.1) (b), O.Reg. 287/07 are considered, to ensure adequate timing and financial resources are allotted to the project. The SSEA welcomes the opportunity to work with the Town of Midland and provide comments as the EA process continues. 	<p>Response Issued by Andrea Potter Feb-22-2019</p> <ul style="list-style-type: none"> Thank you for participating in this process. We appreciate your input and we will continue to keep you informed as we proceed.
Public Comments			
2a.	<p>O'REILLY, Stephen Vice President/Sales Representative Representing 1165 Brunelle Side Road</p> <p>Tenant Representation Group Jones Lang LaSalle Bay Adelaide East, 22 Adelaide Street West, Suite 2600 Toronto, ON M5H 4E3. 1-416-238-4421 cell 1-416-219-1140 Stephen.OReilly@am.jll.com</p>	<p>Email Submitted Mar-04-2019 Following PIC No. 1</p> <ul style="list-style-type: none"> "Your contact information was given to us by Angela Zhao of the Town of Midland. JLL has a listed of a property for sale in Midland, 1165 Brunelle Side Road. The property will be impacted by the study. We would like to be added to contact lists for notification of public hearings and documents as they become available. Please advise of any additional steps required to ensure we are in the loop." 	<p>Response Issued by Andrea Potter March-04-2019</p> <ul style="list-style-type: none"> Thank you for your comment regarding the above noted Master Plan Update. As requested, we have added you to the project contact list so that you will receive all future notifications regarding the project. For additional background information, please go to the project website at the link below.... https://www.midland.ca/Pages/Waterworks_Master_Plan.aspx We have made note of the property at 1165 Brunelle Side Road that you identified in your email as having the potential to be impacted by the study. We will give this consideration as we proceed through the process and will contact you for further discussion, as necessary. Please note that we will be scheduling a second Public Information Centre in the coming months that will provide an opportunity to discuss the project further with members of the study team who will be in attendance. Advance notification regarding PIC No. 2 will be provided. In the meantime, if you have any further questions or concerns, please feel free to give me a call. We appreciate your input and we will continue to keep you informed as we proceed.
2b.	<p>PATEL, Vivian Urban Planner Representing 1165 Brunelle Side Road</p> <p>Jones Lang LaSalle Bay Adelaide East, 22 Adelaide Street West, Suite 2600 Toronto, ON M5H 4E3. T: 416-304-6000 ext. 6971 F: 416-304-6001 E: vivian.patel@am.jll.com</p>	<p>Email Submitted Apr-15-2019 Following PIC No. 1</p> <ul style="list-style-type: none"> "I am working on behalf of a landowner in Midland and I am reaching out for two reasons—firstly, I would like to be added to the contact list to receive documents and notice about public hearings regarding the waste and water master plan. Secondly, I would like to gain any insight or update on which stage the master plan is in. Have any specific studies been completed? If so, which studies and are there copies I can have access to. Are there any drafts that are publicly available, again, if so, can I have a copy." 	<p>Response Issued by Andrea Potter May-15-2019</p> <ul style="list-style-type: none"> Thank you for your email received April 15, 2019 regarding the Town of Midland Waterworks Master Plan Update. Please note that the focus of this email is the water servicing component. While the Town is co-ordinating the completion of both Master Plans, any updates regarding the Wastewater Master Plan will be addressed separately by JL Richards. As per our discussion earlier this week, I understand that you represent a landowner at 1165 Brunelle Sideroad in Midland and that you would like to receive information regarding the Waterworks Master Plan Update currently underway. Please note that I have added you to the Project Contact List and you will be forwarded all future notifications regarding this project. Please note that the municipality initiated the Waterworks Master Plan Update in November 2018. PIC No. 1 was presented in an online format on the Town's website starting February 6, 2019. You can access this information at the following link... www.midland.ca/Pages/Waterworks_Master_Plan.aspx

No.	Respondent Information	Comments Received	How Addressed
			<ul style="list-style-type: none"> ■ We are in the process of scheduling PIC No. 2 for this project to present the alternative solutions under consideration and to provide opportunity for interested parties to discuss the project further with the Project Team. PIC No. 2 is tentatively scheduled for May 30th, 2019. A notice regarding PIC No. 2 will be issued shortly. ■ Please note that it is the intent to schedule an hour timeslot in advance of the main public meeting specifically for key stakeholders (i.e., neighbouring municipalities, area developers, and relevant agencies). An invitation to attend this special hour in advance of the main public meeting will be included in the correspondence to be issued to key stakeholders. We have identified you as a key stakeholder on the Project Contact List and the letter to be issued to your office will include this invitation. ■ As mentioned in our April 29th, 2019 phone discussion, your colleague, Mr. Stephen O'Reilly, also submitted a comment regarding the same property at 1165 Brunelle Sideroad and as we agreed, I have copied him on this email so that everyone involved is kept informed. If you have any further questions or concerns, please feel free to give me a call.
2c.		<p><u>Comment submitted via email to Andrea Potter on July 2, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> ■ Following up to see if there are any updates available regarding the Waterworks Master Plan, or if any of the notes from the public meeting can be shared. 	<p><u>Response Issued by Andrea Potter via email July-15-2019:</u></p> <ul style="list-style-type: none"> ■ Following PIC No. 2 we have been working on some cost estimates and additional analysis to confirm the Preferred Strategy and we are hoping to make the Master Plan Update document available for public review in the Fall. The PIC no. 2 material is currently available on the Town's website at www.midland.ca. You have been added to the project contact list so you will be forwarded any future notifications regarding the project. In the meantime, if you have any specific questions or concerns, please feel free to give me a call.
3a.	<p>GOODREID, B. Representing Brooklea Golf and Country Club</p> <p>KOTA, Veeran Brooklea Golf and Country Club c/o GOODREID, B. Goodreid Planning Group 274 Burton Avenue Suite 1201 Barrie, Ontario L4N 5W4 P: 705-331-5717 F: 705-722-5660 E: goodreidplanninggroup@gmail.com</p>	<p><u>Email Submitted Mar-12-2019 Following PIC No. 1</u></p> <ul style="list-style-type: none"> ■ "Further to our discussion we are forwarding an email that was sent to the Town of Midland last month regarding the Master Servicing Study currently underway. Our Client, Veeran Kota and I have recently met with County of Simcoe planning personnel and Town of Midland planning and engineering personnel about preliminary development plans for the Brooklea property." ■ Email sent to Andy Campbell Feb-22-2019 - "We are planners for the Brooklea Golf and Country Club (Mr. Veeran Kota). The subject property is located at 8566 and 8567 Highway 93 in the Town Midland. Our Client is interested in the Master Servicing Study currently underway in the Town of Midland particularly as it pertains to water, waste water and transportation planning for future land use development servicing and would appreciate being informed throughout the Study exercise. As you will recall we did meet in recent months to talk in a preliminary fashion about future plans for the Brooklea Golf and Country Club property. If you require anything further from our firm or Mr. Kota please do not hesitate to call or write." 	<p><u>Telephone Conversation Between A. Potter and B. Goodreid Mar-15-2019</u></p> <ul style="list-style-type: none"> ■ AEP contacted B. Goodreid by telephone to obtain additional details regarding the proposal for the property owned by Brooklea Golf and Country Club.
3b.		<p><u>Email Submitted Mar-15-2019 Following PIC No. 1 (included two attachments)</u></p> <ul style="list-style-type: none"> ■ Further to our discussion and your query earlier today, we would advise that we met with the County of Simcoe and Town of Midland planning and engineering personnel on January 24, 2019 to discuss development options and servicing for the redevelopment of the Brooklea Golf and Country Club. ■ Attached please a preliminary conceptual Site Plan looking at short/long term development options for commercial and residential land use of the subject properties. It was intended to outline broad land use patterns and possible servicing options on the subject properties for municipal consideration and feedback. 	

No.	Respondent Information	Comments Received	How Addressed
		<ul style="list-style-type: none"> ■ The development being contemplated by our client within the Town’s settlement boundary depends on municipal water, sanitary and stormwater services being addressed through a master servicing plan exercise as well as land use policies being further addressed through changes to the Town’s Official Plan. We expect to provide planning comments in the near future in respect to the Town’s Official Plan Update upon the next version of the draft document being released for public review. ■ You will find an email from Wes Crown below with an attachment that provides his commentary on our meeting to all those who attended and participated in discussions. The Memo should be helpful to you in identifying the matters being considered. At present we are awaiting the planning comments from County personnel on potential development and servicing options under the PPS and the County Official Plan. As you will find Wes Crown did provide a study list for advancing a development proposal for the subject properties. 	
3c.		<p><u>Telephone Call Between Andrea Potter and Brian Goodreid November 04, 2019 (post PIC No. 2)</u></p> <ul style="list-style-type: none"> ■ See email summary of discussion in next column 	<p><u>Summary of Telephone Call Between Andrea Potter and Brian Goodreid emailed to B. Goodreid November 04, 2019 and copied to Town</u></p> <ul style="list-style-type: none"> ■ I understand that you are the Planning Consultant representing the Brooklea Golf and Country Club, located on Hwy 93, just south of Hwy 12. As discussed, the Preliminary Recommended Strategy as presented at PIC No. 2 does not propose an immediate extension of water servicing directly to the subject property; however, the Town is proposing a new Pressure Zone that would extend the service to Hwy 93 and Hwy 12 intersection in the mid-term (5-10 years) and over the long term (15-20 years) the Town is considering an extension of the watermain from Balm Beach Road south via Hwy 93 to the intersection of Hwy 12. The attached excerpt from the PIC No. 2 Exhibits provides additional details regarding the Preliminary Recommended Strategy. ■ With regard to the status of the Master Plan our next step will be to issue the Notice of Completion late this year / early next year which will identify the final Preferred Strategy and the availability of the Master Plan document for public review.
3d.		<p><u>Comment submitted by email to Andrea Potter on November 05, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> ■ We are writing to let you know about a request made to the Town of Midland to meet about their official plan update and the master servicing studies now underway as they relate to the Brooklea Golf and Country Club. The meeting is to be with Wes Crown and would involve having a planning discussion about the changes to the Town OP, we will seek for Brooklea as it relates to the removal of a natural heritage designation based upon an EIS currently nearing completion. We also hope to have a general discussion about development approvals and potential municipal servicing scenarios over the short versus longer terms. We had earlier discussions about these latter subjects, but without the benefit of input albeit preliminary about potential servicing scenarios and timing. 	<p><u>Excerpt of Project Team Response Issued October 23, 2020 via email and regular mail.</u></p> <ul style="list-style-type: none"> ■ Please note that the timeline for the recommended strategy is based on the planning information that was made available during the Master Planning project, including projected population and approved or draft development plans. The Town will amend the Master Plan document periodically and in light of increased interest in developing the above-mentioned area, the next Master Plan may address the new population projection and phasing of the proposed infrastructure may be revisited and updated accordingly based on new information. ■ At the present time, please note that the Town does not have the funding in place to build this expensive infrastructure without confirmed development proposals and timelines in place. The Town would be willing to provide servicing as requested sooner than later with front end financing if there is a developers group in place or alternatively capture the costs through Development Charges. ■ Please note that a presentation regarding this Master Plan and its recommendations will be made to Town Council on Wednesday, November 4, 2020.

No.	Respondent Information	Comments Received	How Addressed
4.	Bayport Village c/o Stephen Morash, WMI & Associates Limited 119 Collier Street Barrie, ON L4M 1H5 P: 705-797-2027	<u>Discussions with Randy Provencal AECOM Following PIC No. 1</u> <ul style="list-style-type: none"> ■ Preparing Functional Servicing Report in support of future Bayport Village development. ■ Requested information on peak hour / max day / fire scenarios and if these could be included in current water services model. 	<ul style="list-style-type: none"> ■ Information provided to consultant following PIC No. 1.
5.	Resident Comment 	<u>Submitted via letter April 1, 2019 Following PIC No. 1</u> <ul style="list-style-type: none"> ■ Key issue in the 2013 Master Plan was the need to address the fact that the Sunnyside and Portage Park areas of Town were reliant on a single feed watermain on Harbourview. ■ The mistaken conclusions in that document, relating to a linkage with Penetanguishene, have obviously been carried forward to the current Water Master Plan Update, as evidenced by page 11 of the PIC No. 1 “Existing and Potential Solutions.” Issue A – Redundancy for the watermain on Harbourview Drive lists two possible solutions, but not a connection to Penetanguishene as a solution. ■ Penetanguishene has since completed the replacement storage which has been operational since late 2015. Penetanguishene decided not to decommission the Robert St. West storage facility and, in fact, has \$20,000 budgetted for 2020 to replace structures rood. Contrary to the 2013 Midland update information, as of late 2015, Penetanguishene had a surplus storage capacity of 300 cubic metres and since the Robert St. West reservoir (1100 cubic metres) was not removed and is, in fact, being improved, its excess capacity over 2031 requirements should be 1400 cubic metres. ■ Included MECP reports from 2011 and 2015 and the latest for 2018 indicating that Penetanguishene is meeting all quality requirements and has, for a number of years, very substantial excess approved supply capacity. ■ If Penetanguishene has a problem, it is also a redundancy issue based on their reliance on the three wells located in fairly close proximity at Payette Drive. Their response to date has been to pursue the reactivation and treatment of the two Roberts St. West wells, removed from the system in 1991 due to contamination with TCE. They various studies have identified a cost of \$7,500,000 to reactivate and treat the Robert St. Wells. The current development charges study (2014) and charges being collected include this \$7,500,000 cost, plus an additional \$450,800 for financing costs. As of the end of 2017, Reserve Fund statements for Penetanguishene indicated \$372,880 is being held in a specific reserve fund tittle Robert St. W. Well Reserve and a further \$573,740 is being held in a Development Charge Reserve fund under the category Water, Robert St. Well. The balance of the specific reserve fund in 2012 was \$444,938, suggesting that at least \$72058 was spent on 2012 testing and consultants. The Capital budget for the town includes \$150,000 in 2021 to be paid from Reserve for Robert St. W. testing. ■ In order to have the Robert St. Wells available as a back up or redundancy source, the town will have spent well over \$2220,000 on testing and would be required to spend an estimated, just under, \$8,000,000 for treatment and systems work with most of the money, according to the 2014 development charge study, coming from taxpayers and / or system users. ■ Such huge capital costs, coupled with high operating costs previously identify by Penetanguishene for a back up facility that may never be required makes little or no sense. Also to be available in an emergency situation, such as a failure of an 	<ul style="list-style-type: none"> ■ Senior staff from the Town of Midland met with Senior staff from the Town of Penetanguishene April 24, 2019 to discuss a potential water connection between the two municipalities (an issue raised by respondent). ■ An invitation was issued to the respondent in advance of PIC No. 2 to attend the stakeholder meeting in advance of the main PIC No. 2 session. The respondent attended the meeting and discussed the project further with members of the Project Team. ■ Indicated strong support for the potential interconnection of the two municipal water systems.

No.	Respondent Information	Comments Received	How Addressed
		<p>existing Payette site well or wells, it would need to be in place in a short time span, not requiring possibly several years of approvals and construction.</p> <ul style="list-style-type: none"> ■ A December 15, 2008 Penetanguishene Transportation and Services Section report titled "Robert Street West Rehabilitation MRIF Funding Reallocation" dealt with options to reallocate \$1,367 million of previously approved federal funding to other possible projects based on recommendations that the Robert Street West was "no longer a financially viable project in the immediate capital forecast." Option 1 of the alternatives was "Extension of a transmission watermain along Fuller Avenue to facilitate a potential connection to the Town of Midland Water Supply System." ■ The report provided further detail of a 1.3 km watermain along Fuller Avenue from Midland Point Road / Brunelle Sideroad to Robert St. East at an estimated cost of \$1,275,000. This option appears to have been dismissed as it would have only utilized a small portion of the federal funding. The selected project was the Payette storage, which is now built and operational. ■ The report concludes that "The Town will continue to explore other alternatives to the Robert St. W. well project, including water conservation, the protection of the Town's water source and other back-up system options (such as connection to the Town of Midland or construction of a secondary source)." ■ Under "Strategic Goals and Objectives", the report states: "The protection of the Town's water supply is the highest strategy priority. The options being considered must, however, be affordable and sustainable, given the Town's small user base." ■ Given that reports estimate for the selected Payette Storage option was \$3,450,000 and the project was completed in 2015 for approximately half that amount, the \$1,275,000 figure, even given the number of years that have passed, may be reasonable or possibly high. The area the construction would affect is a vacant treed rural area with no driveways or houses and overhead hydro, Bell, cable T.V. located on the other side of the road. ■ Constructing this system's link would not only address the redundancy issue for both Midland and Penetanguishene, it would do so a substantially lower cost and physical disruption than each municipality proceeding separately with its own solutions. 	
6.	Midland Fire Department	<p><u>Sub. via Email Sept-16-2019 (following PIC No. 2)</u></p> <ul style="list-style-type: none"> ■ Fire Department would like to see fire hydrants with fire flows available everywhere in the Town. 	<p><u>Response via email from A. Potter Nov-05-2019</u></p> <ul style="list-style-type: none"> ■ Please note that an available fire flow analysis was completed as part of the hydraulic modelling analysis and evaluation of the existing conditions in the Town of Midland. ■ A summary of the existing conditions, including available fire flow through the Town, will be included in the Water Master Plan Report which should be available later this year. ■ We have added you to the Project Contact List and therefore you will be notified when the Master Plan document is available for the 30-day public review period.
7.	Resident Comment [Redacted]	<p><u>Comment Sheet submitted at PIC No. 2 May 30, 2019:</u></p> <p>Completed a comment sheet indicating the following:</p> <ul style="list-style-type: none"> ■ Information presented at PIC No. 2 was helpful and informative. ■ Felt that the issues were well explained and logical. ■ They trust the judgement of the experts when it comes to the evaluation criteria presented and whether it captured what is important to them and the community. ■ No concerns with the Alternative Solutions under consideration or the Preliminary Recommended Servicing Strategy as identified - felt that the justification flowed well with proposed solutions. 	<ul style="list-style-type: none"> ■ No response required. Added to Project Contact List to ensure that they receive any future notices.

No.	Respondent Information	Comments Received	How Addressed
8a.	<p>SCAVE, Elena (Rep. Gino Bifolchi of Lisgar Construction) Tel: Email: elena.scave@outlook.com</p>	<p><u>Comment submitted by voice mail to Andrea Potter on July 6, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> Elena Scave, on behalf of Mr. Gino Bifolchi of Lisgar Construction, would like to see a bigger map that shows the areas affected. 	<p><u>Response Issued by Andrea Potter via email July-09-2019:</u></p> <ul style="list-style-type: none"> I understand that you work for Mr. Gino Bifolchi of Lisgar Construction and that you would like to see a bigger map that shows the areas affected. Please note that the PIC No. 2 material is available on the Town's website at the following link... https://www.midland.ca/Shared%20Documents/Waterworks%20Master%20Plan%20page/60593529%20Midland%20MP%20PIC%20No.%202%20May-24-2019%20FINAL%20rev_24x36.pdf Exhibit 24 summarizes the Preferred Strategy and Exhibit 25 identifies the appropriate Class EA schedule for each of the projects that make up the Preferred Strategy. Exhibit 26 presents more localized mapping for the Schedule 'B' project sites. In order to provide you with the appropriate mapping that you have requested it would be helpful if you could please confirm the location within the municipality that is of your concern. If you could provide me with a general area then I can let you know of any improvements that are proposed in the subject area. Please feel free to call me if you want to discuss this further.
8b.	<p>SCAVE, Elena (Rep. Gino Bifolchi of Lisgar Construction)</p>	<p><u>Comment submitted by email to Andrea Potter on July 11, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> The subject area is in and around at 711 Aberdeen Blvd. 	<p><u>Response Issued by Andrea Potter via email July-11-2019:</u></p> <ul style="list-style-type: none"> Thank you for your email. We understand that your area of concern is near 711 Aberdeen Blvd. as illustrated on the attached map. Please note that we are not proposing any new facilities or upgrades in proximity to the identified location. Our next step in this process is to issue a Master Plan Update Project File Report for public review which will document the Class EA process completed. This is expected to be available in the Fall. I have added you to the contact list so you will receive notification when the document is available for review. If you have any further questions, please feel free to give me a call.
9.	<p>RYAN, Paul Fire Chief Town of Midland Fire Department</p> <p>Via Jane Wilson, Environmental Engineer J.L. Richards & Associates Limited 107 - 450 Speedvale Ave. West, Guelph, ON N1H 7Y6 T: 519-763-0713 E: jwilson@jlrichards.ca</p>	<p><u>Comment submitted by email to Andrea Potter on September 16, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> The Midland Fire Department would like to see fire hydrants with fire flows available everywhere in the Town. (Note: J.L. Richards & Associates Ltd. received an email from Paul Ryan, Midland Fire Chief in response to a request for comments that accompanied the Notice of Commencement for the Wastewater Master Plan. Since comment more applicable to the Water Master Plan the email was forwarded to the team for the Water Master Plan). 	<p><u>Response Issued to Chief Ryan by Andrea Potter via email November-05-2019:</u></p> <ul style="list-style-type: none"> As noted on the attached comment sheet we understand that you would like to see fire hydrants with fire flows available everywhere in the Town. Please note an available fire flow analysis was completed as part of the hydraulic modelling analysis and evaluation of the existing conditions in the Town of Midland. A summary of the existing conditions, including available fire flow through the Town, will be included in the Water Master Plan Report which should be available later this year. We have added you to the Project Contact List and therefore you will be notified when the Master Plan document is available for the 30-day public review period. In the meantime, if you have any further questions, please feel free to give me a call.
10a.	<p>SITA, Giordana Manager, Planning & Research Representing landowner of parcel in N.E. Quadrant of the intersection of Hwy 12/Hwy 93</p>	<p><u>Comment submitted by email to Chuck Fiddy May 27, 2019:</u></p> <ul style="list-style-type: none"> Requested that they both (Landowner & their consultant) be added to Project Contact List. 	<p><u>Andrea Potter contacted Giordana Sita by telephone May-30-2019:</u></p> <ul style="list-style-type: none"> Their office represents the landowner for the parcel in the northeast quadrant of the intersection of County Road 93 / Highway 12. They are planning to attend PIC No. 2 during the hour timeslot from 4:00 pm to 5:00 pm.
10b.	<p>North American Development Group 2851 John Street, Suite One, Markham, Ontario L3R 5R7 T: 905-968-3159 C: 416-825-5916 E: gsita@nadg.com</p>	<p><u>Comment submitted by email to Chuck Fiddy on October 29, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> What is the status of the Waterworks Master Plan? Are there any upcoming PICs scheduled? 	<p><u>Response Issued by Andrea Potter via email November-05-2019:</u></p> <ul style="list-style-type: none"> Please note that a Notice of Completion will be issued late this year / early next year that will identify the Preferred Strategy and the availability of the Master Plan document for public review. As you know the municipality hosted PIC No. 2 earlier this year and no further PICs are planned for this project. We understand that you represent the landowner for the parcel in the northeast quadrant of the intersection of County Road 93 / Hwy 12. The Town's Preliminary Recommended Strategy was presented at PIC No. 2. Please let me know if you have any specific concerns relating to this property. You are currently on the Project Contact List and will be copied on the final notice for this project.

No.	Respondent Information	Comments Received	How Addressed
10c.		<p><u>Telephone Call Between Andrea Potter and Giordana Sita November 18, 2019 (post PIC No. 2)</u></p> <ul style="list-style-type: none"> ■ She represents the property owner of the lands in the northeast quadrant of the intersection of Hwy 12 / Hwy 93. Basically, they are ready to develop that property (commercial development) and have been in discussion with the Town for a number of years – they are just waiting on servicing. Main question – when will this site be serviced – PIC 2 appears to indicate that servicing won’t happen in the mid-term to long term. She wanted clarification from the PIC No. 2 material as follows: <ol style="list-style-type: none"> 1. Alt. 4B - Recognizes that a new trunk watermain in West Zone on Hwy 93 is identified as a Long Term project. 2. Alt. 4A – Identified as a mid-term Sch. C project. ■ She sees the above as the two methods that would provide servicing for the site so she wanted to know who establishes the timing and basically could the new watermain supply the site or do they have to wait for the new zone? 	<ul style="list-style-type: none"> ■ Note: It was agreed that her office will submit an email summarizing her questions and the Town will provide a formal response.
10d.	<p>GOLAKOVICH, M. & SITA, Giordana Representing landowner of parcel in N.E. Quadrant of the intersection of Hwy 12/Hwy 93</p> <p>GOLAKOVICH, M. P. Eng. Sabourin Kimble & Associates Ltd. Consulting Engineers (SKA) 110 Old Kingston Road, Ajax, ON L1T 2Z9 T: 905-426-9451</p>	<p><u>Comment submitted by Letter (regular mail) to Chuck Fiddy and Andrea Potter - received January 13, 2019:</u></p> <ul style="list-style-type: none"> ■ On behalf of our client, North American Development Group, we have reviewed the Midland Waterworks Master plan update Municipal Class Environmental Assessment Public Information Centre 2 presentation with respect to external services to our Client’s site, which is located at the northeast corner of Highway 93 and Highway 12. The Town’s water system infrastructure recommended strategy consists of upgrades to various booster pumping stations, new booster pumping stations, pressure zone re-alignments, and new trunk watermain construction. ■ Two of the recommended water system upgrades are of interest to our Client’s site location: <ol style="list-style-type: none"> 3. The Mid-term (5-10 year) strategy recommends a new booster pump station and new pressure zone alignment for the “south” zone, which would service properties just to the east of the site. 4. The long-term (15-20 year) strategy recommends a new trunk watermain along Highway 93 for future growth in the West zone, which would service the site. ■ As indicated to us, there is significant tenant interest at the site, which is located at the Town’s gateway intersection of Highway 93 and Highway 12. If the Town’s recommended strategy is implemented, our Client will be unable to develop for 15-20 years due to a lack of external services. ■ We would request that the Town re-visit the water system infrastructure strategy and re-consider and expedite the timeline of external services to the site, whether that is inclusion of the site in the southern pressure zone or an earlier timeframe for construction of the trunk watermain along Highway 93. ■ We trust that the above summary provides clarity to the urgency of timing for external services to our Client’s site. 	<p><u>Excerpt of Project Team Response Issued October 23, 2020 via email and regular mail.</u></p> <ul style="list-style-type: none"> ■ We understand that your Client is concerned with the timing of the above noted upgrades since it would delay development of the subject site for 15-20 years due to a lack of external services. ■ Please note that the timeline for the recommended strategy is based on the planning information that was made available during the Master Planning project, including projected population and approved or draft development plans. The Town will amend the Master Plan document periodically and in light of increased interest in developing the above-mentioned area, the next Master Plan may address the new population projection and phasing of the proposed infrastructure may be revisited and updated accordingly based on new information. ■ At the present time, please note that the Town does not have the funding in place to build this expensive infrastructure without confirmed development proposals and timelines in place. The Town would be willing to provide servicing as requested sooner than later with front end financing if there is a developers group in place or alternatively capture the costs through Development Charges. ■ Please note that a presentation regarding this Master Plan and its recommendations will be made to Town Council on Wednesday, November 4, 2020.
10e.	<p>SITA, Giordana Representing landowner of parcel in N.E. Quadrant of the intersection of Hwy 12/Hwy 93</p>	<p><u>Follow-up Email Jan-22-2020</u></p> <ul style="list-style-type: none"> ■ Is there any update on the Waterworks Master Plan and the notice of completion? 	<p><u>Response Issued by Andrea Potter via email Jan-23-2020:</u></p> <ul style="list-style-type: none"> ■ Thanks for the follow-up. Please note that we did receive the attached letter from the engineering firm, SKA, that is working with North American Dev. Group on the parcel in the N.E. quadrant of the intersection of Hwy 12/93. Our team is reviewing that correspondence now and in the process of preparing a response. The final notification for this project will be the Notice of Completion. You are on the Project Contact List and will be forwarded a copy of the notice. Thanks again. We will be in touch.

No.	Respondent Information	Comments Received	How Addressed
10f.		<p><u>Follow-up Email Mar-16-2020</u></p> <ul style="list-style-type: none"> Following up on the response to the letter we submitted (by M. Golakovich January 13, 2019) and an update on the master plan. 	<p><u>Response Issued by Andrea Potter via email Mar-20-2020:</u></p> <ul style="list-style-type: none"> I don't have any significant updates for you at this time. We are working with the Town to address some comments that were received, including your concerns and we are planning to provide a formal response to your inquiry as soon as possible. You are on the Project Contact List and we will continue to forward any future notifications regarding the project. Again, if you have any further questions or concerns, please feel free to give me a call. We appreciate your patience.
11a.	<p>BOODRAM, Natalie Representing Hanson Property located in N.W. Quadrant of Hwy 12 / King St.</p> <p>BOODRAM, Natalie, BUR.PI., MES, MCIP, RPP Senior Planner Planning, Landscape Architecture and Urban Design 100 Commerce Valley Drive West Thornhill, ON L3T 0A1 T: 289-982-4352 E: Natalie.Boodram@wsp.com</p>	<p><u>Comment submitted by email to Andrea Potter on November 19, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> Thank you for your voicemail message. Yes, we will be submitting a formal comment letter on the Town of Midland Waterworks Master Plan Study on behalf of our client "Hanson Development Group" and we are aiming to have this letter to you this week. The substance of our comments is provided below. Hanson's property is located at 16821 Highway 12 (north side of Highway 12 and roughly between the Historic Penetanguishine Right-of-Way and King Street) in the Town of Midland. Attached is the Council approved Phasing Plan and Draft Plan of Subdivision. We have reviewed the Town of Midland Waterworks Master Plan Update (Municipal Class Environment Assessment) Public Information Centre (PIC) No. 2 (dated: May 30, 2019) materials, as it relates to the Hanson property. The PIC No. 2 materials indicate that low pressure experienced around the area north of Highway 12 and west of King Street has two Alternative Solutions: <ol style="list-style-type: none"> Provide a new storage tank near Well 7A and 7B to higher water level or control water level for Russell Tower (further west of Hanson lands, south side of Highway 12); or Install a New Booster Pump Station or Alternative Location for Booster Pump Station on the Hanson lands, west of King Street. The approved Hanson Draft Plan of Subdivision does not include a Booster Pump Station. The Master Plan Update shows a New Booster Pump Station on Hanson's Phase 1C lands and the Alternative Location of the New Booster Pump Station on Hanson's Phase 1B lands. We had always understood that the low pressure was going to be handled per Alternative Solution 1). Hanson advises that they did not receive notice of New Booster Pump Station or Alternative Location identified on their lands and requested to communicate that the placement of the Booster Pump Station on Hanson lands is not acceptable. As such, we would prefer Alternative Solution 1). Our comment letter will have additional comments from our Civil Engineer. 	<ul style="list-style-type: none"> Note: Andrea Potter spoke with Natalie Boodram and it was agreed that her office will submit an email summarizing their questions / concerns and the Town will provide a formal response.
11b.	<p>JOHN-BAPTISTE, Chad & BOODRAM, Natalie Representing Hanson Property located in N.W. Quadrant of Hwy 12 / King St.</p> <p>JOHN-BAPTISTE, Chad, MCIP, RPP Senior Planner Planning, Landscape Architecture and Urban Design 100 Commerce Valley Drive West Thornhill, ON L3T 0A1 T: 289-982-4352</p>	<p><u>Comment from Chad John-Baptiste submitted by email from N. Boodram to Andrea Potter on November 29, 2019 (post PIC No. 2):</u></p> <ul style="list-style-type: none"> WSP Canada Group Limited (WSP) is pleased to submit the following comments on the Town of Midland Waterworks Master Plan Update (2019) on behalf of Hanson Development Group ("Hanson") with respect to their property at 16821 Highway 12 in the Town of Midland. We have reviewed the Public Information Centre (PIC) No. 2 (dated: May 30, 2019) materials, as prepared by AECOM, with respect to Hanson's property which is located on the north side of Highway 12 and roughly between the Historic Penetanguishine Right-of-Way and King Street. Enclosed is the Council Approved Phasing Plan and Draft Plan of Subdivision. 	<p><u>Excerpt of Project Team Response Issued October 23, 2020 via email and regular mail.</u></p> <ul style="list-style-type: none"> Alternative Solution 4A proposes the development of a new pressure zone and Booster Pump Station in the area of Highway 12 and King Street. Based on your comments we understand that your client is not supportive of the Preliminary Preferred Solution Alternative 4A (or the alternative location) as presented on slide 26 at PIC No. 2 (see attached) to address low pressure concerns since the location(s) being considered are on Hanson property. You have indicated that, based on previous discussions with Town staff, it was your understanding that the low pressure experienced in the area would be addressed through a new storage tank on the south side of Highway 12, further west of Hanson's lands (i.e., Alternative 1A as presented at PIC No. 2). We recognize that your preference is

No.	Respondent Information	Comments Received	How Addressed
	E: Chad.John-Baptiste@wsp.com	<ul style="list-style-type: none"> ■ We appreciate that the Town of Midland is addressing the low pressure experienced around the area north of Highway 12 and west of King Street through the Waterworks Master Plan Update. It is noted that two Alternative Solutions are being put forward as follows: <ul style="list-style-type: none"> ■ <u>Alternative Solution 1A</u>: Provide a new storage tank near Well 7A and 7B to higher water level or control water level for Russell Tower (further west of Hanson lands, south side of Highway 12); or ■ <u>Alternative Solution 4A</u>: Install a New Booster Pump Station or Alternative Location for Booster Pump Station on the Hanson lands, west of King Street. ■ We noticed that the Alternative Solution 4A location being considered for the New Booster Pump Station is on Hanson's Phase 1C lands, and that the Alternative Location for the New Booster Pump Station is being considered on Hanson's Phase 1B lands. Hanson advises that they did not receive notice that the New Booster Pump Station or Alternative Location was identified on their lands in particular, and requests to communicate that these locations are unacceptable. ■ We understood that the low pressure experienced in the area was intended to be addressed through a new storage tank on the south side of Highway 12, further west of Hanson's lands based on previous discussions with Town of Midland staff. Alternative Solution 1A is consistent with this understanding. Accordingly, the approved Hanson Draft Plan of Subdivision does not include a Booster Pump Station. ■ We put forward our preference for Alternative Solution 1A to be on the public record and kindly request that the New Booster Pump Station not be located on Hanson's lands. We are available to discuss these matters in further detail. 	<p>Alternative Solution 1A and that you are requesting that the New Booster Pump Station associated with Alternative 4A not be located on Hanson's lands.</p> <ul style="list-style-type: none"> ■ Please note that Alternative 1A (install new tank in area of Wells 7A/7B located south of Hwy 12, west of Beamish Road) was reviewed with other alternatives to address storage issues; however, Alternative 4A was one of the alternatives under consideration to address low pressure. As such, they are different alternatives addressing two different deficiencies. ■ We recognize that your client is not supportive of municipal infrastructure being constructed on potentially developable lands. Please note that the location(s) as presented at PIC No. 2 for Alternative 4A, although within the Hanson Development are approximate. However, given your concerns the Town has revisited selection of the Preliminary Preferred Solution as noted above and now propose to select Alternative 1A (install new tank in area of Wells 7A/7B located south of Hwy 12, west of Beamish Road) as the Preferred Solution to address storage deficiencies. Alternative 4A (new pressure zone and Booster Pump station at Highway 12 / King Street area) will continue to be selected as the Preferred Solution to address low pressure deficiencies; however, the new tank and BPS would be constructed on the south side of the Highway 12 corridor, west of Beamish Road, and not within the Hanson development. Connection to the new pressure zone and these facilities; however, will be the fiscal responsibility of the Hanson development. ■ Please note that a presentation regarding this Master Plan and its recommendations will be made to Town Council on Wednesday, November 4, 2020.
11c.	BOODRAM, Natalie Representing Hanson Property located in N.W. Quadrant of Hwy 12 / King St.	<p><u>Follow-up Email Jan-09-2020:</u></p> <ul style="list-style-type: none"> ■ Following up on earlier submission 	<p><u>Response Issued by Andrea Potter via email Jan-09-2020:</u></p> <ul style="list-style-type: none"> ■ Thanks for the follow-up. The team has reviewed the letter and we are in the process of preparing a response. We lost a couple of weeks in December because of the holidays, but we will be getting back to you as soon as possible.
11d.		<p><u>Follow-up Email Mar-12-2020:</u></p> <ul style="list-style-type: none"> ■ What is the status of the Midland Waterworks Master Plan Study? 	<p><u>Response Issued by Andrea Potter via email Mar-13-2020:</u></p> <ul style="list-style-type: none"> ■ Thanks for the follow-up. We are in the process of addressing some comments that were received, including your concerns. We are working with the Town and hope to provide a formal response to your inquiry possibly next week. We are also working to wrap up this Master Plan as soon as possible. I will keep you posted. You are on the Project Contact List and will continue to receive any notifications regarding the project. If you have any further questions or concerns, please feel free to give me a call.
12	<p>JOHN-BAPTISTE, Chad & BOODRAM, Natalie Representing Hanson Property located in N.W. Quadrant of Hwy 12 / King St.</p> <p>JOHN-BAPTISTE, Chad, MCIP, RPP Senior Planner Planning, Landscape Architecture and Urban Design 100 Commerce Valley Drive West Thornhill, ON L3T 0A1 T: 289-982-4352</p>	<p><u>Formal Letter to Council December 9, 2020.</u></p> <ul style="list-style-type: none"> ■ We have reviewed the staff report and Draft Master Servicing Plan, while we are generally supportive of the Draft Master Plan there are two concerns we would like to raise with respect to our client's lands. ■ Our first concern is regarding the timing for issuance of the Notice of Completion. The staff report states that the Master Plan update follows Approach #2 where select Schedule 'B' projects shall be considered approved following the issue of the Notice of Completion. A minimum 30-day review period begins following the issuance of the notice where the public is able to review what has been approved and submit any objections. We are concerned that if the Notice of Completion is issued immediately following the Council meeting, the majority of the review period will fall across the upcoming holiday break when schools and offices are closed and 	<p><u>Formal Response Letter Issued by Andrea Potter via email June-14-2021:</u></p> <ul style="list-style-type: none"> ■ We thank you for your letter submitted December 9, 2020 in response to the Staff Report (CSR-2020-44) prepared for Members of Council regarding the Water Servicing Master Plan Update considered at the December 9, 2020 Council Meeting. It is understood that you are the consultant representing the Hanson Development located at 16821 Highway 12 in the Town of Midland (i.e., northwest area of Highway 12 and King Street intersection). We recognize that while you are generally supportive of the Draft Master Plan you do have some concerns as it relates to the Hanson Property. We've summarized the main comments below from your letter and provide a formal Town response as follows: <ul style="list-style-type: none"> ■ <u>WSP/Hanson Comment #1:</u> WSP requests that the Notice of Completion be issued in 2021 as opposed to

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	E: Chad.John-Baptiste@wsp.com	<p>business and residents may not be readily available for a period of time during the break. We request that the Notice of Completion be issued in January 2021 to allow for the opportunity to review the Master Plan during the full 30-day review period.</p> <ul style="list-style-type: none"> ■ Secondly, Section 13.5 of the current Draft Master Plan proposes that the development of a new South Pressure Zone (Alternative 4A) occur within the mid-term period of 5 to 10 years. As you know, our client has secured Draft Plan Approval for the Plan of Subdivision for the development of the Hanson lands located north of Highway 12, which includes the majority of the lands from King Street to Penetanguishine Road. The Lands are designated and zoned for urban residential and commercial uses in the Town's current Official Plan (2002-88) and Zoning By-law. As market demands evolve and growth pressures increase in the southern portion of the Town of Midland, there is potential that the new South Pressure Zone and new Booster Station south of Highway 12 will be required to support the development of the Hanson lands west of Beamish Road within a shorter time period than 5 to 10 years. We request that Council consider moving up the proposed timeline for the new South Pressure Zone to provide flexibility for the development on the south side of the Town of Midland. ■ Following our review of the staff report and the Draft Master Plan, we were able to connect with AECOM today to discuss some of our concerns. Based on our discussion, we understand that the Draft Master Plan will be updated further, that the Schedule C reference for the new South Pressure Zone (Alternative 4A) will be updated, and that there will be further EA work required to refine the proposed location of the New Booster Pump Station for the New South Pressure Zone south of Highway 12. ■ We request the opportunity to review the updated Master Plan prior to issuing the Notice of Completion, which we anticipate will occur in the new year. 	<p>Christmas 2020 to avoid the holiday and provide opportunity to review the Master Plan during the full 30-day review period.</p> <p>Town Response: Issue of the Notice of Completion is planned for June 2021.</p> <ul style="list-style-type: none"> ■ WSP/Hanson Comment #2: WSP would like the opportunity to review the updated Master Plan prior to issuance of the Notice of Completion. Town Response: There haven't been any significant updates to the document since the draft was presented to Council in December 2020. The document will be available for review and comment for the standard 30 day review period following issue of the Notice of Completion later this month. As there has been an additional five months for you to review the materials the Town will publish the final version with the Notice of Completion. ■ WSP/Hanson Comment #3: WSP requests that the proposed timeline for implementation of the new South Pressure Zone (Alternative 4A), currently identified as a mid-term project (5-10 years), be advanced to a short term project to provide flexibility for development on the south side of the Town of Midland as detailed in the excerpt below from the December 9th letter.... <i>“Section 13.5 of the current Draft Master Plan proposes that the development of a new South Pressure Zone (Alternative 4A) occur within the mid-term period of 5 to 10 years. As you know, our client has secured Draft Plan Approval for the Plan of Subdivision for the development of the Hanson lands located north of Highway 12, which includes the majority of the lands from King Street to Penetanguishine Road. The Lands are designated and zoned for urban residential and commercial uses in the Town's current Official Plan (2002-88) and Zoning By-law. As market demands evolve and growth pressures increase in the southern portion of the Town of Midland, there is potential that the new South Pressure Zone and new Booster Station south of Highway 12 will be required to support the development of the Hanson lands west of Beamish Road within a shorter time period than 5 to 10 years. We request that Council consider moving up the proposed timeline for the new South Pressure Zone to provide flexibility for the development on the south side of the Town of Midland.”</i> Town Response: As mentioned during your December 9, 2020 call with AECOM, there is nothing preventing Alt. 4A from being implemented earlier; however, the decision would be made in consideration of need and available funding. As there is no commitment from the development community to front-end this project to advance the schedule the draft master plan will not be revised. Please also keep in mind that connection to the new pressure zone and associated facilities on the south side of Highway 12 will be the fiscal responsibility of the Hanson development as mentioned previously in our November 12, 2020 response to your earlier questions. ■ WSP/Hanson Comment #4: Based on the discussion with AECOM in advance of the Council meeting it is understood that the Draft Master Plan will be updated further, that the Schedule C reference for the new South Pressure Zone (Alternative 4A) will be updated, and that there will be further EA work required to refine the proposed location of the New Booster Pump Station for the New South Pressure Zone south of Highway 12.

No.	Respondent Information	Comments Received	How Addressed
			<p>Town Response: The latest version of the Master Plan document reflects the minor revisions noted above discussed previously with AECOM.</p>
13	<p>KAY, Marissa Co-ordinator, Development Services North American Development Group 2851 John Street, Suite One, Markham, Ontario L3R 5R7 C: 403-708-1039 E: mkay@nadg.com</p>	<p>Email May 31, 2021.</p> <ul style="list-style-type: none"> Inquiring about the Midland Waterworks Master Plan. I noticed the website had last been updated for the Public Information Centre in 2019. Do you have an update on the Midland Waterworks Master Plan you're able to share? 	<p>Response Issued by Andrea Potter via email June-14-2021:</p> <ul style="list-style-type: none"> The process was a bit delayed while the Town dealt with more pressing issues. However, I have confirmed with the Town that we will be moving forward with issue of the Notice of Completion in June. You are on our contact list and will therefore receive notification when the final notice is issued. The website will be updated shortly as well. In the meantime I have attached a copy of Council's report from the December 9th, 2020 Council meeting if you would like to have a look.
14	<p>Vera Finlay Senior Executive Assistant Tay Township 450 Park Street, PO Box 100 Victoria Harbour, Ontario L0K 2A0 705-534-7248 x229</p>	<p>Response Rec'd June 29, 2021, Following Issue of Notice of Completion</p> <p>Please be advised that Lindsay Barron is the CAO for Tay Township, and Robert Lamb is now the CAO in Tiny Township.</p>	<p>Comment noted. Formal response not required.</p>
15	<p>Bryan Murray, P.Eng Director of Public Works Town of/Ville de Penetanguishene 22 Centennial Drive Penetanguishene, Ontario L9M 1R7 705-549-7992 ext. 107</p>	<p>Response Rec'd June 24, 2021, Following Issue of Notice of Completion</p> <p>We write in response to the Notice of Completion letter issued by the Town of Midland on June 24, 2021. Please be advised that the Town of Penetanguishene, through its engineering consultant J.L. Richards & Associates Ltd., have initiated a Municipal Class Environmental Assessment (MCEA) process for a Secondary Water Supply to the Payette Water System.</p> <p>The connection of the Payette Water System to the Midland Water System is an option that is being explored as part of our MCEA process. To support the evaluation of this option, we request that the Town of Midland keep the potential for the connection of the two water systems available as part of its comprehensive water servicing strategy for the next 20 year period.</p> <p>It is anticipated that further discussion between municipal staff and their engineering consultants will take place in the coming months to further evaluate this potential opportunity.</p>	<p>Response Issued by Town</p> <p>We thank you for your June 24, 2021 letter in response to the Notice of Completion issued for the Town of Midland Water Master Plan Update.</p> <p>It is understood that the Town of Penetanguishene has initiated a Schedule B Municipal Class Environmental Assessment (MCEA) for the Payette Water System to identify near and long term recommendations to address water supply redundancy within the Town. It is recognized that the connection of the Payette Water System to the Midland Water System is an option that is being explored as part of that Class EA process and that to support the evaluation of this option you would like the Town of Midland keep the potential for the connection of the two water systems available as part of its comprehensive water servicing strategy for the next 20 year period.</p> <p>As you know, the potential for an interconnection between the Town of Midland and the Town of Penetanguishene was considered in the completion of Town of Midland's recent update to the Water Servicing Master Plan. A potential connection was also discussed in a meeting between the two municipalities on May 6, 2019. As summarized in S. 9.5 of the WMP, "... Preliminary discussions with the Town of Penetanguishene regarding a potential connection between the two municipalities concluded that the interconnection of the two municipal systems (Short List Water Supply Option Alt. 2F) may have merit from both municipality's perspective. The connection to Penetanguishene is subject to the viability of the Sundowner Well coming online. If the Sundowner Well is not feasible then the preferred water supply solution would be to site and build a new surface Water Treatment Plant. Subject to direction from each municipal council, the two municipalities may initiate a future, separate MCEA study to investigate connection options and, subject to completion of the MCEA process, identify a Preferred Solution including cost estimate."</p> <p>The Town of Midland is open to discussing a potential interconnection further and we look forward to future discussions regarding this opportunity.</p>

No.	Respondent Information	Comments Received	How Addressed
16	<p>Bourgeois, Adam Bourgeois Auto Group Tel: 705-526-2278 Email: fordinmidland@gmail.com</p>	<p><u>Comment Rec'd June 25, 2021, Following Issue of Notice of Completion:</u> High level, how does this affect us?</p>	<p><u>Response Issued by Andrea Potter via email July 23, 2021:</u></p> <p>Thank you for your email regarding the Waterworks Master Plan Update being completed by the Town of Midland.</p> <p>As you are part of the Midland Development Community you were included on the Project Contact List as a key stakeholder who may have an interest in the project.</p> <p>In response to your question, you are correct. At this stage it is high level. A Master Plan is a long range plan that identifies infrastructure requirements for existing and future land use. The purpose of this undertaking is to complete an update to the existing Water Servicing Master Plan to reflect growth in the community, planned development, and operational changes.</p> <p>Since you are part of the Development Community you may be interested in the Recommended Strategy selected to address water servicing deficiencies affecting the community as well as the planned phasing/timing for implementing the projects that make up the Recommended Strategy.</p> <p>As indicated in the Notice of Completion provided to you previously the Master Plan document is available for review on the Town's website at www.midland.ca/WMP</p>

Note: Resident Personal Information Redacted

7.7 Indigenous Correspondence

The Ministry of Environment, Conservation, and Parks (MECP) was consulted at the project start to obtain direction on which Indigenous Communities should be contacted given that, at that time, their office assumed the role from the Ministry of Indigenous Affairs (formerly Ministry of Aboriginal Affairs) in advising which Indigenous Communities should be contacted for specific projects. An email was subsequently sent to MECP on December 21, 2018 requesting input. MECP responded January 10, 2019 advising that the following should be included on the project contact list:

- Chippewas of Georgina Island
- Chippewas of Rama First Nation
- Beausoleil First Nation
- Huron-Wendat Nation
- Chippewas of Nawash First Nation
- Chippewas of Saugeen
- Wahta Mohawk First Nation
- Moose Deer Point First Nation
- Metis Nation of Ontario, Georgian Bay Traditional Territory Consultation Committee

The Town of Midland also advised that they have an established Protocol Agreement (i.e., By-law 2018-32) with Beausoleil First Nation and identified the following as key Indigenous contacts that should be contacted as part of this project:

- Huron Wendat
- Metis Nation of Ontario
- Georgian Bay Native Friendship Centre

The following two documents were also given consideration during this process:

- Protocol Agreement (i.e., By-law 2018-32) between the Town of Midland and Beausoleil First Nation.
- Metis Nation of Ontario Consultation Protocol for the Georgian Bay Traditional Territory

The relationship protocol with Beausoleil First Nation as defined in the Municipal By-law 2018-32 was reviewed at the project start to make certain that this relationship would be

maintained during the Master Plan Update. Based on the protocol it was determined that this municipal undertaking is expected to have a low potential to impact Indigenous Communities and therefore, as per By-law 2018-32, the applicable level of the Consultation Scale would be 'low'. The initial correspondence to Beausoleil First Nation requested confirmation of their agreement with this classification and the level of consultation proposed. The community was also informed that the Project Team is available to meet with them if required.

Following issue of Notice of PIC No. 1 only one community provided a response. The Manager of the Saugeen Ojibway Nation Environment Office, Michael Johnston, advised via email February 7th, 2019 that the Town of Midland lies outside their Traditional Territory and they therefore have no interest in the ground works of the project. They requested that they be removed from the distribution list; however, indicated that they do have a significant interest in the waters of Georgian Bay and may comment on the project in the future if it was felt that the project may impact the water quality or fish habitat of Georgian Bay. No comments from Indigenous Communities were submitted following the PIC No. 2.

An update email was circulated to Indigenous Communities on the Project Contact List December 17, 2019 to make certain that they received the earlier notifications and were aware of the project and to generally confirm if they have any questions or concerns. A follow-up phone call was also made to each community on January 9th and 10th, 2020.

In response to the follow-up AECOM talked further with the following First Nation Communities: Rama, Georgina Island, Nawash, Chippewas of Saugeen and Huron Wendat as summarized in **Table 25**.

The Saugeen Ojibway Nation Environment Office advised that the Chippewas of Saugeen First Nation and Nawash First Nation are considered one nation, but two communities and that the Saugeen Ojibway Nation Environment Office represents both communities. That office confirmed via email January 10th, 2020 that the project is outside their territory and directed that both communities be removed from the Project Contact List. The only other Indigenous respondent was Mr. Maxime Picard of the Huron Wendat First Nation who inquired if there will be any archaeological studies that will be initiated as part of the project.

Correspondence received from Indigenous communities is presented in **Table 25** and included in Appendix B.

7.8 Council Meeting

A presentation regarding the Master Plan update and its recommendations was made to Town Council on Wednesday, December 9, 2020. One letter was submitted December 9, 2020 to Council by the Consultant, WSP, representing the Hanson Development located in the northwest area of Highway 12 and King Street. WSP requested that the Notice of Completion be issued in 2021 as opposed to Christmas 2020 to avoid the holiday and provide opportunity to review the Master Plan during the full 30-day review period. Their key concern related to the proposed timeline for implementation of the new South Pressure Zone (Alternative 4A), and whether it could be advanced to a shorter term project (1-5 years) as opposed to the current mid-term timeframe (5-10 years) so as to provide flexibility for development on the south side of the Town of Midland. WSP noted that their client's property currently has Draft Plan approval and as market demands evolve and growth pressures increase in the southern portion of the Town of Midland, there is potential that the new South Pressure Zone and associated Booster Station proposed south of Highway 12 as part of Alternative 4A will be required to support the development of the Hanson lands west of Beamish Road within a shorter time period than 5 to 10 years. The Town responded that there is nothing preventing Alternative 4A from being implemented earlier; however, the decision would be made in consideration of need and available funding. The Town also advised that connection to the new pressure zone and associated facilities on the south side of Highway 12 will be the fiscal responsibility of the Developer. A copy of the Council presentation, associated Staff Report and the above noted correspondence are included in Appendix B.

Table 25: Indigenous Community Correspondence Received

Indigenous Community	Comments	How Addressed
<p>Saugeen Ojibway Nation Environment Office (representing Chippewas of Saugeen and Nawash First Nation)</p>	<p><u>Email Submitted Feb-07-2019 Following PIC No. 1 (from Michael Johnston Manager, SON Environment Office)</u></p> <ul style="list-style-type: none"> ▪ Town of Midland lies outside their Traditional Territory and they therefore have no interest in the ground works of the project. They requested that they be removed from the distribution list; however, indicated that they do have a significant interest in the waters of Georgian Bay and may comment on the project in the future if it was felt that the project may impact the water quality or fish habitat of Georgian Bay. <p><u>Email Submitted by Juanita Meekins January 10, 2020 in Response to Follow-up:</u></p> <ul style="list-style-type: none"> ▪ Confirmed that the project is outside their territory and directed that both Chippewas of Saugeen FN and Nawash FN be removed from the Project Contact List. 	<ul style="list-style-type: none"> ▪ Removed from Contact List as requested.
<p>Chippewas of Rama First Nation</p>	<p><u>Email submitted Jan-09-2020 in response to Follow-up (from Sharday James, Community Consultation Worker)</u></p> <ul style="list-style-type: none"> ▪ Advised that she will review the PIC material 	<ul style="list-style-type: none"> ▪ n/a
<p>Georgina Island First Nation</p>	<p><u>Email submitted Jan-09-2020 in response to Follow-up</u></p> <ul style="list-style-type: none"> ▪ Advised that Natasha Charles would be correct contact. 	<ul style="list-style-type: none"> ▪ Email forwarded Jan-10-2020 – read receipt received.
<p>Nawash First Nation</p>	<ul style="list-style-type: none"> ▪ Advised by Joselyn Keeshig to also follow-up with Kathleen Ryan. 	<ul style="list-style-type: none"> ▪ Email forwarded Jan-10-2020 – read receipt received.

Indigenous Community	Comments	How Addressed
<p>Huron Wendat Frist Nation</p>	<p>Email submitted Jan-13-2020 in Response to <u>Follow-Up</u> (from Mr. Maxime Picard, Project Co-ordinator)</p> <ul style="list-style-type: none"> ■ Inquired if there will be any archaeological studies that will be initiated as part of the project. <p>Email submitted Feb-03-2020</p> <ul style="list-style-type: none"> ■ Thanks for the clarification. Please keep our Nation updated in the event that any archaeological assessment is initiated as part of the future project phases. 	<p>Response Issued via email Feb-03-2020:</p> <ul style="list-style-type: none"> ■ In response to your query regarding the completion of any archaeological assessments during the current process, please note that this undertaking involves an update to the existing Water Master Plan for the Town of Midland and we are therefore reviewing the existing system for the entire municipality at a very high level. As such, we will not be completing any archaeological studies as part of the current Master Plan Update. We have given consideration to the County of Simcoe Archaeological Management Plan; however, should any site specific studies be required, these would be completed at a future date as part of the design phase prior to construction.

8. Preferred Servicing Strategy

Following PIC No. 2 and the receipt of input from the public, agencies and Indigenous Communities the Project Team revisited the Preliminary Preferred Servicing Strategy as presented at PIC No. 2 in consideration of comments received. Adjustments were made where possible and the final Preferred Strategy was confirmed.

Table 26 below presents the final, Preferred Solutions selected to address the deficiencies affecting the municipality’s current water servicing system. The final Preferred Strategy is further illustrated in **Figure 9**.

Table 26: Preferred Alternatives

Identified Deficiency	Preferred Solution	
Storage	Alternative 1A	New Storage East Pressure Zone Near Wells 7A & 7B
Supply	Alternative 2A	Abandon Well 1A and Well 12 and Commission Sundowner Well
Capacity	Alternative 3A	Pump Station upgrades at Hanly Street
	Alternative 3C	Pump Station upgrades at Everton
Low Pressure	Alternative 4A	New pressure zone and BPS at south side of Hwy 12 west of King St. near Wells 7A & 7B west of Beamish Road.
	Alternative 4B	New trunk watermain for future growth west zone. Connect area south of Little Lake to west pressure zone via County Road 93.
Redundancy	Alternative 5A	Construct twin 300 mm watermain on Harbourview Road.

One of the key adjustments made to the Preliminary Preferred Strategy as presented at PIC No. 2 following the receipt of comments was in relation to the Preferred Solution to address storage. At PIC No. 2 Alternative 1B was identified as the Preliminary Preferred Solution to address storage; however, following the receipt of input in response to PIC No. 2 it was determined that Alternative 1A would be a more suitable alternative. An area developer expressed concern with Alternative 1B given that it proposed construction of a municipal facility within their developable lands. This was revisited by the project team and Alternative 1A was subsequently selected as the Preferred Solution to address storage as opposed to Alternative 1B.

Figure 9: Preferred Servicing Strategy

Short Term (1 – 5 years)

- Upgrade Everton BPS (Alt. 3C)
- Upgrade Hanly BPS (Alt. 3A)
- Abandon Well 12 (Alt. 2A)
- Abandon Well 1A (Alt. 2A)
- Extend life of Dominion and Montreal Standpipes by 5-10 years.
- Twin Harbourview Drive Watermain (Alt. 5A) Opportunity to coordinate with installation of twin forcemains and road improvements

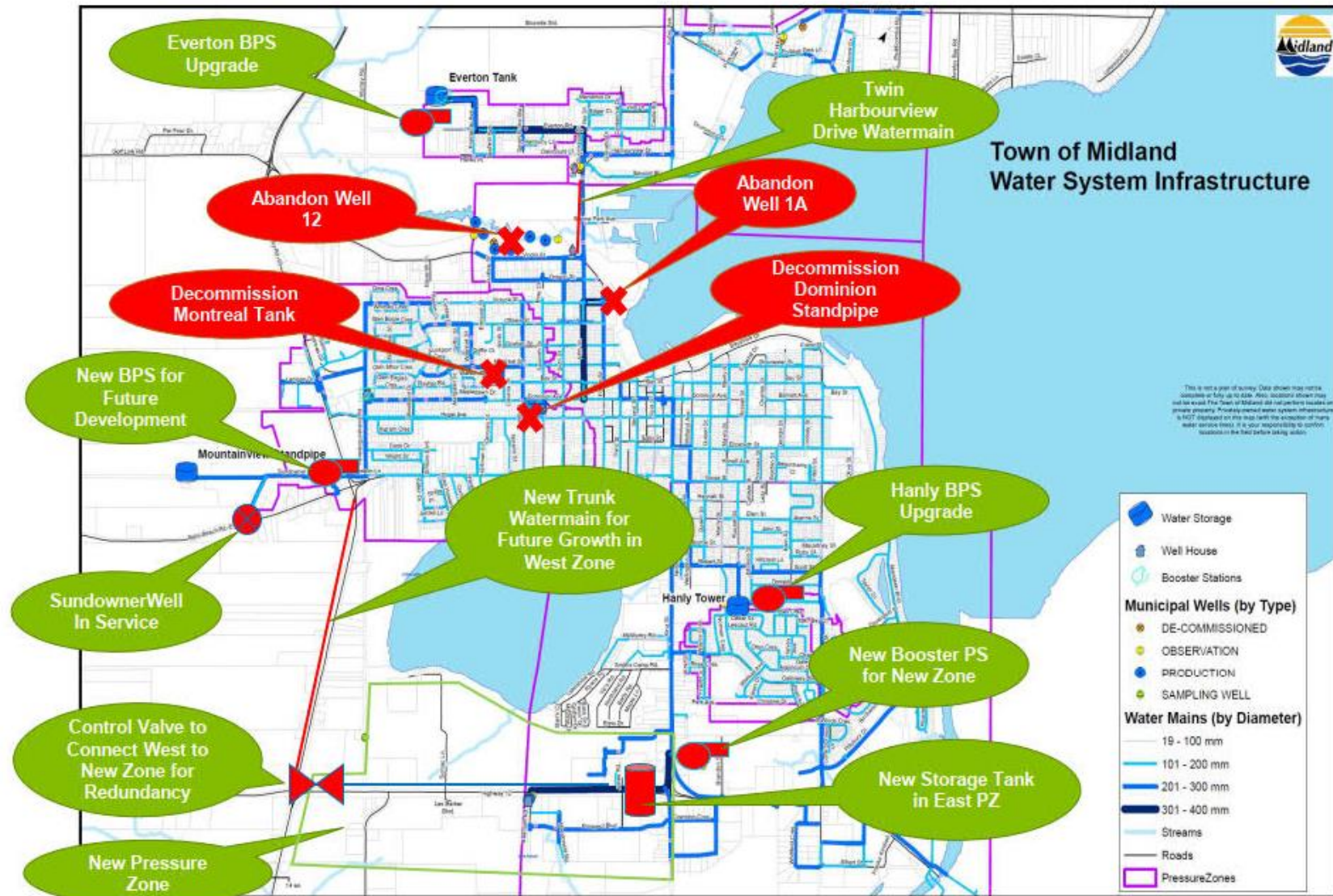
Mid Term (5 – 10 years)

- New Storage in the East Pressure Zone (Alt. 1A). Dominion & Montreal Standpipes to be decommissioned.
- New BPS for New Zone in the South (Alt. 4A)
- New "South" Pressure Zone (Alt. 4A)

Long Term (15 – 20 years)

- Commission Sundowner Well (Alt. 2A) – Subject to 72 hour pump test to confirm Trichloroethylene (TCE) levels and treatment requirements-feasibility (previous test showed TCE levels are within Provincial Water Quality Objectives for human consumption).
- New BPS at Balm Beach Road for future development (required long term to avoid low pressure issues)
- New trunk watermain for future growth in the West Zone along Highway 93 (Alt. 4B)

Preferred Servicing Strategy



Another key modification made following PIC No. 2 was the selection of the Preferred Solution to address low pressure. At PIC No. 2 Alternative 4A was identified as the Preliminary Preferred Solution to address low pressure; however, Alternative 4B was later selected in addition to Alternative 4A as a long term Preferred Solution to address low pressure issues and future growth in the area of Highway 12 and County Road 93. The exact location associated with Alternative 4A was further refined to south of Highway 12, west of King Street, and west of existing Wells 7A/7B at Beamish Road. Both alternatives were selected for the Preferred Strategy because, combined, the two alternatives provide a short and long term solution to address low pressure issues in the system and provide for future growth.

9. Water System Recommendations – Capital Works Projects

Based on the severity of the deficiency and available funding the projects that make up the Recommended Strategy were classified into a short-term, mid-term or long-term project as noted below:

9.1 Short Term (1-5 years)

- Upgrade Everton Booster Pump Station (BPS) (Capacity Alt. 3C)
- Upgrade Hanly BPS (Capacity Alt. 3A)
- Abandon Well 12 and Well 1A (Water Supply Alt. 2A)
- Extend life of Dominion and Montreal Standpipes by 5-10 years.
- Twin Harbourview Drive Watermain (Redundancy Alt. 5A)

9.2 Mid Term (5-10 years)

- New Storage in east Pressure Zone near Wells 7A & 7B (Storage Alt. 1A) with Dominion and Montreal Standpipes to be decommissioned.
- New BPS for new zone in South (Low Pressure Alt. 4A)
- New “South” Pressure Zone (Low Pressure Alt. 4A)

9.3 Long Term (15-20 years)

- Commission Sundowner Well (Water Supply Alt. 2A) - Subject to 72 hour pump test to confirm Trichloroethylene (TCE) levels and treatment requirements-feasibility (previous test showed TCE levels are within Provincial Water Quality Objectives for human consumption).
- New BPS at Balm Beach Road for future development (required long term to avoid low pressure issues)
- New trunk watermain for future growth in the West Zone along Highway 93 (Low Pressure Alt. 4B)

9.4 Update to Midland and Penetanguishene Tier Three Water Budget and Local Area Risk Assessment

Based on the Phase 2 evaluation, it is recommended that the *Midland and Penetanguishene Tier Three Water Budget and Local Area Risk Assessment* be updated to reflect the abandonment of Wells 1A and 12.

9.5 Potential Midland-Penetanguishene Water System Interconnection

Preliminary discussions with the Town of Penetanguishene regarding a potential connection between the two municipalities concluded that the interconnection of the two municipal systems (Short List Water Supply Option Alt. 2F) may have merit from both municipality's perspective. The connection to Penetanguishene is subject to the viability of the Sundowner Well coming online. If the Sundowner Well is not feasible then the preferred water supply solution would be to site and build a new surface Water Treatment Plant. Subject to direction from each municipal council, the two municipalities may initiate a future, separate MCEA study to investigate connection options and, subject to completion of the MCEA process, identify a Preferred Solution including cost estimate.

10. Implementation

10.1 Planning and Capital Budget

As part of the current Master Plan update, cost estimates were prepared for the Preferred Servicing Strategy and associated projects. The estimates are based on previous AECOM construction and project management experience. The costs are separated into “Preliminary Studies and Approvals” and “Proposed Works”. It is assumed that all projects will require a preliminary study, environmental approvals, mitigation, and land acquisition and therefore allowances have been included in the cost estimates accordingly. Assumptions were also made regarding contingency costs; contractor overhead and profit which was estimated at 10% of capital and preliminary costs. Estimating contingencies are assumed to be 30% of the sub-total. Engineering design and construction services costs are estimated at 10% for storage tank cost, and 15% for pump station and watermain projects. **Table 27** provides a summary of the cost estimate for the preferred alternatives that forms the overall servicing strategy for the Town of Midland.

Table 27: Summary of Cost Estimates

Issue # and Goal	Preferred Alternative	Description of Alternative	Pipe Length (m)	Pipe Diameter (mm)	Storage and Type (ML)	Number of Pumps	Pumps Flow (L/s)	Pumps Head (m)	Well Capacity (L/s)	Treatment (L/s)	Conceptual Cost (CAD)	Phasing	Growth*	Non-Growth*
#1 – Increase Water Storage Capacity	1A	Install a new tank in the area of Wells 7A/7B			5.38ML - Elevated @ 35 m						\$ 9,779,000	Mid. Term (5-10 Years)	90%	10%
#2 – Increase Water Supply Capacity	2A	Existing Sundowner Well can be commissioned to provide supply to West Zone				2	60 L/s	58.8 m	5MLD (based on Sundowner Booster PS)	5MLD (based on Sundowner Booster PS)	\$ 5,555,000	Long Term (15 - 20 Years)	90%	10%
#3 – Increase Pumping Capacity	3A	Upgrade pump capacity of Hanly BPS				2	79 L/s Fire and 10 L/s Duty	69 m			\$ 2,335,000	Short Term (1-5 years)	10%	90%
	3C	Upgrade pump capacity of Everton BPS				1	64 L/s Fire Pump	21 m				Short Term (1-5 years)	10%	90%
#4 – Address Low Pressure Area Servicing	4A	New Pressure Zone with new Booster Pump Station	1400	300		4	3 pumps 10.5 L/s 1 Fire Pump @ 144 L/s	26 m			\$ 6,333,000	Mid. Term (5-10 Years)	10%	90%
#4 – Address Low Pressure Area Servicing	4B	New Trunk Watermain along Highway 93	3000	300							\$ 5,877,000	Long Term (15 - 20 Years)	100%	0%
#5 – Provide Redundancy of Supply to Sunnyside	5A	Watermain Twinning on Harbourview Drive	700	300							\$ 2,319,000	Short Term (1-5 years)	10%	90%
#6 – Commission Balm Beach Road BPS	Recommended without alternative	Booster Pump Station at Balm Beach	1200	300		3	3 pump 1 L/s 1 Fire Pump 38 L/s	42 m			\$ 3,351,000	Long Term (15 - 20 Years)	100%	0%
#7 - Abandon old infrastructure	Recommended without alternative	Abandon Wells 12, 1A and use it as monitoring wells									\$ 100,000	Short Term (1-5 years)	10%	90%
	Recommended without alternative	Decommission Dominion and Montreal Standpipe									\$ 2,000,000	Long Term (15 - 20 Years)	90%	10%
#8 – Extend Service Life of Existing Infrastructure	Recommended without Alternative	Extend the service life of Dominion and Montreal Standpipes until the new storage tank (Alt 1A) is constructed									\$ 400,000**	Short Term (1-5 years)	10%	90%

*Guidelines applied to develop growth/non-growth split: 1. If triggered by growth and benefits only new customers – 100% growth
2. If not triggered by growth and benefits only new customers – 100% non-growth
3. If triggered by growth and primarily benefits development - 90% growth and 10% non-growth
4. If triggered by existing deficiency and primarily benefits existing customers – 10% growth and 90% non-growth

** Assumes \$100,000 for undertaking condition assessment for the two storage facilities. \$150,000 was identified for required rehabilitation works for budget purposes for each storage. The actual costs for the rehabilitation works will depend on the condition assessment results.

11. MCEA Project Schedule

11.1 MCEA Planning Schedule

As indicated, the MCEA defines four (4) types of Project Schedules (i.e., A, A+, B, or C). The applicable schedule determines the level of MCEA planning required and will establish whether a project can proceed to implementation or whether additional MCEA study will be required following completion of this Master Plan update. **Table 28** identifies the applicable MCEA Project Schedule for each of the Preferred Alternatives that make up the Recommended Strategy.

Table 28: Preferred Strategy MCEA Project Classification

Recommended Strategy	Municipal Class EA Project Schedule
Short Term (1-5 Years)	
Upgrade Everton Booster Pump Station (Alt. 3C)	Schedule A (See Class EA pg. 1-11 Item 2)
Upgrade Hanly Booster Pump Station (Alt. 3A)	Schedule A or B (depending if new structure required) (See Class EA pg. 1-11 Item 2) (See Class EA pg. 1-16 Item 4)
Abandon Well 12 & Well 1A (Alt. 2A)	Schedule A + (See Class EA pg. 1-13, Item 5)
Twin Harbourview Drive Watermain (Alt. 5A)	Schedule A+ or B (depending if within or outside right-of-way) (See Class EA pg. 1-13, Item 1) (See Class EA pg. 1-6, Item 1)
Mid Term (5-10 Years)	
New South Pressure Zone including New Booster Pump Station and associated watermain (Alt. 4A)	*Schedule B (New BPS = Sch. B – see Class EA pg. 1-16, Item 4) (New watermain = Sch. A+ or B depending if within ex. municipal property See Class EA pg. 1-13 Item 1 or pg. 1-16, Item 1)
New Storage East Pressure Zone (Alt. 1A)	Schedule B (See Class EA pg. 1-16, Item 6)
Long Term (15–20 years)	
Commission Sundowner Well (Alt. 2A)	Schedule B (See Class EA pg. 1-17, Item 8)
Decommission Dominion Storage Tank	Schedule A + (See Class EA pg. 1-13, Item 5)
Decommission Montreal Storage Tank	Schedule A + (See Class EA pg. 1-13, Item 5)
New Booster Pump Station at Balm Beach Road	Schedule B (See Class EA pg. 1-16, Item 1)
New Trunk Watermain in West Zone on Hwy 93 (Alt. 4B)	Schedule A or B (depending if within existing municipal property) (See Class EA pg. 1-13, Item 1) (See Class EA pg. 1-16, Item 1)

*NOTE: Applicable MCEA Project Schedule adjusted from Schedule C to B following PIC No. 2

At PIC No. 2, Alt. 4A involving a new South Pressure Zone and new BPS, was identified as a Schedule C project. However, following PIC No. 2 and the receipt of input, it was determined that the New Pressure Zone associated with Alt. 4A will actually be more of an extension to an existing system and will therefore constitute a Schedule B project as opposed to a Schedule C. (NOTE: the watermain portion would be a Schedule A+ or B depending if undertaken within an existing municipal right-of-way or municipal property; however, the exact location cannot be confirmed at this time. Additionally, the new BPS associated with the New Pressure Zone would be a Schedule B project and since these would be undertaken at the same time then the more extensive MCEA classification would apply and as such, Alt. 4A (New Pressure Zone including a new BPS) would constitute a Schedule B project as opposed to a Schedule C)). This adjustment is reflected in Table 28 above.

11.2 Project Implementation

This undertaking was completed in accordance with the Municipal Class Environmental Assessment (October 2000, as amended 2007, 2011 & 2015) with the intent of addressing Phases 1 and 2 thereby fulfilling the requirements for the Schedule 'A', 'A+', and select 'B' project(s) identified within the document. As such, certain Schedule B projects and any Schedule C projects would require further study at a future date to fulfill MCEA requirements and to be eligible to proceed to construction.

Table 28 demonstrates that the Recommended Strategy for the current Master Plan does not include any Schedule C projects. As indicated, Schedule A & A+ projects (i.e., Alts. 2A & 3C) are preapproved and can proceed to implementation. Projects identified as being Schedule A+ or B (i.e., Alts. 4B & 5A) indicate that the applicable MCEA schedule cannot be confirmed until a future date when it can be determined if the work proposed will take place within existing municipal property. For example, for short-term Schedule B project Alternative 5A (Twin Harbourview Drive) it is unclear at this time whether the improvements can be completed within the existing right-of-way and proceed as a pre-approved Schedule A+ project or if it will require work outside the existing right-of-way. If it should require work outside the existing corridor additional study to fulfill MCEA requirements will be necessary prior to construction.

This Master Plan also does not fulfill MCEA requirements for the mid or long-term Schedule B projects (i.e., Alts. 1A, 2A or 4A) given that these will not advance to construction for another 5 to 20 years and an update to this Master Plan will be required in a 5-year period. However, should one of the mid-term or long-term projects proceed to implementation before the next Master Plan update then additional study to fulfill MCEA requirements (i.e., complete the MCEA Schedule B process and issue a Notice

of Completion for filing of a Project File Report) will be necessary prior to moving forward with detailed design and construction.

Given the above, additional site-specific assessment sufficient to fulfill MCEA requirements was completed for only Alternative 3A (Upgrade Hanly Booster Pump Station) as it is a short term project and expected to proceed as a Schedule B undertaking since an expansion to the existing structure is anticipated as part of the upgrades. The assessment completed was documented in a Technical Memo included in **Appendix C** of this document. As such, it is the intent that the final notice for this Master Plan be the Notice of Completion for the Alternative 3A project and that it be eligible to proceed to implementation following the completion of this Master Plan update.

12. Summary of Environmental Effects and Mitigation

This section summarizes the main environmental concerns associated with the future Schedule B projects and the recommendations for the Town to consider during the detailed design and construction phases for those projects.

12.1 Alt. 3A Upgrade Hanly BPS (Schedule B)

As indicated, the potential environmental effects associated with Alt. 3A (Upgrade Hanly Booster Pump Station) have been documented in a separate Technical Memo included in **Appendix C** of this document. This section provides a brief summary of that memo.

Alt. 3A proposes upgrades to the Hanly Street Booster Pump Station located at 365 Hanly Street and is a short term (1-5 years) recommended strategy to address capacity issues. While the upgrades to the Everton BPS constitute a Schedule A project and are pre-approved the upgrades proposed at the Hanly Street BPS constitute a Schedule B project since the work proposed cannot be completed within the existing facility or structure.

As illustrated in **Figure 10**, the site is an existing municipal property that currently houses a storage tank and pump house with sufficient land available for a new structure, if required. While this alternative proposes a potential expansion of the existing structure and therefore a change in overall footprint it is not expected to result in significant impact to area natural heritage features given that the site is located within a residential area consisting of manicured lawns with minimal vegetation and therefore offering limited habitat. There are no water features within the site or in proximity. Species present would be limited to those that are accustomed to living in a more urbanized environment (i.e., squirrels, chipmunks, etc.). Additionally, since it is an existing municipal facility the improvements proposed are expected to have a low potential to impact the social environment (i.e., land use, noise and aesthetics). In terms of Climate Change this option proposes the use of existing infrastructure which will minimize impacts to the area environment and will therefore have a limited potential to impact climate change. The upgrades could also include energy efficiencies to assist in reducing impacts to climate change.

The overall potential to impact the natural, socio-economic and cultural environments is expected to be low given the developed nature of the site and its current operation as a municipal facility. The main potential for impact relates to the construction period.

However, it is expected that any impacts associated with noise, aesthetics and etc. during this period can be mitigated and will be temporary.

12.2 Alt. 1A New Storage East Pressure Zone Near Wells 7A & 7B (Schedule B)

Alt. 1A is a mid-term project (5-10 years) that proposes new storage in the East Pressure Zone to address storage deficiencies. With Alt. 1A a new tank is proposed in the area of the existing Wells 7A/7B located on the south side of Highway 12, west of Beamish Road. As illustrated in **Figure 10**, the subject location is south of the existing municipally owned lands adjacent an existing pit.

As this is a new location property will need to be acquired to accommodate the facility. The municipality should consider the completion of a Phase I Environmental Site Assessment (ESA) to review the historical usage of the affected area to determine the potential for any contamination and / or underground storage tanks to be present and to establish an agreed course of action in terms of disposal should something be encountered during construction. Given the rural nature of this general area there is also an increased potential for construction to impact area wildlife and vegetation during the construction process; however, it is expected that these impacts can be minimized through appropriate mitigation. As it is a vacant, undisturbed area the Town will need to consider the completion of additional localized studies during detailed design to address archaeological and Species at Risk concerns. The Town's Official Plan and current MNRF mapping indicate that there are no water features in proximity and therefore there is a low potential to impact fish/fish habitat and other aquatic species. Construction will have a low potential to result in noise and aesthetic impacts given the rural nature of the location. During detailed design the municipality should also consider Climate Change and make an effort to minimize vegetation removal and also site the facility to minimize vulnerability to extreme weather events (i.e., flooding). Energy efficient construction/technologies should also be considered.

A Technical Memo was not prepared for this alternative as it is a mid-term project that will not advance to construction for another 5 to 10 years and an update to this Master Plan will be required in a 5 year period.

Figure 10: Schedule B Projects



12.3 Alt. 2A Commission Sundowner Well (Schedule B)

This alternative is a long-term project (15-20 years) that proposes to commission the Sundowner well to address supply deficiencies and constitutes a Schedule B project. As illustrated in **Figure 11**, this location is an existing municipal well site located on the north side of Balm Beach Road. This alternative proposes to commission the existing Sundowner Well utilizing water treatment technology to provide water supply to the West Zone. Additional testing and future MCEA process will be required to implement this option. While previous testing indicated that TCE levels are within current Provincial Water Quality Objectives for human consumption additional testing will be required at the time of implementation to ensure that it meets current requirements. Discussions with the MECP may be required to conduct appropriate testing (i.e., 72-hour pump test) to confirm Trichloroethylene (TCE) levels and treatment requirements/feasibility.

Associated with Alt. 2A is the construction of a new Booster Pump Station at Balm Beach Road. This would also be completed over the long-term (15-20 years) and while the works proposed would constitute a Schedule B project, it is suggested that the municipality complete additional MCEA Schedule B planning process at that time to confirm the location, including any additional localized studies to confirm the potential for impact and to develop appropriate mitigation.

Also associated with Alt. 2A is the abandonment of Well 12 and Well 1A which are currently a Schedule A+ undertaking and therefore pre-approved. The municipality can proceed to implementation following the completion of this Master Plan with no further MCEA planning process required aside from completing public notification prior to construction.

A Technical Memo was not prepared for this alternative as it is a long term project that will not advance to construction for another 15 to 20 years and an update to this Master Plan will be required in a 5 year period.

12.4 Alt. 5A Construct Watermain on Harbourview Road (Schedule A+ or B)

Alt. 5A is a short-term project that proposes the construction of twin 300 mm watermain on Harbourview Road. Similar to Alt. 4B, the potential for impact is not discussed in great detail in this section given that it is unclear at this time whether the improvements can be completed within the existing right-of-way and proceed as a pre-approved Schedule A+ project or if it will require work outside the existing right-of-way. If it should require work outside the existing corridor additional localized study will be required during the detailed design phase to address any potential impacts in advance of construction.

Figure 11: Additional Schedule B Projects



12.5 Alternative 4A New South Pressure Zone & Booster Pump Station (Schedule B)

Alt. 4A involves development of a new South Pressure Zone including a new BPS and associated watermain in the area south of Hwy 12, west of King St. and is a Schedule B mid-term project proposed in the next 5-10 years to address low pressure. If Alt. 4A was to proceed in the shorter term it would require further MCEA study (i.e., completion of the MCEA Schedule B process and issue a Notice of Completion for filing of a Project File Report) given that the location for the facility identified as part of the Master Plan process is approximate and will need further discussion with the land owner and a future full Schedule B process to further refine the location, connection approach, evaluate alternatives, public consultation etc. before it can be constructed.

13. Monitoring and Future Master Plan Updates

Given the potential for changes to growth trends and development activity, it is recommended that the Town review the Master Plan design criteria on an annual basis to ensure that it reflects the local situation. The Master Plan document should also be reviewed on a 5-year basis to make sure it is current and aligned with the Town's Official Plan.

14. Changes to Legislation

Since initiating this Master Plan update the Province of Ontario has introduced several changes in legislation that may impact the MCEA process and this Master Plan update. Some of these are now currently in effect and others have not yet been formally approved.

14.1 Bill 108 More Homes, More Choice Act

The Ministry of Municipal Affairs and Housing (MMAH) introduced Bill 108 the “More Homes, More Choice Act” in the Ontario Legislature on May 2, 2019. Bill 108 provides amendments to existing legislation that includes the Environmental Assessment (EA) Act. The amendments to the EA Act are intended to modernize and streamline the EA process in Ontario. Key changes will include a focus on higher risk projects, exemption of very low risk projects from the Class EA process, streamlining of approval times, and the elimination of duplication. The amendments to the EA Act will also result in amendments to the Municipal Class Environmental Assessment (MCEA) process.

The Municipal Engineers Association submitted the amended MCEA document templates to the Ministry of Environment, Conservation, and Parks (MECP) for review and approval on September 30, 2019 and formal approval is expected in 2021. Included in the amendments to the MCEA are Phase-in provisions which indicate that any Schedule B or C project for which a Notice of Commencement or Notice of Completion has been issued under the 2000 Class EA as amended in 2015, shall continue under the 2000 Class EA as amended in 2015 until the project is completed unless the proponent provides notice to impacted stakeholders that the process has been terminated and re-starts the EA process following the latest amended process.

At the time of preparing this Master Plan the amendments associated with Bill 108 were proposed and not yet finalized. As such, this Master Plan update was completed in accordance with the 2000 Municipal Class Environmental Assessment (last amended 2015) planning process. The proposed 2021 amendments may affect the Project Schedule classification for the various undertakings. Prior to the future implementation of certain projects, the municipality may want to consider the Project Classification in the context of the amended process.

14.2 Bill 197 COVID-19 Economic Recovery Act

During the completion of this Master Plan update the Ontario government also introduced another legislative change that will affect the MCEA process. On July 21, 2020 the COVID-19 Economic Recovery Act (Bill 197) was passed that amended the Environmental Assessment Act. Bill 197 resulted in two key changes that included an amendment to the Part II Order Request process and the granting of authority to the MECP to create new regulations that will ultimately replace Class EAs with an expedited Environmental Assessment (EA) process. As such, the Notice of Completion to be issued for this undertaking reflects this most recent change in legislation. In accordance with Bill 197 the Part II Order process is now available only for concerns related to Aboriginal or Treaty Rights. Concerns will no longer be filed with the Ministry but will now be addressed to the proponent. For non-aboriginal concerns the Part II Order process is now replaced with an additional 30-day window for the MECP to decide what action should be taken in response to a concern raised by the general public (i.e., disregard, elevate project (PIIOR granted) or approve with conditions).

14.3 Places to Grow

During this Master Plan process the *Growth Plan for the Greater Golden Horseshoe* was amended with the new document coming into effect on August 28, 2020. The amendment includes changes to the population and employment forecasts, a shift in the planning horizon from 2041 to 2051, and other policies to be more consistent with the *Provincial Policy Statement (2020)* and the *More Homes, More Choices Housing Supply Action Plan* with the overall intent of increasing housing supply, creating jobs and attracting business investment.

14.4 Provincial Policy Statement, 2020

The new Provincial Policy Statement (PPS) as released by the Ministry of Municipal Affairs and Housing came into effect on May 1, 2020. As such, all decisions made on or after that date under the Planning Act are required to be consistent with the new PPS. This Master Plan update was developed in consideration of the most recent version of the PPS.

