

# Town of Lakeshore Water & Wastewater Master Plan Update

*Prepared for*

Town of Lakeshore

May 2018



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# Executive Summary

## Introduction

### Purpose of the Master Plan

The Town of Lakeshore retained CH2M HILL Canada Limited (CH2M) and Stantec Consulting Ltd. (Stantec) to update the original Water and Wastewater Master Plan Study completed in February 2009 in accordance with the Municipal Class Environmental Assessment (EA) process. The goal is to provide an updated consolidated framework to continue guiding the planning and implementation of strategic water and wastewater infrastructure improvements over the next 20-year planning horizon with an integrated consideration of the natural, social and economic environments.

The Lakeshore Water and Wastewater Master Plan Update is intended to provide timely and cost-effective solutions to better manage the increased amount of infrastructure required to service growth within the municipality utilizing sound environmental assessment planning principles.

### Background and Service Areas

#### Water Service Areas

The Town of Lakeshore is presently serviced by five separate water supply systems. They include the Belle River, Stoney Point, Union, Tecumseh, and Tilbury-Wheatley water supply systems.

#### Wastewater Service Areas

There are presently five existing wastewater service area in the Town of Lakeshore. They include the Belle River/Maidstone, Stoney Point, Comber, South Woodslee and North Woodslee Sewage Works.

#### Future Wastewater Service Areas

As part of the study, residential areas currently not serviced with municipal sewer collection and treatment were identified for evaluation. These areas, listed below, are serviced by individual on-site private septic systems (typically a septic tank with leaching bed):

- **Lighthouse Cove Area** (Including shoreline area West of Lighthouse Cove, i.e. Laforet Beach, Crystal Beach and Couture Beach Roads).
- **Rochester Place Area** (Including Deerbrook, Street Joachim and shoreline areas generally between Charron Line Road and Rochester Town Line Road including along the Ruscom River).
- **Belle River Road Area** (North of North Woodslee hamlet and south of Belle River urban area)
- **Essex Fringe Area** (Southwest corner of the Town along County Road 35 including adjacent side streets)

### Environmental Assessment Process

The work undertaken in preparation of the Lakeshore Water and Wastewater Master Plan Update Study follows according to the phases defined in the Municipal Engineers Association (MEA) Class EA document (MEA, 2000 amended in 2007, 2011, and 2015).

Master Plans are long range plans with broader scopes which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine infrastructure systems or groups of related projects in order to define a framework for planning subsequent projects and/or developments. Master Plans address Phases 1 and 2 of the Municipal Class EA process.

## Existing Environmental Conditions

Projects identified through the Master Plan process must be evaluated on the basis of the potential impact on the existing environmental conditions of the study area. The Master Plan report provides a general description of the existing natural, social and economic environmental conditions in the Town of Lakeshore.

With respect to the natural environment, the Master Plan report includes a discussion on the local climate, geology and physiology, soils, water resources, natural vegetation, terrestrial and aquatic life throughout the Town of Lakeshore.

## Growth, Water Demand and Wastewater Flow Projections

### Community Growth Projections

The growth projections for the Lakeshore Water and Wastewater Master Plan Update Study form the basis of establishing water demand and wastewater flow rate assumptions and ultimately future servicing plans. Community growth projections were established for the 20-year (2015 to 2035) planning horizon along with corresponding projected water demands and wastewater flows.

Residential and non-residential growth projections are based on estimates prepared for the Town of Lakeshore by Watson & Associates Economists Ltd. (Watson, 2015).

### Existing and Projected Water Demands

Prediction and planning for water demand is one of the most important elements of water supply master planning. Historical water supply and consumption records for the Belle River and Stoney Point water supply systems were evaluated to established current water demands. Table ES-1 summarizes the present and future water demand projections for the Belle River and Stoney Point water supply systems.

Table ES-1. Existing and Projected Water Demands

Water Supply System	Total Calculated Maximum Day Water Demand, m <sup>3</sup> /day	
	Existing (2015)	20 Year (2035)
Belle River WSS	18,000	24,680
Stoney Point WSS	3,990	4,854

### Existing and Projected Wastewater Flow

Sanitary sewage flows are made up of waste discharges from residential, commercial, industrial and institutional establishments plus extraneous non-waste flow components from sources such as groundwater and surface runoff. Existing and projected wastewater flows are presented in Table ES-2.

For areas which are not presently serviced by a municipal sewage system, an average per capita sewage flow of 455 Lpcpd has been assumed.

Table ES-2. Existing and Projected Average Daily Wastewater Flows

Service Areas	Wastewater Flow (m <sup>3</sup> /d)	
	Existing (2015)	20-year (2035)
Denis St. Pierre (Belle River/Maidstone)	11,698	14,601
Stoney Point	1,197	1,547
Comber	334	519
South Woodslee	90	106
North Woodslee	115	133
Lighthouse Cove	273	487
Rochester Place	126	141
Highway 401 Corridor (Hamlet communities of St. Joachim, Ruscom and Staples)	228	255
Essex Fringe	118	168

## Problem Statements

### Water

The primary focus of the water component of the Master Plan Update is to evaluate the ability of the water treatment, storage and distribution systems within the Belle River and Stoney Point water supply systems to meet both existing and projected future water demands and identify any constraints, improvements and/or modifications.

The following problems have been identified for the Belle River and Stoney Point water supply systems to satisfy the needs of existing consumers and provide sufficient capacity to accommodate future growth based on projected 20-year demands.

#### Belle River Water Supply System

- Additional clear water storage capacity of approximately 1,440 m<sup>3</sup> by Year 2030 will be required to meet MOECC Guidelines.
- Improvements to the existing water distribution system will be required to augment the existing pipeline network to convey the increased flows needed to meet projected water demand as well as improve the level of fire protection.

#### Stoney Point Water Supply System

- Additional treatment plant capacity of approximately 455 m<sup>3</sup>/day by Year 2026 will be required.
- Additional clear water storage capacity of approximately 540 m<sup>3</sup> will be required today to meet MOECC Guidelines.
- Improvements to the existing water distribution system will be required to augment the existing pipeline network to convey the increased flows needed to meet projected water demand as well as improve the level of fire protection.

## Wastewater

The following problems have been identified for the existing and potential wastewater service areas throughout the Town of Lakeshore to satisfy the needs of existing development and provide sufficient capacity to accommodate future growth based on projected demands. *Problem statements carried forward from the 2009 WWWMP are excerpted and italicized.*

### Denis St. Pierre (Belle River/Maidstone) Wastewater System

1. *Additional treatment capacity at the Denis St. Pierre WPCP is required to support the existing services areas and the anticipated future growth through 2035.*

The projected population growth for the Denis St. Pierre WPCP indicates the capacity of the WPCP will be met prior to 2035, around 2028, assuming linear growth. Design and construction of the upgrade needs to start prior to this date to ensure capacity is available when needed. Generally, facilities begin design of upgrades once the facility reaches 80% of its rated capacity and the Denis St. Pierre WPCP has already reached 85% of its rated capacity, more if current flow data is used (see Post-Master Plan Update Revision).

2. *Extension of the Oakwood trunk sanitary sewer westerly to service existing development and future growth within the existing service area and anticipated growth areas including provision of a new local collection system within the Pike Creek area to address pollution concerns. (Stantec, 2009)*

### Peak Wet Weather Capacity Issues within the Existing Belle River/Maidstone Conveyance System

Sanitary sewer modelling conducted by CH2M in 2013 identified surcharging issues along old Tecumseh Road. The Town has implemented a long-term inflow and infiltration reduction program focusing on main line sewer repairs. In September 2016, the Town experienced a 1:100 year storm event. Surcharging and basement flooding issues were significant during this event. (CH2M, 2013)

3. *There are peak wet weather flow (WWF) capacity issues within the Denis St. Pierre system.*

### Patillo Road/Advance Area Servicing Options

In 2013 CH2M developed a sanitary system hydraulic model to assess sanitary sewer performance, specifically on the system tributary to the Denis St. Pierre WPCP. This exercise found that the system has adequate capacity during dry weather flow (DWF) conditions but surcharging occurs along the Old Tecumseh Road sewer during 2- and 5-year design rainfall wet weather flow (WWF) conditions.

Typically, sewer system analysis for new development is based on available dry weather capacity unless there are exceptional circumstances, such as chronic basement flooding. The 2013 modelling effort identified areas of this sewer which experience basement flooding, pipe surcharging, and surface flooding. Therefore, WWF should be considered when planning or approving future development in this area. This could affect the ability of the Town to approve new development requests in the area unless economical alternatives are possible to mitigate WWF concerns.

4. *Wet weather flow along the Old Tecumseh Road imposes servicing limitations within the Patillo Road/Advance areas.*

## Eastern Communities

Servicing of the Eastern Communities has been explored since the 2009 WWMP in detail in the Eastern Communities EA completed in 2012 (Stantec, 2012). Therefore, this Master Plan Update will not develop problem statements for these areas further. The problem statement developed for the Eastern Communities is excerpted below and applies to Stoney Point, Comber, and Unserviced Settlement areas (Rochester Place and Lighthouse Cove).

*Additional sewage treatment capacity is required in Stoney Point and Comber to service growth in the service area. Inflow and infiltration problems exist in the Stoney Point sewer system and to a lesser degree in the Comber system. The Lighthouse Cove and Rochester Place areas require sanitary sewage servicing to address pollution problems related to existing malfunctioning septic systems and to address development pressures. (Stantec, 2012)*

I&I is ongoing issue within the Comber and Stoney Point collection systems.

## North Woodslee Wastewater System

The North Woodslee collection system does not currently service the eastern portion of the North Woodslee hamlet (east of the Belle River). There is sufficient capacity at the North Woodslee STF to receive additional flows.

## South Woodslee Wastewater System

The South Woodslee community is serviced by a low pressurized sewage collection system with a mechanical sewage treatment plant. This system uses individual septic tanks each with an effluent grinder pump. The Town has ongoing operational issues with the individual tanks and related pumps and check valves. In addition, these tanks accumulate solids and require regular cleaning.

## Essex Fringe Area

The Town of Essex (Essex) owns two lagoons, both operated by OCWA, one of which is located within the Town of Lakeshore. Essex recently built a new tertiary treatment plant. This presents the opportunity to service the surrounding residences (currently on individual private septic systems) within the Town of Lakeshore at the newly constructed Essex WWTP.

# Development and Evaluation of Alternatives Solutions

## Planning Level Conceptual Alternative Solutions

Several conceptual alternative solutions were identified to address the problems and needs of the water and wastewater systems. The following broad planning level alternative solutions were considered for providing adequate water and wastewater servicing in the Town of Lakeshore:

1. Do Nothing
2. Restrict Community Growth
3. Implement water use reduction and inflow/infiltration control measures.
4. Undertake projects to construct, expand or augment water and wastewater system capacity as needed to service existing and future development.

The advantages and disadvantages of each alternative together with their effects on the socio-economic and natural environment were evaluated. The results of the preliminary screening clearly indicate that the recommended alternative solutions which address the identified problems and study objectives are as follows:

- Expand the capacity of the existing water and wastewater system components (treatment, storage, distribution, collection, etc.) including the provision of additional capacity at new or existing facilities to meet existing and future servicing requirements.
- Implement water efficiency and expand inflow and infiltration mitigation programs.

## Servicing Alternatives

Alternative servicing solutions were identified and evaluated to address the specific problems and needs of the water and wastewater systems and the unserviced settlement areas. A detailed evaluation of the various alternative solutions is included in the Master Plan Update Report.

## Public and Review Agency Consultation

Consultation is a key feature of a successful environmental assessment. The Municipal Class EA process identifies mandatory consultation requirements. The Master Plan has provided several opportunities for participation to date including:

- Notice of Study Commencement advertised to public and issued to review agencies.
- One Public Information Session under Phase 2 of the Class EA process.
- Two Town Council Information Sessions under Phase 2 of the Class EA process.
- Notice of Completion advertised to public and review agencies.

## Recommended Servicing Plan

### Servicing Plan

A servicing plan was developed outlining the recommended water and wastewater infrastructure works required within the Town of Lakeshore to service the needs of the community to 2035 and beyond.

Following Tables ES-3 and ES-4 summarizes the identified water and wastewater projects and associated capital budget estimates (in 2017 dollars), anticipated timing and Class EA Schedule.

Table ES-3. Summary of Identified Water Supply Projects to 2035

Water Projects	Capital Cost <sup>a</sup>	Year Required	Class EA Schedule
<b><i>Belle River Water Supply System</i></b>			
<b>Storage Facilities</b>			
Replace existing MWT with a new 5,800-m <sup>3</sup> elevated water tower in the general vicinity of the Patillo Road/Little Baseline Road corridor and connect it to proposed future 600-mm-diameter trunk watermain through Wallace Woods Area	\$7,500,000	2030	B
<b>Watermain Infrastructure</b>			
Construct new 200 & 300-mm-diameter trunk watermains along 11 <sup>th</sup> Street from Broadway Street to St. Louis Street (200-mm diameter = 225 m long; 300-mm diameter = 300 m long, respectively)	\$500,000	2018	A+
Construct new 250 & 300-mm-diameter trunk watermains along Notre Dame Street from 11 <sup>th</sup> Street to Duck Creek Blvd (250-mm-diameter = 225 m long; 300-mm-diameter = 300 m long)	\$600,000	2018	A+

Table ES-3. Summary of Identified Water Supply Projects to 2035

Water Projects	Capital Cost <sup>a</sup>	Year Required	Class EA Schedule
Construct new 400-mm-diameter trunk watermain along Rourke Line Road from County Road 22 to Caille Ave. (290 m long)	\$650,000	2018	A+
Construct new 400-mm-diameter trunk watermain along Renaud Line Road from County Road 22 to Caille Ave. (230 m long)	\$600,000	2018	A+
Construct new 600-mm-diameter trunk watermain along West Puce River Road from County Road 22 southerly to existing 600-mm diameter trunk watermain (590 m long)	\$750,000	2019	A+
Construct new 600-mm-diameter trunk watermain through Wallace Woods area from West Puce River Road to Patillo Road (3,000 m long)	\$3,000,000	2019 to 2030	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from West Puce River Road to Wallace Line Road (1,675 m long)	\$1,250,000	2019	A+
Construct new 400-mm diameter trunk watermain along Wallace Line Road from County Road 22 southerly to proposed 600-mm diameter trunk watermain through Wallace Woods area (1,000 m long)	\$650,000	2020	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from Wallace Line Road to Patillo Road (1,450 m long)	\$1,000,000	2020	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from Patillo Road to West Pike Creek Road (County Road 21) (2,200 m long)	\$1,400,000	2021	A+
Construct new 500-mm-diameter trunk watermain along Little Baseline Road from existing 500-mm-diameter trunk watermain west of Patillo Road to existing 400-mm-diameter watermain at Stonebrook Road (780 m long)	\$750,000	2022	A+
Construct new 400-mm-diameter trunk watermain along Little Baseline Road from West Pike Creek Road (County Road 21) westerly to existing 150-mm-diameter watermain near Manning Road (County Road 19) (1,430 m long)	\$1,000,000	2022 to 2035	A+
<b>Stoney Point Water Supply System</b>			
<b>Treatment Facilities</b>			
Alternative 1 - Expand Stoney Point WTP to next modular size from 4,545 m <sup>3</sup> /day to 9,090 m <sup>3</sup> /day on present site	\$6,500,000	2026	C
Alternative 2 - Supply 9,090 m <sup>3</sup> /day from Belle River WSS via new trunk watermain and convert Stoney Point WTP into a reservoir and booster pump station	\$11,500,000	2026	B
<b>Storage Facilities</b>			
Construct a new 3,200-m <sup>3</sup> elevated water tower located in the Community of Stoney Point in the general area of Comber Sideroad (County Road 35) and Tecumseh Road (County Road 2)	\$5,000,000	2017	B
<b>Watermain Infrastructure</b>			
Construct new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from St. Clair Road to existing 300-mm-diameter trunk watermain immediately north of Tecumseh Road (County Road 2) (730 m long)	\$450,000	2017	A+
Construct new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from Tecumseh Road (County Road 2) to existing 200-mm-diameter trunk watermain immediately south of the Canadian National Railway (210 m long)	\$200,000	2017	A+
Construct new 200-mm-diameter watermain along Gracie Sideroad (County Road 37) from Couture Beach Road to Lakeshore Road 302 (1,635 m long)	\$650,000	2018	A+
Construct new 200 -mm-diameter watermain along Tecumseh Road (County Road 2) from Gracie Sideroad (County Road 37) westerly (700 m long)	\$350,000	2018	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Tecumseh Road (County Road 2) near Rochester Townline (640 m long)	\$300,000	2019	A+



**Table ES-3. Summary of Identified Water Supply Projects to 2035**

<b>Water Projects</b>	<b>Capital Cost <sup>a</sup></b>	<b>Year Required</b>	<b>Class EA Schedule</b>
Construct new 100 or 150-mm-diameter watermain looping interconnection along Tecumseh Road (County Road 2) and Rochester Townline (1,015 m long)	\$475,000	2019	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection and check valve facility along Rochester Townline from Lakeshore Road 302 southerly (335 m long)	\$225,000	2019	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 303 from Gracie Sideroad (County Road 37) westerly plus check valve facility on Gracie Sideroad from Lakeshore Road 303 southerly (645 m long)	\$350,000	2020	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from County Road 42 northerly (420 m long)	\$250,000	2020	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along County Road 42 from Rochester Townline easterly (2,150 m long)	\$700,000	2021	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from Lakeshore Road 305 southerly (550 m long)	\$275,000	2021	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from Auction Side Road northerly across Kings Highway 401 (435 m long)	\$450,000	2022	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) across Kings Highway 401 (380 m long)	\$500,000	2022	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 305 across Kings Highway 401 (260 m long)	\$400,000	2023	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from Middle Road (County Road 46) southerly plus isolation valve facility on Middle Road (County Road 46) 650 m west of Gracie Sideroad (County Road 37) (800 m long)	\$400,000	2023	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from Lakeshore Road 309 northerly (740 m long)	\$325,000	2024	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from County Road 8 northerly (740 m long)	\$325,000	2024	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 311 from Kings Highway 77 westerly (1,100 m long)	\$475,000	2025	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along South Middle Road from Rochester Townline easterly (1,200 m long)	\$500,000	2025	A+
Construct new 100-or 150-mm-diameter watermain looping interconnection along South Middle Road from Lakeshore Road 309 easterly (1,100 m long)	\$475,000	2026	A+
Consider construction of new 400-mm-diameter watermain along Comber Sideroad (County Road 35) from CN Railway southerly as conditions dictate to south of Highway 401 in Comber to replace existing 200-mm-diameter watermain (7,200 m long)	\$5,000,000	2018 to 2035	A+

**Notes:**

<sup>a</sup>. Capital costs represent conceptual level planning estimates and based on factors and reasoning discussed in Appendix E.1.

Table ES-4. Summary of Identified Wastewater Projects to 2035

Wastewater Projects	Capital Cost	Year Required	Class EA Schedule
<b>North and South Woodslee</b>			
Expand gravity sewers to service the Eastern portion of the North Woodslee hamlet.	\$5,300,000 <sup>a</sup>	Far Future	A+
Continue to repair and upgrade the existing South Woodslee pressurized system.	\$9,100 per system <sup>b</sup>	Ongoing	A+
<b>Denis St. Pierre WPCP Wastewater Collection System</b>			
Increase rated capacity of Denis St. Pierre WPCP by 1 MIGD, from 3 MIGD to 4 MIGD.	\$14,500,000 <sup>a</sup>	2020 <sup>e</sup>	C
Oakwood trunk sewer extension from Puce River to Pike Creek area	\$9,600,000 <sup>a</sup>	2025	A+
New gravity sewer collection system to service Pike Creek area	\$4,400,000	Far Future	A+
Belle River Road Corridor – sewer system including trunk sewer, pumping station and forcemain to Denis St. Pierre WPCP	\$10,200,000 <sup>a</sup>	2025+	A+
<b>Eastern Communities</b>			
Construct a new sewage treatment facility in Stoney Point to treat sewage from both Stoney Point and Comber (Phase 1)	\$15,576,000 <sup>c</sup>	2020	N/A <sup>d</sup>
Pump Station and Forcemain to transmit wastewater from Stoney Point to the new STF (Phase 1)	\$500,000 <sup>c</sup>	2020	
Pump Station Upgrade and new Forcemain to transmit wastewater from Comber to the new STF (Phase 1)	\$3,795,000 <sup>c</sup>	2020	
Construct gravity sewer collection system to service Lighthouse Cove (Phase 1)	\$23,725,000 <sup>c</sup>	2020	
New Pumping Station and forcemain to transmit sewage from Lighthouse Cove to the new STF (Phase 1)	\$904,000 <sup>c</sup>	2020	
Construct new gravity sewer collection system to service Rochester Place (Phase 2)	\$30,753,000 <sup>c</sup>	2030	
New Pumping Station and forcemain to transmit sewage from Rochester Place to the new STF (Phase 2)	\$3,135,000 <sup>c</sup>	2030	
Decommission the existing sewage lagoons located in Stoney Point and Comber (Phase 2)	\$3,163,000 <sup>c</sup>	2030	
Expand Stoney Point STF to receive flows from Lighthouse Cove and Rochester Place (Phase 2)	\$3,921,000 <sup>c</sup>	2030	
<b>Studies</b>			
Initiate a private source control inflow and infiltration program in addition to the ongoing public source control program. Review the existing inflow and infiltration program.	\$80,000	2017	N/A
Conduct a study of the Patillo Road Package Plant to evaluate (1) the ability of the plant to relieve wet weather flows (2) ability of the plant to increase available capacity at the Denis St. Pierre WPCP and (3) assess the capital cost and feasibility of bringing this plant back online from standby.	\$50,000	2017	N/A
Explore opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe Area within the Town of Lakeshore.	N/A	2017	N/A

## Notes:

All costs exclude HST and represent conceptual level planning cost estimates.

<sup>a</sup>. Original costs were developed in 2009 WWWWMP. Costs presented here have been escalated to 2017 dollars using the Consumer Price Index (CPI) with details provided in Appendix E.2.

<sup>b</sup>. Per system costs are presented here as the number of systems replaced per year may vary depending on conditions. These costs are escalated to 2017 dollars from 2009 costs presented in the 2009 WWWWMP as detailed in Appendix E.2.

<sup>c</sup>. Costs presented are from the 2012 Eastern Communities ESR (Stantec, 2012), see Appendix E.2 for details.

<sup>d</sup>. The Eastern Communities ESR completes the planning phases of the Class EA process and its projects are approved and may proceed to detailed design and construction.

<sup>e</sup>. Design and construction should potentially start in early 2018 based on current 2016 flows, see Post-Master Plan Update Revision

## Next Steps

There were no Part II Order requests submitted to the MOECC during the 30-day review period. The Master Plan Update report is now finalized and can be adopted by Lakeshore Council in the form of a Council Resolution.

## Monitoring

The scheduling of planned projects is related to the anticipated growth in demand for water and sewer services.

Accordingly, the Town should closely monitor actual growth, water demand and wastewater flows and adjust the scheduling and implementation of related infrastructure projects as needed.

Specifically, the following actions are recommended:

1. Monitor actual water plant production records, wastewater treatment plant flows, and development growth annually and compare to Master Plan projections.
2. Establish and annually track the uncommitted reserve capacity of the Town's existing water and wastewater treatment facilities in accordance with MOECC Guideline D-5-1 – Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants, March 1995.
3. Collect water distribution system and wastewater collection system component attribute data on new installations as they are constructed and update the Town's geographic information systems (GIS) database.
4. Implement a watermain and sewer rehabilitation/replacement program including water use and inflow and infiltration measures and review priorities based on data collected and results of studies.
5. The Town of Lakeshore Water and Wastewater Master Plan should be reviewed annually and updated every five (5) years to adjust for changing local conditions, new problems, and system improvements which have been implemented and incorporated these changes into long-term planning for water and wastewater infrastructure.

## Post-Master Plan Update Revision

Subsequent to the Master Plan Update review, the Denis St. Pierre WPCP flows for 2016 were reviewed (OCWA 2016 Annual Performance Report). They indicate an average treated flow of 12,292 m<sup>3</sup>/d for 2016, which is greater than expected from the projected population forecast. If the 2016 recorded flows increase at a similar rate, the WPCP would reach capacity around 2024. If future flows increase at a rate greater than the population forecast, then available WPCP capacity may be consumed even sooner.

To prevent the WPCP from reaching its capacity, optimization and upgrade activities need to proceed. Currently, the plant is treating 91 percent of its rated capacity (based on 2016 treated flows). Generally, upgrades are initiated once a plant reaches 80 percent of its rated capacity. It is expected that upgrades could require two to three years to complete (to accommodate design, approvals, and construction), and therefore, even if upgrades start in 2018, the plant could reach 96 percent of its rated capacity prior to the completion of the new works. Simultaneous efforts to further optimize processes at the WPCP and continued pursuit of I/I reductions in the sewer system can free up some capacity at the plant, but an upgrade should be initiated in the near term.

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# Acronyms and Abbreviations

°C	degree Celsius
BRWSS	Belle River Water Supply System
BRWT	Belle River Water Tower
CH2M	CH2M HILL Canada Limited
CKPUC	Chatham-Kent Public Utilities Commission
County	Essex County
CPR	Canada Pacific Rail
CRBPS	Cottam Reservoir & Booster Pumping Station
CRPS	Comber Reservoir & Pumping Station
DAF	dissolved air flotation
EA	environmental assessment
EAA	<i>Environmental Assessment Act</i>
EAAS	Extended Aeration Activated Sludge
ESR	environmental study report
HDPE	high-density polyethylene
HRBPS	Haycroft Reservoir & Booster Pumping Station
I&I	inflow and infiltration
kg/day	kilogram per day
km	kilometre
km <sup>2</sup>	square kilometre
kPa	kilopascal
L/hr	litre per hour
L/s	litre per second
m	metre
m/hr	metre per hour
m/hr	metre per hour
m/km	metre per kilometre
m/s	metre per second
m <sup>3</sup>	cubic metre
m <sup>3</sup> /day	cubic metre per day
MIGD	million Imperial gallons per day
Minister	Minister of the Environment and Climate Change
mm	millimetre
MOECC	Ontario Minister of Environment and Climate Change
MWT	Maidstone Water Tower



## ACRONYMS AND ABBREVIATIONS

No.	number
OCWA	Ontario Clean Water Agency
OP	Town of Lakeshore Official Plan
O. Reg.	Ontario Regulation
OWRC	Ontario Water Resource Commission
PAC	powdered activated carbon
PIC	public information centre
PLC	programmable logic control
psi	pound per square inch
RBC	rotating biological contactor
SBR	sequencing batch reactor
SPWSS	Stoney Point Water Supply System
Stantec	Stantec Consulting Ltd.
STEP	septic tank effluent pump
STF	sewage treatment facility
STP	sewage treatment plant
SWD	side water depth
TDH	total dynamic head
Town	Town of Lakeshore
TWSS	Tecumseh Water Supply System
TWWSS	Tilbury-Wheatley Water Supply System
UV	ultraviolet
UWSS	Union Water Supply System
VFD	variable frequency drive
Watson	Watson Associates Economists Ltd.
WPCP	water pollution control plant
WSS	water supply system
WTP	water treatment plant
WWF	wet weather flow
WWSS	Windsor Water Supply System
WWTP	wastewater treatment plant
WWWMPs	Lakeshore Water & Wastewater Master Plan Study

# Introduction

## 1.1 Master Plan Purpose

As of January 1, 2000, the Town of Belle River and the Townships of Maidstone, Rochester, Tilbury North, and Tilbury West officially amalgamated to form the Town of Lakeshore (Town). The Town is located in the northeastern portion of Essex County (County); it is the largest municipality in the County, with an area of approximately 530 square kilometres (km<sup>2</sup>) (Appendix A, Figure 1).

The Town is responsible for providing infrastructure services to a population of approximately 36,200, which is projected to grow to more than to 41,800 over the next 20 years. As a result, public officials and administration must manage existing water and wastewater infrastructure to service the community's existing and future servicing needs, considering growth and new development.

The Town retained CH2M HILL Canada Limited (CH2M) and Stantec Consulting Ltd. (Stantec) to update the original 2009 Water & Wastewater Master Plan Study (Stantec, 2009) in accordance with the Municipal Class Environmental Assessment (EA) process. The goal is to provide an updated, consolidated framework to continue guiding the planning and implementation of strategic water and wastewater infrastructure improvements over the next 20-year planning horizon, and to integrate the natural, social, and economic environment considerations.

This Lakeshore Water & Wastewater Master Plan Update is intended to provide timely and cost-effective solutions to better manage the increased amount of infrastructure required to service growth within the municipality utilizing sound environmental assessment planning principles.

## 1.2 Background and Service Areas

The following sections briefly describe the existing water and wastewater service areas throughout the Town and identify potential future wastewater service areas which are not presently serviced by municipal wastewater systems.

### 1.2.1 Water Service Areas

The Town is currently serviced by five separate water supply systems, as follows; Appendix A, Figure 2 shows each system's limits.

1. The **Belle River Water Supply System (BRWSS)** services the northwestern portion of the Town. The service area extends generally from Lake St. Clair to the north, Highway 401 to the south, Manning Road to the west, and Rochester Townline Road to the east. The BRWSS's water supply source is Lake St. Clair; the Lakeshore Water Treatment Plant (WTP) is on Lakeview Drive in the community of Belle River.
2. The **Tecumseh Water Supply System (TWSS)** is supplied by the Windsor Water Supply System (WWSS), and services the western boundary of the BRWSS service area, due to a lack of watermain infrastructure from the BRWSS. According to an agreement between the Town and Town of Tecumseh, the TWSS currently supplies water to two small areas off Manning Road (County Road 19): (1) Little Baseline Road (for approximately 700 metres [m] east from Manning Road); (2) the rural area between County Road 42 and Highway 401, immediately west of Manning Road, along the Scott Sideroad and Walls Road. The TWSS's water supply source is the Detroit River; the Windsor WTP is on Wyandotte Street, in the City of Windsor.

3. The **Stoney Point Water Supply System (SPWSS)** services the communities of Stoney Point, Surf Club, and Comber, as well as the rural areas between Lake St. Clair and County Road 8, generally east of Rochester Townline and west of Big Creek. The SPWSS's water supply source is Lake St. Clair; the Stoney Point WTP is on St. Clair Road, in the community of Stoney Point.
4. The **Union Water Supply System (UWSS)** services the southwest portion of the Town, south of Highway 401, between Manning Road and Rochester Townline Road, including Ruscom and Woodslee (commonly referred to as the Lakeshore–Union water service area). System pressures in this area are generally governed by a combination of both the pressure head developed by the high lift pumps at the Cottam Reservoir & Booster Pumping Station (CRBPS), in the community of Cottam within the Town of Kingsville, and the water level in the Essex elevated water tower, in the Town of Essex. The UWSS's water supply source is Lake Erie; the Union WTP is located on Union Ave., within the community of Ruthven in the Town of Kingsville.
5. The **Tilbury-Wheatley Water Supply System (TWWSS)** services portions of the rural area located along the Town's eastern boundary, generally east of Big Creek, according to an agreement between the Town and the Chatham-Kent Public Utilities Commission (CKPUC). The TWWSS's water supply source is Lake Erie; the Wheatley WTP is on Detroit Ave., within the community of Wheatley, within the Municipality of Chatham Kent.

### 1.2.2 Wastewater Service Areas

The 2009 Water and Wastewater Master Plan (Stantec, 2009) described the wastewater service areas in detail; these service areas are largely unchanged since 2009. The following descriptions are from the 2009 Master Plan and updated to reflect current conditions. Appendix A, Figure 3 shows the boundaries of these wastewater service areas.

- The **Denis St. Pierre Sewage Works (formerly Belle River/Maidstone Sewage Works)** services the urban areas between Manning Road and Charron Line Road north of the Canada Pacific Rail (CPR) tracks by the sanitary sewage works system. This system consists of sanitary sewers, pumping stations, and the Denis St. Pierre Water Pollution Control Plant (WPCP) (formerly the Belle River/Maidstone WPCP), which is located on Rourke Line (Appendix A, Figures 4a, 4b, and 4c). The system was developed by the Ontario Minister of Environment and Climate Change (MOECC) as a Provincial Sewage Works Project that was constructed and built between 1974 and 1981 under 10 construction contracts.
- The **Stoney Point Sewage Works** services the Stoney Point urban area and adjacent lakefront areas through a wastewater collection and lagoon based treatment system. The first phase of the system was constructed in 1978 and included a gravity collection system, two pumping stations, and two 14-acre oxidation ponds. The Stoney Point Sewage Treatment Facility (STF) is located on Tecumseh Road west of Little Creek; Appendix A, Figure 5 shows the STF and sewershed. The collection system was extended in the late 1980s westerly along St. Clair Road, towards Rochester Townline Road to service lakefront properties.
- The **Comber Sewage Works** services the Comber urban area through a wastewater collection and lagoon-based treatment system. The system was constructed in 1974 and includes a gravity collection system, pumping station and two 6-acre oxidation ponds. The Comber STF is in the southeast corner of Comber and is accessible from Windsor Ave. The Comber STF and sewershed are shown on Figure 6 in Appendix A.

- The **North Woodslee Sewage Works** services the western portion of the North Woodslee hamlet. This system was constructed in 2007 and consists of a wastewater collection and treatment system intended to service the existing residences and a proposed subdivision development. The sewers convey wastewater to a treatment facility located on West Belle River Road. This facility is sized to treat sewage from residences and future growth within the hamlet on the east side of Belle River. Planning and final design for local collection sewers to service the eastern portion of the hamlet area has not been initiated. The North Woodslee sewage works is shown on Figure 7 in Appendix A.
- The **South Woodslee Sewage Works** services the South Woodslee hamlet area through a wastewater collection and treatment system. The system was constructed in 2005 and consists of a low-pressure sewage collection system and a mechanical sewage treatment plant west of County Road 27 (Belle River Road) in the southwestern corner of Woodslee Memorial Park adjacent to the Belle River; it is accessible from King St. The South Woodslee sewage works is shown on Figure 7 in Appendix A.

### 1.2.3 Future Wastewater Service Areas

Future wastewater service areas were described in detail in Stantec (2009); these service areas are largely unchanged since 2009 and their descriptions are from the 2009 Master Plan, and updated to reflect current conditions.

Residential areas not currently serviced by municipal sanitary sewage collection and treatment were identified for evaluation in Stantec (2009). Several of these areas have been evaluated further through the completion of the Eastern Communities Sewage Works Environmental Study Report (ESR) completed in 2012 (Stantec, 2012). These areas are on individual onsite private septic systems, generally consisting of a tank and leaching bed.

- **Lighthouse Cove Area** This area includes the shoreline area west of Lighthouse Cove (Laforet Beach, Crystal Beach, and Couture Beach Roads).
- **Rochester Place Area** This area includes Deerbrook, St. Joachim, and shoreline areas, generally between Charron Line Road and Rochester Town Line Road, including along the Ruscom River.
- **Belle River Road Area** This area includes the area north of North Woodslee hamlet and south of Belle River urban area.
- **Essex Fringe Area** This area includes the southwest corner of the Town along County Road 35 and includes adjacent side streets.

## 1.3 Environmental Assessment Process

### 1.3.1 Ontario's Environmental Assessment Act

Ontario's *Environmental Assessment Act* (EAA) was passed in 1975 and was first applied to municipalities in 1981. The EAA requires the study, documentation, and examination of the environmental effects that could result from projects or activities.

The objective of the EAA is to consider the possible effects of these projects early in the planning process, when concerns may be most easily resolved, and to select a preferred alternative with the fewest identified impacts.

The EAA defines "environment" very broadly as follows:

- *Air, land, or water*
- *Plant and animal life, including humans*

- *Social, economic, and cultural conditions that influence the life of humans or a community*
- *Any building, structure machine, or other device or thing made by humans*
- *Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities*
- *Any part or combination of the foregoing, and the interrelationships between any two or more of them, in or of Ontario*

In applying the requirements of the EAA to projects, two types of EA planning and approval processes are identified:

1. Individual EAs (Part II of the EAA): Projects for which TOR and individual EA are carried out and submitted to the Minister of the Environment and Climate Change for review and approval.
2. Class EAs: Projects are approved, subject to compliance with an approved Class EA process, provided that the appropriate Class EA approval process is followed, and that the proponent (for example, the Municipality) will comply with the requirements of the EAA.

### 1.3.2 Class Environmental Assessment Process

This study is being undertaken according to the five phases of assessment defined in the MEA's Municipal Class EA document (MEA, 2000; amended in 2007, 2011, and 2015):

1. Phase One: Definition of the Problem
2. Phase Two: Identification and Assessment of Alternative Solutions, and Selection of a Preferred Solution
3. Phase Three: Identification and Assessment of Alternative Sites/Design Concepts, and Selection of a Preferred Site/Design
4. Phase Four: Preparation of an Environmental Study Report (ESR)
5. Phase Five: Implementation

The Class EA planning and design process is shown on Figure 8.

The Class EA document places projects into four possible schedules, depending on their characteristics (that is, Schedule A, A+, B, or C projects). The schedule under which a project falls determines the planning and design phases that must be followed.

1. Schedule "A" projects are minor operational and upgrade activities and may go ahead without further assessment once Phase One of the Class EA process is complete (that is, the problem is reviewed, and a solution is confirmed).
2. Schedule "A+" projects are pre-approved but still require public notification prior to implementation of the project. Projects categorized as Schedule A+ include activities such as municipal infrastructure plans previously approved by a council member.
3. Schedule "B" projects must proceed through the first two phases of the process. Proponents must identify and assess alternative solutions to the problem, inventory impacts, and select a preferred solution. They must also contact relevant agencies and affected members of the public. If no significant impacts are found and no requests are received to elevate the project to Schedule C or undertake the project as an individual EA (Part II Order), the project may proceed to detailed design (Phase Five).
4. Schedule "C" projects require more detailed study, public consultation, and documentation, as they may have more significant impacts. Projects categorized as Schedule C must proceed through the five phases of an assessment. An ESR must be completed and available for a 30-public review period, before it is implemented (Phase Five).

If major issues that cannot be resolved upon completion of the final ESR, individuals may request the MOECC to require the regions to comply with Part II of the EAA. Upon receiving a Part II Order Request, the Minister of the Environment and Climate Change (Minister) reviews the request and study information, and makes one of the following decisions: deny the request, refer the matter to mediation, or require the completion of an Individual EA. Many factors are considered by the Minister in making decisions, including the adequacy of the planning process, the potential for significant adverse environmental effects after mitigation measures are considered, the participation of the requester in the planning process, and the nature of the request.

The Lakeshore Water and Wastewater Master Plan Update is being carried out as a Schedule “B” EA.

### 1.3.3 Master Plan Report Outline

This Lakeshore Water and Wastewater Master Plan Update is structured as follows:

1. Introduction
2. Description of Existing Water and Wastewater Systems
3. Inventory of Natural Environment
4. Growth, Water Demand and Wastewater Flow Projections
5. Assessment of Existing Municipal Water Supply Systems
6. Assessment of Existing Wastewater Systems
7. Development and Evaluation of Alternative Solutions
8. Public and Review Agency Consultation
9. Recommended Servicing Plan

## 1.4 Related Studies

Previous studies undertaken have been used as background reference information and are referenced in the following sections.

### 1.4.1 Water Servicing Studies

1. Belle River WTP Upgrade and Expansion Class Environmental ESR Amendment – Associated Engineering, August 2007
2. Belle River WTP Upgrade and Expansion Design Brief - Associated Engineering, November 18, 2005
3. Lighthouse Cove Water Supply Feasibility Study - Todgham & Case Associates Inc. Consulting Engineers, May 2005
4. Belle River Water Supply Environmental Study Report - Stantec Consulting Ltd. & Dillon Consulting Ltd., January 2002
5. Town of Lakeshore Water Distribution System Master Plan - Stantec Consulting Ltd., October 2001
6. Northern Essex County, Water and Wastewater Conceptual Servicing Plan - KMK Consultants Ltd., June 1999
7. Essex County Water Study - Lafontaine, Cowie, Buratto & Associates, December 1993.
8. Town of Lakeshore Water & Wastewater Master Plan - Stantec Consulting Ltd., February 2009
9. New Capacity Master Plan & Hydraulic Model for the Union Water Supply System - Stantec Consulting Ltd., June 2012
10. Town of Lakeshore Belle River Elevated Water Tower Replacement Predesign Report - Stantec Consulting Ltd., November 2012

## 1.4.2 Wastewater Servicing Studies

1. Town of Lakeshore Water & Wastewater Master Plan - Stantec Consulting Ltd., February 2009
2. Eastern Communities Sewage Works ESR – Stantec, 2012
3. Town of Lakeshore Official Plan Review – MMM Group, Ongoing

Additional materials reviewed including the following:

- Status update of wastewater projects recommended in the 2009 Water and Wastewater Master Plan
- Town of Lakeshore wastewater treatment facility Certificates of Approvals
- Wastewater treatment facility Flow Data for the Belle River Maidstone WPCP (also known as the Denis St. Pierre WPCP, these names are used interchangeably in this TM for this facility), Comber STF, Stoney Point STF, and North and South Woodslee Collection Systems

## 1.4.3 Other Related Studies

1. Town of Lakeshore Official Plan Review Growth Analysis Study – Watson & Associates Ltd., November 2015
2. Town of Lakeshore Official Plan – MMM Group, 2010

# Existing Water and Wastewater Systems

## 2.1 Existing Water Systems

The Town is fully serviced with municipal water from the following five independent and interconnected water supply systems (WSS):

- Belle River Water Supply System
- Stoney Point Water Supply System
- Union Water Supply System
- Tilbury-Wheatley Water Supply System
- Tecumseh Water Supply System

Each system is described in the following sections, and their service area boundaries and corresponding service populations are presented on Figure 2 found in Appendix A.

### 2.1.1 Belle River Water Supply System

#### 2.1.1.1 Service Area

The BRWSS services the northwestern service area of the Town and generally extends from Lake St. Clair to the north, Highway 401 to the south, Manning Road to the west, and Rochester Townline Road to the east.

The Belle River service area includes a mixture of urban residential, rural residential, industrial, commercial, and institutional development with a total equivalent service population of approximately 33,300 people. The residential, industrial, commercial, and institutional consumers are mainly located north of the CPR between Pike Creek and Duck Creek with rural residential consumers dominating the remainder of the service area.

The BRWSS is considered a “large municipal residential system” under Ontario Regulation (O. Reg.) 170/03 and operated under Lakeshore’s MOECC Drinking Water System License Number (No.) 031-101 and MOECC Drinking Water Works Permit No. 031-201.

#### 2.1.1.2 Treatment

The Lakeshore WTP is located at 492 Lakeview Drive in a residential area along Lake St. Clair within the community of Belle River. The WTP was originally constructed in 1926 and underwent an extensive upgrade including gravity filters in 1945. From 1974 to 2006, the WTP underwent a series of major renovations and process improvements while establishing a rated treatment capacity of 18,200 cubic metres per day (m<sup>3</sup>/day).

In 2008, the original WTP was demolished and replaced with a new modern treatment facility (including a new intake into Lake St. Clair) to satisfy the projected future water supply requirements of the service area, as well as fulfill a number of recommendations of the 2009 Lakeshore Water & Wastewater Master Plan Study (WWWMPs) (Stantec, 2009) related to system treatment and storage.

The new WTP is situated on the south side of Lakeview Drive across from where the original WTP was located. The new facility reuses the original low-lift pump well, which has been upgraded to service the new plant.



The following are details about the Lakeshore WTP:

- Rated treatment capacity of 36,400 m<sup>3</sup>/day
- Intake conveys raw water from Lake St. Clair to low-lift pump station with the following features:
  - 1,200-millimetre (mm)-diameter high-density polyethylene (HDPE)
  - Extends approximately 1,050 m into Lake St. Clair
  - situated parallel to original intake
  - terminates offshore into a 4.1-m-diameter concrete and steel circular crib offshore at an approximate depth of 2.1 to 2.4 m
  - Includes 400-mm -diameter HDPE carrier pipe for zebra mussel and frazil ice control
  - Includes onshore intake well located adjacent to the lo- lift pump station for emergency situations
  - has mean lake level hydraulic capacity of 50,000 m<sup>3</sup>/day
- Low-lift pump station conveying raw water to Clarifier Treatment System with the following features:
  - Two separate screening wells containing one automatic travelling raw water screen and one manual by-pass screen each with 10 mm openings
  - Two pump suction chambers complete with four new low-lift vertical turbine pumps (three duty and one standby), each with rated capacity of 151.6 litres per second (L/s) at 15.9 m total dynamic head (TDH)
  - Common 600-mm-diameter discharge header complete with associated valves, controls, and appurtenances
  - Chlorine solution booster pump system for zebra mussel control
  - Raw water sampling pump system for analysis and process control
  - Low-pressure aeration blower system for frazil ice control
  - High-pressure air compressor system for frazil ice control
- Clarifier treatment system conveying partially treated water to Filter Treatment System with the following features:
  - Four upflow solids contact clarifiers, each 10.67-m-diameter, with 5.5 m side water depth (SWD)
  - each rated for treatment rise rate of 4.4 metres per hour (m/hr)
  - equipped with inclined tube settlers, sludge rake drive and sludge blow down systems discharging directly into municipal sanitary sewer system
- Filter treatment system conveying treated water to onsite treated water storage system with the following features:
  - Four gravity-flow dual-media open bed filters containing 3-m-thick granulated activated carbon top layer on 0.3-m-thick silica sand layer on underdrain system with air scouring capabilities
  - Each 8 m long by 4 m wide by 6.8 m SWD with 626-cubic-metre (m<sup>3</sup>) capacity
  - Each rated for filtration rate of 12 metres per hour (m/hr) with 15 minutes empty bed contact time
  - Air scour system with air scour rate of 60 m/hr using two 1,920-m<sup>3</sup>/hr at 75-kilopascal (kPa) centrifugal air blowers

- Filter backwash system with two 200-L/s at 15-m TDH centrifugal backwash pumps, one 400-m<sup>3</sup> backwash supply tank, and two 500-m<sup>3</sup> residuals holding tank with 15-minute backwash capacity
- Filter-to-waste piping system complete with all associated valves, controls, and appurtenances
- Onsite treated water storage system conveying treated water to a high-lift pump station with the following features:
  - Two-cell in-ground treated water reservoir with combined storage volume of 9,922 m<sup>3</sup>
  - Each cell is 51.8 m long by 21.1 m wide by 5.2 m SWD
  - Complete with concrete baffle walls and all associated piping valves, controls, and appurtenances
- High-lift pump station conveying treated water to distribution system with the following features:
  - 8.1 m-long-by-1.7-m-wide-by-6.3-m-SWD chamber with four separate suction compartments
  - Fitted with three high-lift vertical turbine pumps (two duty and one standby) each rated 211 L/s at 41.5 m TDH
  - Common discharge header complete with associated valves, meters, controls, and appurtenances
  - Treated water sampling pump system for analysis and process control
- Alum chemical storage and feed system with the following features:
  - Two alum bulk storage tanks each having capacity of 21 m<sup>3</sup>
  - Two diaphragm metering feed pumps (one duty – one standby) each rated 0 – 408 litres per hour (L/hr)
  - Complete with all associated piping valves, controls and appurtenances
- Polymer chemical storage and feed system with the following features:
  - Liquid polymer Type 1 storage tank having capacity of 2,082 litres
  - Two diaphragm metering liquid polymer Type 1 feed pumps (one duty – one standby) each rated 0 – 26.5 L/hr
  - Two liquid polymer Type 2 storage drums each having capacity of 20 litres
  - Two diaphragm metering liquid polymer Type 2 feed pumps (one duty and one standby) each rated 0 – 9.5 L/hr
  - Mixing chamber with integral mixer and associated controls for polymer dilution
  - Complete with all associated piping valves, controls, and appurtenances
- Powdered activated carbon storage and feed system with the following features:
  - Powdered activated carbon (PAC) hopper with 2.3 m<sup>3</sup> capacity
  - Variable-frequency drive (VFD) PAC feed system paced to flow
  - PAC/water mixing eductor
  - Two booster feed pumps (one duty and one standby) each rated at 0 – 182 L/hr
  - Complete with all associated piping, valves, controls, and appurtenances
- Disinfection system with the following features:
  - Ultraviolet (UV) primary disinfection system using two UV reactors (one duty and one standby) each rated 0 – 36,400 m<sup>3</sup>/day

- Chlorine gas secondary and emergency disinfection system consisting of two chlorine gas vacuum based feed systems (one duty and one standby) using 150-pound cylinders with automatic switchover, weigh scales, emergency chlorine gas scrubber, and all associated piping, valves, controls, and appurtenances for:
  - Zebra mussel control with chlorine feed capacity of 0-140.3 kilograms per day (kg/day)
  - Pre-chlorination with chlorine feed capacity of 0-175 kg/day
  - Post chlorination with chlorine feed capacity of 0-127.6 kg/day
- Residuals management system with the following features:
  - Two 567-m<sup>3</sup> dissolved air flotation (DAF) holding tanks equipped with DAF equipment for thickening residuals prior to being pumped into clarifiers
  - Two residual transfer pumps each rated at 17 L/s at 8.7 m TDH
  - DAF equipment having a rated capacity of 1,400 m<sup>3</sup>/day with initial rapid mixing followed by two-stage flocculation and final clarification with 5.7 surface loading rate, 8 second retention time during rapid mixing and 8 minutes' retention time during flocculation stage at peak flow
  - Two air saturation tanks each having capacity of 650 litres with 65-m/hr surface loading rate at 550=kPa working pressure
  - Two recycle pumps each rated at 5 L/s at 63 m TDH
  - Two air receivers each having capacity of 6 litres
  - Two air compressors rated at 58.4 Litres per minute @ 620-kPa maximum
- Standby power system with the following features:
  - 900-kilowatt diesel generator with automatic transfer system
  - Diesel fuel storage tank having capacity of 2,270 litres
- Process control and supervisory control and data acquisition system with the following features:
  - Magnetic flow meters for clarifier influent, filter effluent, filter backwash water supply, UV reactor influent, high-lift pump discharge, clarifier blowdown, PAC pump discharge, zebra mussel booster pump discharge, DAF influent
  - Ultrasonic level sensors for level control
  - Pressure transmitters for high-lift discharge and filter differential head loss
  - Chlorine residual analyzers for raw water, filtered water, and treated water
  - Turbidity analyzers for intake influent, low lift pump discharge, clarifier effluent, filter inlet, filter effluent DAF influent and effluent and high-lift pump discharge
  - pH analyzers for intake influent, low-lift pump discharge, reservoir and high-lift pump discharge
  - Temperature analyzers for intake influent, low-lift pump discharge and high-lift pump discharge
  - GE-based Fanuc programmable logic control (PLC) hardware and Wonderware In-Touch software complete with universal power supply

### 2.1.1.3 Storage and Distribution

Storage for peak equalization, fire protection, and emergencies in the Belle River water service area is currently provided at the Lakeshore WTP as well as in two elevated water towers located in the distribution system in (1) the Rourke Line Road/Oakwood Ave. area in Belle River adjacent to the St. Pierre WPC, and (2) the County Road 22 area at Wallace Line Road in Maidstone.

The original Belle River Water Tower (BRWT) was constructed in 1954 and was later replaced with a new larger tower in 2015 to provide increased system storage and fulfil a number of recommendations of the 2009 WWWWMPs related to system storage. The existing Maidstone Water Tower (MWT) was constructed in 1984 and is still in service.

Storage at the new Lakeshore WTP consists of a two-cell in-ground reservoir. Storage at the new BRWT consists of a composite elevated welded steel tank. Storage at the existing MWT also consists of a composite elevated welded steel tank. The individual total storage volumes and the total available treated water storage capacity in the BRWSS is tabulated below:

<u>BRWSS Treated Water Storage</u>	
• Lakeshore WTP Reservoir	9,922 m <sup>3</sup>
• Belle River Water Tower	5,800 m <sup>3</sup>
• Maidstone Water Tower	<u>1,500 m<sup>3</sup></u>
<b>Total Treated Water Storage Capacity</b>	<b>17,222 m<sup>3</sup></b>

The BRWSS consists of one pressure zone with system pressures generally governed by a combination of both the pressure head developed by the high-lift pumps at the new Lakeshore WTP and water level in the BRWT and MWT water towers. Emergency points of interconnection with adjacent water supply systems exist at the following locations:

- TWSS
  - Amy Croft Drive east of County Road 19 (300-mm-diameter interconnection)
  - County Road 42 east of County Road 19 (Manning Road) (200-mm-diameter interconnection)
- UWSS
  - Belle River Road south of Highway 401 (200-mm-diameter interconnection)
- SPWSS
  - Surf Club Drive north of County Road 2 (150-mm-diameter interconnection)

The Belle River water distribution system consists of approximately 275 km of watermains ranging in size from 25 mm to 600 mm in diameter.

Refer to Plates W1 to W5, W9, and W10 in Appendix B for complete plans of the existing water distribution system in the BRWSS.

## 2.1.2 Stoney Point Water Supply System

### 2.1.2.1 Service Area

The SPWSS services the communities of Stoney Point, Surf Club, Comber, and the rural areas between Lake St. Clair and County Road 8 generally east of Rochester Townline and west of Big Creek.

The Stoney Point water service area consists of a mixture of urban residential, rural residential, industrial, commercial, and institutional development with a total equivalent service population of approximately 6,100.

The SPWSS is considered a “large municipal residential system” under O. Reg. 170/03 and operates under Lakeshore’s MOECC Drinking Water System License No. 031-101 and MOECC Drinking Water Works Permit No. 031-201.

### 2.1.2.2 Treatment

The Stoney Point WTP is located at 6011 St. Clair Ave. along the shore of Lake St. Clair in the residential community of Stoney Point. The WTP was originally constructed in the early 1950s. In 1991, the plant underwent an extensive upgrade and expansion from a pressure filter treatment facility to a gravity

filter treatment facility with a rated treatment capacity of 4,545 m<sup>3</sup>/day to satisfy the projected future water supply requirements of the service area.

As part of the 1991 expansion, the existing structures were expanded and retrofitted with washrooms, a lunchroom, an office, a workshop, a laboratory, storage areas, and the like, as well as chlorine gas disinfection and fluoride facilities. The expanded treatment facility was also fitted with two new dual-media gravity filters, a new high-lift pump well, and a new underground reservoir complete with new high-lift pumps, backwash pumps, and a standby emergency generator. The expansion also featured new clarifier sludge and filter backwash treatment and disposal systems complete with a two-celled settling pond as well as modern PLC-based process control and supervisory control and data acquisition system.

Together with the treatment facility, the expanded low lift pump facility was fitted with new low-lift pumps and metering systems, new chemical storage and feed systems for coagulation (alum) and taste and odour control (PAC) together with chlorine-solution-based zebra mussel control.

From 2004 to 2006, the WTP underwent further upgrades to meet new treatment requirements set by the MOECC including clarifier bypass facilities, filter-to-waste facilities, flow-metering upgrades, and associated monitoring systems for fluoride and disinfection contact time control. The fluoride system was later decommissioned in November 2011 following public consultation and council resolution.

As there are no water towers in the Stoney Point water service area; pressure is maintained in the distribution system by keeping the high-lift pump station at the WTP in continuous operation.

The following are details about the Stoney Point WTP:

- Rated treatment capacity of 4,545 m<sup>3</sup>/day
- Intake conveying raw water from Lake St. Clair to low-lift pump station with the following features:
  - 600-mm-diameter Asphalt-coated corrugated steel
  - Extends approximately 1,270 m into Lake St. Clair
  - Mouth of intake located in approximately 1.8 m of water
  - Includes HDPE carrier pipe for zebra mussel control
  - Mean lake level hydraulic capacity of 18,160 m<sup>3</sup>/day
- Low-lift pump station conveying raw water to clarifier treatment system with the following features:
  - Screening well containing a coarse manual screen and a fine manual screen with 10-mm openings
  - Pump suction chamber complete with two low-lift vertical turbine pumps (one duty and one standby) each rated at 56.8 L/s at 9.1 m TDH
  - Common 300-mm-diameter discharge header complete with associated valves, controls, and appurtenances
  - Chlorine solution discharge pipe for zebra mussel control
  - Alum solution discharge pipe for particulate removal
  - Polymer solution discharge pipe for particulate removal
  - Carbon solution discharge pipe for taste and odour control
  - Raw water sampling pump system for analysis and process control

- Clarifier treatment system conveying partially treated water to intermediate pump station with the following features:
  - Solids contact upflow clarifier, 9.1 m in diameter with 3.8-m SWD
  - Rated for treatment rise rate of 4.4 m/hr
  - Equipped with sludge scraper arms and drive including sludge blow down system discharging directly into the sludge settling ponds
- Intermediate pump station conveying partially treated water to filter treatment system with the following features:
  - Two intermediate pump suction chambers
  - Three intermediate-lift vertical turbine pumps (two duty and one standby) each rated at 26.5 L/s at 7.6 m TDH
  - Common 300-mm-diameter discharge header complete with associated valves, controls, and appurtenances
  - Clarified water sampling pump system for analysis and process control
  - Chlorine solution discharge pipe for pre-chlorine residual control
- Filter treatment system conveying treated water to onsite treated water storage system with the following features:
  - Two gravity flow dual media open bed filters containing 0.45-m-thick anthracite top layer on 0.30-m-thick silica sand layer on Ecodyne underdrain system with air scouring capabilities
  - Each 3.66 m long by 4.27 m wide by 4.66 m SWD with 73-m<sup>3</sup> capacity
  - Each rated for filtration rate of 14.33 m/hr
  - Air scour system with air scour rate of 60 m/hr using 943-m<sup>3</sup>/hr at 100 kPa centrifugal air blower
  - Filter backwash system with 190.8 L/s at 11.37-m TDH vertical turbine backwash pump located in high-lift pump station Clearwell No.1 discharging into wastewater chamber discharging to onsite settling ponds
  - Filter-to-waste piping system complete with all associated valves, controls, and appurtenances
  - Chlorine solution discharge pipe for pre-chlorine residual control
- Onsite treated water storage system conveying treated water to high-lift pump station with the following features:
  - Two- cell in-ground treated water reservoir with total storage volume of 1,547 m<sup>3</sup>
  - Cell 1 is approximately 30 m long by 7 m wide by 3.96 m SWD with storage volume of 807 m<sup>3</sup>
  - Cell 2 is approximately 26 m long by 7 m wide by 3.96 m SWD with storage volume of 740 m<sup>3</sup>
  - Complete with associated piping valves, controls, and appurtenances
- High-lift pump station conveying treated water to distribution system with the following features:
  - Two separate Clearwell suction compartments:
    - Clearwell No. 1 (3 m long by 3.7 m wide by 5.5 m SWD with storage volume of 59 m<sup>3</sup>)
    - Clearwell No. 2 (6.25 m long by 3.7 m wide by 5.5 m SWD with storage volume of 121 m<sup>3</sup>)
  - Three high-lift vertical turbine pumps (two duty and one standby) each rated at 32 L/s at 68.3-m TDH

- Common discharge header complete with associated valves, meters, controls, and appurtenances
- Discharge pressure of approximately 68 to 75 pounds per square inch (psi)
- Treated water sampling pump system for analysis and process control
- Chlorine solution discharge pipe for post chlorine residual control
- Alum chemical storage and feed system with the following features:
  - Alum bulk storage tank having capacity of 22.73 m<sup>3</sup>
  - Diaphragm metering feed pump rated at 0 – 77 L/hr with max dosage rate of 0 – 100 mg/L
  - Complete with all associated piping valves, controls and appurtenances
- Polymer chemical storage and feed system with the following features:
  - Two liquid polymer storage tanks each with 680-litre volume plus integral mixer and associated controls
  - Diaphragm metering liquid polymer feed pump rated at 0 – 6.8 L/hr
  - Complete with all associated piping valves, controls and appurtenances
- PAC storage and feed system with the following features:
  - PAC bag loading hopper with 0.12 m<sup>3</sup> capacity and dust collector
  - VFD PAC volumetric feed system paced to flow with 160-litre solution tank and mixer
  - Diaphragm metering carbon solution feed pump rated at 0 – 77 L/hr with dosing ranging of 0 – 100 mg/L
  - Complete with all associated piping, valves, controls, and appurtenances
- Disinfection system with the following features:
  - Chlorine gas primary disinfection system consisting of two chlorine gas vacuum-based feed systems using 150-pound cylinders with automatic switchover, weigh scales, and associated piping, valves, controls, and appurtenances for:
    - Zebra mussel control with chlorine feed capacity of 0-23 kg/day
    - Pre-chlorination with chlorine feed capacity of 0-11 kg/day
    - Post-chlorination with chlorine feed capacity of 0-1.5 kg/day
- Residuals management system with the following features:
  - In-ground wastewater chamber 6.1 m long by 3.05 m wide by 4.66 m SWD with storage volume of 86.7 m<sup>3</sup>
  - Wastewater centrifugal pump rated at 75.7 L/s at 8.23-m TDH complete with associated piping, valves, controls, and appurtenances for discharging into in ground residual holding ponds
  - Two in-ground residual holding ponds each 97 m long by 26.2 m wide by 1.52 m SWD and storage volume of 5,000 m<sup>3</sup> complete with associated piping, valves, controls, and appurtenances for discharge to Lake St. Clair
- Standby power system with the following features:
  - 175-kilowatt diesel generator with automatic transfer system
  - Diesel fuel storage tank with capacity of 1,135 litres

- Process control and supervisory control and data acquisition system with the following features:
  - Magnetic flow meters for low-lift pump discharge, intermediate pump discharge, filter effluent, filter backwash, high-lift pump discharge
  - Ultrasonic level sensors for level control
  - Pressure transmitters for high-lift discharge and filter differential head loss
  - Chlorine residual analyzers for raw water, filtered water, and treated water
  - Turbidity analyzers for intake influent (raw), clarifier effluent (clarified), filter effluent (filtered) and high-lift discharge (treated) water
  - pH analyzers for intake influent (raw), clarifier effluent (clarified), filter effluent (filtered) and high-lift discharge (treated) water
  - Temperature analyzers for intake influent (raw), clarifier effluent (clarified), filter effluent (filtered) and high-lift discharge (treated) water
  - GE-based Fanuc PLC hardware and Wonderware In-Touch software complete with UPS

### 2.1.2.3 Storage and Distribution

The Stoney Point water service area consists of four pressure zones as follows:

- Stoney Point Pressure Zone – Stoney Point urban area and adjacent lakefront areas
- Haycroft Pressure Zone – rural areas south of lakefront and generally north of Highway 401
- Comber Pressure Zone – Comber urban area
- South Pressure Zone – Staples and rural areas south of Highway 401

The Stoney Point pressure zone is governed by the pressure head developed by the high-lift pump station at the WTP. The WTP also conveys water to the Haycroft Reservoir & Booster Pumping Station (HRBPS). The HRBPS is located at Comber Sideroad (County Road 35) and Lakeshore Road 303. The HRBPS was designed to act as an intermediate reservoir and re-pumping station to supplement supply to the community of Comber and rural service area to the south without impacting consumers in the northern areas.

The HRBPS consists of a 470-m<sup>3</sup> in-ground reservoir fitted with a battery of four high lift vertical turbine pumps each rated at 11 L/s at 73-m TDH that boosts water pressure for delivery to the Comber Reservoir & Pumping Station (CRPS).

The CRPS is located on Taylor Ave. in the community of Comber and services both the Comber urban area and rural areas south of Highway 401 including the community of Staples (that is, Tilbury West). The CRPS consists of a 1,074-m<sup>3</sup> in-ground reservoir fitted with a battery of seven high-lift vertical turbine pumps. Three of the pumps are dedicated towards servicing the Comber urban area and operated independently of the rural areas with one pump rated at 11.365 L/s at 44.2 m TDH and the remaining two pumps each rated at 20.82 L/s at 56.08 m TDH. The remaining four pumps are dedicated towards servicing the rural area south of Comber and are each rated at 7.571 L/s at 68.88 m TDH. VFDs were installed on the Comber urban area pumps (Pumps 1, 2, and 3) in 2012 and an interconnection header between the two water systems was upgraded in 2013. To reduce energy costs and pump operations, the current strategy is to have the interconnection header open (that is, connecting two systems) and to use the Comber urban area VFD pumps (Pumps 1, 2, and 3) to service both water systems. Under this strategy, the four rural area pumps (that is, Tilbury West) are not used as duty high-lift pumps.

The SPWSS has approximately 3,271 m<sup>3</sup> of in-ground storage available for peak equalization, fire protection and emergencies. There are no storage towers in the SPWSS.



The following is a tabulation of the available treated water storage capacity in the SPWSS:

<u>SPWSS Treated Water Storage</u>	
• Stoney Point WTP Reservoir	1,727 m <sup>3</sup>
• Haycroft Reservoir	470 m <sup>3</sup>
• Comber Reservoir	<u>1,074 m<sup>3</sup></u>
<b>Total Treated Water Storage Capacity</b>	<b>3,271 m<sup>3</sup></b>

Emergency points of interconnection with adjacent water supply systems exist at the following locations:

- Belle River Water Supply System
  - Surf Club Drive north of County Road 2 (150-mm-diameter interconnection)
- Union Water Supply System
  - County Road 8 west of the community of Staples (100-mm-diameter. interconnection)
  - County Road 8 and Highway 77 east of the community of Staples (200-mm-diameter interconnection)
- Tilbury-Wheatley Water Supply System
  - East side of the community of Lighthouse Cove at Admiral Drive & Fourth Street (300-mm-diameter interconnection)

The Stoney Point water distribution system consists of approximately 210 km of watermains ranging in size from 25 mm to 300 mm in diameter.

Refer to Plates W6, W8, W11, W12, and W15 in Appendix B for complete plans of the existing water distribution system in the SPWSS.

## 2.1.3 Union Water Supply System

### 2.1.3.1 Service Area

The UWSS services the southeast portion of the County of Essex including the entire Municipalities of Kingsville and Leamington, and parts of the Municipalities of Essex and Lakeshore, with a total service population of approximately 65,000.

The Union service area is made up of three distinct subservice areas (or pressure zones) designated as the Southeast service area, Northwest service area, and Kingsville service area. These service areas are composed of a mixture of urban residential, rural residential, industrial, commercial, institutional, and agricultural (greenhouse) development.

The southwest portion of the Town south of Highway 401 between Manning Road and Rochester Townline Road, including Ruscom and Woodslee, is situated within the Union Northwest Service Area and is referred to as the Lakeshore–Union water service area, with a total equivalent service population of approximately 3,200.

System pressures in this area are generally governed by a combination of both the pressure head developed by the high-lift pumps at the CRBPS and water level in the Essex Water Tower located in the Town of Essex.

The MOECC and later the Ontario Clean Water Agency (OCWA) were the original owners of the UWSS and its components until January 8, 2001, when ownership was transferred to the four municipal partners consisting of the Town of Kingsville, the Municipality of Leamington, the Town of Essex, and the Town of Lakeshore under the Municipal Water & Sewer Transfer Act 1997.

Major components of the UWSS such as the intake system, low-lift pumping station, WTP, CRBPS, Union Water Tower, Leamington Water Tower, Kingsville Water Tower, Essex Water Tower, and a network of trunk watermains are jointly owned by the four municipal partners and administered by a Joint Management Board. Local distribution watermains are owned and maintained by the municipality in which they are located.

The UWSS is considered a “large municipal residential system” under O. Reg. 170/03 and operates under Union’s MOECC Drinking Water System License No. 041-101 and MOECC Drinking Water Works Permit No. 041-201. The water distribution system located within the Lakeshore–Union water service area is owned, operated, and maintained by the Town under their system-wide MOECC Drinking Water System License No. 031-101 and MOECC Drinking Water Works Permit No. 031-201.

### 2.1.3.2 Treatment

The Union WTP was originally constructed in 1957 and is in the community of Ruthven, within the Town of Kingsville. The WTP is a conventional chemically assisted filtration treatment plant with a rated capacity of 124,600 m<sup>3</sup>/day. The water supply source for the WTP is Lake Erie.

Treatment processes include chemically assisted up-flow clarification, filtration with dual-media filters, primary disinfection using chlorine gas, and secondary disinfection using chloramination. Seasonally, the WTP uses sodium hypochlorite at its intakes to control zebra mussel formation.

### 2.1.3.3 Storage and Distribution

In 1996, the original CRBPS was replaced with a new reservoir and booster pumping station to increase storage and the level of service in the northwest service area.

The CRBPS is located on Talbot Road (County Road 34) just south of the community of Cottam in the Town of Kingsville. The station consists of an in-ground reservoir with a total storage capacity of approximately 9,229 m<sup>3</sup> fitted with a battery of four vertical turbine booster pumps rated at 53.04 L/s at 54.86 m TDH, 106.08 L/s at 54.86 m TDH, 106.08 L/s at 54.86 m TDH, and 159.11 L/s at 54.86 m TDH, including surge protection facilities, re-chlorination facilities and a stand-by emergency generator. The station was designed to store and re-pump water into the trunk watermains supplying the northwest service area. Water from the Southeast service area is used to fill the stations reservoir through a network of trunk watermains supplied from the Union WTP’s high-lift pumping station.

There are no system storage facilities located within the Lakeshore–Union water service area. Hence, water supply for peak equalization, emergencies, and fire protection is obtained from system storage and supply capacity in the UWSS and primarily from the CRBPS.

The Lakeshore-Union water distribution system consists of approximately 150 km of watermains ranging in size from 50 mm to 300 mm in diameter.

Refer to Plates W13 and W14 in Appendix B for complete plans of the existing water distribution system within the Lakeshore-Union service area supplied by the UWSS.

## 2.1.4 Tilbury-Wheatley Water Supply System

### 2.1.4.1 Service Area

The Town’s entire eastern boundary generally east of Big Creek referred to as the Lakeshore-Tilbury-Wheatley water service area is serviced from the Municipality of Chatham-Kent’s TWWSS, due to a lack of watermain infrastructure from the Town’s SPWSS.

The Lakeshore-Tilbury-Wheatley water service area is composed predominately of rural residential, recreational, and commercial consumers, with a total equivalent service population of approximately

400. Water is supplied to the Lakeshore Tilbury/Wheatley service area under general agreement with the Municipality of CKPUC.

System pressures in the Lakeshore-Tilbury-Wheatley water service area are location-dependent and generally governed either by a combination of both the pressure head developed by the high-lift pumps at the Wheatley WTP and water level in the Wheatley Water Tower, both located in the community of Wheatley, or by a combination of both the pressure head developed by the high lift pumps at the Tilbury Reservoir & Booster Pumping Station and water level in the Tilbury Water Tower both located in the community of Tilbury.

The TWWSS is considered a “large municipal residential system” under O. Reg. 170/03 and is operated under Chatham Kent’s MOECC Drinking Water System License and Drinking Water Works Permit. The water distribution system is located within the Lakeshore-Tilbury-Wheatley water service area is privately owned’; however, it is operated and maintained by the CKPUC.

#### 2.1.4.2 Treatment

The TWWSS consists of the Wheatley WTP, a 1,523-m<sup>3</sup> water tower in Wheatley, a 6,181-m<sup>3</sup> water tower in Tilbury, an in-line re-chlorination facility south of Tilbury, and a 4,500-m<sup>3</sup> in-ground storage reservoir and booster pumping station on the north side of Tilbury on Baptiste Road.

The Wheatley WTP supplies water to the TWWSS and its water supply source is Lake Erie. The WTP is located on Detroit Ave. and Fisherman Road in the community of Wheatley and last underwent a major capacity expansion in 2004. The WTP is a conventional chemically assisted filtration treatment plant with a rated capacity of 23,846 m<sup>3</sup>/day.

Treatment processes include chemically assisted up-flow clarification, filtration with dual-media filters, primary disinfection using chlorine gas, and secondary disinfection using sodium hypochlorite. Seasonally, chlorine gas is used at its intakes to control zebra mussel formation. Water is pumped into the distribution system using battery high lift pumps to draw from an onsite three-cell 4,471-m<sup>3</sup> in-ground reservoir.

#### 2.1.4.3 Storage and Distribution

Water is supplied to consumers in Lakeshore through a 600-mm-diameter trunk watermain running along Essex-Kent Townline Road No. 1 constructed in 2004. There are no system storage facilities located within the Lakeshore Tilbury/Wheatley service area. Hence, water supply for peak equalization, emergencies, and fire protection is obtained from system storage and supply capacity in the TWWSS and primarily from the Tilbury Water Tower.

The Lakeshore Tilbury-Wheatley water distribution system consists of approximately 41 km of predominately private watermains ranging in size from 25 mm to 150 mm in diameter.

Refer to Plates W7, W8, W11, and W15 in Appendix B for complete distribution plans of the existing watermains within the Lakeshore Tilbury/Wheatley service area supplied by the TWWSS.

### 2.1.5 Tecumseh Water Supply System

#### 2.1.5.1 Service Area

A portion of the Town’s western boundary referred to as the Lakeshore-Tecumseh water service area is currently serviced from the Town of Tecumseh’s TWSS, due to a lack of watermain infrastructure from the Town’s BRWSS. Under a service agreement between the Town and the Town of Tecumseh, the TWSS currently supplies water to two small areas off Manning Road (County Road 19). The first is Little Baseline Road for approximately 700 m east from Manning Road. The second is the rural area between County Road 42 and Highway 401 immediately west of Manning Road along the Scott Sideroad and Walls Road.

The service area is composed of a mixture of urban residential, rural residential, industrial, and commercial development, with a total equivalent service population of approximately 200.

The TWSS is supplied water from the WWSS under a service agreement between the Town of Tecumseh and the Windsor Utilities Commission. The water service agreement between the Town and Town of Tecumseh expired at the end of 2007 and is currently being renegotiated, with the status quo being maintained until a new agreement is signed.

System pressures within the Lakeshore–Tecumseh service area are generally governed by a combination of both the pressure head developed by the high-lift pumps at the A.H. Weeks WTP located in the City of Windsor and the water level in the 4,546-m<sup>3</sup> Tecumseh Water Tower located in the Town of Tecumseh.

The TWSS is considered a “large municipal residential system” under O. Reg. 170/03 and operates under Tecumseh’s MOECC Drinking Water System License and Drinking Water Works Permit. The water distribution system located within the Lakeshore–Tecumseh water service area is owned, operated, and maintained by the Town of Lakeshore under their system-wide MOECC Drinking Water System License No. 031-101 and MOECC Drinking Water Works Permit No. 031-201.

### 2.1.5.2 Treatment

The A.H. Weeks WTP supplies water to the WWSS and the TWSS, as well as to the neighboring Towns of LaSalle and Essex within Essex County. The plant is located on Wyandotte Street at George Ave. in the City of Windsor and last underwent a major expansion in 1994. The WTP is a conventional chemically assisted filtration treatment plant having a rated capacity of 349,000 m<sup>3</sup>/day. The water supply source for the WTP is the Detroit River.

Treatment processes include chemically assisted up-flow clarification, filtration with dual-media filters, primary disinfection using ozone gas, and secondary disinfection using chlorine gas. Water is pumped into the distribution system using two high-lift pumping stations (the A.J. Brian and George Ave. Pump Stations) drawing water from an onsite 62,100-m<sup>3</sup> in-ground reservoir.

### 2.1.5.3 Storage and Distribution

The WWSS includes a 6,000-m<sup>3</sup> water tower located on Hanna Street and a remote 44,500-m<sup>3</sup> reservoir & booster pumping station (J.F. Cook Pump Station) located on Howard Ave. north of Cabana Road. In total, the WWSS has a treated water storage capacity of 117,100 m<sup>3</sup>. The WUC is currently planning for the construction of a 35,000-m<sup>3</sup> in-ground reservoir on the WTP site for service in 2018.

There are no system storage facilities located within the Lakeshore-Tecumseh water service area. Hence, water supply for peak equalization, emergencies, and fire protection is obtained from system storage and supply capacity in the WWSS and the TWSS, and primarily from the Tecumseh Water Tower.

The Lakeshore-Tecumseh water distribution system consists of approximately 6.3 km of watermains ranging in size from 50 mm to 150 mm in diameter.

Refer to Plates W2, W9, and W13 in Appendix B for complete plans of the existing water distribution system within the Lakeshore service area supplied by the TWSS.

## 2.2 Existing Wastewater Systems

There are five existing wastewater treatment and collection systems servicing hamlets within the Town of Lakeshore. These include the following:

1. Denis St. Pierre Sewage System (formerly known as the Belle River/Maidstone Sewage System)
2. Stoney Point Sewage System
3. Comber Sewage System

4. South Woodslee
5. North Woodslee

The wastewater treatment and collection systems are operated by the OCWA. These systems were described in detail in the 2009 WWMPS (Stantec, 2009), these systems are largely unchanged, as recommendations from the 2009 WWMPS have not been implemented. The following descriptions are from the 2009 WWMPS and have been updated to reflect any changes noted in the *Eastern Communities ESR* (Stantec, 2012).

### 2.2.1 Denis St. Pierre Sewage System

The former Belle River community and the Maidstone urban area are serviced by a sanitary sewage works system consisting of sanitary sewers, pumping stations, and a mechanical pollution control plant with an outfall discharging to Lake St. Clair.

#### 2.2.1.1 Background

In 1965, the Town of Belle River authorized the preparation of a report on a sanitary sewage disposal system in response to concerns regarding pollution of Lake St. Clair. During the work, the Ontario Water Resource Commission (OWRC) became involved and at its suggestion, the Town of Maidstone was asked to consider participating in a joint scheme with the Town of Belle River.

In 1967, the OWRC was authorized to develop sanitary sewage collection and treatment systems as provincially owned projects. Work on the Belle River project proceeded on this basis with a Conceptual Report submitted in November 1967, followed by a Design Report in May 1968.

In July 1968, the OWRC, at the request of the Township of Maidstone, initiated a Provincial Sewage Works Program to also service the Emeryville area of the Township. The project was eventually expanded to include the northern part of the Township from Belle River on the east to Pike Creek on the west.

Construction of the Belle River collection system, including the Belle River/Maidstone WPCP (now referred to as the Denis St. Pierre WPCP), was completed near the end of 1976 and connections to the system were permitted to commence in early 1977. Construction of the Maidstone collection system was carried out in six separate contracts between 1978 and 1981.

In 1987, the plant was operating at capacity and the sludge disposal facilities were found to be inadequate. Also, pressures for development in the Belle River and Maidstone urban areas persisted. As a result, a Class EA was initiated to evaluate alternative options to address the problems and identify alternative solutions.

The EA process resulted in the preparation of two separate ESRs. The first ESR, dated May 1997, entailed an upgrade and expansion of the Denis St. Pierre WPCP extended westerly to service existing residences and growth in the western areas of the municipality generally north of the CPR tracks, which were located outside the original Belle River/Maidstone collection system. To date, construction of the trunk sanitary sewer has been completed between the WTP plant and the Puce River only.

#### 2.2.1.2 Treatment System

The Denis St. Pierre WPCP is located on Rourke Line Road south of County Road 22 and provides secondary level biological treatment. The plant was commissioned in 1976 as an extended aeration plant and was later upgraded and expanded in 1999 to a sequencing batch reactor (SBR) process. The treatment process consisted of fine screening, grit removal, four SBRs, and UV disinfection. Treated effluent from the WPCP discharged into Lake St. Clair through an outfall sewer. Waste activated sludge was aerobically digested for stabilization and the stabilized biosolids were gravity-thickened and dewatered by centrifuges. The dewatered biosolids were hauled to an offsite storage facility and ultimately land applied.

The treatment plant was (and continues to be) rated for an average daily sewage flow of 13,640 m<sup>3</sup>/day (3.0 million Imperial gallons per day [MIGD]) and a peak flow capacity of 35,069 m<sup>3</sup>/d (7.7 MIGD). However, various operational problems limited the treatment capacity of the facility. In response to these operational issues, the Town retained Stantec, in association with XCG Consultants Ltd., to review the current operation of the plant and identify upgrade requirements to address these operational issues.

A report dated May 2006 entitled *Belle River Maidstone WPCP Capacity Assessment Study* (Stantec, 2006a) was prepared and outlined recommended solutions to address the identified problems. In general, the recommended improvements included providing new inlet works, converting the SBR treatment process to an Extended Aeration process including blower facilities, installing new final clarifiers, and constructing a new effluent pumping station, in addition to improvements to the biosolids handling process involved upgrades to existing centrifuge dewatering equipment, as well as various improvements to ancillary systems.

Upgrades to the Denis St. Pierre WPCP based on the above recommendations were completed in 2010. These upgrades addressed age-related operational challenges that resulted in the WPCP being unable to meet its rated capacity. These upgrades also converted the WPCP from an SBR plant to an extended-aeration activated sludge treatment process. They also added a 900-m<sup>3</sup> holding tank to accommodate wet weather flows to reduce overflows.

The existing 900-mm-diameter plant outfall sewer currently has a peak design capacity of 50,000 m<sup>3</sup>/d (10.95 MIGD) and extends approximately 600 m into Lake St. Clair. Following completion of the effluent pumping station as part of the proposed plant upgrades, the design capacity of the outfall sewer will increase to 67,855 m<sup>3</sup>/d (14.9 MIGD). Effluent discharges through nozzles at the end of the outfall to assist in dispersing the effluent.

### 2.2.1.3 Collection System

The Belle River and Maidstone urban areas of the Town are serviced by a gravity collection systems with a series of lift stations. The Belle River collection system conveys sewage to Pumping Station No. 2. The pumping station is equipped with three pumps (two duty, one standby) with a rated capacity of 80 L/s each. Pumping Station No. 2 pumps sewage to the inlet works of the Denis St. Pierre WPCP via two 300-mm forcemains approximately 1,220 m long. The forcemains alternate duty approximately every 6 hours to minimize the buildup of hydrogen sulphide gas entering the WTP inlet.

The Maidstone collection system conveys sewage directly to Pumping Station No. 8, which is located at the Denis St. Pierre WPCP site. Pumping station No. 8 is a two-stage screw pump station with two screw pumps per stage, each with a capacity of 23,560 m<sup>3</sup>/d (272 L/s). The pumping station lifts sewage to an elevated concrete channel, where it is conveyed into the inlet works of the treatment plant.

Figures 4a, 4b, and 4c in Appendix A illustrate the Denis St. Pierre sewage collection system.

## 2.2.2 Stoney Point Sewage System

The Stoney Point community and adjacent lakefront areas are serviced by a wastewater collection and treatment system. The first phase of the system was constructed in 1978 and included a gravity collection system, two pumping stations, and two oxidation ponds located on Tecumseh Road west of Little Creek. The collection system was extended in the late 1980s westerly along St. Clair Ave. towards Rochester Townline Road to service the lakefront properties.

Raw sewage from Pumping Station No. 1 is pumped into two 5.6-hectare (ha) (14-acre) oxidation ponds. The Stoney Point STF was designed based on an average daily sewage flow of 920 m<sup>3</sup>/d. The ponds are routinely drained in a controlled manner with discharge to Little Creek approximately 820 m upstream

of where the creek discharges into Lake St. Clair. Prior to being drained, the ponds are treated with aluminum sulphate for phosphorus removal. Sludge accumulation was removed from Cell 2 in August 2005; however; Cell 1 has never been cleaned.

Figure 5 in Appendix A illustrates the Stoney Point sewage collection system.

### 2.2.3 Comber Sewage System

The Comber urban area is serviced by a wastewater collection and treatment system that was constructed in 1974. It includes a gravity collection system, a pumping station, and two 2.43-ha (6-acre) oxidation ponds located in the southeast corner of the community south of County Road 46 and accessible from Windsor Ave.

Raw sewage from Pumping Station No. 1 is pumped into the oxidation ponds. The Comber STF was designed based on an average daily sewage flow from 430 m<sup>3</sup>/d. The ponds are routinely drained in a controlled manner with discharge to an open drain which leads to No. 1 Government Drain, which outlets to Big Creek. Prior to being drained, the ponds are treated with aluminum sulphate for phosphorous removal. Sludge accumulation was removed from both cells in 2004.

Figure 6 in Appendix A illustrates the Comber sewage collection system.

### 2.2.4 North Woodslee Sewage System

The western portion of the North Woodslee hamlet is serviced by a municipal wastewater collection and treatment system that was constructed in 2007. The new mechanical STF is initially intended to service the area of North Woodslee west of the Belle River, which includes a proposed 60-lot subdivision. The plant capacity has been established to also service lands in the North Woodslee has been documented in the *Town of Lakeshore North Woodslee Sewage System Class Environmental Assessment – Addendum to Environmental Study Report*, dated November 30, 2004.

Based on the Ministry of the Environment Certificate of Approval issued for the North Woodslee STP in 2006, the facility has a rated treatment capacity of 330 m<sup>3</sup>/d and uses the rotating biological contactor (RBC) treatment process. The treatment process consists of a primary settling tank, one RBC train, a secondary settling tank, effluent filtration, and UV disinfection. Sludge will settle and accumulate in the settling tank, where it will undergo effluent filtration, and UV disinfection. Sludge will settle and accumulate in the settling tanks and will require routine removal for further processing offsite. The plant also includes an inlet pumping station, standby power, and a 200-mm-diameter outfall sewer to discharge treatment effluent to the Belle River.

Figure 7 in Appendix A illustrates the North Woodslee sewage collection system.

### 2.2.5 South Woodslee Sewage System

The hamlet of South Woodslee is serviced by a wastewater collection and treatment system. The system was constructed in 2005 and consists of a low-pressure sewer collection system and a mechanical sewage treatment plant located west of County Road 27 (Belle River Road) in the southwestern corner of Woodslee Memorial Park adjacent to the Belle River. The site is accessible from King Street.

The South Woodslee sewage collection system utilizes individual septic tank effluent pump (STEP) systems installed at every dwelling. The STEP systems include two compartment septic tanks that are intended to provide settling and storage of wastewater prior to discharge to the pressure main by effluent grinder pumps. As a result, the pressure mains are smaller than conventional gravity sewers and installed at shallower depths. Solids accumulate in the septic tanks and must be cleaned out routinely. The Town is experiencing problems with the structural integrity of the septic tanks and clogging of the effluent pump check valves and is currently proceeding with a program to replace each tank and check valve in the STEP system.

Effluent from the individual STEP systems is conveyed to the South Woodslee Sewage Treatment Plant (STP). The plant was commissioned in 2003 and utilizes the RBC treatment process. The treatment facility consists of a primary settling tank, one RBC train, a secondary settling tank, effluent filtration, and UV disinfection. Treated effluent from the South Woodslee STP is discharged into the Belle River. Sludge settles and accumulates in the settling tanks and requires routine removal for further processing offsite.

The South Woodslee STP is rated for an average daily sewage flow of 210 m<sup>3</sup>/d. Modifications were completed in 2007 to upgrade the treatment plant to address various operational issues that were limiting the treatment capacity of the facility.

Figure 7 in Appendix A illustrates the South Woodslee sewage collection system.

## 2.2.6 Areas Presently Serviced by Private On-site Sewage Disposal Systems

Table 2-1 estimates the number of residences and the corresponding population throughout the Town that were not currently serviced by an existing municipal wastewater collection and treatment system as of 2009. These residences are serviced by private onsite sewage disposal systems typically consisting of septic tanks and leaching beds.

Historically, onsite septic private sewage disposal systems provided a means to achieve a minimal level of wastewater treatment in remote, sparsely populated areas where municipal services did not exist. These types of systems are heavily dependent on ground conditions and adequate land availability to be effective. Prior to 1974, these systems were constructed with overflow pipes directed to local watercourses to prevent systems from overloading during wet conditions.

**Table 2-1. Existing Residences Serviced by Private Onsite Sewage Disposal System**

Area	Number of Residences	Estimated Population
Maidstone Urban Area		
• Pike Creek Area	170	491
• West Puce River Road Area	22	64
Belle River Corridor	308	890
Woodslee Area <sup>a</sup>	287	829
Lighthouse Cove <sup>b</sup>	439	1269
Rochester Place/St. Joachim/Deerbrook	855	2471
Essex Fringe	251	725
<i>Subtotal Urban Areas</i>	2,594	6,739
Rural Areas	<b>4,926</b>	<b>14,236</b>

**Notes:**

<sup>a</sup>. Does not include residences in South Woodslee (approximately 90) currently serviced by South Woodslee sewage system.

<sup>b</sup>. Includes shoreline area west of Lighthouse Cove (that is, Laforet Beach, Crystal Beach and Couture Beach Roads).



# Inventory of Natural Environment

## 3.1 Introduction

Projects identified within this Master Planning process must be evaluated based on the potential impact on the existing environmental conditions of the study area. This section generally describes the Town's existing natural, social, and economic environmental conditions.

Where few changes have occurred since the development of the 2009 WWWMPs, sections are excerpted from the 2009 WWWMPs and updated where changes have occurred.

## 3.2 Natural Environment

### 3.2.1 Climate

The climate in Essex County is classified as modified humid continental, which has hot and humid summers with mild winters and adequate precipitation. In comparison with the other areas in Ontario, Essex County's southerly latitude and proximity to the lower Great Lakes provides for warmer summer and winter temperatures with a longer growing season. The area is also on one of the major continental storm tracks and experiences wide variations in day to day weather including severe summer thunderstorms. The normal minimum and maximum temperatures are -9 degrees Celsius (°C) and +28°C, respectively, and the mean daily temperature is above 6°C, which tends to increase temperatures in surface waters. Weather extremes in combination with summer storms and the shallow nature of Lake St. Clair causes wide variations in lake levels. Water levels are known to rise significantly on the leeward shoreline during some extreme storm conditions.

### 3.2.2 Geology and Physiography

Bedrock under the region is primarily Devonian-age sedimentary limestone with high calcium and magnesium content. The bedrock in the majority of Essex County is covered by glacial drift with a drift thickness ranging from 3 m to 45 m from west to east. In the Lakeshore area, the depth to bedrock ranges from 30 m to 38 m. The parent soil material is a heavy ground moraine and lacustrine deposition containing a considerable amount of limestone, appreciable amounts of shale, and some igneous rock.

The topography of the area is a comparatively flat and smooth plain, with scattered sandy and gravelly knolls. The land rises gently from Lake St. Clair at the rate of about 0.6 m per km. The area along Lake St. Clair is low-lying and has been subject to flooding from high water levels in Lake St. Clair and its tributaries.

### 3.2.3 Soils

Soils within the study area were formed from heavy ground moraine, which has been altered by glacial lake wave action and lacustrine deposition. The majority of the area is part of a smooth clay plain, and the predominant soil types are Perth and Brookston clays and their associated clay loams. Developed from dolomitic limestone intermixed with shale, the imperfectly drained member is the Perth clays and the poorly drain member is the Brookston clays.

Agricultural cash crops, market gardening and other agricultural uses is supported by quality top soil throughout the Town of Lakeshore. To preserve the agricultural areas, the Town's current Official Plan (OP) provides the following general goals (MMM Group, 2010), an update to this OP is ongoing:

- Where growth and development occur, priority will be given to lower-priority agricultural land for nonagricultural development (when feasible and practical).
- In prime agricultural areas, all types, sizes, and intensities of agricultural uses and normal farm practices are promoted and protected in accordance with Provincial regulations.

### 3.2.4 Water Resources

Lake St. Clair is an important natural resource for the area. Lake St. Clair is a source of drinking water and a site of fishing and recreational activities, and has attracted development and residential settlement throughout the area. Natural water courses in the study area draining to Lake St. Clair include the following:

- Pike Creek
- Puce River
- Belle River
- Duck Creek
- Moisson Creek
- Ruscom River
- Big Creek
- Little Creek

Due to the low-lying nature of the area, natural drainage is difficult to achieve and much land drainage is pumped to the lake. The Essex Region Conservation Authority has imposed development controls by establishing fill line levels that must be met by home owners and developers. In addition, much of the land long Lake St. Clair has been diked through the efforts of various property owners to prevent lake water intrusion.

### 3.2.5 Natural Vegetation

Essex County lies within the Niagara section of the Deciduous Forest region of Ontario. Favourable soil and climatic conditions allow for the extension of many species for Carolinian and prairie flora, making the region unique within Canada. The remnant broadleaf forests in Essex County are a resource of national importance. Several trees with sporadic occurrence on specialized sites reach their northern limits in the area. In addition to rare tree varieties, there are southern herbs and prairie vegetation found in specific areas.

Most of the study area was cleared many years ago, to allow for agricultural land uses; as a result, there are few stands of trees or wood lots. The existing tree stands and woodlots within the area provide erosion and wind protection along natural water courses.

### 3.2.6 Terrestrial and Aquatic Animal Life

Agricultural land uses support small animal wildlife including rabbits, raccoons, skunks, fox, and muskrat. This wildlife is adaptive to human activity and is expected to be maintained if existing land uses area also maintained within the study area.

### 3.2.7 Benthic Invertebrate Survey

A benthic invertebrate survey of watercourses receiving wastewater effluent within the Town was conducted by Stantec as part of the 2009 WWMPS development (Stantec, 2009). The purpose of this survey was to document the condition of the respective watercourses and to serve as documentation of environmental conditions under the EA process.

The impact of wastewater effluent from sewage treatment facilities within the Town has been documented in a biological study of the respective watercourses. The study, titled *Town of Lakeshore 2006 Benthic Invertebrate Survey*, was conducted in October 2006 (Stantec, 2006b).

The BioMAP Water Quality Index was developed as a measure of overall zoobenthic community health for southern Ontario streams. A BioMAP score of less than 14 indicates impairment of typical southern Ontario Streams. The BioMAP Water Quality Index from the six samples collected was consistently less than 6.0. The study concluded that there was no obvious impairment of the respective stream environments as a result of treated effluent discharged from any of the existing sewage treatment facilities in the Town of Lakeshore.

### 3.2.8 Natural Heritage

A desktop review was completed for the Project to assist in preliminary planning. The ERCA Interactive Mapping tool did not return any results of environmentally sensitive features (for example, Area of Natural and Scientific Interest, wetlands [provincially significant or otherwise], woodlands) within 50 m of the infrastructure where system improvements were identified (for example, Belle River and Stoney Point). Future phases of the study will include the location of existing natural heritage features and the identification of all natural heritage systems within the Town.

## 3.3 Cultural, Social, and Economic Environment

### 3.3.1 Town of Lakeshore Study Area

On January 1, 2000, the Town of Belle River and Townships of Maidstone, Rochester, Tilbury North, and Tilbury West amalgamated to form the Town of Lakeshore. Located in the northeastern portion of the County, the Town is geographically the largest municipality in the County, with an area of approximately 530 km<sup>2</sup> (Figure 1 located in Appendix A).

The municipality extends southward from the shores of Lake St. Clair generally between County Road 19 (Manning Road) on the west and Kent County Road 1 on the east and County Road No. 8 on the south. The Town is adjacent to the Towns of Tecumseh to the west, Kingsville and Essex to the south, and the Municipality of Chatham-Kent to the east.

The Town is comprised of a large geographic community with multiple urban centres and hamlets resulting from municipal restructuring, historical growth, and settlement trends. There are many separate developed areas within the Town, including:

- Maidstone
- Belle River
- Comber
- Stoney Point
- Lighthouse Cove
- Essex Fringe
- Rochester Place/Deerbrook
- St. Joachim
- North Woodslee
- South Woodslee
- Ruscom
- Staples

The Town is predominantly rural-agricultural. Most residents in the study area are employed in the City of Windsor and commute daily from that urban centres. Some residents are employed in local industrial and commercial centres in the Patillo/Advance and Belle River, areas as well as in the local agricultural industry.

Air quality in the area is good, with few industrial discharges that would impact local air quality. Noise level is acceptable, with some intrusion from flight path from Windsor Airport and the operation of the CN Railway and CPR, which run through the Town from east to west.

The Town has a good road system with a full range of utilities including hydro, power, water, natural gas, and telephone.

### 3.3.2 Official Plan

The Town previously consolidated the official plans from each of the five former municipalities into a single plan, which resulted the 2006 OP. The Town's OP was updated in 2010 and was prepared in accordance with the *Planning Act* (MMM Group, 2010). The Town is currently undertaking a subsequent OP update concurrent to the development of this Master Plan Update.

The Town's OP establishes the goals, objectives, and policies to manage and direct change within the Town. The OP update is based on a Growth Analysis Study completed in 2015 by Watson Associates Economists Ltd. (Watson).

The OP implements the direction of the Provincial Policy Statement and provides guidance to Town Council in consideration of their responsibilities, and provides direction and certainty to the Town's residents and businesses.

The OP regulates and control development and planning policies in the study area and will continue to be updated to account for changes to the physical and social environment of the community.

# Growth, Water Demand, and Wastewater Flow Projections

## 4.1 Community Growth Projections

### 4.1.1 Introduction

The growth projections for the WWMPS form the basis for establishing water demand and wastewater flow rate assumptions and ultimately the future servicing plans.

Residential and non-residential growth projections have been based on a report prepared for the Town of Lakeshore by Watson entitled *Town of Lakeshore – Official Plan Review – Growth Analysis Study – November 27, 2015 (Growth Forecast)* (Watson, 2015).

The purpose of the Growth Forecast was to conduct a comprehensive review of growth and development trends in the Town relating to population, households, and employment growth and establish forecasts in each of these sectors based on past performance and future prospects, as well as a comparative review of population forecasts for surrounding municipalities within Essex County.

The Growth Forecast was intended to help guide the Town for long-term planning decision-making specifically related to growth management and residential/non-residential lands needs analyses within the Town's identified key growth areas.

This Master Plan update is not intended to direct where growth should proceed but to evaluate the servicing requirements based on the reasonable growth projections established for planning purposes.

The OP ultimately establishes the framework for managing growth and development within the Town. This Master Plan update, the OP, and several other long-term planning initiatives have generally been conducted concurrently and an emphasis has been placed by the Town to provide consistency throughout these studies.

### 4.1.2 Population Projections

Existing and projected populations for this Master Plan update were developed for the 20-year planning horizon based on the Growth Forecast as summarized in Table 4-1.

The urban and rural areas generally coincide with the key growth areas established in the Growth Forecast.

Table 4-1. Summary of Population Forecast

Development Location	Existing (2015)	20-Year (2035) <sup>a</sup>	Growth (2015-2035)	Unit Density Persons per Unit	
				2015	2035
Maidstone	22,500	26,200	3,700	3.00	2.86
Shoreline Development	860	930	70	2.49	2.42
Comber	1,050	1,070	20	2.63	2.52
Belle River Strip	920	1,090	170	2.83	2.68
Lighthouse Cove	600	1,070	470	2.11	2.44
Stoney Point	1,420	2,190	770	2.68	2.75
North/South Woodslee <sup>b</sup>	910	1,060	150	2.80	2.74
North Woodslee	510	590	80	2.80	2.74
South Woodslee	400	470	70	2.80	2.74
Hamlet Communities <sup>b</sup>	780	870	90	2.33	2.30
Rochester Place/Deerbrook	278	310	32	2.33	2.30
St. Joachim <sup>c</sup>	376	410	34	2.33	2.30
Ruscom <sup>c</sup>	30	40	10	2.33	2.30
Staples <sup>c</sup>	96	110	14	2.33	2.30
Essex Fringe	260	370	110	2.60	2.69
Rural	6,880	7,010	130	2.48	2.39
<b>Total Population</b>	<b>36,180</b>	<b>41,860</b>	<b>5,680</b>	<b>2.80</b>	<b>2.71</b>

Source: pers. Comm., Watson, 2017

Notes:

<sup>a</sup> 2035 population forecasts derived from the 2031 forecasts prepared through the Town of Lakeshore Official Plan Review Growth Study prepared by Watson & Associates Economists, Ltd., November 2015. The population forecast to 2035 has been extrapolated in accordance with the Town of Lakeshore Official Plan Review Growth Study.

<sup>b</sup> Population and distribution of growth within the North/South Woodslee and the Hamlet Communities are derived from Statistics Canada 2011 and 2016 Census and building permit activity obtained from the Town of Lakeshore. Growth allocation for the Hamlet communities and the North/South Woodslee areas are based on the share of the 2015 population.

<sup>c</sup> Hamlet communities grouped as Highway 401 Corridor development location

### 4.1.3 Non-residential Growth Projections

In addition to residential growth projections, non-residential forecasts of industrial and commercial growth were also considered for the 20-year planning horizon of this Master Plan update. A summary of projected industrial and commercial growth for key areas are presented in Table 4-2. Plan maps of each development location are presented in Figures 9 to 13 in Appendix A.

Table 4-2. Non-Residential Growth Projections (ha)

Development Location <sup>a</sup>	Total Area	Existing (2015)	20-year (2035)	20 Year Growth (2015-2035) <sup>b</sup>
<b>Industrial</b>				
Blanchard Industrial Park	13	10.5	13	2.5
Sylvestre Industrial Park	16	10	16	6
Patillo Road Industrial Park North	133	103	121.4	18.4
Patillo Road Industrial Park South	66	6.4	108.1	42.1
Markham Industrial Park	4	2.8	4	1.2
Patillo/Advance Industrial Park	88	0	0	0
Manning Road/Little Baseline Corridor	35	0	0	0
Wallace Woods	40	0	10	10
Schwab Industrial Park	12	0	6	6
Stoney Point Industrial Area	95	0	0	0
Labin Industrial Park	1	0	0	0
Armtec Industrial Area	5	3	3	0
<b>Subtotal (Industrial)</b>	<b>508</b>	<b>135.7</b>	<b>281.5</b>	<b>86.2</b>
<b>Commercial</b>				
St. Clair Shores Corridor	43	20	33	13
Wallace Woods	80	0	5	5
Manning Road/County Road 22 Corridor	25	0	10.3	10.3
Manning Road/Little Baseline Corridor	40	0	0	0
Comber Truck Stop Corridor	12	10.2	12	1.8
<b>Subtotal (Commercial)</b>	<b>200</b>	<b>30.2</b>	<b>60.3</b>	<b>30.1</b>
<b>Other</b>				
Comber Multi-Purpose Potential Development	96	0	4	4
<b>Subtotal (Other)</b>	<b>96</b>	<b>0</b>	<b>4</b>	<b>4</b>

Source: Watson, 2017 (source email)

Notes:

<sup>a</sup>. Development location defined by Town of Lakeshore, delineated based on parcels zoned in the Town of Lakeshore Zoning Bylaw.

<sup>b</sup>. Industrial and commercial absorption forecast derived from Town of Lakeshore Official Plan Review Growth Study prepared by Watson & Associates Economists Ltd., November 2015. The location of employment absorption within the Town of Lakeshore is based on available land supply (by servicing status) and historical development trends. Commercial land absorption includes commercial and institutional developments on commercial sites. It is assumed that 35 percent of institutional development will occur on commercial sites which was informed by historical non-residential building permit activity for the Town of Lakeshore.

## 4.2 Existing and Projected Water Demands

Prediction and planning for water demand is one of the most important elements of water supply master planning. The historical water supply and consumption records for the Belle River and Stoney Point water supply systems were evaluated to establish existing and projected 20-year water demands.

Table 4-3 and Figure 4-1 summarize historical annual flow-metering data for the Lakeshore WTP for the years 2007 to 2016.

Table 4-3. Belle River Water Treatment Plant Historical Flow Data

Parameter	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Raw Water (m <sup>3</sup> x1000)	3,392	3,238	3,155	3,243	3,065	3,204	2,961	3,059	3,125	3,440
Total Treated Effluent (m <sup>3</sup> x1000)	2,959	2,788	2,767	3,079	2,898	3,073	2,853	2,988	3,034	3,322
Min. Day Demand (m <sup>3</sup> /day)	5,529	5,592	4,808	5,943	5,392	6,045	6,039	3,408	5,615	6,264
Average Day Demand (m <sup>3</sup> /day)	8,107	7,617	7,582	8,434	7,939	8,395	7,817	8,186	8,311	9,076
Max Day Demand (m <sup>3</sup> /day)	14,852	13,606	12,417	16,974	14,768	16,665	13,454	12,596	12,039	15,927
(date of occurrence)	Jul 15	Sep 1	Aug 5	Jul 5	Jul 21	Jul 2	May 20	Jul 6	Aug 1	Jun 26

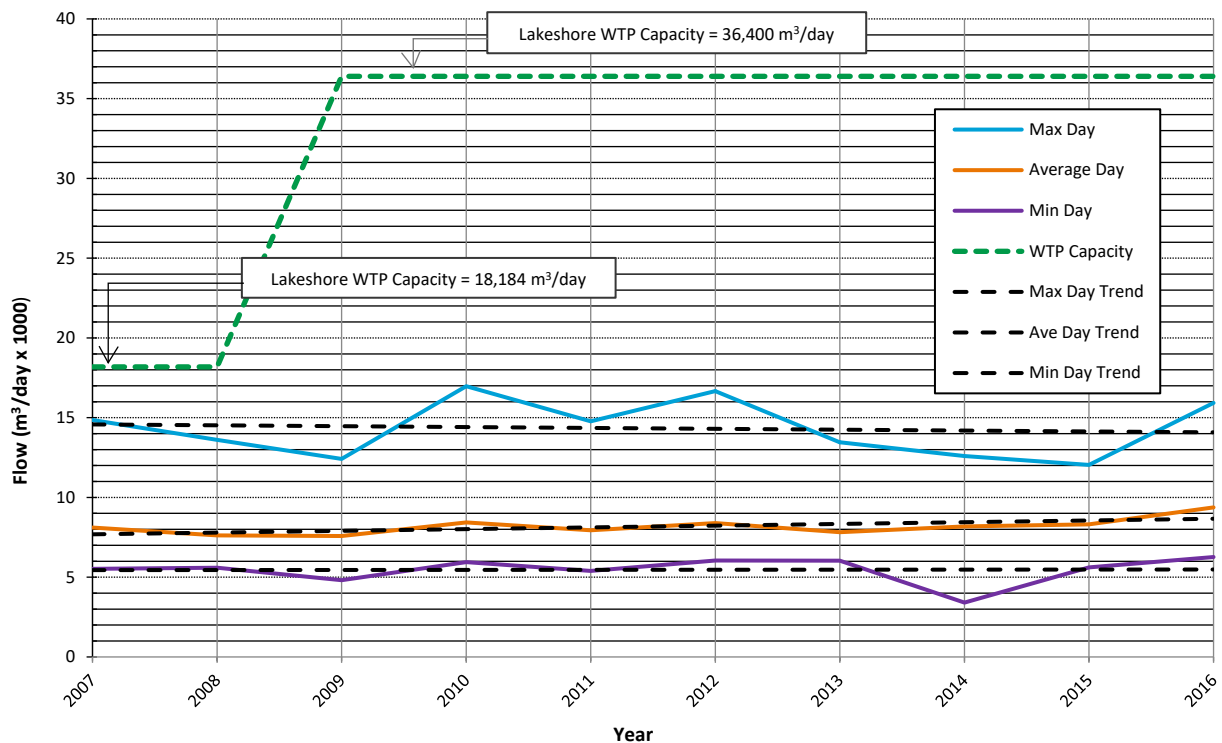


Figure 4-1. Belle River WTP Historical Flows



In the absence of suitable, dedicated metering data for the major water consumers (residential-industrial-commercial) in the BRWSS, representative unit average day demands were established and agreed upon with Town representatives based on a review of the historical WTP flow-metering data and broken down into three categories as follows:

- Residential – 300 L/cap/day (66 lgal/cap/day)
- Industrial – 6,800 L/ha/day (or 22.67 people/ha/day @ 300 L/cap/day)
- Commercial – 11,400 L/ha/day (or 38 people/ha @ 300 L/cap/day)

From the above graph, both the year-on-year average and minimum day demands show a slight but steady increase in system water usage and overall water demand. This increase is likely due to population growth; however, it is tempered by slightly decreasing per capita water usage rates and declining household densities and increased water efficiency practices; a trend that has been well-documented and reported by many other municipalities and water utilities across Ontario.

Table 4-4 summarizes the existing and 20-year water demand projections for the Belle River WSS.

Table 4-4. Existing and Projected Water Demands – Belle River Water Supply System

	Existing (2015)		20-Year (2035)	
<b>Component</b>				
Residential Area - Estimated Residential Equiv. Service Population	29,560		39,040	
Industrial Area (ha) - Estimated Industrial Equiv. Service Population	132.7 ha	3,010	132.7 ha	3,010
Commercial Area (ha) - Estimated Commercial Equiv. Service Population	20 ha	760	20 ha	760
<i>Total Estimated Equivalent Service Population<sup>a</sup></i>	33,330		45,700	
<b>Water Demand</b>				
Residential (@ 300 L/cap/day) ( $m^3/day$ )	8,870		11,713	
Industrial (@ 6,800 L/ha/day) ( $m^3/day$ )	902		1,448	
Commercial (@ 11,400 L/ha/day) ( $m^3/day$ )	228		551	
<i>Total Average Day Water Demand (<math>m^3/day</math>)</i>	10,000		13,712	
<i>Maximum Day Peaking Factor<sup>b</sup></i>	1.80		1.80	
<b>Total Calculated Maximum Day Water Demand (<math>m^3/day</math>)</b>	<b>18,000</b>		<b>24,680</b>	

Notes:

<sup>a</sup>. 2015 and 2035 projections include consumers presently serviced by the TWSS.

<sup>b</sup>. Maximum day peaking factor based on MOECC Design Guidelines.

Table 4-5 and Figure 4-2 summarizes the historical annual flow data for the Stoney Point WTP for the years 2007 to 2016.

Table 4-5. Stoney Point Water Treatment Plant Historical Flows

Parameter	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (to Nov 6)
Total Raw Water (m <sup>3</sup> x1000)	750	738	731	734	761	726	710	731	832	637
Total Treated Effluent (m <sup>3</sup> x1000)	722	696	692	610	638	625	620	646	748	569
Min. Day Demand (m <sup>3</sup> /day)	1,412	1,504	1,418	1,164	1,195	1,085	1,190	1,405	1,438	1,234
Average Day Demand (m <sup>3</sup> /day)	1,977	1,901	1,897	1,676	1,748	1,708	1,699	1,769	2,051	1,822
Max Day Demand (m <sup>3</sup> /day)	2,971	3,140	2,690	2,471	2,803	3,414	2,710	2,511	2,794	2,807
(date of occurrence)	Sep 3	Sep 1	Aug 31	Sep 6	Sep 24	Jul 2	Aug 25	Sep 1	Aug 30	May 15

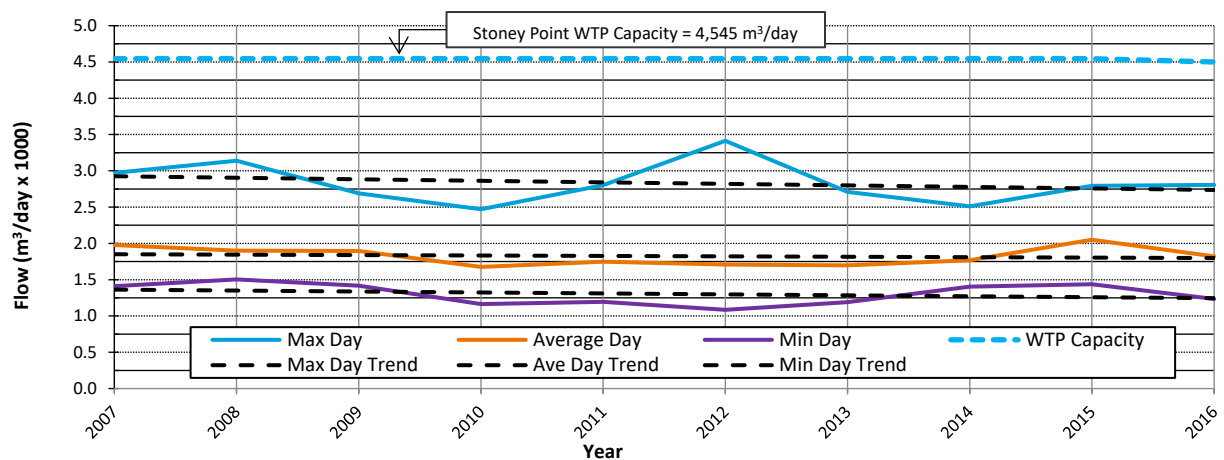


Figure 4-2. Stoney Point Historical Flows

In the absence of suitable dedicated metering data for the major water consumers (residential-industrial-commercial) in the SPWSS, representative unit average day demands were established and agreed upon with Town representatives based on a review of the historical WTP flow metering data and broken down into three categories as follows:

- Residential – 300 litres per capita per day (L/cap/day) (66 lgal/cap/day)
- Industrial – 6,800 litres per hectare per day (L/ha/day) (22.67 people/ha @ 300 L/cap/day)
- Commercial – 11,400 L/ha/day (38 people/ha @ 300 L/cap/day)

From Figure 4-2, both the year-on-year average and minimum day demands show a slight reduction in system water usage and overall water demand. This reduction is likely due to decreasing per capita water usage rates coupled with declining household densities and increased water efficiency practices; a trend that has been well documented and reported by many other municipalities and water utilities across Ontario.

Table 4-6 summarizes the existing and 20-year water demand projections for the SPWSS.

Table 4-6. Existing and Projected Water Demands – Stoney Point Water Supply System

<b>Component</b>	<b>Existing (2015)</b>		<b>20-Year (2035)</b>	
	Residential Area - Estimated Residential Equiv. Service Population	6,125		7,270
Industrial Area (ha) - Estimated Industrial Equiv. Service Population	6 ha	136	16 ha	364
Commercial Area (ha) - Estimated Commercial Equiv. Service Population	10.23 ha	389	12 ha	456
<i>Total Estimated Equivalent Service Population</i>	6,650		8,090	
<b>Water Demand</b>				
Residential (@ 300 L/cap/day) ( $m^3/day$ )	1,838		2,182	
Industrial (@ 6,800 L/ha/day) ( $m^3/day$ )	41		109	
Commercial (@ 11,400 L/ha/day) ( $m^3/day$ )	117		137	
<i>Total Average Day Water Demand (<math>m^3/day</math>)</i>	1,995		2,427	
<i>Maximum Day Peaking Factor<sup>a</sup></i>	2.00		2.00	
<b>Total Calculated Maximum Day Water Demand (<math>m^3/day</math>)</b>	<b>3,990</b>		<b>4,854</b>	

Notes:

<sup>a</sup> Maximum day peaking factors based on MOECC Design Guidelines.

### 4.3 Existing and Projected Wastewater Flows

Sanitary sewage flows are made up of waste discharges from residential, commercial, industrial, and institutional establishments, plus extraneous flow from inflow and infiltration such as groundwater and surface runoff.

Table 4-7 summarizes historical annual sewage flows to the existing wastewater treatment facilities in the Town.

Table 4-7. Historical Wastewater Flows

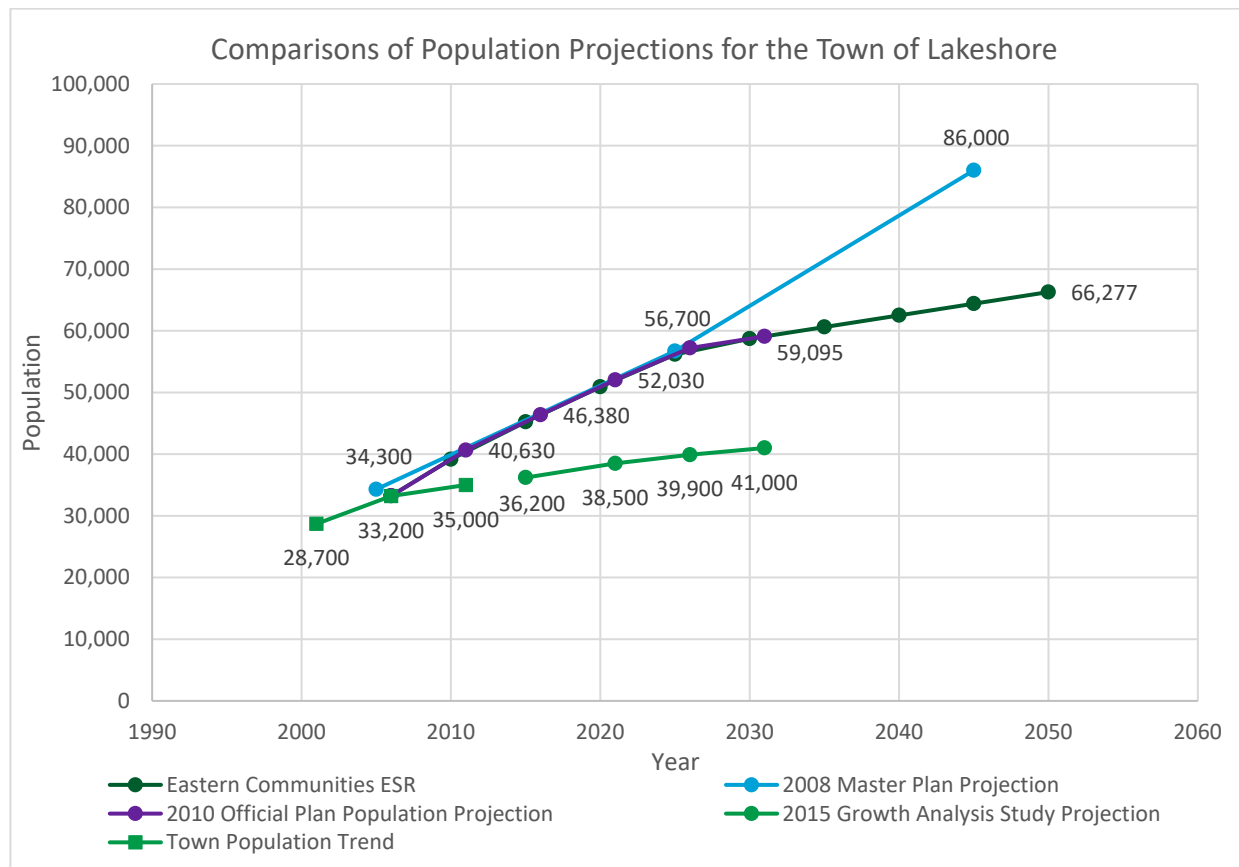
<b>Existing Treatment Facility</b>	<b>Average Daily Sewage Flow (<math>m^3/day</math>)</b>										
	<b>2002<sup>a</sup></b>	<b>2003<sup>a</sup></b>	<b>2004<sup>a</sup></b>	<b>2005<sup>a</sup></b>	<b>2006<sup>a</sup></b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Belle River/Maidstone Area (Denis St. Pierre WPCP)	6,067	6,802	7,820	7,636	8,243	13,819	8,089	9,646	11,302	11,887	12,143
Stoney Point STF	951	914	1,091	976	1,156	1,393	836	913	1,049	1,197	1,018
Comber STF	355	370	384	362	406	334	204	204	288	264	270
South Woodslee STP <sup>b</sup>			81	71	61	67	46	51	50	49	49
North Woodslee						21	19	33	35	30	37

Notes:

<sup>a</sup> Years 2002 to 2006 (Stantec, 2009)<sup>b</sup> South Woodslee STP placed into operation in 2003 (Stantec, 2009)

Several population projections have been completed in the last 10 years; a comparison of the various population projections was conducted to determine the potential impacts on wastewater alternatives due to change in anticipated growth.

Figure 4-3 illustrates a comparison of the four population projections completed within the last 10 years for the Town.



Sources: Town of Lakeshore Water and Wastewater Master Plan (Stantec, 2009), Town of Lakeshore Official Plan (MMM Group, 2010), Growth Analysis Study (Watson & Associates Economists Ltd., 2015)

Figure 4-3. Comparison of Population Projections

Table 4-8 provides wastewater flow projections for the present and future for existing, future, and potential wastewater service areas. These wastewater projections are based on population projections determined by Watson in 2015 (Watson, 2015). The average per capita sewage flows and extraneous flow assumptions made in the 2009 WWMPS were reviewed and compared with actual daily sewage flows. Flows projected for 2015 were compared with measured raw sewage flows for 2015, and assumptions for per-capita and extraneous flows were adjusted based on how well the actual flows compared with the projected flows.

Table 4-8. Existing and Projected Average Daily Wastewater Flows

Service Areas	Wastewater Flow (m <sup>3</sup> /d)	
	Existing (2015)	20-year (2035)
<b>1. Denis St. Pierre (Belle River/Maidstone) <sup>a</sup></b>		
Existing Service Area (455 lpcpd)	10,660	12,420
Wallace Woods Future (6.8 m <sup>3</sup> /ha/day)	0	102
Manning/County Road 22 Future (6.8 m <sup>3</sup> /ha/day)	0	70
Manning Road/Little Baseline Corridor (6.8 m <sup>3</sup> /ha/day)	0	0
Patillo/Advance Future Industrial (6.8 m <sup>3</sup> /ha/day)	0	0
Blanchard Industrial Park (6.8 m <sup>3</sup> /ha/day)	71	88

Table 4-8. Existing and Projected Average Daily Wastewater Flows

Service Areas	Wastewater Flow (m <sup>3</sup> /d)	
	Existing (2015)	20-year (2035)
Sylvestre Industrial Park (6.8 m <sup>3</sup> /ha/day)	68	109
Patillo Road Industrial Park North (6.8 m <sup>3</sup> /ha/day)	700	826
Patillo Road Industrial Park South (6.8 m <sup>3</sup> /ha/day)	44	735
Markham Industrial (6.8 m <sup>3</sup> /ha/day)	19	27
St. Clair Shores Corridor (6.8 m <sup>3</sup> /ha/day)	136	224
<i>Total – Denis St. Pierre (Belle River/Maidstone)</i>	<i>11,698</i>	<i>14,601</i>
<b>2. Stoney Point <sup>a</sup></b>		
Existing Service Population (455 lpcpd)	646	646
Projected Future Growth (455 lpcpd)		350
Estimated Contribution from I/I <sup>b</sup>	551	551
Stoney Point Industrial Park (6.8 m <sup>3</sup> /ha/day)	0	0
<i>Total – Stoney Point</i>	<i>1,197</i>	<i>1,547</i>
<b>3. Comber</b>		
Existing Service Area (251 lpcpd) <sup>c</sup>	264	269
Potential Truck Stop (per preliminary information) <sup>a</sup>	70	182 <sup>d</sup>
Schwab Industrial Park (6.8 m <sup>3</sup> /ha/day)	0	41
Comber Multi-Purpose Potential Development (6.8 m <sup>3</sup> /ha/day)	0	27
Labin Industrial Park (6.8 m <sup>3</sup> /ha/day)	0	0
Armtec Industrial Area (6.8 m <sup>3</sup> /ha/day)	0	0
<i>Total – Comber</i>	<i>334</i>	<i>519</i>
<b>4. South Woodslee (225 lpcpd) <sup>d</sup></b>	<i>90</i>	<i>106</i>
<b>5. North Woodslee (225 lpcpd) <sup>d</sup></b>	<i>115</i>	<i>133</i>
<b>6. Lighthouse Cove (455 lpcpd) <sup>a</sup></b>	<i>273</i>	<i>487</i>
<b>7. Rochester Place (455 lpcpd) <sup>a</sup></b>	<i>126</i>	<i>141</i>
<b>8. Highway 401 Corridor (455 lpcpd) <sup>a</sup></b>	<i>228</i>	<i>255</i>
<b>9. Essex Fringe (455 lpcpd) <sup>a</sup></b>	<i>118</i>	<i>168</i>

Notes:

<sup>a</sup>. Assumptions for per capita daily flow rate and flow rate per hectare of commercial or industrial areas have been maintained from the 2009 WWMPS (Stantec, 2009)

<sup>b</sup>. Extraneous flows was estimated based on wet weather flows approximated through review of daily raw sewage inflows at the wastewater treatment plant.

<sup>c</sup>. Average flow per capita per determined based on measured flows.

<sup>d</sup>. Based on estimate of average per capita flows based on measured flows, the minimum MOECC design guideline flow rate is assumed (MOECC, 2008).

lpcpd = litre per capita per day

The 2015 projected and actual flows matched well for the Denis St. Pierre WPCP uses the assumptions stated in the 2009 WWMP (Stantec, 2009). Actual flows were evaluated for Stoney Point, Comber, and North and South Woodslee to evaluate assumptions for average per-capita flows for those service areas. A review of the Stoney Point flow projections found that 2015 flows were underestimated, and a review of the raw sewage flow data found significant responses indicative of wet weather flows. It was determined that these extraneous flows would likely not grow with population as is unlikely to increase with the expansion of the service area as new sewers will have lower extraneous flows than the existing network. Projections for the Comber service area were initially significantly overestimating 2015 flows in comparison with measured flows, therefore average litres per capita was computed based on recent measured flows and used for projecting wastewater flows to 2035. A similar approach was applied to North and South Woodslee; in this case, the average per capita flows were less than the MOECC minimum design guideline flow rate; therefore, the minimum recommended design guideline flowrate was used for the purposes of wastewater flow projections to 2035. Additional data were unavailable for the unserved areas; therefore, the assumptions were maintained from the 2009 WWMP (Stantec, 2009).

Technical Memorandum 1, located in Appendix C, reviewed and summarized the wastewater background materials relevant to this master plan update. A detailed comparison of the various population projections that have been performed in the last 10 years for the Town to examine how population projections can inform recommendations made in the 2009 WWMP. See Appendix C for the detailed comparison of population projections.

The comparison of population projections found that recent population projections are significantly less than those performed ahead of the 2009 WWMP. The reduction in population projections will lessen projected wastewater flows and will inform the wastewater project recommendations. Anticipated impacts on wastewater alternative recommendations fall into two categories:

1. **Growth based recommendations**, such as additional capacity at existing wastewater treatment facilities due to anticipated changes in development rather than anticipated additional capacity due to connecting existing un-served areas. These recommendations may simply be delayed into the future.
2. **Recommendations not tied to growth**, which include:
  - Recommendations to provide new servicing strategies (such as those for the Eastern Communities and Woodslee) may not be impacted by changes in population and flow projections. These are decisions about servicing strategy and are not directly tied to population growth.
  - The Denis St. Pierre WPCP's available capacity to accommodate flows from new service areas may require re-evaluation as the 2009 WWMP flow projections include development areas identified in the Town's updated OP for development (such as the Patillo Road/Advance employment lands). Changes to these recommendations will be more dependent on the Town's current development strategy as identified through the ongoing OP development, rather than due to population growth.

# Assessment of Existing Municipal Water Supply Systems

## 5.1 General

The Town directly owns and operates the Belle River and Stoney Point water supply systems. The primary focus of the Water component of this Master Plan Update is to evaluate the ability of the treatment, pumping, storage, and watermain components of the Belle River and Stoney Point water supply systems to meet existing and projected water demands and identify constraints, improvements, modifications, or a combination thereof.

A high-level overview to resupply the Lakeshore-Tilbury-Wheatley water service area from the SPWSS was considered, however, it was not reviewed further for the CKPUC has demonstrated its willingness to supply this area for the foreseeable long-term future. Servicing this area from Lakeshore's SPWSS would be possible, however, it would be prohibitively expensive due to the long watermain infrastructure that would need to be constructed from the Stoney Point WTP.

### 5.1.1 Average Day, Maximum Day and Peak Hour Demands

Average day, maximum day, and peak hour demands are key design parameters when determining water system infrastructure needs. The average day demand is the total volume of water consumed in the system over the entire year divided by 365 days. The maximum day demand is the highest single day water consumption in a given year and is the main design parameter for determining the size of water treatment facilities. Peak hour demand is the highest single hour water demand on the maximum day. Typically, maximum day and peak hour demands are established by multiplying the average day demand by a corresponding factor. MOECC Design Guidelines for water distribution systems provide a table setting out maximum day and peak hour rate factors for systems using equivalent service populations as summarized Table 5-1.

Table 5-1. MOECC Peaking Factor Guidelines

Equivalent Population (Persons)	Maximum Day Factor	Peak Hour Facto
500 - 1,000	2.75	4.13
1,001 - 2,000	2.50	3.75
2,001 - 3,000	2.25	3.38
3,001 - 10,000	2.00	3.00
10,001 - 25,000	1.90	2.85
25,001 - 50,000	1.80	2.70
50,001 - 75,000	1.75	2.62
75,001 - 150,000	1.65	2.48
Greater than 150,000	1.50	2.25

An equivalent service population takes into account not only the actual number of persons in the system but an equivalent number considering non-residential demands from industrial, commercial and institutional consumers.

## 5.1.2 Storage Requirements

Water supply systems should maintain sufficient clear water storage to provide for peak hour demands (that is, equalization storage to supplement system supply during periods when demand exceeds the available output from the WTP), fire flow requirements, and other emergency conditions.

MOECC Design Guidelines establish parameters for the sizing and design of clear water storage facilities. In addition, storage at treatment plants should also account for in-plant water use attributed to various treatment processes (that is, filter backwashing, chemical feed makeup, and the like).

Clear water storage may be contained in underground reservoirs or pump wells or in elevated storage tanks. The amount of storage is a function of the system maximum day demand and equivalent service population for the water service area. Equivalent service populations are also used to establish the overall community fire demand. MOECC Guidelines for sizing community water storage facilities is based on the following equation:

$$\text{TOTAL STORAGE REQUIREMENT} = A + B + C$$

where: *A = Fire Storage (based on MOECC fire flow table)*

*B = Equalization Storage (25% of maximum day demand)*

*C = Emergency Storage (25% of A + B)*

*This equation applies where the water treatment plant is capable of satisfying only the maximum day demand. For situations where the water treatment plant can supply more, the above storage requirements can be reduced accordingly.*

### 5.1.2.1 Fire Storage

Storage for fire protection is based on recommended fire flows per MOECC guidelines based on varying durations and size of service population. Recommended fire flows given in the MOECC guidelines are summarized (in part) in Table 5-2.

Table 5-2. MOECC Fire Flow Guidelines

Equivalent Population (Persons)	Suggested Fire Flow (L/s)	Duration (hours)
5,001 - 6,000	144	2
6,001 -10,000	159	3
10,001 - 13,000	189	3
13,001 - 17,000	220	3
17,001 - 27,000	250	4
27,001 - 33,000	318	5
33,001 - 40,000	348	5
>40,000	378	6

The fire storage (A) component, together with emergency storage (C) component, is typically located below the equalization storage (B) within a storage facility between that elevation necessary to produce 275 kPa (40 psi) under peak hour flow conditions and that elevation necessary to produce 140 kPa (20 psi) under maximum day plus fire flow conditions.

### 5.1.2.2 Equalization Storage

Equalization storage is provided to supply water during periods when the demand exceeds the output from the WTP. WTPs in large urban centres are usually designed with a capacity to meet the maximum-day water demand. Equalization storage requirements are based on MOECC guidelines where it should equal 25 percent of the maximum day demand.



The equalization storage (B) component is located between the top water level of a storage facility and that elevation necessary to produce a minimum pressure of 275 kPa (40 psi) in the majority of the distribution system under peak hour flow conditions.

### 5.1.2.3 Emergency Storage

Storage for emergency situations is based on MOECC guidelines where it equals 25 percent of the total of fire plus equalization storage. The emergency storage (C) component, together with fire storage (A) component, is typically located below the equalization storage (B) within a storage facility between that elevation necessary to produce 275 kPa (40 psi) under peak hour flow conditions and that elevation necessary to produce 140 kPa (20 psi) under maximum day plus fire flow conditions.

## 5.1.3 Water Distribution Systems

### 5.1.3.1 System Pressure Requirements

MOECC Design Guidelines recommend that water distribution systems should be capable of supplying water under the following four conditions:

1. Peak hour flow while maintaining a minimum residual pressure of 275 kPa (40 psi) in the system
2. Maximum day plus fire flow with a minimum residual pressure of 138 kPa (20 psi)
3. Under normal conditions, residual pressures ranging between 350 to 550 kPa (50 to 80 psi)
4. Maximum pressure not exceeding 700 kPa (100 psi)

### 5.1.3.2 Fire Protection

The level of fire protection provided by a municipality-owned water supply system is determined by the municipality. Fire flow requirements are typically determined using the Fire Underwriters Survey document, *Water Supply for Public Fire Protection* (FUS, 1999). The minimum fire flow recognized by the FUS is 30 L/s and to receive credit, the water supply system must be capable of satisfying the simultaneous maximum day demand plus fire flow requirement.

The water distribution systems within the Town were intended to provide fire protection in urbanized areas only. Distribution systems located within rural areas were only intended to provide an adequate potable water supply to existing and future consumers and not a piped water supply for fire protection purposes. Provision for fire flow to each portion of the distribution system would result in a much larger and more costly distribution system. However, it may be possible that in some rural areas, some level of fire protection can be provided particularly along trunk watermains.

Fire hydrants are provided in the rural distribution system at select road intersections and at system extremities primarily for flushing and cleaning purposes while also serving as a source of water to fill pumper trucks for firefighting. The actual amount of fire flow that can be supplied by the distribution system during maximum day demand conditions can only be confirmed through hydrant flow testing in the field.

The FUS fire flows are specific to criteria such as building type, construction material, and population density. The latest FUS requires each fire flow to be calculated using a formula that takes such criteria into consideration. For example, a modern residential subdivision of one- and two-storey single-family homes with separation distances of 3 to 6 m requires a fire flow of 67 to 83 L/s, whereas a typical industrial park with average combustible contents requires a fire flow of 233 L/s. Depending on the structure, FUS notes that fire flows for industrial applications could reach up to 583 L/s.

In the absence of a detailed evaluation of specific building types throughout the Town and the establishment of site specific fire flow requirements, typical fire flow targets were adopted for the purposes of evaluating the existing distribution systems and improvements needed to satisfy projected future conditions.

For the purposes of this Master Plan update and the BRWSS, a fire flow target of 76 L/s was used for urbanized areas, whereas, a fire flow target of 227 L/s was used for areas with significant industrial/commercial/institutional development.

For the SPWSS, a fire flow target of 76 L/s was used for urbanized areas of the community of Stoney Point and 30 L/s in the community of Comber, whereas, a fire flow target of 152 L/s was used for industrial/commercial/institutional development in the community of Stoney Point and 30 L/s in the community of Comber.

Due to the limited capacities of the Stoney Point WTP, HRBPS, and CRBPS, fire flow targets must be kept to significantly lesser targets than the adjacent BRWSS.

### 5.1.3.3 Hydraulic Analysis

Computer modelling is a useful tool for analyzing the hydraulic behaviour of water distribution systems. While such analysis cannot simulate exact “real-life” conditions, they can be very useful in identifying “bottlenecks” in existing systems, as well as assisting in determining system improvements needed to satisfy both existing and future projected water demands.

WaterCAD, a Microsoft Windows-based software program originally developed by Haested Methods, was used to carry out the hydraulic modelling work. WaterCAD is used for its flexibility in modelling both steady-state (static) and extended period (dynamic) simulations. This capability allows for simulating filling and draining of tanks, regulating of control valves and associated pressure and flow rate changes throughout the system in response to varying demand. Dynamic simulations are more representative of real life conditions and allow the prediction of system behavior throughout the 24-hour cycle.

Hydraulic computer models were originally developed in the 2009 Lakeshore WWMPS for both the Belle River and Stoney Point WSSs, with the inputting of watermain characteristics including pipe diameter, length, friction factor, ground elevation, and average-day water demands. Maximum day demand diurnals were also developed using plant pumping and corresponding elevated tower level or reservoir records, or both. This diurnal was used to simulate dynamic conditions in both water supply systems over several days.

Both hydraulic models have since been updated to reflect both existing and projected 20-year conditions and used to analyze both water supply systems for the purposes of this Master Plan Update. Output from the model simulations were reviewed to assess the capabilities of the water system towards maintaining adequate residual pressures under peak hour and/or maximum day + fire flow conditions in accordance with MOECC Design Guidelines.

## 5.2 Belle River Water Supply System

### 5.2.1 Water Treatment Capacity

Table 5-3 summarizes the water treatment capacity requirements for the Belle River WSS for the present and 20-year servicing horizons based on the projected water demands established in Section 4.2.

Table 5-3. Water Treatment Capacity Requirements – Belle River Water Supply System

Belle River Water Supply System		Present (2015)	20-Year (2035)
Maximum Day Demand <sup>a</sup>	(m <sup>3</sup> /day)	18,000	24,680
In-Plant Water Usage <sup>b</sup>	(m <sup>3</sup> /day)	540	740
Nominal Plant Treatment Capacity	(m <sup>3</sup> /day)	36,400	36,400
<b>Treatment Surplus (+) / Deficiency (-) (m<sup>3</sup>/day)</b>		<b>+ 17,860</b>	<b>+ 10,980</b>

Notes:

<sup>a</sup>. Includes demands from areas presently serviced by the TWSS.

<sup>b</sup>. In-plant water usage assumed at 3% of nominal plant treatment capacity to account for treatment processes such as filter backwashing, make-up water for chemical feeds, etc.

Comparing the projected versus available plant treatment capacity, the following observations are noted for the BRWSS:

- Water treatment capacity at the Lakeshore WTP will be more than sufficient to supply both the present and projected 20-year water demands of the Belle River water service area.

## 5.2.2 Storage Capacity

Table 5-4 summarizes the water storage capacity requirements for the BRWSS for the present and 20-year servicing horizons, based on MOECC design guidelines and projected water demands established in Section 4.2.

**Table 5-4. Water Storage Capacity Requirements – Belle River Water Supply System**

<b>Belle River Water Supply System</b>		<b>Present (2015)</b>	<b>20-Year (2035)</b>
Maximum Day Demand <sup>a</sup>	(m <sup>3</sup> /day)	18,000	24,680
Equivalent Service Population		33,330	45,700
Fire Demand	(m <sup>3</sup> /day)	30,067	32,659
Duration	(hours)	5	6
Fire Storage	(m <sup>3</sup> )	6,264	8,165
Equalization Storage	(m <sup>3</sup> )	4,500	6,170
Emergency Storage	(m <sup>3</sup> )	2,691	3,584
In-Plant Water Usage <sup>b</sup>	(m <sup>3</sup> )	540	740
<b>Total Required Storage Capacity</b>	<b>(m<sup>3</sup>)</b>	<b>13,995</b>	<b>18,660</b>
<b>Currently Available Storage Capacity</b>			
Lakeshore WTP	(m <sup>3</sup> )	9,922	
Belle River Elevated Tower	(m <sup>3</sup> )	5,800	
Maidstone Elevated Tower	(m <sup>3</sup> )	1,500	
<b>Total Available Storage Capacity</b>	<b>(m<sup>3</sup>)</b>	<b>17,222</b>	
<b>Storage Surplus (+) / Deficiency (-) (m<sup>3</sup>)</b>		<b>+ 3,227</b>	<b>- 1,437</b>
<b>Year Additional Storage Required</b>			<b>2030</b>

Notes:

<sup>a</sup>. Includes demands from the areas presently serviced by the Tecumseh WSS.

<sup>b</sup>. In-plant water usage assumed at 3% of maximum day demand to account for treatment processes such as filter backwashing, make-up water for chemical feeds, etc.

Comparing the projected versus available total storage capacity, the following observations are noted for the BRWSS:

- Total available water storage capacity at existing treated water storage facilities more than satisfies the BRWSS's storage requirements (per MOECC Guidelines) at this time and should continue to do so for the foreseeable future. However, there will be insufficient storage capacity to meet the projected 20-year future needs of the water service area and based on projected water demands increasing uniformly with time, it is estimated that projected storage capacity will exceed available storage capacity by the year 2030.

## 5.2.3 Water Distribution System

### 5.2.3.1 Existing Conditions

The performance of the Belle River water distribution system was assessed to predict system behaviour under existing conditions using the updated Belle River WSS hydraulic model discussed in Section 5.1.3.3.

Hydraulic analyses were carried out under the dynamic simulation mode in which the high-lift pumps at the Lakeshore WTP are operated to fill the existing two water towers which “float” on the distribution system in unison. To better reflect real life conditions, modelling of the MWT included characteristics of an altitude valve, which at a pre-determined top water level, isolates the tower from the distribution system while the Lakeshore WTP high-lift pumps continue to operate and fill the Belle River Water Tower. Thus, it is largely the pressure developed by a combination of the high-lift pump discharge pressure and water levels in the two water towers that dictate the driving force and corresponding distribution pressures in the BRWSS.

The hydraulic analyses also took into consideration that the small area presently serviced by the TWSS between County Road 42 and Highway 401 would be resupplied from the BRWSS. For evaluation purposes, it was assumed that this area would be interconnected to the Belle River water distribution system along Sideroad 13-14.

Generally, system pressures were observed to be at or greater than the 40-psi benchmark throughout the urban and rural areas of the Belle River water service area under peak hour flow conditions. Water levels in the two water towers were also being maintained within their acceptable operating range.

However, system pressures less than 40 psi were observed in the southwestern industrial and rural areas, generally south of the County Road 22 and west of Patillo Road. Pressures in this area were also observed to drop to as low as 26 psi at the extreme southwestern boundary of the service area near Highway 401 and Manning Road. The primary reason for the lower pressures in this area is due to a combination of the relatively large head losses being experienced in the existing old cast iron 300-mm-diameter trunk watermain running along County Road 22 from County Road 25 (Puce River) westerly to Patillo Road and the rising ground elevations towards Highway 401. These low-pressure problems have been documented in past water supply studies and led to the past servicing arrangements from the TWSS.

Peak hour flows were also observed to being conveyed to all regions of the service area at acceptable flow velocities ( $\leq 1.5$  metres per second [m/s]) and headloss gradients ( $\leq 3.0$  metres per kilometre [m/km]).

In terms of fire protection capabilities, the following predictions were observed under maximum day plus fire flow conditions:

- i. That the “minimum recognized” fire flow target of 30 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:
  - Generally, east of Pike Creek and west of Ruscom River, all north of the CPR Corridor in the east and north of County Road 42 in the west
- ii. That the “Urban” fire flow target of 76 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:
  - Generally, east of Patillo Road and west of Gulfview Drive, all north of the CPR Corridor
- iii. That the “Industrial/Commercial/Institutional” fire flow target of 227 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:
  - Generally, east of Wallace Line Road and west of Duck Creek, all north of the CPR Corridor

In summary, the BRWSS is generally capable of maintaining a satisfactory level of service for the existing needs of the service area within the rural and urban areas. Less than adequate system pressures within the southwestern industrial and rural areas along with fire flows less than target in the western industrial and urban areas should be given serious consideration in the evaluation of future system improvements.

### 5.2.3.2 Future Conditions

The BRWSS was analyzed to determine whether it was capable of supplying the projected 20-year future water demands. The analyses were based on the assumption that the Lakeshore WTP would have sufficient treatment and pumping capacity to satisfy the projected 20-year future water demands and that the only constraints would be those imposed by the water supply system watermains.

The hydraulic analyses were also based on the assumption that the area presently serviced by the TWSS would be resupplied from the BRWSS. For evaluation purposes, it was assumed this area would be interconnected to the Belle River water distribution system along Sideroad 13-14.

Modelling results confirm that the existing water distribution system would not be capable of maintaining an adequate level of service to satisfy the projected 20-year future water demands of the service area.

## 5.3 Stoney Point Water Supply System

### 5.3.1 Water Treatment Capacity

Table 5-5 summarizes the water treatment capacity requirements for the SPWSS for the present and 20-year servicing horizons based on the projected water demands established in Section 4.2.

**Table 5-5. Water Treatment Capacity Requirements – Stoney Point Water Supply System**

Stoney Point Water Supply System		Present (2015)	20-Year (2035)
Maximum Day Demand	(m <sup>3</sup> /day)	3,990	4,854
In-Plant Water Usage <sup>a</sup>	(m <sup>3</sup> /day)	120	146
Nominal Plant Treatment Capacity	(m <sup>3</sup> /day)	4,545	4,545
<b>Treatment Surplus (+) / Deficiency (-) (m<sup>3</sup>/day)</b>		<b>+ 435</b>	<b>- 455</b>
<b>Year Additional Treatment Capacity Required</b>			<b>2026</b>

Notes:

<sup>a</sup> In-plant water usage assumed at 3% of nominal plant treatment capacity to account for treatment processes such as filter backwashing, make-up water for chemical feeds, etc.

Comparing the projected versus available plant treatment capacity, the following observations are noted for the SPWSS:

- Water treatment capacity at the Stoney Point WTP will be more than sufficient to supply the existing water demands of the Stoney Point water service area and should continue to do so for the foreseeable future. However, there will be insufficient treatment capacity to meet the projected 20-year future needs of the water service area and based on projected water demands increasing uniformly with time, it is estimated that projected treatment capacity will exceed available treatment capacity by the year 2026.

### 5.3.2 Storage Capacity

Table 5-6 summarizes the water storage capacity requirements for the SPWSS for the present and 20-year servicing horizons based on MOECC design guidelines and projected water demands established in Section 4.2.

**Table 5-6. Water Storage Capacity Requirements – Stoney Point Water Supply System**

<b>STONEY POINT WATER SUPPLY SYSTEM</b>		<b>Present (2015)</b>	<b>20-Year (2035)</b>
Maximum Day Demand	(m <sup>3</sup> /day)	3,990	4,854
Equivalent Service Population		6,650	8,090
Fire Demand	(m <sup>3</sup> /day)	13,738	13,738
Duration	(hours)	3	3
Fire Storage	(m <sup>3</sup> )	1,717	1,717
Equalization Storage	(m <sup>3</sup> )	998	1,214
Emergency Storage	(m <sup>3</sup> )	679	733
In-Plant Water Usage <sup>a</sup>	(m <sup>3</sup> )	120	146
<b>Total Required Storage Capacity</b>	<b>(m<sup>3</sup>)</b>	<b>3,513</b>	<b>3,809</b>
Currently Available Storage Capacity			
Stoney Point WTP	(m <sup>3</sup> )	1,727	
Haycroft Reservoir	(m <sup>3</sup> )	470	
Comber Reservoir	(m <sup>3</sup> )	1,074	
<b>Total Available Storage Capacity</b>	<b>(m<sup>3</sup>)</b>	<b>3,271</b>	
<b>Storage Surplus (+) / Deficiency (-)</b>	<b>(m<sup>3</sup>)</b>	<b>- 242</b>	<b>- 538</b>

Notes:

<sup>a</sup> In-plant water usage assumed at 3% of maximum day demand to account for treatment processes such as filter backwashing, make-up water for chemical feeds, etc.

Comparing the projected versus available total storage capacity, the following observations are noted for the SPWSS:

- The total available water storage capacity at existing treated water storage facilities is insufficient to satisfy the SPWSS's storage requirements (per MOECC Guidelines) at the present time and in the projected 20-year future growth scenario.

### 5.3.3 Water Distribution System

#### 5.3.3.1 Existing Conditions

The performance of the SPWSS water distribution system was assessed to predict system behavior under existing conditions using the updated SPWSS hydraulic model discussed in Section 5.1.3.3.

Hydraulic analyses were carried out under the dynamic simulation mode in which the high-lift pumps at the Stoney Point WTP are the supply source with a constant discharge pressure of 68 psi. This is representative of the existing high-lift pump discharge arrangement, which continuously pressurizes the distribution system in the absence of an elevated tower.

The model also included simulations of the HRBPS which supplies the rural areas between Stoney Point and Comber; and the CRBPS which supplies the community of Comber and surrounding rural areas south of Comber.

Thus, it is largely the pressures developed by the high lift pumping facilities at the Stoney Point WTP, HRBPS and CRBPS that dictate the driving force and corresponding distribution pressures in the SPWSS.

Generally, system pressures were observed to be at or greater than the 40 psi benchmark throughout the urban and rural areas of the Stoney Point water service area under peak hour flow conditions. Water levels in the two reservoir and booster pumping stations were also being maintained within their acceptable operating range.

However, system pressures less than 40 psi were observed in the following areas:

- West and northwest of the community of Comber along Rochester Townline Road near Auction Sideroad, Knapp Road and 5<sup>th</sup> Concession Road
- Northeast of the community of Comber along County Road 46 near County Road 37.

The primary reason for the lower pressures in these two areas is due to the long, unlooped small diameter 50-mm-diameter watermains running along these corridors.

The Town has not received reports of low-pressure concerns in these areas in the past, hence, it is reasoned that hydraulic simulations under “worst case” scenarios may be more demanding than actual conditions. None the less, the analyses do identify that these dead-end situations do represent areas that would benefit from looping.

Peak hour flows were also observed to being conveyed to most regions of the service area at acceptable flow velocities ( $\leq 1.5$  m/s) and headloss gradients ( $\leq 3.0$  m/km), except for a number of small 50-mm-diameter watermains in the rural areas where headloss gradients significantly exceed the 3.0 m/km benchmark due to the long distances they cover.

Significant headloss gradients exceeding the 3.0 m/km benchmark were also observed along the existing 200-mm-diameter trunk watermain on Comber Sideroad from the community of Stoney Point at Tecumseh Road to the community of Comber at Highway 401.

In terms of fire protection capabilities, it was observed that recognized fire flows can only be achieved within the urban centers of the communities of Stoney Point and Comber. The following are predictions observed under maximum day plus fire flow conditions:

- i. That the “minimum recognized” fire flow target of 30 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:

Community of Stoney Point

- Generally, south of St. Clair Road, north of Tecumseh Road, east of Columbus Drive, and west of Maple Ave.
- Along St. Clair Road east of Tecumseh Road and west of Couture Beach near County Road 37

Community of Comber

- Generally, south of the Conrail Corridor, north of County Road 46, east of Crabtree Street, and west of Main Street

- ii. That the “Urban” fire flow target of 76 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:

Community of Stoney Point

- Generally, south of St. Clair Road, north of Tecumseh Road, east of Columbus Drive and west of Hale Ave. and partial Maple Ave.
- Along St. Clair Road approximately 1,000 m west of the Stoney Point WTP and west of the eastern limits of St. Clair Road

- iii. That an “Industrial/Commercial/Institutional” fire flow target of 152 L/s could be achieved while maintaining a minimum system pressure of 20 psi throughout the system within the following areas:

Community of Stoney Point

- Generally, along St. Clair Road from the vicinity of the Stoney Point WTP to, easterly to Comber Sideroad

In summary, the SPWSS is generally capable of maintaining a satisfactory level of service for the existing needs of the service area within the rural and urban areas. Less than adequate system pressures within the rural areas northwest and northeast of Comber along with fire flows less than target in the eastern industrial and urban areas of Stoney Point and Comber should be given serious consideration in the evaluation of future system improvements.

### 5.3.3.2 Future Conditions

The SPWSS was analyzed to determine whether it was capable of supplying the projected 20-year future water demands. The analyses were based on the assumption that the Stoney Point WTP would have sufficient treatment and pumping capacity to satisfy the projected 20-year future water demands and that the only constraints would be those imposed by the water supply system watermains.

Modelling results confirm that the existing water distribution system would not be capable of maintaining an adequate level of service to satisfy the projected 20-year future water demands of the service area.

## 5.4 Problem Statements – Water

Based on the foregoing review, the following problems and needs have been identified for both the Belle River and Stoney Point WSSs to satisfy the needs of existing consumers as well as future growth based on projected 20-year water demands to 2035.

### 5.4.1 Belle River Water Supply System

- Additional clear water storage capacity of approximately 1,440 m<sup>3</sup> by Year 2030 will be required to meet MOECC Guidelines.
- Improvements to the existing water distribution system will be required to augment the existing pipeline network to convey the increased flows to meet projected water demand as well as improve the level of fire protection.

### 5.4.2 Stoney Point Water Supply System

- Additional treatment plant capacity of approximately 455 m<sup>3</sup>/day by Year 2026 will be required.
- Additional clear water storage capacity of approximately 540 m<sup>3</sup> will be required today to meet MOECC Guidelines.
- Improvements to the existing water distribution system will be required to augment the existing pipeline network to convey the increased flows to meet projected water demand as well as improve the level of fire protection.



# Assessment of Existing Wastewater Systems

The Wastewater Master Plan is composed of two components:

1. Assessment of existing wastewater treatment and collection systems
2. Identify settlement areas not serviced by municipal wastewater systems

The 2009 WWWMP (Stantec, 2009) identified a number of recommendations for both components identified. For the development of this Master Plan update, these recommendations will be reviewed with respect to changes within the existing wastewater systems and unserved settlement areas. Many of the recommendations were not implemented at the initiation of this master plan update, therefore the existing wastewater systems are largely unchanged from the observations recorded in the 2009 WWWMP.

## 6.1 Existing Wastewater Treatment Systems

The following sections focus on evaluating the capabilities of the existing wastewater treatment and conveyance systems to service the current and projected needs within the existing service areas.

There are five wastewater treatment and collection systems servicing the Town:

1. Denis St. Pierre (formerly Belle River/Maidstone)
2. Stoney Point
3. Comber
4. South Woodslee
5. North Woodslee

These systems are owned by the Town and operated by OCWA.

### 6.1.1 Wastewater Treatment Capacity

Table 6-1 presents the comparison of wastewater treatment capacities with the 3-year rolling averages for each treatment facility.

**Table 6-1. Wastewater Treatment Capacity Requirements**

Existing Wastewater Facility	Plant Design Capacity (m <sup>3</sup> /d) <sup>a</sup>	Wastewater Flow (m <sup>3</sup> /d)		Treatment Type
		3-Year Daily Average <sup>c</sup>	Future (2035)	
Denis St Pierre WPCP (Belle River/Maidstone Area)	13,640	10,945 <sup>d</sup> (80% of plant capacity)	14,601	EAAS
Stoney Point STF	920 <sup>b</sup>	1,051 <sup>d</sup> (114% of plant capacity)	996	Oxidation Pond
Comber STF	430	276 <sup>d</sup> (64% of plant capacity)	658	Oxidation Pond
North Woodslee STP	330	33 <sup>d</sup> (10% of plant capacity)	133	RBC
South Woodslee STP	210	50 <sup>d</sup> (24% of plant capacity)	106	RBC

Notes:

<sup>a</sup>. 2009 Lakeshore Water and Wastewater Master Plan (Stantec, 2009)

<sup>b</sup>. The MOE CoFA for the Stoney Point STF does not identify a rated treatment capacity for the facility. The stated capacity in this table, is based on the apparent rated capacity assuming two discharge periods per year and full utilization of the theoretical storage capacity. Actual treatment capacity will vary generally based on meeting effluent criteria. (Stantec, 2012)

<sup>c</sup>. Calculated 3-year rolling average.

<sup>d</sup>. Based on data available for 2013 to 2016

The comparison between the required and the available wastewater treatment capacity for each facility is described in the following subsections.

#### **6.1.1.1 Denis St. Pierre WPCP (formerly Belle River/Maidstone WPCP)**

The existing design capacity of the Denis St. Pierre WPCP is not adequate to accommodate the projected future flows from the Belle River/Maidstone wastewater service area. The estimated wastewater flow rate based on three year rolling average (2013 to 2015) is approximately 80 percent of the plant's design capacity. The 2009 WWWWMP identified that wastewater flows to the Denis St. Pierre WPCP will exceed the available capacity of the plant by the year 2023.

In 2013, CH2M conducted a sewer modelling exercise for the Denis St. Pierre WPCP collection system which identified that the Denis St. Pierre WPCP will likely reach 90 percent of plant capacity within 10 years (CH2M, 2013). This model prediction aligns with the current population projections.

However, a review of recent flow data at the Denis St. Pierre WPCP indicates that flow is increasing more quickly than predicted by population growth alone. As noted in Table 6-1, the Denis St. Pierre WPCP is currently at 80 percent of capacity. This indicates that the Town is likely to need additional capacity sooner than previously predicted. Based on the most recently available data, it is anticipated that the Town will need additional capacity at the Denis St. Pierre WPCP by 2020.

#### **6.1.1.2 Stoney Point STF Treatment Capacity**

The current treatment capacity of the Stoney Point STF is not adequate to accommodate the current and future wastewater flows from the existing wastewater service area. The estimated wastewater flow rate based on three year rolling average (2013 to 2015) is approximately 114 percent of the plant's design capacity. An ESR was completed by Stantec in 2012 (Stantec, 2012) to initiate the process of combining the capacities of Stoney Point and Comber STF into a single treatment facility.

#### **6.1.1.3 Comber STF Treatment Capacity**

The current treatment capacity of the Comber STF is not adequate to accommodate the projected future wastewater flows from the existing Comber service areas. Although the estimated wastewater flow rate based on three year rolling average (2013 to 2015) is approximately 64 percent of the plant's design capacity, it is anticipated that the Comber STF will approach 90 percent of its capacity within 5 years. An ESR was completed by Stantec in 2012 to initiate the process of combining the capacities of Stoney Point and Comber STF into a single treatment facility (Stantec, 2012).

#### **6.1.1.4 North Woodslee STP Treatment Capacity**

The treatment capacity at the North Woodslee STP can accommodate the present and projected wastewater flows from the North Woodslee service area. The estimated wastewater flow rate based on 3-year rolling average (2013 to 2015) is approximately 10 percent of the plant's design capacity. Therefore, this facility can accommodate additional flows.

#### **6.1.1.5 South Woodslee STP Treatment Capacity**

The treatment capacity at the South Woodslee STP can accommodate the present and projected wastewater flows from the South Woodslee service area. The estimated wastewater flow rate based on three year rolling average (2013 to 2015) is approximately 24 percent of the plant's design capacity. Therefore, this facility can accommodate additional flows.

## 6.2 Existing Wastewater Collection and Conveyance System

### 6.2.1 Collection and Conveyance Systems

The following subsections outline the observations related to the collection systems for the wastewater treatment plants (WWTPs) within the Town. The collection systems are largely unchanged from the 2009 WWWMPs; therefore, where appropriate, these descriptions have been excerpted from the 2009 WWWMP and updated to reflect current conditions.

#### 6.2.1.1 Belle River/Maidstone Wastewater (Denis St. Pierre WPCP) Collection System

The Belle River/Maidstone wastewater collection system includes three collection systems which direct wastewater flows to the Denis St. Pierre WPCP. The three collection systems are; the Belle River sewer system, the Maidstone sewer system and the Oakwood sewer system.

- The Belle River Sewer System collects and conveys sewage from the Belle River community to the Belle River/Maidstone WPCP through a series of local gravity sewers, pumping stations, and forcemains.
- The Maidstone Sewer System collects wastewater from development generally along the northern portion of the urban Maidstone area between Pike Creek and Belle River and conveys it to the Belle River/Maidstone WPCP through a series of local gravity sewers and pumping stations.
- The Oakwood Sewer System is intended to convey sewage from areas within the western portion of the Belle River/Maidstone wastewater service area outside of the Maidstone sewer system. The Oakwood Trunk sewer has been constructed to the Puce River and services development between the treatment plant and east of the Puce River. An extension of the trunk sewer is needed to service existing development in the Pine Creek area (currently on septic systems and found to be contributing to water pollution), as well as to service projected growth in the Wallace Woods, Patillo/Advance, and Manning/County Road 22 areas as planned in the 1997 Class EA for the Belle River/Maidstone sewage works system.
- New local collection sewers constructed with the overall service area to accommodate growth as new subdivisions are created or existing ones are expanded.
- With respect to the general condition of the existing overall collection system. Previous studies in the 1980s and 1990s documented excessive inflow and infiltration (I&I) into the Belle River/Maidstone collection system. At the time, home-to-home inspections were conducted to identify illegal or improper connections to the system and correct conditions contributing to I&I into the system. Corrective actions taken by the Town were reported to have some impact on I&I reduction. However, additional corrective action on both private and public systems was recommended.

Historical daily influent flow records for the Denis St. Pierre WPCP were reviewed in the 2009 WWWMP and found that I&I was still a significant issue. In 2013, CH2M completed a Sanitary Sewer Model for the Town. This effort included an analysis of dry weather and wet weather flows and found that the current system had adequate capacity under dry weather conditions. However, under wet weather conditions there were a number of areas within the system where issues were identified. These areas of interest area primarily within the Maidstone system along Old Tecumseh Road/County Road 22 trunk sewer. This area is susceptible to basement flooding, pipe surcharging, or surface flooding under a 5-year design event (CH2M, 2013).

#### 6.2.1.2 Stoney Point Wastewater Collection System

A condition investigation of the Stoney Point wastewater collection system was conducted by Dillon Consulting Ltd. in 1994 to assess the physical conditions of the sanitary sewer network. This

investigation found a number of improper connections to the sewer (of which some were corrected) and recommended sealing of manholes to reduce infiltration. The Town has made some of the recommended repairs. The 2009 WWMP reviewed the historical daily influent flows at the Stoney Point STF and the results indicated that there was a wide variation in the average daily flows which suggests that I&I still affect the Stone Point wastewater collection system.

#### 6.2.1.3 Comber Wastewater Collection System

In 2001, the Town initiated a sanitary sewer needs study for the Comber service area to determine the condition of the existing sanitary sewer system. Camera inspections were conducted and found that some minor repairs were necessary but no major deficiencies in the mainline sewer. This investigation indicated that the primary source of infiltration to the system was from private sanitary connections. Although the Town has rectified some deficiencies to manholes, a review of the historical daily influent flow records indicates that there is still I&I issues within the Comber wastewater collection system.

#### 6.2.1.4 North Woodslee Wastewater Collection System

The North Woodslee wastewater collection and treatment system was constructed in 2007 and currently services the western portion of the North Woodslee community. The collection system is a gravity sewer system with a mechanical treatment plant which discharges to the Belle River. This system is approximately 10 years old (built in 2007) and was sized to treat the wastewater needs of western North Woodslee at the time of construction as well as the anticipated future growth demands, as estimated in 2007. This system does not service the eastern portion of the North Woodslee community.

#### 6.2.1.5 South Woodslee Wastewater Collection System

The South Woodslee community is serviced by a low pressurized sewage collection system with a mechanical sewage treatment plant. This mechanical sewage treatment plant discharges to the Belle River. The low-pressurized system uses individual septic tank effluent pump systems installed at each connection (home). These tanks have two compartments, intended to provide wastewater settling and storage. Effluent grinder pumps discharge to the pressurized mains. Solids must be routinely cleaned from these tanks. The Town cleans approximately 30 tanks per year on a rotating basis. The Town experiences operational issues with the structural integrity of the septic tanks, as well as clogging of the effluent pump check valves.

The Town initiated a program in 2006 to replace each tank and check valve within the system. In the same year, the Town replaced seven tank systems due to operational failure. Ten systems were scheduled to be replaced in 2007. The Town currently replaces approximately three systems per year. Each tank, effluent pump, and check valve are replaced at a cost of \$7,500 to \$8,000 each. There are approximately 90 systems in total within South Woodslee. Of these, approximately 44 were replaced as of December 2016. However, this program has not entirely resolved the operational issues the Town experiences within this system.

## 6.3 Unserviced Settlement Areas

The 2009 WWMP found that malfunctioning septic systems were a source of pollution in local watercourses throughout unserviced areas including Lighthouse Cove, Rochester Place, Belle River Road Corridor, and Essex Fringe (Stantec, 2009).

Residences in these areas are serviced by private onsite septic systems. These systems typically consist of a holding tank and leaching bed. Many of these systems are over 20 years old and are unlikely to be functioning properly. Homeowners are likely unaware that their septic systems are malfunctioning as they are unlikely to be experiencing plumbing problems. In this context, a “malfunctioning” septic system is a one which is no longer providing the necessary degree of sewage treatment prior to effluent discharge. For systems constructed prior to 1974, it was acceptable practice for an overflow pipe

draining from the end of the tile bed to an adjacent drainage system such as a road side ditch. This is no longer an acceptable practice.

A review of septic tank permit and property size records within the Town, conducted in 2008 found the following:

- There are approximately 2,150 homes (as of 2009) within the Town serviced by private onsite septic systems.
- Approximately 100 homes are likely to have an operational overflow pipe.
- Based on a comparison of septic system sizing and current Ontario Building Code guidelines many of the septic systems have tanks that are undersized by modern standards.
- Current standards specify a minimum lot area to accommodate a properly sized system; approximately 50 percent of the lots were smaller than the modern minimum.

This effort also included water quality sampling. This sampling effort included collecting over 250 surface water samples from the five study areas. These samples were analyzed for both fecal coliforms and fecal streptococci. Analysis of the ratio of fecal coliform to fecal streptococci found that the pollutant source was human in all study areas.

## 6.4 Problem Statements – Wastewater

The 2009 WWWMP identified several wastewater problem statements and recommended solutions to address each problem statement. However, many of the recommendations have not been implemented. Therefore, these problem statements and recommended solutions are still relevant. These recommendations will not be reevaluated in this Master Plan update and will be carried forward, as appropriate, as recommendations in this WWWMP update. Updated problem statements are described herein; *problem statements carried forward from the 2009 WWWMP are excerpted and italicize.*

### 6.4.1 Denis St. Pierre (Belle River/Maidstone) Wastewater System

*Additional treatment capacity at the Denis St. Pierre WPCP is required to support the existing services areas and the anticipated future growth through 2035.*

*Extension of the Oakwood trunk sanitary sewer westerly to service existing development and future growth within the existing service area and anticipated growth areas including provision of a new local collection system within the Pike Creek area to address pollution concerns. (Stantec, 2009)*

#### 6.4.1.1 Peak Wet Weather Capacity Issues within the Existing Belle River/Maidstone Conveyance System

Sanitary sewer modelling conducted by CH2M in 2013 identified surcharging issues along old Tecumseh Road. The Town has implemented a long-term inflow and infiltration reduction program focusing on main line sewer repairs. In September 2016, the Town experienced a 1-in-100-year storm event. Surcharging and basement flooding issues were significant during this event. (CH2M, 2013)

*There are peak wet weather flow (WWF) capacity issues within the Denis St. Pierre system.*

#### 6.4.1.2 Patillo Road/Advance Area Servicing Options

In 2013 CH2M developed a sanitary system hydraulic model to assess sanitary sewer performance, specifically on the system tributary to the Denis St. Pierre WPCP. This exercise found that the system has adequate capacity during dry weather flow conditions but surcharging occurs along the Old Tecumseh Road sewer during 2- and 5-year design rainfall WWF conditions.

Typically, sewer system analysis for new development is based on available dry weather capacity unless there are exceptional circumstances, such as chronic basement flooding. The 2013 modelling effort identified areas of this sewer that experience basement flooding, pipe surcharging, and surface flooding. Therefore, WWF should be considered when planning or approving future development in this area. This could affect the ability of the Town to approve new development requests in the area unless economical alternatives are possible to mitigate WWF concerns.

1. *Wet weather flow along the Old Tecumseh Road imposes servicing limitations within the Patillo Road/Advance areas.*

## 6.4.2 Eastern Communities

Servicing of the Eastern Communities has been explored since the 2009 WWWMP in detail in the Eastern Communities EA completed in 2012 (Stantec, 2012). Therefore, this Master Plan update will not develop problem statements for these areas further. The problem statement developed for the Eastern Communities is excerpted below and applies to Stoney Point, Comber, and Unserviced Settlement areas (Rochester Place and Lighthouse Cove).

*Additional sewage treatment capacity is required in Stoney Point and Comber to service growth in the service area. Inflow and infiltration problems exist in the Stoney Point sewer system and to a lesser degree in the Comber system. The Lighthouse Cove and Rochester Place areas require sanitary sewage servicing to address pollution problems related to existing malfunctioning septic systems and to address development pressures. (Stantec, 2012)*

I&I is ongoing issue within the Comber and Stoney Point collection systems.

## 6.4.3 North Woodslee

The North Woodslee collection system does not currently service the eastern portion of the North Woodslee hamlet (east of the Belle River). There is sufficient capacity at the North Woodslee STF to receive additional flows.

## 6.4.4 South Woodslee

The South Woodslee community is serviced by a low pressurized sewage collection system with a mechanical sewage treatment plant. This system uses individual septic tanks each with an effluent grinder pump. The Town has ongoing operational issues with the individual tanks and related pumps and check valves. In addition, these tanks accumulate solids and require regular cleaning.

## 6.4.5 Essex Fringe Area

The Town of Essex owns two lagoons, both operated by OCWA, one of which is located within the Town of Lakeshore. The Town of Essex recently built a new tertiary treatment plant. This presents the opportunity to service the surrounding residences (currently on individual private septic systems) within the Town of Lakeshore at the newly constructed Essex WWTP.

# Development and Evaluation of Alternative Solutions

## 7.1 Introduction

Sections 5 and 6 of this report described the water and wastewater problems and needs within the Town, completing Phase 1 of the Class EA Process. The following sections identify and evaluate the alternatives for each problem statement, and document the work undertaken in Phase 2 of the Class EA process. The scope of Phase 2 includes the identification and evaluation of alternatives. This will determine the recommended alternative solutions that address the identified problems based on potential impacts to the natural, social, and economic environments.

Several conceptual alternatives have been proposed for each problem statement outline as part of Phase 1, outlined in Sections 5 and 6. This section introduces the alternatives for each problem statement identified in Sections 5 and 6 and describes their effects on the socioeconomic and natural environment.

## 7.2 Planning Level Conceptual Alternative Solutions

Several conceptual alternative solutions may be proposed to address the identified problems and needs of the water and wastewater systems. The following four broad planning level alternative solutions have been considered in providing adequate water and wastewater services in the Town of Lakeshore:

1. Do Nothing.
2. Restrict community growth.
3. Implement water use reduction and I/I control measures.
4. Undertake projects to construct, expand, or augment water and wastewater system capacity as needed to service existing and future development.

The advantages and disadvantages of each alternative together with their effects on the socioeconomic and natural environment are discussed in the following sections.

## 7.3 Environmental Impacts and Mitigating Measures

### 7.3.1 Socioeconomic Environment

#### 7.3.1.1 Do Nothing

The Do Nothing planning alternative involves retaining the existing water and wastewater systems and carrying out no improvements, expansions, or new works to remedy the identified problems and needs. It eliminates the need for large capital expenditures; however, it does not address the problems and needs of the water and wastewater systems within the Town. Under this alternative, only the remaining capacity in the existing systems would be available to service future growth.

For water supply systems, the Do Nothing alternative would eventually result in inadequate levels of water supply as population and demands increase. Similarly, as sewage flows increase with development, the Do Nothing alternative would ultimately result in treatment and conveyance capacities being exceeded in the existing wastewater systems.

With respect to areas not presently serviced by municipal wastewater systems, existing pollution problems associated with malfunctioning on-site septic system would persist and worsen and continue to pollute local watercourses while passing a public health threat to area residents.

The Do Nothing alternative will limit future growth in the community and does not provide an acceptable solution to the problems and needs while satisfying the study objectives of this Master Plan update.

The Do Nothing alternative is not considered a viable option and will not be considered further in this study; however, it can serve as a benchmark to evaluate the implications if none of the other planning alternatives are implemented.

### 7.3.1.2 Restrict Community Growth

The planning alternative to Restrict Community Growth involves placing restrictions on the type, location, and extent of development within the Town. Although this alternative eliminates or delays the need for large capital expenditures, it would have an adverse economic impact on the Town due to stagnation of development and would not be compatible with the objectives of the Town's OP.

Restricting Community Growth is not considered a viable option to address the identified water and wastewater problems and needs of the Town of Lakeshore and accordingly will not be considered further in this study.

### 7.3.1.3 Implement Water Use Reduction and Inflow/Infiltration Control Measures

The alternative to implement water use reduction involves the development of water conservation programs or practices that place restrictions on water use. Possible programs could entail the education of the general public as well as industrial, commercial, and institutional users about water conservation, as well as the implementation of municipal bylaws aimed at reducing water usage during peak summer months when community water demands are at their highest.

The implementation of water use reduction measures would involve costs associated with educating the public and bylaw enforcement; however, it could potentially help defer the construction of water system expansions and new works if lower water demands could be realized. These measures are sometimes difficult to regulate and are highly dependent on the willingness of consumers.

Inflow refers to rainfall runoff entering a sanitary sewer collection system through direct connections such as catchbasins, leaky maintenance hole covers, and cross-connections with stormwater systems such as downspouts or sump pump connections. Infiltration refers to water entering the sanitary collection system through cracked or broken pipes, maintenance holes, service connections, or leaky joints. The degree of infiltration generally fluctuates seasonally and is typically worse during spring and winter seasons due to rainfall and snowmelt. Although complete elimination of I/I is not practical, reductions are typically achievable and could help defer the timing for future wastewater system expansions.

While it is recognized that water efficiency and reduction measures, as well as reduction in I/I have the potential to reduce water demands and wastewater flows associated with the existing systems, this alternative alone will not be sufficient to address the long-term needs of a growing municipality nor the needs of areas currently not serviced by a municipal wastewater system.

However, these measures can be beneficial to reducing future capital and operating costs and accordingly it is recommended that these measures form an important component of the Town's long-term, ongoing initiative to curtail water use (and promote water use efficiency practices) and curtail I/I (by promoting I&I studies and remediation programs) as part of the preferred solution.



### 7.3.1.4 Undertake Projects to Construct, Expand, or Augment Water and Wastewater System Capacity as needed to Service Existing and Future Development

To meet the servicing needs of the Town for the next 20 years and beyond, expansions and improvements to the Town’s water and wastewater systems will be needed. The planning alternative to implement water and wastewater capacity expansions involves:

- Additional water and sewage treatment capacity including the expansion of existing facilities, and the provision of new facilities or potentially conveying to existing treatment facilities within the Town or from adjacent municipalities
- Water distribution system improvements including new watermains, and storage and pumping facilities
- Wastewater collection and conveyance system improvements including new sewers, forcemains, and pumping stations

As a whole, this planning alternative represents a viable solution to the identified problems and will be considered further in this study.

### 7.3.2 Environmental Impacts and Mitigating Measures

As a group, the alternative planning solutions (except the “Do Nothing” and “Restrict Community Growth” alternatives) will have a limited effect on the environment and that effect will be mostly due to construction activities. Table 7-1 summarizes potential environmental impacts and proposed mitigating measures.

**Table 7-1. Environmental Effects and Mitigating Measures**

Operation	Effect	Mitigating Measures
Cutting, digging, or trimming ground covers, shrubs, and trees	Reduced terrestrial wildlife habitat quality (that is, diversity, area, function) and increased fragmentation of habitat	<ul style="list-style-type: none"> <li>• This is not a concern as there is no significant existing terrestrial wildlife habitat in the proposed area of construction.</li> </ul>
	Loss of unique or otherwise valued vegetation features	<ul style="list-style-type: none"> <li>• This are no known unique vegetation features in the area that may be disturbed by construction activities.</li> <li>• Where possible, existing vegetation features will be restored to a preconstruction condition.</li> </ul>
Trenching/tunnelling for sewers, watermains, and forcemains, excavation and construction for water and wastewater pumping and treatment structures	Soil erosion and sediment transport to adjacent water bodies causing sedimentation and turbidity of adjacent water bodies and drainage ditches	<ul style="list-style-type: none"> <li>• Use erosion control measures (that is, sediment traps, silt fences, etc.).</li> <li>• Collect contaminated runoff.</li> <li>• Restore vegetation growth quickly.</li> <li>• Stage construction activities to minimize potential of impacts.</li> </ul>
	Reduced water quality and clarity due to increased erosion and sedimentation, and transport of debris	<ul style="list-style-type: none"> <li>• Apply wet weather restrictions to construction activity.</li> <li>• Comply with any local regulations, policies and guidelines that stipulate a minimum acceptable buffer width (the allowable distance from a water body). Maximum buffer widths are desirable.</li> <li>• If possible, direct surface drainage away from working areas and areas of exposed soils. To the maximum extent possible, promote overland sheet flow to well vegetated areas.</li> <li>• Install and maintain silt curtains, sedimentation ponds, check dams, cofferdams or drainage swales, and silt fences around soil storage sites and elsewhere, as required.</li> </ul>

Table 7-1. Environmental Effects and Mitigating Measures

Operation	Effect	Mitigating Measures
	Loss of vegetation and topsoil and mixing topsoil and subsoil	<ul style="list-style-type: none"> <li>Restore site by replacing topsoil and reinstate vegetation to prevent erosion.</li> </ul>
	Removal and/or disturbance of trees and ground flora	<ul style="list-style-type: none"> <li>Avoid treed areas where possible.</li> <li>Employ tree protection measures.</li> <li>Replace trees and provide site landscaping.</li> </ul>
	Temporary disruption of pedestrian and vehicle traffic	<ul style="list-style-type: none"> <li>Provide and maintain detours.</li> <li>Provide for safe alternate routes.</li> <li>Select alternate routes to minimize inconvenience.</li> </ul>
	Temporary disruption and inconvenience during construction to adjacent properties, buildings and inhabitants	<ul style="list-style-type: none"> <li>Notify public agencies and neighbouring owners of construction activities.</li> <li>Prepare program for reporting and resolving problems.</li> <li>Ensure access is provided for emergency vehicles and personnel.</li> <li>Apply noise and vibration control measures.</li> <li>Apply dust control measures.</li> <li>Control emissions from construction equipment and vehicles.</li> <li>Use silencers to reduce noise.</li> <li>Require compliance with municipal noise by-laws.</li> </ul>
	Possible need to remove petroleum contaminated excavated material	<ul style="list-style-type: none"> <li>Sample material.</li> <li>Handle and dispose of contaminated material in an acceptable manner.</li> </ul>
	Decreased ambient air quality due to dust and other particulate matter	<ul style="list-style-type: none"> <li>Avoid site preparation or construction during windy and prolonged dry periods.</li> <li>Cover and contain fine particulate materials during transportation to and from the site.</li> <li>Instruct workers and equipment operators on dust control methods.</li> <li>Spray water to minimize dust off paved areas or exposed soils.</li> <li>Stabilize high traffic areas with a clean gravel surface layer or other suitable cover material.</li> <li>Cover or otherwise stabilize construction materials, debris and excavated soils against wind erosion.</li> </ul>
	Disturbance to microscopic organisms in the soil	<ul style="list-style-type: none"> <li>Limit the size of stockpiles to avoid anaerobic conditions.</li> <li>Protect stockpiled soils from exposure to and sterilization by solar radiation (or stockpile in an uncovered shaded area).</li> </ul>
	Reduced soil capability through compaction and rutting, and mixing of topsoil and layers below	<ul style="list-style-type: none"> <li>Avoid working during wet conditions and/or confine operation to paved or gravel surfaces.</li> <li>Whenever possible, strip and store topsoil separately from the layers below and return to excavation in sequence.</li> </ul>
	Removal and/or disturbances of trees and flora	<ul style="list-style-type: none"> <li>Avoid treed areas.</li> <li>Employ tree protection measures.</li> <li>Avoid areas with significant vegetation.</li> </ul>

Table 7-1. Environmental Effects and Mitigating Measures

Operation	Effect	Mitigating Measures
	Loss of productive farm land	<ul style="list-style-type: none"> <li>• Locate facilities to minimize land requirements.</li> <li>• Use existing rights-of-way as much as possible.</li> <li>• There is no loss within utility easements as they can still be cultivated.</li> </ul>
	Agricultural disruption of field access	<ul style="list-style-type: none"> <li>• Restore driveways, roadways, and field access to pre-construction condition.</li> <li>• Stage construction and provide advance notice to property owners prior to construction to minimize inconvenience.</li> </ul>
	Disruption of tile and surface drainage systems	<ul style="list-style-type: none"> <li>• Provide for temporary drainage systems until final restoration is accomplished.</li> <li>• Avoid disturbing drainage systems during critical periods.</li> <li>• Restore existing culverts, tiles and drainage systems to pre-construction conditions following construction.</li> </ul>
	Reduced water quality of nearby surface waters having value as wildlife habitat	<ul style="list-style-type: none"> <li>• Use sediment control techniques for stockpiled materials to minimize degradation of water quality.</li> </ul>
	Modifications or removal of aquatic habitat	<ul style="list-style-type: none"> <li>• Stage construction to minimize potential of adverse impacts.</li> </ul>
	Residential impacts	<ul style="list-style-type: none"> <li>• Control construction noise and dust impacts through noise bylaws and dust control measures in contract specification.</li> <li>• Minimize inconvenience due to temporary loss of property access through proper communication and advance notice of disruption.</li> <li>• Maintain pedestrian safety through excavation barricades and construction fencing.</li> </ul>
	Traffic disruption	<ul style="list-style-type: none"> <li>• During construction activities, attempt to maintain a minimum of one lane of open traffic at all times with necessary detour signage and flag persons.</li> <li>• If complete closure is required, advise emergency services will in advance and restore through access at the end of each working day.</li> </ul>
	Visual aesthetics	<ul style="list-style-type: none"> <li>• Watermains and sewers will be buried and have no impact on aesthetics.</li> <li>• Incorporate landscaping and architectural features at treatment plants.</li> </ul>
	Recreation	<ul style="list-style-type: none"> <li>• Maintain access to recreational sites during construction.</li> <li>• Locate water and wastewater infrastructure components to minimize impact.</li> </ul>
	Heritage resources	<ul style="list-style-type: none"> <li>• Assess archaeological significance in areas undisturbed by previous activities such as farmland. Complete Stage 1 &amp; 2 Archaeological Assessment and follow mitigative measures outlined in cooperation with the Ontario Ministry of Tourism, Culture, and Sport.</li> </ul>

**Table 7-1. Environmental Effects and Mitigating Measures**

<b>Operation</b>	<b>Effect</b>	<b>Mitigating Measures</b>
Use of construction equipment	Contamination of surface waters, drains and public roadways from spills, leaks or equipment refuelling	<ul style="list-style-type: none"> <li>• Use containment facilities.</li> <li>• Inspect equipment regularly for fuel and oil leaks.</li> <li>• Clean equipment before it travels offsite.</li> </ul>
	Decreased air quality due to vehicular emissions causing increased concentrations of chemical pollutants	<ul style="list-style-type: none"> <li>• Minimize operation and idling of vehicles and gas-powered equipment, particularly during local smog advisories.</li> <li>• Use well-maintained equipment and machinery within operating specifications.</li> </ul>
	Disruption to wildlife migration and movement patterns, breeding, nesting or hibernation	<ul style="list-style-type: none"> <li>• There are no known areas containing sensitive vegetation and wildlife.</li> <li>• There are no known areas where migratory birds are breeding.</li> </ul>
	Introduction of non-native vegetation, including opportunistic species	<ul style="list-style-type: none"> <li>• Clean heavy machinery and equipment prior to transporting to new location.</li> </ul>
	Loss of unique or otherwise valued vegetation features	<ul style="list-style-type: none"> <li>• Avoid or minimize trampling vegetation with equipment.</li> <li>• Minimize physical damage to vegetation by avoiding push-outs and avoiding the placement of slash onto living vegetation.</li> </ul>
	Reduced water quality and clarity due to increased erosion and sedimentation, and transport of debris	<ul style="list-style-type: none"> <li>• Operate heavy machinery on the shore above the normal water level.</li> <li>• Where possible, conduct activities in the dry, above the actual water level and above any expected rises in water level that may occur during a rainfall or snowmelt event.</li> </ul>
	Reduced water quality due to inputs of contaminants from surface runoff during construction and operation	<ul style="list-style-type: none"> <li>• Refuel equipment off slopes and well away from water bodies.</li> <li>• Securely contain and store all oils, lubricants, fuels and chemicals. If necessary, use impermeable pads or berms.</li> </ul>

### 7.3.3 Screening Summary and Recommended Alternative Solutions

A comparative summary of the four conceptual planning level alternative solutions and their ability to meet the overall long-term water and wastewater infrastructure needs of the Town of Lakeshore is presented in Table 7-2.

The results of the preliminary screening clearly indicate the recommended alternative solutions that address the identified problems and study objectives are as follows:

- Expand the capacity of the existing water and wastewater system components (treatment, distribution, collection, and the like), including the provision of additional capacity at new or existing facilities to meet existing and future servicing requirements
- Implement water efficiency and expand inflow and infiltration control programs.

Other than the environmental effects listed in Table 7-1, it is anticipated that the recommended conceptual planning alternatives are not considered to have significant effects on wildlife, vegetation, or the habitat characteristics of any particular species.

In fact, it is anticipated that the provision of a greater degree of pollution control and treatment will enhance the quality of local watercourses and improve the natural environment to a great extent. The

main impact on the socio-economic environment is related to the disruption that residents and businesses may experience during construction. However, this potential inconvenience and disruption would be temporary and should not significantly affect the environment.

With respect to other socioeconomic impacts, the preferred conceptual planning alternatives are also not considered to have serious impacts on existing land uses, cultural activities, heritage resources, or other community program, except to the extent that it will permit the ongoing implementation of development and other activities as envisaged in planning documents which have positive impacts on the socioeconomic environments.

The following sections identify and evaluate the alternative water and wastewater servicing solutions that address the specific problems and needs of the various respective service areas.

These alternatives have been developed on the basis that the Town of Lakeshore will provide the servicing within its boundary or through the development of servicing agreements with adjacent municipalities.

**Table 7-2. Comparative Summary of Conceptual Planning Alternatives**

<b>Conceptual Planning Alternative Solutions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Recommended (Y/N)</b>
Do Nothing	<ul style="list-style-type: none"> <li>Eliminates need for large capital expenditures</li> </ul>	<ul style="list-style-type: none"> <li>Retains status quo</li> <li>Only presently available capacity in existing systems available to service growth</li> <li>Adverse economic impact due to stagnation of development</li> <li>Objectives of Official Plan cannot be realized</li> <li>Pollution problems associated with malfunctioning septic systems not addressed</li> </ul>	N
Restrict Community Growth	<ul style="list-style-type: none"> <li>Eliminates or defers the need for significant capital expenditures</li> </ul>	<ul style="list-style-type: none"> <li>Adverse economic impact due to stagnation of development</li> <li>Objectives of Official Plan cannot be realized</li> <li>Pollution problems associated with malfunctioning septic systems not addressed</li> </ul>	N
Water Use Reduction and Inflow and Infiltration Control Measures	<ul style="list-style-type: none"> <li>Can potentially defer the timing for significant capital expenditures</li> <li>Could help reduce future operating and capital infrastructure costs</li> <li>Could form part of recommended solutions</li> </ul>	<ul style="list-style-type: none"> <li>Measures sometimes difficult to regulate and dependent on willingness of public</li> <li>Pollution problems associated with malfunctioning septic systems not addressed</li> <li>Measures alone will not meet long-term servicing needs</li> </ul>	Y
Construct, Expand or Augment Water and Wastewater System Capacity	<ul style="list-style-type: none"> <li>Assures adequate capacity available to service existing demands and provision for growth</li> <li>Allows objectives of OP to be realized and development to proceed as projected</li> <li>Addresses existing pollution problems associated with malfunctioning septic systems and ensures treatment facilities have adequate capacity to prevent uncontrolled discharges into the environment</li> </ul>	<ul style="list-style-type: none"> <li>Involves significant capital expenditures that can be staged as growth occurs</li> </ul>	Y

## 7.4 Water Alternatives

Hydraulic computer models of the Belle River and Stoney Point WSSs were developed and used together with projected increases in water demand to simulate the projected 20-year servicing horizon and test various system improvements that would adequately supply the projected 20-year water demands under peak hour or maximum day, or both, plus fire flow conditions while reinforcing the existing trunk watermain network and maintaining acceptable system pressures.

Proposed improvements projects are intended to achieve one or more of the following objectives:

- Capacity – increase delivery capacity and minimize pipeline headloss
- Fire Flow – improve fire flows to target levels
- Growth – provide for future service area development
- Looping & Redundancy – maintain water quality by reducing the number of “dead-ends” and wherever possible provide an area with more than one point of delivery
- Reliability – reduce frequency of watermain breaks and general improvement of overall system reliability by replacing aging and deteriorating infrastructure such as cast iron watermains

As part of the evaluation of potential water treatment, storage and distribution system improvements, the age and condition of existing system components were taken into consideration to coincide with replacement of aging infrastructure. It is noted that some of the required improvements represent an extension of the distribution system that would likely be constructed through new developments in established growth areas. However, they have still been identified as part of the Master Plan update as a guide for long-term water-supply planning.

### 7.4.1 Belle River Water Supply System

The following problems and needs were identified in Section 5.4.1 for the BRWSS to satisfy the needs of existing consumers, as well as future growth based on projected 20-year water demands to 2035.

- A. Additional clear water storage capacity of approximately 1,440 m<sup>3</sup> to meet MOECC Guidelines
- B. Improvements to existing water distribution system to augment existing pipeline network to convey increased flows to meet projected water demand while improving levels of fire protection, system security and reliability

The following items were taken into consideration in establishing alternative solutions to address the identified water supply problems of the BRWSS:

- Resupply of the Lakeshore-Tecumseh water service area from the BRWSS
- Potential conveyance of supplemental water to the adjacent SPWSS via the distribution system to address an identified future deficiency in water treatment capacity at the Stoney Point WTP

Therefore, for the purposes of long-term planning, it has been established that the analysis of future system improvements for the BRWSS will assume provisions to accommodate servicing of the Lakeshore Tecumseh water service area and conveyance of supplemental water to the Stoney Point WTP from the BRWSS.

The recommended system improvements required to satisfy the 20-year projected water demands of the BRWSS are illustrated in Figures 14a and 14b in Appendix A.

An overall summary of the recommended improvements including opinions of probable cost, anticipated timing, and Class EA schedule are presented as part of the Implementation Plan in Section 9.

The main components of the recommended system improvements include the following:

A. Clear Water Storage

The recommended solution to address the deficiency in clear water storage is to:

1. Replace existing MWT with a new 5,800-m<sup>3</sup> elevated water tower in general vicinity of the Patillo Road/Little Baseline Road corridor and connect to proposed future 600-mm-diameter trunk watermain through Wallace Woods Area.

B. Distribution System Improvements

The recommended solutions to address deficiencies in distribution system conveyance capacity is to:

1. Construct new 400-mm-diameter trunk watermain along County Road 22 from West Puce River Road to West Pike Creek Road (County Road 21).
2. Construct new 600-mm-diameter trunk watermain along West Puce River Road from County Road 22 southerly to existing 600-mm-diameter trunk watermain.
3. Construct new 600-mm-diameter trunk watermain through Wallace Woods area from West Puce River Road to Patillo Road.
4. Construct new 400-mm-diameter trunk watermain along Wallace Line Road from County Road 22 southerly to proposed 600-mm-diameter trunk watermain through Wallace Woods area.
5. Construct new 500-mm-diameter trunk watermain along Little Baseline Road from existing 500 mm dia. trunk watermain west of Patillo Road to existing 400-mm-diameter trunk watermain at Stonebrook and East Pike Creek Road.
6. Construct new 400-mm-diameter trunk watermain along Little Baseline Road from West Pike Creek Road (County Road 21) westerly to existing 150 mm dia. watermain near Manning Road.
7. Construct new 200- and 300-mm-diameter trunk watermains along 11<sup>th</sup> Street from Broadway Street to St. Louis Street.
8. Construct new 250- and 300-mm-diameter trunk watermains along Notre Dame Street from 11<sup>th</sup> Street to Duck Creek Blvd.
9. Construct new 400-mm-diameter trunk watermains along Rourke Line Road from County Road 22 to Caille Ave.
10. Construct new 400-mm-diameter trunk watermains along Renaud Line Road from County Road 22 to Caille Ave.
11. Construct various other watermain network improvements and replacements as needed as shown on Figures 14a and 14b in Appendix A.

#### 7.4.2 Stoney Point Water Supply System

The following problems and needs were identified in Section 5.4.2 for the SPWSS to satisfy the needs of existing consumers, as well as future growth based on projected 20-year water demands to 2035.

- A. Additional treatment plant capacity of approximately 455 m<sup>3</sup>/day
- B. Additional clear water storage capacity of approximately 540 m<sup>3</sup> to meet MOECC Guidelines
- C. Improvements to existing water distribution system to augment existing pipeline network to convey increased flows to meet projected water demand and improve levels of fire protection

The following items were taken into consideration in establishing alternative solutions to address the identified water supply problems of the SPWSS:

- The 5-year running average for maximum day water demand is approximately 2,850-m<sup>3</sup>/day (based on historical data) corresponding to approximately 63 percent of the Stoney Point WTP's rated capacity. Taking into consideration the long lead times required to complete planning, design and construction of a treatment plant expansion or trunk watermain system, the analysis of the Stoney Point WSS has been based on the assumption that the Stoney Point water service area will not contemplate any service area expansions until such time as water demands in the present service area dictate a need for additional treatment capacity projected to be in approximately the year 2026.
- As noted in Section 5.1, a high-level overview to resupply the Lakeshore-Tilbury-Wheatley water service area from the SPWSS was considered; however, it was not reviewed further for the CKPUC has demonstrated its willingness to supply this area for the foreseeable long-term future. Servicing this area from Lakeshore's SPWSS is possible; however, it would be prohibitively expensive due to the long watermain infrastructure that would need to be constructed from the Stoney Point WTP.

Therefore, for the purposes of long-term planning, it has been established that the analysis of future system improvements for the SPWSS will not assume provisions to accommodate servicing of the Lakeshore Tilbury-Wheatley water service area from the SPWSS.

The recommended system improvements required to satisfy the 20-year projected water demands of the Stoney Point WSS are illustrated on Figures 15a, 15b, and 15c in Appendix A.

An overall summary of the recommended improvements including opinions of probable cost, anticipated timing, and Class EA schedule are presented as part of the Implementation Plan in Section 9.

The main components of the recommended system improvements include the following:

#### A. Water Treatment Capacity

The recommended solution to address the deficiency in water treatment capacity is to:

1. Monitor Stoney Point WTP capacity and initiate an ESR at 80 percent of treatment capacity to evaluate the following alternative solutions:
  - Expand Stoney Point WTP to next modular size from 4,545 m<sup>3</sup>/day to 9,090 m<sup>3</sup>/day on present site.
  - OR
  - Supply 9,090 m<sup>3</sup>/day from BRWSS via new trunk watermains and convert the Stoney Point WTP into a reservoir and booster pump station.

The recommended solution to address the deficiency in water treatment capacity is illustrated on Figure 16 in Appendix A

#### B. Clear Water Storage

The recommended solution to address the deficiency in clear water storage is to:

1. Construct a new 3,200-m<sup>3</sup> elevated water tower located in the Community of Stoney Point in the general area of Comber Sideroad and Tecumseh Road.

#### C. Distribution System Improvements

The recommended solutions to address deficiencies in distribution system conveyance capacity is to:

1. Construct a new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from St. Clair Road to existing 300-mm-diameter trunk watermain immediately north of Tecumseh Road.



2. Construct a new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from Tecumseh Road to existing 200-mm-diameter trunk watermain immediately south of the Canadian National Railway.
3. Construct a new 200-mm-diameter watermain along County Road 37 from Couture Beach Road to Tecumseh Road.
4. Construct a new 200-mm-diameter watermain along Tecumseh Road from County Road 37 westerly to the existing watermain.
5. Construct various new watermain looping interconnections including isolation and check valve facilities.
6. Consider construction of a new 400-mm diameter watermain along Comber Sideroad from Canadian National Railway as conditions dictate to south of Highway 401 in Comber to replace the existing 200-mm diameter watermain.
7. Construct various other watermain network improvements and replacements as needed as shown on Figures 15a, 15b, and 15c in Appendix A.

### 7.4.3 Cast Iron Watermain Replacement Program

In addition to the system improvements identified through the analysis of both the Belle River and Stoney Point WSSs, the Town will maintain its strategic cast iron watermain replacement program to help guide the Town's planning process in preparation of annual capital budgets.

Cast iron watermains represent the oldest pipelines in the Town's water distribution system and experience the greatest number of watermain problems from the standpoint of structural integrity and rusty water complaints. The intent of the program is to maintain a proactive, rather than reactive plan that would see all existing cast iron watermains, approximately 59 km, throughout the Town of Lakeshore systematically replaced with new watermains on an annual basis over a 10-year implementation period.

The program is being maintained taking into consideration the recommended system improvements identified as part of the hydraulic modelling work to coincide with replacement of aging infrastructure. The cast iron watermain replacement strategy continues to be factored into periodic Water and Sewer Rate Review processes.

## 7.5 Wastewater Alternatives

The following alternatives were identified based on the wastewater problem statements outlined in Section 6.4. A number of recommendations from the 2009 WWWMP still reflect the current conditions within the Town; these alternatives will be carried forward and will not be reevaluated in this EA. This section presents alternative solutions that will be evaluated further to develop the preferred recommended solutions.

### 7.5.1 Denis St. Pierre (Belle River/Maidstone) Wastewater System

#### 7.5.1.1 Peak Wet Weather Capacity Issues within the Existing Belle River/Maidstone Conveyance System

The following four alternatives to address the peak wet weather flow capacity issues of the Denis St. Pierre (Belle River/Maidstone) system are proposed for evaluation;

1. Do nothing.
2. Initiate a private side source control I/I reduction program.
3. Implement functional bypasses at pumping stations along Old Tecumseh Rd. sewer.
4. Incorporate offline storage at pumping stations.

### 7.5.1.2 Patillo Road/Advance Area Servicing Options

The following three servicing alternatives to address the servicing limitations of the Patillo Road/Advance area are proposed for evaluation:

1. Continue with current development practices.
2. Bring Patillo Rd. Package Plant back online.
3. Extend the Oakwood trunk sanitary sewer.

### 7.5.2 North Woodslee

The following two servicing alternatives for the North Woodslee collection and treatment system are proposed for evaluation:

1. Do nothing.
2. Expand gravity sewers to service the eastern portion of the North Woodslee hamlet.

### 7.5.3 South Woodslee

The following three servicing alternatives for the South Woodslee pressurized collection system are proposed for evaluation:

1. Do nothing.
2. Continue to repair and upgrade the existing pressurized system.
3. Replace the pressurized system with gravity sewer.

### 7.5.4 Combined Servicing Alternatives for North and South Woodslee

As a complimentary review, the following four combined servicing options for North and South Woodslee could be considered:

1. Do nothing.
2. Convey flows from South Woodslee to the North Woodslee STF.
3. Convey flows from North Woodslee to South Woodslee STP.
4. Convey flows from North and South Woodslee to Denis St. Pierre WPCP, including a pumping station if required.

### 7.5.5 Essex Fringe Area

The following two alternatives are proposed to address the servicing strategies for residences in the Essex Fringe Area:

1. Do nothing.
2. Explore opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe area within the Town of Lakeshore.

## 7.6 Alternative Wastewater Servicing Solutions

Each of the servicing alternatives was evaluated based on technical and financial factors; these factors are shown in Table 7-3.

Table 7-3. Criteria for Evaluating Wastewater Alternatives

Criteria	Description
<b>Technical</b>	
Constructability	Ease of construction including considerations for the need to maintain service, extent of excavation, need for dewatering, equipment requirements, require skills, materials availability, geotechnical conditions, and other factors
Schedule	The total number of days required for starting and completion of design plans, specifications and construction
Performance	Ability to meet and/or exceed required standards for effluent quality, hydraulic capacity, etc.
Safety	Safety during construction and operation, for operators and the public
Reliability	Ability to provide reliable performance especially considering anticipated level of maintenance, severe weather events, influent quality; and ability to continue to operate following failure of one component of the system
Land requirements	Extent of property acquisition required; consideration of expected difficulty of property acquisition
Operation and Maintenance	Requirement for increased operation and maintenance skill-sets, equipment, or resources, or a combination thereof
<b>Economic</b>	
Capital Cost	Approximate capital cost of the alternative
Operation and Maintenance	Approximate annual operation and maintenance cost of the alternative

These criteria are used to initially assess the options to screen out those that are not feasible or appropriate under the Town's OP, or within the current regulatory environment. Table 7-4 presents the evaluation of the alternatives based on these criteria. Each alternative is evaluated on a pass-fail basis, and must initially "pass" each of the technical factors to be carried forward for cost estimation. The evaluation process summarized in Table 7-4 identified some general Wastewater recommendations. These are recommendations, which do not necessarily apply to a specific problem statement, are as follows:

1. Conduct a study to review the Town's existing I/I mitigation program, to evaluate the effectiveness of public side mitigation efforts, as well as expanding the I/I program to include private sources of I/I.
2. Conduct a study to evaluate the Patillo Road Package Plant. The Patillo Road Package Plant operated for approximately 1 year before being placed on standby. It has been on standby since 2007 and has been maintained monthly by OCWA since. It is recommended that this study do the following:
  - a. Evaluate the facility condition and feasibility of bringing the plant back online.
  - b. Determine any capital investment required to bring the plant back online.
  - c. Determine whether process changes are required to meet regulatory effluent requirements.
  - d. Evaluate whether this plant could relieve wet weather flows within the Belle River/Maidstone service area, specifically along Old Tecumseh Road.
  - e. Evaluate whether operation of this plant could delay the need to expand treatment capacity at the Denis St. Pierre WPCP.

Table 7-4. Wastewater Alternatives and Screening Evaluation

Alternative	Description	Preliminary Evaluation	Constructability	Schedule	Performance	Reliability	Land Requirements	Safety	Compliance	Operation and Maintenance	Recommended (Y/N)
<b>Denis St. Pierre (Belle River/Maidstone)</b>											
<i>Peak Wet Weather Capacity Issues within the Existing Belle River/Maidstone Conveyance System</i>											
1. Do Nothing	This alternative is a general master planning-level alternative. In this context, it would mean maintaining the status quo and continuing managing wet weather flows as the Town has in the past.		x	x	x	x	✓	x	x	x	No
2. Initiate a private side source control I/I reduction program	The Town has an ongoing public side I/I reduction program. Generally, it can be assumed that half of I/I flow is from private side sources, developing a program to identify and remove private side sources of clear water may be necessary to address wet weather flow issues without expanding sewer and treatment capacities.	This alternative may address the I/I issue but it does not address the capacity increase due to population growth. The additional areas that needs to be serviced will still remain unserved. Therefore, the existing sewer will need to be expanded to meet the objective of the Township. An I/I program will address part but not all of the problem statement.	✓	✓	✓	✓	✓	✓	✓	✓	Yes
3. Implement functional bypasses at pumping stations along Old Tecumseh Road sewer	Recent wet weather events show surcharging in sewers and pump stations along Old Tecumseh Road sewer, implementing bypasses would relieve the sewer and pump station surcharging during large wet weather events.	Bypass during the wet weather flows will lead to discharge of untreated wastewater to the River. It is likely that the Town will meet regulatory resistance if attempting to implement this alternative.	x	✓	x	✓	✓	x	x	✓	No
4. Incorporate offline storage at pumping stations	This alternative involves the provision of storage tanks or ponds that will accommodate the excess flow during wet weather. The stored flow will then be directed to the treatment plant for treatment prior to discharge when peak flows have decreased.	Wet weather events have resulted in surcharging at pumping stations. Offline storage tanks at pumping stations would allow excess flows to be directed to the tanks, stored, and returned to the sanitary sewer when there is capacity. However, there is not land available to implement offline storage at the Town's pumping stations.	x	✓	✓	✓	x	✓	✓	✓	No

Table 7-4. Wastewater Alternatives and Screening Evaluation

Alternative	Description	Preliminary Evaluation	Constructability	Schedule	Performance	Reliability	Land Requirements	Safety	Compliance	Operation and Maintenance	Recommended (Y/N)
<i>Patillo Road/Advance Area Servicing Options</i>											
1. Continue with current development practices	This alternative represents the “do nothing” alternative. This alternative maintains the status quo.	Due to both conveyance and treatment facility capacity constraints, specifically related to wet weather flow, the Town must be cautious when approving new developments, considering both dry and wet weather flows. This makes continuing with the status quo more difficult for the Town while also meeting planning objectives.	✓	✓	x	x	x	x	✓	x	No
2. Bring Patillo Road Package Plant back online	The Patillo Road Package Plant was commissioned in 2006 and operated for 21 months. This plant was placed in standby mode in late 2007. This plant was unable to meet effluent requirements, specifically phosphorous targets.	Bringing this plant online may allow the Town to direct flows to service the Patillo Road/Advance area and reduce load on the Old Tecumseh Road sewer and Denis St. Pierre WPCP. Information gathered from OCWA confirmed that the plant is in Standby mode and has been maintained monthly. It is recommended that the Town conduct a study to determine the possible rehabilitations that might be needed due to long-term standby. As well as opportunities that exist to increase capacity at the Denis St. Pierre WPCP, and address wet weather flow within the conveyance system.	✓	✓	✓	✓	✓	✓	✓	✓	Yes
3. Extend the Oakwood trunk sanitary sewer	The extension of this trunk sewer was identified as the preferred alternative in the 2009 WWMP.	This alternative provides the Town with additional wet weather capacity to facilitate the Town’s flexibility in approving new development and industry in the area without concern over potential sewer capacity issues. This extension was recommended in the 2009 WWMP and is determined to remain a necessary recommendation	✓	✓	✓	✓	✓	✓	✓	✓	Yes

Table 7-4. Wastewater Alternatives and Screening Evaluation

Alternative	Description	Preliminary Evaluation	Constructability	Schedule	Performance	Reliability	Land Requirements	Safety	Compliance	Operation and Maintenance	Recommended (Y/N)
<b>Alternatives for North Woodslee Servicing</b>											
1. Do Nothing	Residences in the eastern portion of North Woodslee will continue to be serviced by private septic systems.		✓	✓	✓	✓	✓	✗	✗	✗	No
2. Expand gravity sewer	The North Woodslee treatment facility has sufficient capacity to accept new flows and was sized to accept flows from the eastern portion of the hamlet.	Expanding the sanitary sewer servicing to the eastern portion of North Woodslee would reduce the potential for surface and groundwater pollution from malfunctioning septic systems.	✓	✓	✓	✓	✓	✓	✓	✓	Yes
<b>Alternatives for South Woodslee Servicing</b>											
1. Do Nothing	Under this scenario, the Town would no longer repair and replace components of the low-pressure sanitary sewage conveyance system.		✓	✓	✗	✗	✓	✗	✗	✗	No
2. Continue to repair and upgrade existing pressurized system	This alternative maintains the status quo, with the Town continuing with its repair and replacement program	The repair and replacement program embarked upon by the Township will continue to provide the required sewer capacity for future flows.	✓	✓	✓	✓	✓	✓	✓	✓	Yes
3. Replace the pressurized system with gravity sewer	Under this alternative, the Town would evaluate the feasibility of converting the current system to a gravity sewer system.	The Town has already committed to repairing and upgrading the pressurized system, so this alternative is too late for implementation.	✗	✗	✓	✓	✓	✗	✓	✗	No
<b>Alternatives for Combined North and South Woodslee Servicing</b>											
1. Do Nothing	Under this alternative, no action would be taken by the Town to explore combined servicing options for North and South Woodslee hamlets.	Each WWTP will continue to service their respective areas. As both facilities have sufficient capacity to accept new flows in the long-term, it is not economical to transfer flows from one system to another within this planning horizon. It is recommended that alternatives be reevaluated again during future planning exercises.	✓	✓	✓	✓	✓	✓	✓	✓	Yes

Table 7-4. Wastewater Alternatives and Screening Evaluation

Alternative	Description	Preliminary Evaluation	Constructability	Schedule	Performance	Reliability	Land Requirements	Safety	Compliance	Operation and Maintenance	Recommended (Y/N)
2. Convey flows from North and South Woodslee to Denis St. Pierre WPCP	This alternative would convey wastewater from North and South Woodslee to the Denis St. Pierre WPCP for treatment. If necessary, this alternative would include the expansion of the Denis St. Pierre WPCP.	This alternative will require the decommissioning of the South and North Woodslee STFs and the construction of long-distance pipe network to transfer the sewage flows to Denis St. Pierre WPCP. Dennis St. Claire WWTP is currently at 80 percent of its design capacity and the current capacity will not accommodate the projected future flows from the area. Hence, this alternative is not suitable.	x	x	x	✓	x	x	✓	x	No
3. Convey flows from South Woodslee to North Woodslee STF	This alternative explores the feasibility of conveying flows from South Woodslee to North Woodslee treatment facility, as the North Woodslee currently has available excess capacity.	Due to the flat topography of the landscape from South Woodslee to North Woodslee, the sewage could be conveyed by gravity. As a result, there is no need for a pumping station. In addition, the peak flow is too small to maintain the required sewer velocity for forcemain.	x	x	✓	✓	✓	x	✓	x	No
4. Convey flows from North Woodslee To South Woodslee STF	This alternative explores the feasibility of conveying flows from North Woodslee to the South Woodslee treatment facility, as the North Woodslee currently has available excess capacity.	Due to the flat topography of the landscape from North Woodslee to South Woodslee, the sewage could be conveyed by gravity. In addition, the peak flow from this area is too small to maintain the required sewer velocity for forcemain.	x	x	x	✓	x	x	✓	x	No
<b>Alternatives of Essex Fringe</b>											
1. Do Nothing	Under this alternative, no action would be taken by the Town and residences in the Essex fringe area would continue to use onsite private septic systems.		✓	✓	✓	✓	✓	✓	x	✓	No
2. Explore opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe area within the Town of Lakeshore	Under this alternative, the Town will reach out to the Town of Essex to explore opportunities to expand servicing to residences on private septic systems within the Essex Fringe area, with flows being treated at the Essex WWTP (owned by the Town of Essex).	This alternative will assure residences on private septic system are connected to the sewer to prevent groundwater contamination.	✓	✓	✓	✓	✓	✓	✓	✓	Yes

The evaluation in Table 7-4 identifies the following preferred alternatives for the wastewater problem statements described in Section 6.4 and the alternatives described in Section 7.5:

- **Denis St. Pierre (Belle River/Maidstone)**
  - **Peak Wet Weather Capacity Issues within the Existing Belle River/Maidstone Conveyance system:** *As noted, it is recommended that the Town expand their public I/I source control program to also target private sources of I/I.*  
A review of the influent flows to the Denis St. Pierre WPCP indicated that wet weather flows are increasing within the sewershed. Therefore, public and private side programs to mitigate I/I in the Denis St. Pierre sewershed will be an important component to managing increasingly limited capacity at the Denis St. Pierre WPCP.
  - **Patillo Road/Advance Area Servicing Options:** *It is recommended that the Town conduct a study to determine the investment involved in bringing the Patillo Road Package Plant online.*  
The Patillo Road Package Plant was operated for approximately 1 year before being placed on standby mode in 2007. It has been maintained monthly by OCWA since. When this treatment facility was brought online, there were insufficient flows within the sewershed to enable its stable operation. Flows were diverted to the Patillo Road Package Plant from flows tributary to the Denis St. Pierre WPCP, for commissioning. Flows within the sewershed have increased in the past 10 years and available capacity at the Denis St. Pierre WPCP is approaching the need for an expansion. Therefore, resuming operating this plant offers several opportunities for the Town.
  - **Extend the Oakwood Trunk Sanitary Sewer:** *It is recommended that the Town extend the Oakwood trunk sanitary sewer.*  
This recommendation was identified in the 2009 WWWMP (Stantec, 2009). A review of flows and operations within the Denis St. Pierre WPCP sewershed indicates this recommendation is necessary to relieve wet weather flows in the Patillo Road/Advance area and allow the Town greater flexibility in approving growth within the area. The route for this trunk sanitary sewer extension was identified in the 2009 WWWMP and can be seen in Figure 17 in Appendix A.
- **North Woodslee:** *It is recommended that municipal servicing be expanded to the eastern portion of the hamlet of North Woodslee.* The eastern portion of North Woodslee is not currently serviced by the municipal sewer system. These residences are serviced by privately owned individual treatment systems (septic systems) which are known to impact water quality. This alternative was also recommended in the 2009 WWWMP.
- **South Woodslee:** The preferred alternative is that the Town continue to repair and upgrade the existing pressurized systems. This alternative maintains the status quo within the Town.
- **Combined North and South Woodslee Servicing:** *It is not recommended that the Town explore combined servicing for the North and South Woodslee at this time; this is considered the “Do nothing” alternative.* This Master Plan update explored opportunities to service both communities. Both North and South Woodslee STFs have sufficient capacity to accept future flows in the long-term. It is recommended that the Town continue to examine options for combined servicing options in future WWWMPs.
- **Essex Fringe Servicing:** *It is recommended that the Town initiate discussions with the Town of Essex to identify opportunities to expand servicing to the Essex Fringe Area.*



In addition to these preferred alternatives, the Town completed an ESR for the Eastern Communities in 2012 (Stantec, 2012). The preferred alternatives presented in the 2012 Eastern Communities ESR are supported and included within this Master Plan update. These alternatives address concerns outlined in the 2009 WWWMP (Stantec, 2009) regarding water quality issues related to malfunctioning privately owned individual septic systems. Water quality in Lake St. Clair and local streams has been impacted by malfunctioning private systems in the area. The 2012 Eastern Communities ESR (Stantec, 2012) recommends the following:

- ***“New Stoney Point STF:*** *A new STF will be constructed in Stoney Point to replace the existing lagoons. This STF will have capacity to receive flows from the Stoney Point and Comber communities as well as future additional flows from Lighthouse Cove and Rochester Place.*
- ***Construct Sanitary Sewers:*** *Sanitary sewers and required pumping stations and forcemains will be constructed to service Rochester Place and Lighthouse Cove and convey sewage flows to the new Stoney Point STF.”*

These recommendations are shown on Figures 18 to 22 in Appendix A.

## 7.7 Potential Environmental Impacts and Mitigating Measures

Broad environmental effects are listed in Table 7-1, in Section 7.3.2. It is anticipated that the recommended servicing solutions as a group will not have significant effect on wildlife, vegetation, or the habitat characteristics of a particular species.

The main impact on the socioeconomic environment is those related to the disruptions residents may experience during construction. This impact, however, will be temporary and will not significantly impact the environment.

Table 7-1 also summarizes potential environmental impacts related to the construction of water and wastewater infrastructure, and proposes mitigation measures to reduce environmental impacts.

It is anticipated that the recommended solutions will not have serious socioeconomic impacts on existing land uses, cultural activities, heritage resources or any other community program.

It is anticipated that the recommended solutions will permit ongoing implementation of development and other activities laid out in other planning documents such as the Town’s ongoing OP update.

# Public and Review Agency Consultation

## 8.1 General

Consultation early and throughout the planning process is an important feature of a successful EA. The Class EA process identified mandatory consultation requirements. These represent the minimum required consultation activities; a Class EA consultation program should be tailored to address the needs of the specific project and stakeholders.

This Master Plan update completes Phase 1 and Phase 2 of the Class EA process. The consultation plan for this project included one mandatory public consultation period during Phase 2 of Master Planning process.

The Class EA Master Planning process also includes agency consultation, including involvement with the MOECC and various branches of provincial and federal ministries and outside agencies, such as nearby municipalities. A list detailing the project consultation distribution list can be found in Appendix D.

## 8.2 Coordination with Other Planning Initiatives

The Town has made an effort to coordinate the development of this Master Plan update with relevant, concurrent planning initiatives to achieve consistency in approaches and assumptions.

These concurrent initiatives include:

- **Town Official Plan Update** – An update to the Town’s 2010 OP to reflect the current understanding of the Town’s environment and future growth over a 20-year planning horizon
- **Population, Household, and Employment Forecast Study** – A population projection study was completed in 2015 by Watson shortly before the commencement of this Master Plan update; however, additional projection support and effort was provided concurrent to this study to support the OP update

## 8.3 Agency Consultation

Per EA requirements, numerous regulatory agencies were included on the project distribution list and received a Notice of Commencement and Notice of Public Information Centre (PIC). Communications received through agency consultation are included in Appendix D.

## 8.4 Public Consultation

Several public stakeholders were identified through consultation with Town staff and the project distribution list developed for the 2009 WWMP and 2012 Eastern Communities ESR public consultation programs. Public stakeholders on the project distribution list were mailed the Notice of Commencement and Notice of PIC. Communications received from members of the public have been included in Appendix D.

## 8.5 Public Information Center

To meet the needs of the consultation process for this project, one PIC was held. The purpose of this PIC was to update the public on the progress of the study, and present the alternative solutions for input

and feedback from the public. Input from the public during the PIC informs the recommended preferred alternatives solutions presented in the draft and final Master Plan Reports.

This PIC was held on Tuesday, May 16, 2017 from 4:00 to 7:00 pm in the foyer of the Atlas Tubing Multi-use Facility. A formal notice of PIC was published in the *Tilbury Times* on Tuesday, May 2 and Tuesday, May 9 and in *Lakeshore News* and *Shoreline* on Thursday May 4 and May 11. Four members of the project team attended the PIC to interact with members of the public. The PIC was open-house-style, with large panels displaying background information, project objectives, project problem statements, and proposed alternative solutions. Attendees were encouraged to sign in, view the panels, ask questions of project team members, and complete a comment sheet provided at the sign in table. A handout, summarizing the presentation information, was provided for attendees to take with them.

Ten members of the public attended the PIC, seven of whom signed in on the sign in sheet. Several members of the public reviewed the display materials but declined to sign in or take supplemental information. No complete comment forms were submitted by members of the public during the open house; two members of the public took comment forms with them. A summary of concerns raised by attendees, completed comment forms, PIC presentation materials is included in Appendix D.

## 8.6 Notices

### 8.6.1 Notice of Commencement

A Notice of Commencement and cover letter were mailed to review agencies and public stakeholders on the project distribution list on July 27, 2016, notifying them of the initiation of the study. The Notice of Commencement was also published in the *Lakeshore Time* and *Tilbury Times* in the weekly August 25, 2016 edition.

### 8.6.2 Notice of Completion

In accordance with the requirements of the Class EA process, a Notice of Completion advising of the Water and Wastewater Master Plan Update Study was published in the *Lakeshore News* and the *Tilbury Times* the week of January 8 and January 15, 2018. A copy of the notice was also mailed to area property owners, various stakeholder groups and regulatory agencies. .

The *Town of Lakeshore Water and Wastewater Master Plan Update Study Report* was placed on the public record for 30 calendar days and available for review from January 8, 2018 to February 6, 2018 and the following locations.

- Town of Lakeshore Municipal Building – Clerks Office, 419 Notre Dame St. Belle River, Ontario
- Online at [www.lakeshore.ca](http://www.lakeshore.ca) under the Water and Wastewater Reports and Plans page

Contact letters advising of the Notice of Completion were sent to all review agencies, mandatory contacts, and stakeholders identified on the project mailing list (included in Appendix D). Copies of all written comments received and their responses are included in Appendix D.

Subject to comments received during the review period and assuming no Part II order requests are submitted to the Minister; the filing of the Master Plan document in the public record marks the conclusion of Phases 1 and 2 of the Class EA process for the preferred servicing strategies and alternative solutions.

## 8.7 Council Presentations

To support the stakeholder consultation process, Project-specific information was presented to the eight members of Town Council on April 20 and December 12, 2017. In April, the Project team presented general Study information, next steps and recommendations followed by discussion. On December 12, 2017, the Town Council recommended the Project team issue the Notice of Completion after a presentation followed by a series of questions and answers, and additional Project discussion.

Copies of the presentations are included in Appendix D.

# Recommended Servicing Plan

## 9.1 Project Summary

This section outlines the preferred municipal water and wastewater infrastructure works required within the Town to service the needs of the community to 2035, including extending wastewater servicing to several unserviced areas throughout the Town while minimizing the environmental impacts.

Tables 9-1 and 9-3 summarize the identified water and wastewater projects related to capital costs, anticipated timing, and Class EA Schedule. Capital costs, and include allowances for contingencies and engineering.

In some cases, the Class EA schedule for a project could vary, depending on site-specific requirements. For example, typically less complex projects such as new watermains or new sewers constructed within existing road allowances or municipally owned property would be classified as Schedule “A” or “A+” activities.

If the works, or a portion of the works, require the purchase of private property, the project would be considered a Schedule “B” activity. Therefore, certain proposed projects identified in the following summary are identified with multiple schedules. Accordingly, the Class EA schedule should be reviewed and confirmed when detailed consideration is given to these projects.

Some identified projects will depend on municipal decisions, further studies, financing constraints, or a combination thereof. Accordingly, the timing identified in the project summary to extend sanitary servicing to currently unserviced areas has been assumed for long-term planning and to gauge the impact on economic implications. The actual timing of such potential projects may change, depending on these factors.

Table 9-1. Summary of Identified Water Supply Projects to 2035

Water Projects	Capital Cost <sup>a</sup>	Year Required	Class EA Schedule
<b><i>Belle River Water Supply System</i></b>			
<b>Storage Facilities</b>			
Replace existing MWT with a new 5,800-m <sup>3</sup> elevated water tower in the general vicinity of the Patillo Road/Little Baseline Road corridor and connect it to proposed future 600-mm-diameter trunk watermain through Wallace Woods Area	\$7,500,000	2030	B
<b>Watermain Infrastructure</b>			
Construct new 200 & 300-mm-diameter trunk watermains along 11 <sup>th</sup> Street from Broadway Street to St. Louis Street (200-mm diameter = 225 m long; 300-mm diameter = 300 m long, respectively)	\$500,000	2018	A+
Construct new 250 & 300-mm-diameter trunk watermains along Notre Dame Street from 11 <sup>th</sup> Street to Duck Creek Blvd (250-mm-diameter = 225 m long; 300-mm-diameter = 300 m long)	\$600,000	2018	A+
Construct new 400-mm-diameter trunk watermains along Rourke Line Road from County Road 22 to Caille Ave. (290 m long)	\$650,000	2018	A+
Construct new 400-mm-diameter trunk watermains along Renaud Line Road from County Road 22 to Caille Ave. (230 m long)	\$600,000	2018	A+
Construct new 600-mm-diameter trunk watermain along West Puce River Road from County Road 22 southerly to existing 600-mm diameter trunk watermain (590 m long)	\$750,000	2019	A+

**Table 9-1. Summary of Identified Water Supply Projects to 2035**

<b>Water Projects</b>	<b>Capital Cost<sup>a</sup></b>	<b>Year Required</b>	<b>Class EA Schedule</b>
Construct new 600-mm-diameter trunk watermain through Wallace Woods area from West Puce River Road to Patillo Road (3,000 m long)	\$3,000,000	2019 to 2030	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from West Puce River Road to Wallace Line Road (1,675 m long)	\$1,250,000	2019	A+
Construct new 400-mm diameter trunk watermain along Wallace Line Road from County Road 22 southerly to proposed 600-mm diameter trunk watermain through Wallace Woods area (1,000 m long)	\$650,000	2020	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from Wallace Line Road to Patillo Road (1,450 m long)	\$1,000,000	2020	A+
Construct new 400-mm-diameter trunk watermain along County Road 22 from Patillo Road to West Pike Creek Road (County Road 21) (2,200 m long)	\$1,400,000	2021	A+
Construct new 500-mm-diameter trunk watermain along Little Baseline Road from existing 500-mm-diameter trunk watermain west of Patillo Road to existing 400-mm-diameter watermain at Stonebrook Road (780 m long)	\$750,000	2022	A+
Construct new 400-mm-diameter trunk watermain along Little Baseline Road from West Pike Creek Road (County Road 21) westerly to existing 150-mm-diameter watermain near Manning Road (County Road 19) (1,430 m long)	\$1,000,000	2022 to 2035	A+
<b>Stoney Point Water Supply System</b>			
<b>Treatment Facilities</b>			
Alternative 1 - Expand Stoney Point WTP to next modular size from 4,545 m <sup>3</sup> /day to 9,090 m <sup>3</sup> /day on present site	\$6,500,000	2026	C
Alternative 2 - Supply 9,090 m <sup>3</sup> /day from Belle River WSS via new trunk watermain and convert Stoney Point WTP into a reservoir and booster pump station	\$11,500,000	2026	B
<b>Storage Facilities</b>			
Construct a new 3,200-m <sup>3</sup> elevated water tower located in the Community of Stoney Point in the general area of Comber Sideroad (County Road 35) and Tecumseh Road (County Road 2)	\$5,000,000	2017	B
<b>Watermain Infrastructure</b>			
Construct new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from St. Clair Road to existing 300-mm-diameter trunk watermain immediately north of Tecumseh Road (County Road 2) (730 m long)	\$450,000	2017	A+
Construct new 300-mm-diameter trunk watermain along Comber Sideroad (County Road 35) from Tecumseh Road (County Road 2) to existing 200-mm-diameter trunk watermain immediately south of the Canadian National Railway (210 m long)	\$200,000	2017	A+
Construct new 200-mm-diameter watermain along Gracie Sideroad (County Road 37) from Couture Beach Road to Lakeshore Road 302 (1,635 m long)	\$650,000	2018	A+
Construct new 200 -mm-diameter watermain along Tecumseh Road (County Road 2) from Gracie Sideroad (County Road 37) westerly (700 m long)	\$350,000	2018	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Tecumseh Road (County Road 2) near Rochester Townline (640 m long)	\$300,000	2019	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Tecumseh Road (County Road 2) and Rochester Townline (1,015 m long)	\$475,000	2019	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection and check valve facility along Rochester Townline from Lakeshore Road 302 southerly (335 m long)	\$225,000	2019	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 303 from Gracie Sideroad (County Road 37) westerly plus check valve facility on Gracie Sideroad from Lakeshore Road 303 southerly (645 m long)	\$350,000	2020	A+

Table 9-1. Summary of Identified Water Supply Projects to 2035

Water Projects	Capital Cost <sup>a</sup>	Year Required	Class EA Schedule
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from County Road 42 northerly (420 m long)	\$250,000	2020	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along County Road 42 from Rochester Townline easterly (2,150 m long)	\$700,000	2021	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from Lakeshore Road 305 southerly (550 m long)	\$275,000	2021	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Rochester Townline from Auction Side Road northerly across Kings Highway 401 (435 m long)	\$450,000	2022	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) across Kings Highway 401 (380 m long)	\$500,000	2022	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 305 across Kings Highway 401 (260 m long)	\$400,000	2023	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from Middle Road (County Road 46) southerly plus isolation valve facility on Middle Road (County Road 46) 650 m west of Gracie Sideroad (County Road 37) (800 m long)	\$400,000	2023	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from Lakeshore Road 309 northerly (740 m long)	\$325,000	2024	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Gracie Sideroad (County Road 37) from County Road 8 northerly (740 m long)	\$325,000	2024	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along Lakeshore Road 311 from Kings Highway 77 westerly (1,100 m long)	\$475,000	2025	A+
Construct new 100 or 150-mm-diameter watermain looping interconnection along South Middle Road from Rochester Townline easterly (1,200 m long)	\$500,000	2025	A+
Construct new 100-or 150-mm-diameter watermain looping interconnection along South Middle Road from Lakeshore Road 309 easterly (1,100 m long)	\$475,000	2026	A+
Consider construction of new 400-mm-diameter watermain along Comber Sideroad (County Road 35) from CN Railway southerly as conditions dictate to south of Highway 401 in Comber to replace existing 200-mm-diameter watermain (7,200 m long)	\$5,000,000	2018 to 2035	A+

Note:

<sup>a</sup>. Capital costs represent conceptual level planning estimates and based on factors and reasoning discussed in Appendix E.1.

The capital cost of individual water supply projects was derived (mostly and in-part) from representative unit costs from Table 9-2.

Table 9-2. Capital Cost of Individual Water Supply Projects

Water Infrastructure	Unit Costs <sup>a, b, c</sup>
Water Treatment Capacity (expansion to 9,090 m <sup>3</sup> /d)	\$1,430 per m <sup>3</sup> /d expansion
Elevated Tank Capacity < 3,500 m <sup>3</sup>	\$1,560 per m <sup>3</sup> volume
Elevated Tank Capacity > 3,500 m <sup>3</sup>	\$1,300 per m <sup>3</sup> volume
100-mm-diameter watermain	\$250 per m length
150-mm-diameter watermain	\$290 per m length
200-mm-diameter watermain	\$320 per m length

**Table 9-2. Capital Cost of Individual Water Supply Projects**

<b>Water Infrastructure</b>	<b>Unit Costs<sup>a, b, c</sup></b>
250-mm-diameter watermain	\$350 per m length
300-mm-diameter watermain	\$400 per m length
400-mm-diameter watermain	\$620 per m length
450-mm-diameter watermain	\$700 per m length
500-mm-diameter watermain	\$850 per m length
600-mm-diameter watermain	\$950 per m length

**Notes:**<sup>a</sup>. costs include engineering and contingencies at 25%<sup>b</sup>. costs exclude HST<sup>c</sup>. costs based on recent tender prices and historical cost escalations

A summary of the identified wastewater supply projects until 2035 is provided in Table 9-3.

**Table 9-3. Summary of Identified Wastewater Supply Projects to 2035**

<b>Wastewater Projects</b>	<b>Probable Cost</b>	<b>Year Required</b>	<b>Class EA Schedule</b>
<b><i>North and South Woodslee</i></b>			
Expand gravity sewers to service the eastern portion of the North Woodslee hamlet.	\$5,300,000 <sup>a</sup>	Far Future	A+
Continue to repair and upgrade the existing South Woodslee pressurized system.	\$9,100 per system <sup>b</sup>	Ongoing	A+
<b><i>Denis St. Pierre WPCP Wastewater Collection System</i></b>			
Increase rated capacity of Denis St. Pierre WPCP by 1 MIGD, from 3 MIGD to 4 MIGD.	\$14,500,000 <sup>a</sup>	2020	C
Extend Oakwood trunk sewer from Puce River to Pike Creek area.	\$9,600,000 <sup>a</sup>	2025	A+
Install new gravity sewer collection system to service Pike Creek area.	\$4,400,000	Far Future	A+
Belle River Road Corridor – sewer system including trunk sewer, pumping station and forcemain to Denis St. Pierre WPCP.	\$10,200,000 <sup>a</sup>	2025+	A+
<b><i>Eastern Communities</i></b>			
Construct a new sewage treatment facility in Stoney Point to treat sewage from both Stoney Point and Comber (Phase 1).	\$15,576,000 <sup>c</sup>	2020	N/A <sup>d</sup>
Pump Station and Forcemain to transmit wastewater from Stoney Point to the new STF (Phase 1).	\$500,000 <sup>c</sup>	2020	
Pump Station Upgrade and new Forcemain to transmit wastewater from Comber to the new STF (Phase 1).	\$3,795,000 <sup>c</sup>	2020	
Construct gravity sewer collection system to service Lighthouse Cove (Phase 1)	\$23,725,000 <sup>c</sup>	2020	
New Pumping Station and forcemain to transmit sewage from Lighthouse Cove to the new STF (Phase 1).	\$904,000 <sup>c</sup>	2020	
Construct new gravity sewer collection system to service Rochester Place (Phase 2).	\$30,753,000 <sup>c</sup>	2030	



Table 9-3. Summary of Identified Wastewater Supply Projects to 2035

Wastewater Projects	Probable Cost	Year Required	Class EA Schedule
New Pumping Station and forcemain to transmit sewage from Rochester Place to the new STF (Phase 2).	\$3,135,000 <sup>c</sup>	2030	
Decommission the existing sewage lagoons located in Stoney Point and Comber (Phase 2).	\$3,163,000 <sup>c</sup>	2030	N/A <sup>d</sup>
Expand Stoney Point STF to receive flows from Lighthouse Cove and Rochester Place (Phase 2).	\$3,921,000 <sup>c</sup>	2030	
<b>Studies</b>			
Initiate a private source control inflow and infiltration program in addition to the ongoing public source control program. Review the existing inflow and infiltration program.	\$80,000	2017	N/A
Conduct a study of the Patillo Road Package Plant to evaluate (1) the ability of the plant to relieve wet weather flows (2) ability of the plant to increase available capacity at the Denis St. Pierre WPCP and (3) assess the capital cost and feasibility of bringing this plant back online from standby.	\$50,000	2017	N/A
Explore opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe Area within the Town of Lakeshore.	N/A	2017	N/A

**Notes:**

All costs exclude HST and represent conceptual level planning cost estimates.

<sup>a</sup>. Original costs were developed in the 2009 WWWWMP, costs presented here are escalated to 2017 dollars using the Consumer Price Index (CPI), details are provided in Appendix E.2.

<sup>b</sup>. Per system costs are presented here as the number of systems replaced per year may vary depending on conditions. These costs are escalated to 2017 dollars from 2009 costs presented in the 2009 WWWWMP as detailed in Appendix E.2.

<sup>c</sup>. Costs presented are from the 2012 Eastern Communities ESR (Stantec, 2012), see Appendix E.2 for details.

<sup>d</sup>. The Eastern Communities ESR completes the planning phases of the EA process, these projects are approved and may proceed to detailed design and construction.

The cost estimates presented in Table 9-2 for the wastewater recommendations are based on previous work performed in earlier studies. These estimates are completed at a conceptual planning level. Costs developed at the Master Plan level are considered an ACE International Class 4 estimate with a level of accuracy ranging from +50 percent to -30 percent. These costs were escalated from 2007 dollars to today's (2017) dollars using the Consumer Price Index, the details. The costs developed for the Eastern Communities ESR were developed by Stantec in 2012 and are presented in this update to reiterate the recommendations of the Study (Stantec, 2012). The cost estimates for the Eastern Communities recommendations, completed by Stantec, were conducted at an ACE International Class 4 level. Cost estimates will be further refined for all recommendations at the next phase of planning.

## 9.2 Next steps

- No Part II Order requests were submitted to the Minister during the 30-day review period. The Master Plan Report can be finalized and adopted by Lakeshore Council in the form of a Council Resolution.

Projects identified in the Master Plan as Schedule "A" or "A+" projects will not require further planning under the Class EA process and may proceed to Phase 5 (implementation) with detailed design and construction.

Projects identified in the Master Plan as Schedule B projects may also be considered approved under the Class EA process and the Town may proceed to Phase 5 with detailed design and construction. However, some of the projects identified as Schedule “B” projects may require further planning or detailed investigations at the time of implementation to minimize environmental impacts and/or any changes to socio-economic conditions.

For projects identified that involved the purchase of land, additional studies may be required. The nature and extent of these studies will vary with each project and may be required to establish the suitability of the site, to assist with the preparation of detailed estimates of for final design information purposes.

Projects that have been identified in the Master Plan as Schedule “C” projects (which typically include more complex projects such as expansions to existing treatment facilities or construction of new facilities) will require the Town to complete Phases 3 to 4 of the Class EA planning and design process, including further public and review agency consultation; and preparation of an ESR before proceeding to Phase 5 with final design and construction.

### 9.3 Monitoring

The scheduling of planning projects is related to the anticipated growth in demand for water and sewer services.

Accordingly, the Town should closely monitor actual growth, water demand and wastewater flows and adjust the scheduling and implementation of associated infrastructure projects as needed.

The following actions are recommended:

1. Monitor actual water plant production records, wastewater treatment plant flows, and development growth annually and compare to Master Plan projections.
2. Establish and annually track the uncommitted reserve capacity of the Town’s existing water and wastewater treatment facilities in accordance with MOECC *Guideline D-5-1 – Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants*, March 1995 (MOECC, 1995).
3. Collect water distribution system and wastewater collection system component attribute data on new installations as they are constructed and update the Town’s geographic information systems database.
4. Implement a watermain and sewer rehabilitation and replacement program including water use and I/I measures, and review priorities based on data collected and results of studies.
5. Review the WWMP annually and update it every 5 years to adjust to changing local conditions, new problems, and system improvements that have been implemented; incorporate these changes into long-term planning for water and wastewater infrastructure.

# References

CH2M HILL Canada Limited (CH2M). 2013. *Town of Lakeshore Sanitary Sewer Modelling*. Prepared for the Town of Lakeshore. December.

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Municipal Engineers Association (MEA). 2000 as amended in 2007, 2011, and 2015. *Municipal Class Environmental Assessment*.

Ontario Ministry of the Environment and Climate Change (MOECC). 1995. *Guideline D-5-1 – Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants*.

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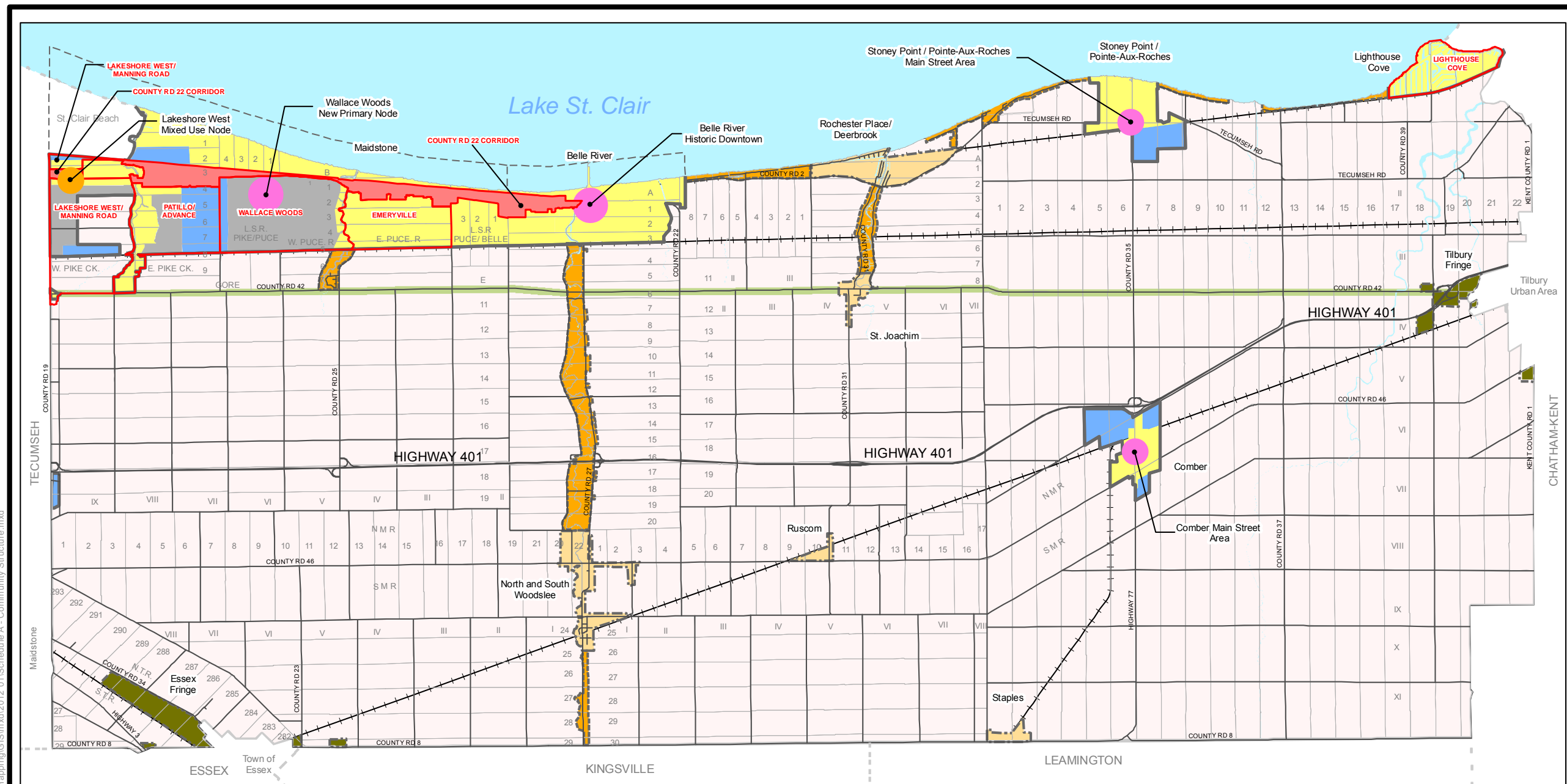
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Watson and Associates Economists Ltd (Watson). 2015. *Town of Lakeshore Official Plan Review Growth Analysis Study*. Prepared for the Town of Lakeshore. November 27.

Watson and Associates Economists Ltd (Watson), 2017. *Revised Population and Non-residential land Demand Forecasts for the Town of Lakeshore*. Email from Jamie Cook dated February 15, 2017.

## Appendix A – Figures



M:\Uops\2009\14\_09206.00\LP01 - Town of Lakeshore\Maping\GIS\mxd\2012\_01\Schedule A - Community Structure.mxd

**COMMUNITY STRUCTURE POLICY AREAS (SECTION 3.3)**

- Primary Node\*
- Secondary Node\*
- Mixed Use Node\*
- Agricultural Area
- Urban Reserve Area
- Urban Area
- Employment Area
- Hamlet Area
- Waterfront Area
- Urban Fringe Area

**SPECIAL PLANNING AREAS (SECTION 3.4)**

- Special Planning Area
- County Road 22 Mixed Use Corridor\*
- County Road 42 Regional Corridor\*

**LEGEND**

- Urban Area Boundary
- Hamlet Area Boundary
- Waterfront Area Boundary
- Urban Fringe Area Boundary
- Town Boundary

\* The Nodes and Corridors are conceptually illustrated and are not intended to define the geographical extent of the Nodes and Corridors. The geographic extent is defined by the Land Use Designations identified on Schedule "C".

0      2.5      5  
km

Interpretation Note: This Schedule will be read and interpreted in conjunction with the Official Plan in its entirety.

Schedule "A" illustrates the community structure policy areas as discussed in Section 3.0 of the Official Plan. For specific Land Use Designations, refer to Schedule "C".

**Town of Lakeshore  
OFFICIAL PLAN**

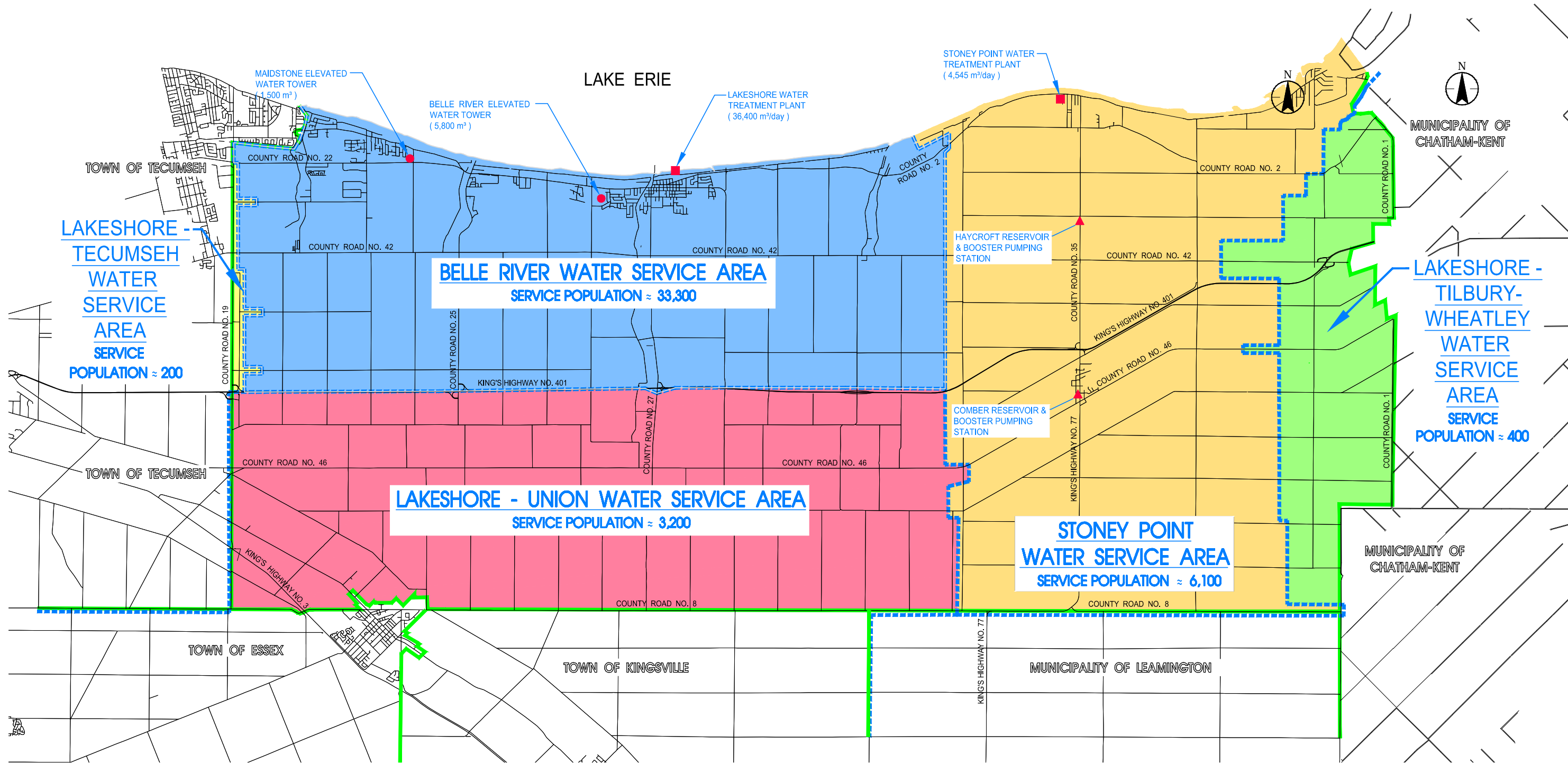
**SCHEDULE "A"  
COMMUNITY STRUCTURE**

**MMM GROUP**

Revision Date: January 10, 2012

SOURCE: MMM Group 2012

Figure 1  
Lakeshore Official Plan



**LEGEND**

- MUNICIPAL BOUNDARY
- - - - WATER SERVICE AREA BOUNDARY
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- ▲ EXISTING RESERVOIR & BOOSTER PUMPING STATIONS

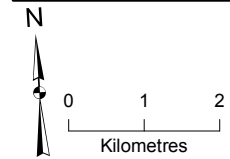
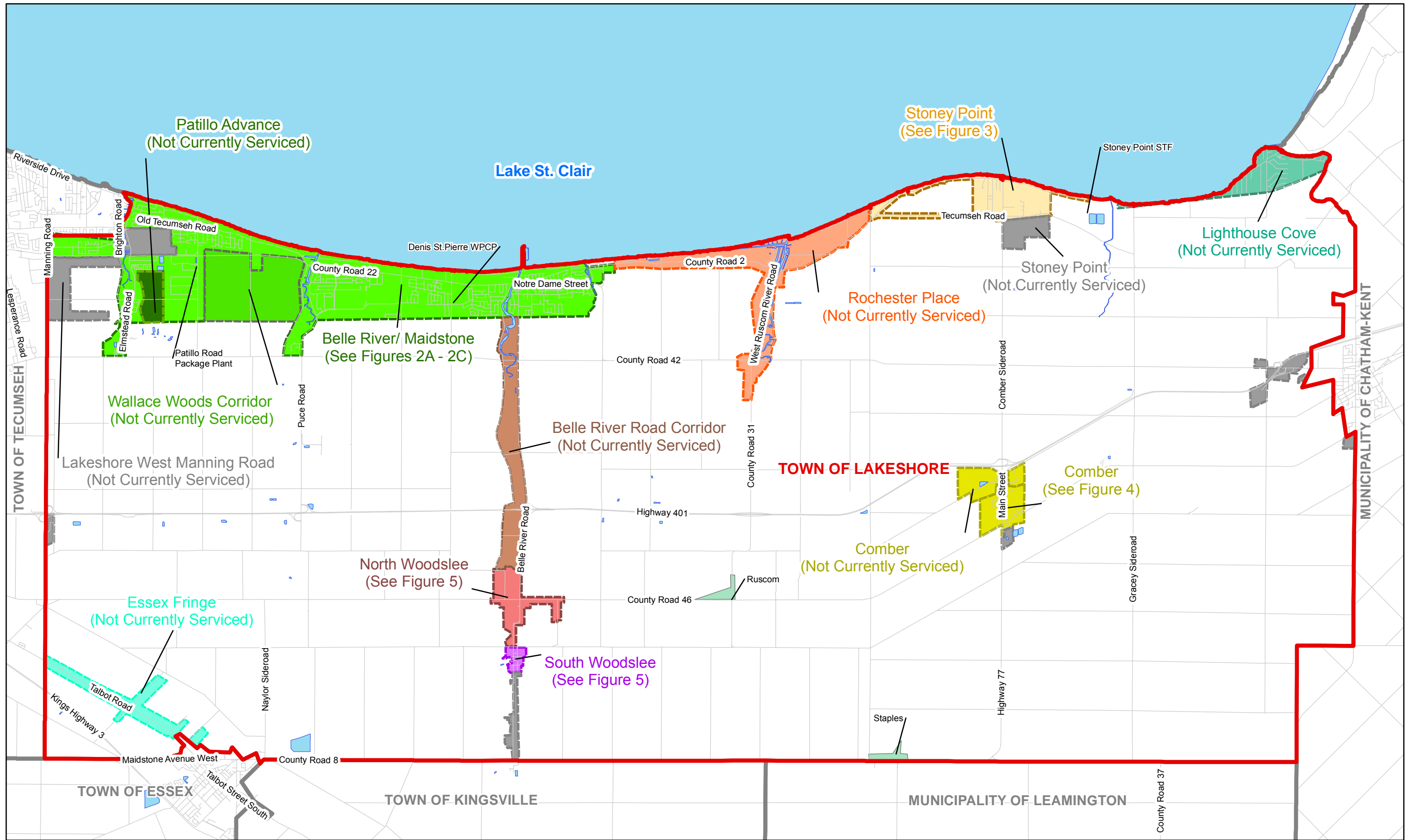
**TOTAL SERVICE POPULATION ≈ 43,200 PERSONS**



**TOWN OF LAKESHORE  
WATER & WASTEWATER MASTER PLAN UPDATE**

EXISTING WATER SUPPLY SYSTEMS

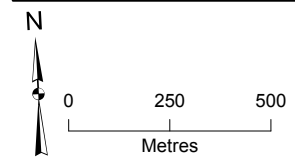
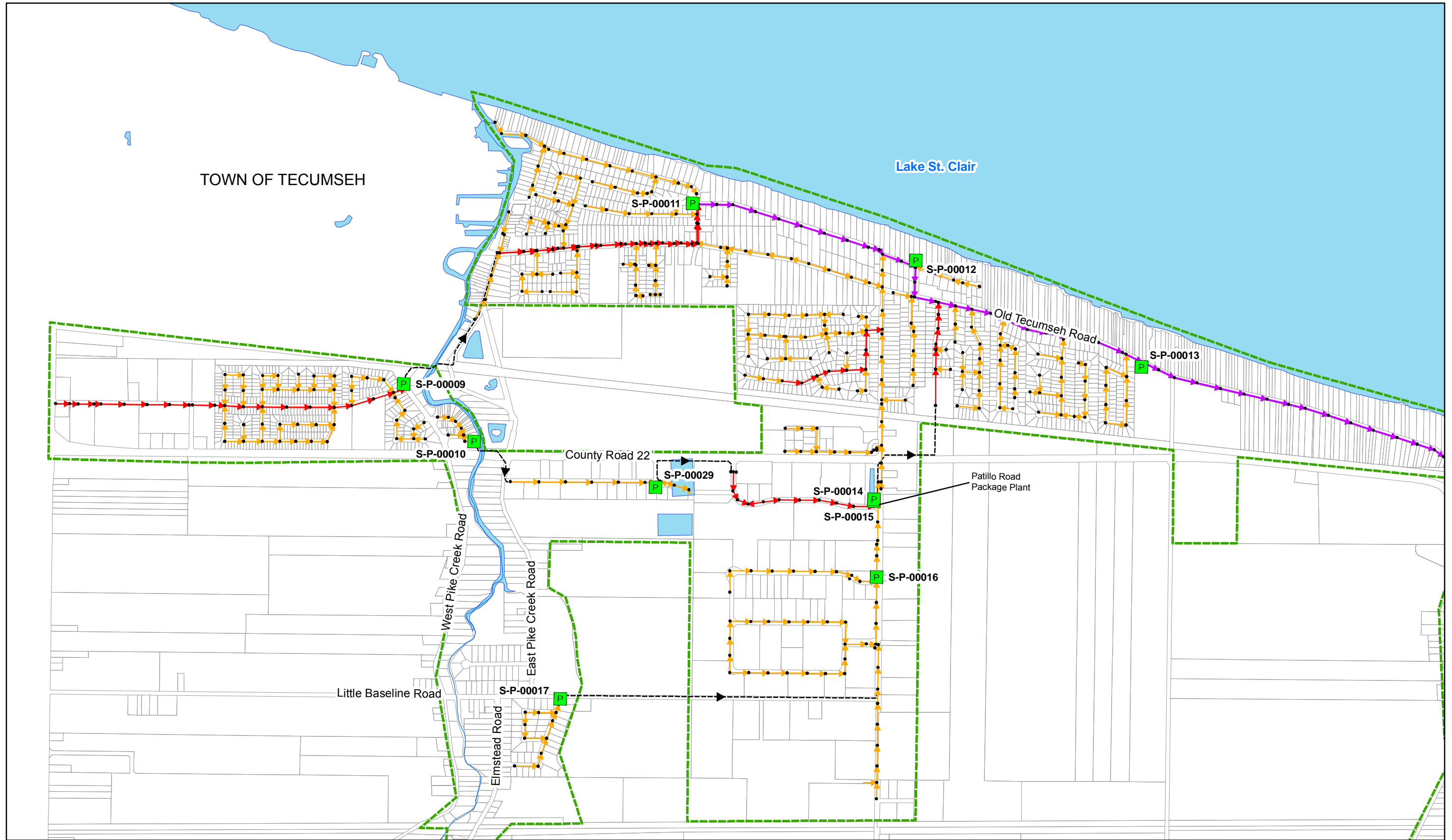
PROJECT NO.	0	1250	3750	6250m	DRAWING NO.
165620081	1:125000				FIGURE 2



- |  |  |  |   |
|--|--|--|---|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Patillo Advance</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black; margin-right: 5px;"></span> Comber</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FFFF; border: 1px solid black; margin-right: 5px;"></span> Essex Fringe</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Belle River</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> Belle River/ Maidstone</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> North Woodslee</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #DDA0DD; border: 1px solid black; margin-right: 5px;"></span> South Woodslee</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Stoney Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA07A; border: 1px solid black; margin-right: 5px;"></span> Rochester Place</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Lighthouse Cove</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Wallace Woods Corridor</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Unserved Areas Not Considered In Project Scope</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Neighbour Municipalities</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid red; margin-right: 5px;"></span> Town of Lakeshore</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Hamlet</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Waterbodies</li> <li><span style="display: inline-block; width: 15px; height: 10px; border-bottom: 1px solid black; margin-right: 5px;"></span> Roads</li> </ul> |
|--|--|--|---|

Notes  
 1. Data Source: The Corporation of the Town of Lakeshore  
 2. Lighthouse Cove, Rochester, Essex Fringe and Belle River Study area not currently serviced for wastewater

Figure 3  
 Wastewater Service Areas Overview  
 Lakeshore Water and Wastewater MP Update  
 Town of Lakeshore  
 Lakeshore, Ontario, Canada

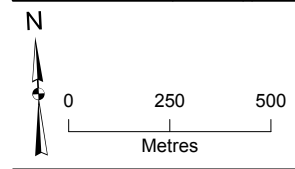
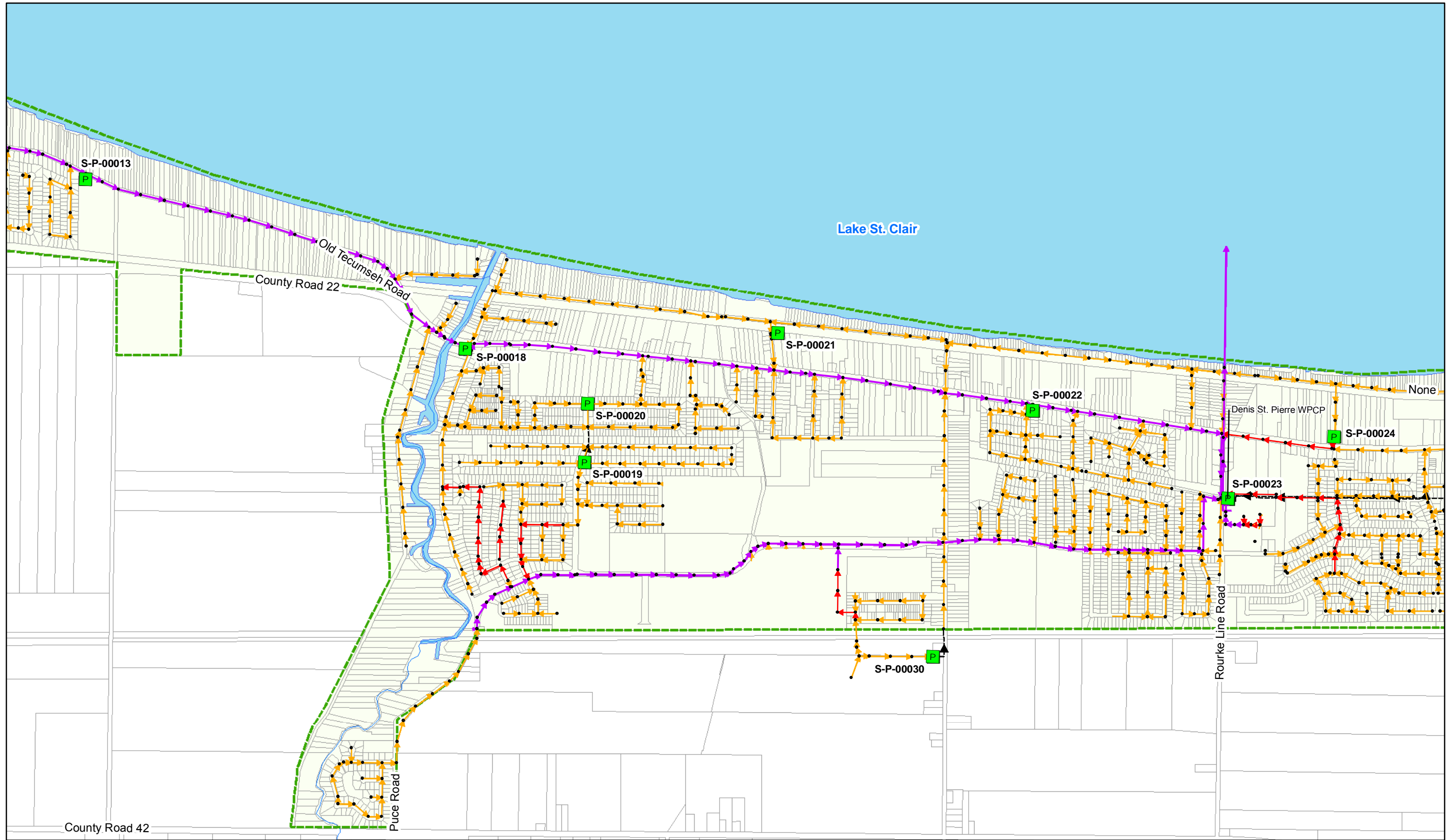


- Sanitary Manhole
- Pumping Stations
- ➔ Sanitary Forcemain
- Sanitary Sewers (Gravity)
  - 0 - 250mm
  - 300 - 400mm
  - 450 - 900mm
- ▭ Belle River/ Maidstone
- ▭ Tax Parcel
- ▭ Waterbodies

Data Source: The Corporation of the Town of Lakeshore

Figure 4-A  
 Belle River/Maidstone Wastewater Service Area (Existing)  
 Lakeshore Water and Wastewater MP Update  
 Town of Lakeshore  
 Lakeshore, Ontario, Canada

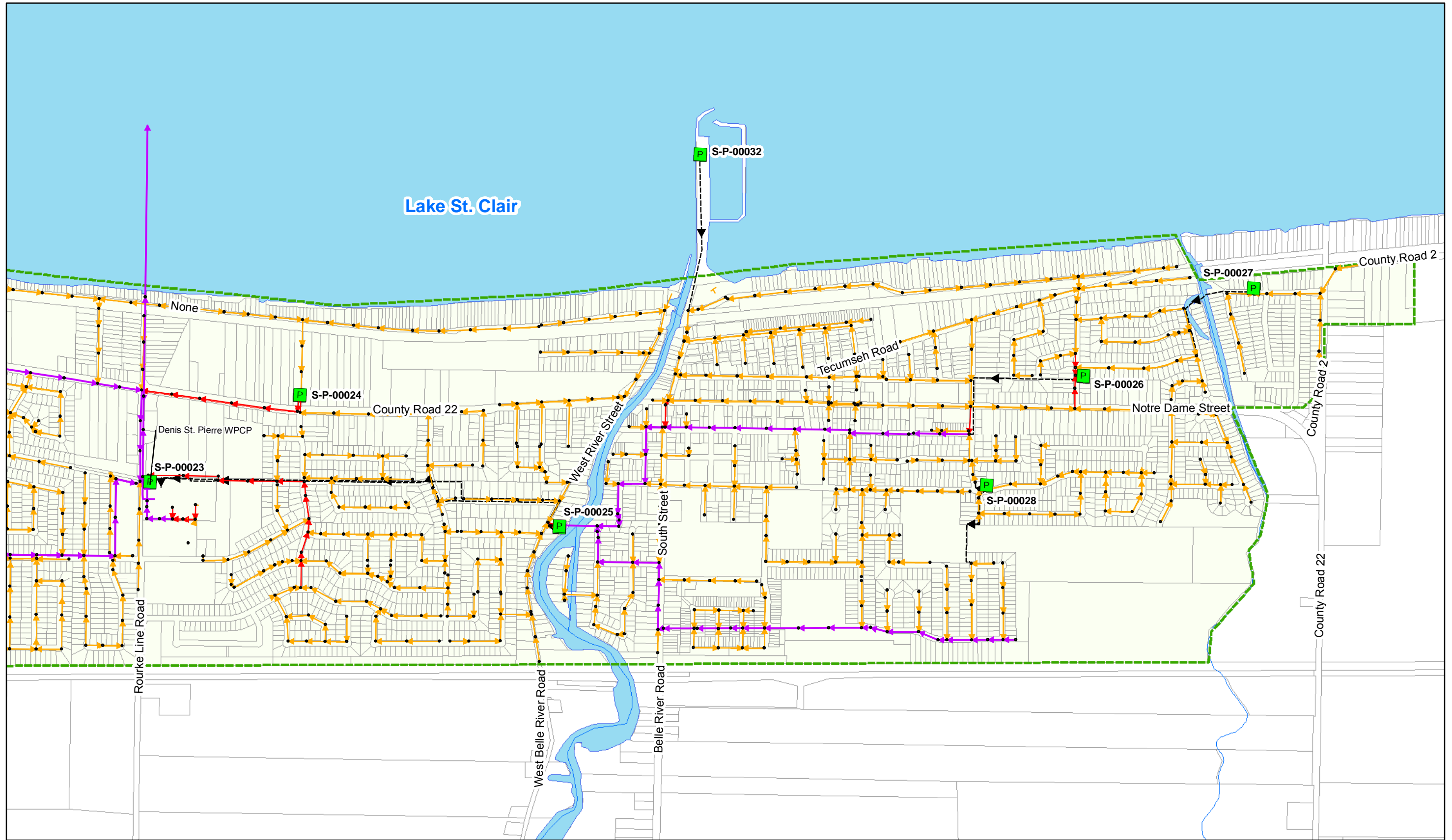




- Sanitary Manhole
- Pumping Stations
- ➔ Sanitary Forcemain
- Sanitary Sewers (Gravity)
  - 0 - 250mm
  - 300 - 400mm
  - 450 - 900mm
- ▭ Belle River/ Maidstone
- ▭ TaxParcel
- ▭ Waterbodies

Data Source: The Corporation  
of the Town of Lakeshore

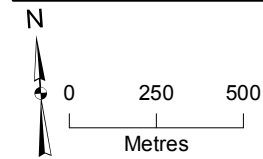
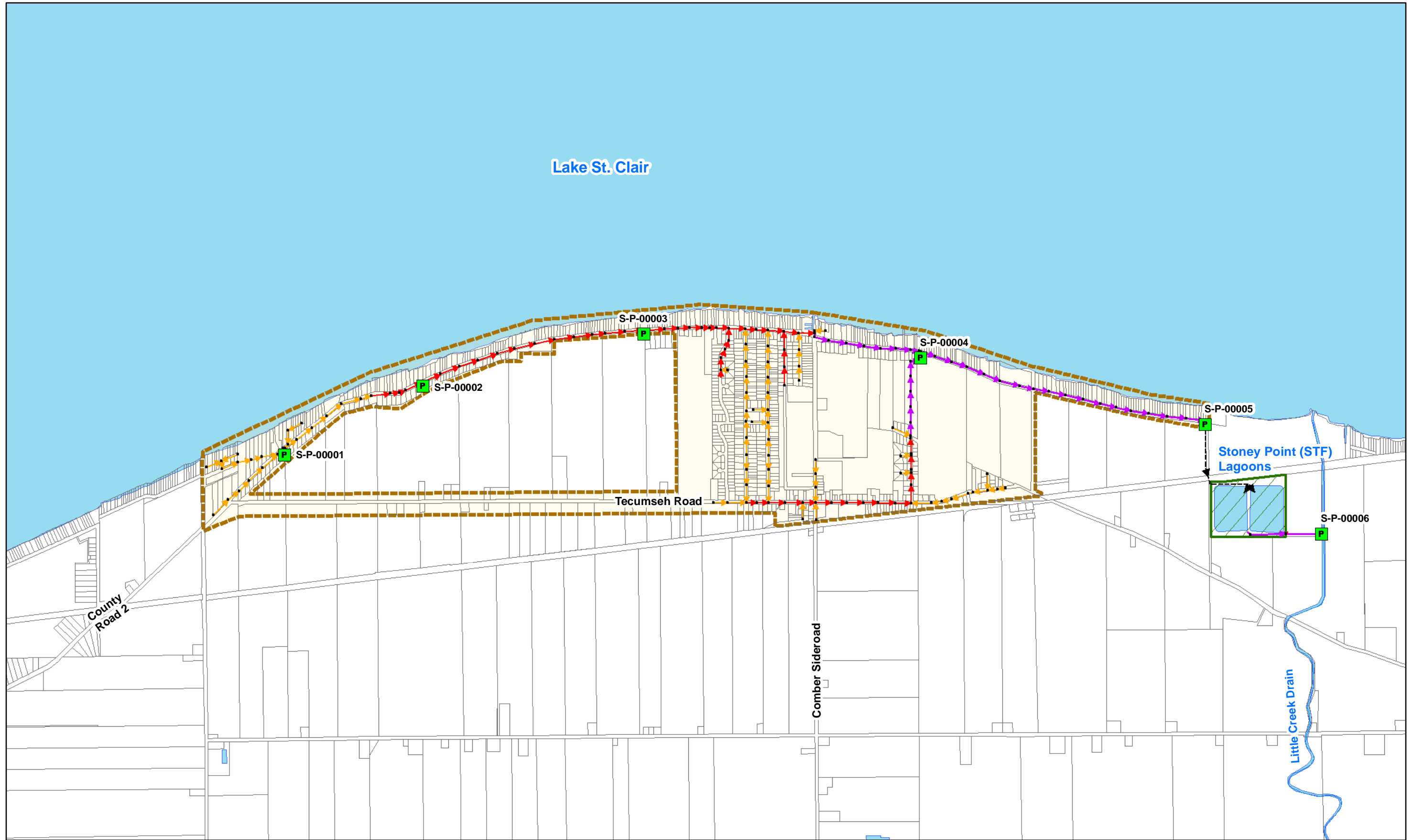
Figure 4-B  
Belle River/ Maidstone Wastewater Service Area (Existing)  
Lakeshore Water and Wastewater MP Update  
Town of Lakeshore  
Lakeshore, Ontario, Canada



- Sanitary Manhole
- Pumping Stations
- ➔ Sanitary Forcemain
- Sanitary Sewers (Gravity)**
- 0 - 250mm
- 300 - 400mm
- 450 - 900mm
- Belle River/ Maidstone
- TaxParcel
- Waterbodies

Data Source: The Corporation  
of the Town of Lakeshore

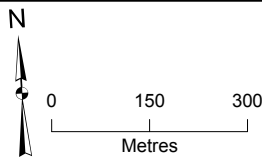
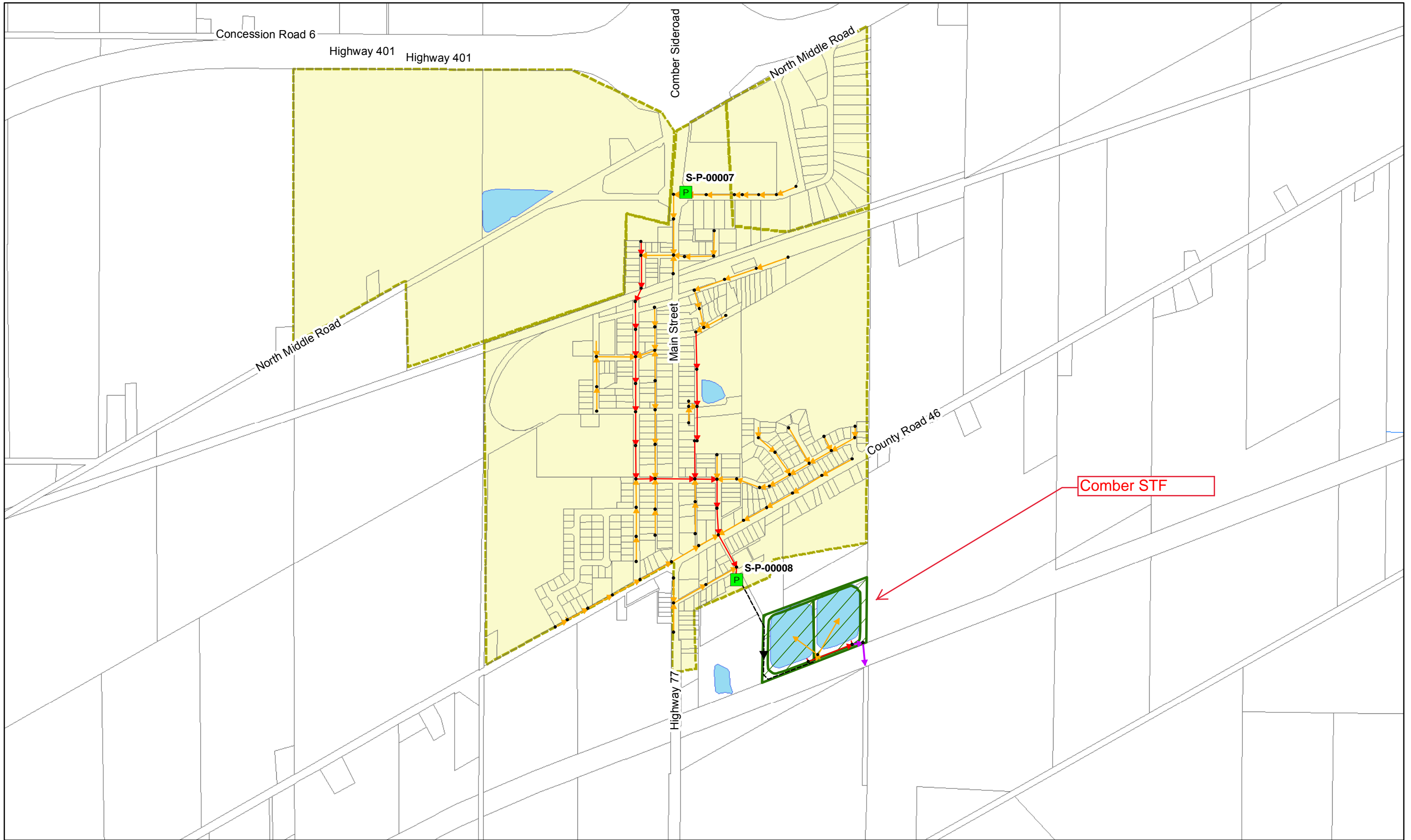
Figure 4-C  
Belle River/ Maidstone Wastewater Service Area (Existing)  
Lakeshore Water and Wastewater MP Update  
Town of Lakeshore  
Lakeshore, Ontario, Canada



- Sanitary Manhole
- Pumping Stations
- ▶ Sanitary Forcemain
- Sanitary Sewers (Gravity)**
- 0 - 250mm
- 300 - 400mm
- 450 - 900mm
- ▭ Stoney Point Wastewater Service Area
- ▭ Existing Treatment Facility
- ▭ Parcel

Data Source: The Corporation of the Town of Lakeshore

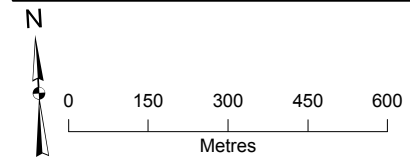
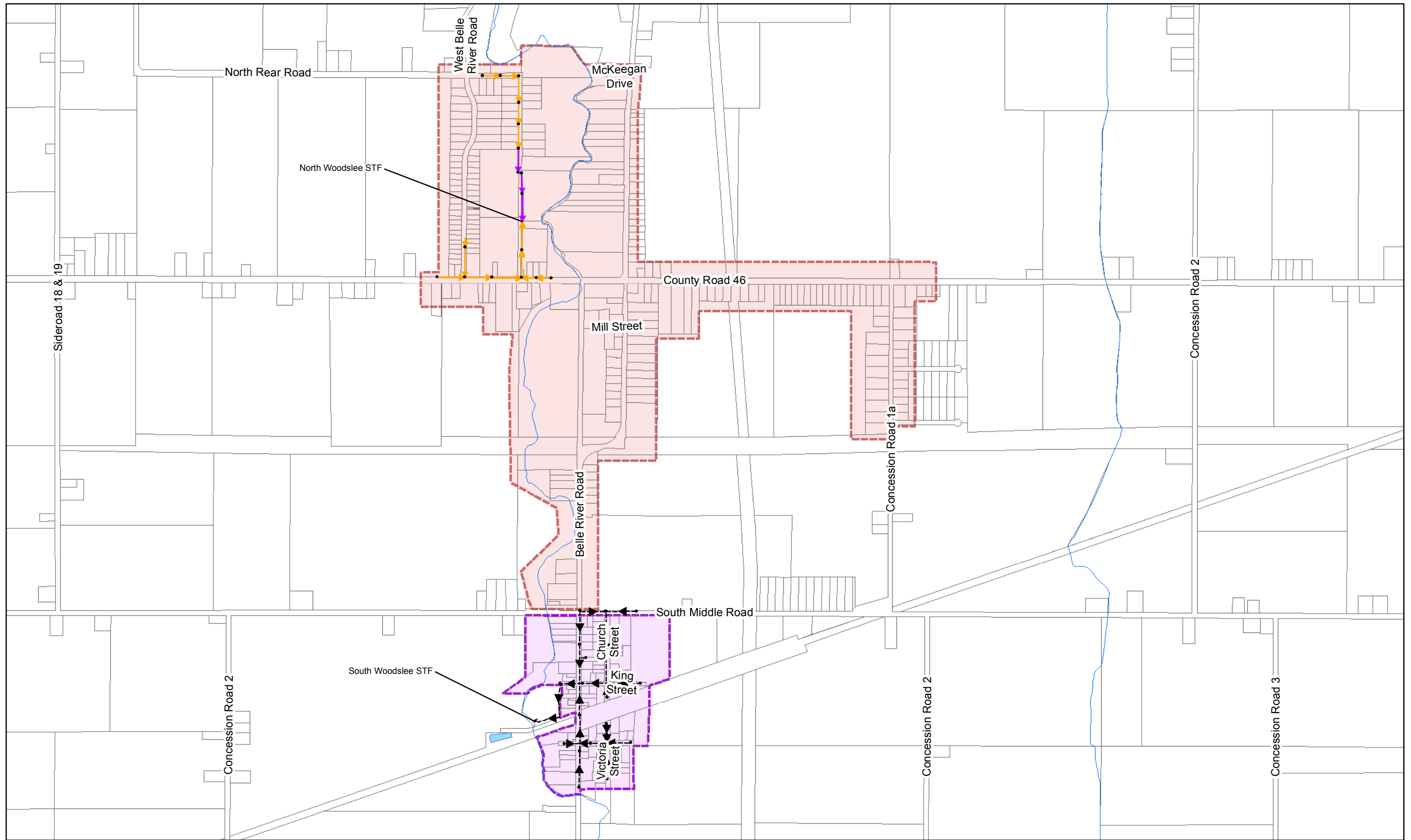
Figure 5  
Stoney Point Wastewater Service Area (Existing)  
Lakeshore Water and Wastewater MP Update  
Town of Lakeshore  
Lakeshore, Ontario, Canada



- Sanitary Manhole
- Pumping Stations
- ➔ Sanitary Forcemain
- Sanitary Sewers (Gravity)
  - ➔ 0 - 250mm
  - ➔ 300 - 400mm
  - ➔ 450 - 900mm
- Comber Wastewater Service Area
- Existing Treatment Facility
- Parcel

Data Source: The Corporation of the Town of Lakeshore

Figure 6  
 Comber Wastewater Service Area (Existing)  
 Lakeshore Water and Wastewater MP Update  
 Town of Lakeshore  
 Lakeshore, Ontario, Canada



- Sanitary Manhole
- ➔ Sanitary Forcemain
- Sanitary Sewers (Gravity)
- 0 - 250mm
- 450 - 900mm
- South Woodslee Wastewater Service Area
- North Woodslee Wastewater Service Area
- TaxParcel

Data Source: The Corporation of the Town of Lakeshore

Figure 7  
 North and South Woodslee Wastewater Service Area (Existing)  
 Lakeshore Water and Wastewater MP Update  
 Town of Lakeshore  
 Lakeshore, Ontario, Canada

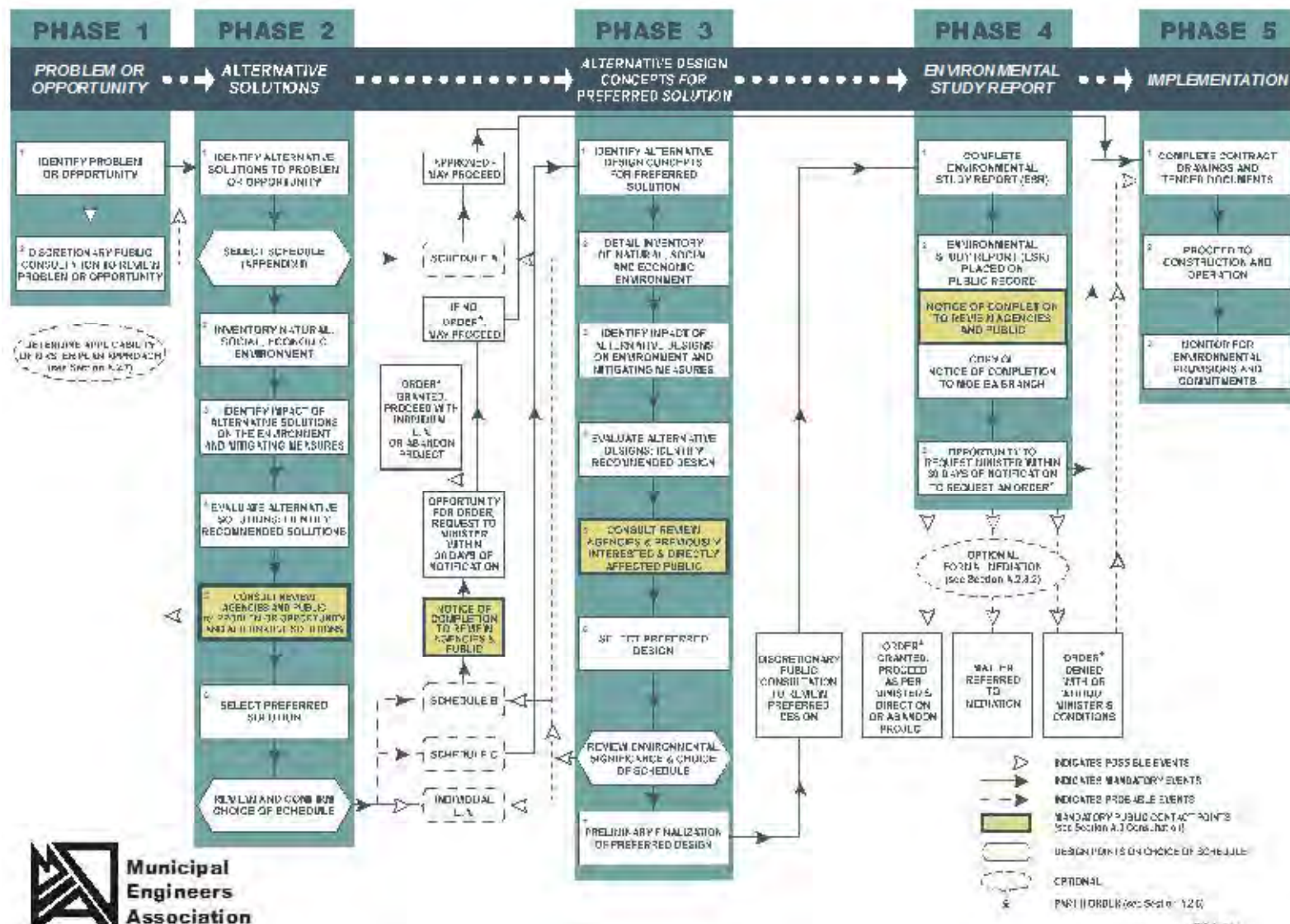
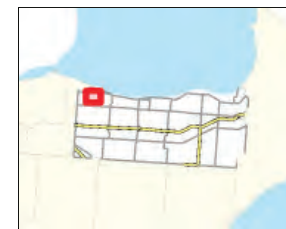
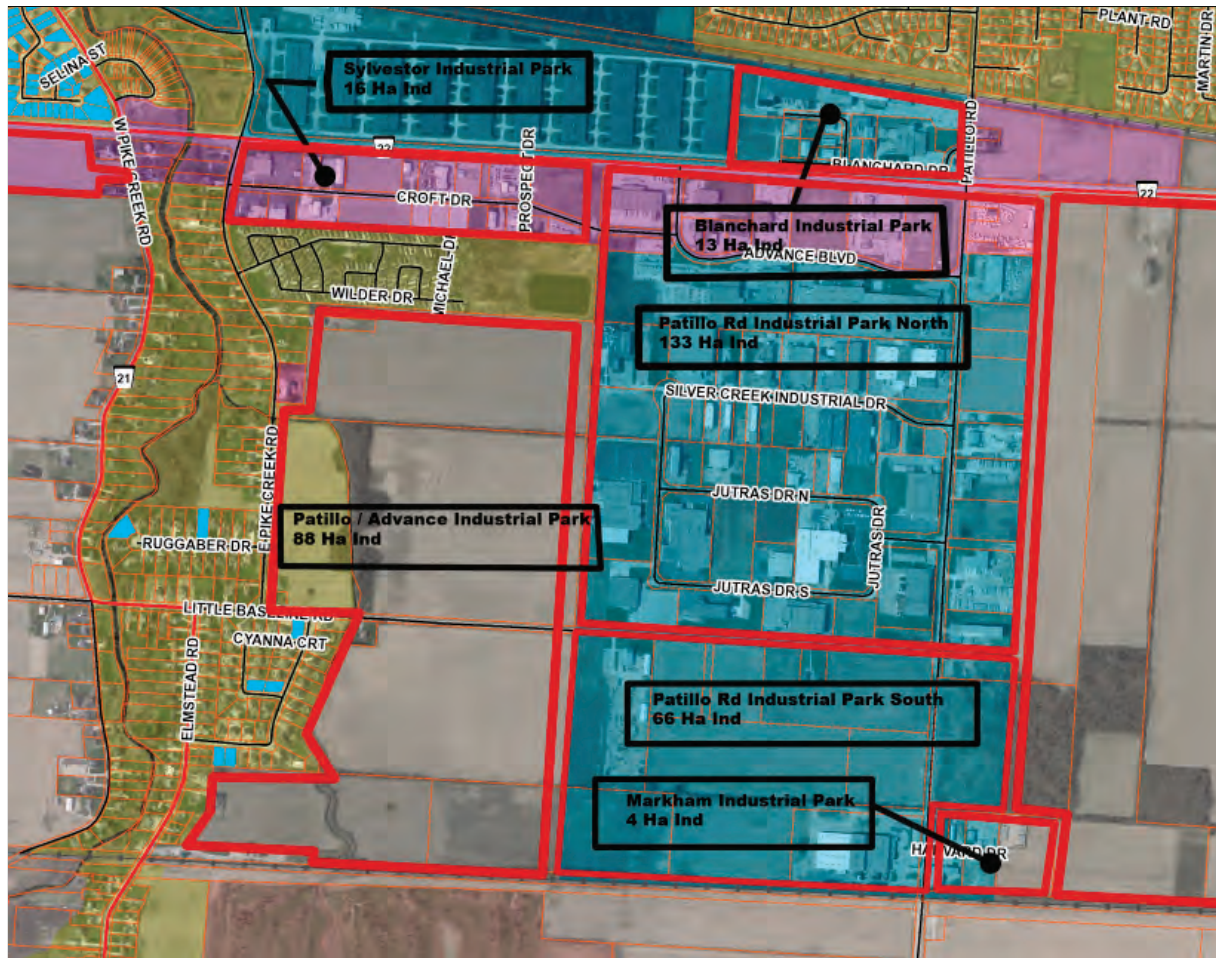


Figure 8  
Municipal Class Environmental Planning and Design Process  
Town of Lakeshore  
Water & Wastewater Master Plan



# Lakeshore Mapping



- Legend**
- Tax Parcel
  - Street Centreline
    - <all other values>
    - CNTY
    - LAK
    - PRIV
    - PROV
  - Railway
  - Vacant Land
    - Registered-Residential
    - Designated and Zoned-Residen
    - Draft Approved-Residential
    - Others
  - Land\_Use\_Designations
    - Agricultural
    - Hamlet
    - Waterfront Residential
    - Urban Fringe
    - Residential
    - Service Commercial
    - Recreational Commercial
    - Mixed Use
    - Central Area
    - Employment
    - Major Institutional
    - Natural Conservation
    - Parks and Open Space

1: 15,000

Notes:

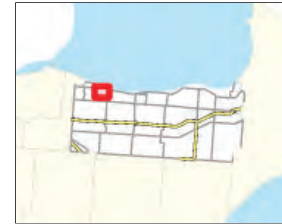
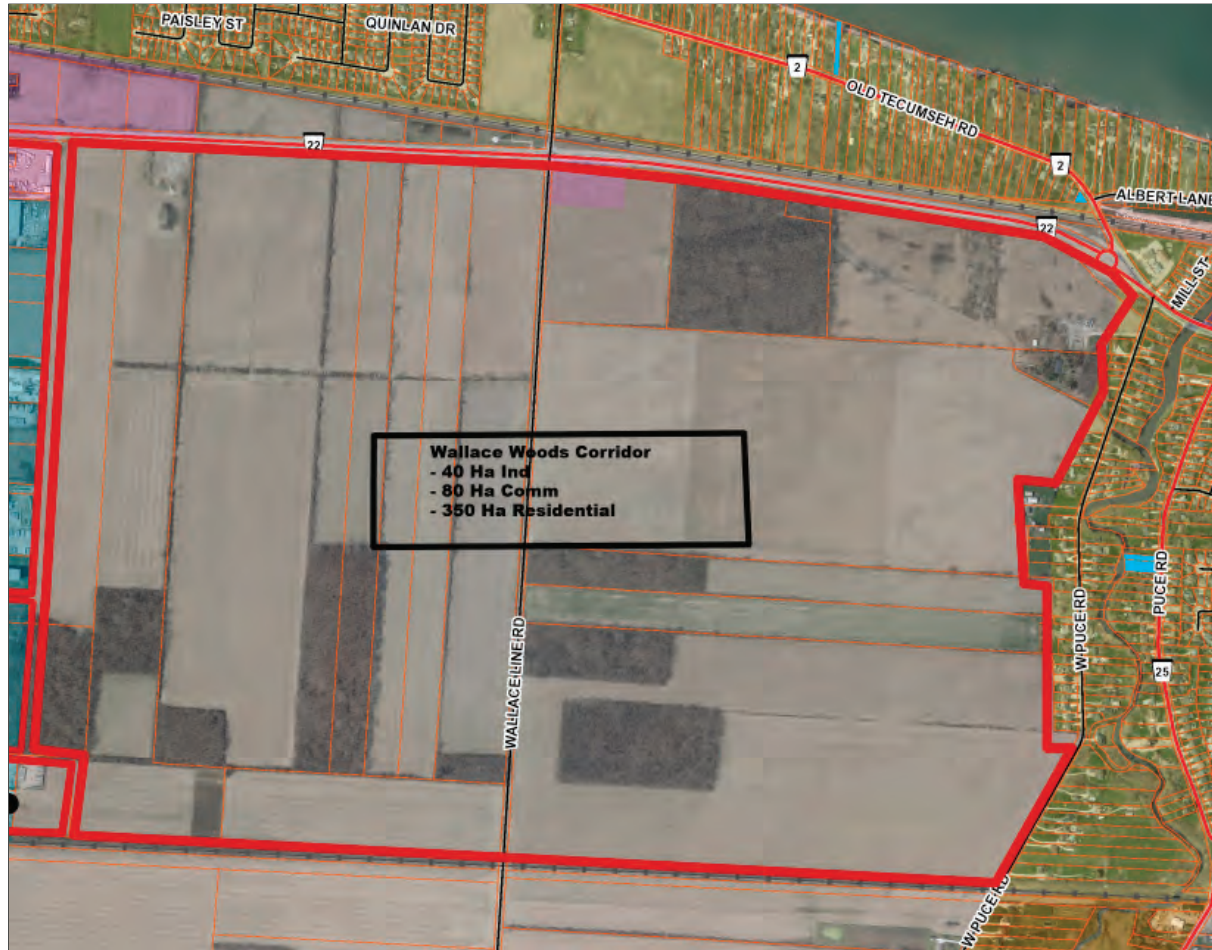
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Figure 9  
Industrial and Commercial Growth in the Belle River Water Servicing System  
Town of Lakeshore  
Water & Wastewater Master Plan





# Lakeshore Mapping



**Legend**

- Tax Parcel
- Street Centreline
- <all other values>
- CNTY
- LAK
- PRIV
- PROV
- Railway
- Vacant Land
  - Registered-Residential
  - Designated and Zoned-Residen
  - Draft Approved-Residential
  - Others
- Land\_Use\_Designations
  - Agricultural
  - Hamlet
  - Waterfront Residential
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  - Residential
  - Service Commercial
  - Recreational Commercial
  - Mixed Use
  - Central Area
  - Employment
  - Major Institutional
  - Natural Conservation
  - Parks and Open Space

1: 15,000

Notes:

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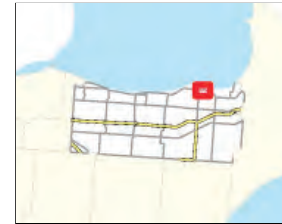
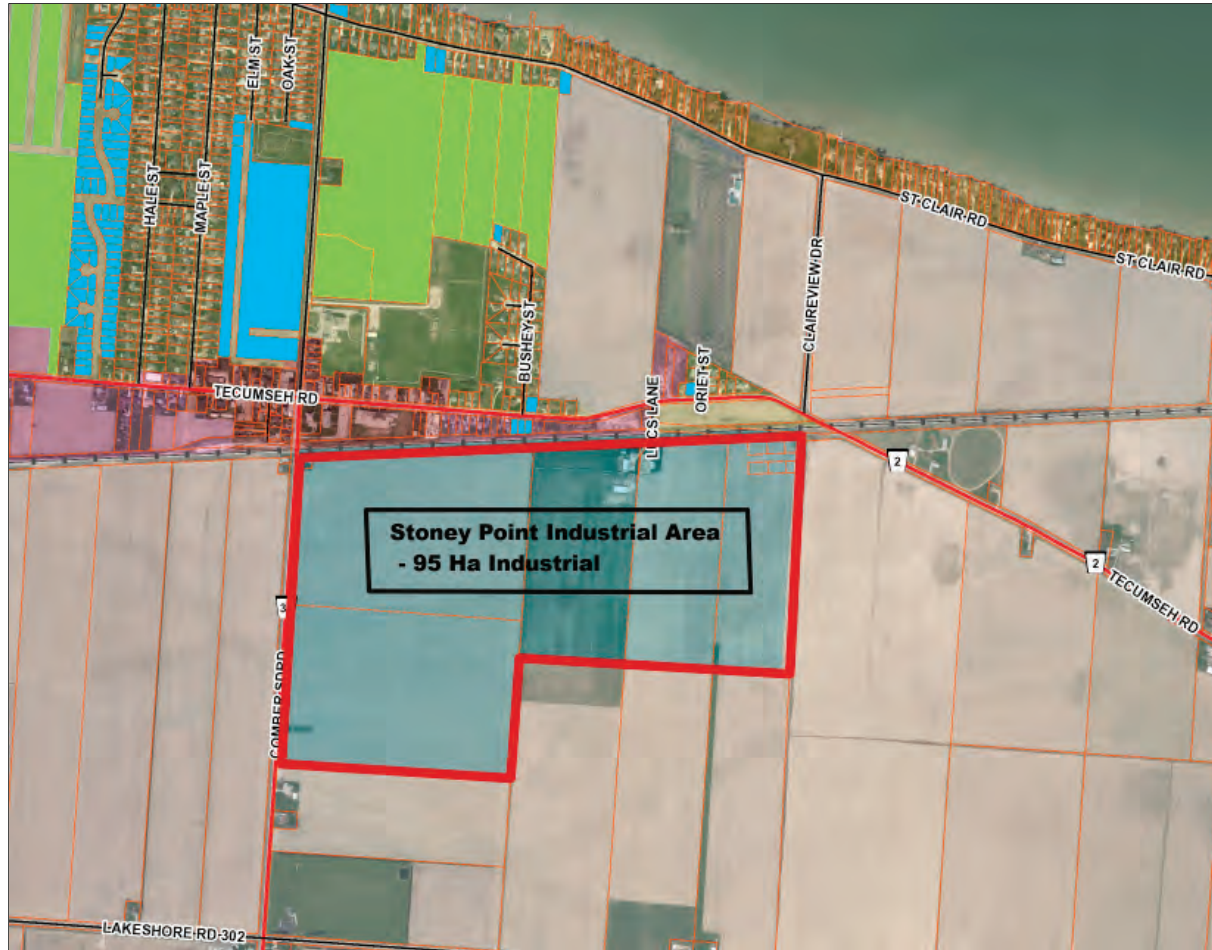
Figure 10  
Industrial and Commercial Growth in the Belle River Water Servicing System: Wallace Woods Corridor







# Lakeshore Mapping



## Legend

- Tax Parcel
- Street Centreline
  - <all other values>
  - CNTY
  - LAK
  - PRIV
  - PROV
- Railway
- Vacant Land
  - Registered-Residential
  - Designated and Zoned-Residen
  - Draft Approved-Residential
  - Others
- Land\_Use\_Designations
  - Agricultural
  - Hamlet
  - Waterfront Residential
  - Urban Fringe
  - Residential
  - Service Commercial
  - Recreational Commercial
  - Mixed Use
  - Central Area
  - Employment
  - Major Institutional
  - Natural Conservation
  - Parks and Open Space

1: 15,000



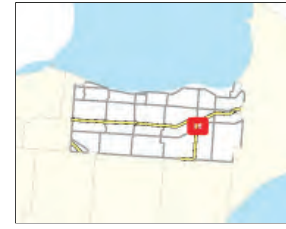
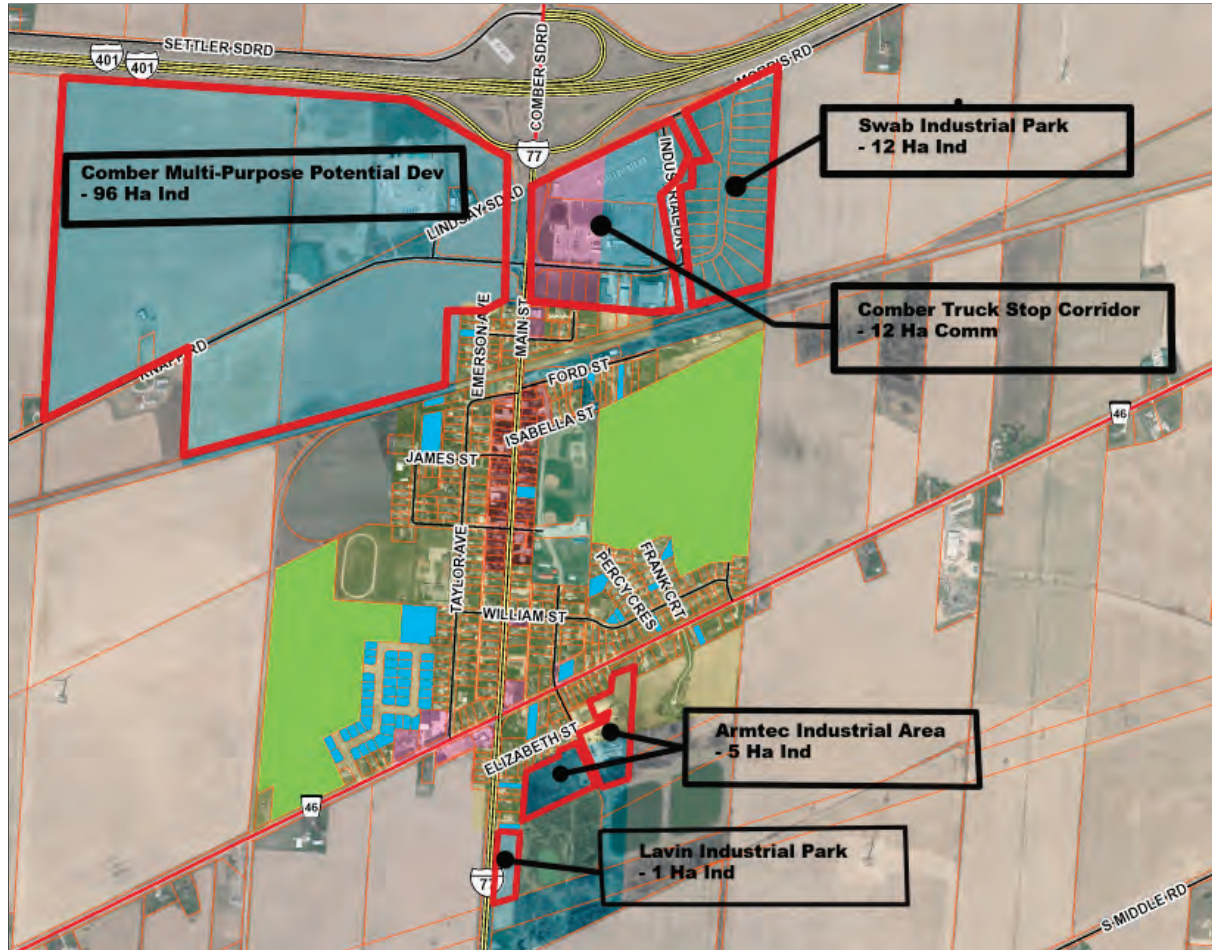
Notes:

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Figure 11  
Industrial and Commercial Growth in Stoney Point  
Town of Lakeshore  
Water & Wastewater Master Plan



# Lakeshore Mapping



**Legend**

- Tax Parcel
- Street Centreline
- <all other values>
- CNTY
- LAK
- PRIV
- PROV
- Railway
- Vacant Land
  - Registered-Residential
  - Designated and Zoned-Residen
  - Draft Approved-Residential
  - Others
- Land\_Use\_Designations
  - Agricultural
  - Hamlet
  - Waterfront Residential
  - Urban Fringe
  - Residential
  - Service Commercial
  - Recreational Commercial
  - Mixed Use
  - Central Area
  - Employment
  - Major Institutional
  - Natural Conservation
  - Parks and Open Space

1: 15,000

Notes:

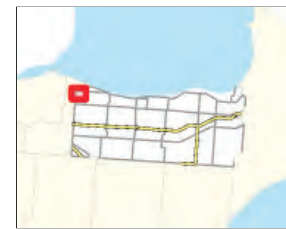
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Figure 12  
Industrial and Commercial Growth in Comber  
Town of Lakeshore  
Water & Wastewater Master Plan





# Lakeshore MP - Ind-Comm Growth - BRWSS



**Legend**

- Tax Parcel
- Street Centreline
  - <all other values>
  - CNTY
  - LAK
  - PRIV
  - PROV
- Railway
- Zoning
  - AGRICULTURAL
  - CENTRAL AREA
  - COMMERCIAL
  - EMPLOYMENT
  - ENVIRONMENTAL PROTECTI
  - HAMLET
  - INSTITUTIONAL
  - MIXED USE
  - PARK AND OPEN SPACE
  - RECREATION COMMERCIAL
  - RESIDENTIAL
  - RESIDENTIAL MOBILE HOME
  - RESIDENTIAL WATERFRONT
  - URBAN RESERVE
  - WETLAND
- Vacant Land
  - Registered-Residential
  - Designated and Zoned-Residen

1: 15,000

Notes:

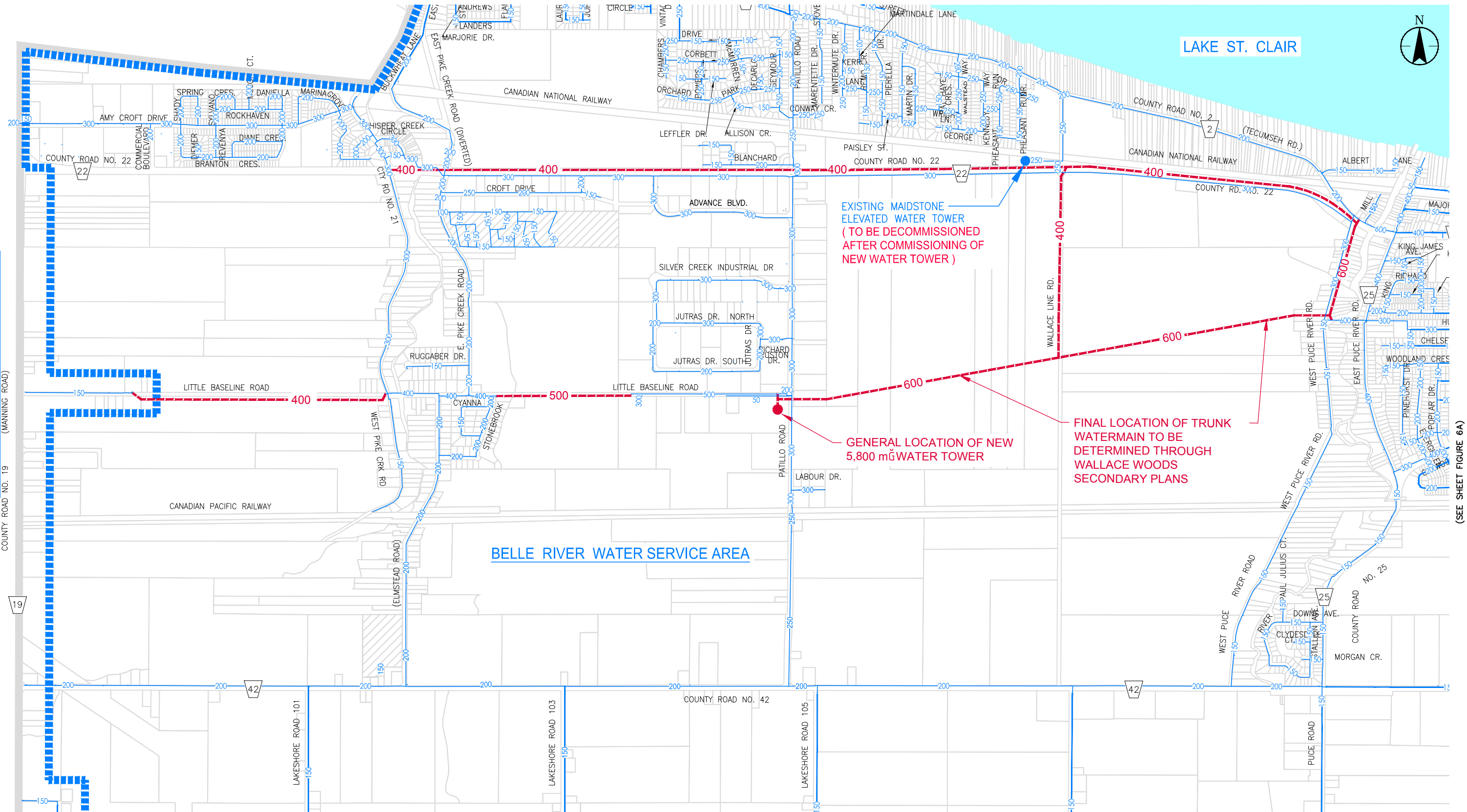
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Figure 13  
 Industrial and Commercial Growth in the Belle River Water Servicing System  
 Town of Lakeshore  
 Water & Wastewater Master Plan



W:\active\165620081\design\drawing\civil\FIGURE-6-7C.dwg  
2017-5-31 01:56pm BY: jholmes

TECUMSEH WATER SERVICE AREA



LEGEND

- WATER SERVICE AREA BOUNDARY
- EXISTING WATERMAINS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
- PROPOSED WATERMAINS & DIAMETER
- PROPOSED WATER TOWERS



**TOWN OF LAKESHORE  
WATER & WASTEWATER MASTER PLAN UPDATE  
BELLE RIVER WATER SUPPLY SYSTEM-20 YEAR IMPROVEMENTS**

PROJECT NO. 165620081		DRAWING NO. FIGURE 6
DATE: 2017.04.04		

(SEE SHEET FIGURE 6A)



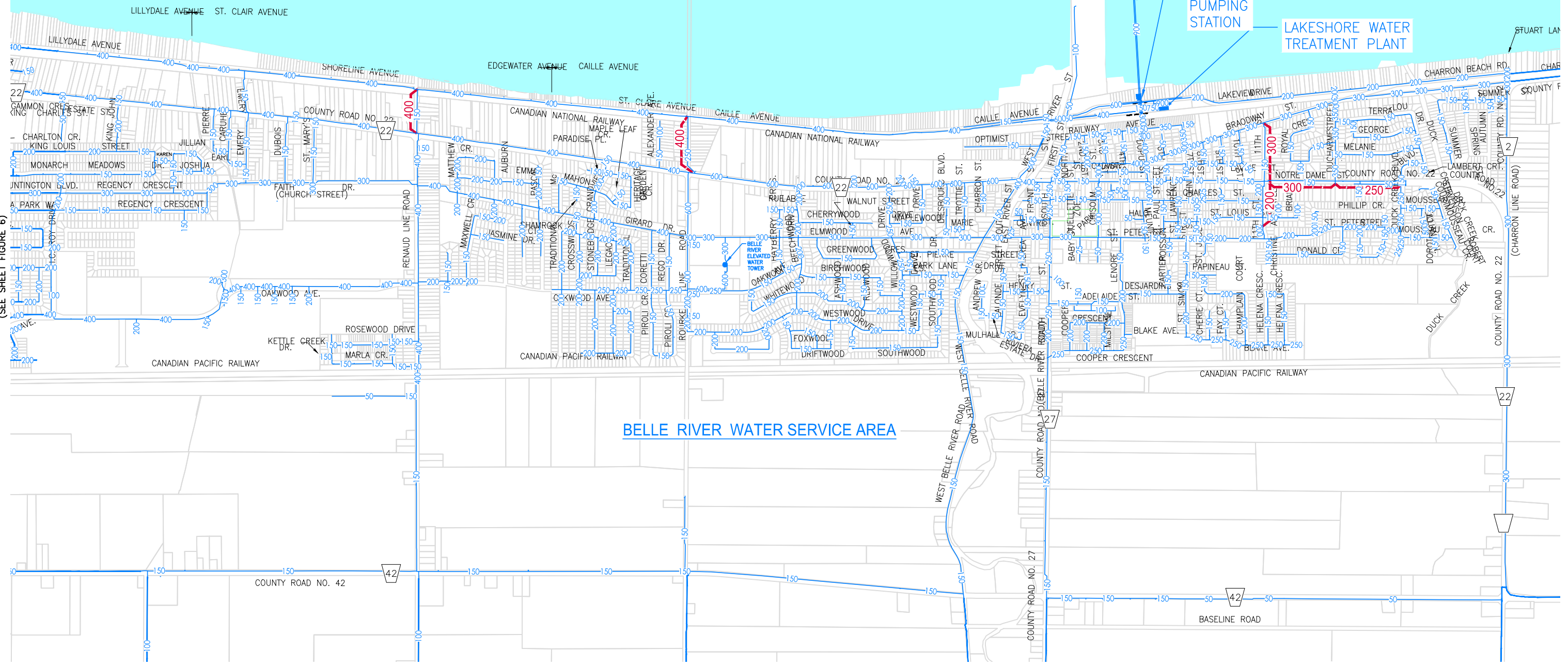
LAKE ST. CLAIR

INTAKES

LOW LIFT  
PUMPING  
STATION








LAKESHORE WATER  
TREATMENT PLANT

(SEE SHEET FIGURE 6)



BELLE RIVER WATER SERVICE AREA

### LEGEND

-  WATER SERVICE AREA BOUNDARY
-  EXISTING WATERMAINS & DIAMETER
-  EXISTING WATER TOWERS
-  EXISTING WATER TREATMENT PLANTS
-  EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
-  PROPOSED WATERMAINS & DIAMETER
-  PROPOSED WATER TOWERS

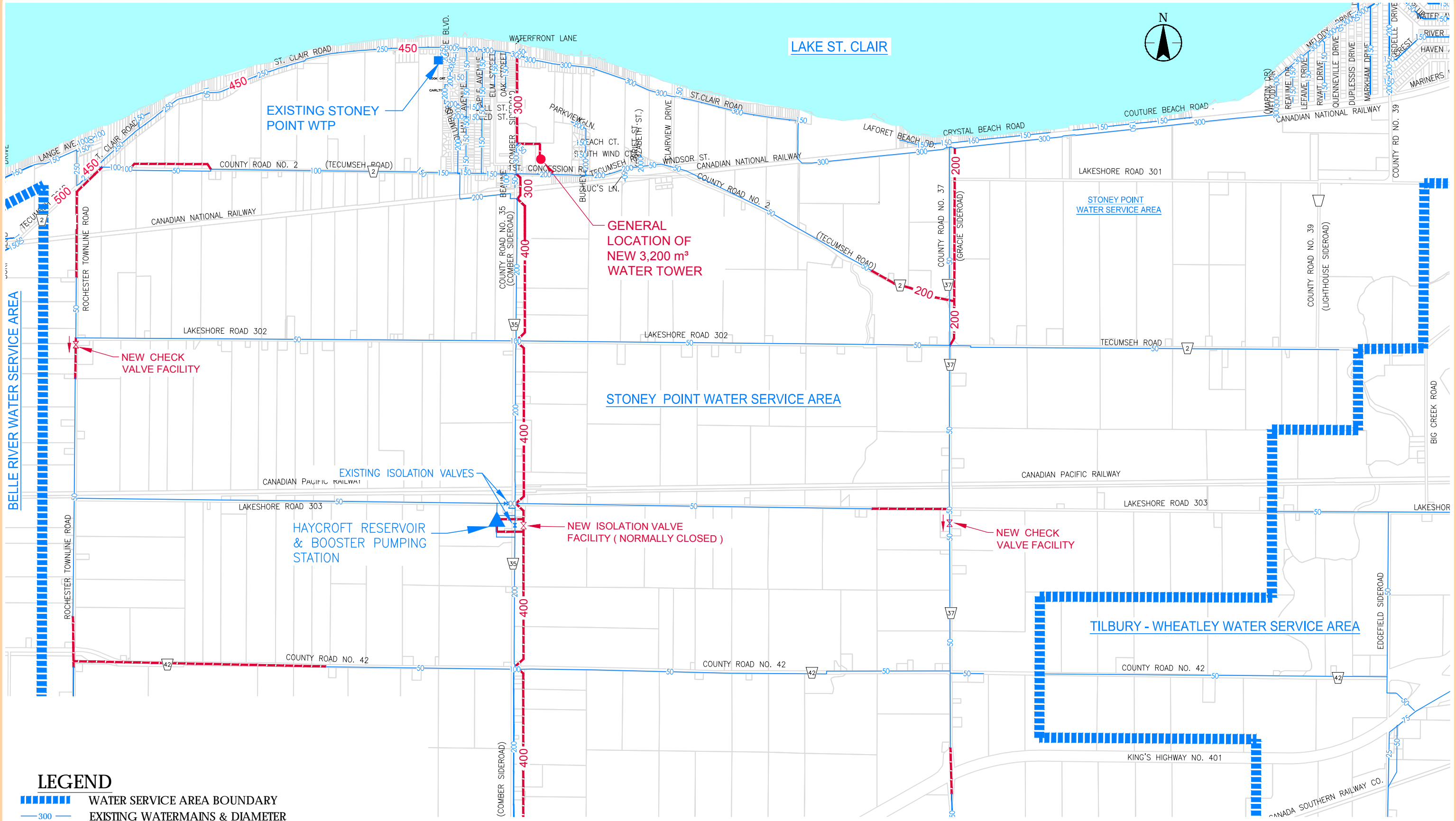


TOWN OF LAKESHORE  
 WATER & WASTEWATER MASTER PLAN UPDATE  
 BELLE RIVER WATER SUPPLY SYSTEM—20 YEAR IMPROVEMENTS

PROJECT NO.  
165620081  
 DATE:  
2017.04.04



DRAWING NO.  
FIGURE 6A



EXISTING STONEY POINT WTP

GENERAL LOCATION OF NEW 3,200 m<sup>3</sup> WATER TOWER

STONEY POINT WATER SERVICE AREA

HAYCROFT RESERVOIR & BOOSTER PUMPING STATION

NEW ISOLATION VALVE FACILITY (NORMALLY CLOSED)

NEW CHECK VALVE FACILITY

TILBURY - WHEATLEY WATER SERVICE AREA

**LEGEND**

- WATER SERVICE AREA BOUNDARY
- EXISTING WATERMANS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
- PROPOSED WATERMANS & DIAMETER
- PROPOSED WATER TOWERS

(SEE FIGURE 7A)

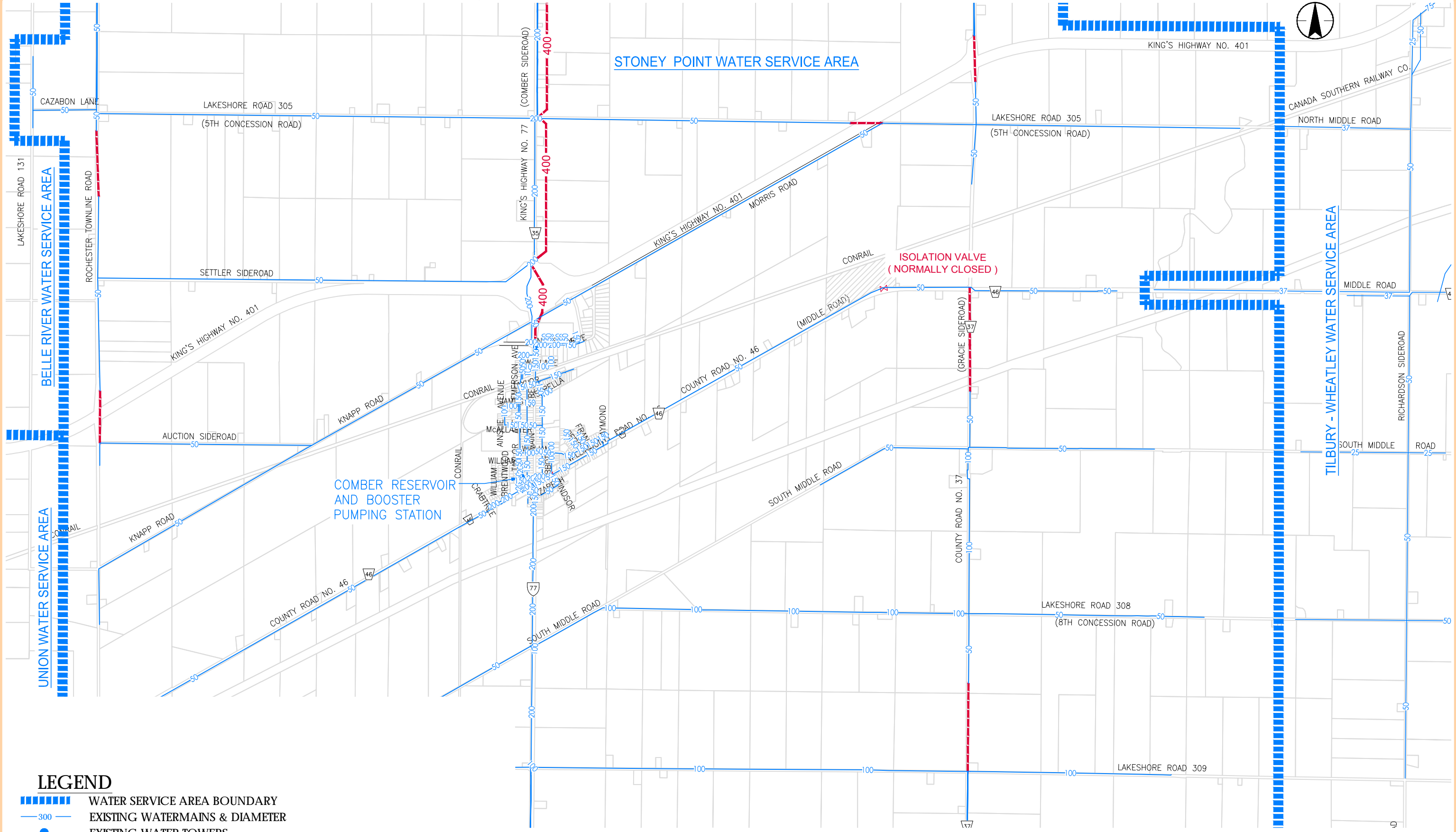
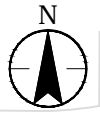


**TOWN OF LAKESHORE  
WATER & WASTEWATER MASTER PLAN UPDATE  
STONEY POINT WATER SUPPLY SYSTEM—20 YEAR IMPROVEMENTS**

PROJECT NO. 165620081		DRAWING NO. FIGURE 7
DATE: 2017.04.04		

W:\active\165620081\design\drawing\civil\FIGURE-6-7C.dwg  
 2017-5-31 02:15pm BY: jholmes

(SEE SHEET FIGURE 7)



(SEE SHEET FIGURE 7B)

### LEGEND

- WATER SERVICE AREA BOUNDARY
- 300 EXISTING WATERMAINS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
- 300 PROPOSED WATERMAINS & DIAMETER
- PROPOSED WATER TOWERS

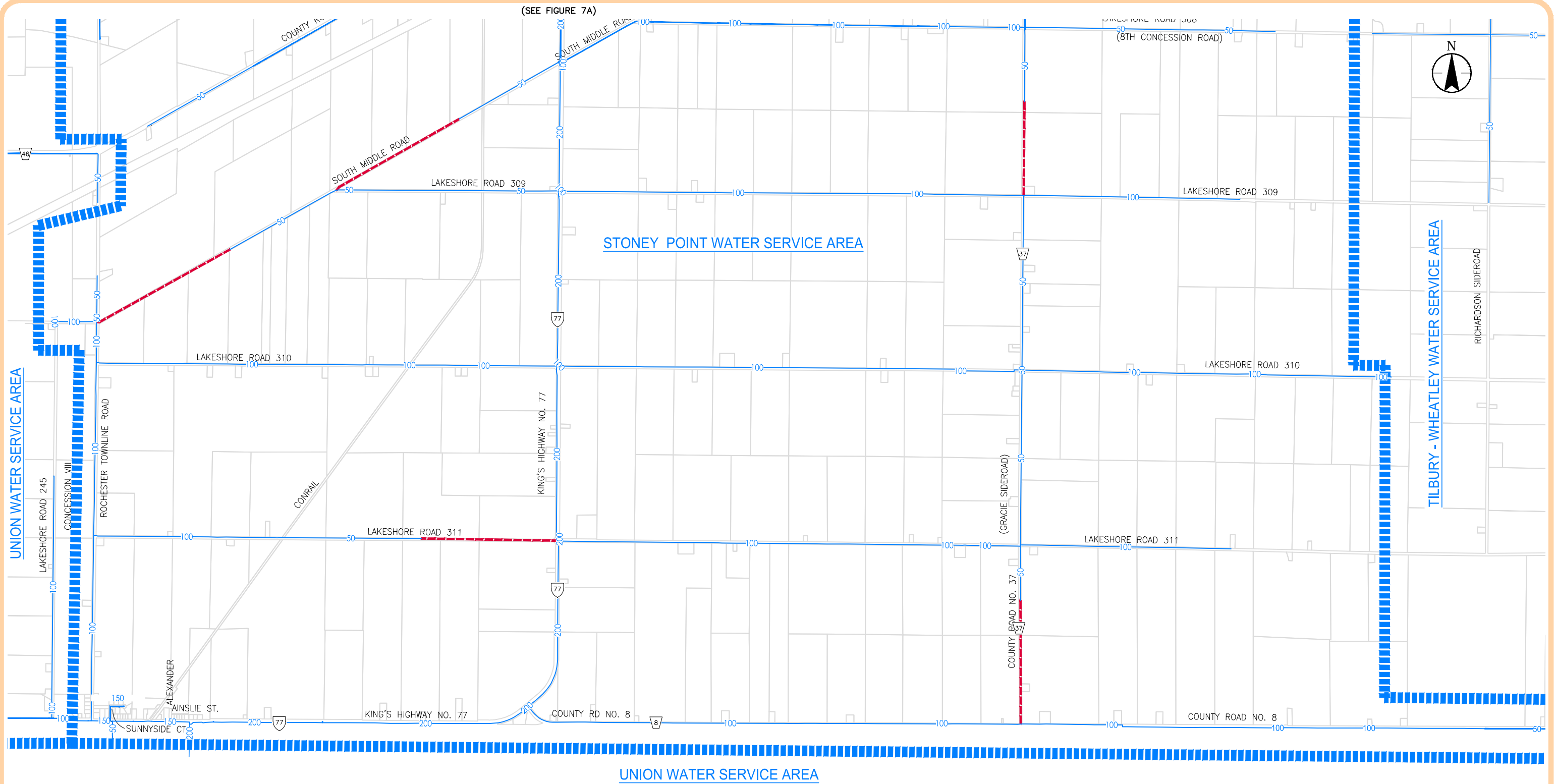


**TOWN OF LAKESHORE**  
**WATER & WASTEWATER MASTER PLAN UPDATE**  
**STONEY POINT WATER SUPPLY SYSTEM-20 YEAR IMPROVEMENTS**

PROJECT NO.  
165620081  
 DATE:  
2017.04.04



DRAWING NO.  
**FIGURE 7A**



**LEGEND**

- WATER SERVICE AREA BOUNDARY
- EXISTING WATERMAINS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
- PROPOSED WATERMAINS & DIAMETER
- PROPOSED WATER TOWERS



TOWN OF LAKESHORE  
 WATER & WASTEWATER MASTER PLAN UPDATE  
 STONEY POINT WATER SUPPLY SYSTEM—20 YEAR IMPROVEMENTS

PROJECT NO.  
165620081  
 DATE:  
2017.04.04

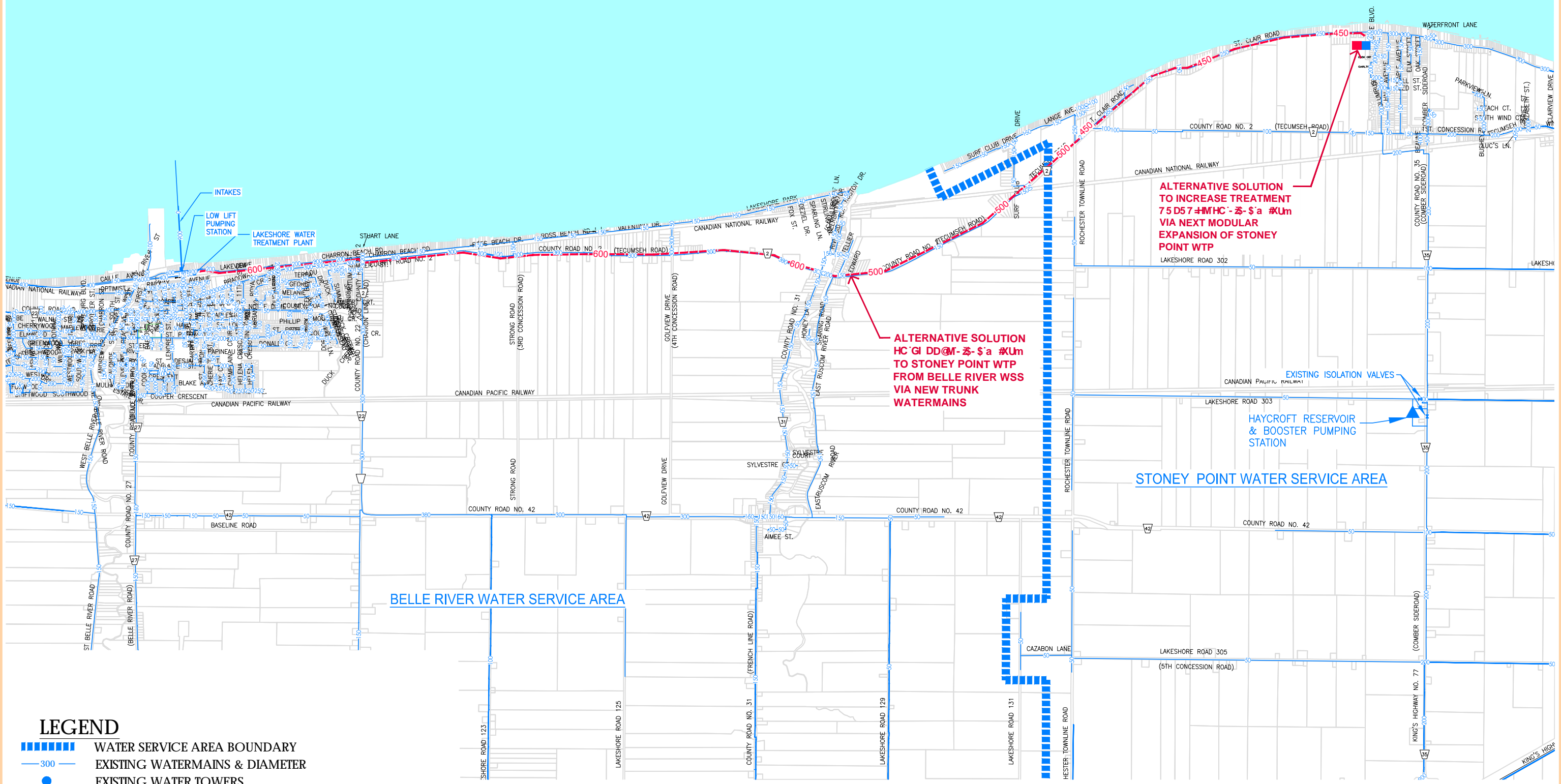
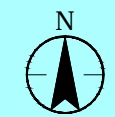


DRAWING NO.  
FIGURE 7B

W:\active\165620081\design\drawing\civil\FIGURE-6-7C.dwg  
 2017-5-31 01:58pm BY: jholmes



LAKE ST. CLAIR



**ALTERNATIVE SOLUTION TO INCREASE TREATMENT 75 D57 #MHC - 5' a #Um VIA NEXT MODULAR EXPANSION OF STONEY POINT WTP**  
LAKESHORE ROAD 302

**ALTERNATIVE SOLUTION HC'G' DD@M - 5' a #Um TO STONEY POINT WTP FROM BELLE RIVER WSS VIA NEW TRUNK WATERMANS**

**STONEY POINT WATER SERVICE AREA**

**BELLE RIVER WATER SERVICE AREA**

**LEGEND**

- ▬▬▬▬▬▬ WATER SERVICE AREA BOUNDARY
- 300 — EXISTING WATERMANS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- ▲ EXISTING RESERVOIR & BOOSTER PUMPING STATIONS
- - - 300 - - - PROPOSED TRUNK WATERMANS & DIAMETER TO STONEY POINT WTP
- PROPOSED WATER TOWERS
- PROPOSED WATER TREATMENT PLANT EXPANSIONS

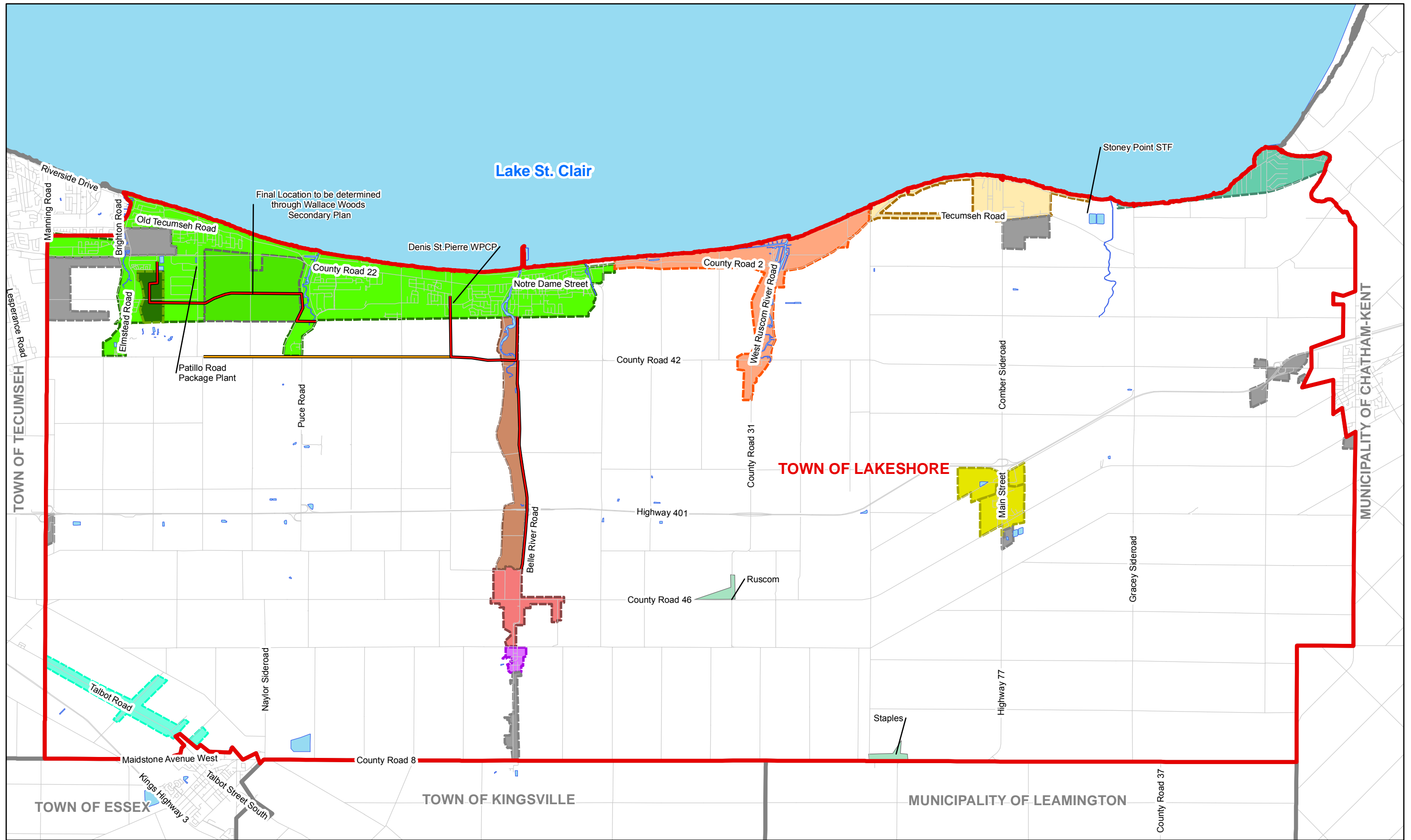
(SEE FIGURE 7A)



**TOWN OF LAKESHORE  
WATER & WASTEWATER MASTER PLAN UPDATE  
ALTERNATIVE SOLUTIONS TO ADDRESS WATER TREATMENT  
CAPACITY DEFICIENCY IN 20 YEAR HORIZON**

PROJECT NO. 165620081		DRAWING NO. FIGURE 8
DATE: 2017.04.04		

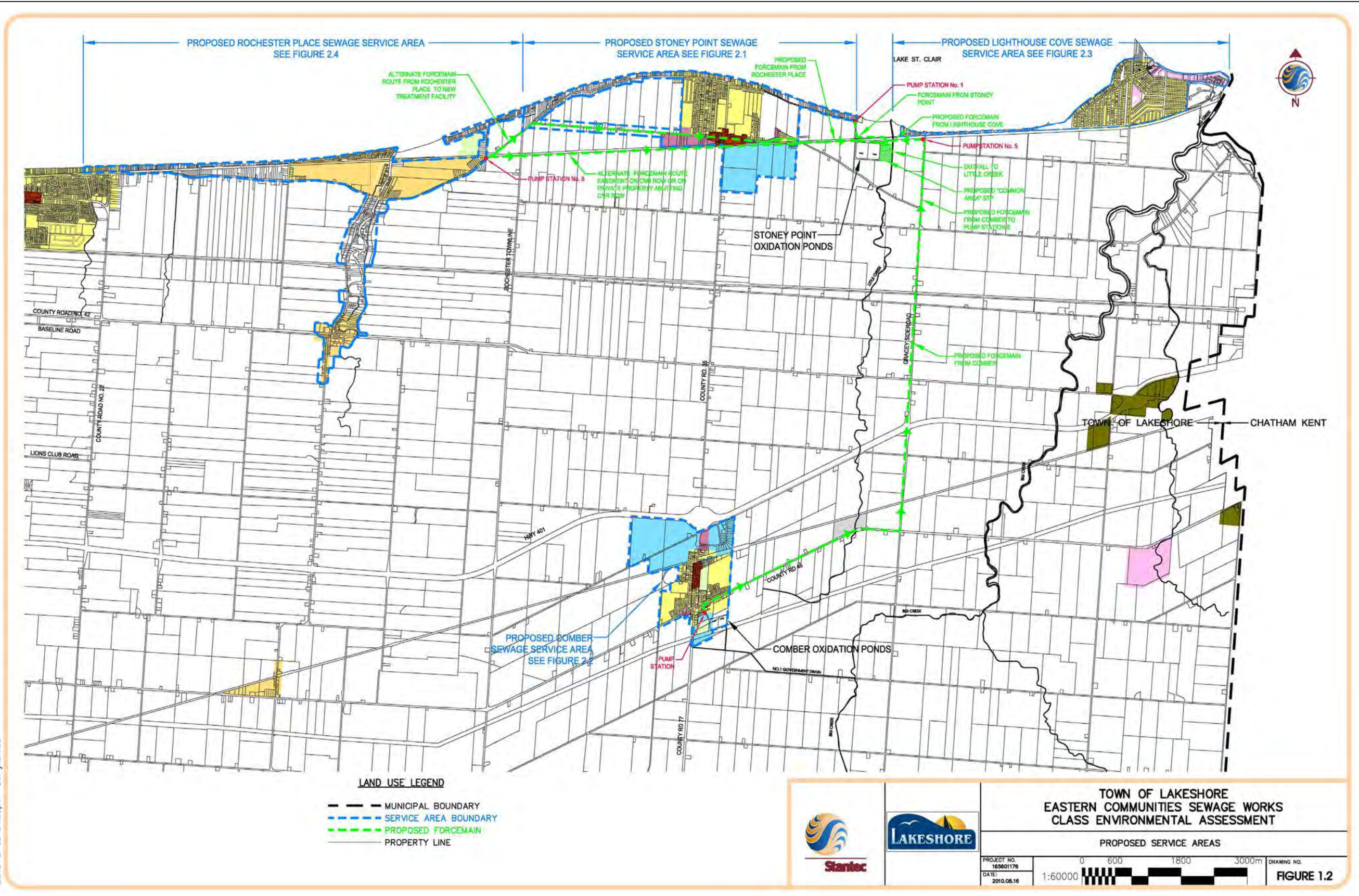
W:\active\165620081\design\drawing\civil\FIGURE-6-7C.dwg 2017-5-31 02:11pm BY: jholmes



Notes  
 1. Data Source: The Corporation of the Town of Lakeshore  
 2. Lighthouse Cove, Rochester, Essex Fringe and Bell River Study area not currently serviced for wastewater

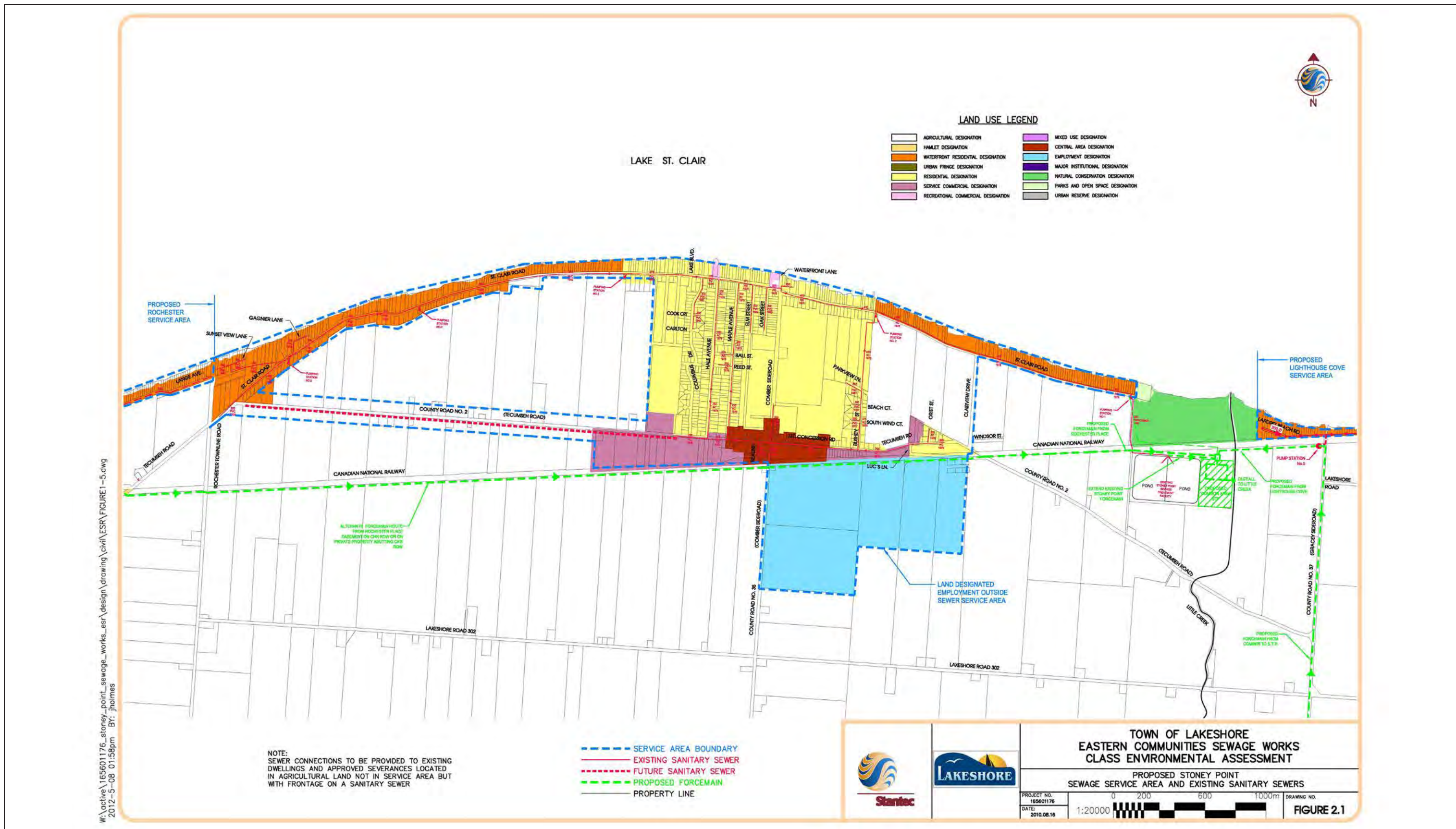
**Figure 17**  
 Recommended Sewage Servicing Options  
 Lakeshore Water and Wastewater MP Update  
 Town of Lakeshore  
 Lakeshore, Ontario, Canada

W:\active\165601176\_stoney\_point\_sewage\_esr\design\civil\ESR\FIGURE 1-5.dwg  
 2012-5-08 01:58pm BY: jholmes



Source: Eastern Communities Sewage Works ESR (Stantec, 2012)

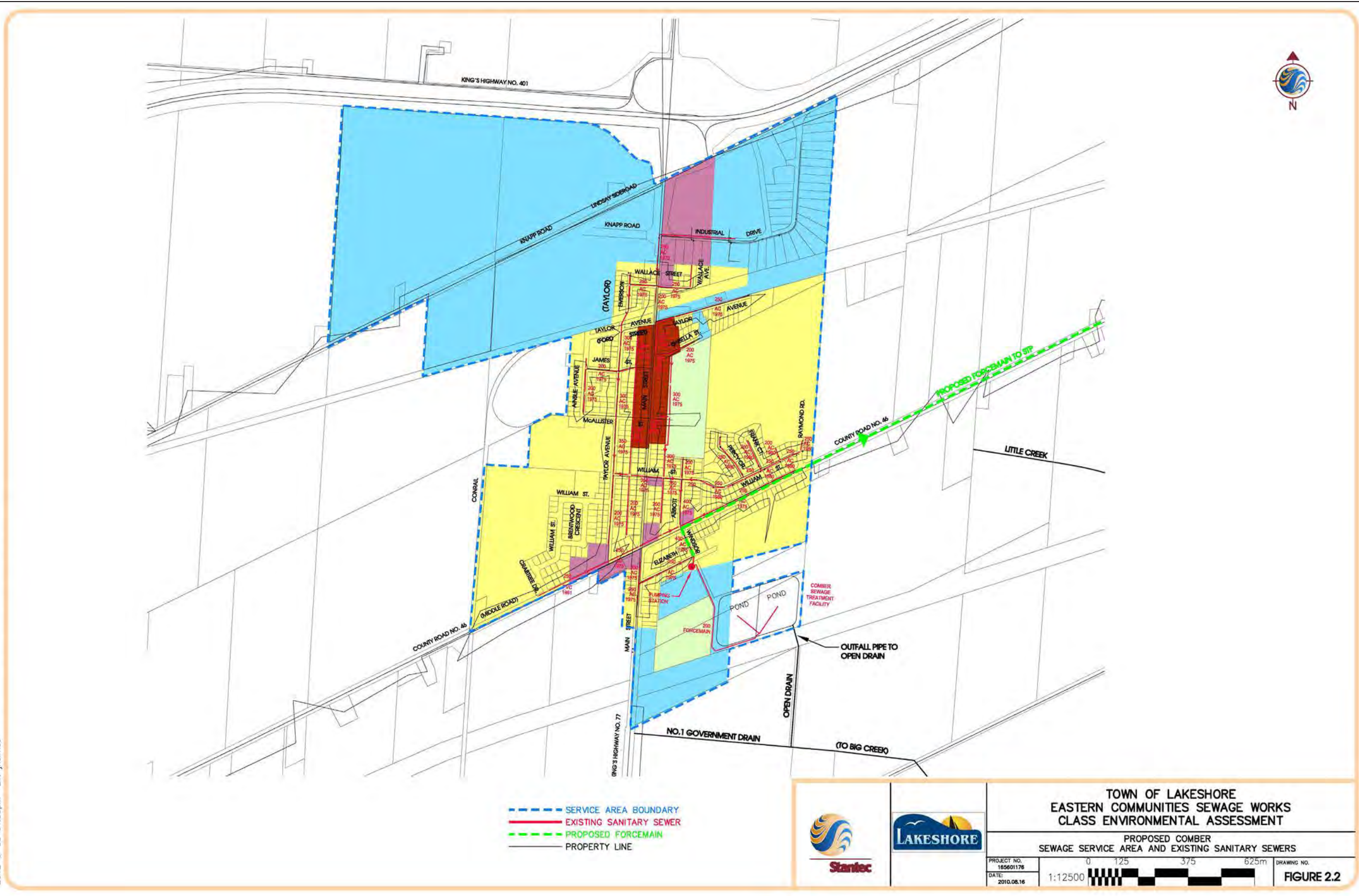
Figure 18  
 Proposed Service Areas



Source: Eastern Communities Sewage Works ESR (Stantec, 2012)

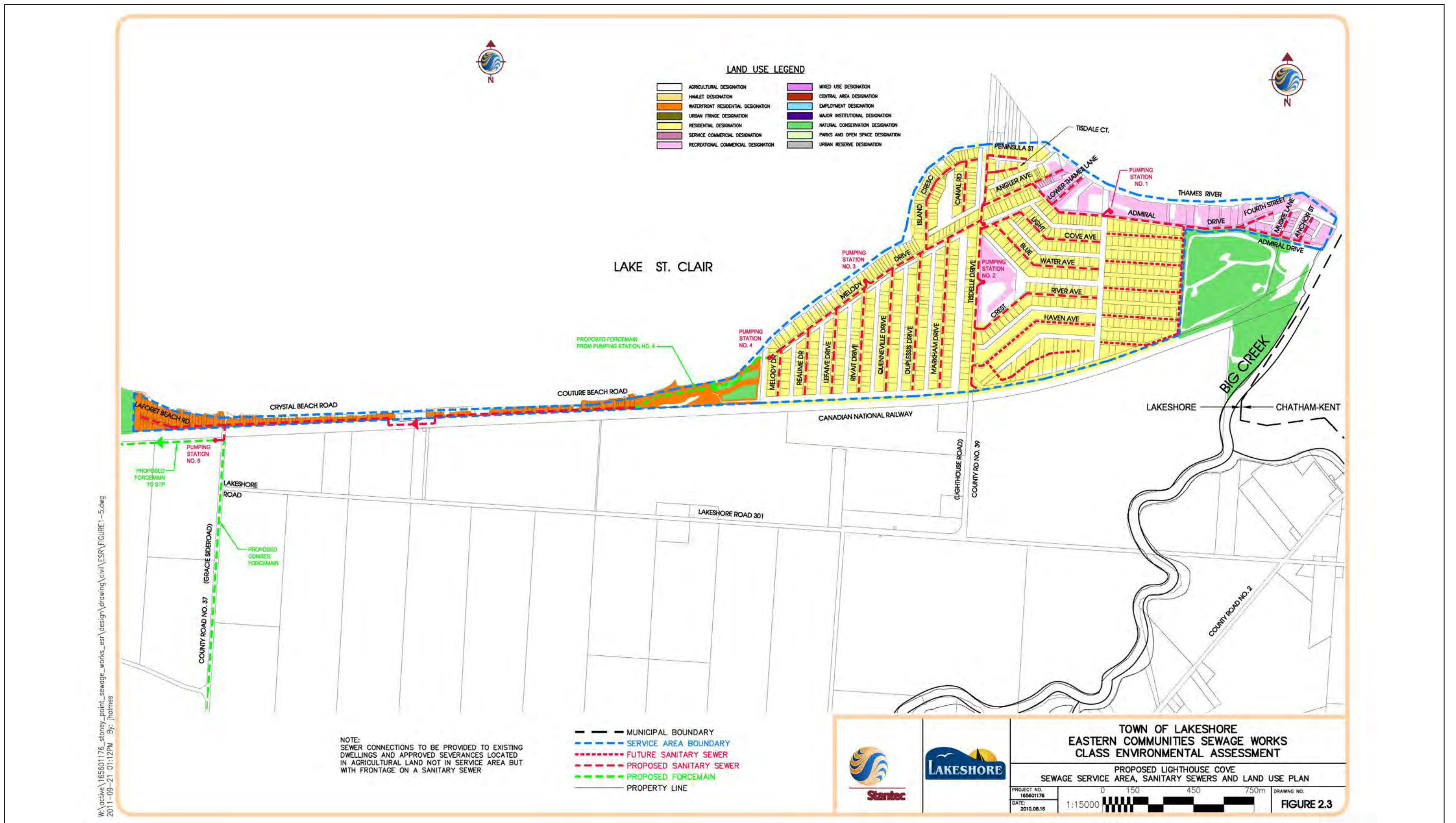
Figure 19  
Proposed Stoney Point Sewage Service Area and Existing Sanitary Sewers

W:\active\165601176\_stoney\_point\_sewage\_works\_esr\design\drawing\civil\ESR\FIGURE1-5.dwg  
 2012-5-08 01:58pm BY: jhaines



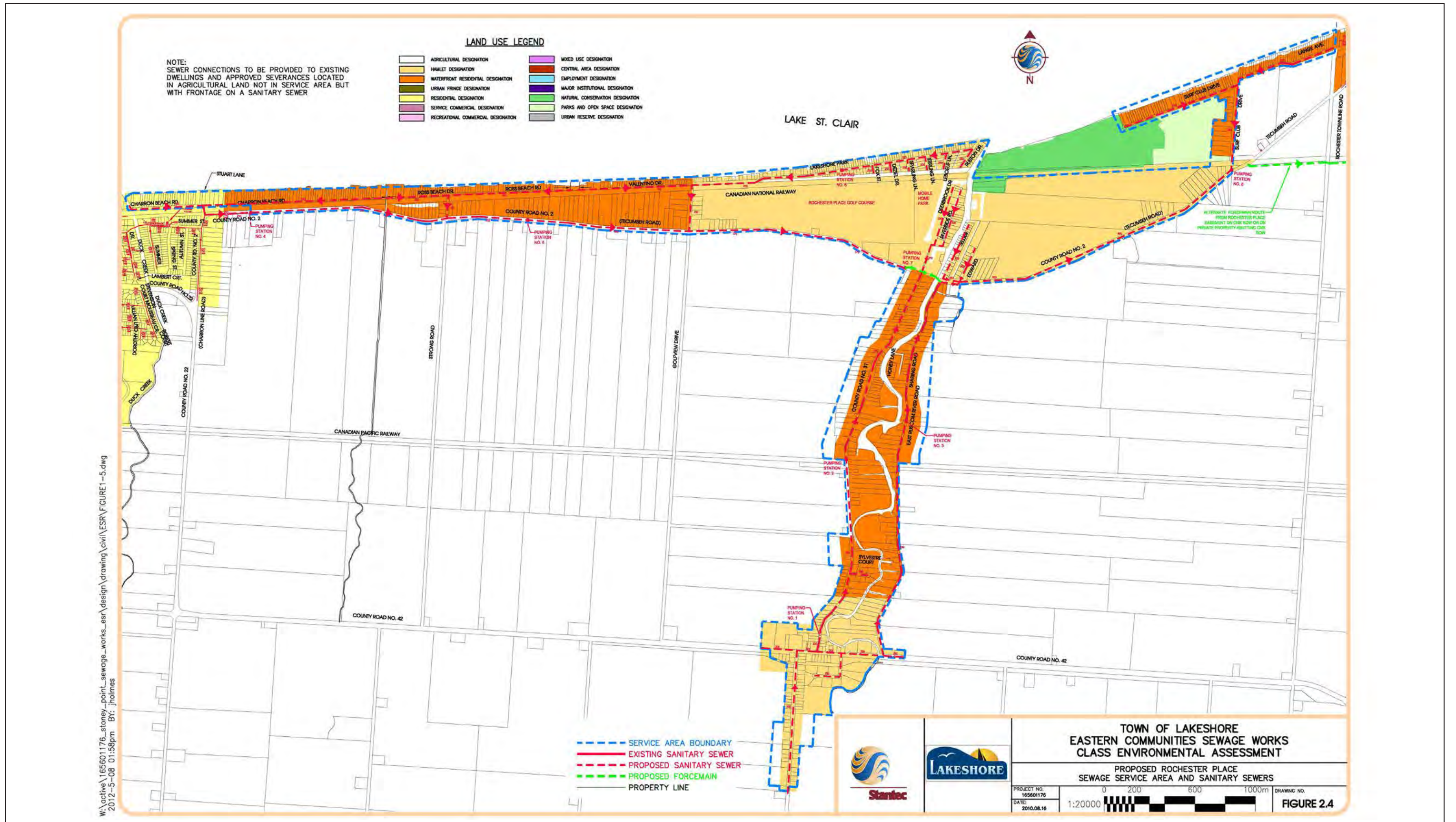
Source: Eastern Communities Sewage Works ESR (Stantec, 2012)

Figure 20  
 Proposed Comber Sewage Service Area and Existing  
 Sanitary Services



Source: Eastern Communities Sewage Works ESR (Stantec, 2012)

Figure 21  
Proposed Lighthouse Cove Sewage Service Area,  
Sanitary Sewers and Land Use Plan



Source: Eastern Communities Sewage Works ESR (Stantec, 2012)

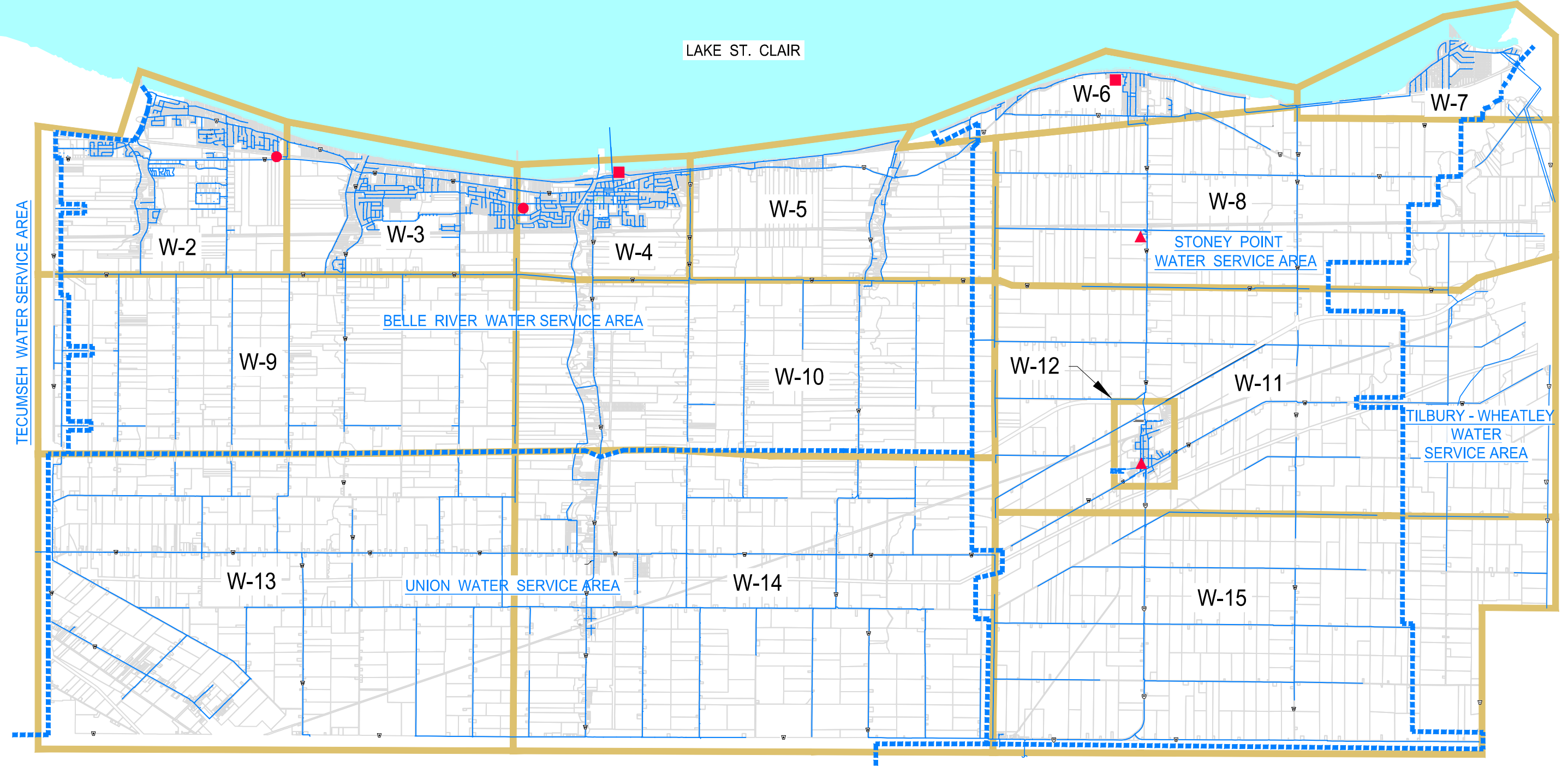
Figure 22  
Proposed Rochester Place Sewage Service Area  
and Sanitary Sewers

## Appendix B – Existing Watermains





LAKE ST. CLAIR



### LEGEND

- W-2 SHEET DESIGNATION
- WATER SERVICE AREA BOUNDARY
- EXISTING WATERMAINS & DIAMETER
- EXISTING WATER TOWERS
- EXISTING WATER TREATMENT PLANTS
- ▲ EXISTING RESERVOIR & BOOSTER PUMPING STATIONS



**TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE**

PROJECT NO.  
165620081  
DATE:  
2016.12.09



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**W-1**

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LAKE ST. CLAIR

TECUMSEH WATER SERVICE AREA

BELLE RIVER WATER SERVICE AREA

MAIDSTONE ELEVATED WATER TOWER

(SEE SHEET W-3)

(SEE SHEET W-9)

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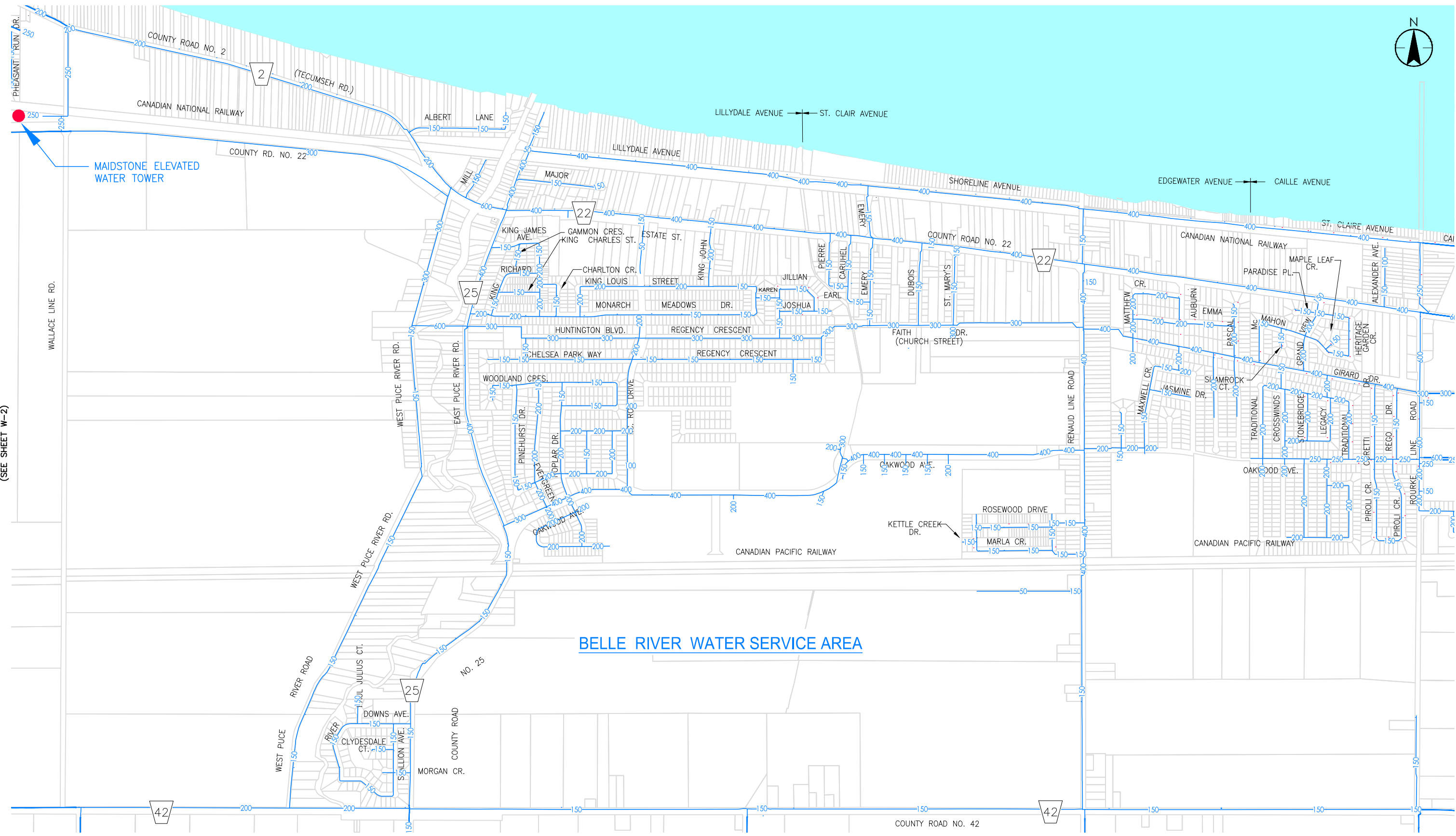


TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09



DRAWING NO.  
W-2



(SEE SHEET W-2)

(SEE SHEET W-4)

(SEE SHEET W-9)



TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

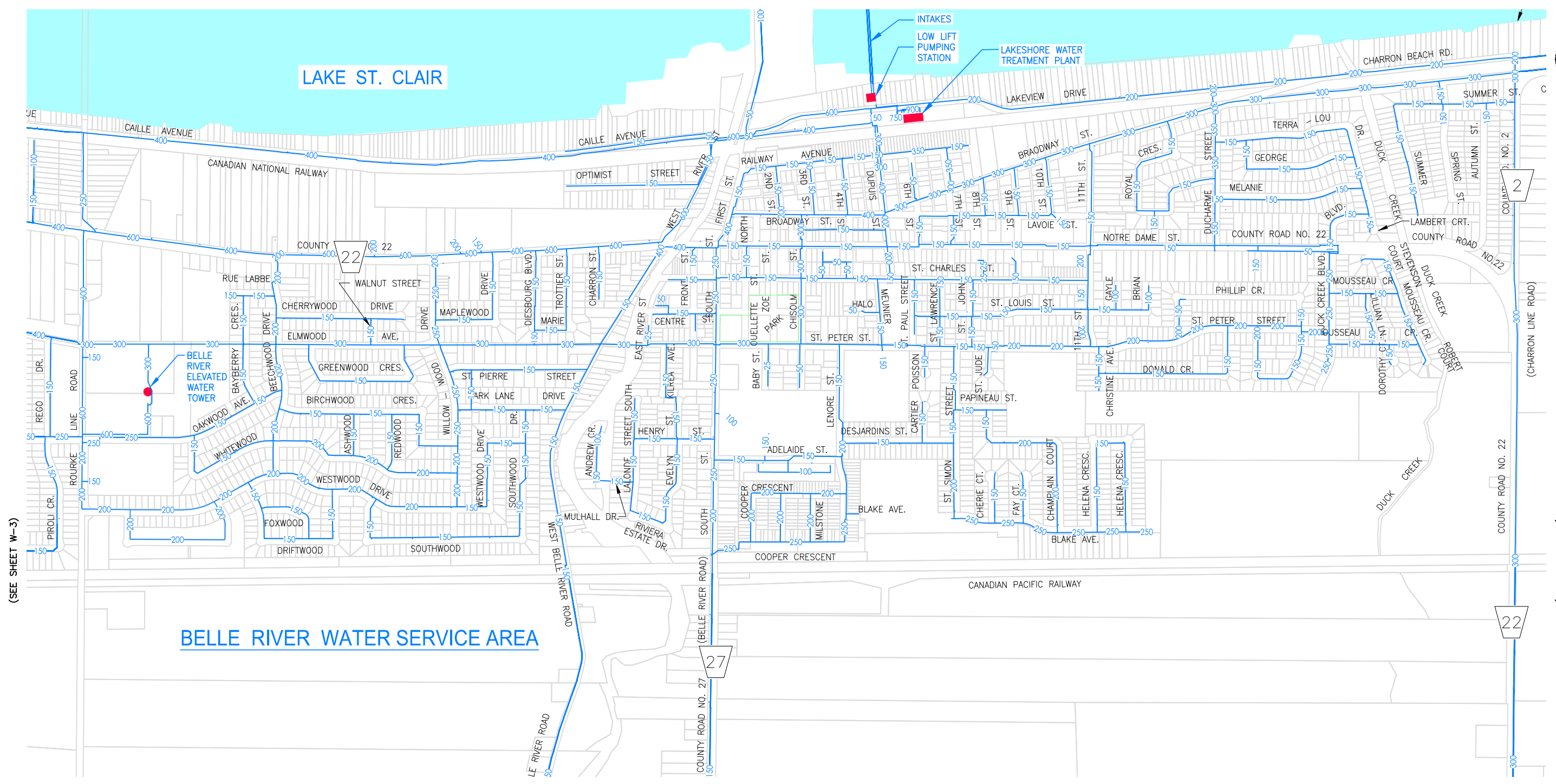
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DATE:  
2016.12.09



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2017-5-31 10:21am BY: jholmes



(SEE SHEET W-3)

(SEE SHEET W-5)

(SEE SHEET W-10)



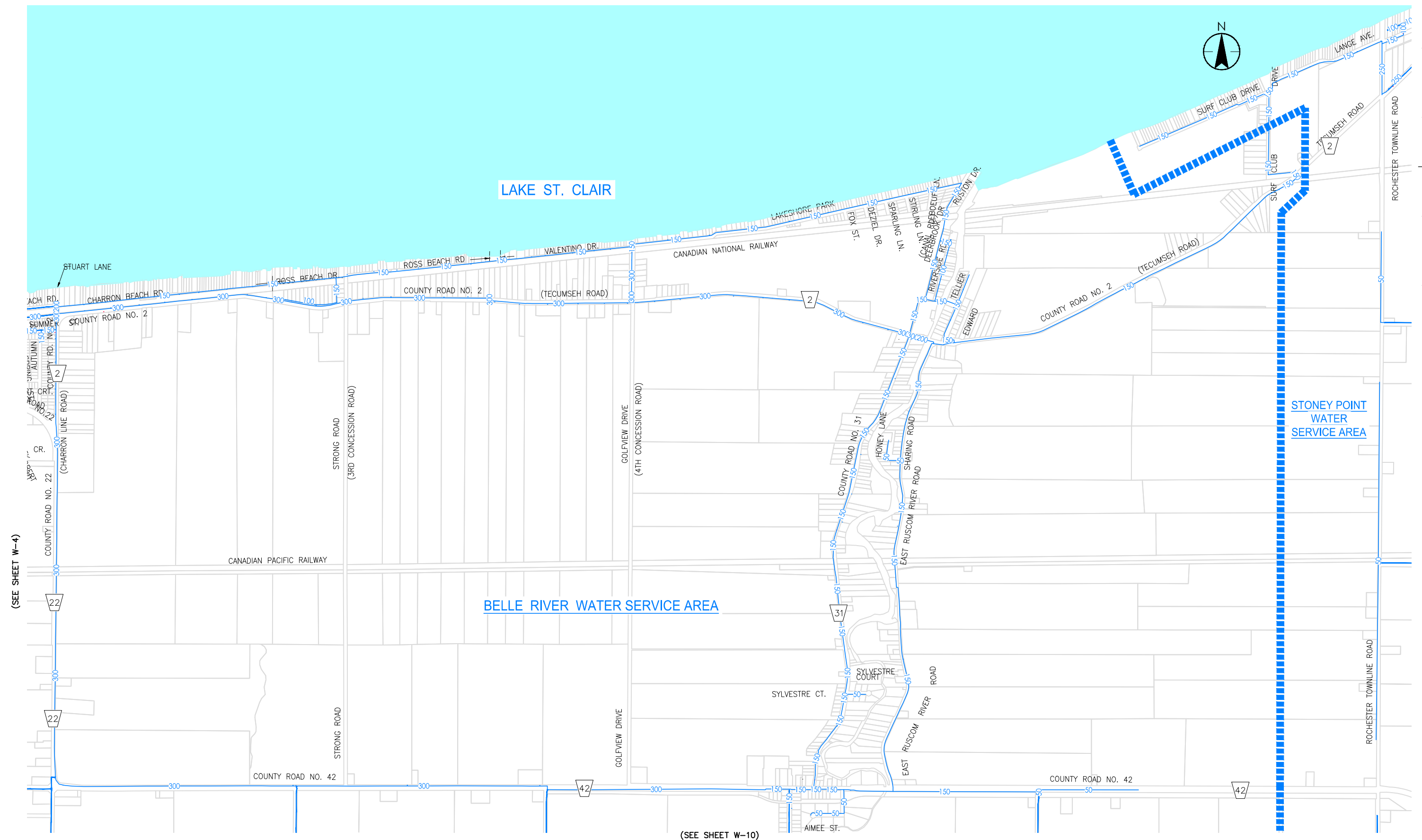
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EXISTING WATER INFRASTRUCTURE**

PROJECT NO.  
165620081  
DATE:  
2016.12.09



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(SEE SHEET W-4)

(SEE SHEET W-10)

(SEE SHEET W-8) (SEE SHEET W-6)



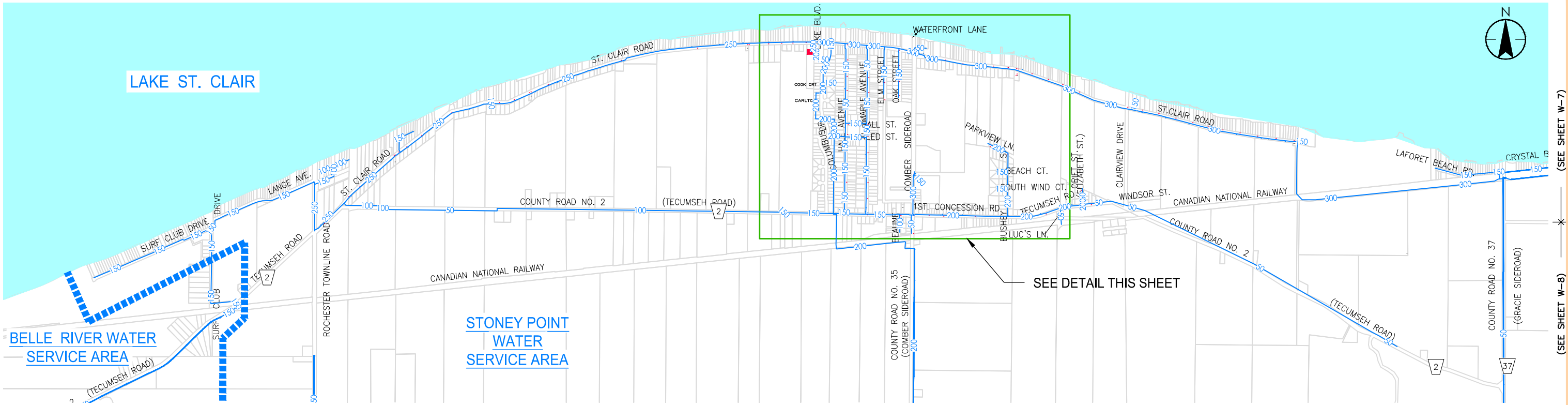
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DATE:  
2016.12.09



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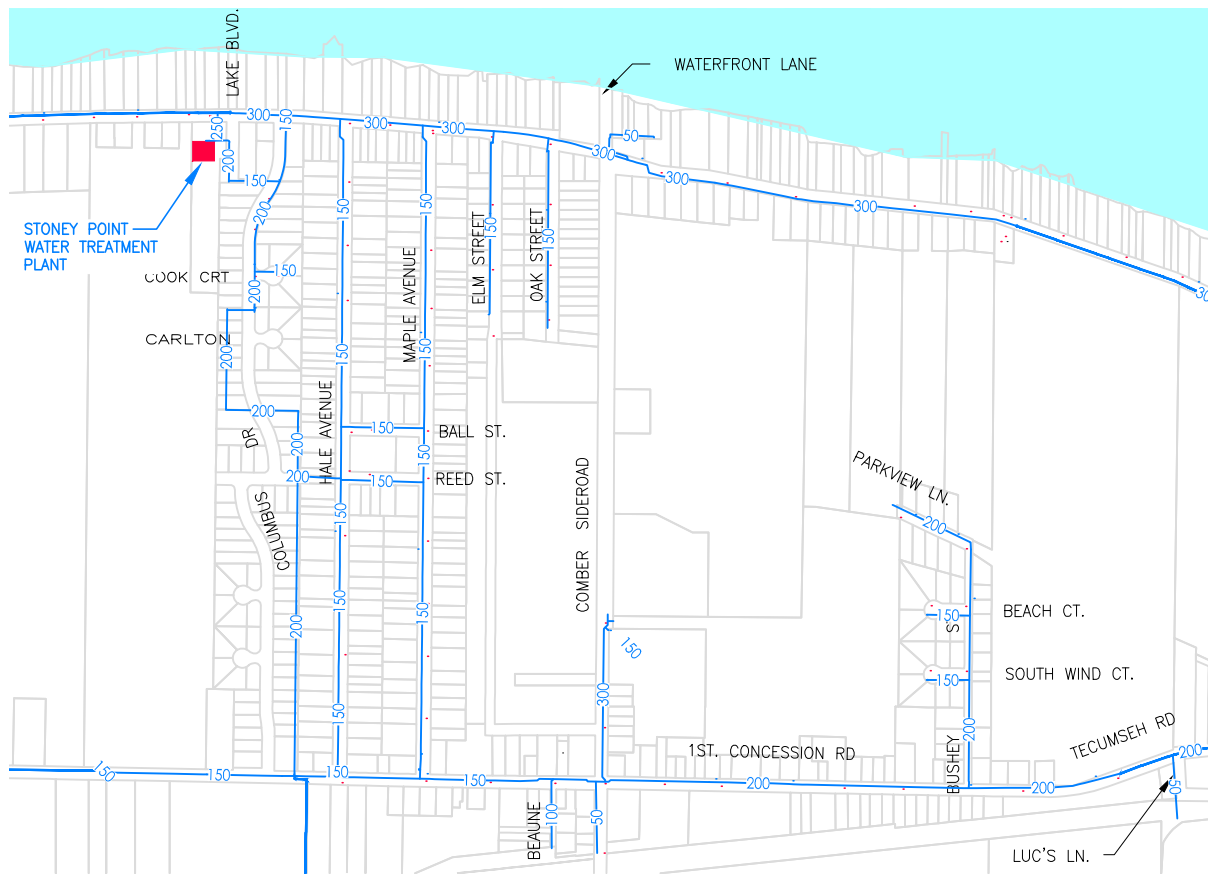
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(SEE SHEET W-8)

(SEE SHEET W-7)

(SEE SHEET W-8)



DETAIL  
SCALE 1:6,000



TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09



DRAWING NO.  
W-6



LAKE ST. CLAIR

STONEY POINT  
WATER SERVICE AREA

TILBURY - WHEATLEY  
WATER SERVICE AREA

(SEE SHEET W-8)

(SEE SHEET W-6)

(SEE SHEET W-8)

(GRACIE SIDEROAD)

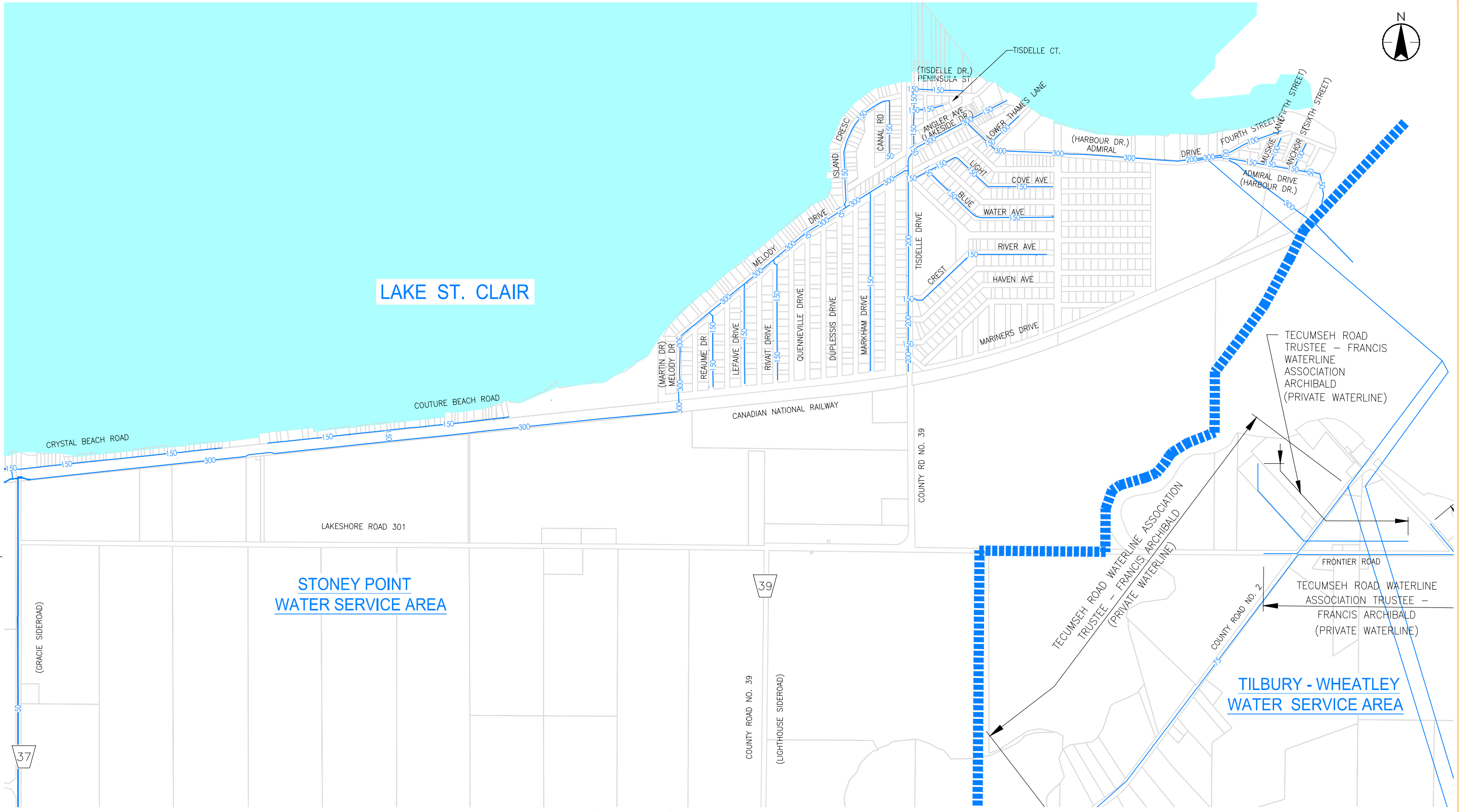
37

LAKESHORE ROAD 301

COUNTY ROAD NO. 39  
(LIGHTHOUSE SIDEROAD)

COUNTY RD NO. 39

COUNTY ROAD NO. 2



TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09

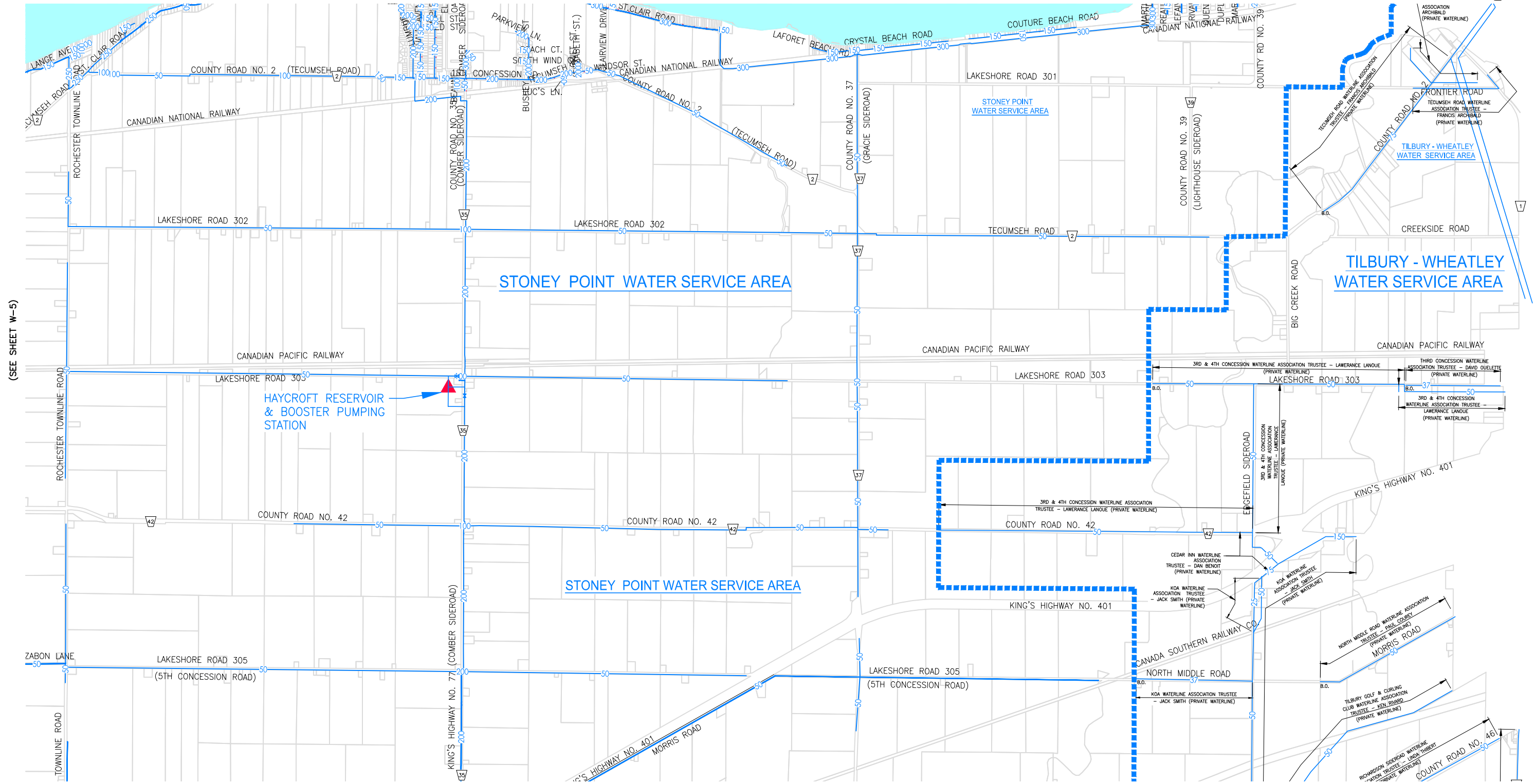


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(SEE SHEET W-7)



(SEE SHEET W-5)

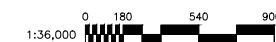
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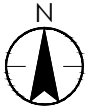
### TOWN OF LAKESHORE EXISTING WATER INFRASTRUCTURE

PROJECT NO.	165620081
DATE:	2016.12.09

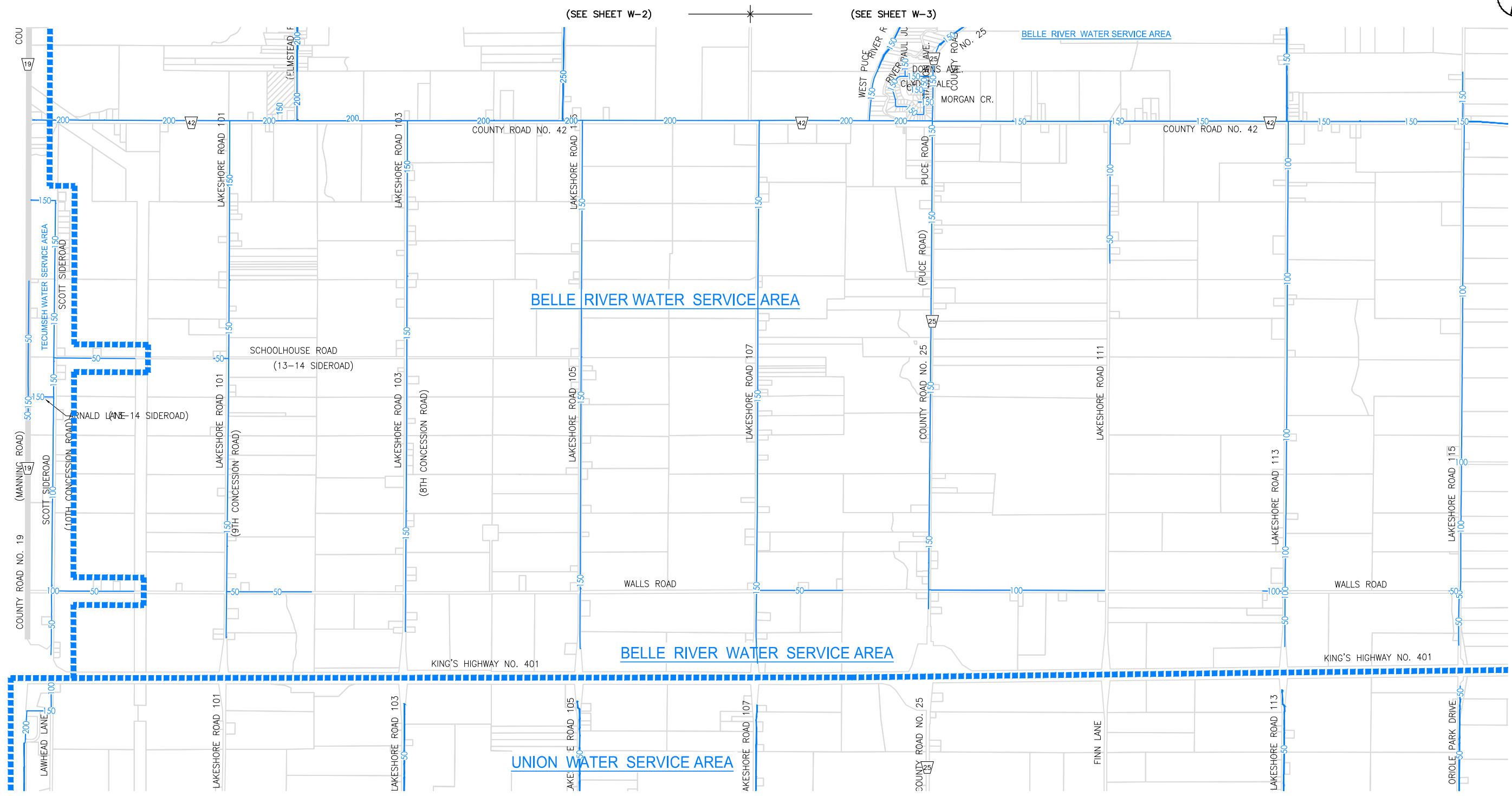


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TECUMSEH WATER SERVICE AREA



(SEE SHEET W-10)



TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09



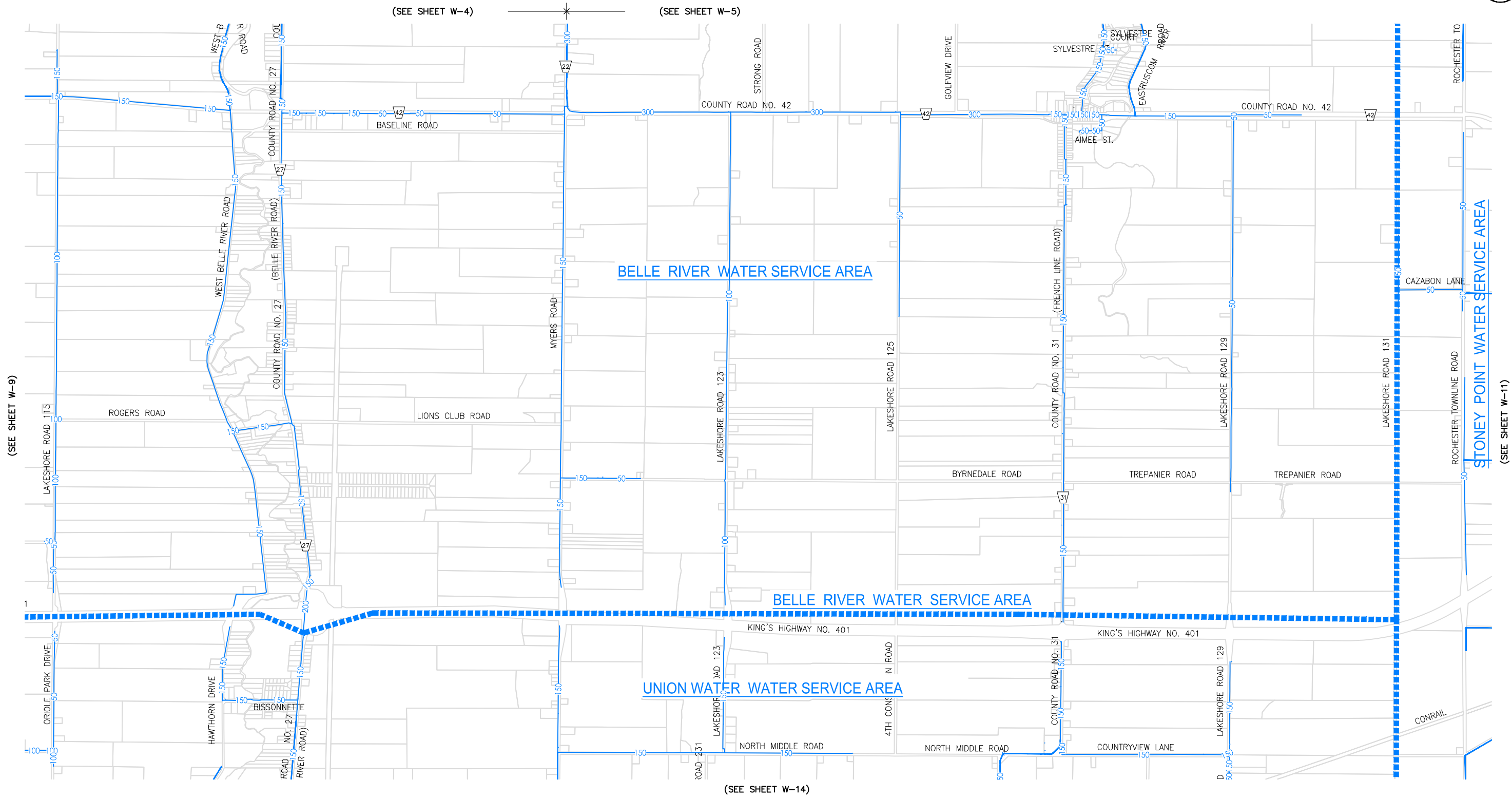
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W-9

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(SEE SHEET W-2)

(SEE SHEET W-3)

(SEE SHEET W-13)



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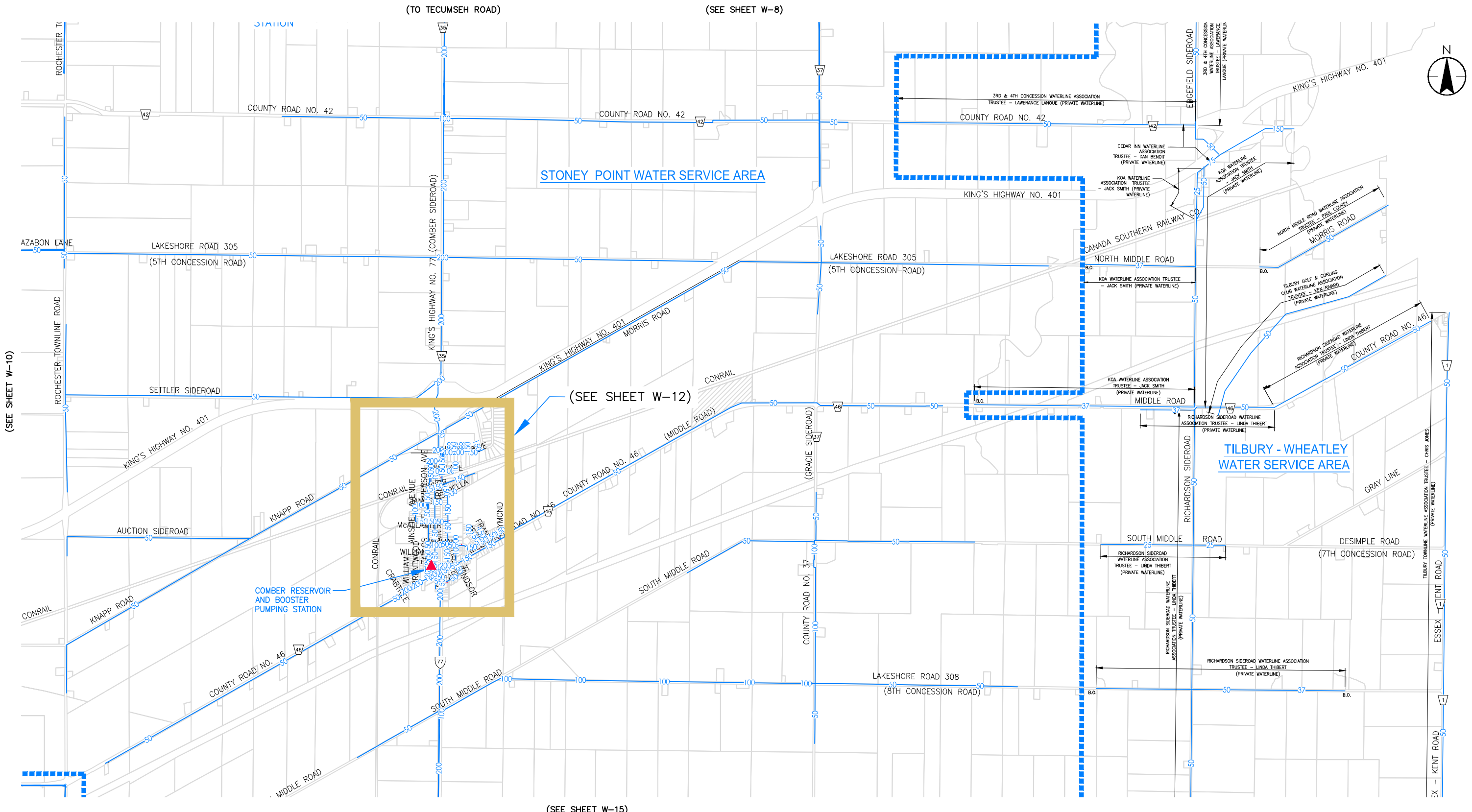
**TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE**

PROJECT NO.  
165620081  
DATE:  
2016.12.09



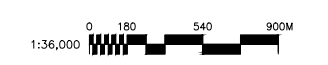
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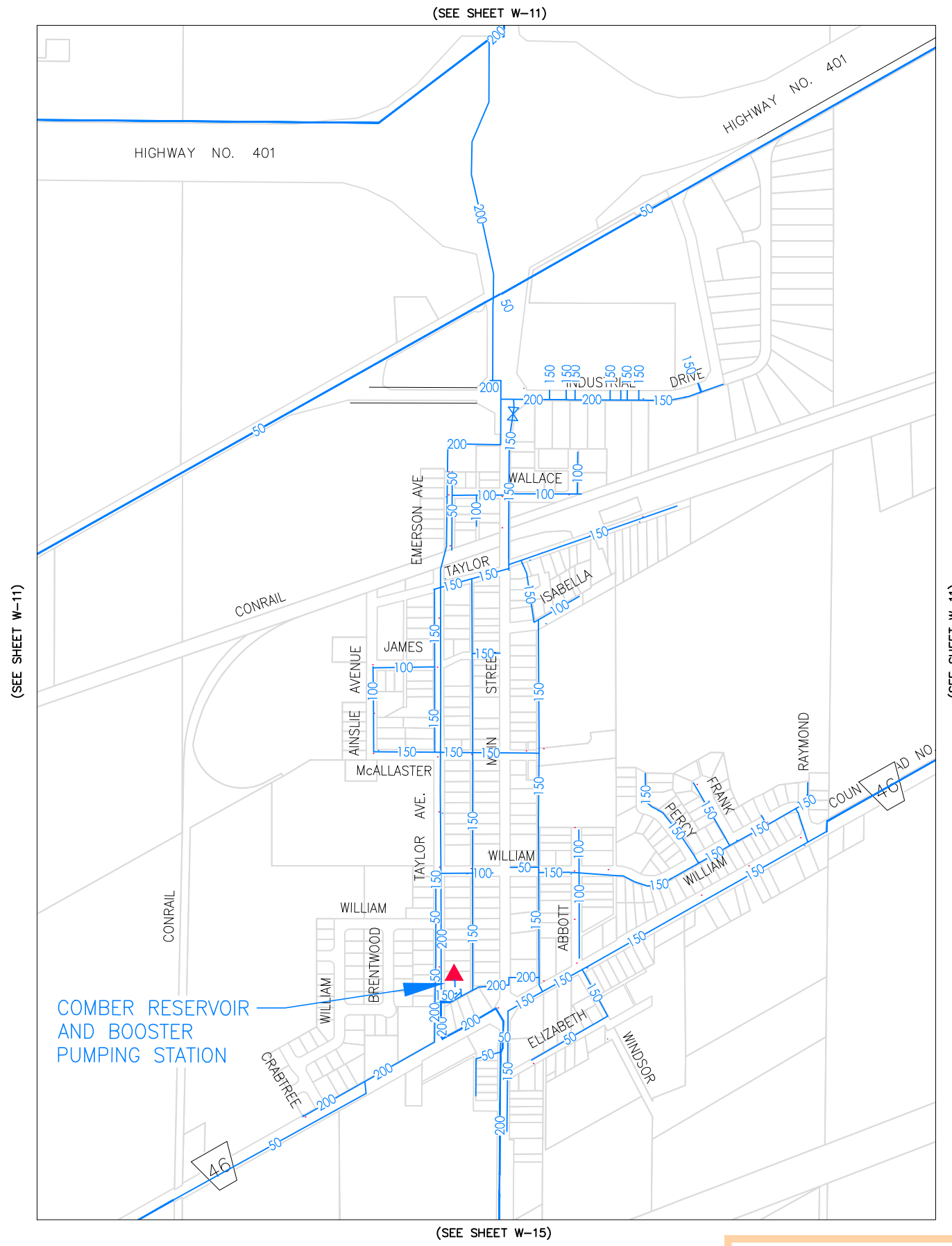
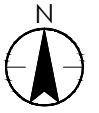


TOWN OF LAKESHORE  
 EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
 DATE:  
2016.12.09



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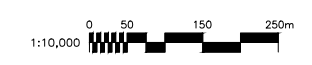


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2017-5-31 10:24am BY: jholmes



TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09

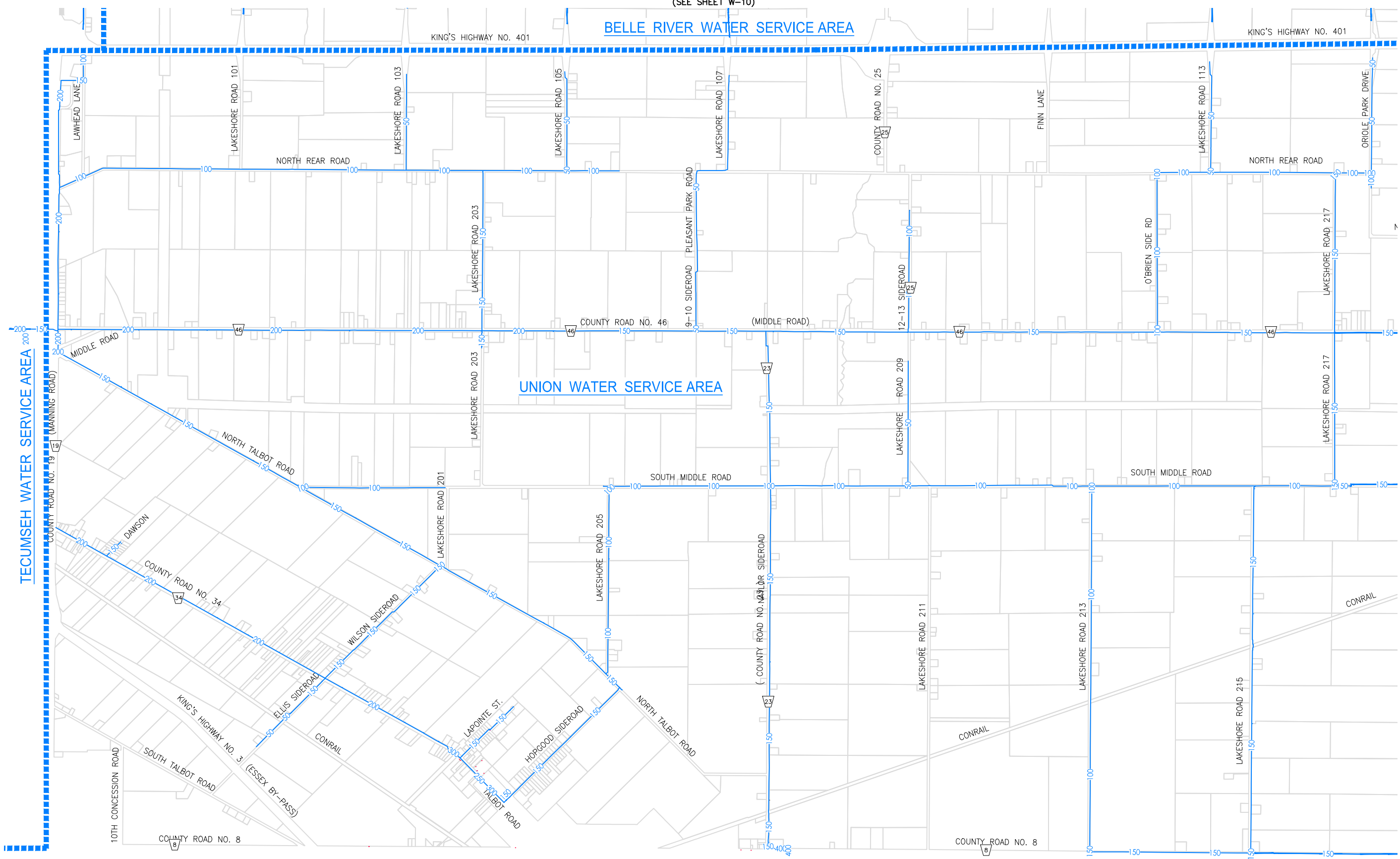
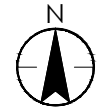


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W-12

(SEE SHEET W-10)

### BELLE RIVER WATER SERVICE AREA

KING'S HIGHWAY NO. 401



(SEE SHEET W-14)

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2017-5-31 10:24am BY: jholmes



### TOWN OF LAKESHORE EXISTING WATER INFRASTRUCTURE

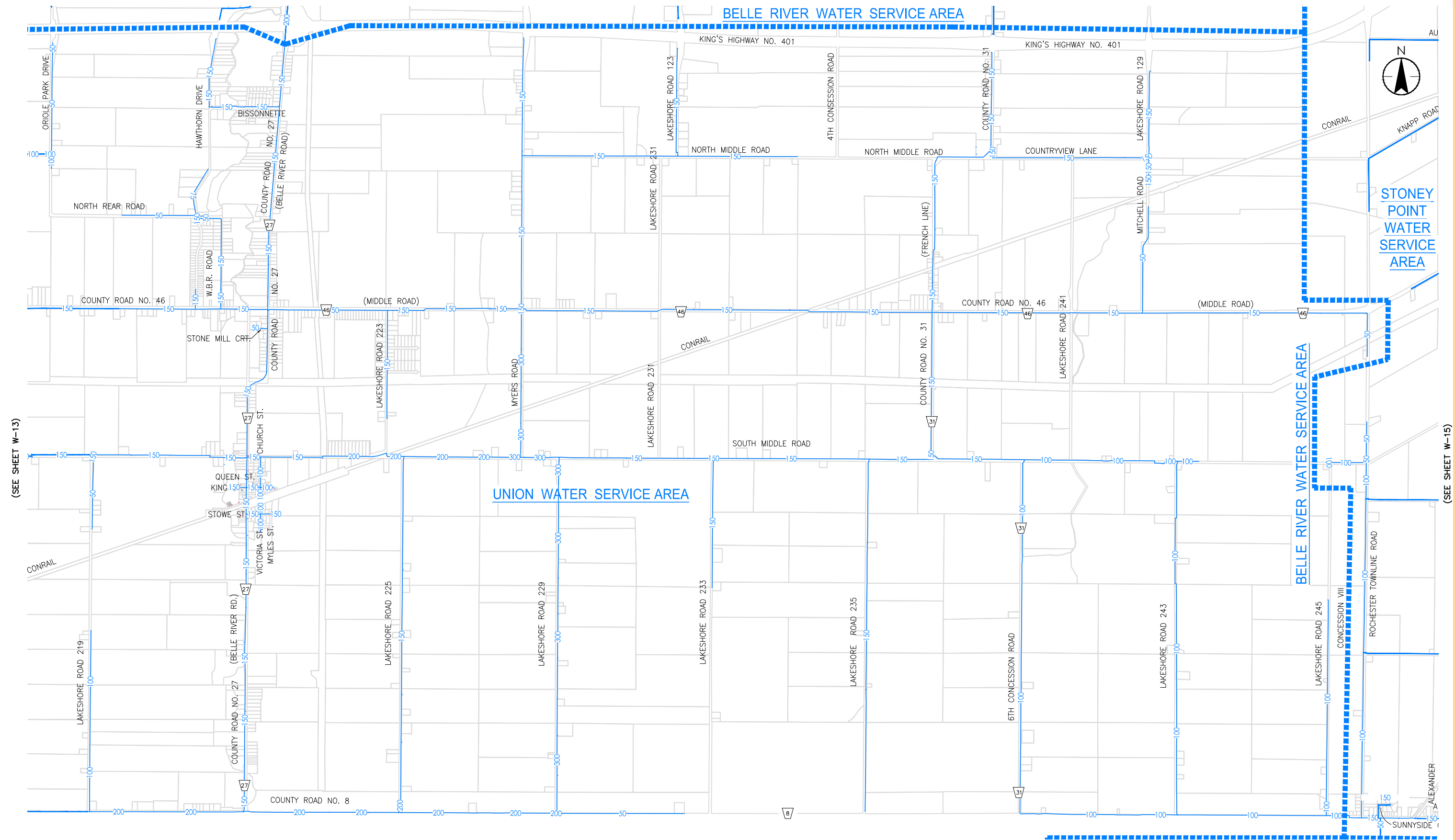
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DATE:	2016.12.09



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(SEE SHEET W-10)

### BELLE RIVER WATER SERVICE AREA



(SEE SHEET W-13)

(SEE SHEET W-15)



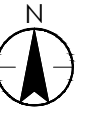
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PROJECT NO.  
165620081  
DATE:  
2016.12.09



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W-14

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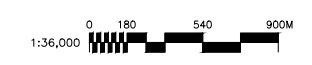


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TOWN OF LAKESHORE  
EXISTING WATER INFRASTRUCTURE

PROJECT NO.  
165620081  
DATE:  
2016.12.09



DRAWING NO.  
W-15

Appendix C –  
Technical Memorandum 1:  
Wastewater Background  
Information Review



# Wastewater Background Review (Draft)

PREPARED FOR: Town of Lakeshore  
COPY TO: Tony Berardi, Stantec  
PREPARED BY: CH2M - Jillian Schmitter, P.Eng.  
DATE: September 16, 2016  
PROJECT NUMBER: 679925  
REVISION NO.: 0

## 1.0 Introduction

The Town of Lakeshore (the Town) retained CH2M HILL Canada Limited (CH2M) in association with Stantec Consulting Limited (Stantec) to prepare and update to their Water and Wastewater Master Plan Study (WWWMP) completed in 2008. This Water and Wastewater Master Plan Update Study will be conducted in accordance with the Municipal Class Environmental Assessment (EA) implementation of strategic water and wastewater infrastructure improvements over the next planning horizon to 2031. This Master Plan Update Study will update the Town's 2008 WWWWMP to incorporate changes that occurred within the Town since the development since the 2008 WWWWMP. Recommendations put forward in studies completed since the 2008 WWWWMP will not be re-examined in detail; however, impacts to the recommendations will be evaluated and discussed.

This Technical Memorandum (TM) reviews relevant background materials and highlights findings from these materials which will affect the WWWWMP Update Study. The summaries prepared for each reference document are meant to reflect the actual content of the documents at the time they were produced. Therefore, there may be information within this TM that is out-of-date or no longer valid; however, this review captures key information for the purposes of completing the MP Update.

### 1.1 Purpose

The purpose of this TM is to review and summarize the background materials relevant to this Update Study, highlighting the effects of previous study findings. This TM is specifically concerned with wastewater infrastructure.

The following materials were reviewed for this TM and are summarized in subsequent sections of this TM:

- Lakeshore Water & Wastewater Master Plan – Stantec, 2008
- Town of Lakeshore Official Plan – MMM Group, 2010
- Eastern Communities Sewage Works ESR – Stantec, 2012
- Growth Analysis Study – Watson, 2015
- Town of Lakeshore Official Plan Review – MMM Group, Ongoing

- Additional materials including the following:
  - Status update of wastewater projects recommended in the Water and Wastewater Master Plan
  - Town of Lakeshore wastewater treatment facility Certificate of Approvals
  - Wastewater treatment facility Flow Data for the Belle River Maidstone WPCP (also known as the Denis St. Pierre WPCP, these names are used interchangeably in this TM for this facility), Comber STF, Stoney Point STF, and North and South Woodslee Collection Systems

## 2.0 Summary of Lakeshore Water & Wastewater Master Plan (Stantec, 2008)

The Town retained Stantec in association with Watson & Associates Economists Ltd. (Watson) to prepare a Water and Wastewater Master Plan Study (WWWMP) including a Rate Review Study. The goal of this study was to provide a consolidated framework to guide the planning and implementation of strategic water and wastewater infrastructure improvements over the 20 year planning horizon. This WWWWMP was completed in 2008.

### 2.1 Background and Service Areas

The following sections briefly describe the existing wastewater service areas within the Town as described in the 2008 Lakeshore Water and Wastewater Master Plan (WWWMP). These sections also identify areas of the Town which were not serviced by with municipal water or wastewater at the time of the 2008 study.

### 2.2 Wastewater Service Areas

There are presently five existing wastewater service areas in the town. They include:

- Belle River / Maidstone Sewage Works
- Stoney Point Sewage Works
- Comber Sewage Works
- South Woodslee Sewage Works
- North Woodslee Sewage Works

The following areas are currently serviced by individual onsite septic systems generally consisting of septic tanks and leaching beds:

- **Lighthouse Cove Area:** This area includes the shoreline area west of Lighthouse Cove (Laforet Beach, Crystal Beach, and Couture Beach Roads).
- **Rochester Place Area:** This area includes Deerbrook, St. Joachim and shoreline areas generally between Charron Line Road and Rochester Town Line Road including along the Ruscom River.
- **Belle River Road Area:** This includes the area north of North Woodslee hamlet and south of Belle River urban area.
- **Essex Fringe Area:** This area includes the southwest corner of the Town along County Road 35 and including adjacent side streets.
- **Potential Highway 401 Employment Area:** The 2008 WWWWMP made broad assumptions with respect to the water and wastewater servicing needs of the potential Highway 401 employment lands corridor.

### 2.3 Growth and Wastewater Flow Projections

Community growth projections were established for the 20 (2025) and 40 (2045) year planning horizons. These projections also established water demands and wastewater flows.

Residential and non-residential growth projections were based on a report prepared for the Town by Watson titled "Town of Lakeshore Population, Household and Employment Forecast Final Report" dated April 28, 2006.

Sanitary sewage flows are made up of waste discharges from residential, commercial, industrial and institutional establishments plus extraneous flows including inflow and infiltration contributions.

Table 1 summarizes the 2008 WWWMP 20 and 40 year wastewater flow projections for the existing wastewater service areas as well as flow projections for areas not currently serviced. The average per capita sewage flow including extraneous flows.

**Table 1. Existing and Projected Average Daily Wastewater Flows (2008 WWWMP) (m<sup>3</sup>/d)**

Wastewater Service Area	2005 (Existing)	2025 (20-year)	2045 (40-year)
Belle River / Maidstone	7,730	15,593	24,532
Stoney Point	1,092	2,100	3,108
Comber	395	1,409	1,714
South Woodslee	71	123	146
North Woodslee	-	320	381
Lighthouse Cove	-	1,186	1,795
Rochester Place	-	1,302	1,769
Belle River Road	-	541	808
Essex Fringe	-	296	296
Highway 401 Corridor	-	816	2,992

Source: Town of Lakeshore Water and Wastewater Master Plan (Stantec, 2008)

An average of 455 litres per capita per day (lpcpd) was assumed for areas not serviced in 2005. (Stantec, 2008)

### 2.4 Problem Statements

The following sections summarize the problem statements identified for wastewater in the 2008 WWWMP (Stantec, 2008). Table 2, below, summarizes the problem statements for each wastewater service area as identified for the 2008 WWWMP.

**Table 2. Wastewater Problem Statements for each Service Area**

<b>Wastewater Service Area</b>	<b>Problem Statement</b>
Belle River / Maidstone	<ul style="list-style-type: none"> <li>• 2,000 m<sup>3</sup>/d of additional capacity is required to service the existing and anticipated service areas</li> <li>• Extension of Oakwood trunk sanitary sewer to the west to service development and future growth; include a provision of new local collection system for Pike Creek to address pollution concerns.</li> <li>• Inflow and Infiltration (I/I) into the collection system</li> </ul>
Stoney Point	<ul style="list-style-type: none"> <li>• 1,200 m<sup>3</sup>/d of additional capacity is required to service the existing service area</li> <li>• Inflow and Infiltration (I/I) into the collection system</li> </ul>
Comber	<ul style="list-style-type: none"> <li>• 1,000 m<sup>3</sup>/d of additional capacity is required to service the existing and anticipated service area</li> <li>• Inflow and Infiltration (I/I) into the collection system</li> </ul>
South Woodslee	<ul style="list-style-type: none"> <li>• Upgrades to the existing collection system to address on-going problems with the existing septic tank effluent pumping (STEP) systems.</li> </ul>
North Woodslee	<ul style="list-style-type: none"> <li>• Construction of a new wastewater collection system to service areas in North Woodslee east of Belle River.</li> </ul>
Un-Serviced Settlement Areas (Lighthouse Cove, Rochester Place, Belle River Road Corridor, and Essex Fringe Areas)	<ul style="list-style-type: none"> <li>• These areas require sanitary sewage servicing to address pollution problems related to malfunctioning septic systems and to address development pressures.</li> <li>• The proposed Highway 401 Employment Lands require sanitary sewage servicing to accommodate development.</li> </ul>

Source: Town of Lakeshore Water and Wastewater Master Plan (Stantec, 2008)

## 2.5 Preferred Servicing Plan

The 2008 Lakeshore WWMP developed a servicing plan outlining the preferred wastewater infrastructure works required within the Town to the 20 year planning horizon. See attachment 1 for the tables summarizing the preferred servicing plan infrastructure projects. Table 7 in Section 8.1 of this TM summarizes the status of infrastructure projects recommended in the 2008 Lakeshore WWMP.

## 3.0 Summary of 2010 Town of Lakeshore Official Plan (MMM Group, 2010)

The Town of Lakeshore was established on January 1, 1999 following the amalgamation of the Township of Lakeshore, Rochester, Tilbury North and West. The Maidstone Township and Town of Belle River amalgamated on January 1, 1998. In 2006, the Town initiated the preparation of a new Official Plan (OP) which consolidates the five Official Plans of the former municipalities. (MMM Group, 2010)

This OP was prepared in accordance with the *Planning Act* and establishes the goals, objectives, and policies to manage and direct change within the township. This plan is based on a Population, Household, and Employment Forecast Study completed in April 2006. (MMM Group, 2010)

Section 4 of the 2010 OP provides population projections to the planning horizon (2031), these population projections are described included tables 3 and 4, below.

**Table 3. 2010 Town of Lakeshore Official Plan Population Projections**

<b>Growth Area</b>	<b>2031</b>
Combination of Maidstone and Belle River	34,985
Waterfront Residential Area	5,470
Stoney Point	3,370
Lighthouse Cove	1,980
Rochester Place/Deerbrook and St. Joachim	1,720
Comber	1,195
North/South Woodslee	1,025
Urban Fringe Area	650
<b>Sub-Total Urban</b>	<b>50,385 <sup>1</sup></b>
Agriculture Area/Small Hamlets	8,710
<b>Total Forecast Population Growth</b>	<b>59,095 <sup>1</sup></b>

Source: Town of Lakeshore Official Plan (MMM Group, 2010)

Notes:

1. Numbers may not add up precisely due to rounding (MMM Group, 2010)

**Table 4. Population, Household, and Employment Projections**

	<b>2006</b>	<b>2011</b>	<b>2016</b>	<b>2021</b>	<b>2026</b>	<b>2031</b>
<b>Population</b>	33,245 <sup>1</sup>	40,630	46,380	52,030	57,205	59,095
<b>Household</b>	11,630 <sup>1</sup>	14,135	16,135	18,110	19,935	21,560
<b>Employment</b>	9,930 <sup>2</sup>	12,750	15,780	18,080	20,565	21,325

Source: Town of Lakeshore Official Plan (MMM Group, 2010)

Notes:

1. Source – 2006 Census of Canada (MMM Group, 2010)
2. Source – Pro-rated from Town of Lakeshore Population, household, and Employment Forecast Study. (MMM Group, 2010)

Section 7.3 of the 2010 OP outlines the Town's long-term water and wastewater servicing strategy. The OP states the Town's objective as providing cost-effective and adequate water supply and sewage treatment. This section of the OP outlines a hierarchy for providing municipal sewer and water services. (MMM Group, 2010)

Section 7.3 outlines several goals for new development, asserting that development of land that is presently serviced, or can be easily serviced at minimal expense will be prioritized. Private service systems (for water and wastewater) will not be permitted in areas where service is available, exceptions will be granted in areas where municipal water and wastewater services are unavailable. Where wastewater treatment and collection systems are not available, lot creation will be limited to promote infilling around existing serviced areas. (MMM Group, 2010)

Section 7.3.1.2 of the OP specifically addresses municipal water and private sewage services. This section outlines the circumstances under which the Town will permit a private sewage system, typically meaning a septic tank with weeping tile system. (MMM Group, 2010)

## 4.0 Summary Eastern Communities Sewage Works Environmental Study Report (Stantec, 2012)

The 2008 Lakeshore WWWWMP completed Phases 1 and 2 of the Class EA process. The WWWWMP identified capacity problems within the Stoney Point and Comber sewage systems as well as environmental problems within the un-serviced areas of Rochester Place and Lighthouse Cove. The preferred solution included the construction of a new mechanical sewage treatment facility, to be located in the Stoney Point Area and decommissioning the existing sewage lagoons located in Stoney Point and Comber, this solution also includes new gravity sanitary sewer collection system to service Rochester Place and Lighthouse Cove. The preferred solution includes wastewater pumping stations and forcemains to deliver wastewater from Comber, Stoney Point, Rochester Place and Lighthouse Cove to the proposed new treatment facility in the Stoney Point area.

The Environmental Study Report for Lakeshore Eastern Communities Sewage Works completes phases 3 and 4 of the Class EA process. This includes the evaluation of alternative designs for the proposed new treatment facility and gravity sewer collection systems.

### 4.1 Existing Wastewater Systems

The Stoney Point and Comber Wastewater Systems and un-serviced areas are described in the following sections, as described in the Lakeshore Eastern Communities ESR (Stantec, 2012).

#### 4.1.1 Stoney Point Wastewater Systems

The Stoney Point community and adjacent lakefront areas are serviced by a wastewater collection and treatment system. The first phase of the system was constructed in 1978 and included a collection system of gravity sewers, two pumping stations and two oxidation ponds. The collection system was expanded in 1991 to the west along St. Clair Road to the Rochester Town Line to service the lakefront properties. I/I flow to the gravity sewer system exceeds the Ministry of Environment and Climate Change (MOECC) allowance for extraneous flows. The Town conducted video inspections to locate I/I sources and is working to reduce I/I contributions to wastewater flows.

Raw sewage is pumped to two 5.4 ha (14 acre) oxidation ponds located on Tecumseh Road, located west of Little Creek. The treatment facility design is based on an average daily sewage flow of 930 meter cubed per day ( $m^3/d$ ). Oxidation ponds are treated with aluminum sulphate for phosphorous removed prior to being drained. The ponds are regularly drained in a controlled manner to Little Creek with ultimate discharge to Lake St. Clair. Sludge accumulation was removed from Cell 2 in August 2005, however Cell 1 was never cleaned.

#### 4.1.2 Comber Sewage Systems

The Comber urban area is serviced by a wastewater collection and treatment system that was constructed in 1974 and includes a gravity sewer system, one pumping station and two oxidation ponds.

Raw sewage is pumped into two 2.43 ha (6 acres) oxidation ponds located in the southeast corner of the community south of County Road 46 and accessible from Windsor Avenue. The treatment facility was designed based on an average daily sewage flow of 430  $m^3/d$ . Oxidation ponds are treated with aluminum sulphate for phosphorous removal, prior to being drained. Ponds are routinely drained in a controlled manner with discharge to an open drain leading to No. 1 Government Drain which outlets to Big Creek with ultimate discharge into Lake St. Clair. Sludge accumulation was removed from both cells in 2004.

The results of investigations conducted by the Town indicate that I/I in the gravity sewer collection system is slightly above the MOECC allowance. Sewage flow are being monitored regularly for signs of any I/I increases that would warrant remedial work.

### 4.1.3 Areas Presently Serviced by Private On-Site Sewage Disposal Systems

Lighthouse Cove Area includes the shoreline area west of Lighthouse Cove which includes Laforet Beach, Crystal Beach and Couture Beach Roads. Rochester Place Area includes Deerbrook, St. Joachim, and shoreline areas generally between Charron Line Road and Rochester Town Line Road including along the Ruscomb River.

These areas are not currently serviced by an existing municipal wastewater collection and treatment system. The residences are typically serviced by private on-site sewage disposal systems, consisting of septic tanks and leaching beds. Prior to 1974, these systems were constructed with overflow pipes directed to local watercourses to prevent systems from overloading during wet weather conditions.

A pollution survey was conducted between December 2006 and May 2007 to verify and document the presence and probable origin of reported and suspected pollution problems in local watercourses. In the Rochester Place Area, 93 water samples were collected and analyzed. 58 of these samples had fecal coliform levels above the maximum acceptable level. Of these samples, 42 had a ratio of fecal coliform to fecal streptococci indicative of human origin. In Lighthouse Cove Area, 40 samples were collected and analyzed. 12 showed excessive fecal coliform levels, of those samples, 7 were indicative of human origin.

Based on the results of the pollution survey, together with lot size information obtained by a lot-by-lot survey, and the ages of the systems obtained from examination of septic system permits, it is evident that the pollution problems in these areas are a result of malfunctioning septic systems.

## 4.2 Problem Statements

The Lakeshore Eastern Communities ESR outlines the following problem statement:

*Additional sewage treatment capacity is required in Stoney Point and Comber to service growth in the service areas. I/I problems exist in the Stoney Point sewer system and to a lesser degree in the Comber system. The Lighthouse Cove and Rochester Place Areas require sanitary sewage servicing to address pollution problems related to existing malfunctioning septic systems and to address development pressures. (Stantec, 2012)*

## 4.3 Population and Flow Projections

This ESR derives the population projections for the services areas of concern from the 2010 official plan (OP) population projections. Population projections for each service area are determined in this study by applying the 2010 OP growth rate to 2050. Maximum population projections were established 20 percent higher and minimum projections were established at 20 percent lower.

Based on these population and flow projections the following phased construction is recommended for new wastewater treatment facilities:

Phase 1	Initial construction of treatment facilities with capacity for an average daily flow of 3,200 m <sup>3</sup> /d and maximum daily flow of 11,000 m <sup>3</sup> /d
Phase 2	Expansion in 2020 to increase capacity by 50 percent to 4,800 m <sup>3</sup> /d average daily flow and 16,500 m <sup>3</sup> /d maximum daily flow
Phase 3	Expansion to an average daily flow of 6,400 m <sup>3</sup> /d and a peak daily flow of 22,000 m <sup>3</sup> /d; year of expansion is to be determined depending on growth
Phase 4	Expansion to an average daily flow of 8,000 m <sup>3</sup> /d and a peak daily flow of 27,500 m <sup>3</sup> /d; year of expansion to be determined depending on growth

Phase 1 will accommodate the anticipated growth in Stoney Point, Comber, and Lighthouse Cove to 2020. Phase 2 will accommodate the construction of a sewage collection system in Rochester Place and would accommodate all four communities under the low population growth scenario to the year 2030.

#### 4.4 Design of Wastewater Collection Systems

The design of the wastewater collection systems recommended in the 2012 ESR for Lakeshore Eastern Communities are described below.

##### **Stoney Point and Comber:**

- No changes are proposed to the existing sanitary sewer systems in Stoney Point and Comber.
- The pump station in Stoney Point will require new pumps and the extension of the existing forcemain from the existing lagoons to the proposed new treatment facilities.
- The pump station in Comber will require new pumps and a new forcemain from the pump station to the proposed new treatment facilities.

##### **Lighthouse Cove and Rochester Place:**

- The Lighthouse Cove area is currently serviced by individual septic systems. A system of sanitary sewers and five pump stations is proposed to collect sewage for transmission to the proposed new treatment facilities.
- Pump Station No. 5, of the new system, will pump sewage from Lighthouse Cove and Comber through a new forcemain to the proposed new treatment facility
- The Rochester Place area is currently serviced by individual septic systems. A system of sanitary sewers and eight pump stations is proposed to collect sewage for transmission through a new forcemain to the proposed new treatment facilities.

#### 4.5 Sewage Treatment Facilities

The 2012 ESR for Lakeshore Eastern Communities evaluated two technologies for the proposed Lakeshore Eastern Communities Water Pollution Control Plant (WPCP), extended aeration activated sludge (EAAS) and sequencing batch reactor (SBR). The detailed evaluation conducted for the ESR identified no preference for one technology over the other and no significant differences in costs were identified. The ESR recommends that the final process technology be selected during the next phase of design.

The new Lakeshore Eastern Communities WPCP will be constructed on the property purchased by the Town when the Stoney Point Lagoons were constructed, with the intention of using the site for future upgrades or expansions to the treatment facilities.

#### 4.6 Property Requirements

The recommended sewage collection and treatment systems have the following property requirements:

- New pumping stations in Lighthouse Cove and Rochester place require new land acquisitions.
- Significant easements will be required in the CNR right-of-way or on adjacent private property for the forcemain from Rochester Place. As an alternative, the forcemain could be located within the road allowance for Tecumseh Road through Stoney Point.

#### 4.7 Biosolids Management

Both treatment processes under consideration for the Lakeshore Eastern Communities WPCP, EAAS and SBR, produce waste activated sludge as a process by product. The ESR evaluated a number of alternatives for solids management. The Denis St. Pierre WPCP process includes aerobic digester, dewatering, and cake storage for seasonal agricultural land application. The ESR recommends aerobic digestion for sludge stabilization at the new Lakeshore Eastern Communities WPCP with trucking of digested sludge to the Denis St. Pierre WPCP for dewatering, storage, and land application.



## 4.8 Decommissioning of Existing Treatment Facilities

The existing sewage lagoons at Stoney Point and Comber will require decommissioning. The following summarizes the recommended decommissioning plan:

- Discharge liquid from the existing lagoons under the effluent quality conditions for the lagoons to a depth of 300 cm.
- Remaining liquid will be dewatered either on site or at the Denis St. Pierre WPCP.
- Thickened solids will be stored at the solids storage facility at the Denis St. Pierre WPCP for agricultural land application or disposal by landfill.
- Emptied lagoons will be leveled and converted for recreational use.

## 4.9 Cost

An opinion of cost was prepared for the preferred alternatives. Tables outlined these opinions of costs are included in Attachment 2.

## 5.0 Summary of Growth Analysis Study (Watson, 2015)

### 5.1 Introduction

In 2015, the Town retained MMM Group in association with Watson to undertake an OP review. A growth analysis study was conducted by Watson as part of this review to guide the Town's decision-making related to land-use planning and growth management, infrastructure planning/phasing to the year 2031. This study provides the following information:

- A brief overview of recent economic trends within the Windsor-Essex Region and the Town of Lakeshore;
- Anticipated long-term housing and population growth for the Town of Lakeshore by Key Growth Area;
- Forecast long-term employment growth for the Town of Lakeshore by major sector; and
- An assessment of the Town's long-term urban employment land needs to the year 2031 based on anticipated demand and identified vacant employment land supply as of mid-year 2015.

Of particular interest to this TM and the Lakeshore WWWMP Update Study, are the recent population projections for the Town, which may impact water demands and wastewater flows in the future.

### 5.2 Population Forecast

The Growth Analysis Study Report (Watson, 2015) executive summary outlines the Town's population forecast as expected to increase at a rate of 0.8 percent, or 4,800 persons between 2015 and 2031. Therefore, the Town is expected to grow from 36,200 in 2015 to 41,200 in 2031. For comparison, the province of Ontario is forecasted to increase at an annual average rate of 1.6 percent between 2016 and 2031.

The Growth Analysis Study Report identifies the following observations regarding geographic location of population growth:

- The majority of the Town's existing population (and households) are located within the Maidstone Urban Area, with an estimated population of 22,500 and a housing base of 7,510.
- The Maidstone Urban Area will continue to represent the Town's primary urban growth area over the 2015 to 2031 forecast period. It is expected to experience a 65 percent of the total population growth anticipated in this area.

- The Town's rural areas represent approximately 19 percent of the existing population (as of 2015). Between 2015 and 2031 the Town's share of rural population is forecasted to decline from 19 percent to 17 percent.
- Stoney Point and Lighthouse Cove and other growth areas within the Town are forecasted to accommodate 33 percent of the Town-wide population growth.

## 6.0 Town of Lakeshore Official Plan Update (MMM Group, Ongoing)

The Town is currently undertaking an update to the 2010 OP. This Water and Wastewater Master Plan Study Update is expected to align with the updated OP. The Growth Analysis Study conducted in 2015 by Watson (summarized in the previous section) provides the basis for population and growth projections in this OP update and defines the design horizon and population projections for this planning exercise and therefore the Water and Wastewater Master Plan Study Update.

## 7.0 Additional Information

In addition to the study reports summarized above the following additional materials were reviewed:

- Certificate of Approvals (CofA) for the wastewater treatment facilities within the Town
- Daily wastewater flow data for the Town's wastewater treatment facilities
- Information provided by the Town updating the wastewater projects recommended in the 2008 Water and Wastewater Master Plan

The following sections outline the findings of the review of these materials.

### 7.1 Certificate of Approvals

Certificate of approvals (CofA) were reviewed for the Belle River Maidstone WPCP, Comber STF, Stoney Point STF, and North and South Woodslee Collection Systems. These CofAs confirmed the descriptions of these systems outlined in the 2008 WWWMP and 2012 Eastern Communities ESR.

### 7.2 Daily Wastewater Flow Data

A preliminary evaluation of these data was conducted. Additional data are to be provided, specifically for the Stoney Point, Comber, and Woodslee service areas. This section will present 3-year rolling annual average wastewater flows compared with the available capacity of each corresponding facility. Incomplete versions of tables to be presented in this section are presented below. Table 5 presents historical wastewater flows for each treatment facility. Table 6 presents the comparison of wastewater treatment capacities with the 3-year rolling averages for each treatment facility.

Table 5. Historical Wastewater Flows

Existing Treatment Facility	Average Daily Sewage Flow (m <sup>3</sup> /day)										
	2002 <sup>1</sup>	2003 <sup>1</sup>	2004 <sup>1</sup>	2005 <sup>1</sup>	2006 <sup>1</sup>	2011	2012	2013	2014	2015	2016 <sup>3</sup>
Belle River / Maidstone Area (Denis St Pierre WPCP)	6,067	6,802	7,820	7,636	8,243	13,819	8,089	9,646	11,302	11,887	13,834
Stoney Point STF	951	914	1,091	976	1,156			913	1,049	1,197	1,428
Comber STF	355	370	384	362	406				288	264	335
South Woodslee STP <sup>2</sup>			81	71	61				50	49	55
North Woodslee										34	47

Notes:

1. Years 2002 to 2006 (Stantec, 2008)

2. South Woodslee STP placed into operation in 2003 (Stantec, 2008)

3. Incomplete, based on data provided for January to July 2016.

**Table 6. Wastewater Treatment Capacity Requirements**

<b>Existing Wastewater Facility</b>	<b>Current Plant Capacity (m<sup>3</sup>/d) <sup>1</sup></b>	<b>3-Year Average Daily Wastewater Flow (m<sup>3</sup>/d) <sup>3</sup></b>
Belle River / Maidstone Area (Denis St Pierre WPCP)	13,640	10,945 <sup>4</sup> (80% of plant capacity) 9,679 <sup>5</sup> (70% of plant capacity)
Stoney Point STF	920 <sup>2</sup>	
Comber STF	430	
South Woodslee STP <sup>2</sup>	210	
North Woodslee	330	

Notes:

1. From the 2008 Lakeshore Water and Wastewater Master Plan (Stantec, 2008)
2. The MOE CofA for the Stoney Point STF does not identify a rated treatment capacity for the facility. The stated capacity in this table, is based on the apparent rated capacity assuming two discharge periods per year and full utilization of the theoretical storage capacity. Actual treatment capacity will vary generally based on meeting effluent criteria. (Stantec, 2012)
3. Calculated 3-year rolling average.
4. Based on data available for 2013 to 2015
5. Based on data available for 2012 to 2014

### 7.3 Recommended Wastewater Projects Progress to Date

Attachment 1 includes the list of wastewater projects recommended in the 2008 WWWMP (Stantec, 2008). The Town provided an update to this table. In summary, the wastewater projects recommended in the 2008 WWWMP have generally not been implemented to date. Progress was made toward construction of new treatment capacity for the Eastern Communities through the completion of the 2012 Eastern Communities ESR. This facility was also recommended in the 2008 WWWMP. Recommendations in the Eastern Communities ESR have not been implemented to date. A summary of the Eastern Communities ESR is provided in Section 4 of this TM.

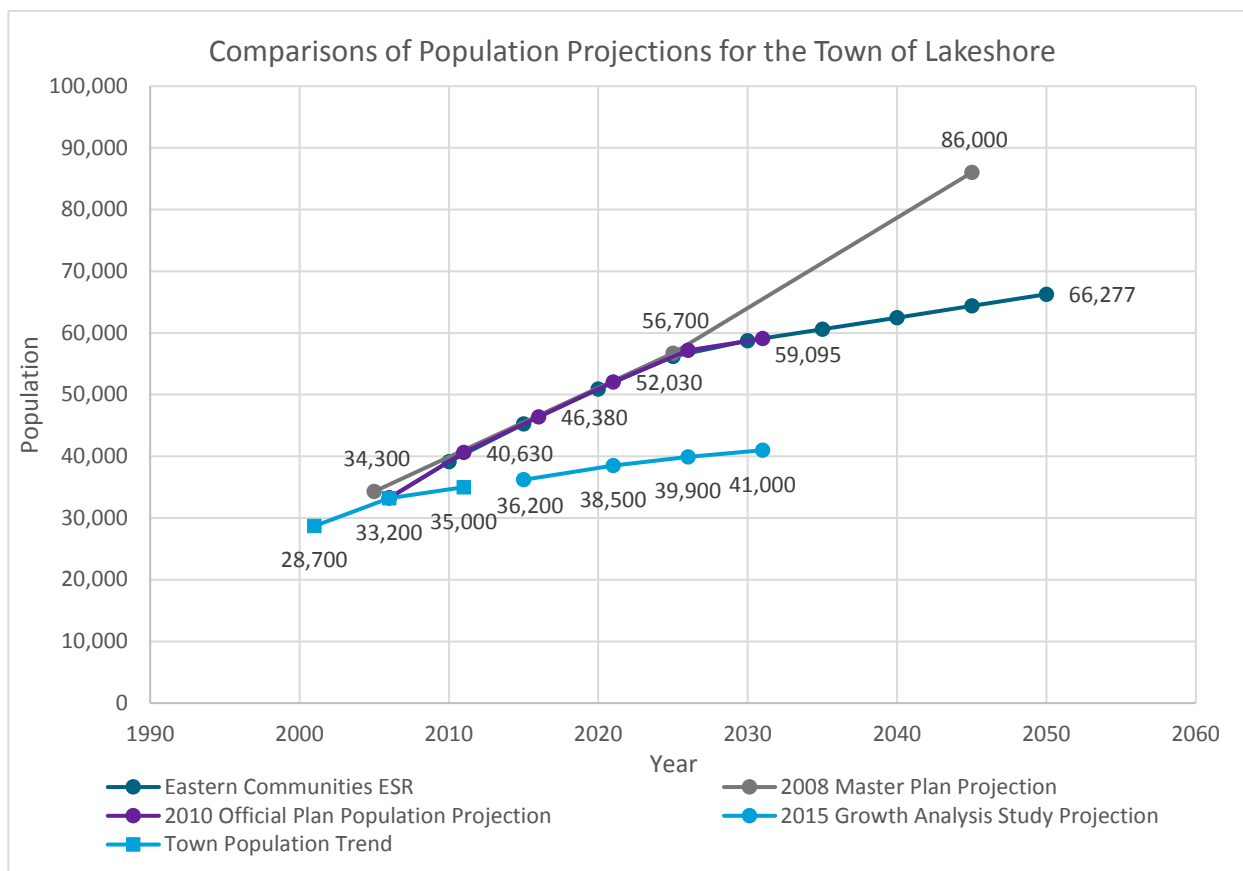
## 8.0 Conclusions

The following section presents the conclusions drawn from the background information and data review. The focus of these conclusions are from a wastewater perspective.

### 8.1 Comparison of Population Projections

Several different population projections were conducted and reviewed in the background materials reviewed in this TM. Population projections for the Town were conducted for the 2008 WWWMP, the 2010 Town of Lakeshore Official Plan, and the 2015 Growth Analysis Study by Watson performed for the ongoing OP update. For the purpose of this study, the projections presented in the growth and analysis study conducted by Watson in 2015 will be used for master planning purposes. The purpose of the comparison of population projections is to determine impacts on wastewater alternatives due to change in anticipated population growth.

Figure 1, below, illustrates a comparison of the four population projections.



Sources: Town of Lakeshore Water and Wastewater Master Plan (Stantec, 2008), Town of Lakeshore Official Plan (MMM Group, 2010), Growth Analysis Study (Watson & Associates Economists Ltd., 2015)

Figure 1. Comparison of Population Projections

In the above figure shows that the most recent population projections, conducted in 2015, are significantly lower than that those presented in both the 2008 WWWWMP and 2010 Official Plan.

It is anticipated that this reduction in anticipated growth within the Town will have the following impacts on the wastewater alternatives:

The reduction in population projections will lower projected wastewater flows. The impact of these changes on wastewater project recommendations are expected to fall into two categories:

- **Growth based recommendations**, such as additional capacity at existing wastewater treatment facilities due to anticipated changes in development rather than anticipated additional capacity due to connecting existing un-serviced areas. These recommendations may simply be delayed into the future.
- **Recommendations not tied to growth**, which include:
  - Recommendations to provide new servicing strategies (such as those for the Eastern Communities and Woodslee) may not be impacted by changes in population and flow projections. These are decisions about servicing strategy and are not directly tied to population growth.
  - The Denis St. Pierre WPCP’s available capacity to accommodate flows from new service areas may require reevaluation as the 2008 WWWWMP flow projections include development areas that may or may not be identified in the Town’s updated OP for development (such as the

Highway 401 development lands, Belle River Road, etc.). Changes to these recommendations will be more dependent on the Town's current development strategy as identified through the ongoing OP development, rather than due to population growth.

Table 7, below provides the list of projects recommended in the 2008 WWWMP and the anticipated impact of the updated population projection on each alternative solution.

**Table 7. Impacts of Population Projections on 2008 WWWMP Wastewater Project Recommendations**

<b>Wastewater Projects</b>	<b>Schedule</b>	<b>Description of Impact</b>
<b><i>BELLE RIVER WASTEWATER SYSTEM</i></b>		
<b>Treatment</b>		
Expand Belle River / Maidstone WPCP to 4.0 MIGD	2022	Delayed or reduced capacity
<b>Conveyance</b>		
Oakwood trunk sewer extension from Puce River to Pike Creek Area	2010	No impact
Belle River Road corridor – sewer system including trunk sewer, pumping station and forcemain to Belle River / Maidstone WPCP	2015	No impact
401 Employment Lands – Pump station and forcemain to Belle River / Maidstone collection system	2010	Unknown
<b>Local Collection</b>		
New gravity sewer collection system to service Belle River Road Corridor	2015	No impact
New gravity sewer collection system to service North Woodslee area	2015	No impact
New gravity sewer collection system to service South Woodslee area	2015	No impact
New gravity sewer collection system to service Pike Creek area	2010	No Impact
New gravity sewer collection to service 401 Employment Lands	2010	Unknown
<b><i>STONEY POINT WASTEWATER SYSTEM</i></b>		
<b>Treatment</b>		
Upgrade and expand Stoney Point WTF	2010	Delayed or reduced capacity
<b>Conveyance</b>		
Pumping station and forcemain from Stoney Point service area to expand treatment facility in Stoney Point	2010	Delayed, due to delay in Stoney Point WTF expansion
Pumping station and forcemain from Comber service area to expanded treatment facility in Stoney Point	2010	
Pumping station and forcemain from Lighthouse Cove service area to expanded treatment facility in Stoney Point	2010	
<b>Local Collection</b>		
New gravity sewer collection system to service Lighthouse Cove area	2010	Delayed, due to delay in Stoney Point WTF expansion
New gravity sewer collection system to service Rochester Place area	2010	
<b><i>ESSEX FRINGE SERVICE AREA</i></b>		
<b>Treatment</b>		

Acquire treatment capacity at existing Town of Essex wastewater treatment facility	2017	Delayed or reduced capacity
<b>Conveyance</b>		
Pumping station and forcemain from Essex Fringe service area to Town of Essex treatment facility	2017	No impact, depending on available capacity
<b>Local Collection</b>		
New gravity sewer collection system to service Essex Fringe area	2017	No impact, depending on available capacity

The Eastern Communities ESR, completed in 2012, uses the population and wastewater flow projections developed for the 2010 OP, projected out to year 2050 by applying the growth rate identified in the OP. Since the completion of this EA, the Town has completed a Growth Analysis Study, which resulted in lower population projections for all areas of Lakeshore including the service areas of concern in the Eastern Communities ESR. The new facility capacity and phasing are based on the low growth scenario with phasing based on anticipated growth and service expansion. The facility design capacities are likely appropriate under the updated population projections presented in the 2015 Growth Analysis Study conducted by Watson. However, following the initial construction of the new treatment facility, the timing of each subsequent phase of facility expansions may be delayed as growth is anticipated to be lower than projected by the 2010 OP and ESR.

The Town may want to reconfirm the flow projections applying the most recent population projections during the design to confirm the phase 1 capacity. If at that time it is determined that the phase 1 design capacity has changed, the Town may conduct an addendum to the ESR. Under the Municipal Engineers Association Municipal Class EA document (MEA, 2000 amended in 2007, 2011, and 2015), the updated population projections and the resulting changes in wastewater flow design flows constitute a “change in project environment” which allows for an ESR addenda. This addenda could be limited to simply revising capacities and phasing, or expand to include alternatives evaluation, depending on the findings during the preliminary design phase. Under the addenda process only the proposed changes are open for public review.

## 8.2 Problem Statements

A review and comparison of problem statements identified the following items in common:

- **Private On-Site Treatment:** The 2008 WWMP identifies water pollution problems related to existing on-site septic systems. Water quality sampling results from sampling of local waterways were indicative of human sources. Therefore, expanding servicing to include areas of the Town, particularly with older septic systems, would likely reduce the environmental impacts on local water bodies.
- **Inflow and Infiltration:** The Comber and Stoney Point collection systems were both identified to have above or close the MOECC limit for I/I contribution to wastewater flows. The Town has an inspection and mitigation program in place for the Stoney Point collection system.
- **Development Pressures:** Prior studies have identified areas of the Town targeted for development. It is not clear if these areas are still targeted for development, or if new priorities were identified since the 2008 WWMP and 2010 OP. Collaboration with the Town’s planning department will be required to identify the necessary updates to the Study’s wastewater problem statement.
- **New Service Areas:** The driver to provide service to areas not currently serviced are primarily to reduce and prevent pollution of local waterways, a secondary driver is new development.

- **Additional Capacity Requirements:** Additional capacity is required at the Denis St Pierre WPCP (servicing Belle River Maidstone area), Stoney Point STF, and Comber STF to expand service within these communities and to treat expected growth in wastewater flows. A new treatment facility is planned to treat flow from the Eastern Communities, which would replace the Stoney Point STF and Comber STF.

In discussion with the Town, the following priorities were identified since the completion of the 2008 WWWMP and 2012 Eastern Communities ESR:

- **Wastewater Servicing:**
  - North and South Woodslee are currently serviced by pressurized systems. The Town has identified operational issues with the current system. Investigate servicing options for North and South Woodslee, identify opportunities for servicing with existing wastewater treatment facilities.
  - Available capacity and infiltration are resulting in backup concerns in the Belle River / Maidstone service area specifically in the Country Road No. 2 (Old Tecumseh Road), north and west of Country Road No. 25 and Country Road No. 25 south of Country Road No. 22.
- **Development Pressures:** The Town is unsure of available collection and treatment capacity for new flows from the employment lands in the Patillo / Advance and Wallace Woods Areas. Investigate servicing options including the feasibility of operating the existing Patillo Area Packaged Plant, which is currently not in operation (and has been out of service since YYYY).

### 8.3 Potential Opportunities

The primary solution identified in previous studies to address surface and groundwater pollution from malfunctioning septic systems was to expand service to areas that do not currently have access to municipal water and sewer services. This is certainly the most effective way of addressing pollution concerns from onsite treatment. However, this may not be feasible in all cases. The Town may want to consider a program similar to that recently legislated by the Province of Ontario for the Lake Simcoe Region Conservation Authority through the Ontario Building Code [OBC] (O.Reg. 315/10). Under this program all septic systems within 100 m of Lake Simcoe, within a vulnerable area, or within a source protection area must be inspected every 5 years after the date of construction. For system constructed prior to January 1, 2011 they must be inspected by January 1, 2016 and inspected every 5 years thereafter.

This empowers the municipality to compel the landowners to repair or replace septic systems that are found to be malfunctioning.

## 9.0 References

MMM Group. 2010. *Town of Lakeshore Official Plan*. November 22.

Municipal Engineers Association (MEA). 2000 as amended in 2007, 2011, and 2015. *Municipal Class Environmental Assessment*.

Stantec. 2008. *Town of Lakeshore Water and Wastewater Master Plan*. October.

Stantec. 2012. *Town of Lakeshore Class Environmental Assessment Environmental Study Report for Lakeshore Eastern Communities Sewage Works*. November.

Watson and Associates Economists Ltd (Watson). 2015. *Town of Lakeshore Official Plan Review Growth Analysis Study*. November 27.

Ontario Regulation 315/10 amending Ontario Regulation 350/06.

<https://www.ontario.ca/laws/regulation/r10315>. Accessed on August 30, 2016.

# Attachment 1

## Identified Water and Wastewater Infrastructure Projects



Table 1-1 summarizes wastewater infrastructure projects identified to the 20 year planning horizon in the 2008 Lakeshore Water and Wastewater Master Plan (Stantec, 2008).

**Table 1-1. Summary of 20-year Wastewater Infrastructure Projects Identified in 2008 Lakeshore Water and Wastewater Master Plan (2008 WWWMP)**

Wastewater Projects	Probable Cost	Year Required	Class EA Schedule
<b><i>Belle River / Maidstone Wastewater System</i></b>			
<b>Treatment</b>			
Expand Belle River / Maidstone WPCP to 4.0 MIGD	\$12,800,000	2022	C
<b>Conveyance</b>			
Oakwood trunk sewer extension from Puce River to Pike Creek area.	\$8,500,000	2010	A+
Belle River Road corridor - sewer system including trunk sewer, pumping station and forcemain to BRMWPCP.	\$9,000,000*	2015	A+
401 Employment Lands – pumping station and forcemain to Belle River / Maidstone collection system	\$3,900,000	2010	A+
<b>Local Collection</b>			
New gravity sewer collection system to service Belle River Road Corridor	* Included in conveyance	2015	A+
New gravity sewer collection system to service North Woodslee area	\$4,700,000	2015	A+
New gravity sewer collection system to service South Woodslee area	\$1,200,000	2015	A+
New gravity sewer collection system to service Pike Creek Area	\$3,900,000	2010	A+
New gravity sewer collection system to service 401 Employment Lands	\$2,800,000	2010	A+
<b><i>Stoney Point Wastewater System</i></b>			
<b>Treatment</b>			
Upgrade and expand Stoney Point Wastewater Treatment Facility to 5,990 m <sup>3</sup> /d	\$12,530,000	2010	C
<b>Conveyance</b>			
Pumping station and forcemain from Stoney Point service area to expanded treatment facility in Stoney Point	\$200,000	2010	A+ / C

Table 1-1. Summary of 20-year Wastewater Infrastructure Projects Identified in 2008 Lakeshore Water and Wastewater Master Plan (2008 WWWMP)

<b>Wastewater Projects</b>	<b>Probable Cost</b>	<b>Year Required</b>	<b>Class EA Schedule</b>
Pumping station and forcemain from Comber service area to expanded treatment facility in Stoney Point	\$3,500,000	2010	A+ / C
Pumping station and forcemain from Lighthouse Cove service area to expanded treatment facility in Stoney Point	\$1,800,000	2010	A+ / C
Pumping station and forcemain from Rochester Place service area to expanded treatment facility in Stoney Point	\$2,500,000	2010	A+ / C
<b>Local Collection</b>			
New gravity sewer collection system to service Lighthouse Cove area	\$24,000,000	2010	A+ / C
New gravity sewer collection system to service Rochester Place area	\$16,000,000	2010	A+ / C
<b>Essex Fringe Service Area</b>			
<b>Treatment</b>			
Acquire treatment capacity at existing Town of Essex wastewater treatment facility.	\$1,400,000	2017	N/A
<b>Conveyance</b>			
Pumping station and forcemain from Essex Fringe service area to Town of Essex treatment facility.	\$2,600,000	2017	A+ / C
<b>Local Collection</b>			
New gravity sewer collection system to service Essex Fringe area	\$2,600,000	2017	A+ / C

Source: Town of Lakeshore Water and Wastewater Master Plan (Stantec, 2008)

# Attachment 2

## Recommended Alternatives Opinion of Cost

TECHNICAL MEMORANDUM

Tables 2-1 and 2-2 represent the opinion of cost prepared for the preferred alternatives identified in the Lakeshore Eastern Communities ESR (Stantec, 2012).

**Table 2-1. Opinion of Probable Cost – Collection and Transmission Systems, and Decommissioning of Comber and Stoney Point Lagoons**

Item	Probable Cost
Wastewater pumping station upgrade and forcemain extension to transmit wastewater from Stoney Point to the proposed new treatment facility	\$395,000
Wastewater pumping station upgrade and new forcemain to transmit wastewater from Comber to the proposed new treatment facility	\$3,000,000
New gravity sanitary sewage collection system to service Lighthouse Cove	\$18,755,000
Pump station and forcemain to transmit sewage from Lighthouse Cove to the proposed new treatment facility	\$715,000
New gravity sanitary sewage collection system to service Rochester Place	\$24,311,000
Pump station and forcemain to transmit sewage from Rochester Place to the proposed new treatment facility	\$2,478,000
Decommission the existing sewage lagoons located in Stoney Point and Comber	\$2,500,000
<b>Subtotal</b>	<b>\$52,154,000</b>
Contingency Allowance 10%	\$5,215,400
<b>Subtotal</b>	<b>\$57,369,400</b>
Engineering Allowance 15%	\$8,605,400
<b>Subtotal</b>	<b>\$65,974,000</b>
Rochester Place Property Acquisitions and Easements	\$898,000
Lighthouse Cove Property Acquisitions and Easements	\$537,000
<b>Subtotal</b>	<b>\$67,409,800</b>
<b>HST 1.76%</b>	<b>\$1,186,400</b>
<b>Total</b>	<b>\$68,596,000</b>

Source: Town of Lakeshore Class EA ESR for Lakeshore Eastern Communities Sewage Works (Stantec, 2012)

Table 2-2. Opinion of Probable Cost – Sewage Treatment Facility

Item	Probable Cost			
	Phase 1	Phase 2	Phase 3	Phase 4
Administration Building	\$1,600,000	-	-	-
Inlet Works and Grit Building (Screenings and Grit)	\$2,200,000	-	\$800,000	-
Extended Aeration Tanks and Blower Facility	\$3,300,000	\$1,100,000	\$1,100,000	\$1,100,000
Final Settling Tanks and Alum Storage & Feed Facility	\$1,900,000	\$800,000	\$800,000	-
UV Disinfection	\$1,200,000	\$600,000	-	\$300,000
Outfall	\$300,000	-	\$300,000	-
Sludge Holding Tanks/Aerobic Digester	\$1,600,000	\$600,000	\$600,000	\$600,000
<b>Subtotal</b>	<b>\$12,100,000</b>	<b>\$3,100,000</b>	<b>\$3,600,000</b>	<b>\$2,200,000</b>
Contingency Allowance 10%	\$1,210,000	\$310,000	\$360,000	\$200,000
<b>Subtotal</b>	<b>\$13,310,000</b>	<b>\$3,410,000</b>	<b>\$3,960,000</b>	<b>\$2,200,000</b>
Engineering Allowance 15%	\$1,996,500	\$511,500	\$594,000	\$330,000
<b>Subtotal</b>	<b>\$15,306,500</b>	<b>\$3,921,500</b>	<b>\$4,554,000</b>	<b>\$2,530,000</b>
HST 1.76%	\$269,400	\$69,000	\$80,200	\$44,500
<b>Total</b>	<b>\$15,576,000</b>	<b>\$3,991,000</b>	<b>\$4,634,000</b>	<b>\$2,575,000</b>

Source: Town of Lakeshore Class EA ESR for Lakeshore Eastern Communities Sewage Works (Stantec, 2012)

## Appendix D – Public Consultation

## D.1 – Project Mailing List

**Town of Lakeshore Water and Wastewater Master Plan Update Study**

**Project Mailing List**

Last Updated: 05.17.2017

Surname	First Name	Title	Organization	Department	Address	City, Province	Postal Code	Telephone	Fax	Email	Notice of Commencement (Y/N, Date)	Date Added
<b>Federal Agencies</b>												
		Referrals Coordinator	Fisheries & Oceans Canada	Fish Habitat - Management Office	867 Lakeshore Road	Burlington, ON	L7R 4A6	1-855-852-8320		fisheriesprotection@dfo-mpo.gc.ca	Y, July 27, 2016	
Gibson	Dave	Fish Habitat Biologist	Fisheries & Oceans Canada	Habitat Management	73 Meg Drive	London, ON	N6E 2V2				Y, July 27, 2016	
Ma	Kitty		Health Canada	Ontario Region	180 Queen Street W, 10th Floor	Toronto, ON	M5V 3L7				Y, July 27, 2016	
			Environment Canada	Ontario Region Environmental Services Branch	4905 Dufferin Street	Downsview, ON	M3H 5T4				Y, July 27, 2016	
			Transport Canada - Ontario Region (PHE)	Environmental and Engineering	4900 Young Street 4th Floor	North York, ON	M2N 6A5				Y, July 27, 2016	
			Parks Canada National Office		30 Victoria Office Street, 5th Floor	Gatineau, QC	J8X 0B3					
<b>Provincial Ministries</b>												
			Ministry of the Environment and Climate Change	Windsor Area Office	620-4510 Rhodes Dr	Windsor, ON	N8W 5K5	519-948-1465	519-948-2396		Y, July 27, 2016	
		Director	Ministry of the Environment and Climate Change	Southwestern Region	733 Exeter Road	London, ON	N6E 1L3				Y, July 27, 2016	
		Director	Ministry of the Environment and Climate Change	Environmental Assessment and Approvals Branch	2 St. Clair Avenue West, Floor 12A	Toronto, ON	M4V 1L5				Y, July 27, 2016	
			Ministry of Natural Resources		615 John Street North	Aylmer, ON	N5H 2S8	519-773-9241			Y, July 27, 2016	
Mahood	Chris	Heritage Planner	Ministry of Tourism, Culture and Sport	Culture Services Unit	401 Bay Street, Suite 1700	Toronto, ON	M7A 0A7				Y, July 27, 2016	
Muller	Joseph	Heritage Planner	Ministry of Tourism, Culture and Sport								N, Address N/A	
			Ministry of Community and Social Services	Southwest Region Office	PO Box 5217	London, ON	N6A 5R1				Y, July 27, 2016	
		Manager	Ministry of Economic Development and Growth	Business Development	659 Exeter Road, 2nd floor	London, ON	N6E 1L3				Y, July 27, 2016	
Curtis	Bruce	Manager	Ministry of Municipal Affairs and Housing	Community Planning and Development	659 Exeter Road, 2nd floor	London, ON	N6E 1L3				Y, July 27, 2016	
Cabral	Marion-Frances		Ministry of Municipal Affairs and Housing	Municipal Services Office	659 Exeter Road, 2nd Floor	London, ON	N6E 1L3					
Crinklaw	Drew	Rural Planner	Ministry of Agricultural, Food and Rural Affairs	Southwestern Ontario	667 Exeter Road	London, ON	N6E 1L3				Y, July 27, 2016	
Mundie	Donna		Ontario Ministry of Agriculture and Food	Land Use Policy Specialist, Resources	1 Stone Road West	Guelph, ON	N1G 4Y2				Y, July 27, 2016	
Turvey	John		Ontario Ministry of Agriculture and Food	Land Use Policy Specialist, Planning	1 Stone Road West	Guelph, ON	N1G 4Y2				Y, July 27, 2016	
Amalfa	Tony		Ministry of Health and Long Term Care	Environmental Health Policy & Programs	393 University Avenue, 21st Floor	Toronto, ON	M7A 2S1				Y, July 27, 2016	
			Ministry of Transportation	Chatham Area Office	PO Box 1168 870 Richmond Street	Chatham, ON	N7M 5L3				Y, July 27, 2016	
			Ministry of Transportation	Southwestern Region - Planning & Design Section	659 Exeter Road	London, ON	N6E 1L3				Y, July 27, 2016	
<b>Municipal / County Government Departments</b>												
		Manager, Planning Services	County of Essex	Planning	360 Fairview Avenue West Suite 302	Essex, ON	N8M 1Y6				Y, July 27, 2016	
Gregg	Brian	Chief Administrative Officer	County of Essex		360 Fairview Avenue West	Essex, ON	N8M 1Y6					
		C/O Clerk	County of Essex		360 Fairview Avenue West	Essex, ON	N8M 1Y6					
King	Bill		County of Essex		360 Fairview Avenue West	Essex, ON	N8M 1Y6					
		Chief Administrative Officer	Municipality of Leamington		111 Erie Street North	Leamington, ON	N8H 2Z9				Y, July 27, 2016	
Touralias	Tom	Chief Administrative Officer	Town of Lakeshore		419 Notre Dame Street	Belle River, ON	N0R 1A0				Y, July 27, 2016	
Darroch	Kim	Manager of Development	Town of Lakeshore	Municipal Heritage Committee Chair Ms. Patti Monk	419 Notre Dame Street	Belle River, ON	N0R 1A0					
		Chief Administrative Officer	Town of Essex		33 Talbot Street South	Essex, ON	N8M 1A8				Y, July 27, 2016	
Colucci	Onorio	Chief Administrative Officer	City of Windsor		350 City Hall Square West	Windsor, ON	N9A 6S1				Y, July 27, 2016	
Van Mierlo-West	Peggy	Chief Administrative Officer	Town of Kingsville		2021 Division Road North	Kingsville, ON	N9Y 2Y9			pvmwest@kingsville.ca	Y, July 27, 2016	
Haddad	Tony	Chief Administrative Officer	Town of Tecumseh		917 Lesperance Road	Tecumseh, ON	N8N 1W2				Y, July 27, 2016	
Shropshire	Don	Chief Administrative Officer	Municipality of Chatham Kent		PO Box 640 315 King Street West	Chatham, ON	N7M 5K8	519-436-3241	519-436-3236	ckcao@chatham-kent.ca	Y, July 27, 2016	
		C/O Clerk	Town of LaSalle		5950 Malden Road	LaSalle, ON	N9H 1S4					
		C/O Clerk	Town of Amherstburg		271 Sandwich St. South	Amherstburg, ON	N9V 2A5					
Kelly	Erin	Director of Education	Greater Essex County District School Board		451 Park Street West	Windsor, ON	N9A 5VA	519-255-3200 ext 10259		Director@publicboard.ca	Y, July 27, 2016	
		C/O Secretary	Windsor Essex Catholic District School Board		1325 California Avenue	Windsor, ON	N9B 3Y6					
			Conseil Solaire De District Des Ecoles Catholiques		7515 Forest Glade Drive	Windsor, ON	N8T 3P5					
Labrecque	Suzanne		Le Conseil Scolaire Public De District Du Centre-Sud-Ouest		116 Corneliuss Parkway	North York, ON	M6L 2K5					
Dupuis	Nicole	Director of Health Promotion	Windsor-Essex County Health Unit		1005 Ouellette Avenue	Windsor, ON	N9A 4J8				Y, July 27, 2016	
Kirk	Dr. Gary M.	Medical Officer of Health	Windsor-Essex County Health Unit		1005 Ouellette Avenue	Windsor, ON	N9A 4J8				Y, July 27, 2016	
Ramsey	Tracy	Essex M.P.	Constituency Office		316 Talbot Street N. Unit 6	Essex, ON	N8M 2E1	1-866-766-5333	519-766-1383	tracey.ramsey@parl.gc.ca	Y, July 27, 2016	
Natyshak	Taras	Essex M.P.P.	Constituency Office		316 Talbot Street N.	Essex, ON	N8M 2E1				Y, July 27, 2016	
<b>Conservation Authorities</b>												
Wyma	Richard	General Manager	Essex Region Conservation Authority		360 Fairview Avenue West	Essex, ON	N8M 1Y6			rwyma@erca.org	Y, July 27, 2016	
Fuerth	Tom		Essex Region Conservation Authority	Source Water Protection	360 Fairview Avenue West	Essex, ON	N8M 1Y6			chair@essexregionsourcewater.org	Y, July 27, 2016	
Brown	Laura		Lower Thames Valley Conservation Authority	Environmental Planning and Policy Assistant	100 Thames Street	Chatham, ON	N7L 2Y8	519-354-7310	519-352-3435		Y, July 27, 2016	
<b>First Nations</b>												
Cheechoo	Nicole	Claims Assessment Officer	Aboriginal Affairs and Northern Development		10 Wellington, 8th Floor	Gatineau, QC	K1A 0H4	1-800-567-9604	1-866-817-3977	infopubs@aadnc-aandc.gc.ca	Y, July 27, 2016	
Lynn	Ellen	Director of Negotiations	Aboriginal Affairs and Northern Development		10 Wellington, 8th Floor	Gatineau, QC	K1A 0H4	1-800-567-9604	1-866-817-3977		Y, July 27, 2016	
Litzgus	Leea	Associate Regional Director	Indigenous and Northern Affairs Canada	Ontario Region	25 ST-CLAIR AVE EAST, 8th FLOOR	Toronto, ON	M4T 1M2	416-973-8111			Y, July 27, 2016	
Wheaton	Pam	Director	Ministry of Aboriginal Affairs	Aboriginal and Ministry Relationships Branch	160 Bloor Street East, 9th Floor	Toronto, ON	M7A 2E6				Y, July 27, 2016	
Wagar	James	Natural Resources and Consultations	Métis Nation of Ontario	Lands, Resources, and Consultations	75 Sherbourne St. Suite 311	Toronto, ON	M5A 2P9	416-977-9881 ext 107		amesw@metisnation.org		17-May-17



Town of Lakeshore Water and Wastewater Master Plan Update Study

Project Mailing List

Last Updated: 05.17.2017

Surname	First Name	Title	Organization	Department	Address	City, Province	Postal Code	Telephone	Fax	Email	Notice of Commencement (Y/N, Date)	Date Added
<b>Local Interest Groups</b>												
<b>Utilities</b>												
		Lines & Right of Water - Net Asset Management Group	Hydro One Networks		483 Bay Street North Tower - 15th Floor	Toronto, ON	M5G 2C9				Y, July 27, 2016	
Giunta	Laura		Hydro One Networks Inc.	Real Estate Services	185 Clegg Road	Markham, ON	L3R 5Z5					
Martin	Jerry		Hydro One		125 Irwin Avenue	Essex, ON	N8M 2T3					
		Manager	Union Gas Ltd.		650 Division Road PO Box 700	Windsor, ON	N9A 6N7				Y, July 27, 2016	
Brundritt	Shirley		Union Gas Limited	Lands Department	50 Keil Drive North	Chatham, ON	N7M 5M1					
			Bell Canada		1149 Goveau St. 1st Floor	Windsor, ON	N9A 1H9				Y, July 27, 2016	
		Attn: ROWCC	Bell Canada		140 Bayfield Street, 2nd Floor	Barrie, ON	L4M 3B1					
		Manager	Union Water Supply System Joint Board Management		PO Box 359 1615 Union Ave.	Ruthven, ON	N0P 2G0				Y, July 27, 2016	
		Manager	Cogeco Cable		Devonshire Shopping Center 3100 Howard Ave.	Windsor, ON	N8X 3Y8				Y, July 27, 2016	
			Essex Power Corporation		360 Fairview Avenue West Suite 218	Essex, ON	N8M 3G4				Y, July 27, 2016	
			Ontario Clean Water Agency		1 Yonge Street, Suite 1700	Toronto, ON	M5E 1E5				Y, July 27, 2016	
Cataford	Carly		Plains Midstream		Box 7277	Windsor, ON	N9C 0C4					
		Executive Vice President	Ontario Power Generation Inc.	Law and Development	700 University Avenue	Toronto, ON	M5G 1X6					
			ELK Energy Inc.		172 Forest Avenue	Essex, ON	N8M 3E4					
<b>Other Stakeholders</b>												
			CN Rail	Regional Engineering Services	1 Administration Road PO Box 1000	Concord, ON	L4K 1B9				Y, July 27, 2016	
			CN Rail	Support Real Estate Group	1 Administration Road PO Box 1000	Concord, ON	L4K 1B9				Y, July 27, 2016	
Beshro	Raymond		CN Rail	McMillan Administration Rd.	1st Floor, 1 Administration Road	Concorde, ON	L4K 1B9					
			CP Rail	Environmental Affairs	910 Peel Street - RM 430 - Windsor Stn	Montreal, QC	H3C 3E4				Y, July 27, 2016	
Tomei	Josie		C.P. Limited Railway	Real Estate & Facility Management	800- 1290 Central Parkway	Mississauga, ON	L5C 4R3					
Rose	K.C.	Director	VIA Rail Canada		50 Drummond Street, Building C	Toronto, ON	M8V 4B5					
Henry	Bustard	President	Carleton Trail Management Inc.		#1, 1715 - 27th Avenue N.E.	Calgary, AB	T2E 7E1				Y, July 27, 2016	
Hilary	Payne	Development Coordination	Hilary G. Payne & Associates		2985 Dougall Avenue	Windsor, ON	N9E 1S1				Y, July 27, 2016	
		Attn: Circulations Intake, Planning & Design	MMM Group Limited		100 Commerce Valley Drive West	Thornhill, ON	L3T 0A1					
Starnichuk	Carmen		Tecumseh Letter Carrier Depot		11910 Tecumseh Road East	Tecumseh, ON	N8N 1M0					
			TSSA Intake and Licensing	14th Floor, Centre Tower	3300 Bloor Street West	Toronto, ON	M8X 2X4					
			Windsor-Essex Family Network & Resource Centre		7025 Enterprise Way	Windsor, ON	N8T 3N6					
DeSando	Bruno		Canada Post	Delivery Planning	955 Highbury Avenue	London, ON	N5Y 1A3					
Winzinger	John						N8N 2L9			<a href="mailto:winzing@mnsi.net">winzing@mnsi.net</a>		17-May-17
Obeid	Joe						N8N 3T3			<a href="mailto:joe.obeid@WRH.ON.ca">joe.obeid@WRH.ON.ca</a>		17-May-17
Winzinger	Will						N8W 2T5			<a href="mailto:will.winzinger@autoliv.com">will.winzinger@autoliv.com</a>		17-May-17
<b>Builders and Developers</b>												
Russo	Vince		Affinity Custom Homes		3154 Troup Crescent	Windsor, ON	N8R 0A3	519-979-5592		<a href="mailto:affinity@mnsi.net">affinity@mnsi.net</a>		
			Alta Nota Construction (2312005 Ontario Ltd.)					519-818-1633		<a href="mailto:altanota@lve.com">altanota@lve.com</a>		
Amine	Pierre		Amine Construction Ltd.		1051 Chelsea Park Way	Belle River, ON	NOR 1A0	519-727-8989		<a href="mailto:Pamine1@hotmail.com">Pamine1@hotmail.com</a>		
Fantin	Dino		Amico Design Build Inc.		2199 Blackacre Drive	Windsor, ON	NOR 1L0	519-797-6299		<a href="mailto:dfantin@triamico.com">dfantin@triamico.com</a>		
	Louis		Archambault Contracting		5095 Tecumseh Rd	Pointe aux Roches, ON	NOR 1N0	519-798-3532		<a href="mailto:Archambaultcont@aol.com">Archambaultcont@aol.com</a>		
Waters	Mark		Aspen Builders		944 Albert Road	Windsor, ON	N8Y 3P2	519-979-0300		<a href="mailto:Markwater5@hotmail.com">Markwater5@hotmail.com</a>		
Azar	Danny		Azar Homes		1126 Lesperance Road	Tecumseh, ON	N8N 1X2	519-735-2144		<a href="mailto:dannyazar@azarhomes.com">dannyazar@azarhomes.com</a>		
McCarthy	Annalisa		Bart DiGiovanni Construction Ltd.		2217 Walker Rd	McGregor, ON	NOR 1J0	519-726-5263		<a href="mailto:digiovanniconstruction@bellnet.ca">digiovanniconstruction@bellnet.ca</a>		
Klundert	Ben		BK Cornerstone		2177 County Rd 42	Belle River, ON	NOR 1A0	519-728-3664		<a href="mailto:brent@bkcornerstone.com">brent@bkcornerstone.com</a>		
Bachynski	Ted		Bachynski Builders		1061 County Rd 46	Woodslee, ON	NOR 1V0	519-723-4040		<a href="mailto:bachynskibuilders@gmail.com">bachynskibuilders@gmail.com</a>		
Jraige	Sam		Bayside Homes Ltd.		20 Division Rd N RR 3	Cottam, ON	NOR 1B0	519-839-4636		<a href="mailto:sam@baysidehomes.ca">sam@baysidehomes.ca</a>		
	Jeff		Boy Construction		432 W Puce Road	Belle River, ON	NOR 1A0	519-727-3317		<a href="mailto:jeff@buildersofyesterday.ca">jeff@buildersofyesterday.ca</a>		
	Tammy		Brady Homes		212 County Road 34, R.R.1	Essex, ON	N8M 2X5	519-839-2800		<a href="mailto:tammy@bradyhomes.ca">tammy@bradyhomes.ca</a>		
			Brian Klundert Builders Ltd.		1617 County Rd 46	Woodslee, ON	NOR 1V0	519-791-4449		<a href="mailto:bkbuilders@xplornet.com">bkbuilders@xplornet.com</a>		
	Scott		Brian Sparks & Son Ltd.		56 Bolohan Dr	Tilbury, ON	NOP 2L0	519-682-1872		<a href="mailto:sparks4@copeco.ca">sparks4@copeco.ca</a>		
Sterritt	Brian		Brimar Homes Ltd		1616 Chornoby Cres	Tecumseh, ON	N8N 4W3	519-735-8088		<a href="mailto:brimarhomes@lve.ca">brimarhomes@lve.ca</a>		
	Don		Brouillette Builders		1553 Lakeshore Rd 123	Belle River, ON	NOR 1A0	519-728-4646		<a href="mailto:don@brouillettebuilders.com">don@brouillettebuilders.com</a>		
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Caster	Dan		Caster Custom Homes		13401 Desro Dr	Tecumseh, ON	N8N 2L9	519-796-1734		<a href="mailto:rox@castergroup.com">rox@castergroup.com</a>		
	Mark		Cedar Hill Homes		11500 Tecumseh Road East	Windsor, ON	N8N 5G6			<a href="mailto:info@cedarhillhomes.ca">info@cedarhillhomes.ca</a>		
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			Fernwood Builders		1558 County Rd 31	Saint Joachim, ON	NOR 1S0	519-973-6420		<a href="mailto:shores@hitmentv.com">shores@hitmentv.com</a> ; <a href="mailto:fernwoodbuilders@kelcom.igs.net">fernwoodbuilders@kelcom.igs.net</a>		
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Kolody	Dave		Kolody Homes					519-979-9449		<a href="mailto:kolodyjake@aol.com">kolodyjake@aol.com</a>		
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	Bruno		Maple Leaf Homes Ltd.					816-3210		<a href="mailto:mapleleafhomes@gmail.com">mapleleafhomes@gmail.com</a>		
Morabito	Mary		Marpasco Homes		2503 Buttery Street	Windsor ON	N9E 4L9	519-972-6746		<a href="mailto:Mmorabito1@copeco.ca">Mmorabito1@copeco.ca</a>		
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			Mike's Custom Homes					519-259-8780		<a href="mailto:mbubzarov@gmail.com">mbubzarov@gmail.com</a>		
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Town of Lakeshore Water and Wastewater Master Plan Update Study

Project Mailing List

Last Updated: 05.17.2017

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Meo	Ralph		Seven Lakes Homes Ltd./Meo & Associates Inc.		7200 Disputed Road, Suite 200	LaSalle, ON	N9A 6Z6	519-250-8088		<a href="mailto:meo@meoassociates.com">meo@meoassociates.com</a>		
			Silver Springs Construction		7865 Howard Avenue	Amherstburg, ON	N0R 1J0	519-726-9681				
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## D.2 – Notices

# Notice of Study Commencement

## Town of Lakeshore Water and Wastewater Master Plan Update

### **The Study**

The Town of Lakeshore has initiated a Master Plan Update to modernize the 2008 Water and Wastewater Master Plan Study in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process. This update will help to determine the water and wastewater infrastructure the Town requires to service existing and future developments.

The objective of the Master Plan Update is to renew the comprehensive servicing strategy developed in the 2008 Master Plan. This study will reflect the current conditions and growth in the Town since 2008.

### **Public Consultation**

Consultation with the public is a key component of this study. The proposed consultation plans provides for one public information center in late 2016 to allow the public to review alternative solutions. In addition, there will be an opportunity for the public to review and provide input on the final Master Plan Update Report.

### **Study Contacts**

If you have questions about this Master Plan Update, or wish to be added to the study mailing list, please contact:

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# Lakeshore News

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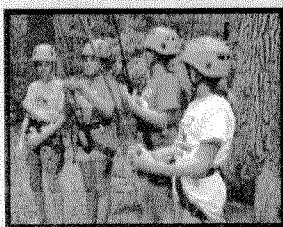
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Thursday,  
Aug. 25, 2016  
Volume 68, No. 34

Your Weekly Review

## OPP Cop Camp at Guestwood



The annual Essex County OPP Cop Camp was held earlier this month at Gesstwood Camp in the Town of Essex.

Page 2

## BR K of C installs new officers



Belle River Knights of Columbus Council #2775 has elected the executive for 2016-2017.

Page 10

## Quotable

"Boys will be boys, and so will a lot of middle-aged men."

-Kin Hubbard

# RCMP Musical Ride



The Windsor-Essex Therapeutic Riding Association hosted three performances by the RCMP Musical Ride over the weekend and more than 2,500 people attended. The tour includes 36 horses, 41 RCMP officers, four truck drivers, one bus driver and one farrier throughout Canada, the US and international venues. All proceeds from the ride help support programs at WETRA. Pictured above are the few RCMP riders along with WETRA volunteers.

## 2,500 attend WETRA fundraising event

Story and Photos by **Matt Weingarden**  
Staff Reporter

Majestic and Graceful - one of Canada's most recognized icons, the Royal Canadian Mounted Police Musical Ride passed through Essex County last weekend. The Windsor Essex Therapeutic Riding Association hosted the event at their acreage located just outside McGregor.

Annually, the musical ride helps over 40 com-

munities across the country, raising hundreds of thousands of dollars for a number of causes, including WETRA. This year marked the second time they have performed at the venue. The last time was in 2012.

### Over 2500 attend the event

This time around over 2,500 people purchased tickets to attend the three performances. The event helped raise funds for the charitable organiza-

tion, which uses horses as therapy for children and adults.

### Help for those with special needs

Nearly 200 persons with special needs receive therapy at WETRA each week. About 80 per cent of those who are enrolled in the program are children who have developmental, emotional or physical disabilities. The remaining 20 per cent are adults with similar challenges. Children and adults with dis-

abilities such as cerebral palsy, Spina bifida, head injuries, post stroke and learning disabilities enjoy the physical and psychological benefits of equine assisted therapies.

"I volunteer on Saturdays and I ride Titan... he's my horse," said Ursula Fawdry. She along with her brother Thomas were selected to be special Ambassadors to the RCMP ride. The pair along with several others waved and greeted spectators on the back of a trailer pulled by

a pick up before the ride started.

### A local connection

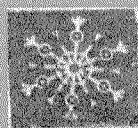
Among the RCMP riders was Const. Ashley Taylor, who has ties to Essex County, where she spent every single summer growing up. So, this visit was a homecoming of sorts for her. Although Taylor, 31, was born and raised in Western Canada, every summer her family would drive across the country to Windsor to visit her grandmother. This year 30 members of

See **WETRA** on page 2



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# community events

## Fri. Aug. 26 - 'Stroll the Street' fills downtown Belle River - On the Lake

Enjoy music and fun on the last Friday night of each month until September. An upbeat urban experience with small town charm geared for locals of all ages. Your opportunity to meet interesting people, as you walk, shop, eat and enjoy all that the local businesses have to offer.

## Sat. Aug. 27 - 'Fill the Bus'

Lakeshore Leos host 'Fill the bus with back to school items' at the Foodland in Belle River (534 Notre Dame St.) from 8:30 a.m. until 3 p.m.  
All donations accepted.

## Sun. Aug. 28 - Good Neighbour club Dinner/Dance

Music by Gord Ciliska from 2:00 p.m.- 5:30 p.m. with roast beef dinner to follow  
Cash bar, 50/50 draws, door prizes. Tickets are \$8 per person  
272 St. Paul St., Belle River  
Call 519-728-2138

## Sun. Aug. 28 - Worship with us at Lakeview Park in Belle River

Belle River & Woodslee United Churches are worshipping at the Amphitheater by the marina at 10 a.m. Potluck lunch to be held at Belle River United following the service. Everyone welcome.

## Sun. Sept. 11 - Walk for Parkinsons

The walk takes place at MaldenPark and Visitor's Centre, 4200 Malden Road, in Windsor. Registration starts at noon and the walk starts at 1 p.m.  
Followed by a free BBQ Picnic and activities - Pole Walking, Scottish Dancers, VON Exercises, Face Painting and Canadian Blood Services.

## Wed. Sept. 14 - Leamington Poor Boy Luncheon

Takes place at the Roma Club, 19 Seaciff E. from 11-1:30 p.m.  
Funds raised support Hospice Erie Shores Campus and Toys 4 Tots.  
Advance tickets \$8 at any local real estate office/Roma Club  
Tickets at the door \$10  
For further information contact John Woelk chairperson by text 519 791 2868 or email c21johnwoelk@hotmail.com

## Sun. Sept. 18 - Comber St. Andrew's United Church

Presents Dale Butler and Friends (Judy Butler & Gord Harwood) FUNdraisers for our Building Preservation Fund.  
The church is located at 6425 Main St., Comber at 7 p.m.  
Free will offering - refreshments to follow in the hall

If you would like your event listed in the Community Calendar, please contact Matt Weingarden at MWeingarden@postmedia.com or 519-735-2080 ext. 128  
**Please Note: Hand written notes, flyers and faxes NO LONGER ACCEPTED!**  
**All requests must be emailed to the above address!**



## TOWN OF LAKESHORE Notice of Commencement

### The Study

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### Study Contacts

If you have questions about this Master Plan Update, or wish to be added to the study mailing list, please contact:

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<b>LAST CHANCE!</b>	
<b>CHUBBY CHECKER</b> Thursday, August 25 3PM & 8PM	<b>RUSSELL PETERS</b> Friday, August 26
<b>WILLIE NELSON &amp; FAMILY</b> LIVE IN CONCERT WITH SPECIAL GUEST AARON LEWIS Thursday, September 8	<b>ALICE COOPER</b> Sunday, October 2
<b>AIR SUPPLY</b> Friday, September 16	<b>ENGELBERT HUMPERDINCK</b> Friday, October 7
<b>TOM JONES</b> Saturday, September 17	<b>HOWIE MANDEL</b> Friday, October 21
<b>GABRIEL IGLESIAS</b> *FLUFFYBREAKSEVEN TOUR Sunday, September 25	<b>BILLY OCEAN</b> Sunday, October 30
<b>TEARS FOR FEARS</b> Friday, September 30	<b>NEW LARRY THE CABLE GUY</b> Saturday, November 5 Tickets on sale August 27!
	<b>NEW STYX</b> Sunday, November 13 Tickets on sale August 27!
Tickets available at the Box Office, CaesarsWindsor.com, ticketmaster.ca or charge by phone 1-888-345-5885.	
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<b>STILETTO FIRE</b> SATURDAY, AUGUST 27   9PM - 1AM	
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## Art In The Park draws huge crowd

The Tilbury Arts Council's first-ever Art in the Park event on Sunday was an unmitigated success, drawing close to 3,000 people through the gates.

PG. 9



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# The TILBURY TIMES



Volume 134 No. 27 - Tuesday, August 23, 2016

The Tilbury Region's Community Newspaper Since 1883 - A division of Postmedia Community Publishing

## Amy Natyshak wins the CNE Ambassador of the Fairs Crown



By Gerry Harvieux

**M**iss Comber Fair 2015, Tilbury's own Amy Natyshak, was crowned Ambassador of the Fairs Sunday at the Canadian National Exhibition, emerging first among a crowd of 73 contestants.

In the wake of the announcement it was hard to say who was more excited and proud, her family and friends, or the organizers of the Comber Fair. To be sure, all were over the top proud of Amy's accomplishment, being the first Miss Comber Fair ever to hold the CNE title.

The competition got underway Friday morning when Amy was scheduled for her interview with the Ambassador of the Fairs judges. Following that, she had time to explore the fair

and attend various seminars. Then, Sunday morning the 73 contestants made a stage appearance where they were judged on presentation and poise. Amy emerged from that as one of seven finalists who had to give a speech on stage.

After giving her speech on how agriculture impacts rural fairs, Amy then emerged among the top three finishers. Those three young ladies were then asked an impromptu questions, and Amy drew "How does climate change affect rural communities?"

After a brief deliberation of the judges, Amy was crowned Ambassador of the Fairs.

"I was nervous before we started but as soon as I got on stage I was just excited," Amy said. "I'm the first Miss Comber Fair to ever win this title."

Continued on page 2

## HEALTH ALLIANCE CKHA supervisor will have wide ranging powers

By Ellewood Shreve

**T**he Ministry of Health and Long-Term Care will be announcing soon who will act as supervisor to oversee the operation of the Chatham-Kent Health Alliance.

Health minister Dr. Eric Hoskins has notified the Alliance and its three hospital boards - Public General, St. Joseph's and Sydenham District - that he supports the recommendation from an investigator that a supervisor be appointed to "restore robust governance and administrative/clinical leadership to ensure sustainable and appropriate oversight of patient care and financial management."

Bonnie Adamson was appointed as investigator in June to look at governance issues after a long-simmering dispute between the SDH Board and the PGH and SJH boards and the Alliance resulted in a complete break down in communication.

The yet-to-be named supervisor will begin their task shortly after being announced, said a ministry spokesperson. They will have sweeping powers when stepping in to run the Alliance.

"Under the Public Hospitals Act, a supervisor has the authority to exercise all of the powers of the hospital board and, where the hospital is owned or operated by a corporation, of the corporation, its officers and members of the corporation."

"The supervisor will take the steps that are appropriate and necessary to secure the proper functioning of the hospitals, including re-establish-

Continued on page 3

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## Model boat racers gather at Northside Park



The Southern Ontario Model Boat Club hosted the 2016 Dashwheel Sprint RC Boat Race at Tilbury's Northside Park on Sunday. The races featured gasoline, nitro and electric powered boats capable in excess of 70 MPH. Admission was free and spectators were welcome to watch the races.



## Natyshak wears CNE crown

Continued from page 1

As she was crowned, Amy thanked those involved in the program, including judges and sponsors.

"I am a little emotional right now. This means so much to me," she said. "This is such an incredible opportunity. My fellow ambassadors were incredible, all weekend, and all year."

The crown also comes with a wide array of fabulous prizes, not the least of which is the fact she will now stay at the CNE until September 5th as Ambassador of the Fairs. She will stay in a suite at the Weston Hotel and will be performing various duties including various public speaking engagements, introductions and thank yous at various CNE activities, and will also meet with the CNE organizers.

Amy was also presented with a cheque for \$3,500, as well as a \$2,000 travel voucher, to go on vacation.

Once the CNE closes for 2016, Amy's duties include serving as Ambassador at all agricultural fairs in Ontario that she is able to attend, depending on her school schedule. She will attend the Ontario Agricultural Society Conference in February as well, where she will, greet the various local fair ambassadors who will be competing next year for the title she now holds. Lastly, she will attend the 2017 CNE for its opening ceremonies.

Amy starts classes this fall at the University of Windsor where she will be enrolled concurrently in Education and French Language Studies.

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## police blotter

### Stolen Vehicle

Sometime between August 17th at 10 pm and August 18th at 2:30 am, someone stole a silver 2003 Jeep Liberty from a residence on Mable Street. The vehicle was recovered late Thursday parked behind the Tilbury Library.

### Theft of Tools in Merlin

Sometime late Tuesday night or early Wednesday morning, unknown suspects entered an unlocked shed on Crescent Lane and stole various tools valued at approximately \$600. Anyone with information is asked to contact Constable Randy Eckel at randye@chatham-kent.ca or 519-436-6600 extension #84400.

### Missing woman found

A 43-year-old Tilbury woman report-

ed missing Tuesday night was found Wednesday morning at Northside Park in Tilbury. She was transported to hospital for medical attention. No further details concerning the incident were released.

### Tilbury man arrested

A Tilbury man was apprehended under the Mental Health Act Thursday night as police responded to his residence after receiving a call out of concern for his safety. A pellet gun was seized.

### Motor Vehicle Collision

Last Sunday morning, August 14th, police responded to a single motor vehicle collision on Dashwheel Road near Rodels Line. Total damage was estimated at \$20,000. An 18-year-old Dover Centre man was charged with careless driving.

Just A Reminder...

**We Will Be Closed**

**LABOUR DAY**

Monday, September 5, 2016

All advertising deadlines

(display and classifieds) for the

September 6 Tilbury Times will be

Thursday, September 1 at 5 pm.

Have a Safe & Happy Holiday!

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TOWN OF LAKESHORE

**Notice of Commencement**

### The Study

The Town of Lakeshore has initiated a Master Plan Update to modernize the 2008 Water and Wastewater Master Plan Study in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process. This update will help to determine the water and wastewater infrastructure the Town requires to service existing and future developments.

The objective of the Master Plan Update is to renew the comprehensive servicing strategy developed in the 2008 Master Plan. This study will reflect the current conditions and growth in the Town since 2008.

### Public Consultation

Consultation with the public is a key component of this study. The proposed consultation plans provides for one public information center in late 2016 to allow the public to review alternative solutions. In addition, there will be an opportunity for the public to review and provide input on the final Master Plan Update Report.

### Study Contacts

If you have questions about this Master Plan Update, or wish to be added to the study mailing list, please contact:

Mr. Nelson Cavacas  
Town of Lakeshore  
419 Notre Dame Street  
P.O. Box 580  
Belle River, Ontario NOR 1A0  
Phone: 519-728-2700 ext. 287  
Fax: 519-728-9530  
Email: ncavacas@lakeshore.ca

Mr. Ryan Connor  
CH2M HILL Canada Limited  
300-72 Victoria Street South  
Kitchener, Ontario N2G 4Y9  
Phone: 519-579-3500 ext. 73262  
Fax: 519-579-3501  
Email: Ryan.Connor@ch2m.com





# Town of Lakeshore

## Water and Wastewater Servicing Master Plan Update

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### Notice of Public Information Center

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A Public Information Centre (PIC) is being held to provide details on the Master Plan Update process, the preferred alternatives for the Water and Wastewater Servicing Master Plan, as well as to receive input and comments from interested parties. The PIC will be held on:

**Date:** Tuesday, May 16, 2017  
**Time:** 4:00 pm to 7:00 pm  
**Location:** Atlas Tube Center  
447 Renaud Line Road  
Maidstone, Ontario NOR 1K0  
Renaud Room

Town Staff and their consultant, CH2M will be available to discuss the information presented. Comments received at this PIC will be considered in the selection of the preferred design concept.

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Fax: 519-579-8986  
Email: [Ryan.Connor@ch2m.com](mailto:Ryan.Connor@ch2m.com)

# Celebrating 25 YEARS!

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May 13 - Green Eyed Soul

May 20 - Front Row Cello

May 21 - Bob Gabriele & Dan Woods

May 28 - Jen Knight

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# Sandbar the place to meet for 25 years

The Sandbar Waterfront Grill is celebrating 25 years! The Troup brothers have officially been at the helm since April 1992.

From the once ramshackle building and overgrown property to what sits here today has been a project of passion for the Troups. The brothers have been avid boaters their entire lives and with their love and appreciation of food, it made sense to take on a marina and restaurant project. Twenty-five years later they have turned the property into a beautiful place to enjoy for both locals and guests traveling in from afar.

Although the property redevelopment was intense in the early days, the Troup's have never stopped improving, every year there are additions, upgrades and beautification projects.

"All profits are put directly back into the property and the staff to ensure we can offer the very best experience for our guests," the brothers concur.

Asked what has been most rewarding over the years and both Rob and Ken will tell you, "it's the sense of community".

Watching not only generations of family's come through the doors as guests, but also having generations of staff on

the team.

"Watching Mothers and sons and daughters, sisters, brothers, cousins all working together to serve neighbours and friends, that's family to us, and that's what has helped make the Sandbar an anchor in this community," the brothers shared.

We invite you to join us for an exciting year chuck full of great promotions, fun giveaways and special events.

Kicking off our "Silver Summer" will be a Throw Back menu the first week of May featuring not only some of your favourite menu selections from the past but also throw back pricing! We are also bringing back Reggae nights with party's planned for June 14th, July 12th and August 16th. A summer concert series is also in the works with great giveaway's to some of the best shows at Windsor's Caesars Colosseum this summer.

One thing is for certain, when you visit us at the Sandbar you are sure to get great food, great service and great fun!

*Stay up to date with all of the Sandbar happenings by checking out our website at [www.sandbarpuce.com](http://www.sandbarpuce.com) or like us on facebook.*  
*Cheers!*

# Comber IODE Spring Fling!



The Comber IODE hosted its annual Spring Fling event on Saturday at the Community Centre in Comber. Pictured above are Lakeshore Town councillors Linda McKinlay and Tracey Bailey. About 160 ladies attended the event, which had the theme of "Canada 150 – a celebration of the country's 150th birthday." It also tied in with the Comber IODE's 100th anniversary. Guest speakers included Tammy Pickle from Grainfree Goodness, Randall Van Wagner from the Lower Thames Valley Conservation Authority and Amy Natyshak, CNE Ambassador for 2016/17. The event also included a fashion show sponsored by Lill's Gift Room.



## Town of Lakeshore Water and Wastewater Servicing Master Plan Update

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# Parks Master Plan meetings draw "tremendous" crowds

By Matt Weingarden  
& Dan Schwab

The demands of a growing population and expanded utilization were the driving forces behind the Town of Lakeshore's recent public consultations on its new Parks Master Plan - a plan most residents seem pleased with.

Three public meetings were held: one in Comber, one in Woodslee and another in Belle River. Lakeshore's director of Community and Development Services, Steve Salmons, said their was tremendous turnout at all three. "This round of open hous-

es is a follow up to public consultation last summer," Salmons said. "We asked the public what are the things you like about our parks - what isn't working for you...what's missing?" The top three requests include walking trails, splash pads and upgraded playground equipment. The number one request was for an expansion of the municipal trail system and as well, residents are looking for year round access to these trails and parks. Residents also want washrooms available for longer hours, and that was made very loud and clear.

"What was quite encouraging is the fact that two thirds of our residents

are very satisfied with our parks system," Salmons said. "That is one of the amenities these people in the subdivisions want. They've got young families and they want parks where they can go for walks, parks where they can take their children, enjoy the park and all the playground equipment. For the most part we have seasonal parks and for the first time council has approved winter maintenance of trails and parks... which we had never done previously. If we had a soft winter the parks were available and if it was a tough winter they weren't." The park system was measured against other parks across the province and Salmons said that the Lakeshore park system measured up very well. One misconception that came about during the process was that the Belle River corridor is where all the money tends to be spent. Salmons says that if anything - the west end of the municipality was lacking in park space.

"On a per population basis, the rural and eastern part of the town actually served above provincial

standards," he added. "The western part of the municipality, the Puce corridor and Emeryville, are actually underserved... the Town as a whole is at or above provincial standard."

There were two major results the consultant says stood out throughout the process. One - a need to connect parks through an extensive coordinated trail system. One of the simplest ways to do this would be to use the CP rail and Hydro One corridors as major east/west routes from one end of the municipality to the other end - tying together the five populated centres in Lakeshore. Among the five centres, a hierarchy of the park system was created and include regional recreation destinations, community parks, neighbourhood parks and parkettes. "The trend is to create aggregated sports facilities, the Atlas Tube Centre is a gem and we're looking to develop even more of the area, in fact two-thirds of the land hasn't even been developed yet.

He added that large treed areas for picnicking and gathering as well as a facility for BMX and skateboarding areas are also an option.

Salmons couldn't put an actual monetary figure on the long-term project be-

cause it was still early in the process.

"The town will come up with the money for the plan over the next several years," said Salmons. "Certainly there is a reserve there, not enough do everything we would like to do, but it will be a long range plan. At this point, at least council is able to look over the plan and direct administration as they see fit."

Lakeshore Ward 6 Councillor Linda McKinlay said she hopes that through this long-term plan the Town will continue to thrive and add to existing assets.

"The Parks Master Plan is a huge study of all our parks and recreation facilities and it projects a 20-year plan for the future of these facilities based on surveys and comments of our residents," she said. "For us in Ward 6, we need to concentrate on our two major parks (Stoney Point and Comber) and our several parkettes and make the most of these properties."

McKinlay said Stoney Point has been that area's hub for soccer and the club there has done a great job of utilizing the property for this sport.

"We also have the skateboard park situated there and we need to maintain it for the young people who use it," she said. "Comb-

er has concentrated on baseball and that is working out very well. We are still looking for lights for our back ball diamond. It would be a huge improvement to the program and allow the Baseball Association to expand. They are already pressed for time on the diamonds."

In Ward 6, there are several small parkettes along Lake St. Clair. They're called "passive parks" because their purpose is to be a well-maintained area for relaxing.

"We like to keep shade and a place to sit and enjoy the day at these parkettes," McKinlay said.

The Comber Community Centre is the main recreation facility in that area and although it is the oldest recreation building in Lakeshore, it is also the biggest hall.

"For this reason, we need to keep it in top notch condition," McKinlay said. "Our Scouts have their meetings there and there are several exercise classes and other events that use this hall. Plus it is often booked for weddings and celebrations."


McKinlay pointed out that many residents listed wanting splash pads and walking trails.

"We have made our priorities known through this procedure and now we wait to see what they come back with," she added.

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 **Town of Lakeshore**  
**Water and Wastewater Servicing**  
**Master Plan Update**

**Notice of Public Information Center**

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Email: Ryan.Connor@ch2m.com

## Businesses warned of new scam

Businesses in Ontario are being warned of a new telephone scam, which is currently targeting offices throughout Canada.

Businesses owners are being urged to be wary if someone claiming to be a local police officer phones encouraging you to make a donation to a community cause you have allegedly supported in the past.

The scam involves a business receiving a call from a person claiming to be a local police officer. He begins by asking for a company director by name and then asks a series of ques-

tions about whether or not there have been any problems with anti-social behaviour in the area lately. This is a tactic to build a rapport with whoever answers the phone and display a level of knowledge of the local area to make them appear genuine.

After lulling owners into a false sense of security, the call then takes a turn. The caller goes on to ask if the business will be continuing to support a local police community publication with a small donation, just as they have done in the past. An ap-

parent "colleague" of the caller follows up within ten minutes of the original call asking for payment.

As many local businesses give back to their communities through donations, scams like these can be easy to fall for. The problem with calls like these is people are more inclined to trust a call that they receive from someone in a position of authority, such as a policeman.

The use of official records, which are easily available, says it all and people should be warned that knowledge of these details is no guarantee that the caller is legitimate."

Businesses in Ontario should be vigilant against these types of calls and never make a donation over the phone to an unsolicited caller without verifying the caller. This can be done by asking for their full name, job title and telephone number so you can check it out.

**PUBLIC AUCTION**  
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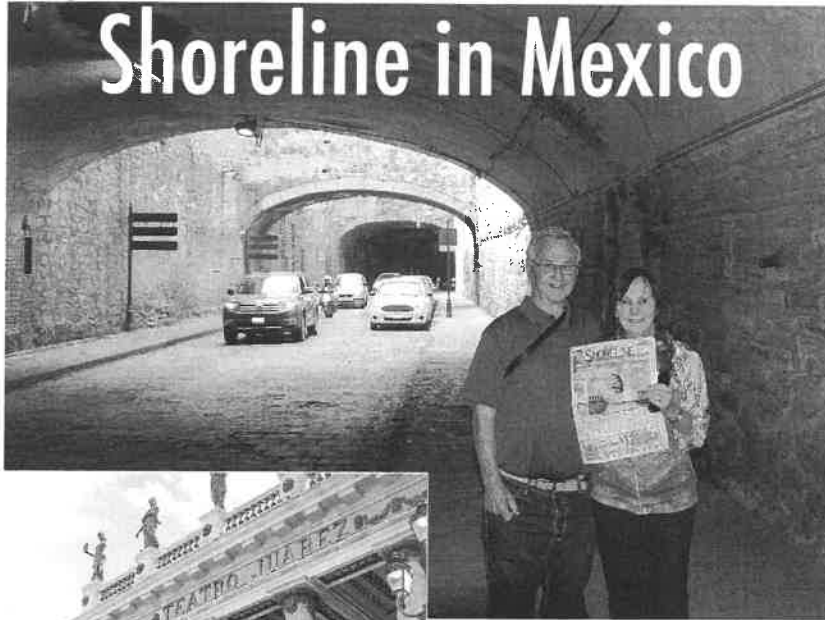


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# Shoreline in Mexico



Tom and Angela Deane are pictured above holding up a copy of *Tecumseh Shoreline Week* while waiting for a bus in Guanajuato, Mexico. This unique town was an old silver mining area and many old tunnels have been made into one lane roads. These underground roads are the main way for autos to get around the town. In the photo at left, they are pictured in front of Teatro Juárez, a historic theatre built between 1873 and 1903.

## St. Anne Parish hosting benefit variety show on May 28

St. Anne's Parish in Tecumseh will be hosting a St. Vincent de Paul benefit concert/variety show on Sunday, May 28 starting at 7 p.m.

Performers include Crystal Gage and Ryan St. Denis as well as local and Parish talent!

No tickets will be sold. A freewill monetary donation will be taken up. Refreshments served after the show.

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WINDSOR ESSEX  
**Compassion  
Care Community**

## WECC planning launch in Tecumseh on June 28

Liz Daniel, community engagement coordinator for Windsor Essex Compassion Care Community, appeared before Tecumseh Town Council last week to speak about the organization's goals in assisting the elderly and persons with disabilities.

The group will be launching in Tecumseh on Wednesday, June 28 from 4 p.m. to 7 p.m. at a location yet to be determined.

Mayor Gary McNamara has agreed to present an award to someone in the community who is compassionate.

For more information, please visit  
[CompassionateCareCommunity.com](http://CompassionateCareCommunity.com)



## Town of Lakeshore Water and Wastewater Servicing Master Plan Update

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**Town of Lakeshore**

May 25 at 6:59am · 🌐

### Water Wastewater Master Plan

The Town of Lakeshore is undergoing a review of the Water and Wastewater Master Plan. Slides from the Open House are available on the website for viewing. Individuals are welcome to provide comment until June 15, 2017 through email to [ncavacus@lakeshore.ca](mailto:ncavacus@lakeshore.ca) or [webmaster@lakeshore.ca](mailto:webmaster@lakeshore.ca) or telephone by calling 519-728-2700.

### Town of Lakeshore - Community Input

Windsor Essex Economic Development Corporation Potential Grants  
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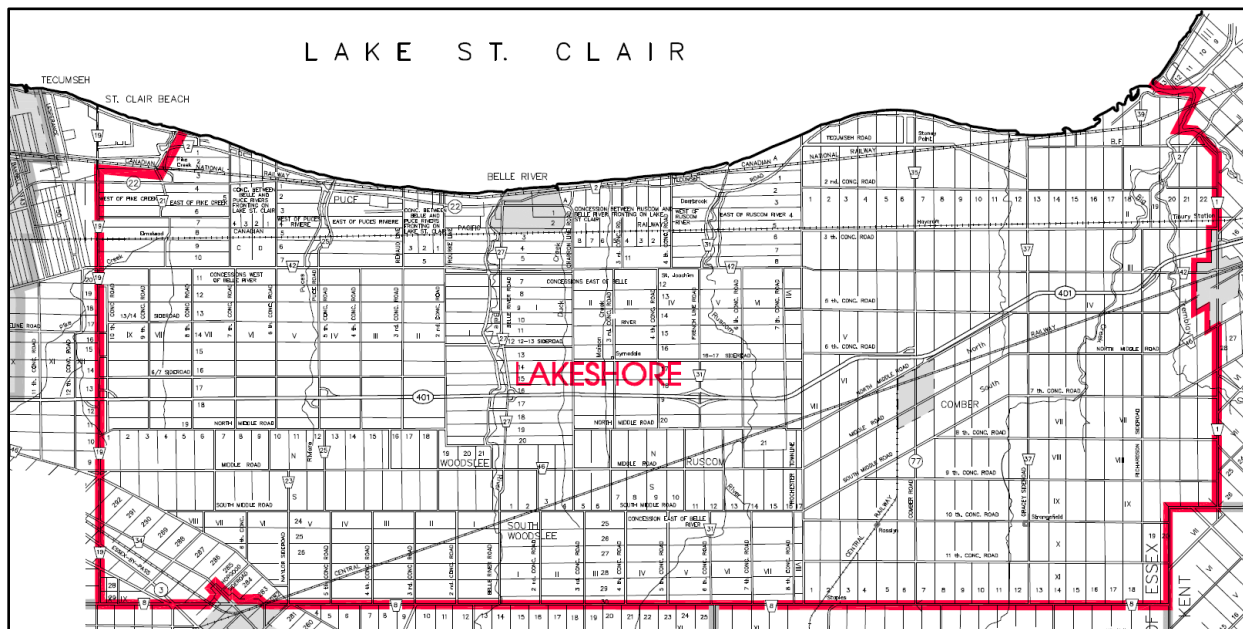


# Town of Lakeshore

## Water and Wastewater Servicing Master Plan Update

### Notice of Completion

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#### Wastewater

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- Online at [www.lakeshore.ca](http://www.lakeshore.ca) under the Water and Wastewater Reports and Plans page

If you have questions or concerns regarding the Master Plan Update Study Report please provide written comments by February 6, 2018 to the following team members.

**Mr. Nelson Cavacas**

Director of Engineering & Infrastructure Services  
Town of Lakeshore  
419 Notre Dame Street  
P.O. Box 580  
Belle River, Ontario NOR 1A0  
Phone: 519-728-2700  
Fax: 519-728-9530  
Email: [ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)

**Mr. Ryan Connor, P.Eng.**

Project Manager  
Jacobs CH2M  
72 Victoria Street South, Suite 300  
Kitchener, ON N2G 4Y9  
Telephone: 519-514-1662  
Fax: 519-579-8986  
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# Check out Wednesday lunches

The next general membership meeting for the Royal Canadian Legion Branch 206 in Tilbury will be held on February 6th at 7 pm. All members are asked to come to these meetings and show interest in what's happening at our branch.



**Debbie Barnwell**

*Tilbury Legion News*

league and you do not have to commit to coming out every week. Just come when you can and enjoy a fun evening of darts.

Every Thursday night the Tilbury Legion hosts euchre starting at 7 pm. You do not have to be a member to play. We will be having a Saturday morning euchre tournament on January 13th starting at 11 am. This tournament is sponsored by Alice and Armand Brosseau in memory of Alcide Brosseau. Seniors euchre will be held on January 18th starting at 1pm.

Our Saturday meat draws this month will be held January 13th, 20th and 27th. We always have three draws with our first draw at 3:30 pm and our last draw at 4:30 pm. There will be extra prizes at our January 27th draw.

For those members who have not yet paid your dues be sure to get them paid before the end of January. If your dues are not paid by the end of this month you will no longer be a member in good standing and will not be able to attend meetings or participate in Zone Legion sporting events.

Congratulations to Phil Robert for winning our December draw.

On Friday, January 26th we will be having a perch dinner from 5-7 pm for only \$12 per person. This will include potato, coleslaw salad, bun, dessert, coffee or tea. Everyone is welcome to come and enjoy this great deal. Hope to see you there.

Our Wednesday meals for the month of January are roast beef and mashed on January 10th, open face hot chicken sandwich and mashed on January 17th, ham and roasted potatoes January 24th and meatballs and gravy with mashed potatoes on January 31st. These meals include vegetable, roll, dessert, tea or coffee and cost only \$8 and are served from 11:30 am until 1 pm.

Open darts will be held every Monday night starting at 7 pm. This is a fun

# Lots happening at the library

Happy New Year to everyone. 2018 is here and the staff at the Tilbury library are excited about our upcoming programs for both adults and children.



**Amy Osborne**

*Library News*

Chase is on the case for our Paw Patrol Storytime on Thursday, January 11th at 6 pm. Join us for a pup-tastic story time where you can create your own name tag, followed by a craft. We'll read about Ryder's next adventure with the pup crew. All ages are welcome.

Love snow globes? Come out to our Snow Globe Fun program and make your own on Tuesday, January 16th at 6:30 pm. All ages of children are welcome.

Our free programs at the Tilbury Leisure Centre will continue on the second Tuesday of each month at 2:30 pm (January 11th, February 8th, March 8th). The class on January 11th is iPad Basics. Have an iPad or iPhone and don't know how it works? Come out and learn some tips and tricks to using your device.

Book Club is continuing the first Tuesday of each month. On January 9th the book club will be discussing at the library Confessions of a Jane Austen Addict by Laurie Viera Rigler. New members are always welcome, and the book club list is available at the circulation desk. Don't forget, if you need help finding a new book or author for yourself or a family member, consider making an appointment with Jessica for a Book Chat - a personal, one-on-one session to help you find your next great read.

New for adults and teens at the Tilbury Branch is our Film Club. Film Club will run on the last Thursday of the month at 6 pm (January 25th, February 22nd, March 29th). Enjoy movies? Like to critique them? Then join us at the Tilbury Branch to discuss a movie. Movie titles will be available for viewing the month before. Call the branch or go online to our 'Programs and Events' page to see upcoming movie titles we will discuss. January's movie is Batman with Michael Keaton but feel free to discuss your favorite Batman movie.

Also new for adults and teens is Paint Night. This will run on the first Thursday of every month at 6 pm, starting in February (February 1st, March 1st). Everyone is welcome to join us for a fun hour of painting at the Tilbury Branch. No experience is required. Each month will have a different theme to paint. Registration required. Please call 519.682.0100 or search 'Paint Night' at search.cpl.ca.

Our Transform Your Life With Positive Thinking Workshops are still going strong. Join Jackie Lefebvre at the Tilbury Branch, as she uses visualization and meditation techniques to help you transform your life with positive thinking. Bring a pen and paper to learn a little bit more about yourself. You are welcome to attend any or all of the free drop-in workshops. Thursday, January 18th at 6 pm the class is about forgiveness. Discover why forgiveness is important for your physical, mental and emotional health. Learn an easy forgiveness technique that you can use every day.

Enjoy making custom cards for special occasions? Jenn Ford from CK Card Connection comes out monthly to the branch to help you make a special card for that special occasion. Please bring your own adhesive and scissors to each class if you have them, all other material is included in the cost of the class. Classes cost \$12 each and registration is required. Tuesday, January 16th at 6 pm you can make three birthday or thank-you cards.

# Valetta News

*Continued from page 9*

February Birthday Party at Tilbury Nursing Home.

Mary Anne Ivson and Matt of Ottawa spent Christmas with Mary Anne's parents Robert and Anna Ivson.

Connie Brown's family were home over the Christmas holidays and 44 members of the Pollard family gathered at Merlin Legion on Saturday December 30th.

**Town of Lakeshore**  
Water and Wastewater Servicing Master Plan Update

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<p><b>Mr. Nelson Cavacas</b> Director of Engineering &amp; Infrastructure Services Town of Lakeshore 419 Notre Dame Street P.O. Box 580 Belle River, Ontario N0R 1A0 Phone: 519-728-2700 Fax: 519-728-9530 Email: <a href="mailto:ncavacas@lakeshore.ca">ncavacas@lakeshore.ca</a></p>	<p><b>Mr. Ryan Connor, P.Eng.</b> Project Manager Jacobs CH2M 72 Victoria Street South, Suite 300 Kitchener, ON N2G 4Y9 Telephone: 519-514-1662 Fax: 519-879-8986 Email: <a href="mailto:Ryan.Connor@ch2m.com">Ryan.Connor@ch2m.com</a></p>
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# schools

## TECUMSEH VISTA ACADEMY

# Can Drive a huge success!



## More than 14,400 items collected for the Downtown Mission, WYC

By Jackson Pretli  
Special to the Lakeshore News

Over the months of November and December, students at Tecumseh Vista Academy collected and donated cans for the annual Can Drive; in total, they collected 14,438 cans!

All of the cans and non-perishable food items were delivered to the Downtown Mission and the Windsor Youth Centre.

Students started to collect cans the first week of November until the first week of December, all the while earning their spot in the annual dodgeball tournament. Each student had to bring in a minimum of five cans to participate.

Classes who collected more than the minimum amount were able to earn buy-back tickets and ringer tickets for the dodgeball tournament, which was

ultimately won by Ms. Stockwell's Grade 11 class.

"This year, our can drive and dodgeball event was a great success. It is truly inspiring and heartwarming to know that here at TVA, we care," said teacher and event supervisor Miss Azar.

"As a school, we were able to collect over 14,000 cans to help those in need in our community."

Students from both Ms. Azar's Leadership class and Ms. Abela's public speaking class went to the Downtown Mission on December 15 to present the cans that were raised.

They were also given a tour of the Downtown Mission, where they learned more about the organization.

"It was really fun. We did a lot of can collecting," said Will Brewer, a student in Miss Azar's Leadership class.

"It was really great to help out the community!"

Essex Region Conservation Authority  
The Green for Life

we do this

and this

and this

**NOW!! is the time to order Seedlings and Large Stock Trees**  
Orders must be received by DEADLINE: February 2, 2018. ORDER FORMS available at [erca.org/trees](http://erca.org/trees)

**FREE Tree Workshop**  
Tuesday, Jan 30, 2018 6:30 pm  
Civic Centre, Room C  
360 Fairview Ave West, Essex  
Please pre-register at [erca.org/trees](http://erca.org/trees)  
or with Rob 519-776-5209 x 310  
email: [rdavies@erca.org](mailto:rdavies@erca.org)

**GRANTS AVAILABLE!**  
Grants up to 90% are available this spring for native tree & meadow plantings, wetland creation, wind breaks, buffer strips & rock chute projects. Your project must be at least 1 acre in size, in order to qualify for grants.

Essex Region Conservation Authority  
The Green for Life

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LAKE ST. CLAIR

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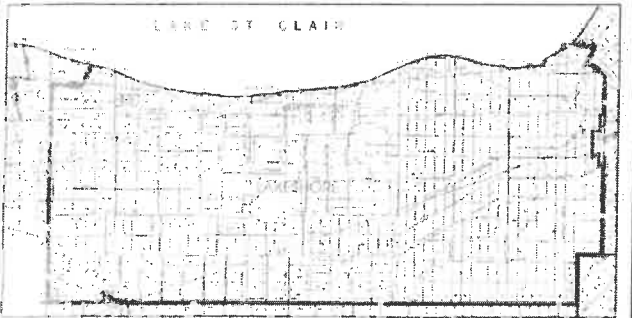
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**Water and Wastewater Servicing Master**  
**Plan Update**

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# Foster parents are needed all across Chatham-Kent

If you've seen the sign at the corner of Mill Street West and Lyon Ave. in Tilbury, it's no surprise that Chatham-Kent Children's Services is on an ambitious mission to put another 30 approved foster homes on its roster by the end of 2019.

Right now, there is a notable shortage of foster homes across Chatham-Kent. Each month, up to three new children need to be placed in foster care. Foster families provide temporary, loving care to children who cannot live safely at home. And like other regions in Ontario and all over Canada, there is a particular need for foster homes for teens and sibling groups.

"Like many other areas, CKCS struggles to meet the needs of youth aged 12 to 18 who may have childhood experiences that lead to some behavioral challenges," said Sarah Simmons, CKCS recruitment worker. "Foster family numbers have been on the decline over the past three years due to retirement, homes filled through adoption, or it becomes no longer a fit for the family. Kinship options did decrease the need for foster placements for a short period of time, however, numbers have begun to increase once again and so the need for skilled, flexible and caring homes remains."

While Simmons said experienced parents are preferred, people interested in fostering don't necessarily need to be parents themselves.

"As we all know, parenting isn't the easiest job in the world, then when you add foster parenting on top of that then it becomes more complex and difficult so definitely having parenting experience in general you have just a better understanding of what children's developmental needs are," Simmons said.

She added that teenagers in the foster care program sometimes present a challenge for foster parents.

"All agencies find it difficult sometimes to find foster homes, especially foster settings for teenagers, because everybody finds teenagers difficult and hard to care for and not compliant," she said. "Certainly there are difficulties with the adolescent age because they're at that stage where they're learning to be independent of a family and then to have them join a brand new family can be difficult. There are a lot of teens that are doing well in life and a different environ-



ment for them, a different home setting would be beneficial."

The teenagers in foster care are in their current situation due to a conflict going on with their biological parents or sometimes their parents are dealing with addiction issues that don't allow them to be able to provide the setting, time and attention that is needed.

Simmons said CKCS welcomes people from all backgrounds to foster. Foster parents may be married or single, may have a lot of experience with children or an interest in working with children, represent the LGBTQ community or come from a variety of cultures and ethnicities. "The foster parents of CKCS should represent the diversity of our community," Simmons added.

Foster parents are required to be understanding of children's needs; be physically and emotionally capable of caring for children; have a personal income independent from foster care reimbursement; undergo criminal and child abuse background checks; provide a home that meets fire, safety and cleanliness standards and provide transportation for foster children to and from activities.

There is an extensive training program for new applicants to provide the tools you need to begin your role as a foster parent. There is also a home assessment process that takes approximately two to three months following training. Many other supports are provided to help foster parents along the way. Once a home is approved, they continue to receive the support of a CKCS worker.

To learn more about what it takes to open your home to children and youth, attend an information night at the CKCS office, 495 Grand Ave. West on Wednesday, February 21st at 7 pm.

For more information, contact Simmons at 519-352-0440 ext. 4558 or email [foster.adoption@ckcs.on.ca](mailto:foster.adoption@ckcs.on.ca) or visit the website at [www.ckcs.ca](http://www.ckcs.ca).

# Security camera database could help solve crimes

The Chatham-Kent Police Service is developing a database of private security cameras it hopes might help it solve more cases in the future.

With the more private home security and business security cameras in use than ever before, and that number growing every day with installations at residences and businesses, the Chatham-Kent Police Service has a plan to put them all to work. "Security cameras are an effective crime prevention tool that also assists in solving crime," said public information officer, Const. Kelly Helbin. "These benefits extend beyond the home or business to include the community." Police often contact homeowners and

business owners about possible video surveillance footage while investigating crimes that have occurred near their cameras.

A Security Camera Registry is a community-based crime prevention opportunity and investigative resource that enlists the help of residents and business owners. The registry enables members of our community to voluntarily identify their video surveillance location through a simple, secure, confidential, online form located on the Chatham-Kent Police Service. Identified addresses will be mapped on a database of camera locations for officers to quickly and effectively

Continued on page 9

# Local Ball Hockey League to begin in Spring

An expanded ball hockey program has been given the green light to operate in Windsor-Essex by the Ontario Ball Hockey Association. The OBHA's board of directors unanimously approved a Windsor-Essex league two weeks ago.



League organizer Will Quesnel plans to hold player registration sometime in March with games starting in late April or early May when local arenas begin pulling ice out.

For years, Quesnel has run a floor hockey league, which uses a felt puck, out of the WFCU Centre and the John Atkinson Memorial Centre.

"Myself and two others ran and still run the floor hockey league in Windsor. I myself started the league in January 2009 and my friends Kyle and Trevor began to help shortly after," said Quesnel. "Our mission is to grow the game with our current format we need double gyms which are hard to find in the city and in Essex County. With ball hockey there are tons of open rinks that we can fill."

Quesnel started the floor hockey league with 44 players in 2008. It grew to more than 200 players at its peak with one league operating out of the WFCU gym and another at the Atkinson Centre.

He eventually had to drop play at the WFCU when the gym floor was replaced with a rubber covering not conducive to a sliding puck.

Quesnel says there are a couple of other ball hockey leagues around but this is the only one sanctioned by the Ontario Ball Hockey Association.

OBHA official Jamie Robillard said

more than 10,000 players are in their organization, including a small youth league at Amherstburg's St. Peter's private school.

Initially, Quesnel hopes to offer competition in men's C and D divisions. The D division is for recreational players while the C division would be slightly more competitive.

He's planning a wide-open registration, however, and will add play for kids and women if the interest is there.

"I am looking to expand for what the community wants. We are just in the beginning stages of everything. Recently I had a few emails asking for a 40 and over league for mens," added Quesnel. "We didn't have that two days ago and now I'm offering it. I've had messages from women and parents about youth leagues we will provide with the community needs."

Quesnel hopes to have a league website up and running by the end of the month. He's already fielding inquiries from a Facebook page and now got the email address windsorsexhbl@gmail.com.

The ball hockey version of the game started in Toronto in the late '60s. The oldest Canadian league is the Mississauga Ball Hockey Association formed in 1971 and the OBHA came along three years later.

There are 28 countries, including Canada, that are part of the World Ball Hockey Federation.

Canada is the top-ranked country in the world — whether the game is being played five aside, four aside or three aside — with 12 gold medals, two silver and one bronze collectively.

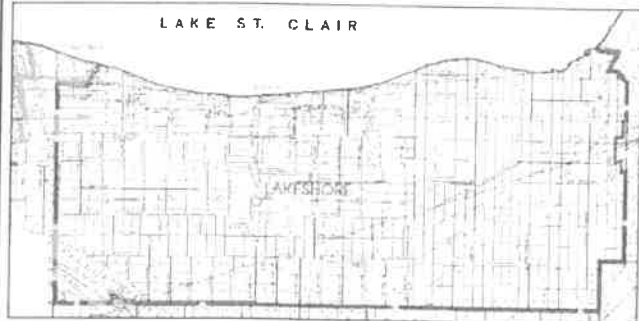
Quesnel said he will take full team or individual registrations for adults and individual registrations only for children. The fee for a season has not yet been determined.

"We will be signing up full teams. But if there are people who do not have a team that can sign up as an individual and we will make up a team of individuals. This league is for recreation, competitive, and just for having a good time or having a good time!" he added.

## Town of Lakeshore Water and Wastewater Servicing Master Plan Update

### Notice of Completion

The Town of Lakeshore completed a Water and Wastewater Master Plan in 2009. An update of this Master Plan was undertaken in 2017 and completed in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process.



The purpose of the Master Plan Update is to identify infrastructure servicing needs for current conditions and projected growth in the Town of Lakeshore to 2035. This Master Plan Update renews the water and wastewater infrastructure recommendations to meet future growth needs within the Town. The plan includes the following recommendations:

#### Wastewater

- Expand Denis St. Pierre Water Pollution Control Plant (WPCP) to provide treatment capacity for 2020.
- Conduct a study to evaluate wastewater treatment opportunities at the Patillo Road Package Plant.
- Initiate a private sources control inflow and infiltration program in addition to ongoing public program.
- Expand the gravity sewer service area to include the eastern portion of North Woodilee.
- Continue to repair and upgrade the existing pressurized systems in South Woodilee.
- Extend the Oakwood trunk sanitary sewer to the Pike Creek area.
- Construct new gravity sewer collection system to service Pike Creek.
- Implement sewage service to the Belle River corridor.
- Construct a new WPCP and associated collection system infrastructure in Stoney Point to treat wastewater from Stoney Point, Comber, and Lighthouse Cove.
- Construct new gravity sewer collection system to service Rochester Place and convey wastewater to an expanded Stoney Point WPCP.
- Initiate discussions with Town of Essex to identify opportunities to expand wastewater servicing to residents of Essex Fringe Area.

#### Water

- Monitor treatment capacity at the Stoney Point Water Treatment Plant (WTP) and initiate an Environmental Study report when the WTP is at 80% capacity to evaluate two alternatives: expand the WTP from 4,545 m<sup>3</sup>/d to the next modular of 9,090 m<sup>3</sup>/day on the present site; or supply 9,090 m<sup>3</sup>/day from the Belle River Water Supply System (WSS) via new trunk watermain and convert the Stoney Point WTP into a reservoir & booster pump station.
- Replace existing Maidstone Elevated Water Tower with a new 5,800 m<sup>3</sup> elevated water tower in the general vicinity of the Patillo Road / Little Baseline Road corridor.
- Construct a new 3,200 m<sup>3</sup> elevated water tower located in the Community of Stoney Point in the general area of Comber Sideroad (County Road 35) and Tecumseh Road (County Road 2).
- Construct various new watermain infrastructure within the Belle River and Stoney Point water distribution systems.

By this notice, the Town of Lakeshore Water and Wastewater Master Plan Update Study Report is being placed on the public record for 30 calendar days, for review from January 8, 2018 to February 6, 2018.

The report will be available for review at:

- Town of Lakeshore Municipal Building – Clerks Office, 419 Notre Dame St. Belle River, Ontario
- Online at [www.lakeshore.ca](http://www.lakeshore.ca) under the Water and Wastewater Reports and Plans page

If you have questions or concerns regarding the Master Plan Update Study Report please provide written comments by February 6, 2018 to the following team members.

<p>Mr. Nelson Cavacas Director of Engineering &amp; Infrastructure Services Town of Lakeshore 419 Notre Dame Street P.O. Box 580 Belle River, Ontario N0R 1A0 Phone: 519-728-2700 Fax: 519-728-9530 Email: <a href="mailto:n.cavacas@lakeshore.ca">n.cavacas@lakeshore.ca</a></p>	<p>Mr. Ryan Connor, P.Eng. Project Manager Jacobs CH2M 72 Victoria Street South, Suite 300 Kitchener, ON N2G 4Y9 Telephones: 519-514-1662 Fax: 519-579-8986 Email: <a href="mailto:ryan.connor@ch2m.com">ryan.connor@ch2m.com</a></p>
---	---

Subject to comments received as a result of this notice, the Town of Lakeshore intends to officially adopt this Master Plan Update in guiding its water and wastewater infrastructure program.

If concerns regarding this project cannot be resolved in discussion with the Town of Lakeshore, a person may request the Minister of the Environment and Climate Change (MEOCC) to issue an order to comply with Part II of the EA Act. This is known as a "Part II Order", bumping up the status of this project to a full Individual Environmental Assessment. The procedure for a Part II Order request is as follows:

- First, the person with concerns directs them to the Town of Lakeshore and CH2M, during the 30 calendar day review period for consideration and mitigation.
- Second, if the concerns cannot be resolved, the person may submit a Part II Order request to the Minister of the Environment and Climate Change at 77 Wellesley Street West, 11<sup>th</sup> Floor, Toronto, ON M7A 2T5 within the 30 calendar day review period, with a copy of the request being sent to the Town of Lakeshore and CH2M.

Please note that comments will be maintained for reference throughout the project and will become part of the public record. Under the *Municipal Freedom of Information and Protection of Privacy Act (MFIPPA)* and the *Environmental Assessment Act*, any personal information such as name, address and telephone number included in a submission will become part of the public record unless the commenter specifically requests that such personal details not be included in the public record.

This Notice issued January 8, 2018.

Mr. Nelson Cavacas, Director of Engineering & Infrastructure Services - Town of Lakeshore, Belle River, Ontario



Photo courtesy of Dalton Major

## D.3 – PIC Materials

**Welcome to the  
Public Information Center for the  
Town of Lakeshore Water & Wastewater Master Plan Update**

**Public Information Centre #1**

*Please sign in*

Name	Postal Code	Email or Phone Number
Tom Touralias	N6R 1A0	t.touralias@lakeshore.ca
JOHN WINZINGER	N8N 2L9	WINZING@MNSI.NET
Joe OBeid	N8U 3T3	joe.obeid@wrh.on.ca
Will Winzinger	N8W 2T5	willowinzinger@atoliv.com
Carmelita McKinlay		
Len Jamieson		
Mark McKinlay	N6P 1S0	markmckinlay@xplomet.com



# Town of Lakeshore Water & Wastewater Master Plan Update Study

## Public Information Centre #1

# Welcome!



Please sign in, and feel free to browse the information panels.



Your comments are important to us. Please complete one of the comment sheets and place it in the box provided, or send it to the address on the form prior to:  
**Tuesday June 16, 2017.**



Staff from the Town and their consultants are available to answer any questions that you have.

### **Town of Lakeshore**

Nelson Cavacas, C.E.T.  
Director of Engineering and  
Infrastructure Services  
John Kehoe, P.Eng.  
Manager of Environmental Services

### **CH2M**

Ryan Connor, MBA, P.Eng.  
Project Manager  
Jillian Schmitter, P.Eng.  
Project Engineer  
**Stantec Consulting Ltd.**  
Tony Berardi, P.Eng.  
Project Engineer

# Purpose and Goals of Public Information Centre #1

## Purpose

The Town of Lakeshore (Town) is planning to update their Water and Wastewater Master Plan (Master Plan) and would appreciate your feedback.

The objective of the Master Plan is to provide an updated framework that will guide the planning and implementation of strategic water and wastewater infrastructure over a 20 year planning horizon.

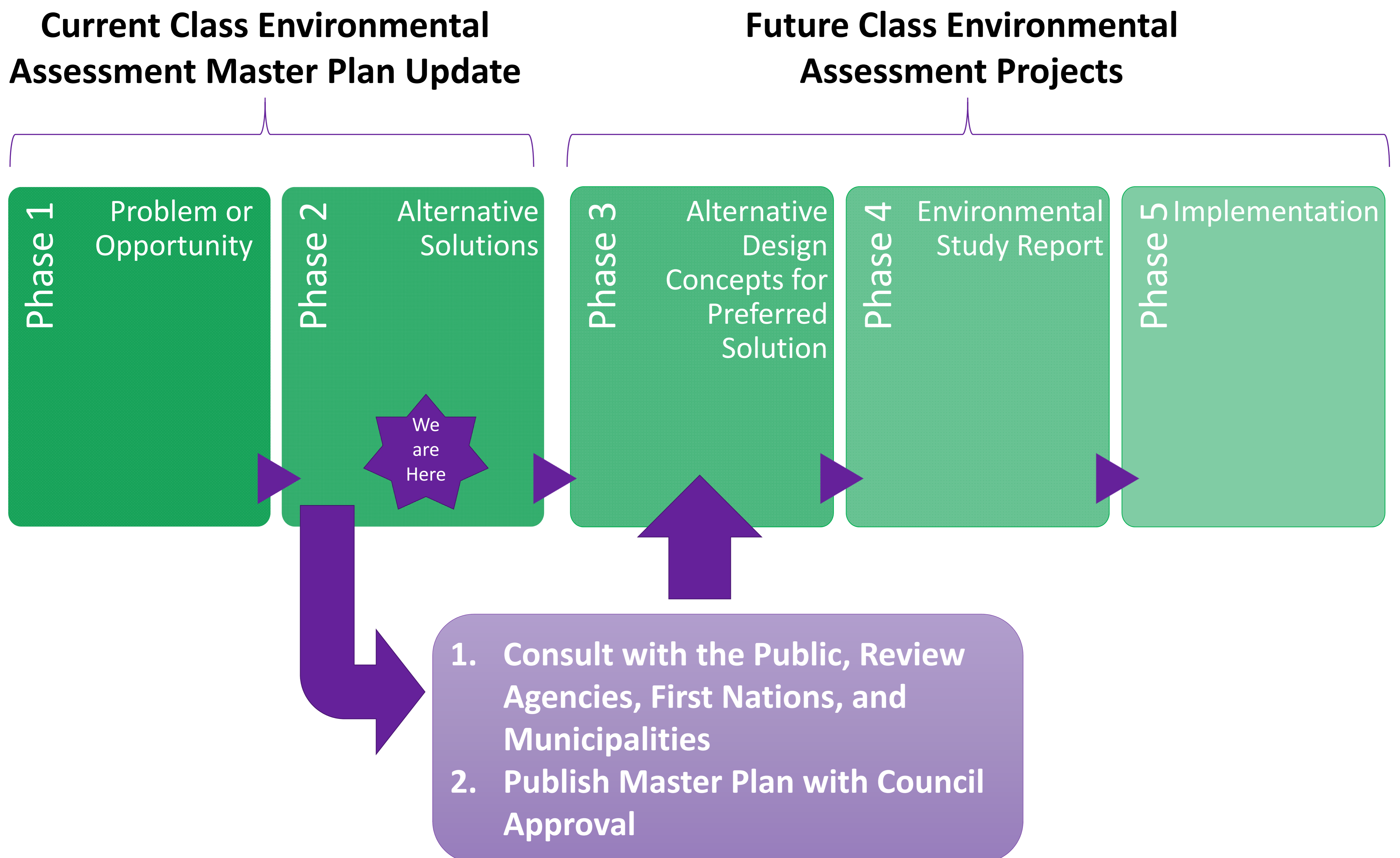
The purpose of this Information Center is to inform you about the study's progress and gather your input.

## Goals

The goals of this Information Centre are to provide you with:

- Information about the Municipal Class Environmental Assessment process;
- An overview of the proposed Master Plan Update; and
- An opportunity for you to give feedback on the Master Plan Update Recommendations.

# Class Environmental Assessment and Alternatives Evaluation Process



## Alternatives Evaluation Process



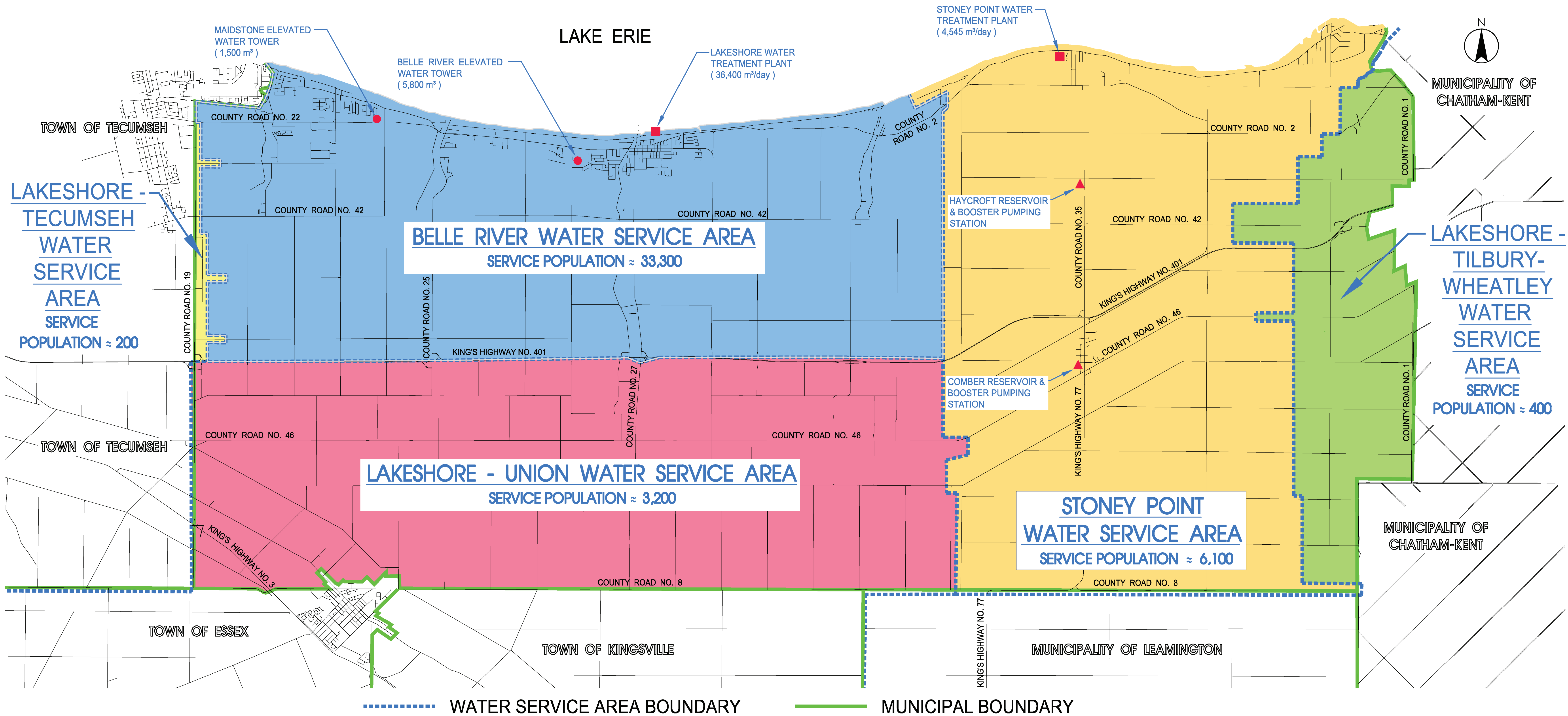
Water and wastewater are evaluated using the following technical criteria:

- Constructability
- Schedule
- Performance
- Reliability
- Operations & Maintenance
- Safety
- Regulatory Compliance
- Land Requirements



# Water Master Plan Update

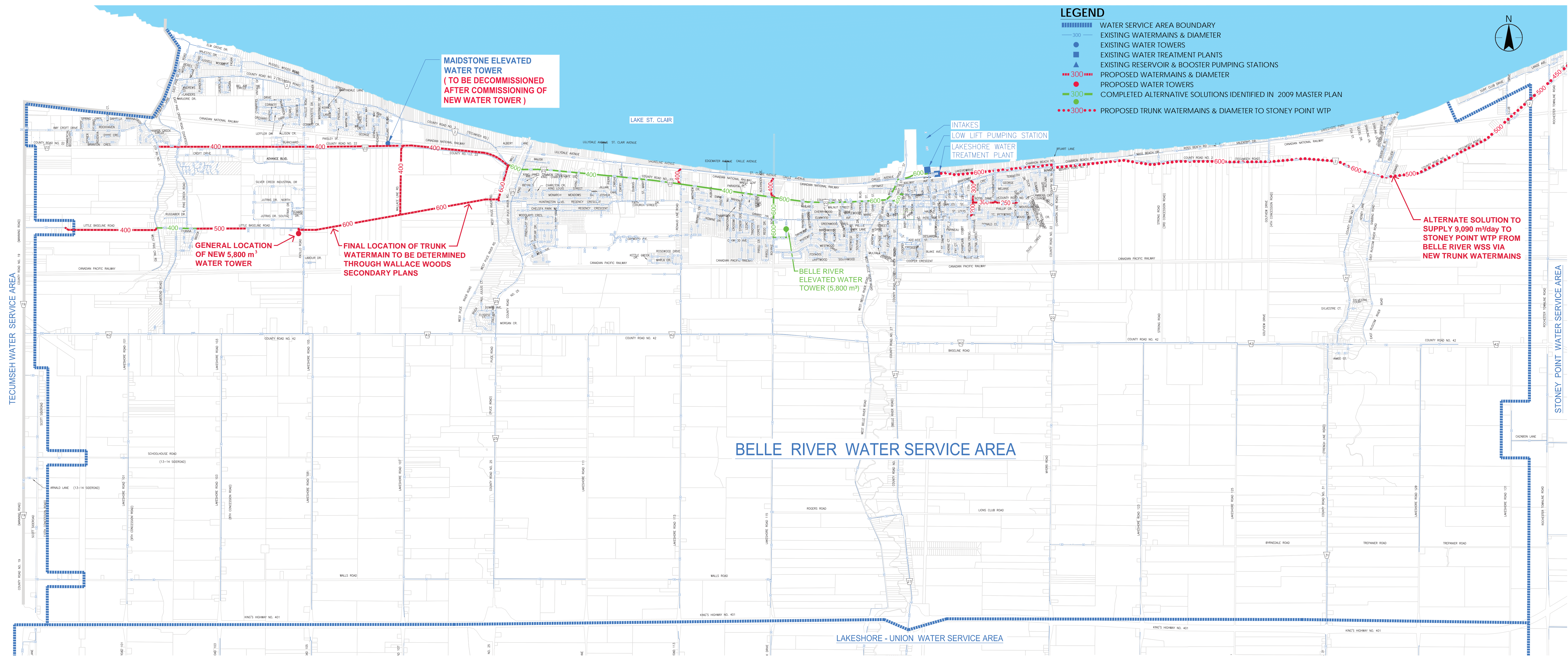
## Water Service Areas



- Total Service Population ~43,200 persons

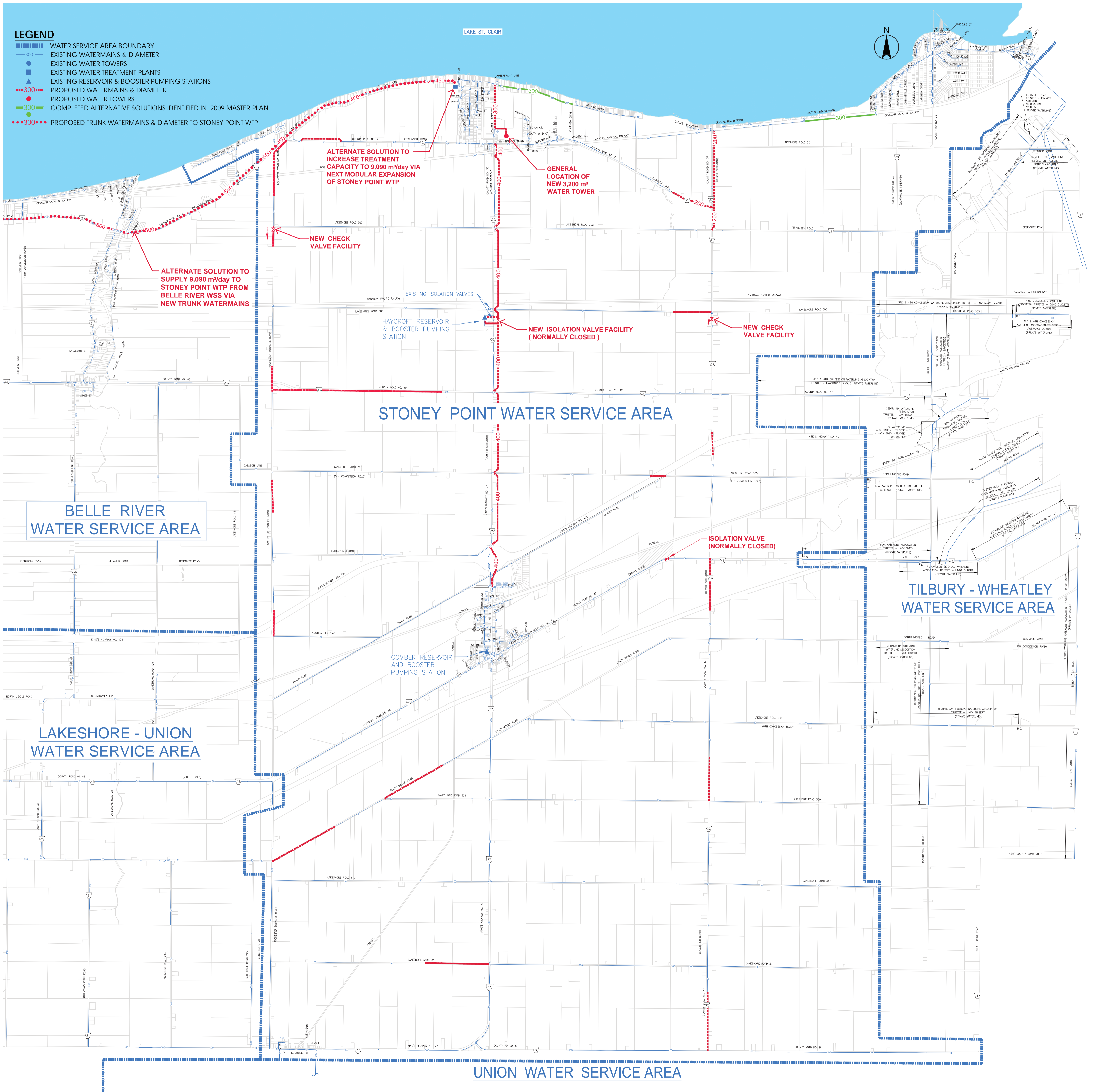
# Water Master Plan Update

## Recommended Water Distribution System Improvements



# Water Master Plan Update

## Recommended Water Distribution System Improvements



# Water Master Plan Update

## Water Treatment & Storage Capacity Requirements

	Current Capacity	Projected 20-Year Water Demand/Requirement	Surplus (+) Deficiency (-)
<b>Treatment</b>			
<b>Lakeshore WTP</b>	36,400 m <sup>3</sup> /d	25,420 m <sup>3</sup> /d	+ 10,990 m <sup>3</sup> /d
<b>Stoney Point WTP</b>	4,545 m <sup>3</sup> /d	5,000 m <sup>3</sup> /d	- 455 m <sup>3</sup> /d
<b>Storage</b>			
<b>Belle River WSS</b>	17,222 m <sup>3</sup>	18,659 m <sup>3</sup>	- 1,437 m <sup>3</sup>
<b>Stoney Point WSS</b>	3,271 m <sup>3</sup>	3,809 m <sup>3</sup>	- 538 m <sup>3</sup>

(m<sup>3</sup> = cubic meters)  
(m<sup>3</sup>/d = cubic meters per day)  
(WSS = water supply system)  
(WTP = water treatment plant)

# Water Master Plan Update

## *Recommended Water Treatment and Storage Improvements*

### Belle River Water Supply System

- Current water treatment capacity adequate to service projected 20 year water demands
- Replace existing Maidstone elevated water tower with new 5,800 m<sup>3</sup> elevated water tower by Year 2030

### Stoney Point Water Supply System

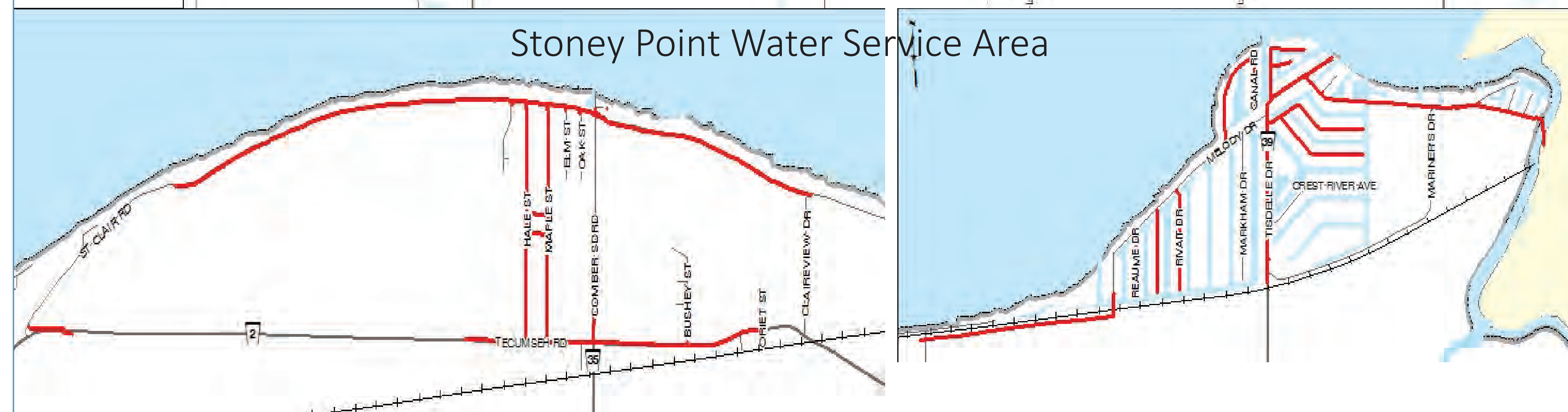
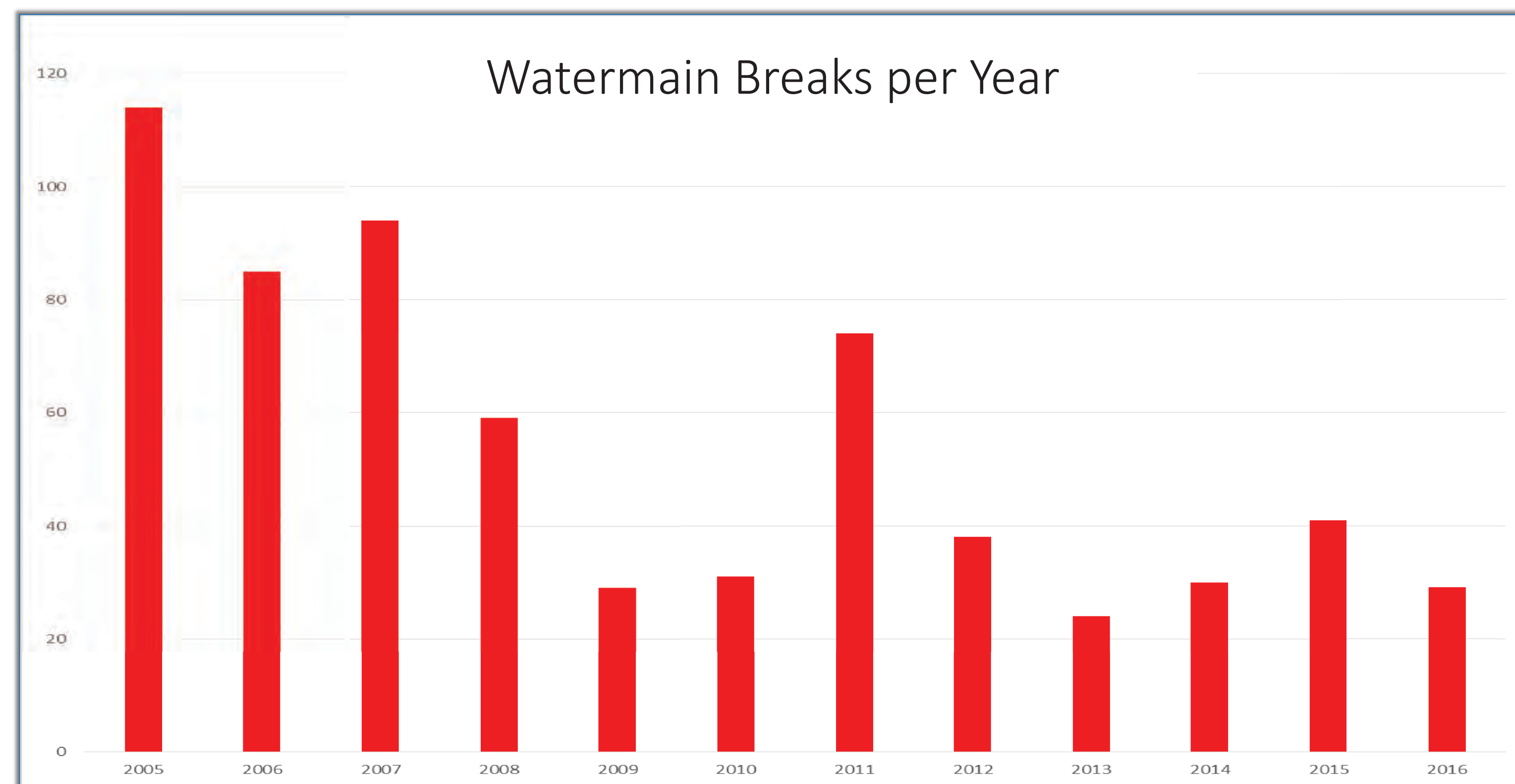
- Monitor Stoney Point WTP capacity and initiate an Environment Study Report at 80% of treatment capacity to evaluate the following two alternative solutions:
  1. Expand Stoney Point WTP to next modular size from 4,545 m<sup>3</sup>/day to 9,090 m<sup>3</sup>/day on present site

OR

  2. Supply 9,090 m<sup>3</sup>/day from adjacent Belle River WSS via new trunk watermains and convert Stoney Point WTP into Reservoir & Booster Pumping Station by Year 2026
- Construct new 3,200 m<sup>3</sup> elevated water tower in Community of Stoney Point within next 20 year planning horizon

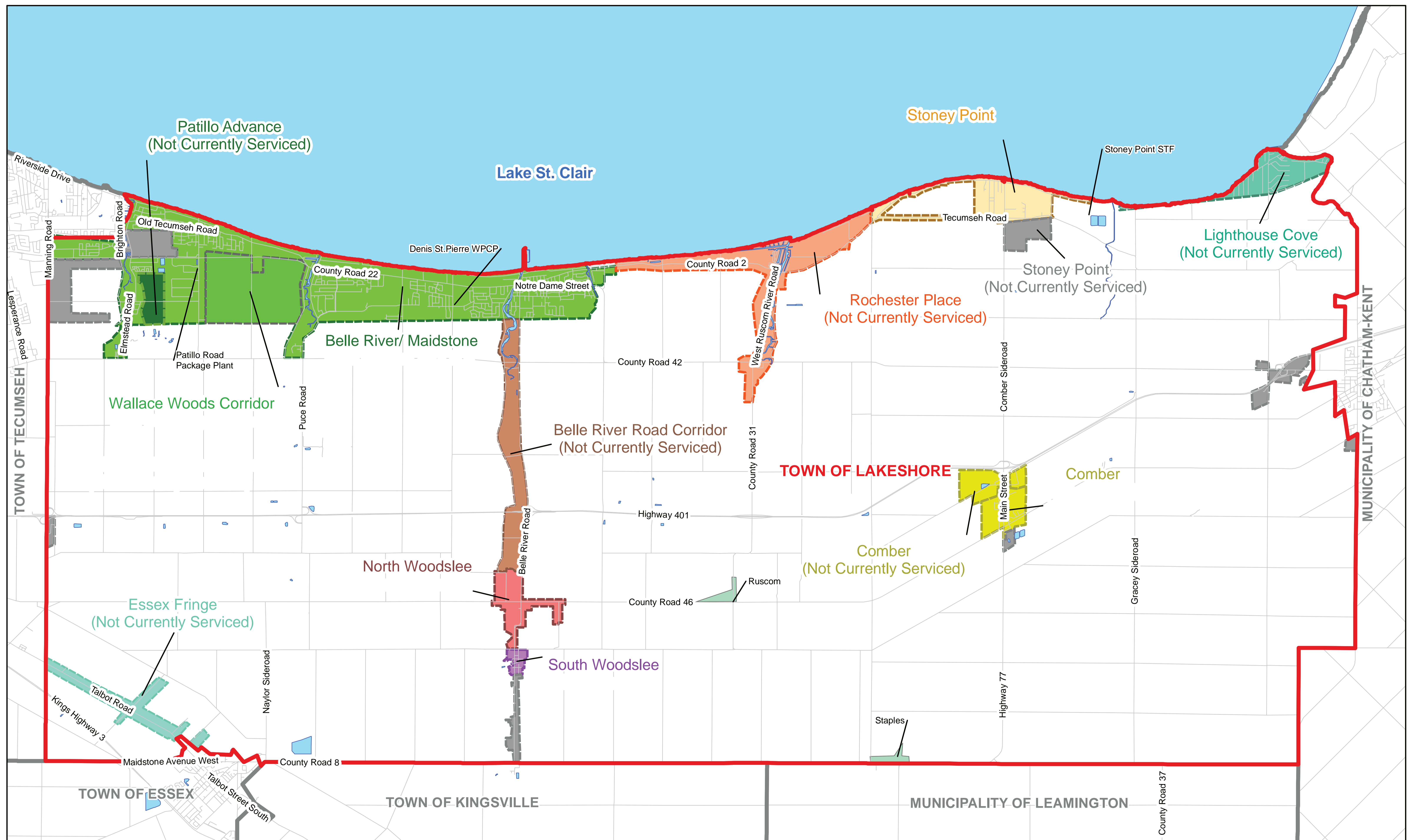
# Water Master Plan Update

## Cast Iron Watermain Replacement Program Since 2003



- Town has invested heavily in water infrastructure improvements since 2003 with total investment of ~ \$50 Million
- Total length of watermain improvements since 2003 is ~61 km with ~13.5 km of existing Cast Iron watermain remaining

# Wastewater Service Areas



# North and South Woodslee

## *Problem Statements and Preferred Alternatives*

Problem Statement	Alternative	Preferred Alternative
<b>North Woodslee</b>		
The North Woodslee collection system does not currently service the eastern portion of the North Woodslee hamlet (east of the Belle River). There is sufficient capacity at the North Woodslee STF to receive new additional flows.	<ol style="list-style-type: none"> <li>1. Do nothing</li> <li>2. Expand gravity sewers to service the Eastern portion of the North Woodslee hamlet.</li> </ol>	<b>Expand gravity sewers to service the Eastern Portion of the North Woodslee hamlet.</b>
<b>South Woodslee</b>		
The South Woodslee community is serviced by a low pressure sewage collection system and treatment facility. The system uses individual septic tanks and pumps, which experience operational issues. The tanks require regular cleaning to remove solids.	<ol style="list-style-type: none"> <li>1. Do nothing</li> <li>2. Continue repairing and upgrading the existing pressurized system</li> <li>3. Replace the pressurized system with gravity sewer.</li> </ol>	<b>Continue to repair and upgrade the existing pressurized system.</b>
<b>Combined</b>		
In addition to the separate North and South Woodslee problem statements above, alternatives were also developed to evaluate the possibility of combining wastewater servicing for both communities.	<ol style="list-style-type: none"> <li>1. Do nothing.</li> <li>2. Convey flows from North and South Woodslee to Denis St. Pierre WPCP.</li> <li>3. Convey flows from South Woodslee to North Woodslee STF</li> <li>4. Convey flows from North and South Woodslee to Denis St. Pierre WPCP.</li> </ol>	<b>Do nothing.</b>



# Denis St. Pierre WPCP

## *Problem Statements and Preferred Alternatives*

Problem Statement	Alternative	Preferred Alternative
<b>Wet Weather Conveyance</b>		
<p>There are wet weather flow capacity issues within the Denis St. Pierre system.</p> <p>Wet weather flow along the Old Tecumseh Road is limiting servicing within the Patillo Road/Advance areas.</p>	<ol style="list-style-type: none"> <li>1. Do nothing</li> <li>2. Initiate a private source control inflow and infiltration program in addition to the ongoing public program</li> <li>3. Implement functional bypasses at pumping stations along Old Tecumseh Road sewer.</li> </ol>	<p><b>Initiate a private source control inflow and infiltration program in addition to the ongoing public program.</b></p>
<b>Patillo Road/Advance Servicing Area</b>		
<p>Additional treatment capacity at the Denis St. Pierre WPCP is required to support the existing serviced areas and the anticipated future growth through 2035.</p> <p>The Oakwood trunk sewer needs to be expanded westerly to service the present and planned future development of the existing service area and anticipated growth areas. A new local sewer is also required to address pollution concerns within the Pike Creek area.</p>	<ol style="list-style-type: none"> <li>1. Continue with current development practices</li> <li>2. Bring Patillo Road Package Plant back online</li> <li>3. Extend the Oakwood trunk sanitary sewer</li> </ol>	<p><b>Extend the Oakwood trunk sanitary sewer.</b></p>

# Eastern Communities

## Problem Statements and Recommendations

### Eastern Communities Environmental Study Report (ESR) – Completed in 2012

Recommendations made in the 2012 ESR are included in this Master Plan Update's recommendations.

### Problem Statements

1. Additional sewage treatment capacity is required in Stoney Point and Comber for future growth.
2. There are Inflow and Infiltration problems in Stoney Point and Comber sewer systems.
3. Lighthouse Cove and Rochester Place require sanitary sewage servicing to address pollution problems.

### Recommended Solutions

1. Construct a new sewage treatment facility (STF) in Stoney Point to treat sewage from both Stoney Point and Comber
2. Construct sanitary sewers to collect sewage from the Lighthouse Cove and Rochester Place and convey flows to new Stoney Point STF
3. Expand Stoney Point STF to receive flows from Lighthouse Cove and Rochester Place

# Wastewater Master Plan Update Recommendations

## General Wastewater Recommendations

1. Review the existing Inflow and Infiltration mitigation program including expansion of the program to address private sources.
2. Conduct a study to evaluate the Patillo Road Package Plant.
3. Explore opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe Area within the Town of Lakeshore.

## Wastewater Recommendations from 2009 Master Plan

The following recommendations from the 2009 Master Plan, which are reflective of the current situation in the Town, are included in the current Master Plan Update:

1. Expand Denis St. Pierre WPCP by 2020
2. Extend Oakwood Trunk Sewer
3. Implement sewage service to Belle River Corridor
4. Install new gravity sewer collection systems to service:
  - North Woodslee
  - South Woodslee
  - Pike Creek

# Town of Lakeshore Water & Wastewater Master Plan Update Study

## Public Information Centre #1

# Thank you!

Thank you for your interest in the Town of Lakeshore  
Water & Wastewater Master Plan Update

For further information, please contact:

Nelson Cavacas, C.E.T.  
Director of Engineering and Infrastructure Services  
Town of Lakeshore  
419 Notre Dame Street  
Belle River, Ontario  
[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)  
519-728-2700

# Town of Lakeshore Water & Wastewater Master Plan Update

## Public Information Centre #1 Comment Sheet

Thank you for your interest in the Town of Lakeshore Water & Wastewater Master Plan Update. The Town is interested in hearing your comments, questions, and concerns relating to this update. Please take a few minutes to complete this comment sheet. *Your comments will be carefully considered before this next phase of project activity is initiated.*

1. The results of the Water & Wastewater Master Plan have been summarized on the Public Information Centre panel boards and are also available on the Town's website, along with next steps. *Do you have any questions, comments, or concerns about the work completed to date and the next steps for the project?*

No                       Yes

Please comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. The project team evaluated several alternatives for infrastructure upgrades to accommodate projected population growth and address the identified problem statements. This evaluation resulted in several recommendations and to address the problem statements. *Do you have any questions, comments, or concerns about the alternatives evaluated and subsequent recommendations?*

No                       Yes

Please comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Town of Lakeshore Water & Wastewater Master Plan Update  
Public Information Centre #1  
Comment Sheet

3. How would you describe the nature of your interest in this study?
- Member of the general public     Member of an interest group Please specify: \_\_\_\_\_
- Land owner     Agency Representative    Please specify: \_\_\_\_\_

4. Are you on the project mailing list?
- Yes     No, please add my name and contact information to the mailing list

5. Do you have any additional comments or information that you feel would be helpful to the project team?
- No     Yes

Please comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please provide your name and contact information.

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_ Address: \_\_\_\_\_

All comments and information received from individuals, stakeholder groups, and agencies regarding this project are being collected to assist Town of Lakeshore in decision making. Under the Municipal Act, personal information such as name, address, telephone number, and property location that may be included in a submission becomes part of the public record.

**Please indicate if you wish to have your comments included anonymously.**

Questions regarding the collection of this information should be referred to Mr. Nelson Cavacas at the Town of Lakeshore (519-728-2700, [ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)).

You may leave this completed Comment Sheet in the box provided at the registration table or you may email, fax, or mail it, by June 16, 2017 to:

Ryan Connor, MBA, P.Eng.  
Project Manager  
CH2M HILL Canada Limited  
72 Victoria Street South, Suite 300  
Kitchener, ON N2G 4Y9  
Phone: 519-514-1662  
Fax: 519-579-8986  
Email: [ryan.connor@ch2m.com](mailto:ryan.connor@ch2m.com)

**Thank you for your participation in this study!**

# Town of Lakeshore Water and Wastewater Master Plan Update Study

## Public Information Center No. 1

PREPARED FOR: Town of Lakeshore  
COPY TO: Insert name  
PREPARED BY: CH2M HILL Canada Limited  
DATE: June 17, 2017  
PROJECT NUMBER: 679925

### Introduction

On Tuesday, May 16, 2017 the project team hosted a Public Information Center (PIC) for the Town of Lakeshore Water and Wastewater Master Plan Update Study. The purpose of the PIC was to outline the study objectives, alternatives and preferred alternatives of the Study and to solicit feedback from the public. The PIC was hosted at the Atlas Tube Center (Foyer) from 4pm to 7pm. The PIC was advertised in the Tilbury times on Tuesday May 2, 2017 and Tuesday May 9, 2017 and the Lakeshore News and Shoreline on Thursday May 4, 2017 and May 11, 2017.

### PIC Results

Four members of the project team attended the PIC to interact with members of the public. The PIC was attended by six members of the public who were willing to sign in. As the PIC was held in the Foyer of the Atlas Center the PIC materials were reviewed by a number of other members of the public who were at the center for other reasons. These individuals were invited to sign in but declined to do so (approximately six members of the public reviewed the materials but declined to sign in).

### Comment Sheet Results

No comment sheets were submitted during the PIC. Two attendees took comment sheets home with them, these were not submitted to the project team by requested completion date (June 16, 2017). The Town posted the PIC materials and comment form on the Town's social media (Facebook) page on May 25, 2017. At this time (June 17, 2017) no comments related to the PIC materials had been received by the project team.

Verbal conversations with the public during the PIC indicated that the preferred alternatives were generally well received by PIC attendees.

### Summary

The level of interest, attendance, and questions from members of the public were typical for a Master Plan.



# Town of Lakeshore

## Water and Wastewater Servicing Master Plan Update

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### Notice of Public Information Center

The Town of Lakeshore completed a Water and Wastewater Master Plan Study in 2008. An update of this study has been initiated in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process.

The purpose of the Master Plan Update is to identify infrastructure servicing needs for current conditions and projected growth in the Town of Lakeshore. Preferred alternatives to meet these needs will be evaluated such that high quality water and wastewater services are continuously offered in the Town of Lakeshore. A comprehensive Master Plan Update Report will outline the evaluation of the alternatives and identify the best solution(s) for servicing the Town of Lakeshore's needs. There will be an opportunity for the public to review and provide input on the final Master Plan Update Report.

A Public Information Centre (PIC) is being held to provide details on the Master Plan Update process, the preferred alternatives for the Water and Wastewater Servicing Master Plan, as well as to receive input and comments from interested parties. The PIC will be held on:

**Date:** Tuesday, May 16, 2017  
**Time:** 4:00 pm to 7:00 pm  
**Location:** Atlas Tube Center  
447 Renaud Line Road  
Maidstone, Ontario NOR 1K0  
Renaud Room

Town Staff and their consultant, CH2M will be available to discuss the information presented. Comments received at this PIC will be considered in the selection of the preferred design concept.

For further information or if you are unable to attend the PIC and wish to provide your comments, please contact a member of the project team:

**Mr. Nelson Cavacas**  
Town of Lakeshore  
419 Notre Dame Street  
P.O. Box 580  
Belle River, Ontario NOR 1A0  
Phone: 519-728-2700  
Fax: 519-728-9530  
Email: [ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)

**Mr. Ryan Connor, P.Eng.**  
Project Manager  
CH2M HILL Canada Limited  
72 Victoria Street South, Suite 300  
Kitchener, ON N2G 4Y9  
Telephone: 519-579-3500 ext. 73262  
Fax: 519-579-8986  
Email: [Ryan.Connor@ch2m.com](mailto:Ryan.Connor@ch2m.com)



# Celebrating 25 YEARS!

## REGGEE NIGHTS

June 14 • July 12 • Aug 16

**ALWAYS LIVE  
ENTERTAINMENT**

## MAY'S LINE UP:

May 6 - Mid Life Trio

May 13 - Green Eyed Soul

May 20 - Front Row Cello

May 21 - Bob Gabriele & Dan Woods

May 28 - Jen Knight

**Mother's Day Brunch  
Fun Contests & Give-Aways  
ALL SUMMER!**



Hours: Mon-Sun open at 11:30 am **ALL SUMMER!**

930 Old Tecumseh Rd, Belle River [www.sandbarpuce.com](http://www.sandbarpuce.com) 519.979.5624

# Sandbar the place to meet for 25 years

The Sandbar Waterfront Grill is celebrating 25 years! The Troup brothers have officially been at the helm since April 1992.

From the once ramshackle building and overgrown property to what sits here today has been a project of passion for the Troups. The brothers have been avid boaters their entire lives and with their love and appreciation of food, it made sense to take on a marina and restaurant project. Twenty-five years later they have turned the property into a beautiful place to enjoy for both locals and guests traveling in from afar.

Although the property redevelopment was intense in the early days, the Troup's have never stopped improving, every year there are additions, upgrades and beautification projects.

"All profits are put directly back into the property and the staff to ensure we can offer the very best experience for our guests," the brothers concur.

Asked what has been most rewarding over the years and both Rob and Ken will tell you, "it's the sense of community".

Watching not only generations of family's come through the doors as guests, but also having generations of staff on

the team.

"Watching Mothers and sons and daughters, sisters, brothers, cousins all working together to serve neighbours and friends, that's family to us, and that's what has helped make the Sandbar an anchor in this community," the brothers shared.

We invite you to join us for an exciting year chuck full of great promotions, fun giveaways and special events.

Kicking off our "Silver Summer" will be a Throw Back menu the first week of May featuring not only some of your favourite menu selections from the past but also throw back pricing! We are also bringing back Reggae nights with party's planned for June 14th, July 12th and August 16th. A summer concert series is also in the works with great giveaways to some of the best shows at Windsor's Caesars Colosseum this summer.

One thing is for certain, when you visit us at the Sandbar you are sure to get great food, great service and great fun!

*Stay up to date with all of the Sandbar happenings by checking out our website at [www.sandbarpuce.com](http://www.sandbarpuce.com) or like us on facebook.*

*Cheers!*

# Comber IODE Spring Fling!



The Comber IODE hosted its annual Spring Fling event on Saturday at the Community Centre in Comber. Pictured above are Lakeshore Town councillors Linda McKinlay and Tracey Bailey.

About 160 ladies attended the event, which had the theme of "Canada 150 – a celebration of the country's 150th birthday." It also tied in with the Comber IODE's 100th anniversary.

Guest speakers included Tammy Pickle from Grainfree Goodness, Randall Van Wagner from the Lower Thames Valley Conservation Authority and Amy Natyshak, CNE Ambassador for 2016/17.

The event also included a fashion show sponsored by Lill's Gift Room.



## Town of Lakeshore Water and Wastewater Servicing Master Plan Update

### Notice of Public Information Center

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**Date:** Tuesday, May 16, 2017  
**Time:** 4:00 pm to 7:00 pm  
**Location:** Atlas Tube Center  
447 Renaud Line Road  
Maidstone, Ontario N0R 1K0  
Renaud Room

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Director of Engineering and Infrastructure Services  
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Belle River, Ontario N0R 1A0  
Phone: 519-728-2700  
Fax: 519-728-9530  
Email: [ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)

**Mr. Ryan Connor, P.Eng.**  
Project Manager  
CH2M HILL Canada Limited  
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Fax: 519-579-8986  
Email: [Ryan.Connor@ch2m.com](mailto:Ryan.Connor@ch2m.com)

# Parks Master Plan meetings draw "tremendous" crowds

By Matt Weingarden  
& Dan Schwab

The demands of a growing population and expanded utilization were the driving forces behind the Town of Lakeshore's recent public consultations on its new Parks Master Plan - a plan most residents seem pleased with.

Three public meetings were held: one in Comber, one in Woodslee and another in Belle River. Lakeshore's director of Community and Development Services, Steve Salmons, said their was tremendous turnout at all three. "This round of open hous-

es is a follow up to public consultation last summer," Salmons said. "We asked the public what are the things you like about our parks - what isn't working for you...what's missing?" The top three requests include walking trails, splash pads and upgraded playground equipment. The number one request was for an expansion of the municipal trail system and as well, residents are looking for year round access to these trails and parks. Residents also want washrooms available for longer hours, and that was made very loud and clear.

"What was quite encouraging is the fact that two thirds of our residents

are very satisfied with our parks system," Salmons said. "That is one of the amenities these people in the subdivisions want. They've got young families and they want parks where they can go for walks, parks where they can take their children, enjoy the park and all the playground equipment. For the most part we have seasonal parks and for the first time council has approved winter maintenance of trails and parks... which we had never done previously. If we had a soft winter the parks were available and if it was a tough winter they weren't." The park system was measured against other parks across the province and Salmons said that the Lakeshore park system measured up very well. One misconception that came about during the process was that the Belle River corridor is where all the money tends to be spent. Salmons says that if anything - the west end of the municipality was lacking in park space.

"On a per population basis, the rural and eastern part of the town actually served above provincial

standards," he added. "The western part of the municipality, the Puce corridor and Emeryville, are actually underserved... the Town as a whole is at or above provincial standard."

There were two major results the consultant says stood out throughout the process. One - a need to connect parks through an extensive coordinated trail system. One of the simplest ways to do this would be to use the CP rail and Hydro One corridors as major east/west routes from one end of the municipality to the other end - tying together the five populated centres in Lakeshore. Among the five centres, a hierarchy of the park system was created and include regional recreation destinations, community parks, neighbourhood parks and parkettes. "The trend is to create aggregated sports facilities, the Atlas Tube Centre is a gem and we're looking to develop even more of the area, in fact two-thirds of the land hasn't even been developed yet.

He added that large treed areas for picnicking and gathering as well as a facility for BMX and skateboarding areas are also an option.

Salmons couldn't put an actual monetary figure on the long-term project be-

cause it was still early in the process.

"The town will come up with the money for the plan over the next several years," said Salmons. "Certainly there is a reserve there, not enough do everything we would like to do, but it will be a long range plan. At this point, at least council is able to look over the plan and direct administration as they see fit."

Lakeshore Ward 6 Councillor Linda McKinlay said she hopes that through this long-term plan the Town will continue to thrive and add to existing assets.

"The Parks Master Plan is a huge study of all our parks and recreation facilities and it projects a 20-year plan for the future of these facilities based on surveys and comments of our residents," she said. "For us in Ward 6, we need to concentrate on our two major parks (Stoney Point and Comber) and our several parkettes and make the most of these properties."

McKinlay said Stoney Point has been that area's hub for soccer and the club there has done a great job of utilizing the property for this sport.

"We also have the skateboard park situated there and we need to maintain it for the young people who use it," she said. "Comb-

er has concentrated on baseball and that is working out very well. We are still looking for lights for our back ball diamond. It would be a huge improvement to the program and allow the Baseball Association to expand. They are already pressed for time on the diamonds."

In Ward 6, there are several small parkettes along Lake St. Clair. They're called "passive parks" because their purpose is to be a well-maintained area for relaxing.

"We like to keep shade and a place to sit and enjoy the day at these parkettes," McKinlay said.

The Comber Community Centre is the main recreation facility in that area and although it is the oldest recreation building in Lakeshore, it is also the biggest hall.

"For this reason, we need to keep it in top notch condition," McKinlay said. "Our Scouts have their meetings there and there are several exercise classes and other events that use this hall. Plus it is often booked for weddings and celebrations."


McKinlay pointed out that many residents listed wanting splash pads and walking trails.

"We have made our priorities known through this procedure and now we wait to see what they come back with," she added.

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 **Town of Lakeshore**  
**Water and Wastewater Servicing**  
**Master Plan Update**

**Notice of Public Information Center**

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Email: Ryan.Connor@ch2m.com

## Businesses warned of new scam

Businesses in Ontario are being warned of a new telephone scam, which is currently targeting offices throughout Canada.

Businesses owners are being urged to be wary if someone claiming to be a local police officer phones encouraging you to make a donation to a community cause you have allegedly supported in the past.

The scam involves a business receiving a call from a person claiming to be a local police officer. He begins by asking for a company director by name and then asks a series of ques-

tions about whether or not there have been any problems with anti-social behaviour in the area lately. This is a tactic to build a rapport with whoever answers the phone and display a level of knowledge of the local area to make them appear genuine.

After lulling owners into a false sense of security, the call then takes a turn. The caller goes on to ask if the business will be continuing to support a local police community publication with a small donation, just as they have done in the past. An ap-

parent "colleague" of the caller follows up within ten minutes of the original call asking for payment.

As many local businesses give back to their communities through donations, scams like these can be easy to fall for. The problem with calls like these is people are more inclined to trust a call that they receive from someone in a position of authority, such as a policeman.

The use of official records, which are easily available, says it all and people should be warned that knowledge of these details is no guarantee that the caller is legitimate."

Businesses in Ontario should be vigilant against these types of calls and never make a donation over the phone to an unsolicited caller without verifying the caller. This can be done by asking for their full name, job title and telephone number so you can check it out.

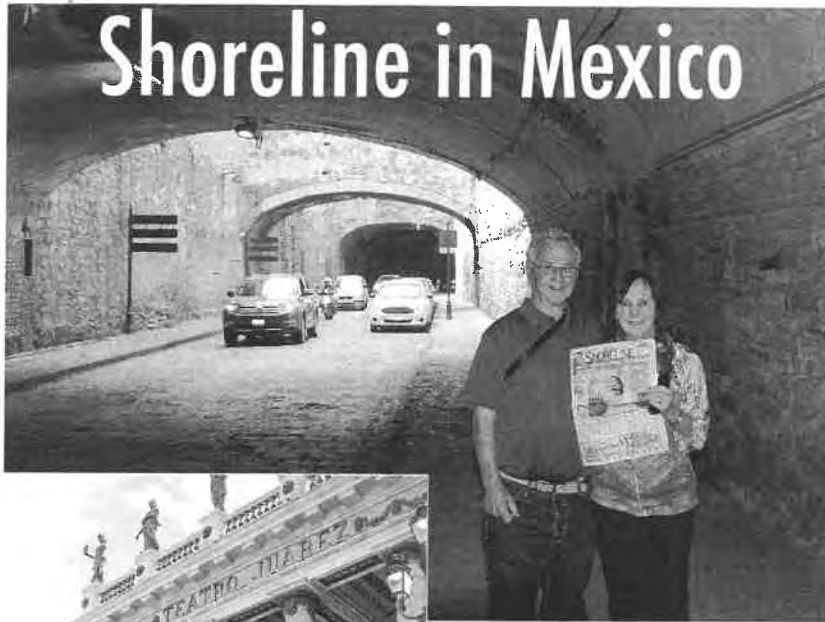
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Tom and Angela Deane are pictured above holding up a copy of *Tecumseh Shoreline Week* while waiting for a bus in Guanajuato, Mexico. This unique town was an old silver mining area and many old tunnels have been made into one lane roads. These underground roads are the main way for autos to get around the town. In the photo at left, they are pictured in front of Teatro Juárez, a historic theatre built between 1873 and 1903.

### St. Anne Parish hosting benefit variety show on May 28

St. Anne's Parish in Tecumseh will be hosting a St. Vincent de Paul benefit concert/variety show on Sunday, May 28 starting at 7 p.m.

Performers include Crystal Gage and Ryan St. Denis as well as local and Parish talent!

No tickets will be sold. A freewill monetary donation will be taken up. Refreshments served after the show.

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Care Community**

## WECC planning launch in Tecumseh on June 28

Liz Daniel, community engagement coordinator for Windsor Essex Compassion Care Community, appeared before Tecumseh Town Council last week to speak about the organization's goals in assisting the elderly and persons with disabilities.

The group will be launching in Tecumseh on Wednesday, June 28 from 4 p.m. to 7 p.m. at a location yet to be determined.

Mayor Gary McNamara has agreed to present an award to someone in the community who is compassionate.

For more information, please visit [CompassionateCareCommunity.com](http://CompassionateCareCommunity.com)



### Town of Lakeshore Water and Wastewater Servicing Master Plan Update

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**Town of Lakeshore**

May 25 at 6:59am · 🌐

### Water Wastewater Master Plan

The Town of Lakeshore is undergoing a review of the Water and Wastewater Master Plan. Slides from the Open House are available on the website for viewing. Individuals are welcome to provide comment until June 15, 2017 through email to [ncavacus@lakeshore.ca](mailto:ncavacus@lakeshore.ca) or [webmaster@lakeshore.ca](mailto:webmaster@lakeshore.ca) or telephone by calling 519-728-2700.

### Town of Lakeshore - Community Input

Windsor Essex Economic Development Corporation Potential Grants  
Available Aerospace Specific Grants Energy Conservation Grants General  
Manufacturing Grants Small Business Grants Youth Apprenticeship  
Grants Government Sponsored Incentives

[LAKESHORE.CA](http://LAKESHORE.CA)

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## D.4 – Correspondence

## Correspondence

No correspondence from agencies, first nations, or members of the public have been received over the duration of the project study prior to 30 day review period.

## D.5 – Council Presentations

# Water & Wastewater Master Plan Update Study

Town of Lakeshore Council Meeting

Tuesday, April 25, 2017





# Water & Wastewater Master Plan Update *Agenda*

- Study Objectives
- Class Environmental Assessment Process
- Background Studies
- Community Growth Projections
- Water Master Plan
  - Water Service Areas
  - Water Infrastructure Improvements Since 2009 MP
  - Status
  - Problem Statements
  - Proposed & Recommended Alternative Solutions
- Wastewater Master Plan
  - Wastewater Service Areas
  - Problem Statements
  - Proposed & Recommended Alternative Solutions
- Next Steps & Recommendation
- Questions

# Water & Wastewater Master Plan Update

## *Objective*

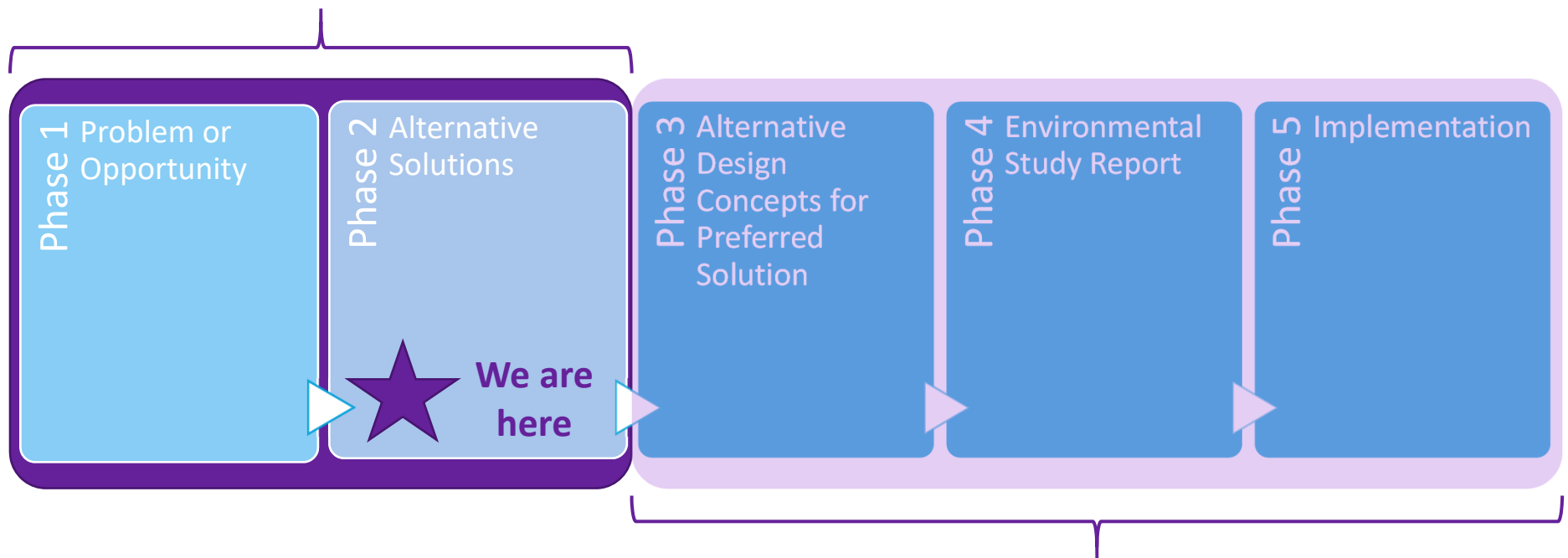
The objective of this Study is to

***provide an updated framework to guide the planning and implementation of strategic water and wastewater infrastructure over the 20 year planning horizon***

with an integrated consideration of the natural, social, and economic environments.

# Water & Wastewater Master Plan Update *Class Environmental Assessment Process*

This Servicing Master Plan Update addresses both Phase's 1 and 2 of the Class EA process.



Phases 3 to 5 are not part of the Master Plan Process. Future studies are required to take recommended alternatives through to implementation.

# Water & Wastewater Master Plan Update

## *Background Studies*

- Town of Lakeshore Official Plan Review – MMM Group, Ongoing
- Town of Lakeshore Water & Wastewater Master Plan - Stantec Consulting Ltd., February 2009

### **Water**

- New Capacity Master Plan & Hydraulic Model for the Union Water Supply System - Stantec Consulting Ltd., June 2012
- Town of Lakeshore Belle River Elevated Water Tower Replacement Predesign Report - Stantec Consulting Ltd., November 2012

### **Wastewater**

- Eastern Communities Sewage Works ESR – Stantec, 2012

# Water & Wastewater Master Plan Update

## Community Growth Projections

Summary of Population Forecast					
Development Location	Existing (2015)	20-Year (2035)	Growth (2015-2035)	Unit Density Persons per Unit (PPU)	
				2015	2035
Maidstone	22,500	26,200	3,700	3.00	2.86
Shoreline Development	860	930	70	2.49	2.42
Comber	1,050	1,070	20	2.63	2.52
Belle River Strip	920	1,090	170	2.83	2.68
Lighthouse Cove	600	1,070	470	2.11	2.44
Stoney Point	1,420	2,190	770	2.68	2.75
North/South Woodslee	910	1,060	150	2.80	2.74
North Woodslee	510	590	80	2.80	2.74
South Woodslee	400	470	70	2.80	2.74
Hamlet Communities	780	870	90	2.33	2.30
Rochester Place / Deerbrook	278	310	32	2.33	2.30
St. Joachim	376	410	34	2.33	2.30
Ruscom	30	40	10	2.33	2.30
Staples	96	110	14	2.33	2.30
Essex Fringe	260	370	110	2.60	2.69
Rural	6,880	7,010	130	2.48	2.39
<b>Total Population</b>	<b>36,180</b>	<b>41,860</b>	<b>5,680</b>	<b>2.80</b>	<b>2.71</b>

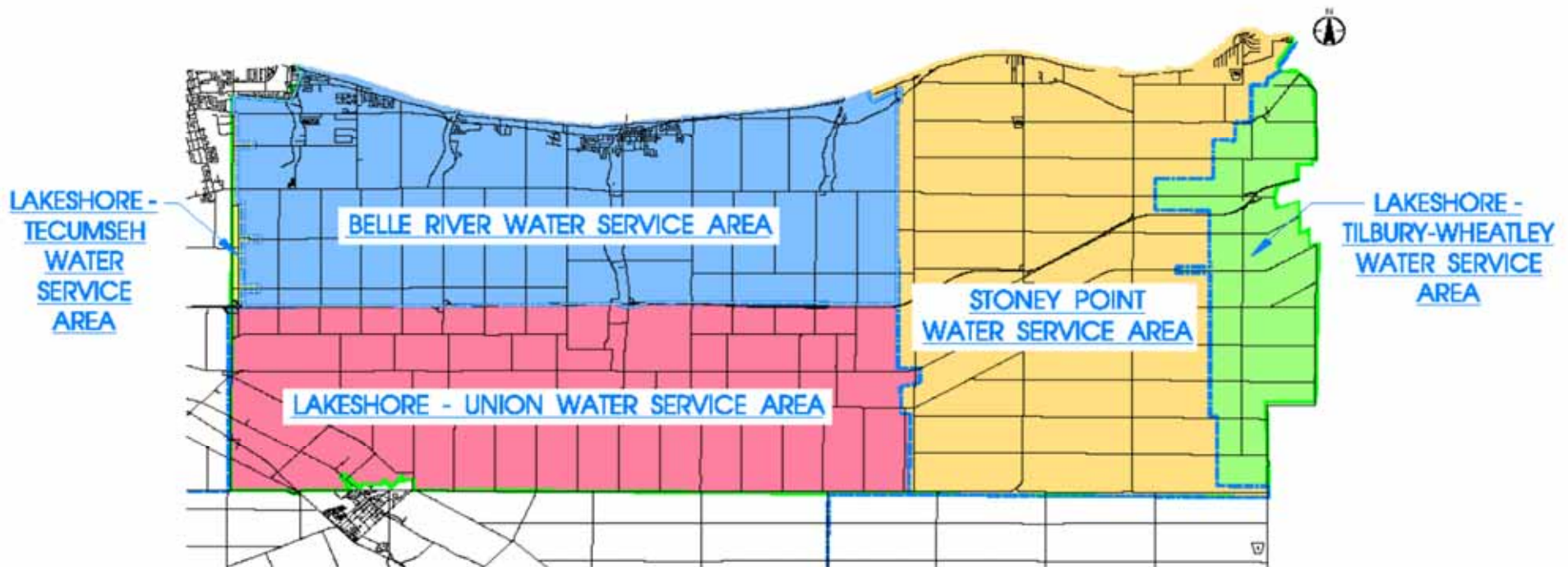
# Water & Wastewater Master Plan Update

## Community Growth Projections

<b>Non-Residential Growth Projections (Hectares)</b>				
<b>Development Location</b>	<b>Total Area</b>	<b>Existing (2015)</b>	<b>20-year (2035)</b>	<b>20 Year Growth (2015-2035)</b>
<b>Industrial</b>				
Blanchard Industrial Park	13	10.5	13	2.5
Sylvestre Industrial Park	16	10	16	6
Patillo Road Industrial Park North	133	103	121.4	18.4
Patillo Road Industrial Park South	66	6.4	48.5	42.1
Markham Industrial Park	4	2.8	4	1.2
Patillo / Advance Industrial Park	88	0	0	0
Manning Road / Little Baseline Corridor	35	0	0	0
Wallace Woods	40	0	10	10
Schwab Industrial Park	12	0	6	6
Stoney Point Industrial Area	95	0	0	0
Labin Industrial Park	1	0	0	0
Armtec Industrial Area	5	3	3	0
<b>Sub-Total (Industrial)</b>	<b>508</b>	<b>135.7</b>	<b>221.9</b>	<b>86.2</b>
<b>Commercial</b>				
St. Clair Shores Corridor	43	20	33	13
Wallace Woods	80	0	5	5
Manning Road / County Road 22 Corridor	25	0	10.3	10.3
Manning Road / Little Baseline Corridor	40	0	0	0
Comber Truck Stop Corridor	12	10.2	12	1.8
<b>Sub-Total (Commercial)</b>	<b>200</b>	<b>30.2</b>	<b>60.3</b>	<b>30.1</b>
<b>Other</b>				
Comber Multi-Purpose Potential Development	96	0	4	4
<b>Sub-Total (Other)</b>	<b>96</b>	<b>0</b>	<b>4</b>	<b>4</b>

# Water Master Plan

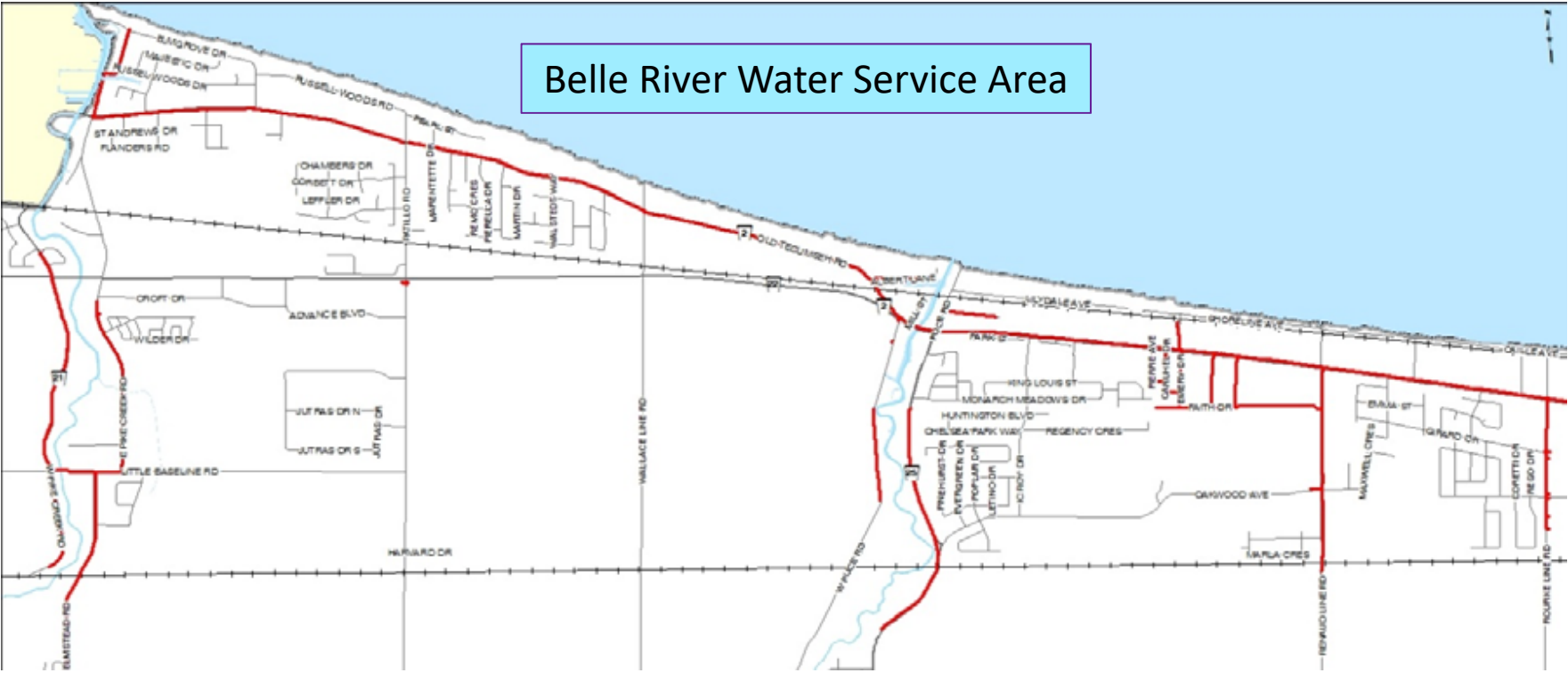
# Water Master Plan - *Water Service Areas*



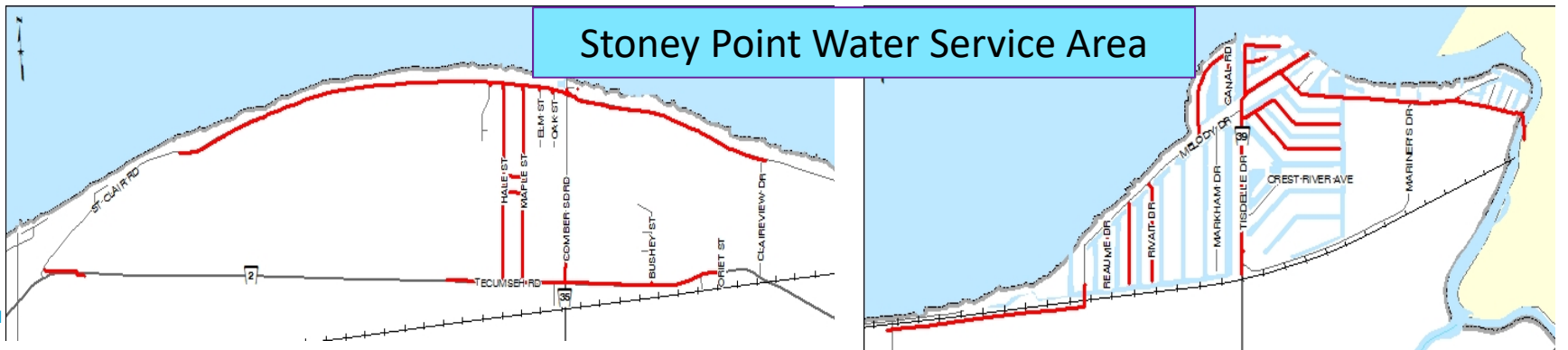
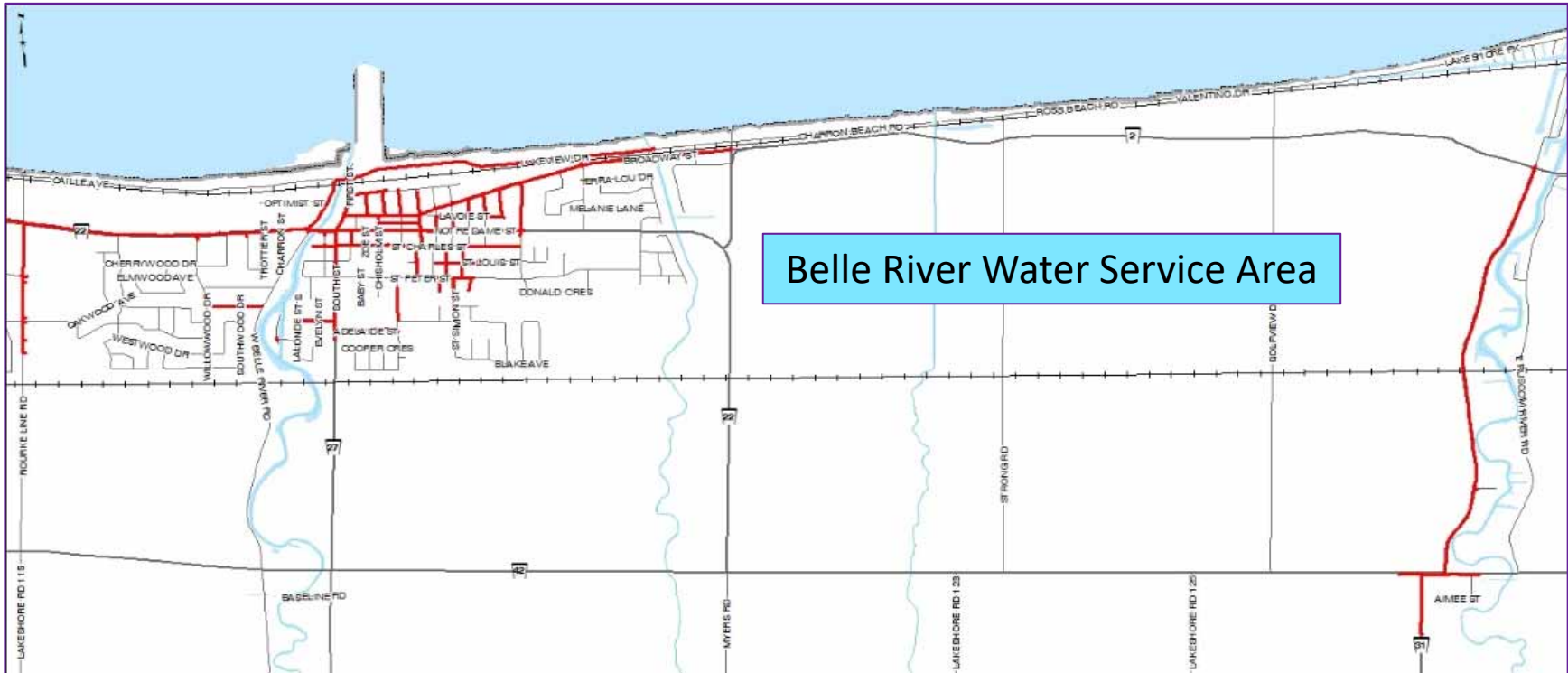
- Total of 5 Independent Service Areas with Total Equivalent Service Population of ~ 43,200 people  
*Belle River ~ 33,300    Stoney Point ~ 6,100    Tecumseh ~ 200    Union ~ 3,200    Tilbury-Wheatley ~ 400*
- Equivalent Service Population takes into account not only the actual number of persons in the system but an equivalent number taking in consideration non-residential demands from industrial, commercial and institutional consumers
- 2 Areas (Belle River & Stoney Point) serviced by Water Supply Systems consisting of Water Treatment Plants, Storage Facilities & Distribution Networks
- 3 Areas serviced by Water Supply Systems consisting of Distribution Networks only
- All Systems owned, operated and maintained by Town of Lakeshore with exception of Tilbury-Wheatley System. The Tilbury-Wheatley System is supplied by Chatham Kent PUC. This water distribution system is mostly privately owned but includes two watermains operated by Chatham Kent PUC under agreement.



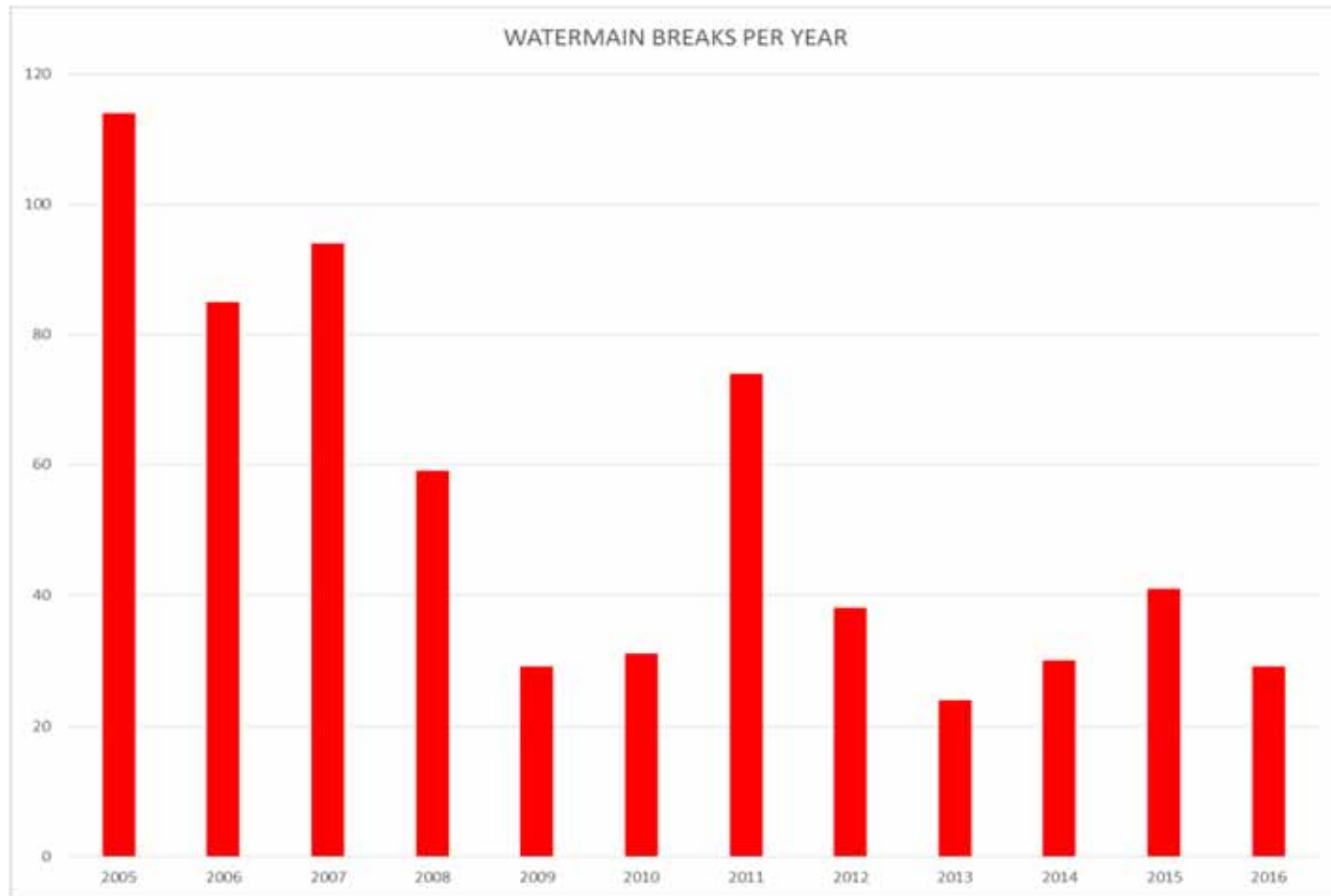
# Water Master Plan - *Cast Iron Watermains replaced since 2003*



# Water Master Plan - *Cast Iron Watermains replaced since 2003*



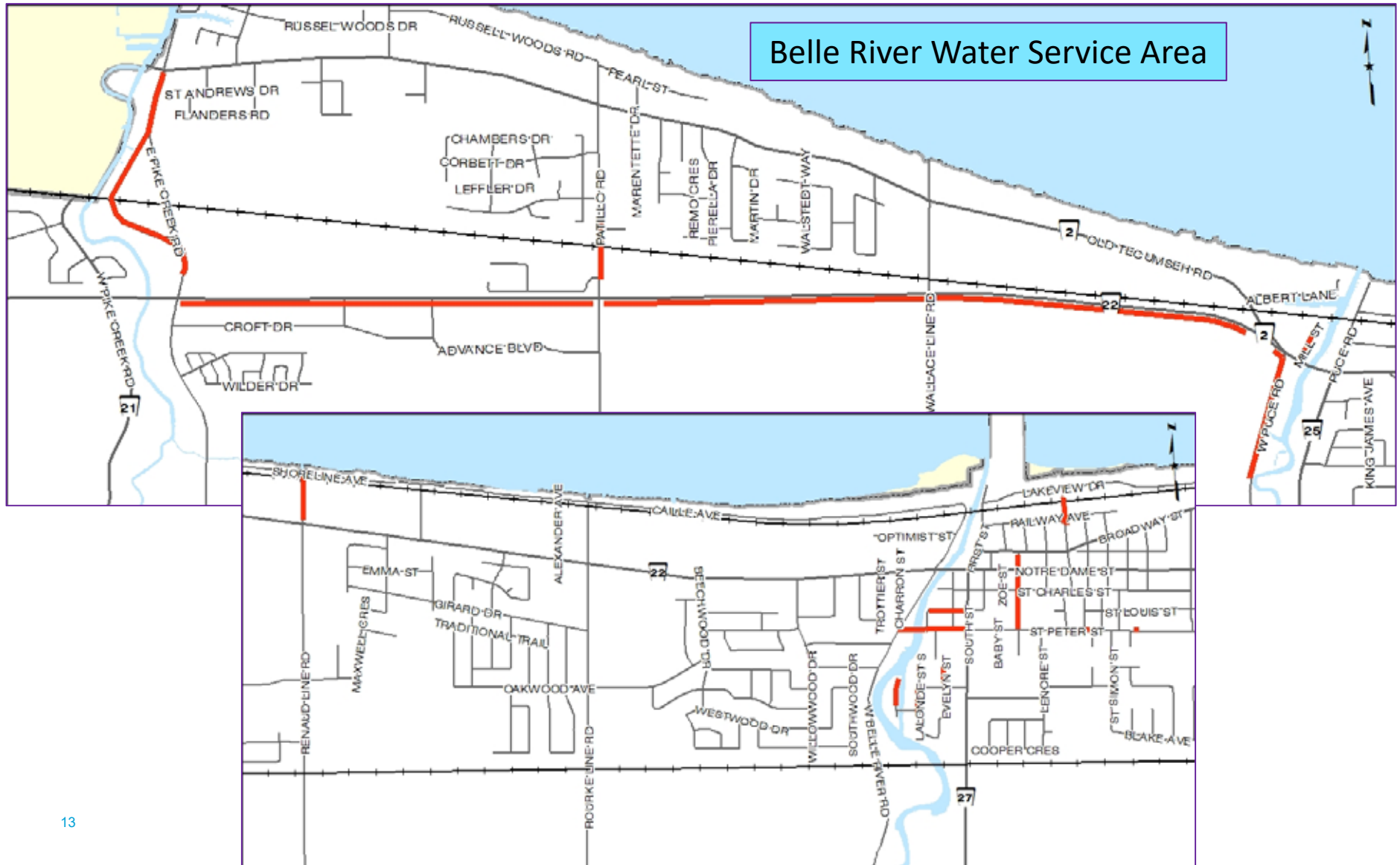
# Water Master Plan - *Water Infrastructure Improvements since 2003*



- Town has invested heavily in Water Infrastructure since 2003
- Total investment in Water infrastructure Improvements since 2003 is ~ \$50 M
- Total Length of Watermain Improvements since 2003 is ~ 61 kilometers

# Water Master Plan - Belle River WSS

## Existing Cast Iron Watermains (total 13.4 km)



# Water Master Plan - *Stoney Point WSS* *Existing Cast Iron Watermains (total 13.4 km)*



Stoney Point Water Service Area



## Water Master Plan - *Status*

- *Water Servicing Areas Established*
- *Existing Water Supply System Inventory Updated*
- *Service Area Growth Populations Established*
- *Service Area Projected Water Demands Established*
- *Water Supply System Assessments Completed*
- *Problem Statements Established*
- *Servicing Solutions & System Improvements Proposed*
- *Evaluation of Alternative Solutions Completed*
- *Recommended Alternative Solutions Selected*
- *Class EA Status – Procurement of Public & Agency Input*

# Water Master Plan - *Belle River WSS*

## *Problem Statement*

Following problems and needs were identified to satisfy the needs of existing consumers as well as future growth based on projected 20 year water demands to 2035

- 1. Additional clear water storage capacity of approximately 1,440 m<sup>3</sup> by Year 2030*
  - Additional 9,000 m<sup>3</sup> in 2009 MP*
  - Additional 4,663 m<sup>3</sup> implemented to date*
- 2. Improvements to existing water distribution system to convey increased flows as well as improve level of fire protection*

# Water Master Plan - *Stoney Point WSS*

## *Problem Statement*

Following problems and needs were identified to satisfy the needs of existing consumers as well as future growth based on projected 20 year water demands to 2035

- 1. Additional treatment plant capacity of approximately 455 m<sup>3</sup>/day by Year 2026*
  - Additional 3,600 m<sup>3</sup>/day in 2009 MP*
  - 0 m<sup>3</sup>/day implemented to date*
- 2. Additional clear water storage capacity of approximately 540 m<sup>3</sup> now*
  - Additional 2,500 m<sup>3</sup> in 2009 MP*
  - 0 m<sup>3</sup> implemented to date*
- 3. Improvements to existing water distribution system to convey increased flows as well as improve level of fire protection*



# Water Master Plan

## *Alternatives Development and Evaluation*



Water Alternatives Evaluation Criteria:

- 
- Technical**
  - Constructability
  - Schedule
  - Performance
  - Reliability
  - Operation & Maintenance
  - Safety
  - Compliance
  - Land Requirements
-

# Water Master Plan - Belle River WSS

## *Proposed Alternative Solutions*

### Clear Water Storage

1. *Do Nothing*
2. *Restrict Community Growth*
3. *Implement Water Use Restrictions*
4. *Replace existing Maidstone Elevated Water Tower with new elevated water tower in general vicinity of Patillo Road & Little Baseline Road corridor*

### Distribution System Improvements

1. *Do Nothing*
2. *Restrict Community Growth*
3. *Implement Water Use Restrictions*
4. *Construct new watermains to convey increased flows and improve level of fire protection while improving system security & reliability*

# Water Master Plan - *Stoney Point WSS*

## *Proposed Alternative Solutions*

### Water Treatment Capacity

1. *Do Nothing*
2. *Restrict Community Growth*
3. *Implement Water Use Restrictions*
4. *Obtain water supply from Belle River WSS*
5. *Expand Stoney Point WTP on present site*

### Clear Water Storage

1. *Do Nothing*
2. *Restrict Community Growth*
3. *Implement Water Use Restrictions*
4. *Construct new elevated water tower in Southern section of Community of Stoney Point in general vicinity of Tecumseh Road & Comber Sideroad*

# Water Master Plan - *Stoney Point WSS*

## *Proposed Alternative Solutions (Cont'd)*

### Distribution System Improvements

1. *Do Nothing*
2. *Restrict Community Growth*
3. *Implement Water Use Restrictions*
4. *Construct new watermains to convey increased flows and improve level of fire protection while improving system security & reliability*

# Water Master Plan - Belle River WSS

## *Recommended Alternative Solutions*

### Clear Water Storage

1. *Replace existing Maidstone Elevated Water Tower with new 5,800 m<sup>3</sup> elevated water tower in general vicinity of Patillo Road & Little Baseline Road corridor and connect to proposed 600 mm dia. trunk watermain through Wallace Woods Area.*

### Distribution System Improvements

1. *Construct new 400 mm dia. trunk watermain along County Road 22 from West Puce River Road to West Pike Creek Road (County Road 21)*
2. *Construct new 600 mm dia. trunk watermain along West Puce River Road from County Road 22 southerly to existing 600 mm dia. trunk watermain*
3. *Construct new 600 mm dia. trunk watermain through Wallace Woods area from West Puce River Road to Patillo Road*
4. *Construct new 400 mm dia. trunk watermain along Wallace Line Road from County Road 22 southerly to proposed 600 mm dia. trunk watermain through Wallace Woods area*

# Water Master Plan - Belle River WSS

## *Recommended Alternative Solutions*

### Distribution System Improvements, Cont'd

5. *Construct new 500 mm dia. trunk watermain along Little Baseline Road from existing 500 mm dia. trunk watermain west of Patillo Road to existing 400 mm dia. trunk watermain at Stonebrook and East Pike Creek Road*
6. *Construct new 400mm dia. trunk watermain along Little Baseline Road from West Pike Creek Road (County Road 21) westerly to existing 150 mm dia. watermain near Manning Road.*
7. *Construct new 200 & 300 mm dia. trunk watermains along 11th Street from Broadway Street to St. Louis Street*
8. *Construct new 250 & 300 mm dia. trunk watermains along Notre Dame Street from 11th Street to Duck Creek Blvd*

# Water Master Plan - Belle River WSS

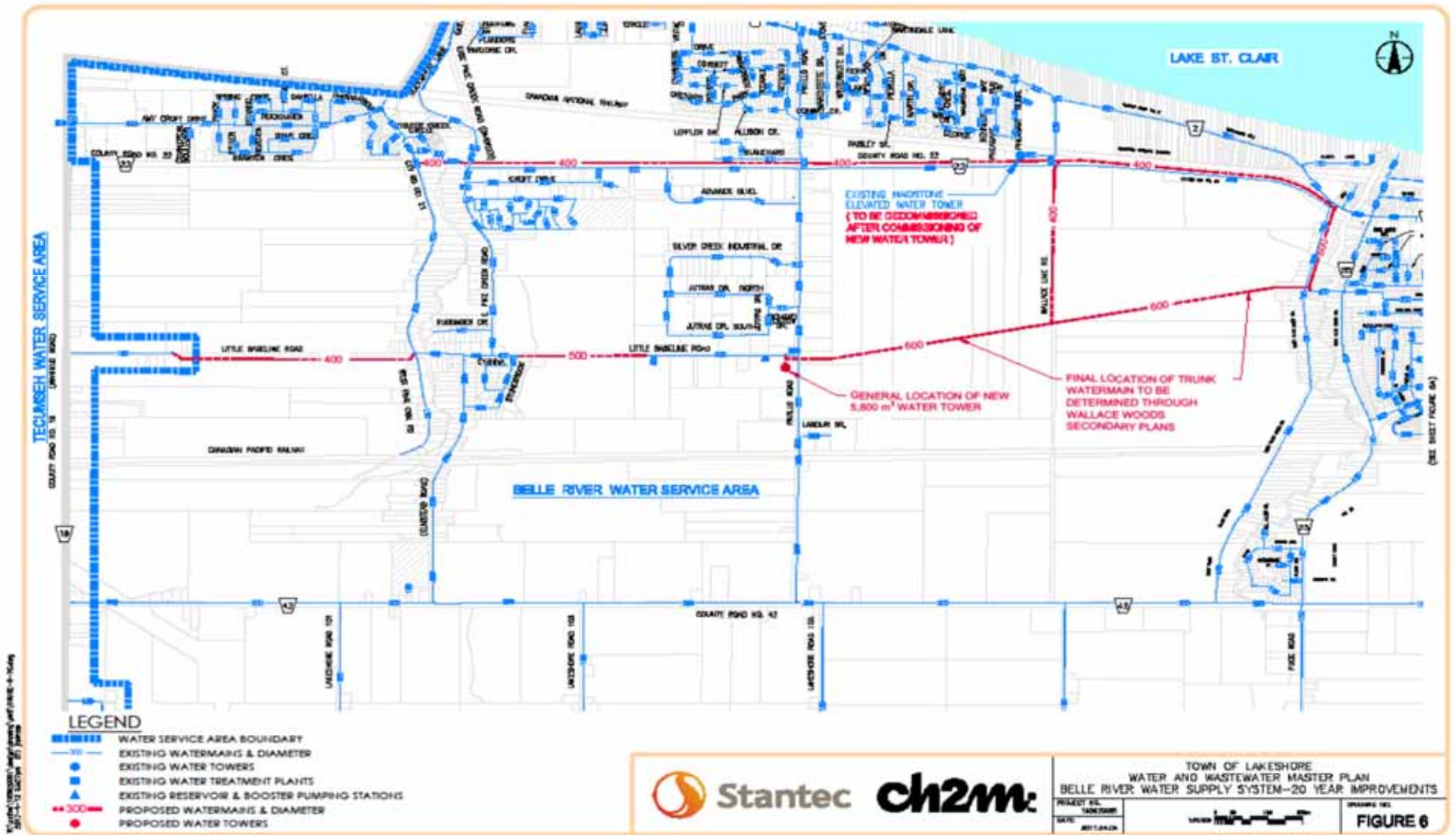
## *Recommended Alternative Solutions*

### Distribution System Improvements, Cont'd

9. *Construct new 400 mm dia. trunk watermains along Rourke Line Road from County Road 22 to Caille Avenue*
10. *Construct new 400 mm dia. trunk watermains along Renaud Line Road from County Road 22 to Caille Avenue*
11. *Construct various other watermain network improvements and replacements as needed*

# Water Master Plan - Belle River WSS Recommended Alternative Solutions

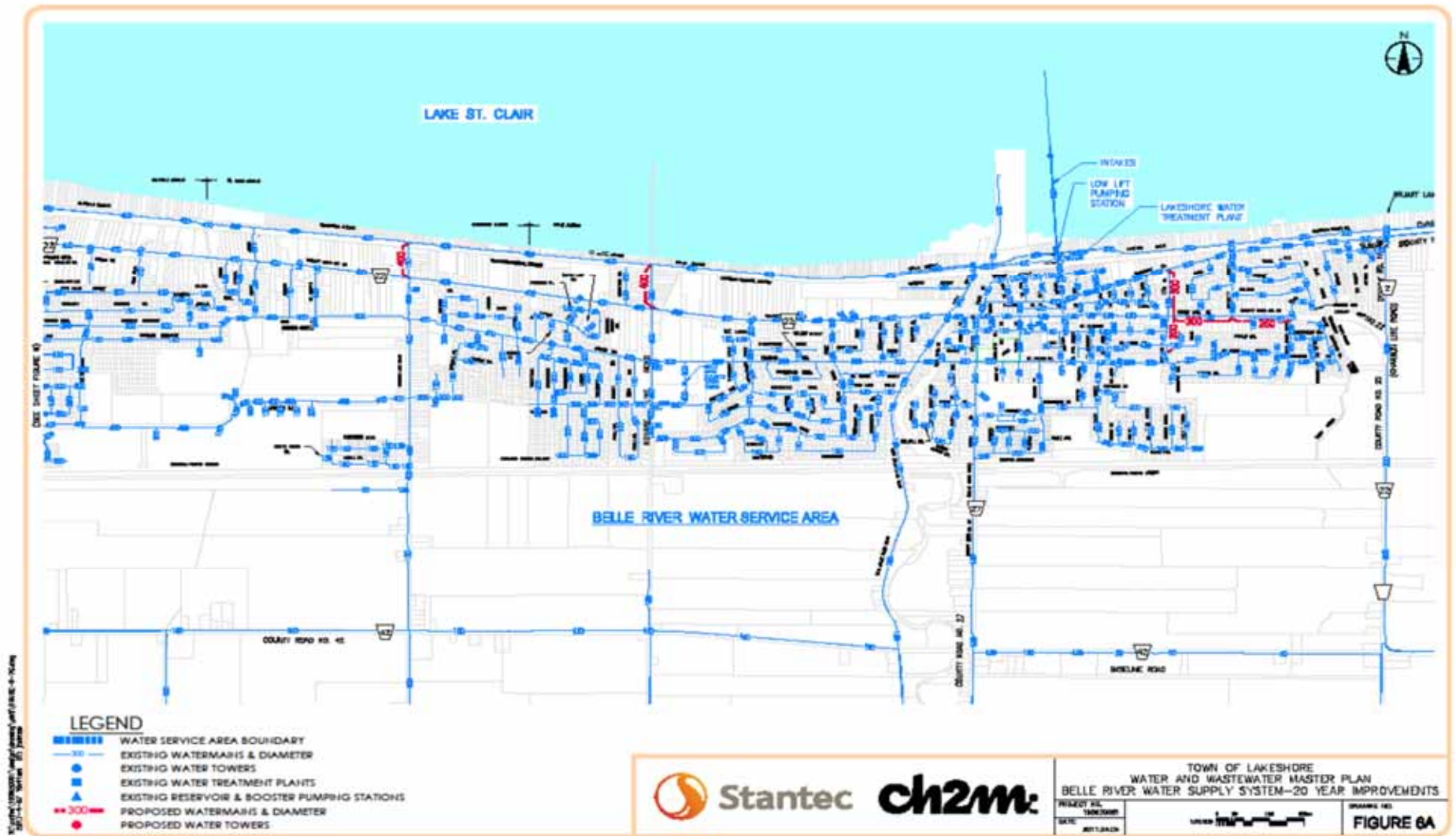
## Map 1 of System Improvements





# Water Master Plan - Belle River WSS Recommended Alternative Solutions

## Map 2 of System Improvements



# Water Master Plan - *Stoney Point WSS*

## *Recommended Alternative Solutions*

### Water Treatment Capacity

1. *Monitor Stoney Point WTP capacity and initiate an ESR at 80% of treatment capacity to evaluate the following Alternative Solutions:*
  - *Expand Stoney Point WTP to next modular size from 4,545 m<sup>3</sup>/day to 9,090 m<sup>3</sup>/day on present site*

OR

- *Supply 9,090 m<sup>3</sup>/day from Belle River WSS via new trunk watermain and convert Stoney Point WTP into Booster Pumping Station*

### Clear Water Storage

1. *Construct new 3,200 m<sup>3</sup> elevated water tower located in Community of Stoney Point*

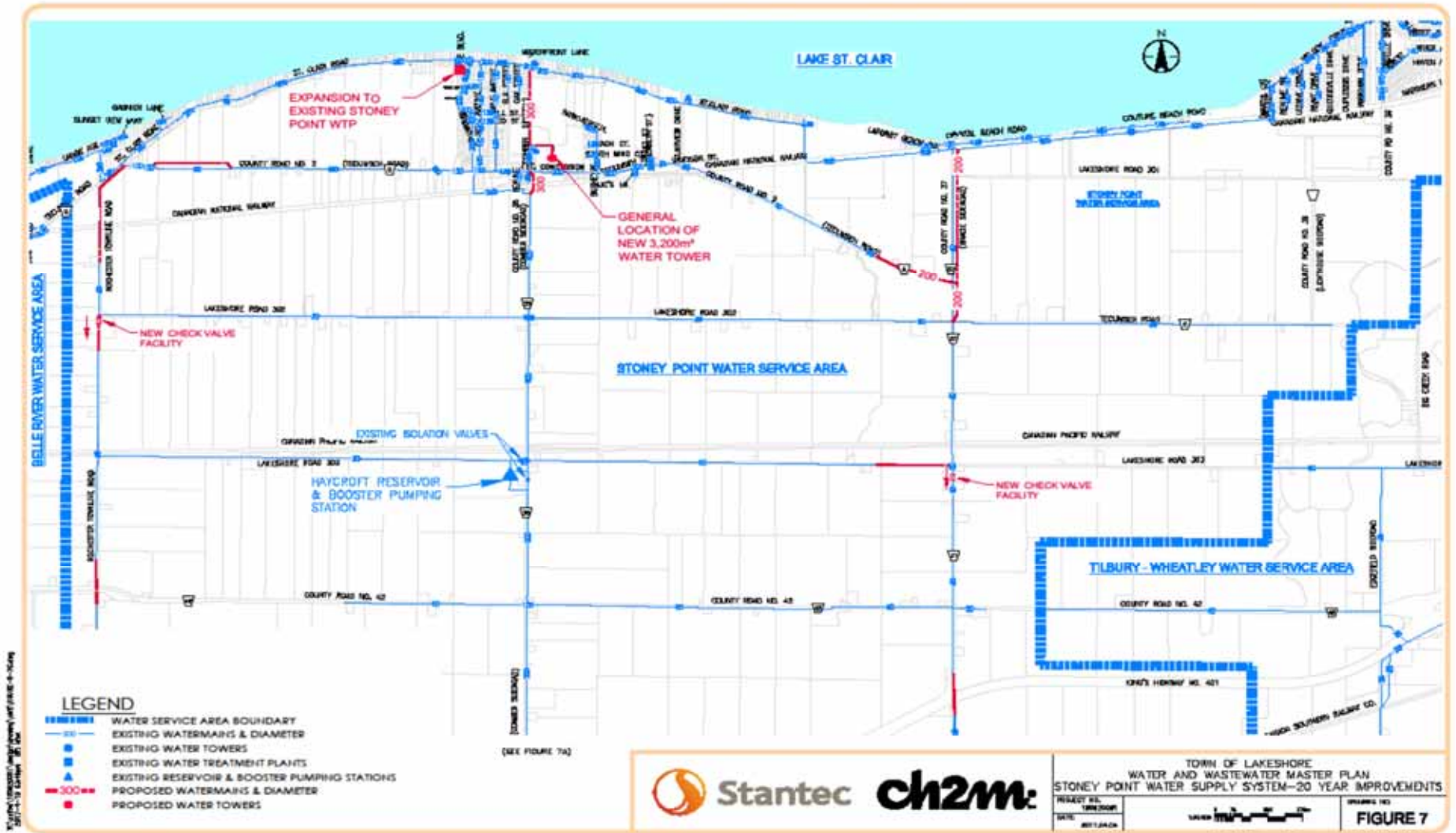
# Water Master Plan - Stoney Point WSS

## Recommended Alternative Solutions

### Distribution System Improvements

1. *Construct new 300-mm dia. trunk watermain along Comber Sideroad (County Road 35) from St. Clair Road to existing 300 mm dia. trunk watermain immediately north of Tecumseh Road*
2. *Construct new 300-mm dia. trunk watermain along Comber Sideroad (County Road 35) from Tecumseh Road to existing 200 mm dia. trunk watermain immediately south of the Canadian National Railway*
3. *Construct new 200 mm dia. watermain along County Road 37 from Couture Beach Road to Tecumseh Road*
4. *Construct Construct new 200 mm dia. watermain along Tecumseh Road from County Road 37 westerly to existing watermain*
5. *Construct various new watermain looping interconnections including isolation & check valve facilities*
6. *Construct various other watermain replacements as needed*
7. *Consider construction of new 400 mm dia. watermain along Comber Sideroad from CN railway southerly as condition dictate to south of Hwy. 401 to replace existing 200 mm dia. watermain*

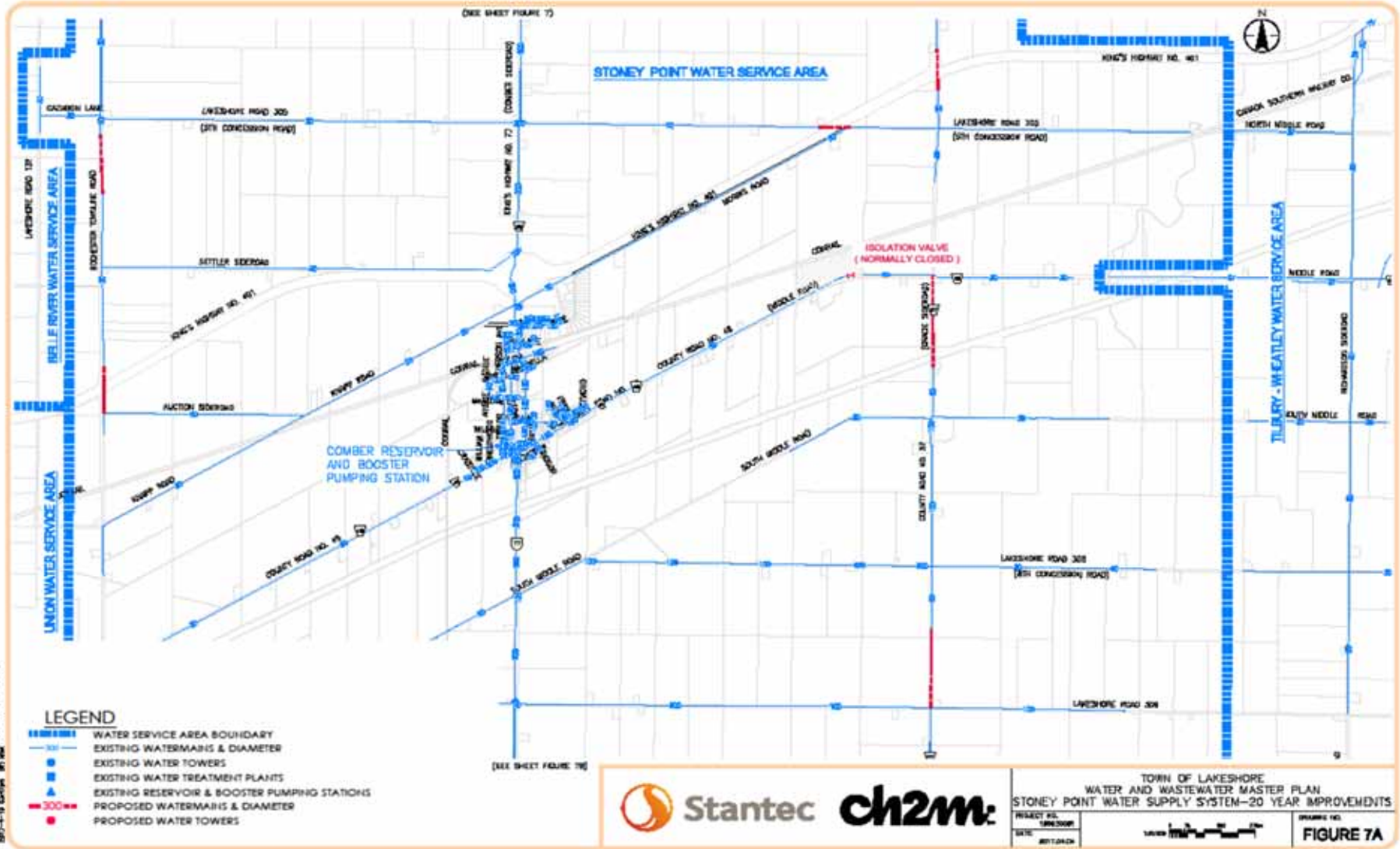
# Water Master Plan - *Stoney Point WSS* *Recommended Alternative Solutions* Map 1 of System Improvements



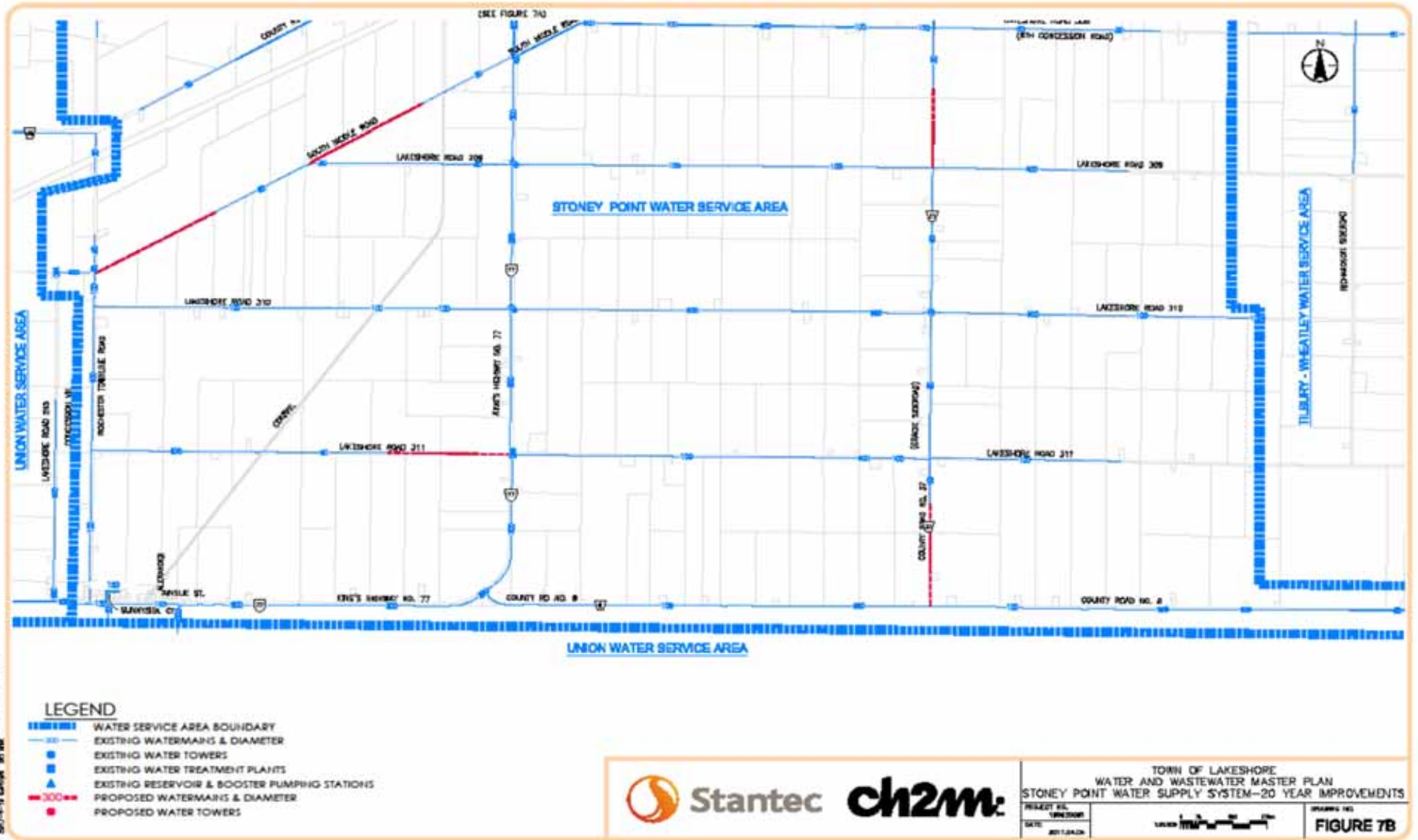
# Water Master Plan - Stoney Point WSS

## Recommended Alternative Solutions

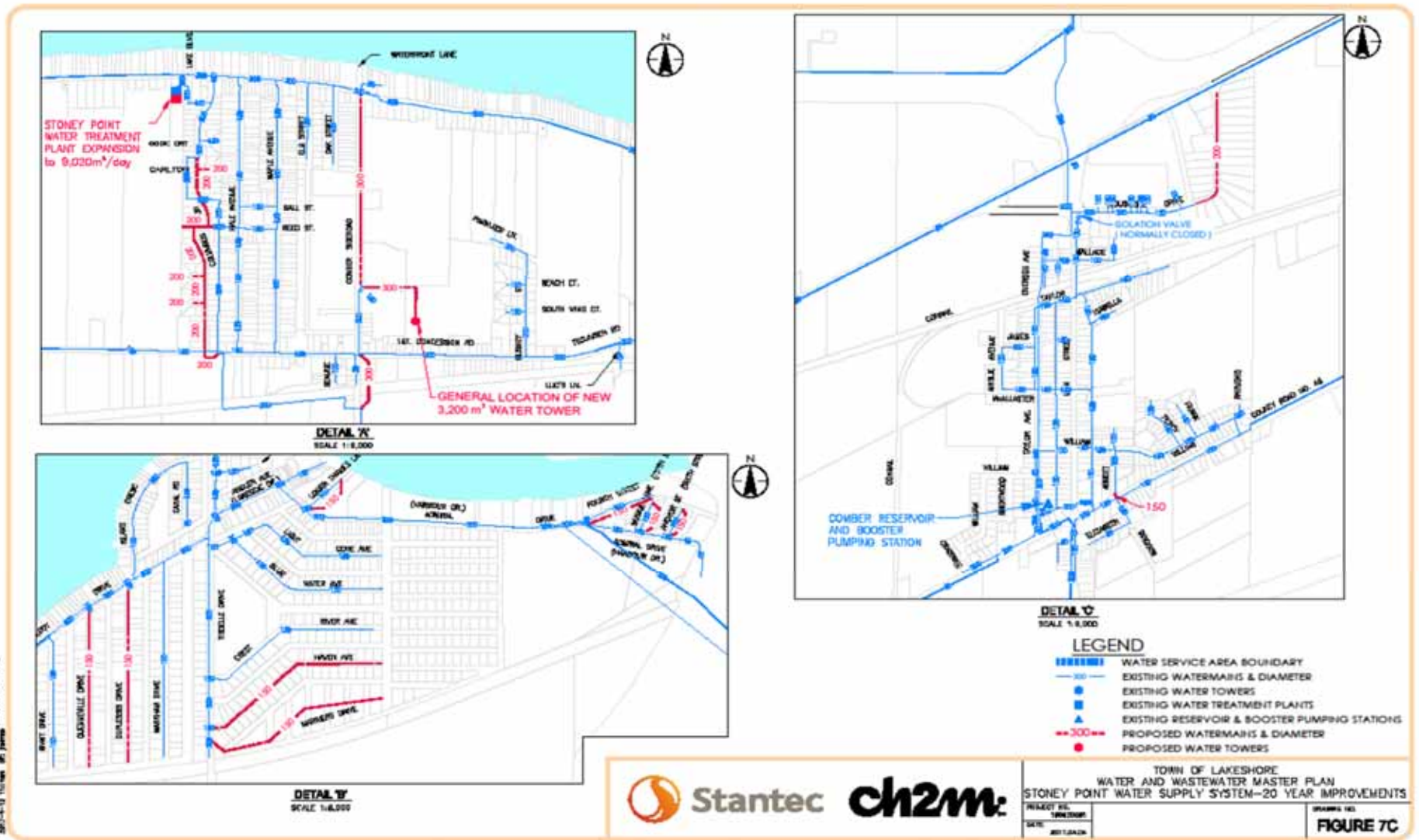
### Map 2 of System Improvements



# Water Master Plan - *Stoney Point WSS* *Recommended Alternative Solutions* Map 3 of System Improvements



# Water Master Plan - *Stoney Point WSS* *Recommended Alternative Solutions* Map 4 of System Improvements

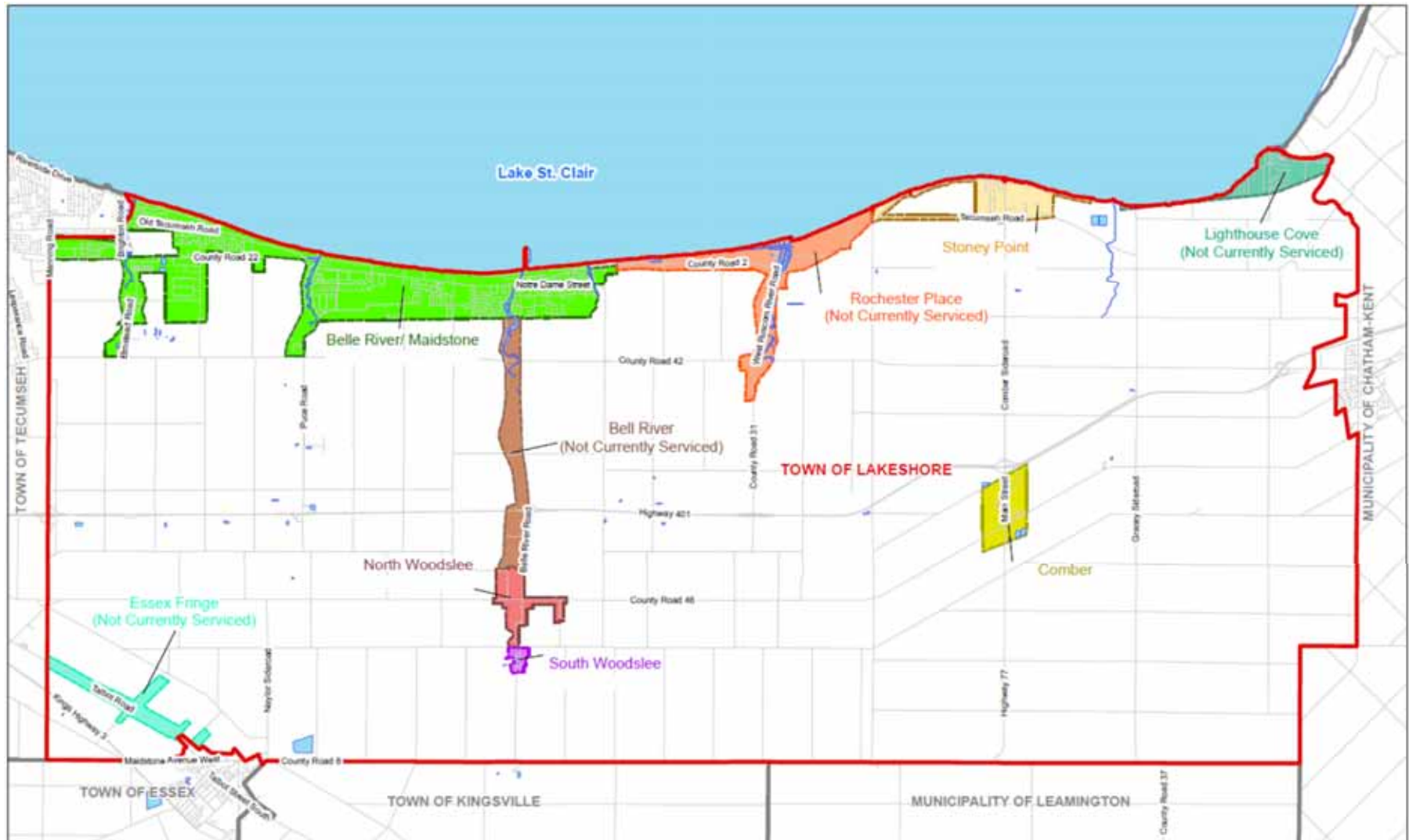


Stantec | 1000 Lakeshore Blvd. West, Suite 1000 | Oakville, ON L6L 1H7 | Canada  
 Phone: 905.842.1000 | Fax: 905.842.1001 | Email: info@stantec.com

# Wastewater Master Plan



# Wastewater Master Plan - Wastewater Service Areas



# Wastewater Master Plan - *Denis St. Pierre WPCP*

## *Problem Statement*

- 1. Additional treatment capacity is required to service the existing serviced areas and anticipated growth by 2035.*
- 2. Extension of the Oakwood trunk sewer westerly to service existing development and future growth within the existing service area and anticipated growth areas including provision of a new local sewer within the Pike Creek area to address pollution concerns.*
- 3. There are wet weather flow capacity issues within the Denis St. Pierre system.*
- 4. Wet weather flow along the Old Tecumseh Road imposes servicing limitations within the Patillo Road / Advance areas.*

# Wastewater Master Plan - *Eastern Communities* *Problem Statement*

*The problem statement from the 2012 Eastern Communities Environmental Study Report has been adopted within the Wastewater Master Plan, as it is still relevant to the current environment.*

*Additional sewage treatment capacity is required in Stoney Point and Comber to service future growth in the service area. Inflow and infiltration problems existing in the Stoney Point sewer system and to a lesser degree in the Comber system.*

*The Lighthouse Cove and Rochester Place areas require sanitary sewage servicing to address pollution problems related to existing malfunctioning septic systems and to address development pressures.*

# Wastewater Master Plan - *North & South Woodslee*

## *Problem Statement*

### **North Woodslee**

*The North Woodslee collection system does not currently service the eastern portion of the North Woodslee hamlet (east of the Belle River). There is sufficient capacity at the North Woodslee STF to receive new additional flows.*

### **South Woodslee**

*The South Woodslee community is serviced by a low pressurized sewage collection system with a mechanical sewage treatment plant. This system uses individual septic tanks each with an effluent grinder pump. The Town has ongoing operational issues with the individual tanks and related pumps and check valves. In addition these tanks accumulate solids and require regular cleaning.*

## Wastewater Master Plan - *Essex Fringe Problem Statement*

*The Town of Essex owns two lagoons, both operated by OCWA, one of which is within the Town of Lakeshore. Essex built a tertiary treatment plant (2007). This presents the opportunity to service the surrounding residences (currently on individual private septic systems) within Lakeshore at the newly constructed Essex WWTP.*

## Wastewater Master Plan - *Belle River Road Corridor* *Problem Statement*

*The 2009 WWWWMP identified poorly operating individual on-site septic systems in the Belle River Road Corridor and recommends extending service to these homes as well as North and South Woodslee. This recommendation will be carried forward in this WWWWMP Update.*

# Wastewater Master Plan

## *Alternatives Development and Evaluation*



Wastewater Alternatives Evaluation Criteria:

- 
- Technical**
- Constructability
  - Schedule
  - Performance
  - Reliability
  - Operation & Maintenance
  - Safety
  - Compliance
- 
- Land Requirements
-

# Wastewater Master Plan

## *General Recommendations*

### **Review existing Inflow and Infiltration (I/I) mitigation program:**

- Determine the effectiveness of the current program in removing I/I and mitigating wet weather flow entering the sanitary sewer system
- Expanded the I/I mitigation program to address I/I from both public and private sources, targeting areas of particular concern (i.e. Denis St. Pierre sewer shed)

### **Conduct Study to evaluate Patillo Road Package Plant:**

- evaluate condition and feasibility of bringing this plant back online
- determine any capital investment required to bring plant back online
- determine if process changes are required to meet regulatory effluent requirements
- evaluate if this plant could relieve wet weather flows along Old Tecumseh Road
- evaluate if operation of this plant could delay need to expand treatment capacity at Denis St. Pierre WPCP



# Wastewater Master Plan - *Denis St. Pierre*

## *Proposed Alternative Solutions*

### **Wet Weather Capacity Issues within Conveyance System**

1. *Do Nothing*
2. *Initiate private side source control I/I reduction program*
3. *Implement function bypasses at pumping stations along Old Tecumseh Road sewer*
4. *Incorporate offline storage at pumping stations*

### **Patillo Road / Advance Area Servicing Options**

1. *Continue with current development practices*
2. *Bring Patillo Road Package Plant back online*
3. *Extend Oakwood trunk sanitary sewer system*

# Wastewater Master Plan - *Denis St. Pierre*

## *Recommended Alternative Solutions*

### **Wet Weather Capacity Issues within Conveyance System**

1. *Do Nothing*
2. *Initiate a private side source control I/I reduction program in addition to on-going public side I/I program*
3. *Implement functional bypasses at pumping stations along Old Tecumseh Road sewer*

### **Patillo Road / Advance Area Servicing Options**

1. *Continue with current development practices*
2. *Bring Patillo Road Package Plant back online*
3. *Extend the Oakwood trunk sanitary sewer system*

# Wastewater Master Plan - *North & South Woodslee*

## *Proposed Alternative Solutions*

### **North Woodslee**

1. *Do nothing*
2. *Expand gravity sewers to service the eastern portion of the North Woodslee hamlet*

### **South Woodslee**

1. *Do nothing*
2. *Continue to repair and upgrade the existing pressurized system*
3. *Replace the pressurized system with gravity sewer*

### **Combined Servicing Alternatives for North and South Woodslee**

1. *Do nothing*
2. *Convey flows from South Woodslee to North Woodslee Treatment Facility*
3. *Convey flows from North Woodslee to South Woodslee Treatment Facility*
4. *Convey flows from North and South Woodslee to Denis St. Pierre WPCP*

# Wastewater Master Plan - *North & South Woodslee*

## *Recommended Alternative Solutions*

### **North Woodslee**

1. *Do nothing*
2. *Expand gravity sewers to service eastern portion of North Woodslee hamlet*

### **South Woodslee**

1. *Do nothing*
2. *Continue to repair and upgrade the existing pressurized system*
3. *Replace the pressurized system with gravity sewer*

### **Combined Servicing Alternatives for North and South Woodslee**

1. *Do nothing*
2. *Convey flows from South Woodslee to North Woodslee Treatment Facility*
3. *Convey flows from North Woodslee to South Woodslee Treatment Facility*
4. *Convey flows from North and South Woodslee to Denis St. Pierre WPCP*

## Wastewater Master Plan – *Essex Fringe* *Proposed & Recommended Alternative Solutions*

Explore if there are opportunities with the Town of Essex to expand service from the Essex WWTP to the Essex Fringe Area within the Town of Lakeshore.

# Water & Wastewater Master Plan Update

## *Next Steps & Recommendations*

### **Next Steps**

- Public Consultation to present Recommended Alternatives for input (Public Information Center)
- Completion of the Draft Master Plan Report
- 30-day Public Consultation Period
- Incorporate public comments and finalize Master Plan Report
- Notice of Completion

### **Recommendations**

That Council supports moving forward with the Water-Wastewater Master Plan Update to next steps and present information at Public Information Center for public and agency input.

Thank You

Questions?



# Water & Wastewater Master Plan Update Study

Town of Lakeshore Council Meeting

Tuesday, December 12, 2017





# Agenda

- Introduction and Purpose
- Environmental Assessment Process
- Water Master Plan
  - Selected Highlights
- Wastewater Master Plan
  - Selected Highlights
- Next Steps & Recommendation
- Questions



# Introduction



- Town's first comprehensive water & wastewater infrastructure study was completed and adopted in October 2008
- The Water and Wastewater Master Plan is a living document that is reviewed on a regular basis
- Council received a presentation on April 25, 2017 updating them on the work that had been completed to that date regarding the updated Water and Wastewater Master Plan
- Subsequent to that Council meeting, a Public Information Centre was conducted on May 16, 2017

# Purpose

The purpose of this Study was to:

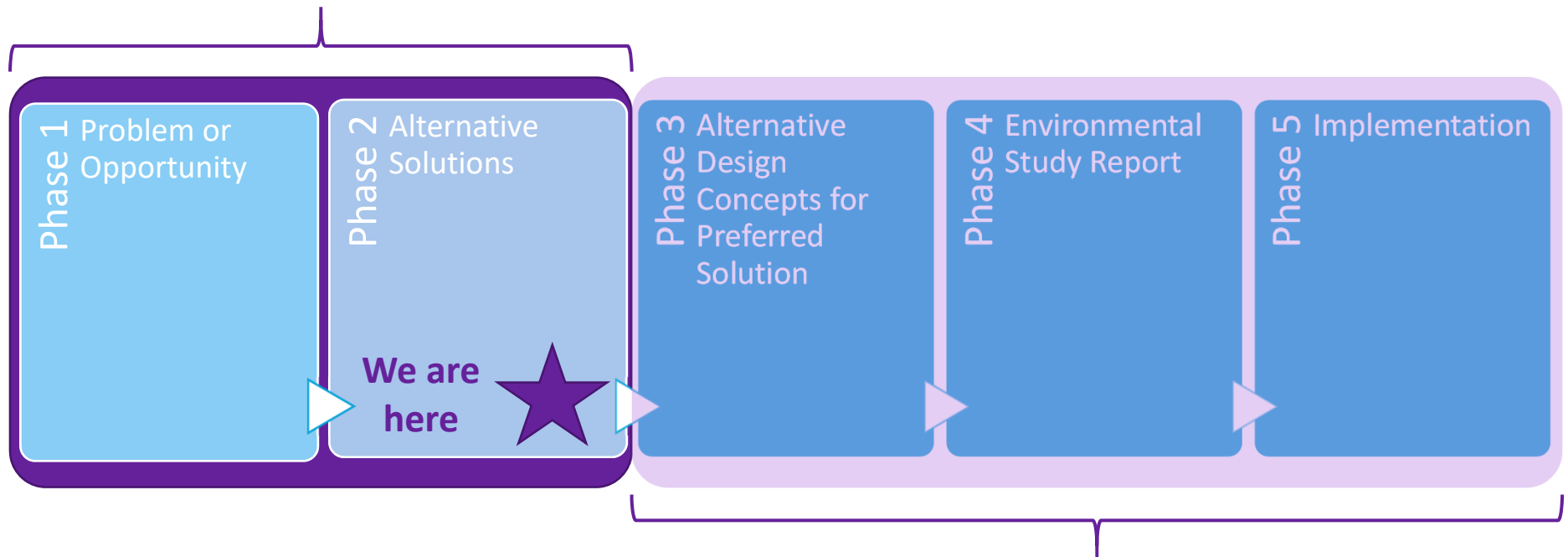
***provide an updated framework to guide the planning and implementation of strategic water and wastewater infrastructure over the 20 year planning horizon***

with an integrated consideration of the natural, social, and economic environments.

- Some considerations in updating the Water and Wastewater Master Plan included the following:
  - Areas of projected growth based on the Official Plan
  - Current and projected plant capacities
  - Strategy for continued use of 2008 Master Plan framework
  - Work that Council has supported and approved subsequent to the approval of the 2008 Water and Wastewater Master Plan
  - Growth Projections (based on the Town of Lakeshore Growth Study completed by Watson & Associates Economists Ltd., 2015)

# Environmental Assessment Process

This Servicing Master Plan Update addresses both Phase's 1 and 2 of the Class EA process.



Phases 3 to 5 are not part of the Master Plan process. Future studies are required for certain projects to take recommended alternatives through to implementation.

# Water Master Plan

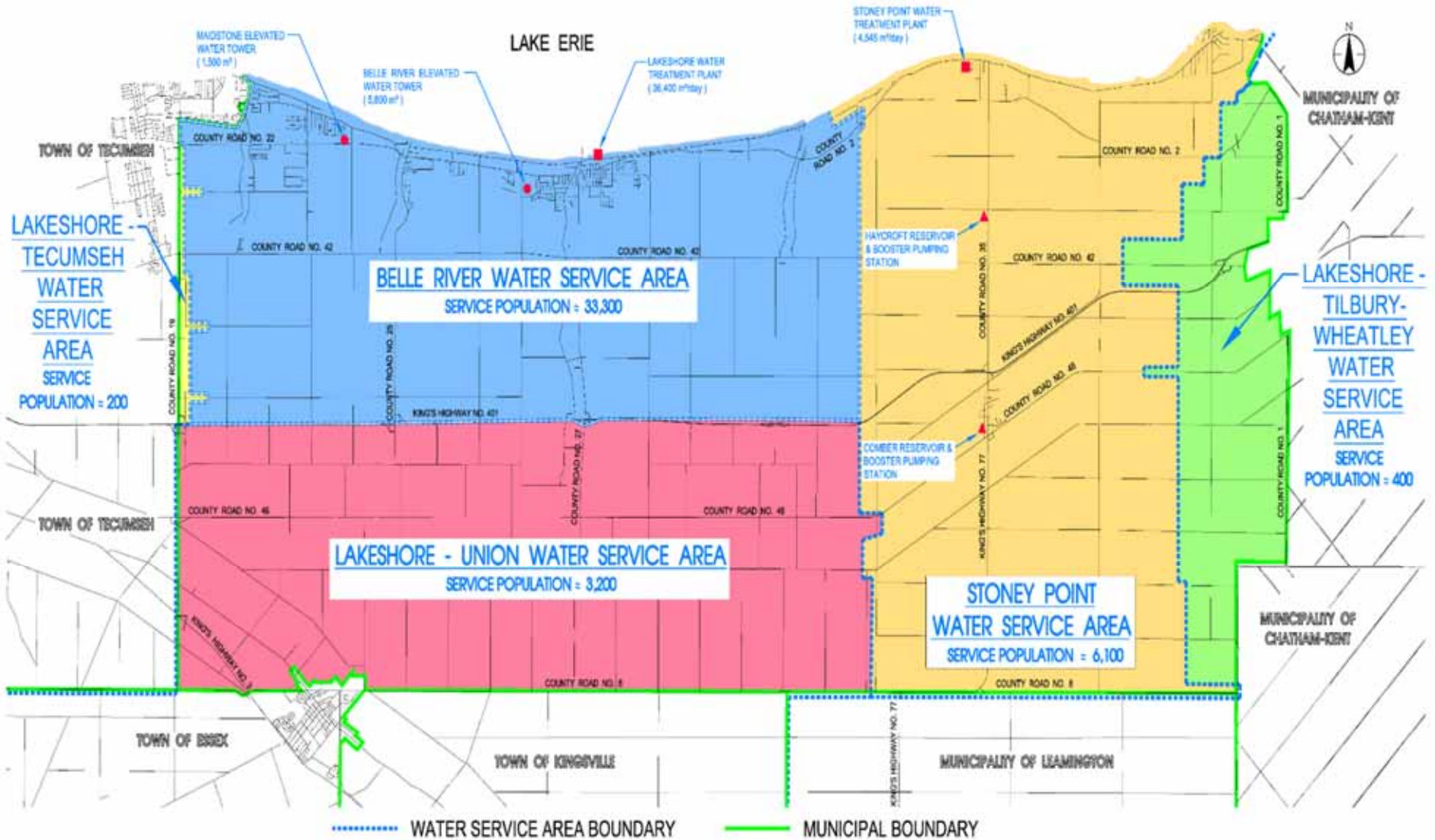
Selected Highlights



# Water Master Plan Update

*Total Service Population ~ 43,200 Persons*

## Scope



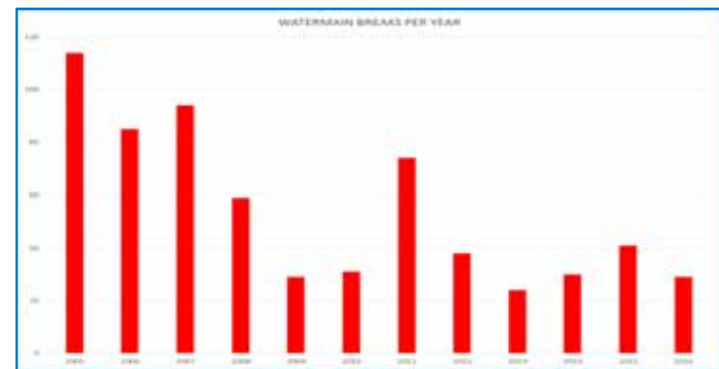
# Water Master Plan Update

## Work Completed

- Existing and projected water demands assessed including system requirements.
- Ability of existing water infrastructure to supply existing and projected water demands assessed and problem identified.
- Alternative solutions and servicing alternatives evaluated.
- Recommended solutions and associated capital costs established.

## Background

- Cast iron watermain replacement program has been very successful with number of watermain breaks per year dropping by more than 350%.
- Total length of watermain improvements since 2003 approaches 61 Km with approximately 13 km of existing cast iron watermain replacement remaining.
- The Town has invested heavily in water infrastructure since 2003 with total investment exceeding \$50 million.
- The Town has been very proactive and done a very good job of implementing the recommendations of the water component of the 2009 MP and still continuing on track.



# Water Master Plan Update

## Results & Recommendations

### Belle River Water Supply System

- Current water treatment plant capacity is adequate to service the needs of the community over the current 20 year planning horizon.
- Current water storage capacity is adequate for the foreseeable future. However, a need for additional storage capacity is projected within the next 15 years.

*Recommended solution is to replace existing Maidstone elevated water tower with a new larger elevated water tower in the vicinity of Patillo Road & Little Baseline Road.*

- Existing water distribution system is inadequate to maintain an acceptable level of service over the current 20 year planning horizon.

*Recommended solution is to carry out improvements to the existing water distribution system to meet projected water demands while improving fire protection to target levels. Improvements are to be staged and prioritized over the next 20 years to resolve system deficiency's and keep pace with community growth.*



# Water Master Plan Update

## Results & Recommendations (cont'd)

### Stoney Point Water Supply System

- Current water treatment plant capacity is adequate for foreseeable future. However, a need for additional treatment plant capacity is projected within the next 10 years.  
*Recommendation: monitor Stoney Point WTP capacity and initiate an Environment Study Report when plant capacity reaches 80% capacity to evaluate whether to*
  - ✓ *Expand Stoney Point WTP to the next modular size*
  - OR*
  - ✓ *Convey supplemental water from Belle River WSS using new trunk watermain infrastructure*
  
- Current water storage capacity is inadequate to meet both current and future needs. Additional storage capacity will be required as of Today.  
*Recommended solution is to construct new elevated water tower in Community of Stoney Point within the current 20 year planning horizon.*
  
- Existing water distribution system is inadequate to maintain an acceptable level of service over the current 20 year planning horizon.  
*Recommended solution is to carry out improvements to the existing water distribution system to meet projected water demands while improving fire protection to target levels. Improvements are to be staged and prioritized over the next 20 years to resolve system deficiency's and keep pace with community growth.*

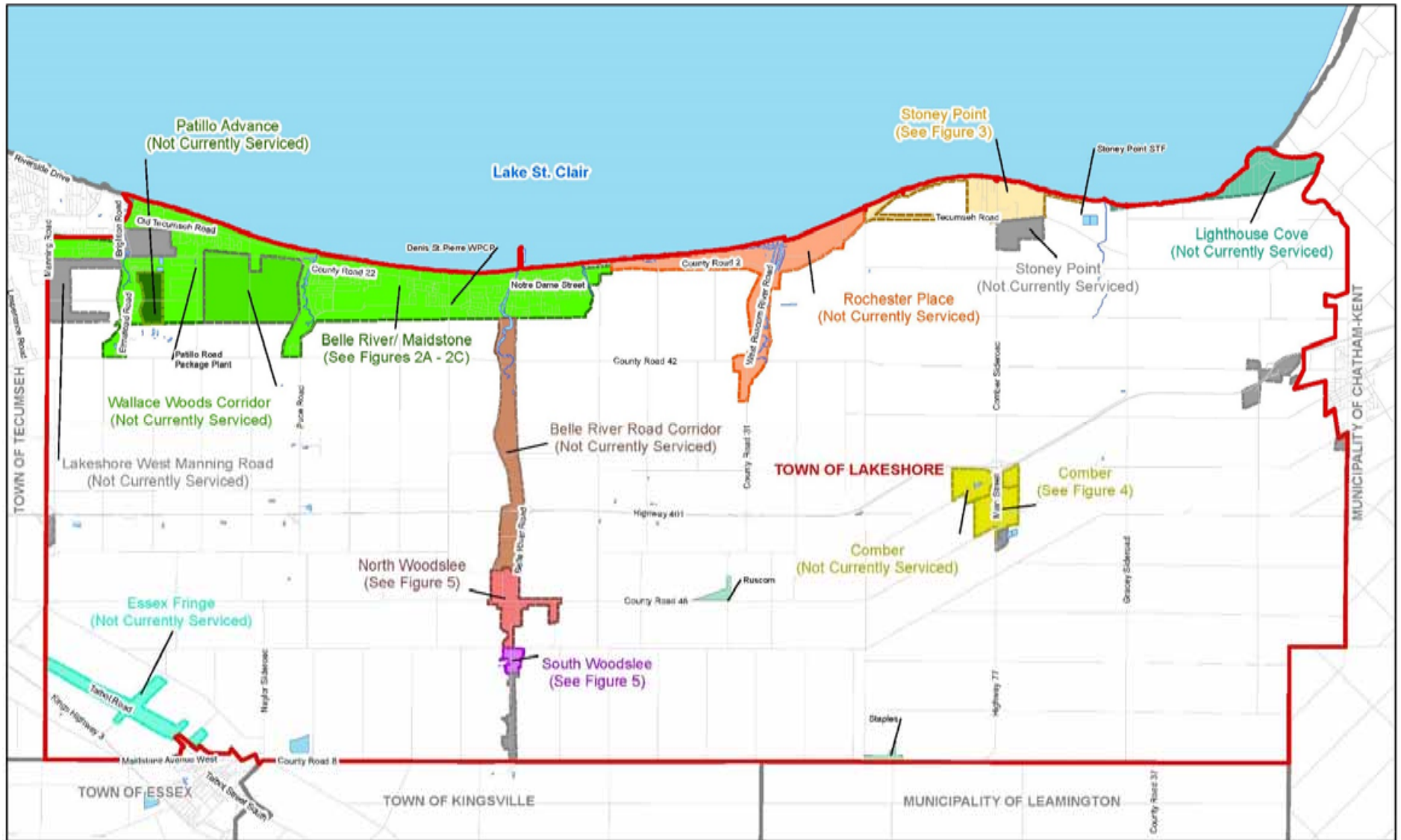
# Wastewater Master Plan

Selected Highlights



# Wastewater Master Plan Update

## Scope



# Wastewater Master Plan Update

## Work Completed

- Assessed existing & projected wastewater flows, including treatment & collection system requirements.
- Identified problem areas and assessed present & future capacities of existing wastewater collection & treatment infrastructure.
- Evaluated servicing alternatives.
- Recommended preferred solutions and established capital costs for each.

## Background

- The Town's current I/I efforts in the Denis St. Pierre Service Area are showing success; now is the time to accelerate progress with increased attention on the Denis St. Pierre collection system and WPCP to fully address wet weather flow and treatment capacity issues
- The Town's Official Plan notes growth areas which are currently limited by servicing. To help allow for the planned future development, focused improvements in the following areas will pay future dividends:
  - Eastern portion of North Woodslee & South Woodslee
  - Eastern Communities: Stoney Point, Comber, Rochester Place, & Lighthouse Cove
  - Essex Fringe Area

# Wastewater Master Plan Update

## Results & Recommendations

### Denis St. Pierre WPCP

- Currently, the plant is treating 91% of its rated capacity. Based on 2016 flows, the WPCP will reach capacity within the next 5 – 8 years. Wet weather flow issues in the collection system are limiting growth.
- Consequently, the Town should undertake three simultaneous approaches to gain additional treatment capacity
  - Continue I/I reduction efforts and implement a private-side I/I reduction program
  - Prioritize optimization efforts to get the most out of the existing WPCP
  - Start planning plant upgrades now, taking current & future land use into consideration

### *Recommendations:*

- ✓ Conduct study of Patillo Road Package Plant to evaluate feasibility to receive wet weather flow & increase available capacity at Denis St. Pierre WPCP
- ✓ Expand the Denis St. Pierre WPCP
- ✓ Extend Oakwood trunk sewer from Puce River to Pike Creek area; Phase 1 currently underway with CWWF funding
- ✓ *Install new gravity sewer collection system to service Pike Creek area*
- ✓ *Add sewer system, including trunk sewer, pumping station and forcemain to Denis St. Pierre WPCP to Belle River Road Corridor*

# Wastewater Master Plan Update

## Results & Recommendations (cont'd)

### North Woodslee

- The North Woodslee collection system does not currently service the eastern portion of the North Woodslee hamlet (east of the Belle River).
- There is sufficient capacity at the North Woodslee STF to receive new additional flows.  
*Recommendation: Expand gravity sewers to service the eastern portion of the North Woodslee hamlet*

### South Woodslee

- The South Woodslee community is serviced by a low pressurized sewage collection system with a mechanical sewage treatment plant. This system uses individual septic tanks each with an effluent grinder pump.
- The Town has ongoing operational issues with the individual tanks and related pumps and check valves. In addition, these tanks accumulate solids and require regular cleaning.

*Recommendation: Continue to repair and upgrade the existing pressurized system*

### Combined North and South Woodslee Servicing

*Recommendation: Do not explore combined servicing for the North and South Woodslee at this time. Both North and South Woodslee STFs have sufficient capacity to accept future flows in the long term.*

# Wastewater Master Plan Update

## Eastern Communities

- Eastern Communities ESR completed as recommended in 2009 MP. The Town received a CWWF grant, enabling the final design to be started.
- Additional sewage treatment capacity is required in Stoney Point and Comber to service growth in the service area.
- Inflow and infiltration problems exist in the Stoney Point sewer system and to a lesser degree in the Comber system.
- The Lighthouse Cove and Rochester Place areas require sanitary sewage servicing to address pollution problems related to existing malfunctioning septic systems and to address development pressures.
  - ✓ *Phase 1: construct a new sewage treatment facility and associated infrastructure (pump station, forcemain) in Stoney Point to treat sewage from Stoney Point, Comber and Lighthouse Cove.*
  - ✓ *Phase 2: construct a new gravity sewer collection system and associated infrastructure to service Rochester Place; decommission the existing sewage lagoons; and, expand Stoney Point STF.*

## Essex Fringe Servicing:

- The Town of Essex built a tertiary treatment plant 10 years ago. This presents the opportunity to service the surrounding Town of Lakeshore residences (currently on individual private septic systems) at the newly constructed Essex WWTP.
  - Recommendation: The Town should initiate discussions with the Town of Essex to identify opportunities to expand servicing to the Essex Fringe Area.*

## Next Steps & Recommendation





# Next Steps & Recommendations

## **Next Steps**

- Council Endorsement to proceed with Notice of Completion
- 30-day Public Consultation Period
- Incorporate public comments and finalize Master Plan Report
- Council adopts the Final Master Plan Report

## **Recommendation**

- That Council supports the Water-Wastewater Servicing Master Plan Update, allowing the Draft Master Plan Report to be presented to the public for the 30-day review period.

Thank You



## D.6 – 30 Day Review Comments



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Suite 311, Essex, ON N8M 1Y6

January 19, 2018

Ryan Connor, P.Eng., Project Manager  
Jacobs CH2M  
72 Victoria Street South, Suite 300  
Kitchener, Ontario, N2G 4Y9

Dear Mr. Connor,

**RE: Class Environmental Assessment for the Water and Wastewater Servicing  
Master Plan Update – Notice of Completion**

Thank you for circulating the Notice of Completion for the Class Environmental Assessment for the Water and Wastewater Servicing Master Plan Update in the Town of Lakeshore. We understand that the intent of this project is to identify infrastructure needs for current conditions and projected growth in the Town of Lakeshore to 2035.

The Essex Region Conservation Authority (ERCA) agrees with the principles of successful environmental assessment planning under the *Environmental Assessment Act*. Further, ERCA shares this intent and interest in furthering its program of conservation and protection of natural resources through watershed planning and providing comments on environmental assessment undertakings.

In order to advance this shared interest, ERCA intends to provide specific input towards the review of environmental assessment projects on a cost recovery basis. The ERCA Board of Director's has directed that a fee for service be collected for the review of these types of undertakings (ERCA BD27/17). The following key areas and disciplines will inform our review of this undertaking:

- Providing information upon receipt of a request for data (e.g., mapping, species records, floodplain hazard locations, etc.);
- Providing comments at an early stage of the process (e.g., respond to the notice of study commencement, attending public open house meetings, etc.);
- Providing detailed comments through the review of the detailed technical report (e.g., Environmental Study Report or alternative applicable report); and,
- Offering to participate in meetings with in-house staff to discuss any comments in detail.

ERCA comments on environmental assessment and related undertakings will reflect our role in the environmental assessment process as outlined in appropriate provincial guidance documents. In addition, the most up to date ERCA Board policy and program direction will inform our comments in

the areas of natural hazards management, watershed planning and floodplain management, natural heritage and natural heritage systems planning, and other areas as applicable.

We look forward to providing comments in response to the Notice of Completion and offering our review of this this important study.

Per the direction in the attached ERCA Board Report, the appropriate fee is located in the 'Municipal Infrastructure' category. Should you wish for ERCA to provide these services, please remit payment of \$2500 to the attention of [planning@erca.org](mailto:planning@erca.org) referencing the "Water and Wastewater Master Plan Update Study - Class EA". It should be noted that this fee may be adjusted later to reflect the additional levels of staff input. It should also be noted that this fee does not include future ERCA permit application fees for activities occurring within the Limit of the Regulated Area that may be required during the implementation phase.

If you have any questions, please contact me directly.

Thank you,



Michael Nelson, Watershed Planner

CC: Nelson Cavacas, Director of Engineering and Infrastructure Services, Town of Lakeshore  
Tim Byrne, Director of Watershed Management Services, ERCA

**Attachment:**

- **ERCA BD27/17** "Draft ERCA 2018 Fee Schedule"





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360 Fairview Avenue West  
Suite 311, Essex, ON N8M 1Y6

February 06, 2018

Town of Lakeshore  
419 Notre Dame Street  
P.O. Box 580  
Belle River, Ontario  
N0R 1A0

Attention: Nelson Cavacas

RE: Water and Wastewater Servicing Master Plan Update Municipal Class EA Notice of Completion

This letter is in response to our receipt and review of the Notice of Completion for the Town of Lakeshore Water & Wastewater Master Plan Update (September 2017). It is our understanding that this process is following the provisions of the Municipal Class Environmental Assessment process. The following comments are provided for your consideration.

The Essex Region Conservation Authority (ERCA) is interested in continuing to work with the Town of Lakeshore to ensure it can effectively and efficiently guide its future water and wastewater infrastructure investments with full consideration of appropriate natural and environmental constraints. The jurisdiction of ERCA extends across a large proportion of the study area of the Town of Lakeshore. ERCA is interested in providing input towards Master Plans to communicate our concerns in our areas of interest: namely, natural hazards (Section 3.1 of the PPS, 2014), natural heritage (Section 2.1 of the PPS, 2014) and water resources management (Section 2.2 of the PPS, 2014 as well as other areas including 1.6.6 and in particular as it relates to stormwater management (Section 1.6.6.7 of the PPS, 2014). ERCA also communicates its policies and intent through our policies and guidelines and through comments on Environmental Assessments.

**General comments:**

3.2.4 Water Resources - suggest adding in comments about the imposition of regulations by the Lower Thames Valley Conservation Authority in their portion of the Town of Lakeshore. Also, the extent of the requirement for obtaining a permit under the Conservation Authorities Act requires additional needs above and beyond meeting fill line standards.

In many areas of both of the ERCA and LTVCA jurisdiction that is regulated, development simply cannot occur as a result of the complexities associated with overcoming the provincial standards for natural hazards. These natural hazard requirements include safe access requirements (PPS, 2014 policy 3.1.2. c.), along with requirements for addressing erosion, flooding, pollution, or the conservation of land.

3.2.5 Natural Vegetation - there should be some mention of the location of the existing natural heritage features and the

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identification of the natural heritage system within the Town of Lakeshore in this section. The evaluation of the preferred alternatives can only be assessed once the consideration of the proposed alternatives is weighed against the long-term preferred goals and land use planning objectives (i.e., through the Official Plan). This section does not speak to the location of known features and future considerations for linkages and connections (i.e., through the establishment of a natural heritage systems in the Town of Lakeshore).

3.2.7 Benthic Invertebrate Survey - ERCA recommends that additional sampling be completed to update the water resources section of the report. The purpose of the benthic sampling study in 2006 was to document existing conditions within the receiving watercourses of existing treatment facilities within the Town. Further, the intent was to assess whether watercourse that are the primary and secondary receivers of treated effluent from the existing sewage treatment facilities within the Town of Lakeshore were affected by the effluent. The results from the 2006 study showed that the water quality conditions of the targeted watercourses were impaired by not as a result of the effluent from the treatment plants. However, the water quality conditions of the watercourses that are the subject of the study should also be assessed and the baseline conditions of the watercourses that are not receivers of primary and secondary treatment plants should be characterized. The section of the update does not provide a characterization of the water quality conditions of the watercourses of the study area.

ERCA currently monitors water quality and quantity at several stations in the study area and would be pleased to work with CH2M, Stantec and the Town of Lakeshore to share available information to expedite this characterization.

The Town of Lakeshore is home to several aquatic species at risk, both identified provincially and federally. This information and their relative location in the watercourses should be incorporated into the decision making process. Information can be obtained from the Department of Fisheries and Oceans (<http://www.dfo-mpo.gc.ca/species-especies/fpp-ppp/index-eng.htm>).

3.3.2 Official Plan - the study could also make reference to the County of Essex Official Plan which obtained final approval in 2014 and is in effect for development and planning applications. Further, policies of the Official Plan affect infrastructure decisions (such as 3.4.5 a) and b) for example) and considerations in the areas identified within the natural heritage system.

6.3 Unserviced Settlement Areas - the study would benefit from an update on the 2008 Town of Lakeshore review of septic tank and property size records. The last bullet of this section "Current standards specify a minimum lot area to accommodate a properly sized system; approximately 50 percent of the lots were smaller than the modern minimum" should be elaborated on. If this survey were updated to 2017/18 would the results be the same? Does the report speak to the relative location of the 50% of lots? Are any of these areas in areas that may be receiving recommendations for



February 06, 2018

improvements in servicing? With respect to the Conservation Authority permitting concerns, some of these lots may be in areas that are regulated by the respective Conservation Authority. If the natural hazard and associated permitting issues cannot be addressed (i.e., natural hazards cannot be mitigated by the applicant and therefore a CA permit may not be able to be issued) how is the long-term servicing of these lots to be addressed by the Town?

7.3.2 Environmental Impacts and Mitigating Measures (Table 7.1): As there are no specific areas identified at this time ERCA would suggest that a screening with ERCA/LTVCA be undertaken at a subsequent stage of the EA process (i.e., Phases 3 and 4) to determine permitting requirements and identification of alternative locations to minimize natural heritage and natural heritage system impacts.

7.5 Wastewater Alternatives - a note that the wastewater problem statements were identified in Section 6.4 - the report identified this as being in Section 6.3.

Our office continues to work with staff from the Town of Lakeshore on the update to the Official Plan. It is recognized that some of these issues may also be relevant for consideration under that process. Should you require any clarification please don't hesitate to contact me directly.

Sincerely,



Mike Nelson  
Watershed Planner  
/mn

CC: Ryan O'Connor, Project Manager, Jacobs CH2M  
CC: Tim Byrne, Director of Watershed Management Services, ERCA





# Lakeshore Water & Wastewater Servicing Master Plan Update

## Notice of Completion Agency Response – Essex Region Conservation Authority

Date/Name/ Method	Comment/Concern	Response
1/19/2018 Michael Nelson, Watershed Planner (letter)	<p>...ERCA intends to provide specific input towards the review of environmental assessment projects on a cost recovery basis. The ERCA Board of Director's has directed that a fee for service be collected for the review of these types of undertakings (ERCA BD27/17). The following key areas and disciplines will inform our review of this undertaking:</p> <ul style="list-style-type: none"><li>• Providing information upon receipt of a request for data (e.g., mapping, species records, floodplain hazard locations, etc.);</li><li>• Providing comments at an early stage of the process (e.g., respond to the notice of study commencement, attending public open house meetings, etc.);</li><li>• Providing detailed comments through the review of the detailed technical report (e.g., Environmental Study Report or alternative applicable report); and,</li><li>• Offering to participate in meetings with in-house staff to discuss any comments in detail.</li></ul>	<ul style="list-style-type: none"><li>• A desktop review was completed for the Project to assist in preliminary planning. The ERCA Interactive Mapping tool did not return any results of environmentally sensitive features (for example, Area of Natural and Scientific Interest, wetlands [provincially significant or otherwise], woodlands) within 50 m of the infrastructure where system improvements were identified (for example, Belle River and Stoney Point).</li><li>• Master Plans are long range plans with broader scopes intended to integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine infrastructure systems or groups of related projects in order to define a framework for planning subsequent projects and/or developments. Master Plans address Phases 1 and 2 of the Municipal Class EA process. The goal of the Master Plan update is to provide a consolidated framework to continue guiding the planning and implementation of strategic water and wastewater infrastructure improvements over the next 20-year planning horizon with an integrated consideration of the natural, social and economic environments. Therefore, detailed environmental screening information will be requested for specified areas during future phases of the project. Once project component siting has been initiated, the Town looks forward to working with ERCA early in the planning stage in order to provide data, comments, and participation with appropriate project staff.</li></ul>

Date/Name/ Method	Comment/Concern	Response
<p>2/6/2018</p> <p>Michael Nelson, Watershed Planner (letter)</p> <p>Cc: Tim Byrne, Director of Watershed Management Services</p>	<p>3.2.4 Water Resources - suggest adding in comments about the imposition of regulations by the Lower Thames Valley Conservation Authority in their portion of the Town of Lakeshore. Also, the extent of the requirement for obtaining a permit under the Conservation Authorities Act requires additional needs above and beyond meeting fill line standards.</p>	<ul style="list-style-type: none"> <li>• LTVCA added to Section 3.2.4 for final published version.</li> </ul>
	<p>3.2.5 Natural Vegetation - there should be some mention of the location of the existing natural heritage features and the identification of the natural heritage system within the Town of Lakeshore in this section. The evaluation of the preferred alternatives can only be assessed once the consideration of the proposed alternatives is weighed against the long-term preferred goals and land use planning objectives (i.e., through the Official Plan). This section does not speak to the location of known features and future considerations for linkages and connections (i.e., through the establishment of a natural heritage systems in the Town of Lakeshore).</p>	<ul style="list-style-type: none"> <li>• A desktop review was completed for the Project to assist in preliminary planning using an interactive mapping tool and did not return any results of environmentally sensitive features (for example, Area of Natural and Scientific Interest, wetlands [provincially significant or otherwise], woodlands) within 50 m of the infrastructure where system improvements were identified (for example, Belle River and Stoney Point). However, detailed design and component-specific locations have not been determined for all recommendations identified by the study. Future phases of the study will include the location of existing natural heritage features and the identification of all natural heritage systems within the Town. The location of any new work or infrastructure will be evaluated with further studies and/or Class EA's at the preliminary design stages to ensure.</li> <li>• The evaluation of the preferred alternative will be assessed in consideration for the Class EA evaluation categories respecting the Technical, Natural, Social and Economic environments. Detailed, category-specific criteria and associated weighting will be developed to reflect project-specific components determined through meaningful consultation with stakeholders, regulators, and the public.</li> <li>• Section 3.2.5 of the report has been edited to note existing Natural Heritage Features within the Town of Lakeshore.</li> </ul>

Date/Name/ Method	Comment/Concern	Response
<p>2/6/2018</p> <p>Michael Nelson, Watershed Planner (letter)</p> <p>Cc: Tim Byrne, Director of Watershed Management Services</p>	<p>3.2.7 Benthic Invertebrate Survey - ERCA recommends that additional sampling be completed to update the water resources section of the report. The purpose of the benthic sampling study in 2006 was to document existing conditions within the receiving watercourses of existing treatment facilities within the Town. Further, the intent was to assess whether watercourse that are the primary and secondary receivers of treated effluent from the existing sewage treatment facilities within the Town of Lakeshore were affected by the effluent. The results from the 2006 study showed that the water quality conditions of the targeted watercourses were impaired by not as a result of the effluent from the treatment plants. However, the water quality conditions of the watercourses that are the subject of the study should also be assessed and the baseline conditions of the watercourses that are not receivers of primary and secondary treatment plants should be characterized. The section of the update does not provide a characterization of the water quality conditions of the watercourses of the study area.</p> <p>ERCA currently monitors water quality and quantity at several stations in the study area and <b>would be pleased to work with CH2M, Stantec and the Town of Lakeshore to share available information to expedite this characterization.</b></p> <p>The Town of Lakeshore is home to several aquatic species at risk, both identified provincially and federally. This information and their relative location in the watercourses should be incorporated into the decision-making process. Information can be obtained from the Department of Fisheries and Oceans (<a href="http://www.dfo-mpo.gc.ca/species-especies/fpp-ppp/index-eng.htm">http://www.dfo-mpo.gc.ca/species-especies/fpp-ppp/index-eng.htm</a>).</p>	<ul style="list-style-type: none"> <li>• Master Plans are long range plans with broader scopes which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine infrastructure systems or groups of related projects in order to define a framework for planning subsequent projects and/or developments. Master Plans address Phases 1 and 2 of the Municipal Class EA process. The need for detailed biophysical surveys will be determined in consultation with all stakeholders to avoid potential impacts for all environmentally sensitive features.</li> <li>• The Town looks forward to working with ERCA early in the planning stage to share information and gain expertise during future phases of the study.</li> <li>• The Department of Fisheries and Oceans has received the Project-specific notices throughout the duration of the study.</li> </ul>

Date/Name/ Method	Comment/Concern	Response
<p>2/6/2018</p> <p>Michael Nelson, Watershed Planner (letter)</p> <p>Cc: Tim Byrne, Director of Watershed Management Services</p>	<p>3.3.2 Official Plan - the study could also make reference to the County of Essex Official Plan which obtained final approval in 2014 and is in effect for development and planning applications. Further, policies of the Official Plan affect infrastructure decisions (such as 3.4.5 a) and b) for example) and considerations in the areas identified within the natural heritage system.</p>	<ul style="list-style-type: none"> <li>The Town initiated the process to prepare a new Official Plan in early 2006. The Official Plan was approved by the Ontario Municipal Board (November 22, 2010). It consolidates and replaces the five Official Plans of the former municipalities. The local Official Plan provides a policy framework on planning, development, protecting resources and municipal servicing issues. The Town is currently updating its Official Plan, following Provincial approval of the County of Essex Official Plan on April 28, 2014. The Town's Official Plan is required to conform with, and implement the policies of, the County of Essex Official Plan, and implement the Provincial Policy Statement, 2014, in addition to further legislation that has been created or amended since 2010, which will impact policies in the Town of Lakeshore's Official Plan. Local Official Plans will conform with the County of Essex Official Plan by providing more detailed strategies, policies and land use designations for planning and development at a local level. The Town's Official Plan establishes the goals, objectives, and policies to manage and direct physical change and the effects on the social, economic, cultural heritage, and natural environments of the Town.</li> </ul>
	<p>6.3 Un-serviced Settlement Areas - the study would benefit from an update on the 2008 Town of Lakeshore review of septic tank and property size records. The last bullet of this section "Current standards specify a minimum lot area to accommodate a properly sized system; approximately 50 percent of the lots were smaller than the modern minimum" should be elaborated on. If this survey were updated to 2017/18 would the results be the same? Does the report speak to the relative location of the 50% of lots? Are any of these areas in areas that may be receiving recommendations for improvements in servicing? With respect to the Conservation Authority permitting concerns, some of these lots may be in areas that are regulated by the respective Conservation Authority. If the natural hazard and associated permitting issues cannot be addressed (i.e., natural hazards cannot be mitigated by the applicant and therefore a CA permit may not be able to be issued) how is the long-term servicing of these lots to be addressed by the Town?</p>	<ul style="list-style-type: none"> <li>The Town acknowledges this concern; however, in consideration of this undertaking, it was decided that there are currently no feasible (financially appropriate) measures to address this.</li> </ul>

Date/Name/ Method	Comment/Concern	Response
2/6/2018 Michael Nelson, Watershed Planner (letter)	7.3.2 Environmental Impacts and Mitigating Measures (Table 7.1): As there are no specific areas identified at this time ERCA would suggest that a screening with ERCA/LTVCA be undertaken at a subsequent stage of the EA process (i.e., Phases 3 and 4) to determine permitting requirements and identification of alternative locations to minimize natural heritage and natural heritage system impacts	<ul style="list-style-type: none"> <li>The Town looks forward to working with ERCA to share information and gain expertise during future phases of the study, specifically in regard with potential impacts, mitigation measures and permits that may be required as a result of the screening process.</li> </ul>
Cc: Tim Byrne, Director of Watershed Management Services	7.5 Wastewater Alternatives - a note that the wastewater problem statements were identified in Section 6.4 - the report identified this as being in Section 6.3.	<ul style="list-style-type: none"> <li>Edit made for final published version.</li> </ul>

January 18, 2018

Town of Lakeshore  
419 Notre Dame Street  
Belle River, ON NOR 1A0

Attn: **Nelson Cavacas**

Re: **Water and Wastewater Servicing Master Plan Update**  
**Town of Lakeshore**

Please be advised that the above mentioned Water and Wastewater Servicing Master Plan has been reviewed by this office. The Authority is responsible for addressing the Natural Hazard Section of the Provincial Planning Policy Statement as well as the Conservation Authority's Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation, R.S.O. 152/06 under the Conservation Authorities Act.

I've completed a brief overview of the document, only looking at anything referencing Comber and Lighthouse Cove which are within the LTVCA's jurisdiction. Here are my comments regarding the Plan:

Page v – wastewater flow for serviced areas – Lighthouse Cove 2015: 273 residents – 2035: 487 projected growth

- Still projecting growth which is unrealistic given the majority of constraints, not just sewage servicing
- More issues at large in this community than just servicing that have not been considered or factored into these calculations
- Ingress / egress issues into this developed area, with the main overflow from the Thames River during a flood event located directly at the main road entrance into this community still needs to be addressed before any development can continue in this area, even if servicing issues are addressed

Page xiii – EA's have been completed for this area and can commence with studies for detailed design and construction

- As Lighthouse Cove and the area around the mouth of the Thames River (extending down to Concession 3) is prone to flooding, it is highly recommended that prior to any studies /plans being designed that Preconsultation be undertaken with the Regulations staff to ensure that what is planned can be undertaken with respect to O.Reg. 152/06

Page 4-1 – growth for Comber is only going up by 20 people over the next 20 year time period, which has very few constraints, yet Lighthouse Cove, an area that has no Wastewater Treatment Facility connection and other issues that prevent development is forecasted to increase in population by 470 over the next 20 years? This study needs to look at all aspects of a community before forecasting population figures as regulatory constraints may prohibit development in these sensitive areas.

Page 6-6 – 6.4.2 Eastern Communities: the problem statement that was taken from the 2009 report still makes it sound like sewage connection is the only issue that needs to be resolved in Lighthouse Cove. The Town of Lakeshore still needs to address all other constraints for this community such as the lack of safe ingress/egress to and from this community under flood event conditions before development can proceed.

Appendix A – Figure 21 – the mapping shows the proposed force main crossing the main canal west of Lighthouse Cove and going through the former Paternoster Club lands.

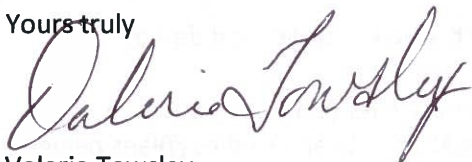
- These lands have been identified as a Provincially Significant Wetland (PSW) – no work / disturbance to the wetland will be allowed – would be a major project through this sensitive area
- An alternate route, outside of the PSW should be found
- It makes more sense to follow the existing corridor for the water main [i.e. under the canal and tracks at the south end of Melody Drive (formerly Martin Drive)]

The current policy allows for limited/infilling development within Lighthouse Cove. However, you should be aware that, as a result of a recent decision by the Court of Appeal for Ontario (2017 ONCA 414 dated 23 May 2017) as well as amendments to the Conservation Authorities Act under Bill 139 which was recently passed, the policy of allowing development in Lighthouse Cove may become more restrictive due to lack of access and egress from the community under flood events. There is currently only one road into the community, which can be flooded to depths greater than 0.8 m during ice jam flooding events. There is potential that this issue may be resolved in the future, with added infrastructure or special policy-related studies being required. However, these will require action and investment by the municipality, and their implementation is therefore uncertain. In summary, the area does not meet current provincial policy with regard to flood hazards and this may have an impact on future development.

Please be advised that the area in question, both Lighthouse Cove and Comber, are located in an Intake Protection Zone (IPZ), in an area with a Highly Vulnerable Aquifer [HVA] and a Significant Groundwater Recharge Area [SGRA] as identified through the Lower Thames Valley Assessment Report in the Thames, Sydenham and Region Source Protection Region. For further information regarding this matter and how it may affect any proposed development please refer to the Thames, Sydenham and Region Source Protection website at [www.sourcewaterprotection.on.ca](http://www.sourcewaterprotection.on.ca).

I trust this is satisfactory, but if you should have any questions, or require more information, please call the office.

Yours truly



Valerie Towsley  
Resource Technician

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**From:** Connor, Ryan/KWO  
**Sent:** Wednesday, January 24, 2018 1:01 PM  
**To:** Henderson, Emma/KWO  
**Subject:** FW: Water & Wastewater Servicing Master Plan Update Report [EXTERNAL]

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**From:** Nelson Cavacas [<mailto:ncavacas@lakeshore.ca>]  
**Sent:** Tuesday, January 23, 2018 1:57 PM  
**To:** Connor, Ryan/KWO <[Ryan.Connor@ch2m.com](mailto:Ryan.Connor@ch2m.com)>  
**Cc:** Tom Kissner <[tkissner@lakeshore.ca](mailto:tkissner@lakeshore.ca)>; Berardi, Tony <[tony.berardi@stantec.com](mailto:tony.berardi@stantec.com)>  
**Subject:** FW: Water & Wastewater Servicing Master Plan Update Report [EXTERNAL]

Please note additional comments from LTVCA and staff correction on circulation for future communications.

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**From:** Valerie Towsley [<mailto:Valerie.Towsley@ltvca.ca>]  
**Sent:** January-23-18 1:40 PM  
**To:** Nelson Cavacas <[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)>  
**Cc:** Jason Wintermute <[Jason.Wintermute@ltvca.ca](mailto:Jason.Wintermute@ltvca.ca)>  
**Subject:** RE: Water & Wastewater Servicing Master Plan Update Report

A few more items that I forgot to note. More housekeeping than anything else.

- We are definitely in support of servicing for Lighthouse Cove to address the current pollution issues mentioned in the report.
- Section 3.2.4 mentions ERCA but not the LTVCA.
- Given the other issues at Lighthouse Cove, option 2, "restrict community growth" should have been considered in more depth.
- It appears that correspondence for this update was directed to Laura Brown. Can you please eliminate her name from the system as she was just a summer student. Should always come to myself and/or Jason Wintermute.

Thanks.

Valerie Towsley  
Resource Technician



Lower Thames Valley Conservation Authority  
100 Thames Street  
Chatham, Ontario  
N7L 2Y8

Phone: 519-354-7310 Ext.: 226  
Fax: 519-352-3435



E-mail: [Valerie.Towsley@ltvca.ca](mailto:Valerie.Towsley@ltvca.ca)

Web site: [www.ltvca.ca](http://www.ltvca.ca)



'Common sense and sense of humor are the same thing, moving at different speeds. A sense of humor is just common sense dancing.' William James (1842-1910)

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**From:** Nelson Cavacas [<mailto:ncavacas@lakeshore.ca>]  
**Sent:** January 19, 2018 11:38 AM  
**To:** Valerie Towsley  
**Subject:** RE: Water & Wastewater Servicing Master Plan Update Report



Thank you Valerie

---

Nelson Cavacas  
Director of Engineering and Infrastructure Services

Town of Lakeshore  
T 519-728-2700 x287  
[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)



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**From:** Valerie Towsley [<mailto:Valerie.Towsley@ltvca.ca>]  
**Sent:** January-18-18 3:29 PM  
**To:** Nelson Cavacas <[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)>; [ryan.connor@ch2m.com](mailto:ryan.connor@ch2m.com)  
**Cc:** Jason Wintermute <[Jason.Wintermute@ltvca.ca](mailto:Jason.Wintermute@ltvca.ca)>; Jason Homewood <[Jason.Homewood@ltvca.ca](mailto:Jason.Homewood@ltvca.ca)>; Kim Darroch <[kdarroch@lakeshore.ca](mailto:kdarroch@lakeshore.ca)>; Mike Nelson <[MNelson@erca.org](mailto:MNelson@erca.org)>  
**Subject:** Water & Wastewater Servicing Master Plan Update Report

For your files. If you have any questions regarding the attached correspondence please contact the office.

Valerie Towsley  
Resource Technician



Lower Thames Valley Conservation Authority  
100 Thames Street  
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N7L 2Y8

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E-mail: [Valerie.Towsley@ltvca.ca](mailto:Valerie.Towsley@ltvca.ca)

Web site: [www.ltvca.ca](http://www.ltvca.ca)



'Common sense and sense of humor are the same thing, moving at different speeds. A sense of humor is just common sense dancing.' William James (1842-1910)

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# Lakeshore Water & Wastewater Servicing Master Plan Update

## Notice of Completion Agency Response – Lower Thames Valley Conservation Authority

Date/Name/ Method	Comment/Concern	Response
1/18/2018 Valerie Towsley, Resource Technician (letter)	<p>Page v – wastewater flow for services areas – Lighthouse Cove 2015: 273 residents – 2035: 487 projected grown</p> <ul style="list-style-type: none"> <li>still projecting growth which is unrealistic given the majority of constraints, not just sewage servicing</li> <li>more issues at large in this community than just servicing that have not been considered or factored into these calculations</li> <li>ingress/egress issues into this developed area, with the main overflow from the Thames River during a flood event located directly at the main road entrance into this community still need to be addressed before any development can continue in this area, even if servicing issues are addressed</li> </ul>	<ul style="list-style-type: none"> <li>Residential and non-residential growth projections have been based on a report prepared for the Town of Lakeshore (the Town) by Watson and Associates Economists Ltd. entitled <i>Town of Lakeshore – Official Plan Review - Growth Analysis Study - November 27, 2015</i> (Growth Forecast). While these growth projections are broad-based, projections have been refined for the hamlet settlement areas. The report is available at the following link: <a href="http://lakeshore.ca/media/files/Growth%20Analysis%20Study%20Nov%2027%202015.pdf">http://lakeshore.ca/media/files/Growth%20Analysis%20Study%20Nov%2027%202015.pdf</a></li> <li>The goal of the Master Plan update is to provide a consolidated framework to continue guiding the planning and implementation of strategic water and wastewater infrastructure improvements over the next 20-year planning horizon with an integrated consideration of the natural, social and economic environments. Master Plans address Phases 1 and 2 of the Municipal Class EA process; therefore, all community-specific issues will be considered and factored into the detailed design phase of the project, including updated calculations.</li> <li>Flooding from the Thames River will be addressed during future phases of the study, prior to any development in the area.</li> </ul>
	<p>Page xiii – EA's have been completed for this area and can commence with studies for detailed design and construction</p> <ul style="list-style-type: none"> <li>As Lighthouse Cove and the area around the mouth of the Thames River (extending down to Concession 3) is prone to flooding, it is highly recommended that prior to any studies/plans being designed that Pre-consultation be undertaken with the Regulations staff to ensure that what is planned can be undertaken with respect to O. Reg 152/06</li> </ul>	<ul style="list-style-type: none"> <li>Master Plans are long range plans with broader scopes which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine infrastructure systems or groups of related projects in order to define a framework for planning subsequent projects and/or developments. Master Plans address Phases 1 and 2 of the Municipal Class EA process. The Town looks forward to designing future detailed studies and plans in consultation with all stakeholders upon commencement of the detailed design stage, including work applicable to O. Reg 152/06.</li> </ul>

Date/Name/ Method	Comment/Concern	Response
1/18/2018 Valerie Towsley, Resource Technician (letter)	<p>Page 4-1 – growth for Comber is only going up by 20 people over the next 20-year time period, which has very few constraints, yet Lighthouse Cove, an area that has no Wastewater Treatment Facility connection and other issues that prevent development is forecasted to increase in population by 470 over the next 20 years? This study needs to look at all aspects of a community before forecasting population figures as regulatory constraints may prohibit development in these sensitive areas.</p>	<ul style="list-style-type: none"> <li>• Residential and non-residential growth projections have been based on a report prepared for the Town by Watson entitled <i>Town of Lakeshore – Official Plan Review - Growth Analysis Study - November 27, 2015</i> (Growth Forecast). While these growth projections are broad-based, projections have been refined for the hamlet settlement areas. The EA report lists the following citations: <ul style="list-style-type: none"> <li>- Watson and Associates Economists Ltd (Watson). 2015. <i>Town of Lakeshore Official Plan Review Growth Analysis Study</i>. Prepared for the Town of Lakeshore. November 27. – link provided above</li> <li>- Watson and Associates Economists Ltd (Watson), 2017. <i>Revised Population and Non-residential Land Demand Forecasts for the Town of Lakeshore</i>. [received via email]</li> </ul> </li> </ul>
	<p>Appendix A – Figure 21 – the mapping shows the proposed for main crossing the main canal west of Lighthouse Cove and going through the former Paternoster Club lands.</p> <ul style="list-style-type: none"> <li>• These lands have been identified as Provincially Significant Wetland (PSW) – no work/disturbance to the wetland will be allowed – would be a major project through this sensitive area</li> <li>• An alternate route, outside of the PSW should be found</li> <li>• It makes more sense to follow the existing corridor for the water main (i.e., under the canal and tracks at the south end of Melody Drive [formerly Martin Drive])</li> </ul>	<ul style="list-style-type: none"> <li>• Master Plans are long range plans with broader scopes intended to integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine infrastructure systems or groups of related projects in order to define a framework for planning subsequent projects and/or developments. Master Plans address Phases 1 and 2 of the Municipal Class EA process. Detailed routing will be determined in consultation with all stakeholders to avoid potential impacts for all environmentally sensitive features, whether through avoidance (for example, routing) or through the use of established construction methods (for example, HDD, bore).</li> </ul>

Date/Name/ Method	Comment/Concern	Response
1/18/2018 Valerie Towsley, Resource Technician (letter)	<p>The current policy allows for limited/infilling development within Lighthouse Cove. However, you should be aware that, as a result of a recent decision by the court of Appeal for Ontario (2017 ONCA 414 dated 23 May 2017) as well as amendments to the conservation Authorities Act under Bill 139 which was recently passed, the policy of allowing development in Lighthouse Cove may become more restrictive due to the lack of access and egress from the community under flood events. There is currently only one road into the community, which can be flooded to depths greater than 0.8 m during ice jam flooding events. There is potential that this issue may be resolved in the future, with added infrastructure or special policy-related studies being required. However, these will require action and investment by the municipality, and their implementation is therefore uncertain. In summary, the area does not meet the current provincial policy with regard to flood hazards and this may have an impact of future development.</p>	<ul style="list-style-type: none"> <li>• In the event this issue is not resolved prior to the initiation of future detailed phases of the project, this constraint will be included in the examination of preferred alternatives based on the existing environment, and public/review agency input at that time.</li> </ul>
1/23/2018 Valerie Towsley, Resource Planner (email)	<p>A few more items that I forgot to note. More housekeeping than anything else.</p> <ul style="list-style-type: none"> <li>• We are definitely in support of servicing for Lighthouse Cove to address the current pollution issues mentioned in the report.</li> <li>• Section 3.2.4 mentions ERCA but not the LTVCA.</li> <li>• Given the other issues at Lighthouse Cove, option 2, "restrict community growth" should have been considered in more depth.</li> <li>• It appears that correspondence for this update was directed to Laura Brown. Can you please eliminate her name from the system as she was just a summer student. Should always come to myself and/or Jason Wintermute.</li> </ul>	<ul style="list-style-type: none"> <li>• The Town acknowledges this support.</li> <li>• LTVCA added to Section 3.2.4 for final published version</li> <li>• All of the current issues that exist will require consideration prior to any growth occurring in Lighthouse Cove.</li> <li>• The project mailing list has been updated, and this information is noted for future correspondence.</li> </ul>

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February 5, 2018

Town of Lakeshore  
419 Notre Dame St.  
P.O. Box 580  
Belle River, ON  
N0R 1A0

Attention: Nelson Cavacas, Director of Engineering & Infrastructure Services

**Re: Class EA Notice of Completion for the Town of Lakeshore Water and Wastewater Master Plan Update**

Dear Nelson Cavacas:

Thank you for circulating the Ministry of Environment and Climate Change the Notice of Completion for the Water and Wastewater Master Plan Update. The Ministry has reviewed the document and offer the following comments for municipal consideration:

**Inclusion of Climate Change and Additional Data**

- The Municipality is strongly encouraged to include climate change in this ESR for a master plan. Climate change should be considered in the context of mitigation and the context of adaptation. MOECC has recently released a document to provide guidance on how to include climate change in environmental assessments. It can be accessed here: [www.ontario.ca/page/considering-climate-change-environmental-assessment-process](http://www.ontario.ca/page/considering-climate-change-environmental-assessment-process). While the document was only released in 2017, Climatic Features is identified in Appendix 2 of the 2015 Municipal Class EA page 2-7 and therefore should be considered. The municipality is encouraged to consider ways to reduce or off-set emissions or climate impacts from the project and ways to adapt or build resiliency to the impacts of climate change (ex: extreme weather events). Subtle references exist in the document (ex: S 7.3.2 and 2.1.2.3). More direct references would be appreciated. Ministry staff note that in a letter and verbal conversations with the municipality, climate change initiatives were discussed. A summary of the initiatives the municipality is considering or currently implementing may address the need for climate change inclusion in the ESR. Please also note, that depending on the scope of possible future addenda, to this or the previously completed Eastern Communities ESR that is referenced in this document,

climate change may need to be considered in the addenda/addendum process(es).

- The municipality may wish to consider including additional metrics such as maximum daily flow, average daily flow, percentage of rated capacity, total annual sewage flows, and a more robust assessment and evaluation of I&I measures. Some of this data is available in Section 7.2 of Appendix C. Also, any relevant ministry inspection reports could further support the needs for the projects identified in this Master Plan.
- The ministry is also aware of a County proposal to improve stormwater drainage. In the interest of transparency, the municipality may wish to acknowledge this project and any impact it may or may not have on this Master Plan.

### Project Specific Environmental Assessment Requirements

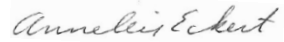
- MOECC notes that for the Eastern Communities section in Table 9-3 none of the items have a Class EA schedule identified with the exception of the first one. MOECC interprets this to mean that all items will have the same requirement as the first item listed which is “N/A<sup>D</sup>” or no requirements because it was previously addressed in the Eastern Communities ESR. Please advise if this interpretation is inconsistent with the municipality’s intention. Section A.4.1.1 and A.4.3 of the Municipal Class EA addresses when the filing of addenda may be required for Category B and C projects. Please ensure these matters are reviewed prior to implementing a project which has an implementation date approaching or exceeding the 10 year time period.
- Also regarding these sections of the Municipal Class EA, some of the expected dates of “year required” extend beyond the 10-year timeframe referenced above (assuming the EA is completed this calendar year). Please carefully monitor these times as projects identified in this master plan are implemented to ensure consistency with EA requirements.

### Timeline of Facility Service Dates

- MOECC would appreciate clarification on the projects and anticipated timeline of the implementation of projects related to the Eastern Communities as set out in Table 9-3. The construction of the new sewage treatment facility in Stoney Point is proposed for 2020 and the expansion of the Stoney Point sewage treatment facility to receive flows from Lighthouse Cove and Rochester Place is proposed for 2030. The collection system and new pumping station to service Lighthouse Cove are both proposed for 2020. Will the Stoney Point sewage treatment facility begin receiving flows from Lighthouse Cove and Rochester before the expansion in 2030? Is the expansion to accommodate further growth of Stoney Point, Lighthouse Cove, and Rochester Place?

This concludes MOECC comments on the draft Environmental Study Report for the Town of Lakeshore Water and Wastewater Master Plan Update. Please do not hesitate to contact me if you would like to discuss any of the above noted items.

Thank you,



Anneleis Eckert  
Environmental Assessment Coordinator  
Southwest Region, Drinking Water and Environmental Compliance Division

Email: [anneleis.eckert@ontario.ca](mailto:anneleis.eckert@ontario.ca)

Tel: 519-873-5115

Copy:

Ryan Connor, Jacobs CH2M

Al Peterson, MOECC

Cara Salustro, MOECC



# Lakeshore Water & Wastewater Servicing Master Plan Update

## Notice of Completion Agency Response – Ontario Ministry of Environment and Climate Change

Date/Name/Method	Comment/Concern	Response
<p>2/7/2018</p> <p>Anneleis Eckert, Environmental Assessment Coordinator (letter)</p>	<p><b>Inclusion of Climate Change and Additional Data</b></p> <p>The Municipality is strongly encouraged to include climate change in this ESR for a master plan. Climate change should be considered in the context of mitigation and the context of adaptation. MOECC has recently released a document to provide guidance on how to include climate change in environmental assessments. It can be accessed here: <a href="http://www.ontario.ca/page/considering-climate-change-environmental-assessment-process">www.ontario.ca/page/considering-climate-change-environmental-assessment-process</a>. While the document was only released in 2017, Climatic Features is identified in Appendix 2 of the 2015 Municipal Class EA page 2-7 and therefore should be considered. The municipality is encouraged to consider ways to reduce or off-set emissions or climate impacts from the project and ways to adapt or build resiliency to the impacts of climate change (ex: extreme weather events). Subtle references exist in the document (ex: S 7.3.2 and 2.1.2.3). More direct references would be appreciated. Ministry staff note that in a letter and verbal conversations with the municipality, climate change initiatives were discussed. A summary of the initiatives the municipality is considering or currently implementing may address the need for climate change inclusion in the ESR. Please also note, that depending on the scope of possible future addenda, to this or the previously completed Eastern Communities ESR that is referenced in this document, climate change may need to be considered in the addenda/addendum process(es).</p>	<ul style="list-style-type: none"> <li>The MP Update is a high-level study that identifies initiatives and new infrastructure in a broad sense and does not pin point the exact location of proposed upgrades and improvements. Pending project approval, the location of any new work or infrastructure will be evaluated with further studies and/or Class EA’s at the preliminary design stages (e.g., all new infrastructure will be designed to withstand extreme weather events). Project activities will be planned to reduce potential impacts on climate change (i.e., reducing emissions during construction, siting infrastructure where tree removal will not be required).</li> </ul>

Date/Name/ Method	Comment/Concern	Response
2/7/2018 Anneleis Eckert, Environmental Assessment Coordinator (letter)	<p>Project Specific Environmental Assessment Requirements</p> <p>MOECC notes that for the Eastern Communities section in Table 9-3 none of the items have a Class EA schedule identified with the exception of the first one. MOECC interprets this to mean that all items will have the same requirement as the first item listed which is "N/AD" or no requirements because it was previously addressed in the Eastern Communities ESR.</p> <p><b>Please advise if this interpretation is inconsistent with the municipality's intention.</b> Section A.4.1.1 and A.4.3 of the Municipal Class EA addresses when the filing of addenda may be required for Category B and C projects. Please ensure these matters are reviewed prior to implementing a project which has an implementation date approaching or exceeding the 10-year time period.</p> <p>Also regarding these sections of the Municipal Class EA, some of the expected dates of "year required" extend beyond the 10-year timeframe referenced above (assuming the EA is completed this calendar year). Please carefully monitor these times as projects identified in this master plan are implemented to ensure consistency with EA requirements.</p>	<ul style="list-style-type: none"> <li>Footnote should have carried over. Edit made.</li> </ul>
	<p>Timeline of Facility Service Dates</p> <p>MOECC would appreciate clarification on the projects and anticipated timeline of the implementation of projects related to the Eastern Communities as set out in Table 9-3. The construction of the new sewage treatment facility in Stoney Point is proposed for 2020 and the expansion of the Stoney Point sewage treatment facility to receive flows from Lighthouse Cove and Rochester Place is proposed for 2030. The collection system and new pumping station to service Lighthouse Cove are both proposed for 2020. Will the Stoney Point sewage treatment facility begin receiving flows from Lighthouse Cove and Rochester before the expansion in 2030? Is the expansion to accommodate further growth of Stoney Point, Lighthouse Cove, and Rochester Place?</p>	<ul style="list-style-type: none"> <li>The implementation timeline listed in Table 9-3 should be considered on a very broad planning basis. In consideration of the scope of this study (i.e., Phases 1 and 2 of a Master Plan update), the Town is not able to commit to more detailed timelines. Exact dates for projects listed in Table 9-3 will be dependent on how the Town's servicing needs unfold in the future.</li> </ul>

**Ministry of Tourism,  
Culture and Sport**

Heritage Program Unit  
Programs and Services Branch  
401 Bay Street, Suite 1700  
Toronto ON M7A 0A7  
Tel: 416 731 7133  
Fax: 416 212 1802

**Ministère du Tourisme,  
de la Culture et du Sport**

Unité des programmes patrimoine  
Direction des programmes et des services  
401, rue Bay, Bureau 1700  
Toronto ON M7A 0A7  
Tél: 416 314 7133  
Télééc: 416 212 1802



February 5, 2018 (EMAIL ONLY)

Mr. Nelson Cavacas  
Director of Engineering & Infrastructure Services  
Town of Lakeshore  
419 Notre Dame Street  
P.O. Box 580  
Belle River, Ontario N0R1A0  
E: Ncavacas@lakeshore.ca

**RE: MTCS file #: 0008302**  
**Proponent: Town of Lakeshore**  
**Subject: Notice of Completion**  
**Water and Wastewater Servicing Master Plan Update**  
**Location: Town of Lakeshore, County of Essex, Ontario**

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Dear Mr. Cavacas:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Completion for your project. MTCS's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land-based and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the Municipal Class Environmental Assessment (EA) process, the proponent is required to determine a project's potential impact on cultural heritage resources. A Master Plan project at minimum will address Phases 1 and 2 of the Municipal Class EA process. Developing and reviewing inventories of known and potential cultural heritage resources within the study area can identify specific resources that may play a significant role in guiding the evaluation of alternatives for subsequent project-driven EAs.

The Water and Wastewater Servicing Master Plan Update has not addressed the Cultural Environment. MTCS recommends that the checklists provided in this letter be completed at a minimum, and cultural heritage resources are identified.

### **Archaeological Resources**

Your Master Plan project may impact archaeological resources and you should screen the project with the MTCS [Criteria for Evaluating Archaeological Potential](#) and [Criteria for Evaluating Marine Archaeological Potential](#) to determine if archaeological assessments will be needed for subsequent project-driven Municipal Class EAs. MTCS archaeological sites data are available at [archaeology@ontario.ca](mailto:archaeology@ontario.ca), and if your Master Plan project area exhibits archaeological potential or encompasses archaeological sites of high cultural heritage value or interest, these data should be used in the evaluation of alternatives.

### **Built Heritage and Cultural Heritage Landscapes**

The MTCS [Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes](#) should be completed to help determine whether your Master Plan project may impact cultural heritage resources. The Clerk/s for the Town of Lakeshore can provide information on property registered or designated under the *Ontario Heritage Act* and municipal Heritage Planners can also provide

information that will assist you in completing the checklist. A determination of whether the Master Plan project area impacts potential or known heritage resources of cultural heritage value or interest should be used in the evaluation of alternatives.

If subsequent project-driven Municipal Class EAs may impact potential or known heritage resources MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's [Info Sheet #5: Heritage Impact Assessments and Conservation Plans](#) outlines the scope of HIAs. Please send the HIA to MTCS for review, and make it available to local organizations or individuals who have expressed interest in review.

### **Environmental Assessment Reporting**

All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA project, and provide them to MTCS before issuing a Notice of Completion. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

MTCS may have additional comments based on the information provided. Please contact the undersigned if you have any questions, we look forward to receiving more information.

Sincerely,

Brooke Herczeg  
Heritage Planner  
[Brooke.Herczeg@Ontario.ca](mailto:Brooke.Herczeg@Ontario.ca)

cc. Karla Barboza, (A) Team Lead, Ministry of Tourism Culture and Sport [Karla.barboza@ontario.ca](mailto:Karla.barboza@ontario.ca)

Craig Newton, Regional Environmental Planner, Ministry of Environment and Climate Change [Craig.Newton@ontario.ca](mailto:Craig.Newton@ontario.ca)

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

# Lakeshore Water & Wastewater Servicing Master Plan Update

## Notice of Completion Agency Response – Ontario Ministry of Tourism, Culture and Sport

Date/Name/ Method	Comment/Concern	Response
<p>2/5/2018</p> <p>Brooke Herczeg, Heritage Planner</p> <p>Cc: Karla Barboza, (A) Team Lead, Ministry of Tourism Culture and Sport</p> <p>Craig Newton, Regional Environmental Planner, Ministry of Environment and Climate Change</p>	<p>The Water and Wastewater Servicing Master Plan Update has not addressed the Cultural Environment. MTCS recommends that the checklists provided in this letter be completed at a minimum, and cultural heritage resources are identified.</p> <p><b>Archaeological Resources</b></p> <p><u>Criteria for Evaluating Archaeological Potential and Criteria for Evaluating Marine Archaeological Potential</u></p> <p>...if your Master Plan project area exhibits archaeological potential or encompasses archaeological sites of high cultural heritage value or interest, these data should be used in the evaluation of alternatives</p> <p><b>Built Heritage and Cultural Heritage Landscapes</b></p> <p><u>Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes</u></p> <p>A determination of whether the Master Plan project area impacts potential or known heritage resources of cultural heritage value or interest should be used in the evaluation of alternatives. If subsequent project-driven Municipal Class EAs may impact potential or known heritage resources MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts.</p>	<ul style="list-style-type: none"> <li>The goal of the Water and Wastewater Master Plan update is to provide consolidated framework to continue guiding the planning and implementation of strategic water and wastewater infrastructure improvements over the next 20-year planning horizon with an integrated consideration of the natural, social and economic environments. The current phase of this study will support future updates to the Water and Wastewater Master Plan which will be guided by the objectives in the Town of Lakeshore’s Official Plan as well as the additional applicable plans such as the Town of Lakeshore Community Cultural Master Plan.</li> <li>Proper environmental assessment scoping reduces the risk of including unimportant or irrelevant information in the assessment or excluding factors that should be assessed. The identification of areas of archaeological potential was not completed at this time considering the study area for this particular phase of the Project spans the entire municipality of Lakeshore. The project has, however, identified feasible alternatives that will be evaluated in greater detail during future phases of the study, including siting and routing of all infrastructure involved in the Project. As a general planning principle, siting for necessary water and/or wastewater infrastructure is focused on avoiding sensitive features such as heritage resources.</li> <li>During future phases of this study, the Town looks forward to engaging with key regulators and stakeholders in order to conserve, promote and preserve heritage resources within the study area, including Ontario Ministry of Tourism, Culture and Sport, and the Town of Lakeshore’s Municipal Heritage Committee (established in 2007 under Section 28 of the Ontario Heritage Act). Prior to applying for the appropriate permits and approvals for the construction of the preferred solution, the Town of Lakeshore will ensure all archaeological assessment of lands included in the defined project are completed by a licensed archaeologist in Ontario.</li> </ul>

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**From:** Nelson Cavacas <ncavacas@lakeshore.ca>  
**Sent:** Wednesday, May 16, 2018 1:11 PM  
**To:** Connor, Ryan/KWO  
**Cc:** Henderson, Emma/KWO  
**Subject:** [EXTERNAL] FW: NEATS 46383- Town of Lakeshore Water and Wastewater Servicing Master Plan update  
**Attachments:** TC\_Response.pdf



FYI

---

Nelson Cavacas  
Director of Engineering and Infrastructure Services

Town of Lakeshore  
T 519-728-2700 x287  
[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)



Remember to Like, Follow, and Share us on  and .

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**From:** Nelson Cavacas  
**Sent:** April-19-18 12:02 PM  
**To:** 'EnviroOnt' <EnviroOnt@tc.gc.ca>; ryan.connor@ch2m.com  
**Subject:** RE: NEATS 46383- Town of Lakeshore Water and Wastewater Servicing Master Plan update

Hello,

The Town's project team on the Water & Wastewater Master Plan Update study report has reviewed Transport Canada's comments and provide the following responses in the attached document for your project file.

Please contact me if you have any questions or require anything further.

Thank you,

---

**From:** EnviroOnt [<mailto:EnviroOnt@tc.gc.ca>]  
**Sent:** January-08-18 4:09 PM  
**To:** Nelson Cavacas <[ncavacas@lakeshore.ca](mailto:ncavacas@lakeshore.ca)>; [ryan.connor@ch2m.com](mailto:ryan.connor@ch2m.com)  
**Subject:** NEATS 46383- Town of Lakeshore Water and Wastewater Servicing Master Plan update

Greetings,

Thank you for your correspondence.

Please note Transport Canada **does not** require receipt of all individual or Class EA related notifications. We are requesting project proponents to self-assess if their project:

1. Will interact with a federal property and/or waterway by reviewing the Directory of Federal Real Property, available at [www.tbs-sct.gc.ca/dfrp-rbif/](http://www.tbs-sct.gc.ca/dfrp-rbif/); and
2. Will require approval and/or authorization under any Acts administered by Transport Canada\* available at <http://www.tc.gc.ca/eng/acts-regulations/menu.htm>.

Projects that will occur on federal property prior to exercising a power, performing a function or duty in relation to that project, will be subject to a determination of the likelihood of significant adverse environmental effects, per Section 67 of the *Canadian Environmental Assessment Act, 2012*.

If the aforementioned does not apply, the Environmental Assessment program should not be included in any further correspondence and future notifications will not receive a response. If there is a role under the program, correspondence should be forwarded *electronically* to: [EnviroOnt@tc.gc.ca](mailto:EnviroOnt@tc.gc.ca) with a **brief description of Transport Canada's expected role**.

\*Below is a summary of the most common Acts that have applied to projects in an Environmental Assessment context:

- **Navigation Protection Act (NPA)** – the Act applies primarily to works constructed or placed in, on, over, under, through, or across scheduled navigable waters set out under the Act. The Navigation Protection Program administers the NPA through the review and authorization of works affecting scheduled navigable waters. Information about the Program, NPA and approval process is available at: <http://www.tc.gc.ca/eng/programs-621.html>. Enquiries can be directed to [NPPONT-PPNONT@tc.gc.ca](mailto:NPPONT-PPNONT@tc.gc.ca) or by calling (519) 383-1863.
- **Railway Safety Act (RSA)** – the Act provides the regulatory framework for railway safety, security, and some of the environmental impacts of railway operations in Canada. The Rail Safety Program develops and enforces regulations, rules, standards and procedures governing safe railway operations. Additional information about the Program is available at: <https://www.tc.gc.ca/eng/railsafety/menu.htm>. Enquiries can be directed to [RailSafety@tc.gc.ca](mailto:RailSafety@tc.gc.ca) or by calling (613) 998-2985.
- **Transportation of Dangerous Goods Act (TDGA)** – the transportation of dangerous goods by air, marine, rail and road is regulated under the TDGA. Transport Canada, based on risks, develops safety standards and regulations, provides oversight and gives expert advice on dangerous goods to promote public safety. Additional information about the transportation of dangerous goods is available at: <https://www.tc.gc.ca/eng/tdg/safety-menu.htm>. Enquiries can be directed to [TDG-TMDOntario@tc.gc.ca](mailto:TDG-TMDOntario@tc.gc.ca) or by calling (416) 973-1868.
- **Aeronautics Act** – Transport Canada has sole jurisdiction over aeronautics, which includes aerodromes and all related buildings or services used for aviation purposes. Aviation safety in Canada is regulated under this Act and the Canadian Aviation Regulations (CARs). Elevated Structures, such as wind turbines and communication towers, would be examples of projects that must be assessed for lighting and marking requirements in accordance with the CARs. Transport Canada also has an interest in projects that have the potential to cause interference between wildlife and aviation activities. One example would be waste facilities, which may attract birds into commercial and recreational flight paths. The *Land Use In The Vicinity of Aerodromes* publication recommends guidelines for and uses in the vicinity of aerodromes, available at: <https://www.tc.gc.ca/eng/civilaviation/publications/tp1247-menu-1418.htm>. Enquires can be directed to [CASO-SACO@tc.gc.ca](mailto:CASO-SACO@tc.gc.ca) or by calling 1 (800) 305-2059 / (416) 952-0230.

Please advise if additional information is needed.

Thank you,

**Environmental Assessment Program, Ontario Region**

Transport Canada / Government of Canada / 4900 Yonge St., Toronto, ON M2N 6A5

[EnviroOnt@tc.gc.ca](mailto:EnviroOnt@tc.gc.ca) / Facsimile : (416) 952-0514 / TTY: 1-888-675-6863

**Programme d'évaluation environnementale, Région de l'Ontario**

Transports Canada / Gouvernement du Canada / 4900, rue Yonge, Toronto, ON, M2N 6A5

[EnviroOnt@tc.gc.ca](mailto:EnviroOnt@tc.gc.ca) / télécopieur: (416) 952-0514



# Lakeshore Water & Wastewater Servicing Master Plan Update

## Notice of Completion Agency Response – Transport Canada

Date/Name/ Method	Comment/Concern	Response
1/2/2018 Transport Canada Environmental Assessment Program, Ontario Region (email)	<p>Please note Transport Canada <b>does not</b> require receipt of all individual or Class EA related notifications. We are requesting project proponents to self-assess if their project:</p> <ul style="list-style-type: none"><li>• Will interact with a federal property and/or waterway by reviewing the Directory of Federal Real Property, available at <a href="http://www.tbs-sct.gc.ca/dfrp-rbif/">http://www.tbs-sct.gc.ca/dfrp-rbif/</a></li><li>• Will require approval and/or authorization under any Acts** administered by Transport Canada available at <a href="http://www.tc.gc.ca/eng/acts-regulations/menu.htm">http://www.tc.gc.ca/eng/acts-regulations/menu.htm</a></li></ul> <p>**Navigation Protection Act, Railway Safety Act, Transportation of dangerous Goods Act, and Aeronautics Act are references for review.</p>	<ul style="list-style-type: none"><li>• The proposed work is not anticipated to take place on federal land. Potential interactions with a federal property and/or waterway, or the potential for federal approval/authorizations with Transport Canada will be evaluated during future phases of the project.</li></ul>
	<p>Projects that will occur on federal property prior to exercising a power, performing a function or duty in relation to that project, will be subject to a determination of the likelihood of significant adverse environmental effects, per Section 67 of the <i>Canadian Environmental Assessment Act, 2012</i>.</p> <p>If the aforementioned does not apply, the Environmental Assessment program should not be included in any further correspondence and future notifications will not receive a response.</p>	<ul style="list-style-type: none"><li>• The proposed work is not anticipated to take place on federal land; however, a significance determination for any potential adverse effects will be conducted, as needed, under the current federal assessment requirements at that time.</li></ul>

## Appendix E – Opinion of Cost

# Opinion of Probable Cost

This appendix discusses the probable capital costs for the recommended projects identified as part of the Water and Wastewater Master Plan process. An opinion of capital cost can be described as an attempt to project the cost that someone would be willing to contract for in the future to do construction work which has not yet been defined and which is subject to changes in scope, design, and market conditions.

## Level of Accuracy

Probable costs are typically provided throughout various stages of a project's life cycle. There are a number of classifications for estimates that identify typical minimum and maximum probable costs or levels of accuracy. These classifications vary widely by industry but all are based on the fact that the level of accuracy is directly proportional to the level of detail available at each stage of the project.

As one would expect, the level of accuracy increases as the project moves through the various stages of the project life cycle, from planning to preliminary design to final design. A wide range of accuracy would be expected at the planning stage of project development because a number of details would be unknown until such time that all design details were addressed. As the project moves closer to completion of final design, the cost would become more accurate due to the increased level of detail available and the reduced number of unknown issues.

Table E-1 includes a summary of typical cost classifications throughout a project's life cycle including a description of the typical project stage and range of accuracy. Figure E-1 is a graphical presentation of the same information.

**Table E-1. Classification of Probably Costs**

<b>Class</b>	<b>Description</b>	<b>Level of Accuracy</b>	<b>Stage of Project Lifecycle</b>
5	Conceptual Stage	+50% to -30%	Screening of alternatives.
4	Study Stage	+30% to -15%	Treatment plant master plans.
3	Preliminary Stage	+25% to -10%	Pre-design report.
2	Detailed Stage	+15% to -5%	Completed plans and specifications.
1	Tender Stage	+10% to -3%	This is the actual tender price and it can vary depending on the amount of contingency allowance consumed.

The opinions of probable cost in this study are estimated at the conceptual stage (Class 5) and the corresponding level of accuracy could range from -30% to +50% from the probable cost presented in this report.

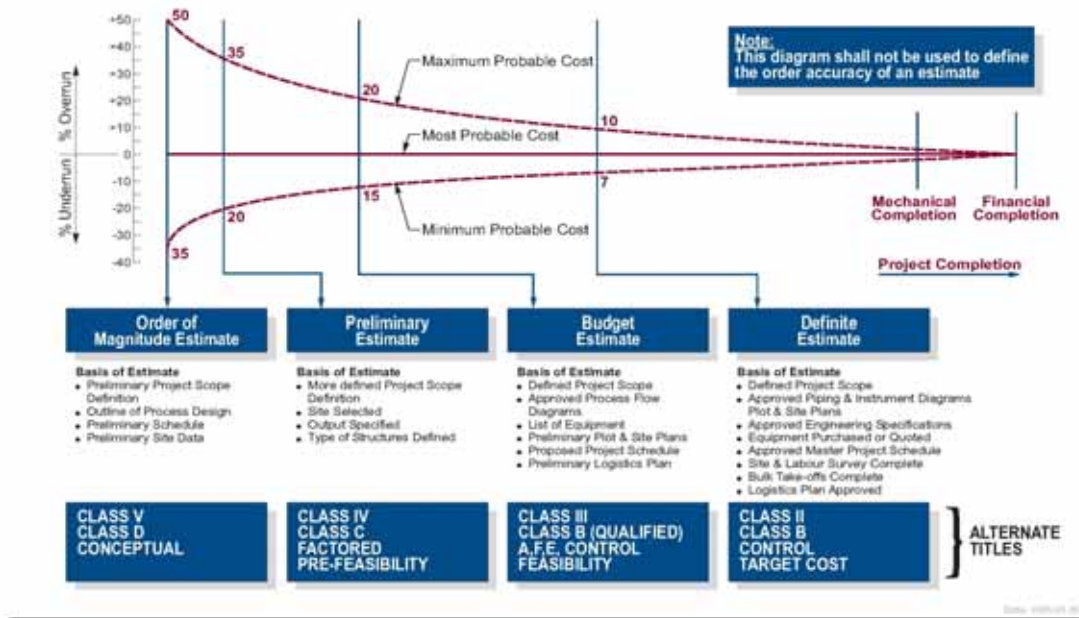


Figure E-1. Classification of Estimates

## Level of Accuracy

In addition to the level of accuracy discussed, the opinion of probable capital cost was prepared taking into consideration the following factors.

- These are “Order of Magnitude Costs” with levels of accuracy ranging from –35% to +50%. Refer to Figure E.1 regarding further explanation on the level of accuracy of costs.
- All costs are in 2017 dollars.
- It is assumed the Contractor will have unrestricted access to the sites and will complete the work during normal working hours from Monday to Friday. No allowance for premium time is included in the costs.
- Labour costs are based on union labour rates for the Windsor area.
- An allowance is included for mobilization, demobilization and Contractor’s overhead and profit.
- The probable costs do not include application or permit fees.
- Building construction is assumed to be in concrete or brick and block
- HST is **not** included.
- No allowance is included for additional costs (project labour, electricity, diesel, natural gas, consumables, laboratory and start up costs) that the Town may incur during construction.
- A contingency allowance of 10% of construction is included.
- No allowance is included for interim financing or legal costs.
- No allowance is included for escalation beyond the date of this report.
- The opinion of probable capital costs were prepared without detailed preliminary designs. It reflects our best judgement at this stage of planning. We have no control of future construction market conditions, which could significantly impact construction costs. Final costs will be influenced by local market conditions at time of tender.

## E.1 – Water Supply Systems

# Water Costs

Capital cost estimates of individual water supply projects derived (mostly and in-part) from representative unit costs from following Table E1-1.

**Table E1-1. Capital Cost Estimates of Individual Water Supply Projects**

<b>Water Infrastructure</b>	<b>Unit Costs <sup>1,2,3</sup></b>
Water Treatment Capacity (expansion to 9,090 m <sup>3</sup> /d)	\$1,430 per m <sup>3</sup> /d expansion
Elevated Tank Capacity < 3,500 m <sup>3</sup>	\$1,560 per m <sup>3</sup> volume
Elevated Tank Capacity > 3,500 m <sup>3</sup>	\$1,300 per m <sup>3</sup> volume
100 mm dia. watermain	\$250 per m length
150 mm dia. watermain	\$290 per m length
200 mm dia. watermain	\$320 per m length
250 mm dia. watermain	\$350 per m length
300 mm dia. watermain	\$400 per m length
400 mm dia. watermain	\$620 per m length
450 mm dia. watermain	\$700 per m length
500 mm dia. watermain	\$850 per m length
600 mm dia. watermain	\$950 per m length

<sup>1</sup> costs include engineering and contingencies at 25%

<sup>2</sup> costs exclude HST

<sup>3</sup> costs based on recent tender prices and historical cost escalations

## E.2 – Wastewater Systems

Table E.2-1 Cost Escallation of 2009 WWWMP Wastewater Infrastrucutre Cost Estimates to 2017 Terms

Wastewater Projects	Probable Cost in 2009 Terms <sup>a</sup>	Probable Cost in 2017 Terms <sup>b</sup>
<i>Belle River Wastewater System</i>		
<b>Treatment</b>		
Expand Belle River / Maidstone WPCP to 4.0 MIGD	\$12,800,000	\$14,500,000
<b>Conveyance</b>		
Oakwood trunk sewer extension from Puce River to Pike Creek Area	\$8,500,000	\$9,600,000
Belle River Road Corridor - Sewer System including trunk sewer, pumping station and forcemain to Belle River / Maidstone WPCP	\$9,000,000	\$14,500,000
<b>Local Collection</b>		
New Gravity Sewer Collection system to Service North Woodslee	\$4,700,000	\$5,300,000
Continue to Repair and Upgrade the existing South Woodslee pressurized system	\$8,000 <sup>c</sup>	\$9,030 <sup>c</sup>
New Gravity Sewer Collection system to Service Pike Creek Area	\$3,900,000	\$4,400,000

Notes:

<sup>a</sup> Costs developed by Stantec in 2009 for the 2009 WWWMP (Stantec, 2009)<sup>b</sup> Costs escalated by 12.9% based on the Consumer Price (CPI) Index, Assumptions presented in Table E.2-2.<sup>c</sup> Cost presented per system replaced as the number of systems replaced per year may vary.

Table E.2-2 Consumer Price Index Assumptions

2008 October Index	2016 November Index	2016 December Index	Change (+%)
113.7	130.2	128.4	12.9

Source: (Statistics Canada, 2017)

Statistics Canada CANSIM Table 326-0020

Consumer Price Index

Geography: Ontario



# Wastewater Costs: Eastern Communities

Source: "Eastern Communities Sewage Works ESR (Stantec, 2012)

Note: Costs were developed for the Eastern Communities in 2012 by Stantec; these costs have not changed and inform the costs presented for these recommendations in the Water and Wastewater Master Plan.

## Summary of Estimate of Cost Comber Pump Station Upgrade & Forcemain to New STP

Item	Total
Mob & demob	\$20,000
Replace existing pumps	\$60,000
Replace existing 50 Kw generator set including ductwork & piping	\$50,000
Replace existing concrete base for generator equipment	\$10,000
Mechanical work for replacement of pumps & generator set	\$100,000
Electrical work for replacement of pumps & generator set	\$50,000
11,500 m of 200 mm dia forcemain @ \$200/m	\$2,300,000
10 - 200 mm dia valves @ \$2000	\$20,000
10 Air relief valve chambers @ \$30,000	\$300,000
Geotechnical & control testing	\$40,000
Bonds	\$50,000
<b>Construction Cost</b>	<b>\$3,000,000</b>

**Summary Estimate of Cost**  
**Lighthouse Cove Sewers, Pump Stations and Force mains**

Item	Total
13,992 m sanitary sewers (200 mm to 525 mm dia)	\$ 14,836,300
625 service connections	\$ 1,500,000
Pump station No. 1 including standby power	\$ 500,000
90 m long 150 mm dia forcemain directional drilled under channel	\$ 22,500
Pump station No. 2	\$ 300,000
Pump station No. 3	\$ 300,000
Pump station No. 4 including standby power	\$ 500,000
740 m long 200 mm dia forcemain from PS No. 4 across channel and private property	\$ 296,000
Mobilization and demobilization	\$ 100,000
Geotechnical and control testing	\$ 200,000
Bonds	\$ 200,000
<b>Total for Lighthouse System not including PS No 5 and forcemain to STP</b>	<b><u>\$ 18,755,000</u></b>
Pump station No. 5 including standby power	\$ 500,000
860 m long 200 mm dia forcemain from PS No. 5 to new STP	\$ 215,000
<b>Total for PS No. 5 &amp; forcemain to STP</b>	<b><u>\$ 715,000</u></b>
<b>Total for Lighthouse System</b>	<b>\$ 19,470,000</b>

**Summary Estimate of Cost**  
**Rochester Place Sewers, Pump Stations and Force mains**

Item	Total
25,375 m sanitary sewers (200 mm to 525 mm dia)	\$ 18,726,800
1,018	\$ 2,443,200
Pump station No. 1	\$ 300,000
Pump station No. 2	\$ 320,000
Pump station No. 3	\$ 300,000
Pump station No. 4	\$ 320,000
Pump station No. 5	\$ 320,000
Pump Station No. 6	\$ 300,000
Pump Station No. 7 including standby power	\$ 530,000
290 m long 250 mm dia forcemain from PS No. 7 across Ruscom River	\$ 130,500
Mobilization and demobilization	\$ 100,000
Geotechnical and control testing	\$ 200,000
Bonds	\$ 320,000
Total Cost not including PS No 8 & forcemain to STP	<u>\$ 24,311,000</u>
Pump Station No. 8 including standby power	\$ 530,000
7,600 m long 350 mm dia forcemain from PS No. 8 to new STP	\$ 1,817,900
Mob & Demob	\$ 50,000
Geotechnical & control testing	\$ 50,000
Bonds	\$ 30,000
Total Cost of PS No 8 & forcemain to STP	<u>\$ 2,478,000</u>
Total Cost of Rochester Place System	<u>\$ 26,789,000</u>

**Summary of Estimate of Cost**  
**Stoney Point Pump Station Upgrade & Forcemain Extension**

Item	Total
Mob & demob	\$5,000
Replace existing pumps	\$60,000
Replace existing access hatches in top slab	\$20,000
Replace existing 50 Kw generator set including ductwork & piping	\$50,000
Replace existing concrete base for generator equipment	\$10,000
Electrical work for replacement of pumps & generator set	\$50,000
Mechanical work for replacement of pumps & generator set	\$100,000
340 m extension of 250 mm dia forcemain @ \$250/m	\$85,000
Geotechnical and control testing	\$10,000
Bonds	\$5,000
Contruccion cost	<u>\$395,000</u>

**Table 11.1: Property Requirements for Rochester Place Sewage Works**

Location	Preferred Site	Alternate Site	Photo No.	Estimated Cost <sup>2</sup>
Pump Station No. 1	Property No. 1038, parcel with 18 m frontage on East side of County Road 31 (West Ruscom River Road) abutting North side of Property No.1122	Property No. 1038, parcel with 18 m frontage abutting preferred site	1	\$ 100,000
Pump Station No. 2	Property No. 440, parcel with 18 m frontage on East side of County Road 31 abutting South limit of CNR right-of-way	Property No. 439, parcel with 18 m frontage on West side of County Road 31	2	\$ 100,000
Pump Station No. 3	Parcel with 18 m frontage on East side of East Ruscom River Road abutting North side of Property No. 410.	Parcel on either side of the preferred site	3	\$ 100,000
Pump Station No. 4	Property No. 448, parcel with 18 m frontage on South side of County Road 2 (Tecumseh Rd) abutting East side of Property No. 428	Parcel with 18 m frontage abutting preferred site, or parcel with 18 m frontage on South side of County Road 2 abutting West side of Property No. 428	4	\$ 100,000
Pump Station No. 5	Property No. 670, parcel with 18 m frontage on South side of County Road 2 abutting Property No. 668.	Parcel with 18 m frontage abutting East side of preferred site, or Property No. 667, parcel with 18 m frontage on North side of County Road 2 abutting Property No. 673	5	\$ 100,000
Pump Station No. 6	Parcel with 18 m frontage on South side of Lakeshore Park opposite Property No. 935	Parcel on either side of preferred site	6	\$ 100,000
Pump Station No. 7	Parcel with 23 m frontage and 35 m depth on South side of County Road 2 abutting West side of Property No. 1000 (across from entrance to Rochester Place mobile home park)	Parcel abutting West side of preferred site.	7	\$ 100,000
Pump Station No. 8 if forcemain easement on north side of CNR	Property with 20 m frontage on north side of Surf Club Drive and 30 m depth, across from Property No. 141.	Parcel abutting east side of preferred site.	8	
Pump Station No. 8 if forcemain easement on south side of CNR	Property with 20 m frontage on south side of County Rd 2 and 30 m depth, abutting Property No. 1282	Parcel abutting east side of preferred site.	8	\$ 100,000
Forcemain from PS. 8 (Alternate Route) <sup>1</sup>	6 m permanent and 9 m temporary easement abutting south limit of CNR right-of-way and extending from County Rd 2 easterly to Rochester Townline Rd approximate length 470 m	Easement on CNR right-of-way subject to discussions with CNR during final design	9	\$ 4,700
	6 m permanent and 9 m temporary easement abutting south limit of CNR right-of-way and extending from Rochester Townline Rd easterly to Comber Sideroad. Portion of easement at Comber Sideroad abuts Property 1265. Approx length 3,700 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	9, 10	\$ 37,000
	6 m permanent and 9 m temporary easement abutting south limit of CNR right-of-way and extending from Comber Sideroad easterly to Tecumseh Rd. Portion of easement at Comber Sideroad abuts Property 1305. Approx length 1,480 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	11	\$ 14,800
	6 m permanent and 9 m temporary easement abutting south limit of CNR right-of-way and extending from Tecumseh Rd to Stoney Point lagoons access road, approx length 1,000 m	Easement on CNR right-of-way subject to discussions with CNR during final design	12	\$ 10,000
	6 m permanent and 9 m temporary easement abutting north limit of CNR right-of-way and extending from County Rd 2 easterly to Rochester Townline Rd. Approx length 470 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	9	
Forcemain from PS. 8 (Alternate Route) <sup>1</sup>	6 m permanent and 9 m temporary easement abutting north limit of CNR right-of-way and extending from Rochester Townline Rd easterly to Comber Sideroad. Portion of easement near Comber Sideroad is on widened portion of CNR right-of-way. Approx length 1,265 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	9,10	
	6 m permanent and 9 m temporary easement abutting south limit of CNR right-of-way and extending from Comber Sideroad easterly to Tecumseh Rd. Portion of easement at Comber Sideroad abuts Property 1305. Approx length 1,480 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	11	
	6 m permanent and 9 m temporary easement abutting north limit of CNR right-of-way and extending from Tecumseh Rd to Stoney Point lagoons access road. Approx length 1,000 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	12	
	6 m permanent and 9 m temporary easement abutting north limit of CNR right-of-way and extending from Tecumseh Rd to Stoney Point lagoons access road, approx length 1,000 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	12	
Forcemain from PS. 8 (Alternate Route) <sup>1</sup>	Tecumseh Rd from PS No 8 to Clairview Dr no easements required. Costly pavement restoration through Stoney Point.	Easement on CNR right-of-way subject to discussions with CNR during final design	13	
	8 m permanent and 9 m temporary easement abutting north limit of CNR right-of-way and extending from Tecumseh Rd to Stoney Point lagoons access road, approx length 1,000 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	12	
Charron Beach Rd Sewer	12 m permanent easement abutting north limit of CNR right-of-way from Stuart Lane easterly to Property 477 at Polski Drain, Approx length 665 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	14	\$ 6,650
Charron Beach Rd Sewer	10 m permanent easement abutting north limit of CNR right-of-way from Property 477 easterly to Moison Creek at Property 545, Approx length 530 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	15	\$ 5,300
Ross Beach Rd Sewer	10 m permanent easement abutting north limit of CNR right-of-way from Moison Creek to Strong Rd, Approx length 395 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	16	\$ 3,950
Ross Beach Rd Sewer	10 m permanent easement abutting north limit of CNR right-of-way from Property 633 to Property 653. Approx length 140 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	17	\$ 1,400
Ross Beach Rd and Valentino Dr Sewer	10 m permanent easement abutting north limit of CNR right-of-way from Property 653 to Tellier Drain at Property 731. Approx length 600 m.	Easement on CNR right-of-way subject to discussions with CNR during final design	18	\$ 6,000
Deerbrook Dr. Sewer	10 m permanent easement, approx length 415 m.	None	19	\$ 4,150
Riverside Rd. Sewer	10 m permanent easement, approx length 400 m.	None	19	\$ 4,000
<b>Total Estimated Cost for Rochester Place Property</b>				<b>\$ 898,000</b>

<sup>1</sup> Selected forcemain route subject to discussions with property owners and CNR during final design

<sup>2</sup> Estimated easement cost \$10/m

Table 11.2: Property Requirements for Lighthouse Cove Sewage Works

Location	Preferred Site	Alternate Site	Photo No.	Estimated Cost <sup>1</sup>
Pump Station No. 1	Parcel with 23 m frontage on North side of Harbor Rd on east side of water crossing	Abutting east side of preferred site, and parcel on south side of Harbor Rd directly across preferred site	1	\$ 100,000
Pump Station No. 2	Property 551 on west side of Tisdelle across from Cove Marina	Parcel on east side of Tisdelle with 30 m frontage on Cove Marina property across from Property 535	2	\$ 100,000
Pump Station No. 3	Property 17776 on west side of Melody Dr between Rivait and Quenneville	Properties 17760 and 17790 abutting Property 17776	3	\$ 100,000
Pump Station No. 4	Parcel on west side of Melody Dr between Properties 17368 and 17386	Parcel abutting north limit of preferred site	4	\$ 100,000
Pump Station No. 5	Parcel with 30 m frontage on west side of Gracey Sideroad at south limit of CNR right-of-way	Similar parcel on east side of Gracey Sideroad at south limit of CNR	5	\$ 100,000
Forcemain from PS No. 4	Easement on Property 16660. Easement could abut the easement for the existing watermain if sufficient horizontal separation can be provided, approx length 700 m.	Easement on CNR right-of-way subject to discussions with CNR during final design.	6	\$ 7,000
Forcemain from PS No. 5	6 m permanent and 10 m temporary easement abutting south limit of CNR Right-of-Way extending from PS No. 5 across Properties 525 and 12200 to the site for the new STP, approx length 550 m.	Easement on CNR right-of-way subject to discussions with CNR during final design.	7	\$ 5,500
Couture Beach Rd Sewer	4.6 m permanent easement abutting north limit of CNR Right-of-Way from end of existing 4.6 m lane at Property 15990 to Property 15110 and 8 m wide temporary easement on CNR Right-of-Way from Property 16260 to Property 15110, approx length 1,030.	Easement on CNR right-of-way subject to discussions with CNR during final design.	8	\$ 10,300
Sewer Crossing at Dupuis Drain from Couture Beach to Crystal Beach	6 m permanent and 10 m temporary easement across CNR Right-of-Way from Property 14610 to south limit of CNR, around Dupuis Drain pump house site and along south limit of CNR, across CNR to Property 14330, approx length 330 m.	Easement across and on CNR right-of-way subject to discussions with CNR during final design	9	\$ 3,300
Crystal Beach Rd Sewer	3.7 m permanent easement abutting north limit of CNR Right-of-Way and 8 m temporary easement on CNR Right-of-Way from Property 14330 easterly to Property 13070, approx length 835 m.	Easement on CNR right-of-way subject to discussions with CNR during final design.	10	\$ 8,350
Laforet Beach Rd Sewer	12m permanent easement abutting north limit of CNR Right-of-Way and 8 m temporary easement on CNR Right-of-Way from Gracey Sideroad westerly to Property 12580, approx length 250m.	Easement on CNR right-of-way subject to discussions with CNR during final design.	11	\$ 2,500
<b>Total Estimated Cost for Lighthouse Cove Property</b>				<b>\$ 537,000</b>

<sup>1</sup> Estimated Easement Cost \$10/m

**Table 13.2 OPINION OF PROBABLE COST  
Collection and Transmission Systems and  
Decommissioning of Comber and Stoney Point Lagoons**

<b>Item</b>	<b>Probable Cost</b>
Wastewater pumping station upgrade and forcemain extension to transmit wastewater from Stoney Point to the proposed new treatment facility	\$ 395,000
Wastewater pumping station upgrade and new forcemain to transmit wastewater from Comber to the proposed new treatment	\$ 3,000,000
New gravity sanitary sewage collection system to service Lighthouse Cove	\$ 18,755,000
Pump station and forcemain to transmit sewage from Lighthouse Cove to the proposed new treatment facility	\$ 715,000
New gravity sanitary sewage collection system to service Rochester Place	\$ 24,311,000
Pump station and forcemain to transmit sewage from Rochester Place to the proposed new treatment facility	\$ 2,478,000
Decommission the existing sewage lagoons located in Stoney Point and Comber	\$ 2,500,000
Sub-total	\$ 52,154,000
Contingency Allowance 10%	\$ 5,215,400
Sub-total	\$ 57,369,400
Engineering Allowance 15%	\$ 8,605,400
Sub-total	\$ 65,974,800
Rochester Place Property Acquisitions and Easements	\$ 898,000
Lighthouse Cove Property Acquisitions and Easements	\$ 537,000
Sub-total	\$ 67,409,800
HST 1.76%	\$ 1,186,400
<b>TOTAL</b>	<b>\$ 68,596,000</b>

**Table 13.3 OPINION OF PROBABLE COST - Sewage Treatment Facility**

Item	Probable Cost			
	Phase 1	Phase 2	Phase 3	Phase 4
Administration Building	\$1,600,000	-	-	-
Inlet Works and Grit Building (Screenings and Grit)	\$2,200,000	-	\$800,000	-
Extended Aeration Tanks and Blower Facility	\$3,300,000	\$ 1,100,000	\$1,100,000	\$ 1,100,000
Final Settling Tanks and Alum Storage & Feed Facility	\$1,900,000	\$ 800,000	\$800,000	-
UV disinfection	\$1,200,000	\$ 600,000	-	\$ 300,000
Outfall	\$300,000	-	\$300,000	-
Sludge Holding Tanks/Aerobic Digester	\$1,600,000	\$ 600,000	\$600,000	\$ 600,000
Sub-total	\$12,100,000	\$ 3,100,000	\$3,600,000	\$ 2,000,000
Contingency Allowance 10%	\$1,210,000	\$ 310,000	\$360,000	\$ 200,000
Sub-total	\$13,310,000	\$ 3,410,000	\$3,960,000	\$ 2,200,000
Engineering Allowance 15%	\$1,996,500	\$ 511,500	\$594,000	\$ 330,000
Sub-total	\$15,306,500	\$ 3,921,500	\$4,554,000	\$ 2,530,000
HST 1.76%	\$269,400	\$ 69,000	\$80,200	\$ 44,500
<b>TOTAL</b>	<b>\$15,576,000</b>	<b>\$ 3,991,000</b>	<b>\$4,634,000</b>	<b>\$ 2,575,000</b>