



TOWN OF TECUMSEH

**Tecumseh Hamlet Secondary Plan Area
Infrastructure Improvements
Municipal Class Environmental Assessment
Schedule 'C'**

Environmental Study Report

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Revision 1 - Review Period Input	11/28/2025	<p>Revisions to Section 3.5 and 7.4: Refer to Appendix C – Supplemental Cultural Heritage Memo (Dillon, November 4, 2025).</p> <p>Addition of Appendix K – EA Completion Letter including 30 Day Review period comments, responses and consultation records.</p> <p>Revision to Figures: ESR Report: Figure 5-8 West Hamlet Stormwater Management Facility Alternative Design Concepts Appendix E: Figure 4.2 Stormwater Management Strategy – North of CP Railway and Figure 6.2 Tecumseh Hamlet Proposed Collector Road Alignment Maisonneuve Street Appendix H: Figure 6.2 Tecumseh Hamlet Proposed Collector Road Alignment Maisonneuve Street</p>

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D	Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
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Acronyms, Abbreviations, Definitions

Definitions

Term	Description
Climate Change	Climate change is the shift in weather patterns associated with an increase in global average temperatures.
Design Storm Event	A representative rainfall event that does not necessarily match a real or actual rainfall but is used to assess sewer and drainage system performance. The design storm event corresponds to a certain return period frequency (e.g. 1 in 5 years, 1 in 100 years).
Drainage Area	The total surface area upstream of a point where stormwater runoff or sanitary drainage is conveyed to the same point.
Dry Weather Flow	Wastewater flow in a sewer system during periods of dry weather (without precipitation) with minimum infiltration.
EA (Environmental Assessment)	In the context of this document the MEA Municipal Class EA, is an approved planning process for municipal infrastructure that can be used to meet the requirements of the <i>Environmental Assessment Act</i> (EAA). The Municipal Class EA process was last revised in March 2023.
ELC Ecological Land Classification	Used to describe ecosystems using geology, climate, vegetation, terrain and soil. Ontario's ecological land classification system has six units. From largest to smallest they are: <ul style="list-style-type: none"> • ecozones • ecoregions • ecodistricts • ecosections • ecosites • ecoelements
Hydraulic Gradeline (HGL)	The surface or profile of water flowing in an open channel, on the ground surface, or a sewer pipe flowing partially full. If a sewer is under pressure, the HGL is that level water would rise to in a small, vertical tube connected to the pipe.
Hydrograph	A graph showing the rate of flow (discharge) versus time past a specific point in a river, channel, or conduit carrying flow.

Term	Description
Impervious Area	Mainly artificial surfaces, such as pavements (roads, sidewalks, driveways and parking lots) and rooftops, over which stormwater is forced to travel across until it finds a place it can be collected and conveyed by a storm drainage system. Impervious surfaces allow for no to very limited infiltration.
Inflow & Infiltration (I&I)	<p>This could include unintended clean water entering the sewer under both dry weather (i.e. groundwater infiltration) or from wet weather (rainfall derived conditions).</p> <p>The inflow component generally includes quicker moving water sources such as improper cross-connections with the storm sewer system or from surface drainage through maintenance hole lids.</p> <p>The infiltration component generally includes slower moving water sources such as groundwater entering through cracks, unsealed pipe joints and other defects in the underground pipe network.</p>
Master Plan (MP)	Master Plans are long range plans that integrate infrastructure requirements for existing and future land uses with environmental planning principles. This study is being completed to meet the requirements of the Municipal Class Environmental Assessment (EA), Master Plan Process (Approach No. 2).
Major System	Overland conveyance system for rainfall runoff typically defined by the road right-of-way.
Minor System	Conveyance system for stormwater drainage (i.e. storm sewer system).
Peak Flow	Maximum rate of flow.
PIC (Public Information Centre)	A public event which is used to educate and inform the public as well as to elicit feedback from the study. This is a necessary step in the Class EA process and typically conducted at study milestones.
Pervious Area	Land surface representing permeable surfaces that allow the infiltration of rainfall into the ground. These areas include lawns, gardens, and forests.
Pumping Station	A facility comprised of pumps which help lift and distribute flows (sanitary or storm) when gravity will not naturally transfer it away from a location.
Return Period	An estimate commonly based on records of past observation for how likely an event, such as rainfall or flood is to occur in any given year. For example, a 1 in 100-year storm event has a 1 in 100 chance (or a 1%) of occurring in any given year.

Term	Description
Sanitary Sewer	A network of pipes that convey liquid and solid waste (wastewater) from domestic or industrial establishments (sewage) to the City's wastewater facilities for treatment before being discharged to the Detroit River.
Service Area	The total surface area upstream of a point contributing flow that is conveyed to that point. This could include storm sewer, sanitary sewer or combined sewer systems' areas.
Storm Sewer	A network of pipes that convey stormwater runoff from lower intensity rainfall events to receiving watercourses. Storm sewers are also known as the "minor" component of the storm drainage system, and function in combination with the "major" overland drainage system during more significant storm events.
Subcatchment	A defined land area used to model rainfall runoff. Each sub-catchment generates a hydrograph that is typically routed to downstream watercourse, waterbody or other conveyance structure.
TDMP	Tecumseh Drainage Master Plan
THSPA	Tecumseh Hamlet Secondary Plan Area
TMP	Transportation Master Plan
ULR MP	Upper Little River Watershed Drainage and Stormwater Management Master
WWMP	Town of Tecumseh Water and Wastewater Master Plan
Watermain	A network of pipes that convey water to homes and businesses.
Wet Weather Flow	The rate of wastewater flowing during dry weather combined with stormwater from surface runoff due to precipitation introduced into a combined sewer system, and dry weather flow combined with infiltration & inflow in a separated sewer. For separate storm sewers, only wet weather flow is conveyed through the system.

Executive Summary

To meet the growing housing market demands, the Town of Tecumseh has initiated this Environmental Study Report for the Tecumseh Hamlet Secondary Plan Area (THSPA) to develop a coordinated and sustainable approach to providing municipal infrastructure. This study was completed in conjunction with the Town of Tecumseh's Hamlet Secondary Plan (THSP), Official Plan amendment process (DIALOG, 2025). The purpose of this Official Plan amendment was to prepare a planning and urban design policy framework to implement the Town's vision and guide land use and the physical development of the future development lands.

This Environmental Study Report (ESR) documents the process of developing municipal servicing solutions for the THSPA area including methodology for determining the location and capacity of collector roads, storm and sanitary sewers, and watermain. This study has been undertaken to in accordance with the Municipal Class Environmental Assessment (MCEA) (February 2024). Public engagement was also considered for this study to ensure that those who might be interested or affected are provided the opportunity to participate in its development.

The THSPA is primarily comprised of rural lands which include some residential land uses along existing municipal right of ways. The proposed THSPA plan will have a mixture of low to high density residential, institutional and commercial uses. The secondary plan is designated for future growth which is expected to occur over the next several decades as defined in the Town of Tecumseh's Official Plan (OP), which was finalized and approved by the County of Essex (the Approval Authority) on June 21, 2021.

The Problem and Opportunity Statement for this EA study has been identified as:

To accommodate population growth and housing, it is recommended that municipal infrastructure facilities, including road, water, wastewater and stormwater management improvements, be implemented to service new development in the Tecumseh Hamlet Secondary Plan Area. The facilities shall be planned and designed to avoid impacts on significant natural heritage, water and cultural resources and minimize other environmental impacts, including impacts on the existing Hamlet.

Recommended servicing solutions for this development area will be based on recommendations resulting from the completion of various Town-wide master plans, including the:

- Transportation Master Plan (TMP)
- Tecumseh Water and Wastewater Master Plan (WWMP)
- Upper Little River Watershed Drainage and Stormwater Management Master Plan (ULR MP)
- Tecumseh Drainage Master Plan (TDMP)

The servicing solutions developed herein follow the fundamental servicing strategies previously developed however, where necessary, refinements have been made based on more thorough existing conditions analysis, increased development densities and recent consultation with stakeholders.

Alternative design concepts were developed and evaluated for each servicing need, based on a number of criteria including natural environment, socio-economic financial and technical factors. As a result of the comparative evaluation, recommended design concepts and associated impacts and mitigation measures were developed.

Transportation

As a result of the development within the Tecumseh Hamlet (as established in 2024 Traffic Impact Study), expansion is required along the internal collector and external arterial road networks. Based on the recommended road network and land use pattern designated in the THSPA, four (4) collector road improvement projects were identified as preferred solutions to service future development in the Tecumseh Hamlet:

- Gouin Street Extension: New Urban Collector between Corbi Lane and Banwell Road and reconstruction from Rural to Urban cross-section between Lesperance Road and Corbi Lane.
- Maisonneuve Street Extension: New Urban Collector between Corbi Lane and Banwell Road and reconstruction from Rural to Urban cross-section between Lesperance Road and Corbi Lane.
- Intersection Road Extension: Reconstruction from Rural to Urban cross-section between Lesperance Road and Banwell Road.
- Shields Street extension, New Urban Collector and McAuliffe Park Enhancements between St. Alphonse Avenue and the City of Windsor boundary. This includes extension from Shields Street to CR42 via a collector road extension.

Additional traffic anticipated to be routed to external arterial roadways owned and operated by the City of Windsor and County of Essex, including County Road (CR) 22, Banwell Road (CR 43), CR 42 and Manning Road (CR 19) have been considered in the various corridor planning studies and road improvement designs that have been previously undertaken. To accommodate full build out of the THSPA Area, ultimate road widening and intersection improvements identified in past Environmental Assessments are required to be implemented. As staged implementation of the arterial road improvement occurs over time, incremental development of the THSPA can be accommodated and shall be verified as each development approval proceeds.

Water

The preferred water servicing infrastructure solution will provide water service for future development in the area, provide new interconnections with the City of Windsor's watermain system and provide improved water circulation and servicing capabilities for existing and future areas to satisfy the WWMP (2018). The trunk watermain includes:

- **Project W-1:**
 - 400 mm dia. trunk watermain between CR22 and Intersection Road.
 - 400 mm dia. trunk watermain along Intersection Road, westerly, to connect to the City of Windsor's (Enwin) water system at Banwell Road.

- 400 mm dia. trunk watermain interconnection to the east on Intersection Road to connect to the existing water system at Shawnee Road.
- 400 mm dia. trunk watermain between Intersection Road and the CP Railway.
- **Project W-4:**
 - 400 mm dia. trunk watermain, through the CP Railway and hydro corridor, extending to the proposed east-west road, just south of the east Desjardins Stormwater Management Facility (SWMF).
 - 600 mm dia. trunk watermain routing easterly along this proposed east-west road, to interconnect with the existing 600 dia. trunk watermain along the CR43 ROW.
- **Projects W-2A, 2B and 5A:**
 - 400 mm dia. trunk watermain on CR19 (Manning Road) from CR22 to CR42.
 - 300 mm dia. trunk watermain proposed along the north CP Railway corridor, between Lesperance Road and CR19.

Wastewater

All the resulting sanitary sewage is to be treated within the City of Windsor at the Little River Pollution Control Plant (LRPCP) in accordance with release rates stipulated by the Wastewater Servicing Agreement between the Town of Tecumseh and the City of Windsor. The WWMP (2018) identified the following three wastewater projects that are required to service future development within the THSPA.

West Tecumseh Trunk Sewer, CR22 to CP Railway (Project WW-1):

This new 1200 mm dia. trunk sanitary sewer will be constructed through new development lands, west of the existing residential development, from CR22 to the CP Railway corridor. Based on the WWMP (2018) recommendations, the alignment of the sewer was determined and will require a 20m utility easement. This trunk sewer segment will service new development in the THSPA, provide an outlet for existing and new growth areas and provide relief for the Lesperance Road trunk sewer.

To confirm that the projected population and commercial land use growth within the THSPA will not exceed the capacity of the downstream system or exceed maximum allowable release rate, a sanitary sewer analysis was completed using the Town's Master Sanitary Sewer Model. This memo is appended to the Functional Servicing Report (**Appendix E**).

Tecumseh Hamlet Diversion (Intersection Road) Sewer (Project WW-2):

This new 600 mm dia. sewer along Intersection Road, between St. Anne Street and the West Tecumseh trunk sewer and described by WW-2 in the WWMP, will divert flows from the existing Lesperance Road sanitary sewer system to the new Tecumseh Hamlet system to redistribute sewage flows with the greater Tecumseh Hamlet area. The existing trunk sewer on St. Anne Street will be intercepted by this sewer and all upstream flows will be diverted to the West Trunk Sewer (WW-1).

The sanitary diversion sewer will also provide capacity for the Manning Road Secondary Plan Area MRSPA and SE THSPA to develop and reduce high hydraulic gradelines (HGLs) within the existing system without adverse impacts to the downstream system.

West Tecumseh Trunk Sewer CP Railway to CR42 (Project WW-6):

Similar to WW-1, this new 1200 mm dia. sewer will provide direct servicing for new development in the THSPA, south of the CP Railway and provide an outlet for existing growth (*Section 7.10.7 of the WWMP*). The WWMP recommends that the sewer's alignment be established as part of the Secondary Plan and Plan of Subdivision approval process. It also recommended that it be designed to accommodate a projected ultimate peak flow rate.

Stormwater

The west portion of the THSPA area is within the Upper Little River Watershed and specifically drains to the Gouin, Lachance and Desjardins tributary drains. The Upper Little River Watershed Drainage and Stormwater Management Master Plan (ULR MP) recommended that linear stormwater management ponds be implemented with a controlled outlet release rate of 6L/s/ha for up to a 1:100-year event. The SE THSPA area is within the upper reaches of the East Townline watershed, based on the Tecumseh Drainage Master Plan (DMP). Ultimate flows from this area cannot excluded pre-development flows. To confirm the findings of these studies, outlet capacity assessments were completed which have established a maximum outflow from each of these drainage areas. This criterion was used to as a basis for stormwater management infrastructure preliminary design and the development of design concepts evaluated in this study.

The THSPA is currently being serviced via municipal and roadside drains with limited storm sewers. The proposed solution recommends the construction of over 6.7 km of trunk storm sewers to convey stormwater flows to a number of proposed SWMF.

The SWM system will consist of four (4) SWM ponds, each accompanied by a controlled pumping stations which outlet to municipal existing drainage channels. The use of wet versus dry ponds were evaluated in part to assist with mitigation of waterfowl habitat due to the proximity of these facilities to the existing Windsor International Airport. For the one SWMF that falls within the Airport's Primary Hazard Zones (Gouin SWM Facility), a dry pond was selected to decrease the attractiveness of the ponds to waterfowl. It is imperative that under any scenario, implementation of a maintenance and monitoring plan is adhered to, to ensure that hazards are identified early and addressed immediately.

Below is a list of recommended design concepts resulting from the evaluation of alternatives and existing condition analysis.

Recommended Tecumseh Hamlet Infrastructure Improvements - Road, Water, Wastewater and Stormwater Management Projects

Project Number / Project		Preferred Design Concept	MCEA Schedule
Transportation			
1	Gouin Street - New Urban Collector Roadway	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
2	Maisonnette Street - New Urban Collector Roadway	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
3	Intersection Road (Reconstruction) from Rural to Urban Cross-Section	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
4	Shields Street and North-South Urban New Collector Roadways	Design Concept #4: Off-Street Cycling Facilities, No Parking and Bioswale Median	C
Water			
5	West Tecumseh Trunk Watermain, CR 22 to CP Railway	Design Concept #3: West Alignment (CR43/CR42)	C
6	West Tecumseh Trunk Watermain, CP Railway to CR 42	Design Concept #3: West Alignment (CR43/CR42)	C
Wastewater			
7	West Tecumseh Trunk Sanitary Sewer, CR 22 to CP Railway and Intersection Road Relief Sewer	Design Concept #1: Central Alignment	C
8	West Tecumseh Trunk Sanitary Sewer, CP Railway to CR 42	Design Concept #1: Central Alignment	C
9	Intersection Road and Shields Street Relief Sanitary Sewers including decommissioning of the St. Alphonse Pump Station.	With the existing municipal right of way.	C
Stormwater			
10	Gouin Stormwater Management Facility	Design Concept #2: Dry Stormwater Management Facility	C
11	Lachance Stormwater Management Facility	Design Concept #1: Wet Stormwater Management Facility	C
12	Desjardins Stormwater Management Facility (East and West)	Design Concept #1: Wet Stormwater Management Facility	C
13	Southeast Hamlet Stormwater Management Facility	Design Concept #2: Wet Stormwater Management Facility, Partially in Hydro Corridor	C

Climate change was considered in the servicing plan for the Tecumseh Hamlet Area in a variety of ways, such as, introducing an Active Transportation network and proposed Transit servicing expansion to support a more balanced modal split. As well the SWMFs also considers the need to provide major overland flow routes for the proposed development up to and including a 1:100-year storm event in addition to an Urban Stress Test (UST) (Chicago 1:100 year – 24-hour (108 mm) + additional 42 mm).

A number of recommended solutions require the acquisition of property and/or easements to accommodate new infrastructure. Most notably, shared regional facilities such as collector road right-of-ways and SWM corridors will need to be conveyed to the Town of Tecumseh as municipally owned land. The road corridor ROW will include road, sewer, utility, active transportation, maintenance corridors and lighting infrastructure.

As development occurs within the THSPA recommended municipal infrastructure will need to be implemented in stages. In the table below there is a summary of infrastructure project timing that has been developed in conjunction with the Town's Capital Works budget, and external improvements with the City and County Lands.

Infrastructure Project Timing

Service	Estimated Construction Timeline
<u>Transportation</u>	
<u>Collector Road Improvements</u>	
Intersection Road Reconstruction (Lesperance Rd. to Shawnee Rd.)	5-10 Years
Intersection Road Reconstruction (Shawnee Rd. to Banwell Rd.)	Development Driven
Gouin Street Extension	Development Driven
Maisonneuve Street Extension	Development Driven
Shields Street Extension and McAuliffe Park Expansion	Development Driven
<u>Arterial Road Improvements (By Others)</u>	
Banwell/CR22 Interchange Improvements (City of Windsor)	2025-2027
CR43 Diversion (County of Essex)	Complete
CR42 Improvements – (County of Essex)	Underway
<u>Watermain</u>	
Banwell Road and CR43 Trunk Watermain (City and County)	Underway
West Hamlet Trunk Watermain CR22 to Intersection Road	Underway
West Hamlet Trunk Watermain Intersection Road to Hydro Corridor (2025)	5-10 Years
West Hamlet Trunk Watermain - Hydro Corridor to CR43	5-10 Years

Service	Estimated Construction Timeline
<u>Wastewater</u>	
West Hamlet Trunk Sanitary Sewer - CR22 to Intersection Road	Underway
West Hamlet Trunk Sanitary Sewer- Intersection Road to Hydro Corridor	5-10 Years
West Hamlet Trunk Sanitary Sewer - Hydro Corridor to CR42	5-10 Years
Intersection Road Sanitary Relief Sewer	Underway
<u>Stormwater Management</u>	
Four (4) Stormwater Management Ponds, Four (4) Pumping Stations and Outlets	Development Driven
Trunk Storm Sewer Infrastructure – Within THSPA	Development Driven
<u>Municipal Drainage Improvements</u>	
As works associated with ROW improvements are undertaken, existing municipal drains will require abandonment and/or improvements to the corresponding drainage flows shall be directed to the proposed stormwater management ponds.	As Needed

1.0 Introduction

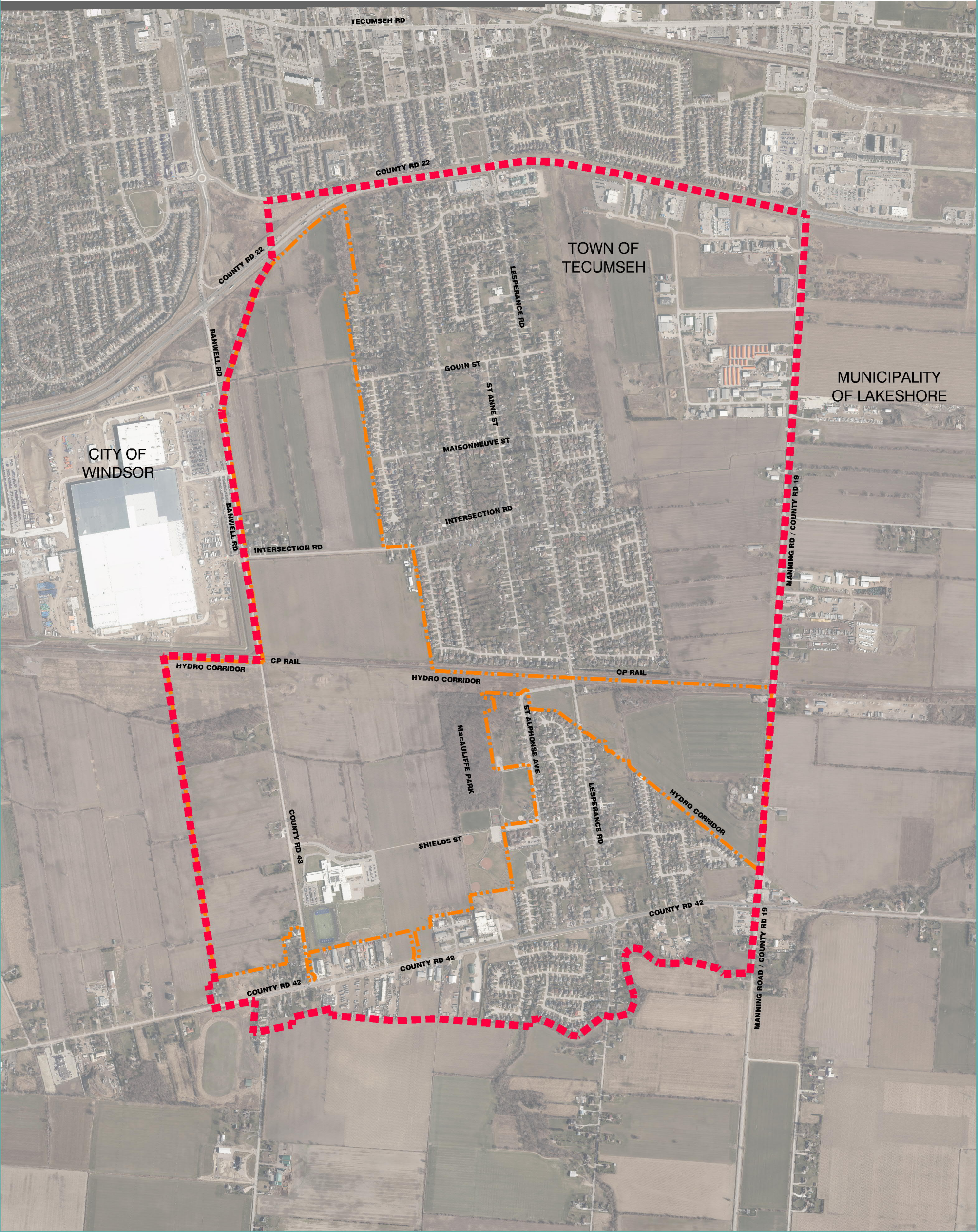
1.1 Purpose

The Town of Tecumseh (Town) has retained Dillon Consulting Limited (Dillon) to complete this Environmental Study Report for the Tecumseh Hamlet Secondary Plan Area (THSPA) to develop a coordinated and sustainable approach to providing municipal infrastructure in support of development growth. Per the Town's official plan, significant expansion of the Hamlet is expected which will include future residential, institutional, and commercial development. This Plan will consider the location and capacity of collector roads, storm and sanitary sewers, watermains, and how stormwater will be managed within the Study Area.

This study was completed as a Schedule C Municipal Class Environment Assessment (MCEA) (February 2024). This ESR documents the planning and design process leading to the selection of the preferred municipal infrastructure servicing strategy to facilitate development within the THSPA. This study builds on previously completed Master Plans that have identified regional municipal servicing projects and have completed Phase 1 and Phase 2 of the Municipal Class Environmental Assessment (MCEA) process. This study was completed in conjunction with the Town of Tecumseh's Hamlet Secondary Plan (THSP) Official Plan amendment process undertaken by DIALOG. The purpose of this Official Plan amendment was to prepare a planning and urban design policy framework to implement the Town's vision and guide land use and the physical development of the future development lands. This adopted plan (January 2025) establishes the future land use pattern and a road and active transportation network which includes policies for land use, urban design and municipal services. The goal of this plan is to provide a complete and walkable community of sustainable neighbourhoods with a variety of land uses and building types supported by high quality public spaces and amenities. The ESR team has coordinated with the THSPA team throughout the Secondary Plan process to ensure the Plan's recommendations are implementable given the number of system capacity constraints and site-specific needs.

1.2 Study Area

The area for this study (The Study Area, as shown on **Figure 1-1: Study Area**) aligns with the Tecumseh Hamlet Secondary Plan Area (THSPA) which is located within the Town of Tecumseh, south of County Road 22 (CR22), west of the existing developed Hamlet area (Shawnee Road, Corbi Lane, McAuliffe Park), north of County Road 42 (CR42) and east of the City of Windsor boundary. The Study Area also includes lands in the southeast area of the Town's settlement area bounded by Lesperance Road to the west, the Canadian Pacific Railway (CP) corridor to the north, and County Road 19 (CR19) (also known as Manning Road) to the east. This area of the THSPA that is east of Lesperance Road will be referenced to as the southeast Hamlet Secondary Plan Area (SE Hamlet).



LEGEND

- TECUMSEH HAMLET SETTLEMENT AREA (THE HAMLET)
- TECUMSEH HAMLET SECONDARY PLAN AREA (THSPA)

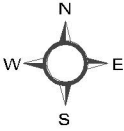
TECUMSEH HAMLET
SECONDARY PLAN AREA
FUNCTIONAL SERVICING
REPORT

STUDY AREA

FIGURE 1-1



MAP CREATED BY: LPJ
MAP CHECKED BY: LMH
MAP COORDINATE SYSTEM: NAD 1983 CSRS UTM Zone 17N
SCALE: 1:7500
STATUS: DRAFT
PROJECT: 23-5735



DATE: June 16, 2025

1.3 Background

The Town of Tecumseh initially commenced a Secondary Plan and Environmental Assessment (EA) for this area in 2012, based on a previous THSPA draft road network layout and land use plan. The study was following the process for a Schedule C EA, under the MCEA 2000 (as amended). A Notice of Commencement and Public Information Center (PIC) 1 notification was published on June 13 and 14, 2012 with the PIC 1 held on June 21, 2012.

Shortly after PIC 1, the Town identified the need to initiate broad Town-wide master plans to take a more holistic approach to identifying municipal infrastructure recommendations and to integrate findings of related master plans, environmental assessments and technical studies what were being undertaken by the Town, Essex Region Conservation Authority (ERCA), County of Essex and City of Windsor. The Hamlet Secondary Plan and EA was paused to allow related studies to be completed. Those studies are summarized in **Section 1.5** below and provided the basis of the development of municipal servicing strategy for this study. Since 2012, engineering design requirements and standards of practice for municipal servicing design have also changed which required a re-evaluation of servicing infrastructure to ensure that the solutions meet current requirements.

In addition to updated engineering studies and Master Plans, the Secondary Plan process was reinitiated in 2022 by the Town. This was done to update the Hamlet land use and development vision to better suit current market needs, reflect the needs and perspectives of the key property owners and better integrate into the surrounding lands. The Tecumseh Hamlet Secondary plan (THSP) was finalized in 2025 and adopted by council January 2025.

1.4 Report Structure

This report consists of the following sections:

- **Section 1.0** presents an introduction to the plan, background, the purpose and approach, the objectives, and a description of the Study Area.
- **Section 2.0** presents the EA process and provides an overview of the Problem and Opportunity of this project and outlines the solutions considered.
- **Section 3.0** provides a description of the existing environment, which includes: physical, natural, socio-economic, cultural, and climate change.
- **Section 4.0** provides an overview of the previously completed Master Plans their final recommendations.
- **Section 5.0** describes the Design Concept alternatives and comparative environmental assessments.
- **Section 6.0** outlines the final recommended Design Concept and site servicing strategy.
- **Section 7.0** outlines the potential effects and mitigation.

- **Section 8.0** describes the stakeholder and public engagement employed, including approach and objectives, engagement activities, and a summary of the feedback.
- **Section 9.0** lists practical tools for implementation, and costs.

Detailed assessments of the existing conditions are included in the attached appendices. Further refined functional design and engineering study has been included in **Appendix E**.

1.5 Related Studies

1.5.1 Transportation

- Town of Tecumseh Transportation Master Plan (TMP) (Dillon, 2017)
- Complete Streets Manual (2015)
- Tecumseh Hamlet Secondary plan (2025)
- Banwell Road (Tecumseh Road to CP Railway Tracks) Environmental Assessment (City of Windsor) (2016)
- Lauzon/County Road 42 Environmental Assessment (County of Essex, 2014)
- County Road 43 Environmental Assessment (County of Essex, 2009)
- County Road 19/22 Environmental Assessment (County of Essex, 2008)

1.5.2 Water and Wastewater

- Town of Tecumseh Water and Wastewater Master Plan (CIMA Canada Inc.) (2019)
- Water Model Update Report (AECOM 2023)
- Sanitary Model Recalibration and Basement Flood Risk Mitigation Study (Dillon, 2024)
- Manning Road Secondary Plan Area Functional Servicing Report (Dillon, 2023)

1.5.3 Stormwater Management

- Upper Little River Watershed Drainage and Stormwater Management Master Plan (ULR MP) (Stantec, 2023)
- Windsor-Essex Region Stormwater Management Standards Manual (2018)
- Tecumseh Drainage Master Plan (2019)
- East Townline Drain Stormwater Management Report (Landmark, 2024)

2.0

Phase 1 EA: Problem or Opportunity

Phase 1 of the Class EA involves developing a Problem/Opportunity Statement. The problem or opportunity statement defines the principal starting point in the undertaking of a Class EA and assists in defining the scope of the project. The fundamental elements of the Class EA are described in this section along with the “Problem or Opportunity” established for this study.

2.1

Municipal Class Environmental Assessment Requirements

Municipal infrastructure projects must meet the requirements of the Ontario *Environmental Assessment Act*. The Class EA applies to a group or “class” of municipal projects which occur frequently and have relatively minor and predictable impacts. These projects are approved under the *EA Act*, as long as they are planned, designed and constructed according to the requirements of the Class EA.

The requirements of the Class EA depend on the type of the proposed work, its complexity and the significance of its potential environmental impacts. Under the 2024 amended Class EA, various municipal maintenance, operational activities, rehabilitation works, minor reconstruction or replacement of existing facilities (formerly classified as Schedule A and A+ projects) are now exempt or eligible for exemption from the *EA Act*. Four categories of projects are identified in the 2024 Class EA:

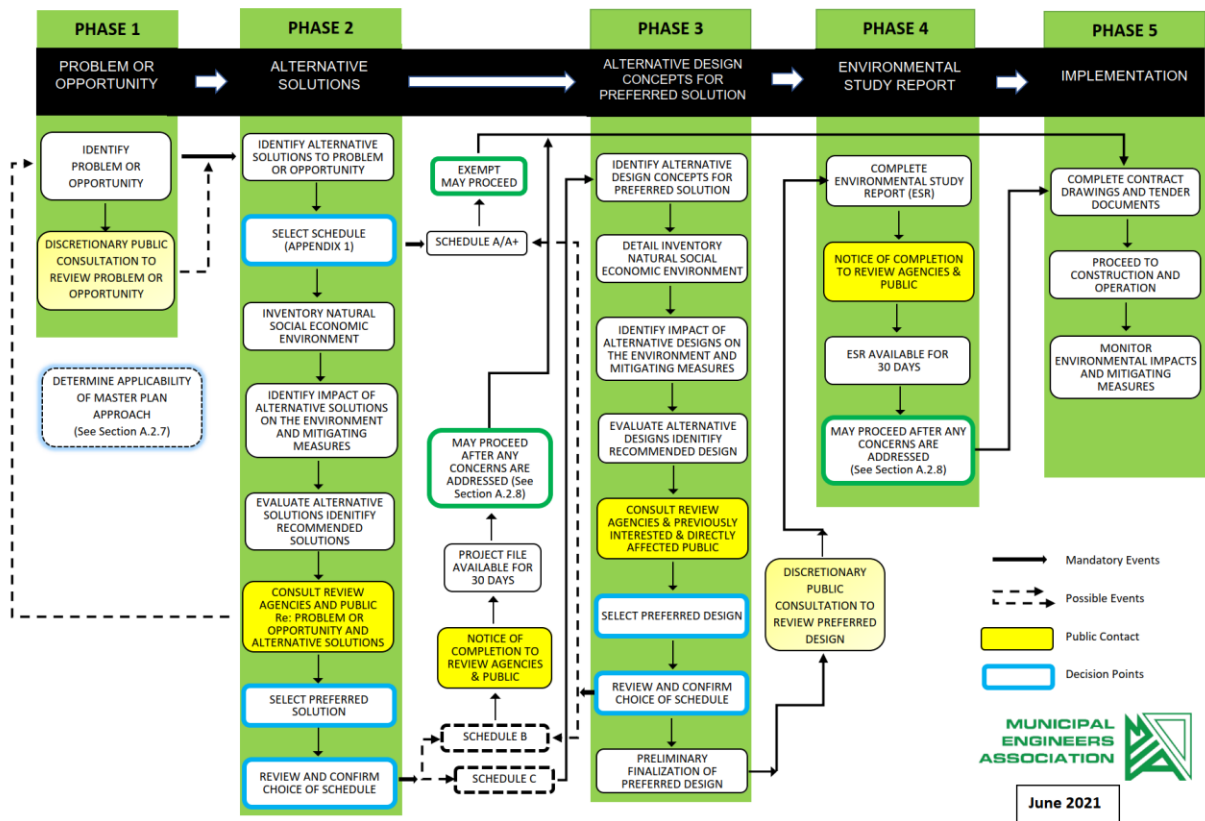
- **Exempt:** projects generally include various maintenance, operation, rehabilitation, and other small projects that are limited in scale and have minimal adverse environmental effects. Previously these projects were classified as Schedule A or A+.
- **Projects Eligible for Screening to Exempt** may be eligible for exemption based on the results of a screening process submitted to the local Ministry of Environment, Conservation and Parks (MECP) Regional Environmental Planner.
- **Schedule B** projects generally include improvements and minor expansions to existing facilities and have the potential for some adverse environmental impacts. A Schedule B project must follow Phases 1 and 2 of the Class EA process and requires an environmental screening to avoid or minimize adverse impacts. Public and agency consultation is also required. The screening process is documented in a Project File.
- **Schedule C** projects generally include the construction of new facilities or major expansions to existing facilities and have the potential for significant environmental impacts. A Schedule C project must follow all five phases of the Class EA process and requires the completion of an Environmental Study Report. public and agency consultation is required for a Schedule C project.

Figure 2-1 shows the Municipal Class EA Process.

Figure 2-1: Municipal Class EA Process

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



2.1.1

Tecumseh Hamlet Municipal Class EA Schedule Confirmation and Rationale

Section A.2.1.1 of the 2024 MCEA states that it is up to the proponent to determine the applicable project schedule based on its level of complexity. The MCE

A states that “proponents of Schedule B projects may decide to follow Schedule C requirements if the project is particularly complex or controversial and may warrant efforts beyond the minimum Schedule B requirements”. The Tecumseh Hamlet Class EA is a relatively large scale and complex study. Thirteen (13) municipal projects have been identified in this study, many of which will require coordinated implementation to service the THSPA lands. Also, the proposed projects may have a wide range of moderate to possibly significant natural, social and economical impacts that need to be planned for prior to the detailed design, construction and operational phases.

In this instance, the Town of Tecumseh is the proponent. As development proceeds, developers may build projects identified in this MCEA on behalf of the Town. Developers must follow recommendations and parameters described in this document. Cost sharing between the Town, developers and other benefiting parties shall be established at the onset of the project planning process.

Careful consideration to the MCEA schedule assignment was undertaken to ensure that a comprehensive plan that integrated the Secondary Plan process which included an extensive stakeholder engagement process. The Town consulted directly with the MECP (see **Section 8.0** Public Agency and Consultation Summary) early in the process to review the proposed approach and receive feedback. It was determined at that time that this study will be undertaken to satisfy the Schedule C requirements for all projects, therefore through the evaluation of alternatives, this study will identify the preferred conceptual design solutions for the collector road network, watermain servicing, storm and sanitary sewers, and stormwater management facilities and set the stage for eventual construction and implementation. A comprehensive level of study has been undertaken to minimize any potential impacts prior to construction and therefore, the findings of this environmental assessment study are being provided as an Environmental Study Report (ESR).

This study will build on the findings and evaluations that were completed as part of Master Plans which have recommended servicing strategies for this area.

- Town of Tecumseh Transportation Master Plan (TMP) (Dillon, 2017)
- Town of Tecumseh Water and Wastewater Master Plan (WWMP) (CIMA Canada Inc., 2019)
- Upper Little River Watershed Drainage and Stormwater Management Master Plan (ULR MP) (Stantec, 2023)
- Tecumseh Master Drainage Plan (Dillon, 2018)

The previously complete master plans have satisfied the Schedule B requirements for all municipal infrastructure. To provide a comprehensive plan, it was determined this ESR will:

- Consolidate the findings of the previously completed studies
- Better reflect the needs of the updated land use plan
- Refine impacts and required mitigation measures

The only municipal servicing element that has not been analyzed through the completion of previous master plans, is the stormwater management strategy required to service the SE Hamlet area. In this ESR, **Section 4.4.2** documents the SWM servicing solutions that were developed and assessed, and **Section 5.0** documents the evaluation of Design Concepts.

2.1.2 Tecumseh Hamlet Municipal Class EA Schedule

The MCEA (2024) classifies all proposed Tecumseh Hamlet infrastructure improvements projects as Schedule B projects as described below in **Table 1**.

Table 1: MCEA Classification of Tecumseh Hamlet Infrastructure Improvements - Road, Water, Wastewater and Stormwater Management Projects

Project Type	Projects	Municipal Class EA Schedule
Road Projects (4 Projects)	<ul style="list-style-type: none"> Gouin Street, New Urban Collector Maisonnette Street, New Urban Collector Shields Street, New Urban Collector Intersection Road, Reconstruction from Rural to Urban cross-section 	Schedule B, Eligible for Screening to Exempt, "Construction of new roads", costing less than \$3M (14b, Municipal Class EA)
Water Projects (2 Projects)	<ul style="list-style-type: none"> West Tecumseh Trunk Watermain, CR22 to CP Railway West Tecumseh Trunk Watermain, CP Railway to CR 42 	Schedule B, "Establish, extend or enlarge a water distribution system where such facilities are not in either an existing road allowance or an existing utility corridor" (4c, Municipal Class EA)
Wastewater Projects (3 Projects)	<ul style="list-style-type: none"> West Tecumseh Trunk Sewer, CR22 to CP Railway and Intersection Road Relief Sewer West Tecumseh Trunk Sewer, CP Railway to CR42 Intersection Road and Shields Street Relief Sewers including decommissioning of the St. Alphonse Pump Station. 	Schedule B, "Establish, extend or enlarge a sewage collection system ... where such facilities are not in an existing road allowance or an existing utility corridor" (22c, Municipal Class EA)
Stormwater Management Projects (4 Projects)	<p>Four (4) Stormwater Management Facilities including stormwater management ponds and pumpstation outlets.</p> <ul style="list-style-type: none"> Gouin SWMF Lachance SWMF Desjardins SWMF Southeast Hamlet SWMF Upstream Trunk Storm Sewer Infrastructure 	Schedule B, "Establish new stormwater detention/retention ... where all such facilities are not located in an existing utility corridor, or an existing road allowance or where property acquisition is required" (40b, Municipal Class EA)

As shown in **Table 1**, all projects are classified as Schedule B projects and do not meet the exemption requirements. These projects must meet the requirements of the Class EA for a Schedule B project at a minimum (Phase 1 and 2 of the Class EA process).

This EA has been evaluated to a Schedule C as noted in **Section 2.1.1** above and therefore Phases 3 and 4 of the EA process, as illustrated in **Figure 2.1**, have also been completed.

2.2 Planning Context

2.2.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement, issued under the *Planning Act*, came into effect on May 1, 2020. The Provincial Planning Statement was issued under section 3 of the Planning Act and came into effect October 20, 2024. It replaces the Provincial Policy Statement that came into effect on May 1, 2020. The PPS provides policy direction on matters of provincial interest related to land use planning and development. The PPS provides for appropriate development while protecting provincial interests, public health and safety and the quality of the natural and built environment. The Provincial Policy Statement supports improved land use planning and management, which contributes to a more effective and efficient land use planning system (Ontario.ca).

Section 3.6 of the PPS requires that infrastructure, including water, wastewater and SWM facilities, be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs. Planning for infrastructure facilities must be co-ordinated and integrated with land use planning and growth management so that they are financially viable over their life cycle and available to meet current and projected needs.

Section 3.6 requires that planning for sewage, water and stormwater services shall accommodate forecasted growth in a manner that promotes the efficient use and optimization of existing municipal sewage and water services. For transportation systems, Section 3.6 requires that planning authorities plan for and protect transportation rights-of-way to meet current and projected needs.

When planning infrastructure, Section 1.6.8.6 requires that consideration be given to the significant resources identified in Chapter 4 of the PPS, “Wise Use and Management of Resources”. Significant resources potentially affected by the alternative solutions and design concepts developed for the Tecumseh Hamlet Class EA include:

- Natural heritage resources
- Water resources
- Cultural heritage resources

2.2.2 More Homes Built Faster Act

To meet the rapidly growing need to provide more housing in Ontario, the *More Homes Built Faster Act*, received Royal Assent on November 28, 2022. The bill amends several acts pertaining to development to assist in expediting the construction of affordable homes. The Act is part of the province’s plan to have 1.5 million new homes built throughout Ontario over the next ten years. The target set for the County of Essex is 30,400 new homes by 2031.

2.2.3

County of Essex Official Plan

The County of Essex Official Plan (OP) was approved by the Ministry of Municipal Affairs and housing on April 28, 2014. The purpose of the plan is to establish a policy framework for managing growth, protecting resources and providing direction on land use decisions during the planning period to 2031. The OP states that the health of the County requires that long-range land use planning and infrastructure investment is properly managed in a way that will:

- Direct non-resource related growth and development to settlements where it can be serviced, with particular emphasis on Primary Settlement Areas.
- Protect and enhance the County's natural heritage system, natural resources, and cultural heritage resources.
- Minimize adverse effects on agricultural lands and operations and be phased to reflect the availability of appropriate types and levels of services.

The County of Essex Official Plan has been reviewed and updated as of 2024. The new OP has been adopted by County Council (2024) however the report is awaiting Provincial approval as of date.

2.2.4

Town of Tecumseh Official Plan

The Town of Tecumseh Official Plan (OP) was approved by Essex County (the Approval Authority) on June 21, 2021. The Official Plan has a 25-year horizon to the year 2045.

An important purpose of the OP is to “direct all future non-agricultural development to locate within designated urban areas, where a full range municipal infrastructure and community facilities and services can be provided in an economically and environmentally sound manner which is sustainable over the long term.” To accommodate the significant growth projected for the North Tecumseh Settlement Area, Schedule A, “Community Structure Plan”, designates the Tecumseh Hamlet as a “Settlement Area”, consisting of the existing “Residential Neighbourhoods” and “Future Growth Areas”.

Schedule B-1, “Tecumseh North Settlement Area Land Use Plan” (shown on **Figure 2-2**), designates the THSPA as “Future Development”. The lands adjacent to the Secondary Plan Area within the Tecumseh Hamlet are designated “Residential”, “General Commercial”, “Community Facility”, “Business Park”, “Recreational”, and “Natural Environment Overlay”.

As shown on Schedule C, “Natural Heritage System” (shown on **Figure 2-3**), there are four (4) areas designated “Natural Environment” within the THSPA. These areas will be referred to in this report as follows:

- North (Study Site 1) - MTO Landfill and Robinet Drain woodlot
- Central (McAuliffe Park, Study Site 2 and 3)
- East - Lesperance Road Residential Lot
- West- Black Smith Cemetery on Banwell Road

TOWN OF TECUMSEH

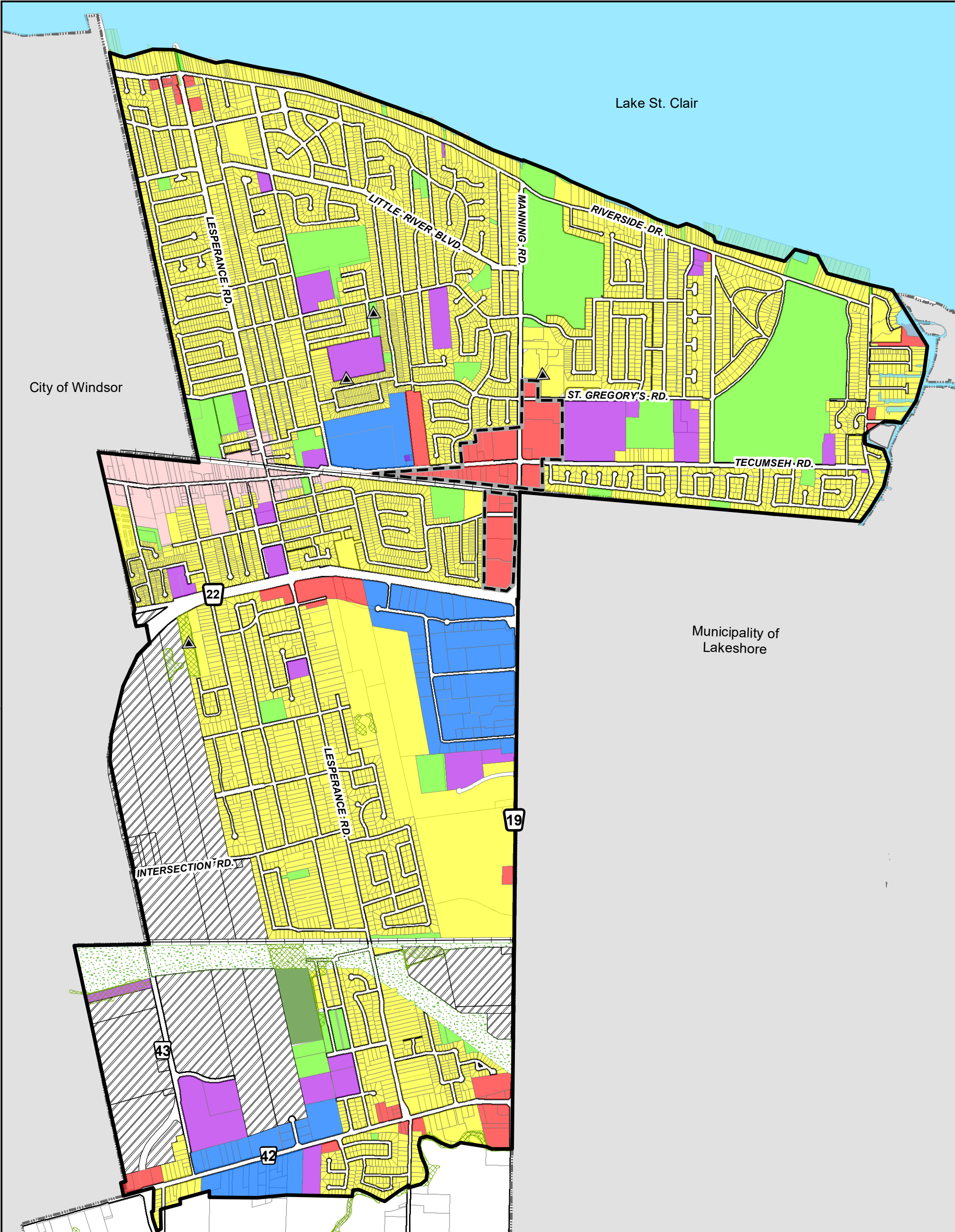
*Tecumseh Hamlet Infrastructure Improvements Class Environmental
Assessment - Environmental Study Report*

June 2025 – 23-5735

The Town's OP indicates that the "Natural Environment" includes secondary priority natural heritage features in the Town. Development and site alteration are not permitted unless the approval authority and ERCA are satisfied that there will be no negative impacts on the natural features or their ecological functions. Permitted uses on lands in this designation shall be in accordance with the underlying designation. As outlined in the OP's transportation policies, the Town is committed to the concept of "complete streets". With this approach, streets are "designed to safely accommodate the access, mobility and safety needs of motorists, transit users, bicyclists and pedestrians of all ages and abilities in the context of an efficient multi-modal transportation network." The Town is also committed to an "active transportation" system that encourages walking and cycling. To promote active, healthy living, the Town's Official Plan requires that all development in Settlement Areas contribute to the creation of a walkable and connected community.

Schedule E-1, "Road Classification", designates Gouin Street, Maisonneuve Street, Shields Street and Intersection Road as "Urban Collectors" (shown on **Figure 2-4**). According to the plan, Collector Roads provide for the movement of moderate volumes of traffic between local roads and arterial roads at low to moderate speeds. Schedule E-2, "Active Transportation Network" shows the active transportation network in the THSPA, including on and off-road networks that generally follow the urban collectors (shown on **Figure 2-4 and Figure 2-5**).

The Town's OP requires full municipal services, including water supply, sanitary sewage collection and disposal and stormwater management facilities, in THSPA.



Legend

	Settlement Area Boundary		Recreational
	Residential		Natural Environment
	General Commercial		Natural Environment Overlay
	Main Street Mixed Use		Hydro Right-of-Way
	Community Facility		Tecumseh Hamlet Secondary Plan Area (Refer to Section 11.3 and Schedules H-1 to H-15 of Official Plan)
	Business Park		

Former Landfill Site

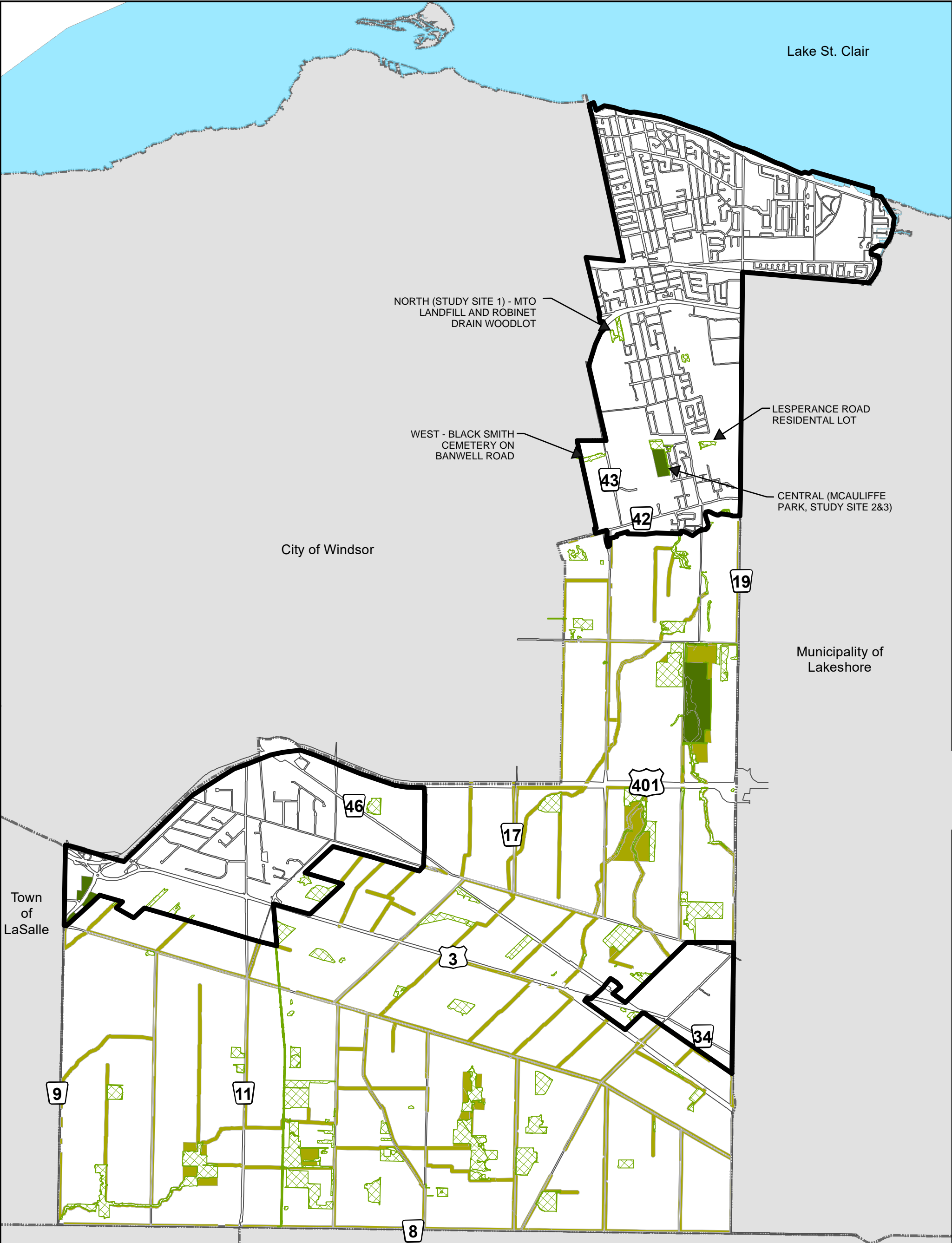
Special Policy Boundary
(Refer to Section 4.3.3 v) and Schedule I of Official Plan)

SCHEDULE "B-1"





Town of Tecumseh Official Plan

Tecumseh North Settlement Area Land Use Plan

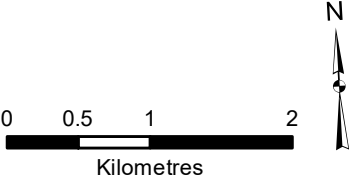
Prepared By:
Tecumseh Development Services

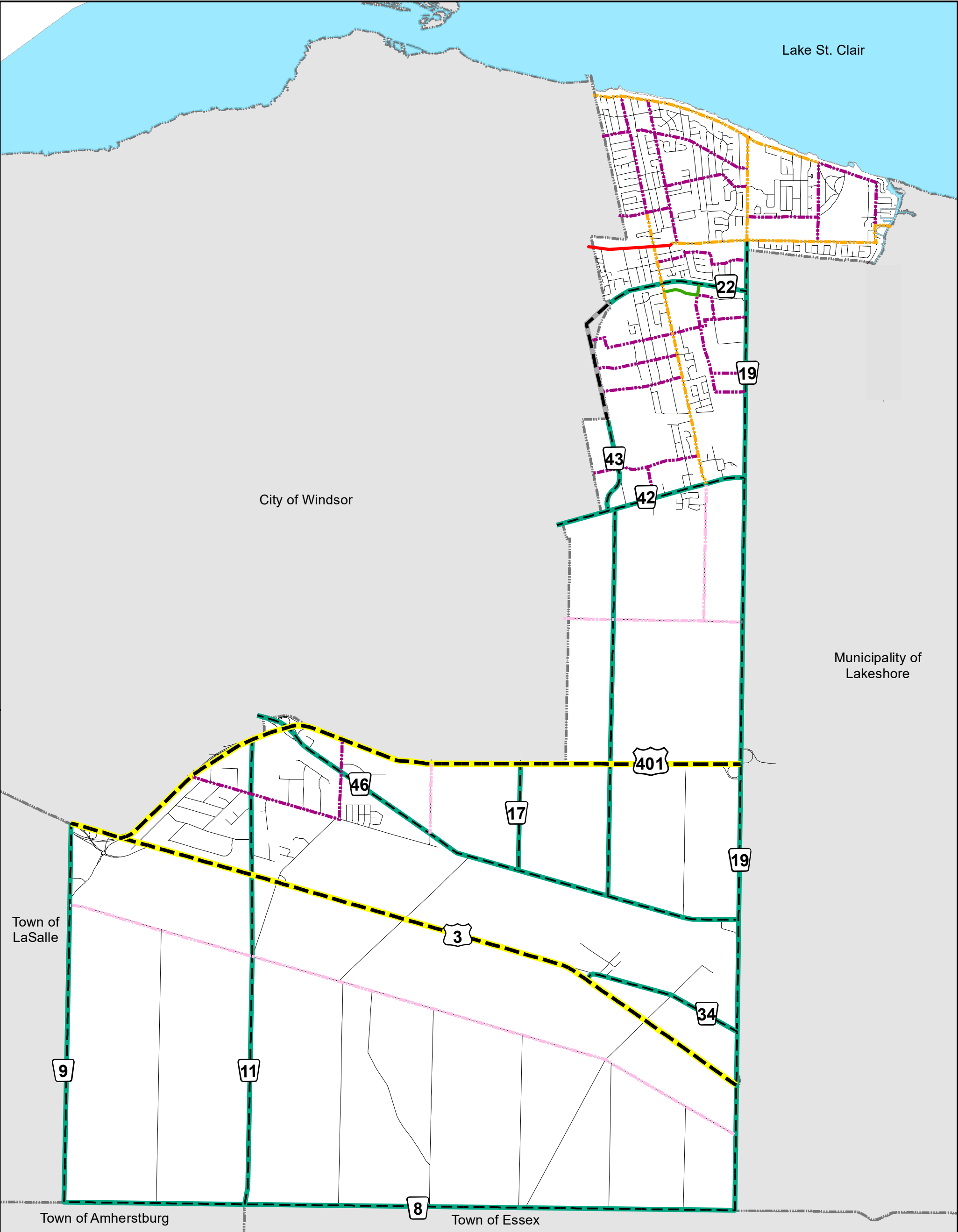


Legend

-  Settlement Area Boundary
-  Natural Environment
-  Natural Environment Overlay
-  Restoration Opportunities Overlay

SCHEDULE "C"
Town of Tecumseh Official Plan
Natural Heritage System





Legend

- | | | |
|----------------------|------------------------|-------------------|
| Provincial Highway | Arterial (Minor) | Collector (Urban) |
| County Road | Commercial Main Street | Collector (Rural) |
| City of Windsor Road | Collector/Freeway Ramp | Local Road |

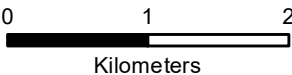
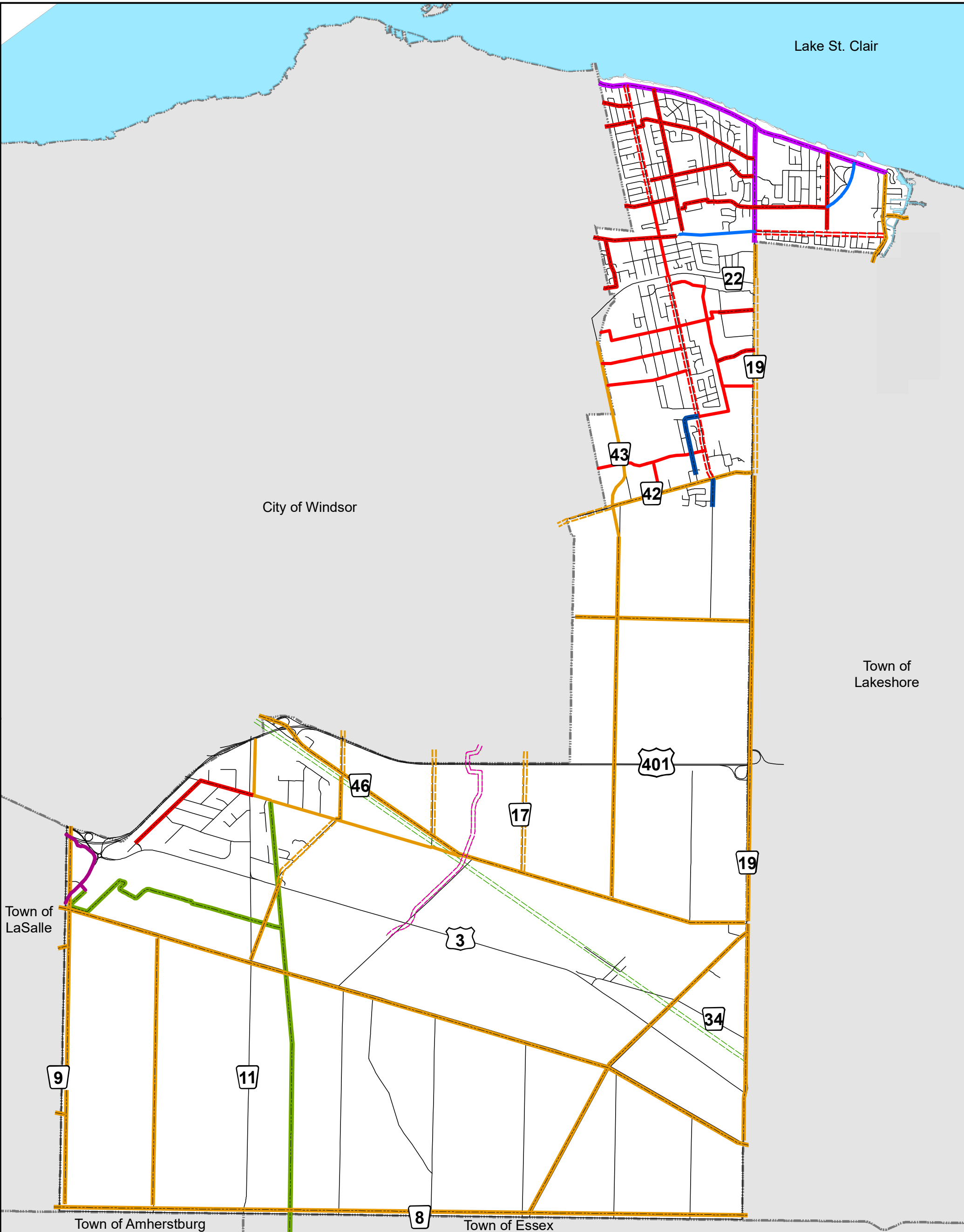


FIGURE 2-4
Town of Tecumseh Official Plan
Road Classification



Prepared By:
Tecumseh Development Services



Legend

- | | |
|-------------------------------|------------------------------------|
| Tecumseh Off-Road | Herb Grey Parkway Route |
| Tecumseh On-Road (Dedicated) | CWATS and Tecumseh On and Off Road |
| Tecumseh On-Road (Shared) | CWATS On-Road Route |
| Tecumseh On or Off Road | CWATS Off-Road Route |
| Tecumseh On and Off Road | CWATS On and Off Road Route |
| Proposed Lauzon Parkway Route | ERCA Routes |
| | Proposed ERCA Routes |

FIGURE 2-5
Town of Tecumseh Official Plan
Active Transportation Network
(Note: See Schedule B-3 for Active Transportation Network in Maidstone Hamlet Settlement Area)

0 1 2
Kilometres

N

Prepared By:
Tecumseh Planning and
Building Services Department

2.2.5 Tecumseh Hamlet Secondary Plan

The Tecumseh Hamlet Secondary Plan was completed in January 2025 by the Town of Tecumseh in collaboration with DIALOG and Dillon to establish the road network, land use and high-level servicing strategy for the THSPA.

The Secondary Plan addresses the integration of existing and new development, land use distribution, and related infrastructure requirements for the Tecumseh Hamlet. The THSPA is planned to be a complete, walkable and diverse community and will consist of a wide variety of land uses and building types.

The Secondary Plan was presented on September 24, 2024, to the public and Town Council for review and comment. On January 28, 2025, Town Council adopted the plan in advance of the completion of the Notice of Completion for this EA.

2.3 Problem and Opportunity Statement

Based on the above, the Problem and Opportunity Statement for this EA study has been identified as:

To accommodate population growth and housing, it is recommended that municipal infrastructure facilities, including road, water, wastewater and stormwater management improvements, be implemented to service new development in the Tecumseh Hamlet Secondary Plan Area. The facilities shall be planned and designed to avoid impacts on significant natural heritage, water and cultural resources and minimize other environmental impacts, including impacts on the existing Hamlet.

The need and justification for these facilities is reinforced by:

- Population, housing, employment and economic growth projections recently prepared for the County of Essex Official Plan Update are substantially higher than previous projections.
- Steady economic growth will occur across the Windsor-Essex area, including the Stellantis Electric Vehicle (E.V.) battery manufacturing facility currently under construction.
- The need to implement the Province's More Homes Built Faster Act. The target set for the County of Essex is 30,400 new homes by 2031.

3.0 Description of the Environment

This section covers environmental conditions potentially affected by the alternative solutions and design concepts developed for the proposed infrastructure improvements.

3.1 Built Environment

3.1.1 Roads and Traffic

The Town of Tecumseh is served by a network of local, collector, and arterial roads as well as highways that provide linkages within the community and to other parts of Essex County. Highway 401 and Highway 3 are the major highways in the Town. Highway 401 is a 400 series, six lane Provincial freeway and is located approximately 4 kilometres south of the Study Area. Highway 401 connects the Town of Tecumseh to the City of Windsor, the international border crossing, and the other municipalities within the County of Essex and Southwest Ontario. Highway 3 is a four-lane provincial highway and is located approximately 7 kilometres south of the Study Area. Highway 3 provides for interregional travel through the southern portion of the County of Essex and the international border crossing. The Study Area is located adjacent to County Road (CR22) to the north, County Road 19 (CR19) (also known as Manning Road) to the east, County Road (CR42) to the south, and Banwell Road/County Road 43 (CR43) to the west.

3.1.2 Transit

Transit service in the Town of Tecumseh is only available in the northern part of the Town, north of CR22. The transit system is operated by an independent contractor (First Student Canada) and is a single circuit route with 35 stops and a one-hour headway. Service operates from 6:00am to 6:00 pm Monday to Friday. On Saturdays on-demand transit service is available from 6:00 am to 6:00 pm. This is a shared-ride public transit service without a fixed schedule or route. There is no service on Sundays.

3.1.2.1 Active Transportation

The Town of Tecumseh OP (2021) and the TMP (2017) and accompanying Complete Streets Design Handbook (2015) provide direction and guidance for the design and construction of active transportation infrastructure. Within the Town there are a variety of existing cycling and pedestrian facilities serving a range of uses including local commuting and recreational travel.

These studies also identified on- or off-road routes along the existing and proposed collector right of way network throughout the Tecumseh Hamlet area. Subsequently, the THSP recommends refinements to the network based on the proposed internal Hamlet land use plan and road network.

Some of the recommended active transportation infrastructure proposed along major external right of ways have been constructed. Multi use pathways have been constructed on Lesperance Road, County Road 42 and County Road 43.

These new pathways shall serve as integral component of the THSPA active transportation network plan allowing interconnection between the existing and new development areas

3.1.3 Rail

An active Canadian Pacific Railway (CP) rail corridor is located within the Study Area south of Intersection Road, routing east to west. The CP Railway crosses the exiting north-south arterial roadways Banwell Road, Lesperance Road and CR19 via signalized at-grade crossings. Related environmental assessments (Banwell EA 2016 and CR19 EA 2008) proposed to improvements to Banwell and CR19 which included elevated grade crossings at each rail crossing via a bridge/embankment.

3.1.4 Water and Wastewater Infrastructure

The Town of Tecumseh owns and operates the water distribution system within the Town of Tecumseh. The Town also owns and operates one elevated storage facility. The Tecumseh Hamlet is supplied water from the City of Windsor through metering facilities and connections to the City of Windsor water system at the Town boundary. There are three existing metering chambers adjacent to the Study Area located at CR22, Intersection Road, and CR42. There are no existing trunk watermains within the Study Area however, trunk watermains are located along CR22, CR42 and CR19.

The Town of Tecumseh owns and operates the local wastewater collection system which consists of local collection sewers including lateral service connections to the property lines, trunk sewers, pumping stations, and associated appurtenances. Wastewater treatment is provided to the Town by the City of Windsor based on a 2004 Wastewater Servicing Agreement between the Town of Tecumseh and the Windsor Utilities Commission (WUC) (also known as ENWIN Utilities Inc.). An existing outlet location for discharge of monitored flow is located adjacent to the Study Area at the intersection of CR 22 and Banwell Road. An existing flow control chamber is located at CR22 and Lesperance Road. There are no existing forcemains, local sewers, or trunk sewers within the Study Area however, trunk sewers are located along CR22, CR 42 and Lesperance Road.

The Town’s WWMP (2018) provides the framework for the expansion of both the water and wastewater systems which provided the basis for the design recommendations herein.

3.2 Physical Environment

3.2.1 Physiography and Drainage

The Project is located within the St. Clair Clay Plains physiographic region of southern Ontario. Within this larger region, the Study Area is located within the Essex Clay Plain. Topography in the Study Area is generally flat, and ranges from 180.0 and 184.0 metres above sea level.

The Study Area lies over the Hamilton Group formation where the bedrock is comprised of limestone, dolostone, and shale (Ministry of Mines n.d.)

The underlying soil conditions in the area are predominantly Brookston Clay with bands of Brookston Clay Sand Spot Phase at the northern edge and south of the rail corridor on the western portion of the Study Area (OMAFRA n.d.a). Brookston Clay is known as a poorly drained soil (Richards et al. 1949). To improve drainage in the area, ditches and tile underdrains have been constructed throughout Essex County (Chapman & Putnam 1984).

The THSPA is located in the Upper Little River Watershed under the jurisdiction of the ERCA. Within the Study Area, all municipal drains are channelized. The following municipal drains are located within the Study Area: Gouin Drain, Robinet Drain, Lachance Drain, Desjardins Drain, Banwell Road Drain, Antaya Drain and East Townline Road Drain.

Surface drainage in the area is primarily northward towards Lake St. Clair. Little River and its tributaries function as a significant natural drainage feature for the area. The Banwell, Desjardins, Lachance, and Gouin Drains generally flow west or northwest into Little River. The Antaya Drain is located in the eastern portion of the Study Area along CR19 (Manning Road) and flows east connecting with the East Townline Road Drain which flows north towards Lake St. Clair.

The lands are currently agricultural land that are classified as Class 2 which are defined by Ministry of Agriculture, Food and Rural Affairs (OMAFRA) to be prime agricultural soils for common field crop production. Class 2 soils have moderate limitations that reduce the choice of crops or require moderate conservation practices. These lands are often moderately high to high in productivity for a broad range of common field crops (OMAFRA n.d.b). Most rural lands within Essex County are comprised of prime agricultural lands (Classes 1-3).

A search of the Federal Contaminated Sites Inventory revealed no records of historical contamination (closed and active sites) within the Study Area (Treasury Board of Canada Secretariat 2023). A search of the MECP record of site conditions website also found no previous record of soil or groundwater contaminations exceeding the allowable levels in the Study Area (MECP 2023).

3.2.2 Source Water Protection

The Study Area falls under the Essex Region Source Protection Area.

Vulnerable Areas are areas where drinking water quality and quantity may be threatened by certain activities. In Essex Region, drinking water is sourced from surface water intakes. To protect drinking water quality and quantity, mandatory policies to protect drinking water within Intake Protection Zones (IPZs) and Event Based Areas (EBAs) apply. ERCA has also identified Highly Vulnerable Aquifers (HVAs) and Significant Groundwater Recharge Areas (SGRAs) that would be susceptible to contamination. However, groundwater is not used to supply municipal water treatment plants in the Region and there are no mandatory policies that apply to these areas. An overview of the four vulnerable areas as they relate to the Study Area is provided below.

Intake Protection Zones (IPZs)

IPZs are areas where run-off from streams or drainage systems could carry contaminants to the source water intakes. ERCA has identified three types of IPZs. Intake Protection Zone 1 (IPZ-1) are areas closest to the intake where the greatest threat to drinking water is. Intake Protection Zone 2 (IPZ-2) are areas just beyond IPZ-1 and reflect areas where water and contaminants could reach the intake within 2 hours.

Intake Protection Zone 3 (IPZ-3) are areas beyond IPZ-2 where contaminants may reach the intake during an extreme weather event and are generally identified in areas where contaminants could reach the intake within 24 hours. Vulnerability scores ranging from 1 to 10 (with 10 being the most vulnerable) are assigned for IPZ-1 and IPZ-2 as well as for the IPZ-3s for intakes in Lake St. Clair.

The Study Area is partially located within areas identified as IPZ-3. The IPZ-3s within the study area have not been assigned vulnerability scores. However, the IPZ-3 along CR19 on the eastern edge of the Study Area has a moderate vulnerability score of 4.5.

Event Based Areas (EBAs)

EBAs are areas where a spill from specific activities could contaminate source water. EBAs are located within the vicinity of all existing municipal drains.

Highly Vulnerable Aquifers (HVAs)

An HVA is an aquifer on which external sources have or are likely to have a significant adverse impact and include the land above the aquifer. No HVAs were identified in the Study Area.

Significant Groundwater Recharge Areas (SGRAs)

SGRAs is a recharge area that helps maintain the water level in an aquifer that supplies a community with drinking water. No SGRAs were identified in the Study Area.

Consultation with ERCA regarding source water protection requirements is detailed in Section 8.0.

3.2.3**Groundwater and MTO Former Landfill Site**

A former landfill site is located at the northeastern portion of the THSPA study area. This landfill is currently owned by the Ministry of Transportation (MTO) and this site is not proposed for redevelopment as part of this plan. The Town retained Dillon to conduct a groundwater and methane investigation for lands adjacent to the former landfill. A final investigation report, dated August 2023, has been included in **Appendix A**.

This investigation included the drilling of eight monitoring wells, three of which were equipped with gas probes and five were installed as monitoring wells.

Methane gas was not detected during the investigation and therefore there is negligible potential for gas from the former landfill site to migrate onto developable lands.

Volatile organic compounds analyzed (benzene, toluene, dichloromethane, vinyl chloride and 1, 4-dichlorobenzene) were not detected in groundwater during the investigation. As such volatilization is not concern to human health and safety.

Chloride and sulphate are indicator parameters for leachate. Chloride and sulphate met the applicable Ontario Drinking Water Quality Standards; however, it is noted that concentrations at monitoring wells adjacent to the former landfill site were higher compared to wells further south of the former landfill site. This Indicates that the refuse does appear to be influencing groundwater in the developable lands in the Hamlet SPA to an extent, however, the parameter concentrations in groundwater are not a concern to human health and safety.

During the early stages of this EA, the MECP has directly consulted the MTO on the completion of additional testing and analysis related to the completion of a source characterization report for the former landfill site noted above. The MTO has proceeded with the completion of additional testing of this study however the findings of this study were not available at the time of this study.

The MECP has completed an initial review of this EA and has provided comments in relation to this formal landfill site via letter dated December 12, 2024. MECP's comments were responded to via letter dated December 12, 2024 (Appendix G), by addressing concerns about groundwater and methane monitoring, as well as the D-4 Series Guidelines. It was clarified that a preliminary Groundwater/Methane Report (2023) indicated that there were no major concerns regarding groundwater or methane at the site, and that additional methane monitoring conducted in March 2025 under frozen conditions further confirmed these findings, with no evidence of methane gas migration detected, as described below. While acknowledging the preliminary nature of their report, a more comprehensive D-4 study would be completed by the developer during the site plan approval process and after the MTO source characterization report becomes available. They also noted that the MTO, as the landowner, is responsible for managing any contaminants leaving the landfill site, and that MTO has not yet provided a timeline for their report or field findings. To supplement the methane monitoring completed in the Groundwater/Methane Report (2023), additional monitoring was completed on March 19, 2025, which was considered representative of frozen conditions. The March 2025 monitoring confirmed the findings of the Groundwater/Methane Report (2023) and no evidence of methane gas migration has been detected. The results of all the Groundwater and Methane Investigations have been consolidated in **Table 2**. Based on these findings, gas monitoring testing is considered to be comprehensive for the purpose of this study.

However, based on the results of the Groundwater and Methane Study, there are no major concerns related to groundwater or methane at the site (findings, however, shall be confirmed based on the results of the MTO study). If required, D-4 Series Guideline study shall be completed by the developer as part of the draft plan of subdivision process to confirm necessary buffers required between the landfill site and development as well as, any required engineering measures required to mitigate impacts of contaminate migration.

Table 2: Groundwater and Methane Investigation

Location	Type	Date	Methane (% Gas)	Methane (% LEL)
GP22-101	Gas Probe	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
GP22-102	Gas Probe	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
GP22-103	Gas Probe	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
MW22-101	Monitoring Well	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
MW22-102	Monitoring Well	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
MW22-103	Monitoring Well	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
MW22-104	Monitoring Well	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0
MW22-105	Monitoring Well	26-Sep-22	0.0	0.0
		18-Oct-22	0.0	0.0
		23-Mar-23	0.0	0.0
		15-May-23	0.0	0.0
		22-Jun-23	0.0	0.0
		19-Mar-25	0.0	0.0

Notes:

LEL Lower explosive limit

3.3 Natural Environment

A Natural Environment Existing Conditions Report (**Appendix B**) was prepared to provide baseline information on the natural environment and the potential for Species at Risk (SAR) that may exist within the Study Area; and to provide recommendations on future mitigation measures to minimize the potential impacts identified. A site reconnaissance was conducted on March 21, 2023, to document existing and potential natural heritage features, significant wildlife habitat (SWH) and SAR habitat, if present.

In summary, the Study Area contains 13 Ecological Land Classification (ELC) communities; seven natural and six cultural. Communities fall under one of the 4 classifications:

Natural ELC Communities:

- SWDM1-1 – Swamp White Oak Mineral Deciduous Swamp
- MEM - Mixed Meadow

Cultural ELC Communities:

- OAGM1 - Annual Row Crop
- TAGM5– Fencerow

The ELC communities are shown on **Figure 3-1** and further documented in the Natural Environment Report (**Appendix B**).

Candidate SAR Habitat

Bobolink/Eastern Meadowlark

within MEM, OAGM1

Wood Thrush and Red-headed Woodpecker

within FOD, FODM1-2, SWDM1, SWDM1-1

SAR Bat Species

within FOD, FODM1-2, SWDM1, TAGM5, SWDM1-1

Eastern Foxsnake and Butler's Gartersnake

within FOD, FODM1-2, MEM, SWDM1, TAGM5,
THDM2-11, THDM4-1, SWDM1-1

Willowleaf Aster

within FOD, FODM1-2, MEM, SWDM1, TAGM5,
THDM2-11, THDM4-1, SWDM1-1

Flowering Dogwood, Butternut

within FOD, FODM1-2, SWDM1, SWDM1-1, TAGM5

Eastern Prairie Fringed-orchid

within SWDM1, SWDM1-1, THDM2-11, THDM4-1, MEM

Purple Twayblade

within FOD, THDM4-1, SWDM1-1

Confirmed SAR Habitat

Purple Twayblade

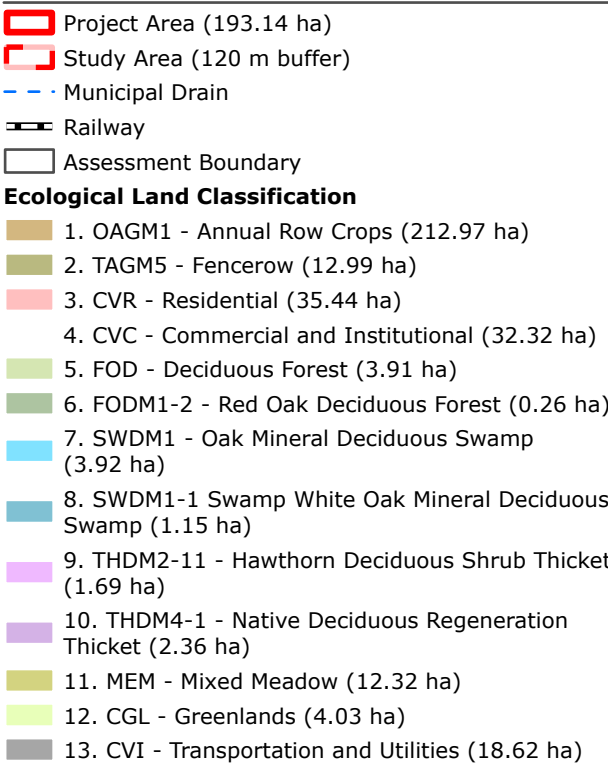
within FODM1-2, SWDM1, THDM2-11,

TECUMSEH HAMLET

NATURAL ENVIRONMENT EXISTING
CONDITIONS

SPECIES AT RISK HABITAT

FIGURE 3-1



MAP DRAWING INFORMATION:
DATA PROVIDED BY Dillon Consulting

MAP CREATED BY: JL
MAP CHECKED BY: TH
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 23-5735
STATUS: DRAFT
DATE: 2023-07-13

3.3.1 Aquatic and Fish Assessment

Seven municipal drains with Class F designation intersect the Study Area. According to the Department of Fisheries and Oceans Canada (DFO) Drain Classification system and OMAFRA mapping, all drains within the Study Area are Class F municipal drains which means they have an intermittent flow regime with no sensitive fish species presence. Given that these drains have intermittent flow and are connected to larger, downstream watercourses, there is potential that fish have access to these drains during periods of higher flow. A summary of parameters measured in the aquatic assessments can be found in the Natural Environment Report (**Appendix B**).

It should be noted that the Little River Drain is a Class 'C' drain but is over 1 km downstream and beyond DFO's impact zone (linear length of water course extending 1 km downstream of the bottom end of a work zone).

3.3.2 Natural Heritage Feature Assessment

An evaluation of Natural Heritage Features within the Study Area resulted in the following findings:

Fish Habitat: All drains located within the Project Area are Class F municipal drains. These drains have an intermittent flow regime with no sensitive fish species present.

Woodlands: Four (4) woodlands are observed within the study area. All of the wooded vegetation communities identified within the Study Area meet criteria for significance, with the exception of the Deciduous Forest located along the eastern boundary of the Study Area boundary (Black Smith Cemetery).

Wetlands: Two (2) unevaluated wetlands have been identified through ELC mapping.

- McAuliffe Woods - SWDM1 - Oak Mineral Deciduous Swamp (3.92 ha)
- Northern Wood Lot (Robinet Drain) - SWDM1-1 - Swamp White Oak Mineral Deciduous Swamp (1.15 ha)

Areas of Natural and Scientific Interest (ANSI): No Life Science or Earth Science ANSIs were identified within the Study Area based on secondary source reviews.

3.3.3 Wildlife and Wildlife Habitat

Fifteen terrestrial SAR have the potential to occur within the Project Area and Study Area, as well as Confirmed and Candidate Significant Wildlife Habitat. Results of the screening and site reconnaissance activities occurring in 2023 were summarized in the Natural Environment Report (**Appendix B**). Various 'Candidate' and 'Confirmed' Significant Wildlife Habitat (SWH) were observed during the completed Field surveys.

Although SAR was not observed during field assessments, communities within the Study Area were assessed as a potential SAR habitat based on background review and known species occurrences.

3.3.3.1 Significant Wildlife Habitat (SWH)

As the Study Area is located in Ecoregion 7E (the Carolinian Zone), the presence of significant wildlife habitat (SWH) was assessed according to the Significant Wildlife Habitat Technical Guide (MNRF, 2000) and the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF, 2015a). Habitat types considered include seasonal concentration areas of animals; rare vegetation communities or specialized habitat for wildlife; habitat for species of conservation concern and animal movement corridors.

SWH identified within the Study Area was confirmed, identified as candidate, or ruled out using criteria outlined in the Ontario Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF, 2015a), habitat mapping reviewed from aerial imagery, and information collected during the 2023 site reconnaissance. Incidental observations of wildlife (including dens, tracks and scats, and other wildlife evidence) were recorded during the 2023 site visits.

3.3.4 Climate

Climate averages are commonly used to describe the climatic conditions of a particular location in Canada. At the end of each decade, Environment and Climate Change Canada (ECCC) updates its climate averages for several locations across Canada and for as many climatic characteristics as possible. The climate averages and extremes are obtained from Canadian climate stations with at least 15 years of data between 1981 and 2010 (ECCC 2023a).

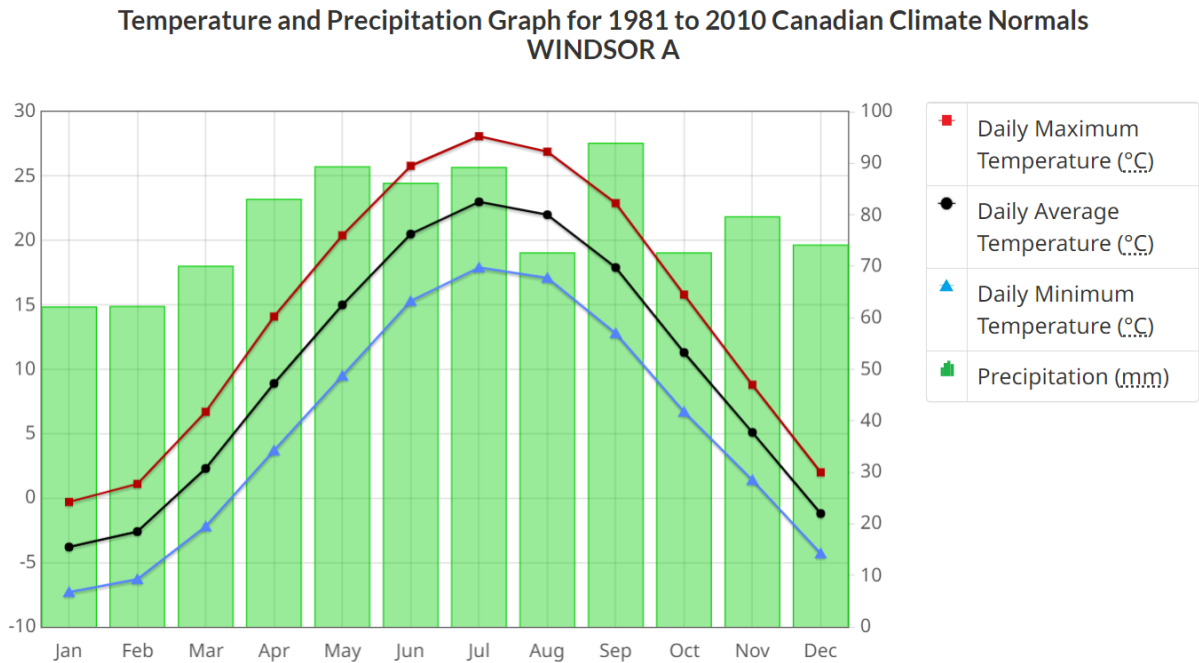
The nearest Environment and Climate Change Canada (ECCC) climate station to the Project was identified as the Windsor A station, located approximately 5km west of the Study Area. **Figure 3-2** shows temperature and precipitation data averaged over the 29-year period of 1981 to 2010 recorded for the Windsor A station (ECCC 2023a).

3.3.4.1 Air Quality and Greenhouse Gases

The nearest Air Quality Health Index (AQHI) monitoring stations to the Study Area are the Windsor West and Downtown Windsor stations. The Downtown Windsor station is located approximately 12 kilometres west of the Study Area and the Windsor West station is located approximately 14 kilometres west of the Study Area. At both the Windsor West and Downtown Windsor station the 10-year trend shows a decrease in annual mean of nitrogen dioxide and sulphur dioxide.

According to the County of Essex Regional Energy Plan (2021), in 2019 residents of the County produced 11.5 metric tonnes of greenhouse gasses (GHG) emissions per person which is five times the global best practice and about eight times higher than the Paris Agreement (County of Essex 2021).

Figure 3-2: Temperature and Precipitation Graph for 1981 to 2010 - Windsor A



3.4 Socio-Economic Environment

3.4.1 Updated Population and Growth Projections

The 2021 census population of the Town of Tecumseh was 23,300 according to Statistics Canada. The Town of Tecumseh OP (June 21, 2021) includes population, housing and commercial and industrial demand forecasts:

- Population Forecast – by 2045, the horizon year of the OP, the Town’s population is expected to increase by 8,750 people (37%), from 23,300 in 2021 to 32,050 in 2045, the horizon year of the Official Plan.
- Housing Forecast - based on the population projections, an additional 4,377 housing units will be required during the planning period.
- Commercial and Industrial Demand Forecast – An increase of 3,450 commercial and industrial jobs are expected over the 25-year planning period to 2045.

Section 1.5.3 of the Town’s OP notes that the County of Essex initiated a review and update of the County’s OP in 2021 and once the update has been approved, the population forecasts in the Town’s Official Plan will be re-evaluated and amended, if necessary.

Since the Master Plans and the Town's Official Plan were prepared, the growth potential of Windsor-Essex, the Town of Tecumseh and Tecumseh Hamlet changed in 2023 when Stellantis N.V. and L.G. Energy Solution (L.G.E.S.) announced a joint venture to build Stellantis EV battery plant. An investment of over \$5 billion CAD, the facility is currently under construction west of the Tecumseh Hamlet. It is expected to be operational by 2025.

The County of Essex has completed an update to their Official Plan in October 2024. As part of this update, the County has prepared a number of background studies, including Watson & Associates Economists Ltd.'s County of Essex Growth Analysis Report, October 5, 2022. The report includes the following population and employment and housing projections for the Town of Tecumseh which are significantly higher than the Town's Official Plan projections:

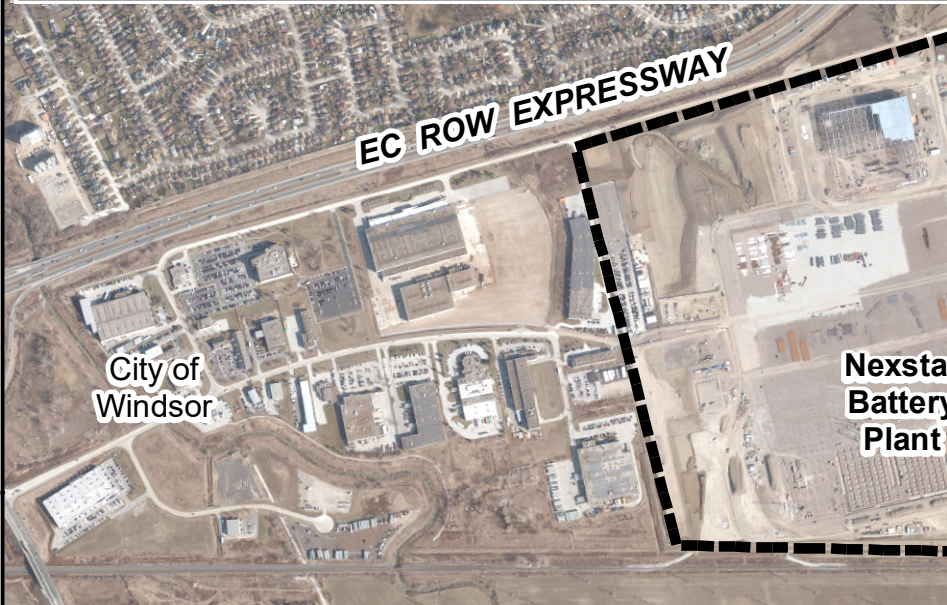
- Under a "Medium Scenario", the Town's population is expected to increase to between 35,300 and 42,300 people by the year 2051.
- The population is anticipated to grow at an annual rate of between 1.3% and 1.9% over the next 30 years from 2021 to 2051. This rate is significantly higher than the negative growth rate of - 0.4% annually over the last 20 years from 2006 to 2021.
- The employment base of Tecumseh is expected to grow at an annual rate of between 1.1% and 1.5%. This is also significantly higher than the employment growth rate from 2006 and 2021, estimated at 0.8% annually.
- Residential building permit activity in the Town has steadily increased over the last five years. Forecasted housing growth over the next 30 years is anticipated to remain well above the historical long-term average of the last 15 years. Based on this, 6,830 new housing units will be added from 2021 to 2051, or about 230 units annually.

The report concludes that steady economic growth will occur across the Windsor-Essex area, most notably associated with the need for local supply chains to support the planned Stellantis EV battery manufacturing facility. The facility will create about 3,200 direct new jobs with an additional 15,000 indirect supply chain jobs.

As part of the Tecumseh Hamlet Secondary Plan Area and Manning Road Secondary Plan Area- Growth Projections and Water, Wastewater and Roadway Improvements (January 2025) a Growth Forecast for residential and commercial development was estimated, as shown on **Figure 3-3**.

The Town's Development Charge Update Study (Watson & Associates Economists Ltd.) (May 2024) also speaks to projected population yields within the Tecumseh Hamlet. Proposed municipal infrastructure improvements as well as budgetary estimates have been included for planned cost recovery through Town-Wide Development Charges.

Growth Projection Summary		
Existing housing units in Tecumseh as of 2024.		9,983
Potential New Housing Units Enabled	Potential Increase in Overall Housing Units	
THSPA : 4,303 units	THSPA : 43%	
MRSPA : 3,300 units	MRSPA : 33%	
TOTAL: 7,606 units	TOTAL: 76%	



Tecumseh Hamlet Secondary Plan Area (THSPA) (441 acres) (Growth Projections as of August 2024)				
Area	Estimated Residential Units	Estimated Commercial Floor Area	Estimated Servicing Costs	Possible Timing of Construction
1A	1,834	0.44 M sq. feet	\$17.4 M	2025
1B	383	-	\$11.6 M	2026 / 2027
2	1,736	0.17 M sq. feet	\$28.0 M	2027
3	350	-	-	2026
Total 2024 Projections	4,303	0.61 Million sq. feet		
Original 2012 Projections	2,495	0.41 Million sq. feet		

Tecumseh Hamlet Secondary Plan Lands

Manning Road Secondary Plan Lands

Sanitary Trunk Sewer

Water Trunk Main

Future Sanitary Trunk Sewer

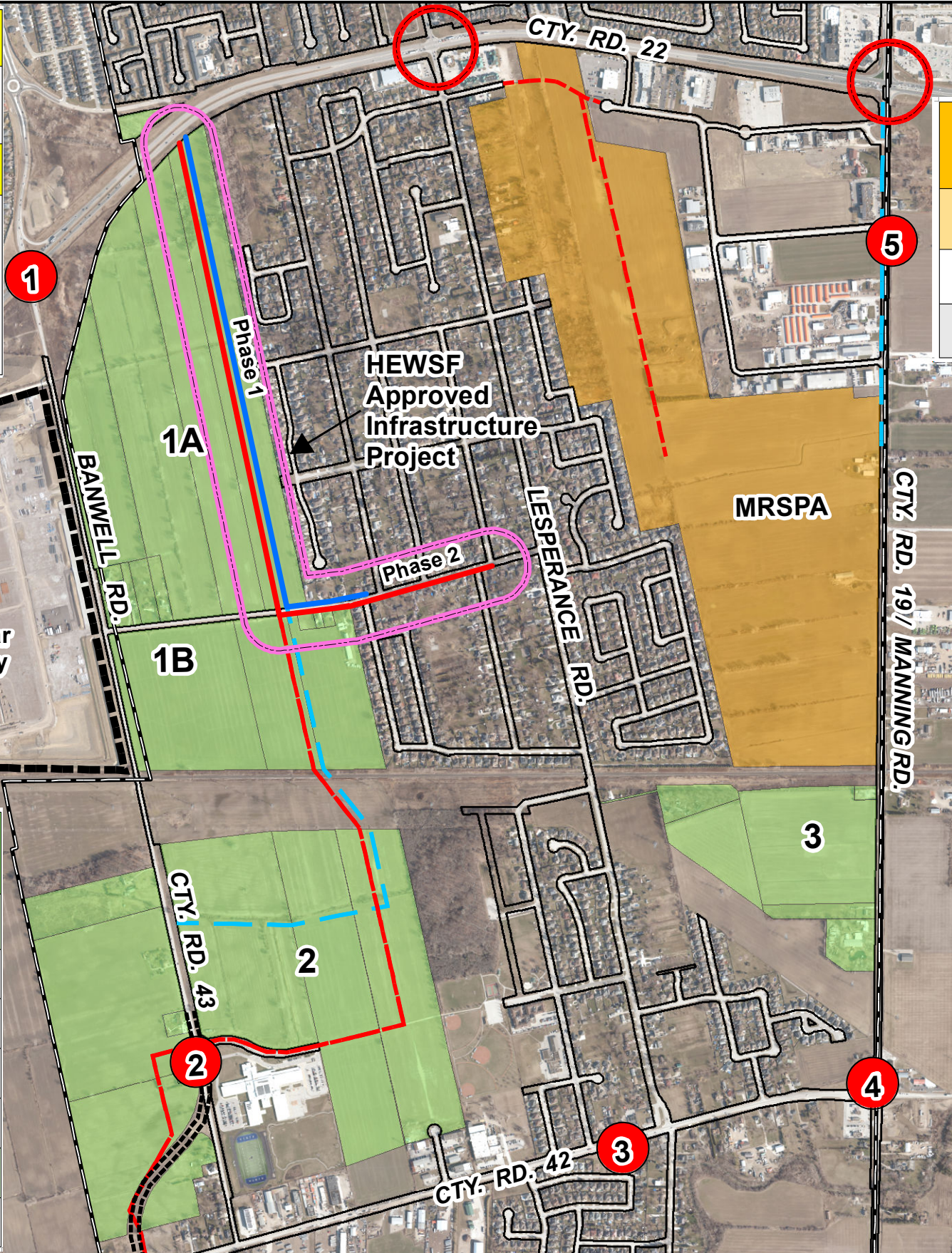
Future Water Trunk Main

Municipal Boundary

Future Interchange

1

Roadway Improvement Projects (see chart)



Manning Road Secondary Plan Area (MRSPA) (243 acres) (Growth Projections as of August 2024)				
Area	Estimated Residential Units	Estimated Commercial Floor Area	Estimated Servicing Costs	Possible Timing of Construction
Total 2024 MRSPA Area	3,300	139,390 sq. feet	\$35.8 M	2025 / 2026
Original 2014 Projections	755	-		

Roadway Improvement Projects		
Project Areas	Estimated Construction Cost	Timing of Construction
1 Banwell Road Reconstruction and Banwell/ EC Row Interchange	\$58 M	2025-2026
2 County Rd. 43 Diversion and Reconstruction		2024
3 County Rd. 42 Reconstruction	\$ 85 M	2025
4 Manning Rd. / County Rd. 42 Intersection Improvements		2025
5 County Rd. 19 Improvements	\$60 M	2025-26

Town of Tecumseh - Map 1

Tecumseh Hamlet Secondary Plan Area and Manning Road Secondary Plan Area

Growth Projections and Water, Wastewater and Roadway Improvements

January 2025

0

250

500

Metres

Prepared By:

Development Services

3.5 Cultural Environment

3.5.1 Archaeological Resources

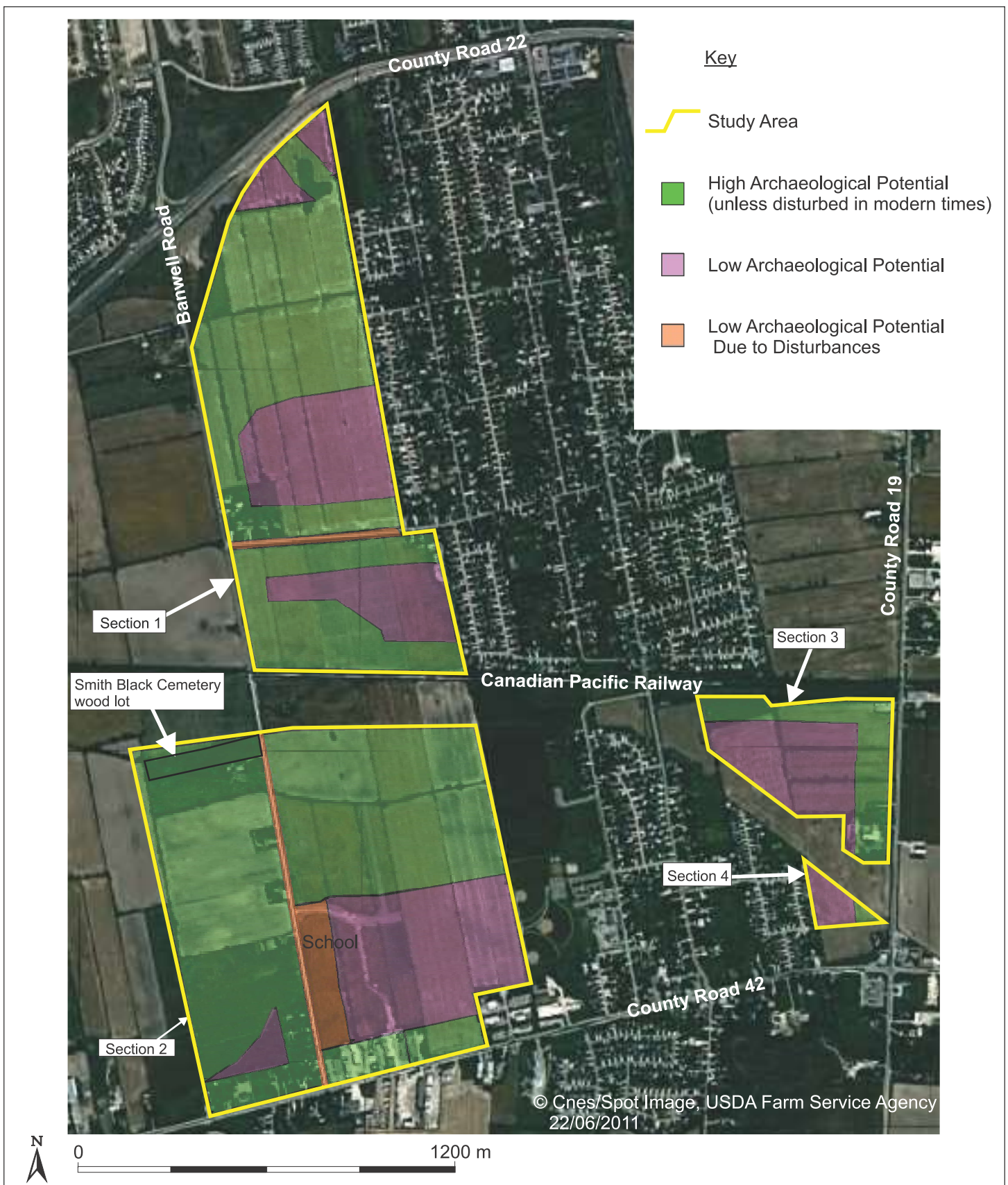
A Stage 1 Archaeological Assessment (PIF P042-288-2012) was undertaken by Fisher Archaeological Consulting for the Tecumseh Hamlet that consisted of a review of current land use, historic and modern maps, registered archaeological sites, past settlement history for the area, and a consideration of topographic and physiographic features, soils, and drainage.

The Stage 1 Archaeological Assessment (**Appendix C**) was reviewed by MCM and was entered into the Ontario Public Register of Archaeological Reports on April 1, 2015.

The findings of the study concluded that a significant proportion of the Study Area contains areas of high archaeological potential (**Figure 3-4**). As a result, the recommendations indicate that the areas of high archaeological potential within the Study Area should be subjected to a Stage 2 Archaeological Assessment prior to any development. The report also indicates that the potential may be reduced during the Stage 2 Archaeological Assessment due to extensive modern disturbances.

In 2023, to support proposed improvements with the THPSA area, the Town partnered with the local property owner group, to complete a Stage 2 Archaeological Assessment within the study area north of Intersection Road, east of Banwell Road and west of the existing residential development area. The Stage 2 assessment (TMHC, 2023) resulted in the documentation of one archaeological location, which does not qualify for Stage 3 based on provincial criteria. As such, the subject property should be considered free of archaeological concern and no further archaeological assessment is recommended. This report was accepted by the MCM on August 28, 2023.

The Town is also partnering with stakeholders to complete further Stage 2 studies of the THSPA area, south of the CPR corridor, generally between CR43 and Lesperance Road. The field work for this study was completed in the Spring of 2025 by TMHC. It is anticipated that the Stage 2 report will be completed and submitted to the MCM by the Fall of 2025.



Fisher Archaeological Consulting

TECUMSEH HAMLET SERVICING PLAN
Dillon Consulting Limited

Figure 3-4: Archaeological Potential Results

3.5.2 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (CHR) was completed in September 2023 by Archaeological Services Incorporated (ASI) for the Project and is provided in **Appendix D**. The CHR presents an inventory of known and potential built heritage resources and cultural heritage landscapes, identifies existing conditions of the project Study Area, provides a preliminary impact assessment, and proposes appropriate mitigation measures.

The analysis revealed that there is one known cultural heritage landscape (CHL), three potential CHLs, one potential built heritage resource (BHR), and one commemorative feature (CF) within the Study Area (**Figure 3-5**).

Figure 3-5: Location of Identified B.H.R., C.H.L.s, and C.F, in the Study Area (Figure 7 from Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment)

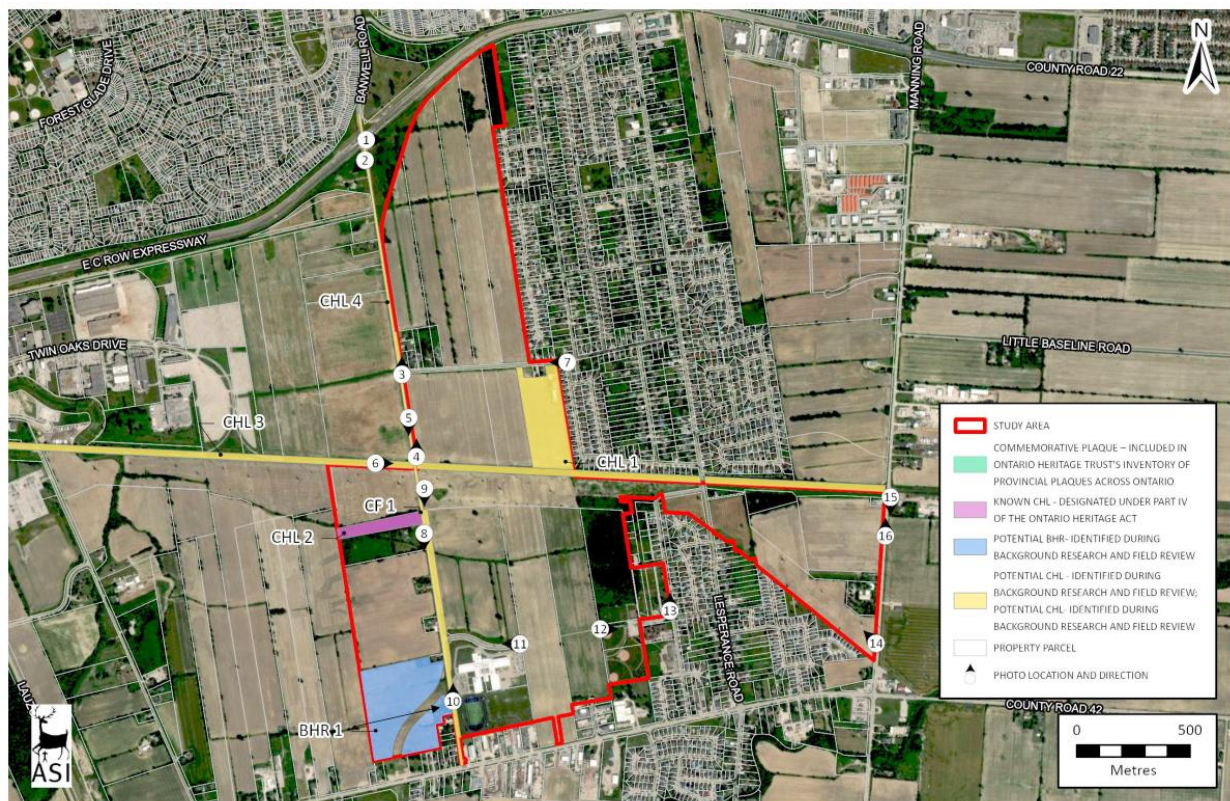


Table 3: Cultural Heritage Resources

Cultural Heritage Resource	Location
Known CHL	Smith Cemetery; Smith Black Cemetery; Banwell Cemetery
Potential CHL	Lachance Farm
Potential CHL	Railway (former Ontario and Quebec Railway not operated by the Canadian Pacific Railway)
Potential CHL	Banwell Road (Streetscape)
Potential BHR	2551 Banwell Road
CF	Provincial plaque (commemorates the former Banwell Road Area Black Settlement)

3.5.3 Indigenous Community Land and Resource Use

Based on the findings of the Stage 1 Archaeological Assessment (Fisher Archaeological Consulting, 2013) (**Appendix C**), there is high potential for Indigenous resources. Further Archeological investigation is required to confirm presence of resources through the completion of Stage 2 Assessments. Refer to **Section 8.0** Public and Agency Consultation for discussions on Indigenous Community engagements and participation during Stage 2 archaeological studies completed in 2023 and currently underway for the THSPA area.

4.0 Phase 2: Alternative Solutions Review and Update

Phase 2 of the Class EA process consists of the identification and evaluation of alternative solutions that could potentially solve the problems and take advantage of the opportunities identified in Phase 1.

As noted previously, the Town completed municipal servicing master plans (MPs) to develop and evaluate the servicing solutions Alternatives in support of development with the THPSA. These MPs satisfied the Phase 2 requirements of the EA process for all identified projects. The resulting recommended solutions from those EAs will be used as the basis for the development and evaluation the Design Concept Alternatives in Phase 3 of the EA process discussed in **Section 5.0**. This section summarizes the outcomes and municipal servicing projects that were defined as part of the previously completed MPs.

4.1 Road Projects

4.1.1 Preferred Road Projects from Transportation Master Plan

According to the TMP's Transportation Strategy (See **Appendix I**) developed for the plan, conventional car travel will remain the primary mode of travel within the Town. The role of transit, however, is expected to increase over the horizon of the plan, driven by growth and increasing demand for transit. To encourage sustainable transportation, the role of active modes will be elevated, particularly for local trips in settlement areas, like the Tecumseh Hamlet.

Based on the road network and land use pattern designated in the Tecumseh Hamlet Secondary Plan, the following four road improvement projects were identified as preferred solutions to service future development in the Tecumseh Hamlet:

- Gouin Street extension, New Urban Collector between Corbi Lane and Banwell Road and reconstruction from Rural to Urban cross-section between Lesperance Road and Corbi Lane.
- Maisonneuve Street extension, New Urban Collector between Corbi Lane and Banwell Road and reconstruction from Rural to Urban cross-section between Lesperance Road and Corbi Lane.
- Intersection Road extension, reconstruction from Rural to Urban cross-section between Lesperance Road and Banwell Road.
- Shields Street extension, New Urban Collector and McAuliffe Park Enhancements between St. Alphonse Avenue and the City of Windsor boundary. This includes extension from Shields Street to CR42 via a collector road extension.

Figure 4-1 Preferred Collector Road Network shows the four road improvement projects. The preferred Active Transportation Network associated with these projects, both the pedestrian network and the cycling networks, are shown on **Figure 4-2** and **Figure 4-3** respectively.

- The proposed collector roadway extensions of Gouin Street, Maisonneuve Street and Intersection Road are a continuation of the grid street pattern in the existing Hamlet Road network. The Banwell Road Environmental Assessment (2016) has also identified the location for which these intersections shall connect to Banwell Road to maintain proper intersection spacing and allowances for the future interchange at CR22 and Banwell and the Railway Grade separation at the CP Railway.
- The extension of Shields Street has been designed as an enhanced, green scenic drive in the THPSA to connect Banwell Road to Lesperance Road, two arterial roads. According to the THPSA, it will be “a unique street that integrates existing schools, the enhanced neighbourhood park, Banwell Road plaza commercial node and residential development”. It will have an enhanced streetscape for safe pedestrian movement, street beautification and traffic calming. The north-south connector road from Shields Street to CR42 will also provide additional network connectivity to the CR42 corridor.

Figure 4-1: Preferred Collector Road Network

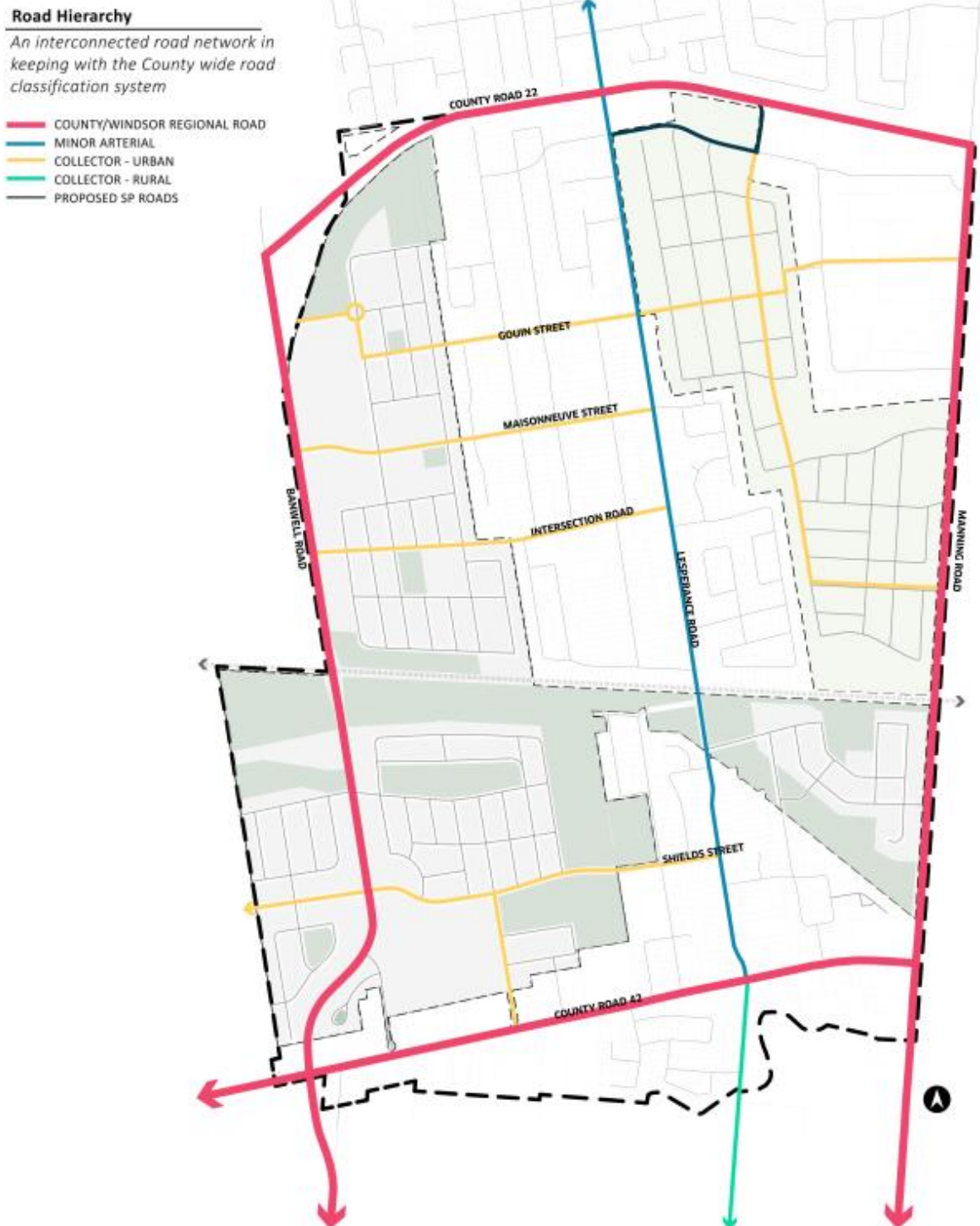


Figure 4-2: Preferred Road Projects – Pedestrian Network

Pedestrian Network

*An accessible, safe, convenient,
and comfortable pedestrian
network*

- SIDEWALKS
- EXISTING TRAILS
- PLANNED TRAILS (EXISTING MASTERPLANS)
- PROPOSED TRAILS
- MID-BLOCK CONNECTIONS

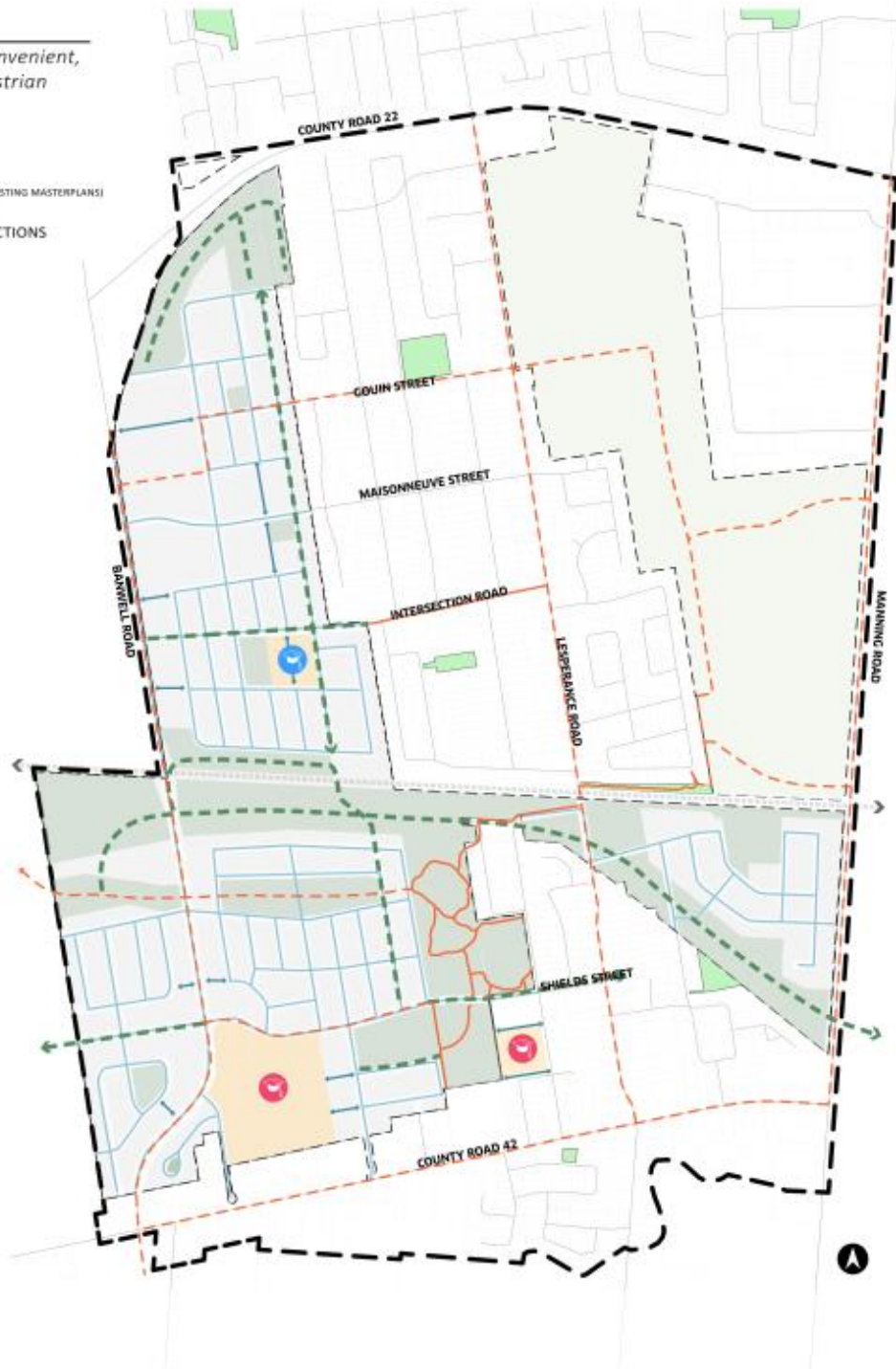


Figure 4-3: Preferred Road Projects – Cycling Network

Cycling Network

A comprehensive and connected neighbourhood fabric that encourage cycling

- EXISTING TRAILS
- PROPOSED TRAILS
- - - OFF-ROAD
- - - ON-ROAD SHARED
- - - ON AND OFF-ROAD



4.1.2

Tecumseh Hamlet Traffic Impact Study

Prior to the completion of the 2017 TMP, in 2015, Dillon completed a Transportation Impact Study (TIS) that reviewed the implications of the growth within the THSPA and Manning Road Secondary Plan Area (MRSPA) on the external road network. This study also confirmed the transportation needs to accommodate this growth with consideration for other modes of transportation.

Subsequently, a transportation impact study (Battery Plant TIS) was prepared by Dillon, in February 2023 documenting the anticipated traffic volumes associated with the Stellantis EV battery plant and the impact on traffic operations in the surrounding area. These analyses reflected both short-term conditions (up to 2027, reflecting a 5-year horizon) and longer-term conditions. That study provided recommendations for Banwell Road corridor operations to accommodate the anticipated traffic volumes.

In conjunction with this EA and functional design study, the 2015 TIS was updated in 2024 (appended to the Functional Servicing Report (**Appendix E**)) to reflect the following changes to design parameters and proposed development:

- The new THSPA land use plan with updated population densities that better reflect current market trends and goals to meet new housing targets.
- Consideration for the new Stellantis EV Battery Plant (per the Battery Plant TIS) which applies a higher traffic demand than what would have been assumed for this corridor in previous analyses.
- Arterial road improvements staging has been modified and the timing and staging of external road corridors has changed. Improvements including widening of CR42, CR43, and Banwell Road are assumed all to be in place including the CR22/Banwell Road Interchange.
- Full interchange improvements at Lesperance Road and Manning Road intersections with CR22 were considered to be completed outside of the study forecast and therefore interim improvements at these intersections were considered.

A key finding of the TIS (2024) is that the existing arterial road network (with no improvements to the external arterial road network) cannot support the full development of the THSPA. From a timing perspective CR42, CR43 and Banwell Road are all being undertaken now and are at various stages of design/construction. It is expected that improvements to the Banwell/CR43 and CR42 corridors will support development of the THSPA area. As each development proceeds through the draft plan of subdivision and pre-engineering phase, a development specific TIS shall be completed to assess the short-term development horizon (5-10 years). As well, the study should be used to define internal collector road implications, more current counts of the existing network at the time of development should be used to assess the system more granularly.

4.1.3

Transportation Arterial Road Network Recommended Solutions

The following arterial road intersection improvements were recommended to support full build out of the THSPA and MRSPA areas.

Modifications to the intersection recommendations for Banwell Road:

- Gouin Street Intersection: Adjusted eastbound off-ramp lane configuration by converting from an exclusive left turn lane to a shared through / left turn lane. This would require that Gouin Street be widened from one to two eastbound lanes along the block east of Banwell Road.
- Maisonneuve Street Intersection: Increase eastbound turn lanes from one to two (dual). The EV Battery Plant driveway is already planned to accommodate three outbound lanes. Outbound left turn lanes are needed to implement the dual turn recommendations, however geometric modifications to the battery plant driveway are not required; the main change would be associated infrastructure (poles, traffic signal heads, etc.). The intersection could be opened with a single left turn lane, with the configuration adjusted as such time as conditions warrant.
- Intersection Road Intersection: Increase eastbound turn lanes from one to two (dual). This is similar to the plan modifications listed for the Maisonneuve Street intersection.

Modifications to the intersection recommendations to County Road 43:

- At CR43 and Shields Street Intersection, a northbound left turn phase is now recommended, in addition to the previously recommended southbound left turn phase.

Intersection recommendations for County Road 22:

- Intersections at Lesperance Road and at Manning Road were found to exceed capacity on several movements. This is the case for both the Battery Plant TIS and the Tecumseh Hamlet TIS (2024). Grade separations and interchanges have been planned and approved at both intersections as part of the previous CR22/CR19 EA (2008).
- Potential interim modifications are identified at Manning Road (additional lanes on the north and south approaches) and at Lesperance Road (longer turning lanes); if the planned interchanges at those locations cannot be constructed, consideration may be given to widening CR 22 to six lanes through this section.

4.2

Water Supply Projects

4.2.1

Preferred Water Supply Solutions

The WWMP (2018) Master Plan (**Appendix J**) identified water infrastructure upgrades that are required to service future development throughout the Town (*Section 6.9 of the WWMP (2018)*).

Figure 4-4 shows the trunk watermain layout determined in the WWMP (2018) which is further described below.

West Tecumseh Trunk Watermain from County Road 22 (CR22) to Canadian Pacific (CP) Railway (Project W-1):

This trunk watermain will provide direct servicing for new development lands in the Tecumseh Hamlet and improve fire flows in existing developments south of CR22. The initial WWMP recommended the construction of a 600 mm dia. watermain between CR22 and the CP Railway. Based on more updated demand estimates as well as changes to the City of Windsor proposed network servicing strategy, the sizing of the proposed W-1 project watermain has been refined. More details on these sizing modifications are included in **Section 5.4**. The alignment of this section of watermain has been established previously and through direct coordination with the property owner. Presently, north of Intersection Road a 20.0 m utility easement exists to accommodate the infrastructure along with proposed trunk sewer (WW-1) noted in **Section 4.3.1** below.

West Tecumseh Trunk Watermain from CP Railway to County Road 42 (Project W-4):

Similar to W-1, this trunk was originally recommended to be a 600mm dia. watermain by the WWMP but has since been re-designed following refinement of the trunk design. Accordingly, it was determined that a 300 mm dia. watermain will provide direct servicing for new development lands in the Tecumseh Hamlet and will improve fire flows in existing developments south of the CP Railway (Section 6.9.5 of the Master Plan).

For all trunk facilities, the MP recommended that the alignment should be established through approved Secondary Plans and co-ordinated through proposed Plans of Subdivision.

4.2.2 Preferred Water Supply for SE THSPA

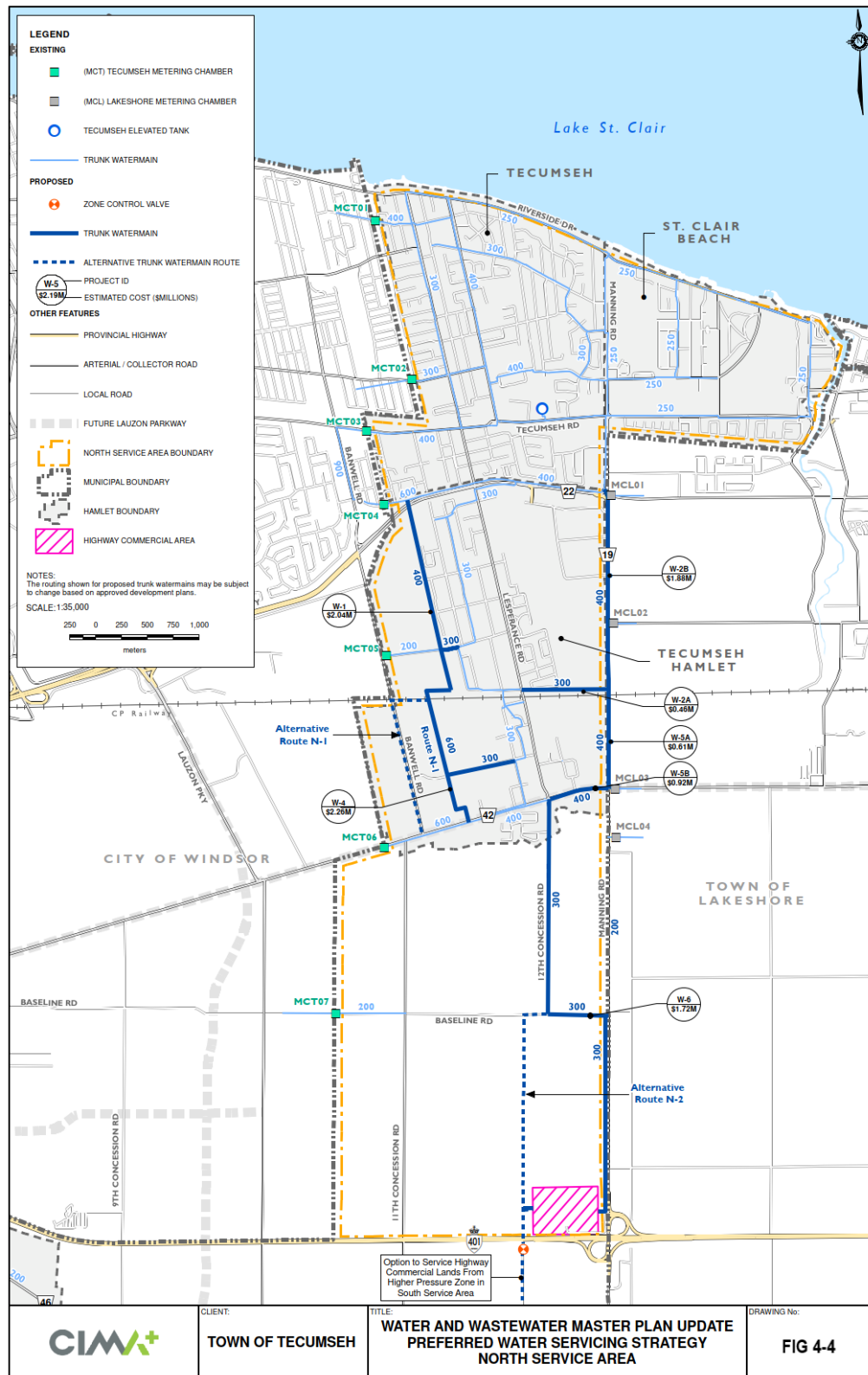
To service the SE THSPA area, local watermain will need to be constructed along the proposed roadways to provide local servicing. The watermain shall connect to the existing watermain on Lesperance Road and CR19. Upgrades to the CR19 trunk watermain have been recommended within the WWMP (2018), as follows:

Trunk Watermain on CR19 (Manning Road) from CR22 to CR42 and East Tecumseh Hamlet Watermain Connection (Project W-2A, 2B and 5A):

It is anticipated that the need to implement these watermain projects will be triggered by the proposed MRSPA and SE Hamlet development. The level of development that can be accommodated prior to these improvements will need to be assessed through future water model assessments of the Town's water system.

Figure 4-4 shows the trunk watermain layout determined in the WWMP (2018) which is further described in **Section 5.4**.

Figure 4-4: Preferred Water Supply Solutions from Master Plan

**TOWN OF TECUMSEH**

*Tecumseh Hamlet Infrastructure Improvements Class Environmental
Assessment - Environmental Study Report*

June 2025 – 23-5735

4.3 Wastewater Projects

4.3.1 Preferred Wastewater Solutions from Master Plan

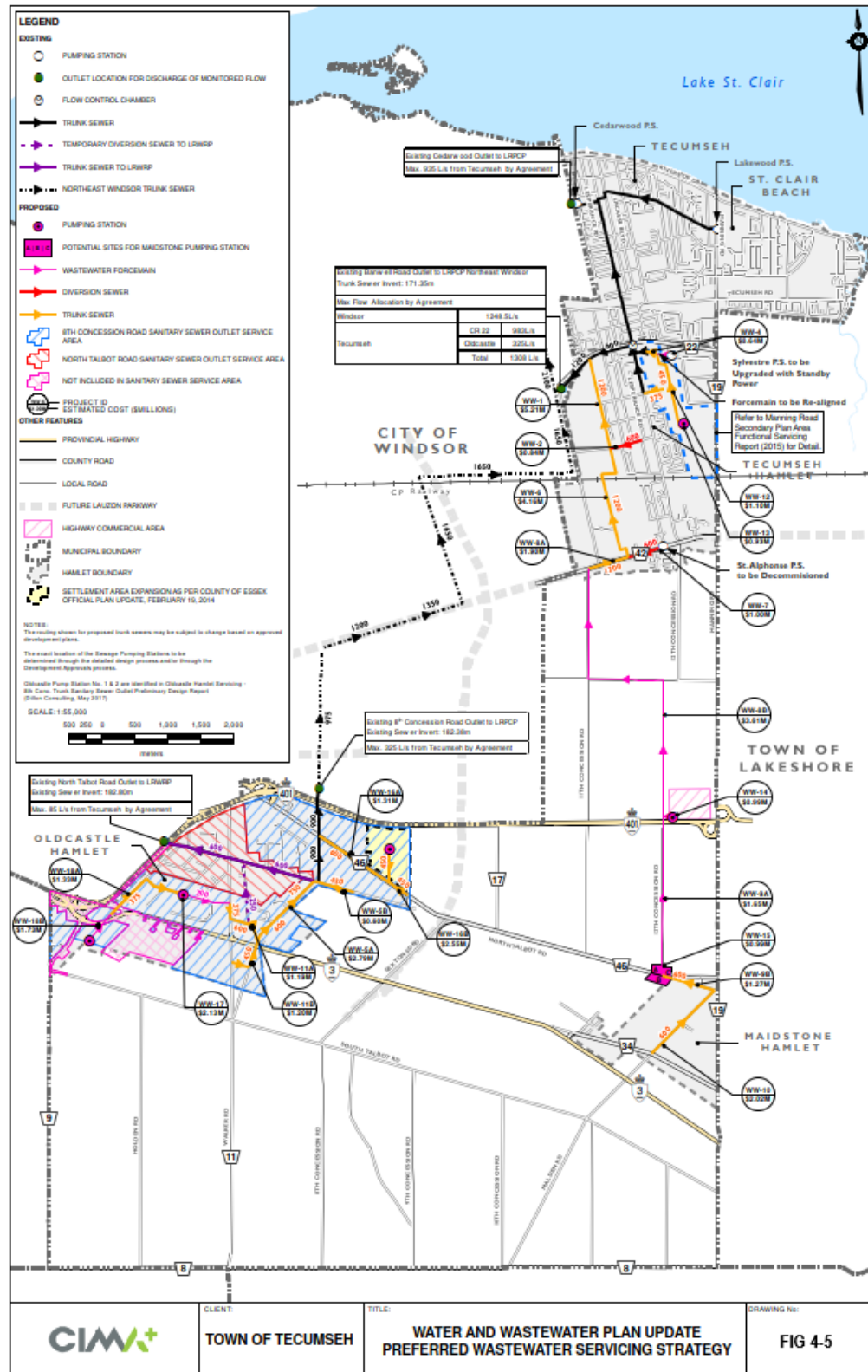
The WWMP (2018) identified the following three wastewater projects that are required to service future development within the THSPA. **Figure 4-5** shows the wastewater servicing layout determined in the WWMP (2018) which is further described below.

West Tecumseh Trunk Sewer, CR22 to CP Railway (Project WW-1):

This new 1200 mm dia. trunk sanitary sewer will be constructed through new development lands, west of the existing residential development, from CR22 to the CP Railway corridor. Based on the WWMP (2018) recommendations, the alignment of this sewer segment was determined, and the necessary utility easement agreement (20 m width) was obtained by the Town for the alignment north of Intersection Road (there is no existing utility easement between Intersection Road and CP Railway). This easement will accommodate the trunk sewer, and proposed watermain project W-1 discussed previously in **Section 5.4.2** between CR 22 and Intersection Road. This trunk sewer segment will service new development in the THSPA, provide an outlet for existing and new growth areas and provide relief for the Lesperance Road trunk sewer. Details on the wastewater relief strategy is expanded on later in this section.

To confirm that the projected population and commercial land use growth within the THSPA will not exceed the capacity of the downstream system or exceed maximum allowable release rate, a sanitary sewer analysis was completed using the Town's Master Sanitary Sewer Model. This memo is appended to the Functional Servicing Report (**Appendix E**).

Figure 4-5: Preferred Wastewater Servicing Strategy



TOWN OF TECUMSEH

Tecumseh Hamlet Infrastructure Improvements Class Environmental Assessment - Environmental Study Report

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Tecumseh Hamlet Diversion (Intersection Road) Sewer (Project WW-2):

This new 600 mm dia. sewer along Intersection Road, between St. Anne Street and the West Tecumseh trunk sewer and described by WW-1 in the WWMP, will divert flows from the existing Lesperance Road sanitary sewer system to the new Tecumseh Hamlet system to redistribute sewage flows within the greater Tecumseh Hamlet area. The existing trunk sewer on St. Anne Street will be intercepted by this sewer and all upstream flows will be diverted to the West Trunk Sewer (WW-1). The sanitary diversion sewer will also provide capacity for the MRSPA area and SE THSPA to develop and reduce high hydraulic gradelines (HGLs) within the existing system without adverse impacts to the downstream system.

West Tecumseh Trunk Sewer CP Railway to CR42 (Project WW-6):

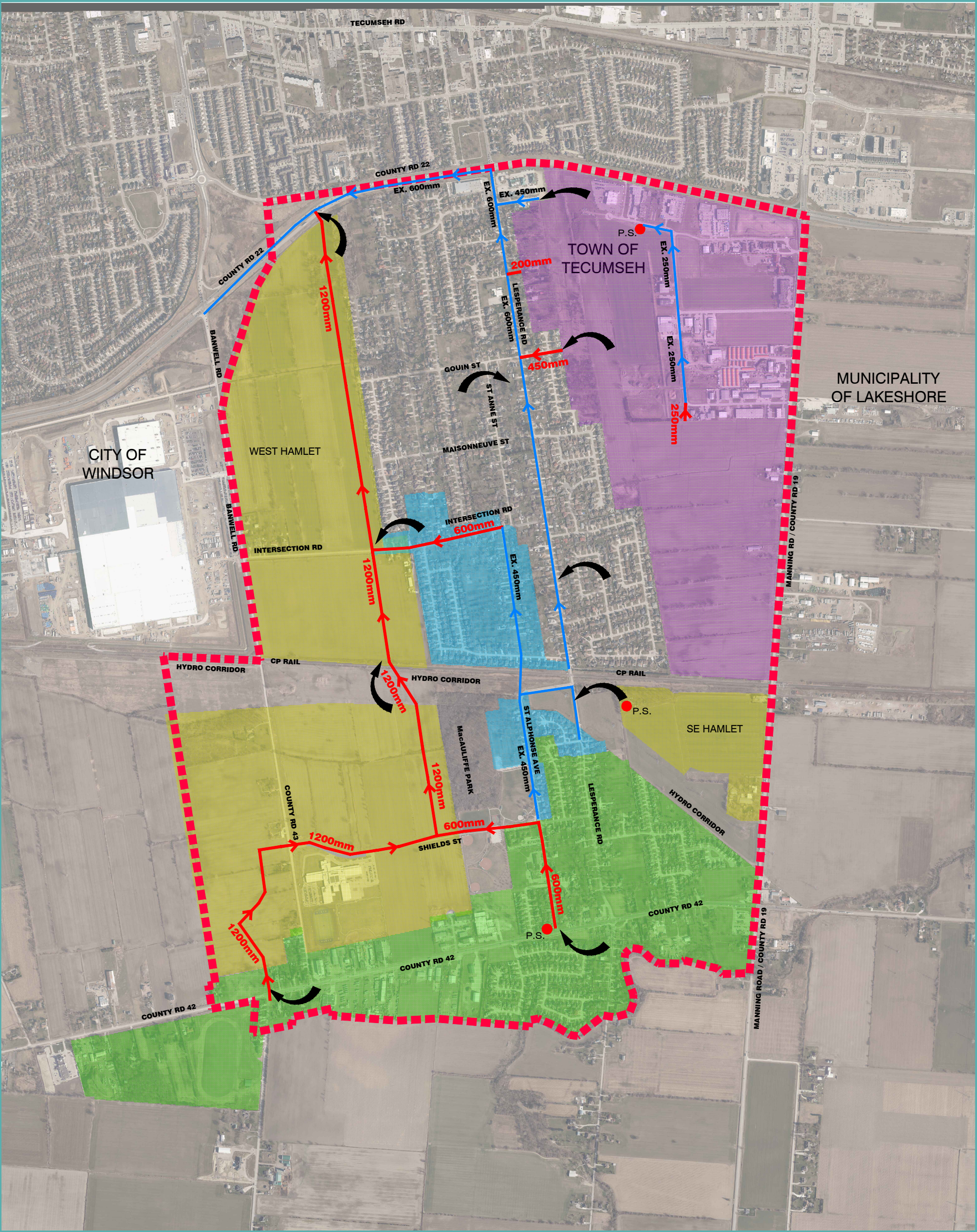
Similar to WW-1, this new 1200 mm dia. sewer will provide direct servicing for new development in the THSPA, south of the CP Railway and provide an outlet for existing growth (*Section 7.10.7 of the WWMP*). The WWMP recommends that the sewer's alignment be established as part of the Secondary Plan and Plan of Subdivision approval process. It also recommended that it be designed to accommodate a projected ultimate peak flow rate.

In addition to the WWMP and in conjunction with the completion of this study, Dillon confirmed that the proposed West Hamlet trunk sewer would adequately service the projected population growth areas while also relieving the exiting wastewater collection system. The findings of this analysis are summarized in the Sanitary Recalibration and Basement Flood Mitigation (BFM) Study (Jan. 2024). This study assessed the system's hydraulic conditions during wet weather events to confirm the proposed trunk sewer sizing and to recommend improvements to the existing system to mitigate flood risk. Both the WWMP and BFM studies confirmed that reconfiguration of the Hamlet's wastewater flows would be required. **Figure 4-6** shows the proposed sanitary sewage flow drainage area reallocation that will address both objectives.

The sanitary diversion sewer will also provide capacity for the Manning Road Secondary Plan Area (MRSPA) and Southeast (SE) THSPA to develop and reduce high hydraulic grade lines (HGLs) within the existing system without adverse impacts to the downstream system.

4.3.2 Wastewater Solutions for SE THSPA

To service the SE THSPA area, local sanitary sewers will need to be constructed along the proposed roadways to provide local servicing. These sewers shall discharge into one consolidated 200 mm dia. outlet sewer to the Lesperance Road trunk sewer. Through the South Pacific and St. Anne Street sanitary trunk sewers, this flow will eventually drain into the Hamlet Diversion sewer listed above (WW-2). To accommodate the sanitary sewer outlet from this SE THSPA area, a pump station will be required at the sanitary sewer outlet with a forcemain discharge to the Lesperance trunk sewer. This is due to the limited depth of that sewer and depth of cover constraints related to the sanitary servicing of the entire SE THSPA. Additionally, an easement agreement will be required through the existing Hydro corridor in order for the SE Hamlet to gain access to the Lesperance Road sewer.



**TECUMSEH HAMLET
WASTEWATER
SERVICING STRATEGY**

FIGURE 4-6

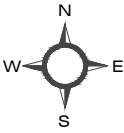
LEGEND

- | | | | |
|--|-------------------------------|--|--|
| | URBAN AREA BOUNDARY | | THSPA NEW DEVELOPMENT |
| | NEW TRUNK SANITARY SEWER | | THSPA EXISTING DEVELOPMENT -
ROUTED TO SHIELDS TRUNK SEWER |
| | EXISTING TRUNK SANITARY SEWER | | THSPA EXISTING DEVELOPMENT - ROUTED
TO INTERSECTION TRUNK SEWER |
| | P.S. PUMP STATION | | MANNING ROAD
SECONDARY PLAN AREA |



MAP CREATED BY: JS
MAP CHECKED BY: LMH
MAP COORDINATE SYSTEM: NAD 1983 CSRS UTM Zone 17N

SCALE: 1:7500
STATUS: DRAFT
PROJECT: 23-5735



4.4 Stormwater Management Projects

4.4.1 West Hamlet Preferred Stormwater Management Solutions

The Upper Little River Watershed Drainage and Stormwater Management Master Plan (ULR MP) established the servicing strategy for the west portion of the Tecumseh Hamlet Secondary Plan Area. That master plan identified and evaluated six alternative solutions for providing stormwater (SWM) infrastructure in the watershed (*Section 5.2 of the ULR MP*):

- Alternative 1: Do Nothing
- Alternative 2: Water Quality and Erosion Control Only
- Alternative 3: Communal Stormwater Management (SWM) Facilities
- Alternative 4: On-line Quantity Control with Local Quality and Erosion Controls
- Alternative 5: Distributed Off-line SWM Controls
- Alternative 6: Grouped Off-line SWM Controls

Based on an evaluation considering the natural, economic, technical and social/cultural environments, Alternative 6 was chosen as the preferred solution (*Section 6.1 of the ULR MP*). This solution stipulates that SWM facilities will be off-line, meaning that stormwater will be collected within facilities upstream or offline of the existing drainage network. With this alternative, SWM facilities will be grouped into SWM corridors to also provide recreational pathways and greenways. The facilities will service designed drainage areas comprised on multiple properties and land uses and can be designed and constructed in stages as development proceeds.

The facilities will be regional facilities with consolidated outlets downstream of the local storm sewer drainage system. Regional facilities generally eliminate the need for individual developments/properties to have onsite facilities to meet regional SWM standards. This is a cost-effective configuration, reducing the number of facilities to be maintained in the future. Only where developments exceed the maximum allocated outlet capacity will they be required to provide private, onsite stormwater management measures.

The following three (3) SWM solutions were recommended to service new development in the west portion of the Tecumseh Hamlet:

- Gouin Stormwater Management Facility (SWMF) including a stormwater management pond and a storm pump station.
- Lachance SWMF including a stormwater management pond and a storm pump station.
- Desjardins SWMF including two stormwater management ponds and a storm pump station.

Refer to **Figures 6-5A, 6-5B and 6-5C** which illustrates the location and size of each facility.

4.4.2

SE THSPA Preferred Stormwater Management Solutions

Phases 1 and 2 of the MCEA process were not completed for the SE THSPA through previous stormwater management or MP studies. To meet the problem statement noted in **Section 2.3**, the intent of this ESR is to establish servicing strategies for the growth of the THSPA. From a SWM perspective, various alternative solutions were evaluated for the SE THSPA based on natural, socio-economic, and cultural environment criteria which is further described in **Section 5.2**.

Dillon identified and evaluated the following alternative solutions for the SE THSPA stormwater management:

- Alternative Solution #1: Do Nothing. Do not implement regional quality or quantity control measures. Development would need to be limited or private/on-site SWM infrastructure will need to be provided.
- Alternative Solution #2: Implement regional SWM that serves future developable lands only. Maintain the existing alignment and outlet of the Antaya Drain to the East Townline Drain as per the existing conditions.
- Alternative Solution #3: Implement regional SWM that serves future developable lands and intercepts upstream Antaya Drain flows. One consolidated outlet will drain to the East Townline Drain.

The preferred alternative solution is Solution #2: Implement regional stormwater management facility (SWMF) that serves future developable lands and maintains the existing Antaya Drain. A detailed evaluation of these alternative solutions can be found in **Appendix F, Table F.1**. A summary of findings is listed below.

Natural Environment

Solution #1 will have the least impact to the existing natural environment features as the existing Antaya Drain will remain as is and will continue to provide drainage for upstream drainage areas.

Solutions #2 and #3 both require the construction of an onsite facility, both of which are proposed within agricultural use lands. The most significant environmental area is the existing residentially owned land located at the northwest corner of the SE THSPA, just south of the CP Railway and north of the existing Antaya Drain alignment. No impacts are proposed for this property as part of the SWMF works, however Solution #3 would redirect flows away from that drain and therefore is expected to have negative impact to the existing recharge of the vegetated drain.

From a surface and groundwater quality perspective, Solutions #3 has the greatest opportunity to treat runoff from the upstream Antaya Drain watershed prior to discharge to downstream watercourses. Solution #2 also provides quality treatment but does not address runoff characteristics of the Antaya Drain flow.

Socio-cultural

Solution #1 provides no mitigation of flood risk for existing and proposed areas. Solution #2 only addresses flood mitigation risk for the proposed areas which has the potential to negatively impact the watershed in the event of heavy precipitation or extreme weather events.

Both Solution #2 and #3 provide the opportunity to integrate the additional green space to accommodate the SWMF with recreational, active transportation, and community amenities. Further, Solution #1 does not conform to municipal land use policies and the proposed THSPA land use plan would not be achievable under this solution.

Financial

Solution #3 has comparatively higher capital and operational costs due to the larger SWMF and larger pumping station required. As well Solution # 3 would require the Drainage Act process.

Solution #1 would be the lowest capital cost, however the cost for site specific treatment, runoff control and pumped outflow would be incurred by the individual developer. All solutions will have operational and maintenance costs that will need to be supported.

Solutions #2 and #3 require the Town to ultimately own and operate the SWMF, whereas Solution #1 would require the private property owner to incur these costs directly.

Technical

Solution #3 is the only solution with the opportunity to provide SWM for upstream lands and can mitigate flood risk for both existing and proposed areas. Solution #3 also has comparatively the highest level of compatibility with other initiatives as the stormwater outlet can be placed at a depth and alignment that best suits the future improvements along CR19 and one consolidated outlet from this drainage area will allow for a flexible outlet solution. Further, Solution #3 has the highest level of adaptability to increase pond storage capacity to respond to changes to climate, design parameters, or servicing needs.

Although Solution #3 is more technically preferred, the impacts to natural environment point to Solution #2 being the most preferred solution.

5.0 Phase 3: Alternative Design Concepts

Phase 3 of the Class EA process consists of the identification and evaluation of alternative design concepts that could potentially be used to implement the preferred alternative solutions identified in Phase 2. Preferred design concepts were carried forward to develop the functional designs detailed in the Functional Servicing Report for the THSPA (**Appendix E**).

5.1 Guiding Principles for Design Concepts Development

Alternative design concepts were developed for the preferred solutions considering a range of factors, including: the identified problems and opportunities, baseline conditions in the Study Area, design issues and constraints associated with the preferred alternative solutions, and public and stakeholder feedback received during the consultation process. The alternative design concepts for the infrastructure improvements are detailed in **Sections 5.3 to 5.6**.

5.2 Evaluation Approach and Criteria

The alternative design concepts were assessed and compared against a comprehensive set of evaluation criteria addressing the natural and socio-cultural environment as well as financial and technical factors. The same natural environment, socio-cultural environment, and financial criteria were applied to all infrastructure improvements. Detailed descriptions of each criterion are included in **Table 4 and Table 5**.

No ranking or weighting of the criteria was undertaken. In rationalizing the differences among the alternatives, the magnitude of the impact / benefit was considered as well as the availability of impact management measures to reduce the significance of negative effects.

The detailed assessments of the alternative design concepts for all infrastructure improvements are included in **Appendix F**. Symbols are used to visually represent the qualitative analysis and are not meant as a quantitative assessment tool.

Table 4: Evaluation Criteria - Natural, Socio-Cultural, and Financial

Category	Criteria
Natural Environment	Vegetation/Tree Potential to impact or remove vegetation or trees.
	Terrestrial Habitat & Wildlife Potential to impact wildlife, significant wildlife habitat, and habitat connectivity.
	Fisheries / Aquatic Habitat & Wildlife Potential to impact aquatic habitat & wildlife.
	Species at Risk Potential to impact habitat of Species at Risk e.g., Bobolink, Northern Myotis, Eastern Foxsnake, and Butternut.
	Surface Water & Groundwater Resources Potential to impact groundwater resources and source water protection.
	Climate Change Potential to impact emission of greenhouse gases, carbon removal, carbon storage/sink (e.g., trees and vegetation). Refers to the solutions impact on climate change.
	Climate Change Resilience Potential impact of the effects of climate change on the undertaking. Refers to climate change's impact on the solution and whether the solution can be resilient to climate change impacts.
Socio-Cultural Environment	Community Impacts Potential to impact adjacent land uses and activities including residential, recreational, transportation, public service facilities, and infrastructure.
	Economic Impacts Potential to impact adjacent land uses and activities including commercial and industrial.
	Conformity to Land Use Planning Policies Including the Provincial Policy Statement, County of Essex Official Plan, Town of Tecumseh Official Plan, Tecumseh Hamlet Secondary Plan.
	Cultural Heritage Resources Potential to impact built heritage resources and/or cultural heritage landscapes.
	Archaeological Resources Potential to impact archaeological resources.
	Indigenous Communities Potential to impact traditional land and resource use and treaty rights.
Financial Factors	Estimated Capital Costs
	Estimated Operating and Maintenance Costs

Table 5: Technical Criteria by Infrastructure Type

Infrastructure	Technical Criteria
Roads	Network Requirements Will the alternative accommodate local roadway network requirements? Does the network fulfill active transportation and other modes of transportation?
	Compatibility Is the alternative compatible with existing and proposed infrastructure? Can the broader transportation network accommodate the proposed transportation solutions.
	Safety Potential to impact driver, pedestrian, and cyclist safety.
	Complexity of Construction
	Construction Duration (Estimated)
	Design Life & Maintenance
Water & Wastewater Servicing	Municipal Services Will the alternative accommodate servicing needs? Will the alternative have negative impacts to the existing downstream wastewater system or put strain on the water distribution system? Will the alternative meet provincial design guidelines be stipulated in the Town's Comprehensive Linear Infrastructure - Environmental Compliance Approval (CLI-ECA).
	Complexity of Construction
	Construction Duration (Estimated)
	Design Life & Maintenance
Stormwater Servicing	Performance of Minor System Drainage Ability to accommodate stormwater conveyance during frequent storm events.
	Performance of Major System Drainage Ability to accommodate stormwater conveyance during infrequent storm events. Ability to mitigate risks of surface flooding.
	Water Quantity and Quality Control
	Drainage Outlet Ability to efficiently convey controlled flows to its ultimate outlet location.
	Design Standards Will the alternative meet provincial CLI-ECA design criteria and conservation authority stormwater management standards? Will the solutions meet the design criteria established in the Upper Little River EA (2023)
	Safety Potential to impact community safety. Will the solution meet requirements for safety due to proximity to the Windsor Airport?
	Complexity of Construction
	Construction Duration (Estimated)
	Design Life & Maintenance

5.3 Road Projects

As discussed on **Section 4.1** various collector roads are required to facilitate transportation needs within the THSPA. This section describes the road design concept alternatives that were evaluated to meet the unique needs of this development area.

Evaluations of design concepts were separated into two distinct areas: north of the CP Railway Corridor and South of the CP Railway Corridor. Refer to Figure 4-1: Preferred Collector Road Network which illustrated the location of each collector road.

5.3.1 Road Alternative Design Concepts

5.3.1.1 Alternative Design Concepts: North of CP Railway Corridor

To support the internal road network, accommodate growth and promote connectivity, three Hamlet Urban Collectors are required north of the CP Railway Corridor:

- Gouin Street
- Maisonneuve Street
- Intersection Road

Dillon identified and evaluated the following design concepts for these three road improvement projects:

- **Alternative Design Concept #1 (Figure 5-1):** Off-Street Cycling Facilities (Multi-Use Path (MUP)) and On-Street Parking, including:
 - 3.0 m MUP
 - 1.5 m concrete sidewalk
 - Two 3.35 m traffic lanes
 - A single 2.8 m parking lane (one side of the roadway)
- **Alternative Design Concept #2 (Figure 5-2):** Off-Street Cycling Facility (MUP) and No Parking
 - 3.0 m MUP
 - 1.5 m concrete sidewalk
 - Two 3.35 m traffic lanes
- **Alternative Design Concept #3 (Figure 5-3):** Includes On-Street Cycling Facilities and No Parking
 - 2.0 m concrete sidewalk on both sides of the roadway
 - Two 1.5 m on-street cycling lanes, each having 0.6 m adjacent marked buffer zones
 - Two 3.35 m traffic lanes

In keeping with the TMP's recommendations, all collector roadways will be accommodated within a proposed 23.0 m right-of-way.

Each alternative provides a different experience for the various modes of transportation utilizing these urban collectors. Alternative Design Concept #3 represents the collector road cross section that was identified in the TMP (2017) as the preferred cross section. The TMP notes that, as road improvements are implemented, requirements of the most current Ontario Traffic Manual (OTM) must be considered. Alternative Design Concepts #1 and #2 are in keeping with the latest OTM (Book 18, June 2021) which stipulates that transportation infrastructure should not place primary importance on vehicular movements but that facilities shall be designed to accommodate all ages and abilities. These two alternatives recommend the implementation of a multi-use pathway (MUP) on one side of the street with a concrete sidewalk on the opposite side. The Town has successfully implemented these types of facilities on Intersection Road and Riverside Drive and will be facilitating construction of a MUP along Lesperance Road between CR22 and CR42 in 2024-2025. On-street parking will be available on all local roadways per the Town's standard local roadway cross section.

There are exceptions where the proposed collector roadways will not follow the typical collector cross section, these include:

- **Maisonneuve Street Main Street**
 - To serve the mixed-use development corridor along Maisonneuve Street, an urbanized road cross section is being proposed (**Figure 5-2**). This cross section will include on-street parking, a separate cycling track and larger sidewalks along the ROW boundary. These elements are imperative to achieve the built form planning context of this area; and
- **Gouin Street**
 - As vehicular traffic exits eastbound from E.C Row expressway south terminal ramp it may enter the THSPA via the Gouin Street Road connection. This road segment will act as a gateway for traffic entering the THSPA from E.C. Row from the City of Windsor. Based on the THSPA Transportation Study Addendum (June 2024) assessment, the need for an additional eastbound entry lane has been identified requiring a unique road cross section and varies from the typical 23.0 ROW configuration. The potential for a centre median has also been considered to channelize traffic as required as they approach the intersection as each end. (**Figure 5-2**).

There may be variations in the typical cross sections required on a as needed basis to accommodate localized requirements such as bus bays, turning lanes, or other requirements.

5.3.1.2

Alternative Design Concepts: South of CP Railway Corridor

In addition to the above improvements, two 23.0 m wide Hamlet Urban Collectors are required south of the CP Railway Corridor:

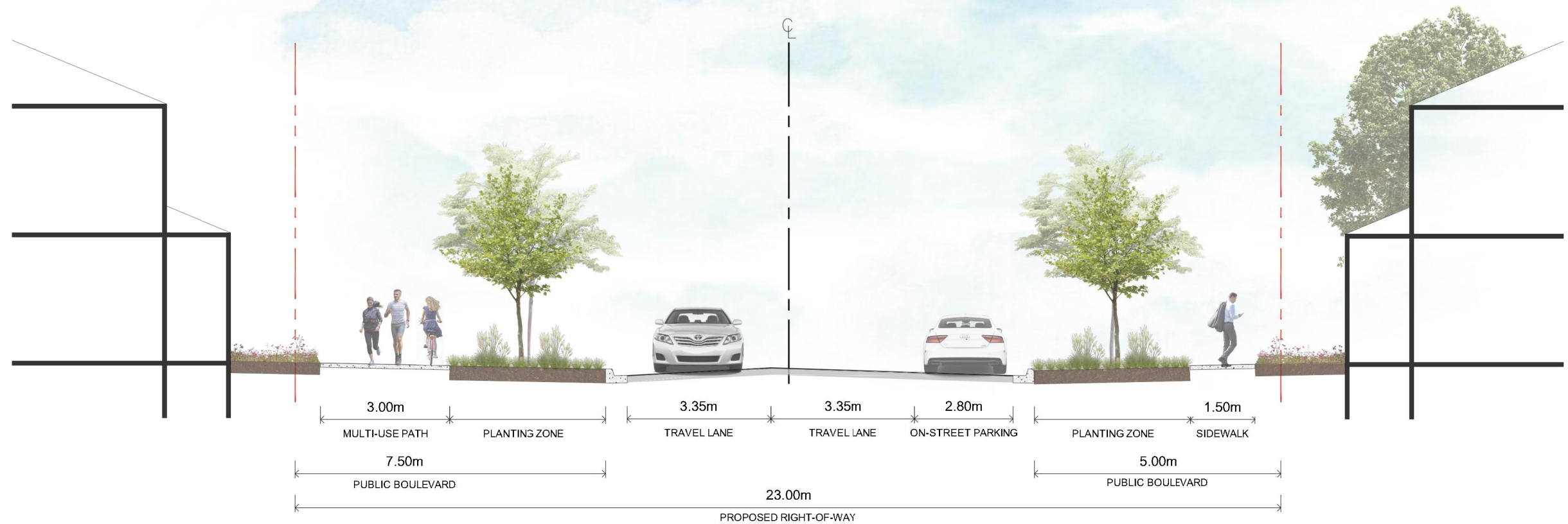
- Shields Street improvements
- North-South Collector Road (Shields St. to County Road 42)

Dillon identified and evaluated four design concepts for the Shields Street urban collector road. Special consideration has been made for this corridor as it is bisecting the existing McAuliffe Park in order to meet the eastern section of Shields Street and connect to Lesperance Road

- **Alternative Design Concept #1 (Figure 5-1):** Off-Street Cycling Facilities and On-Street Parking, including:
 - 3.0 m MUP on the north side of the roadway
 - 1.5 m concrete sidewalk on the south of the roadway
 - Two 3.35 m traffic lanes
 - A single 2.8 m parking lane (one side of the roadway)
- **Alternative Design Concept #2 (Figure 5-2):** Off-Street Cycling Facilities and No Parking
 - 3.0 m MUP on the north side of the roadway
 - 1.5 m concrete sidewalk of the south of the roadway
 - Two 3.35 m traffic lanes
- **Alternative Design Concept #3 (Figure 5-3):** On-Street Cycling Facilities and No Parking
 - 2.0 m concrete sidewalk on both sides of the roadway
 - Two 1.5 m on-street cycling lanes and two 0.6 m adjacent buffer areas
 - Two 3.35 m traffic lanes
- **Alternative Design Concept #4 (Figure 5-4):** Off-Street Cycling Facilities, No Parking, and Separated Median
 - 4.0 m MUP on both the north and south side of the roadway
 - 2.0 m Centre median with bioswale/planting area
 - 2.0 m wide raised planters along both sides of the roadway to provide traffic barriers
 - Two 3.35 m traffic lanes

The various alternative configurations for this collector road were developed similarly to the alternatives listed north of the CP Railway, however, due to the unique nature of Shields Street and the need to integrate the McAuliffe Park regional facility into the design, a fourth alternative was evaluated. The Alternative Design Concept #4 cross section was developed with active users of the McAuliffe Park facility and in cooperation with the Town's Parks and Recreation group. More detail on this collaboration can be found in the Secondary Plan. The four alternative design concepts that were evaluated for the road projects are depicted in **Figures 5-1 to 5-4**.

Alternative design concepts for the North-South Collector Road segment were not evaluated. It is assumed that this corridor width and configuration will follow the same conceptual design as the collector roads in the northern portion of the THSPA (ie. Gouin, Maisonneuve and Intersection).



DESIGN CONCEPT #1 - 23m ROW

OFF-STREET CYCLING FACILITIES (MUP) AND ON-STREET PARKING

TECUMSEH HAMLET SECONDARY PLAN AREA ENVIRONMENTAL STUDY REPORT

NORTH COLLECTOR ROAD ALTERNATIVE DESIGN CONCEPT #1 AND SOUTH COLLECTOR ROAD ALTERNATIVE DESIGN CONCEPT #1

FIGURE 5-1



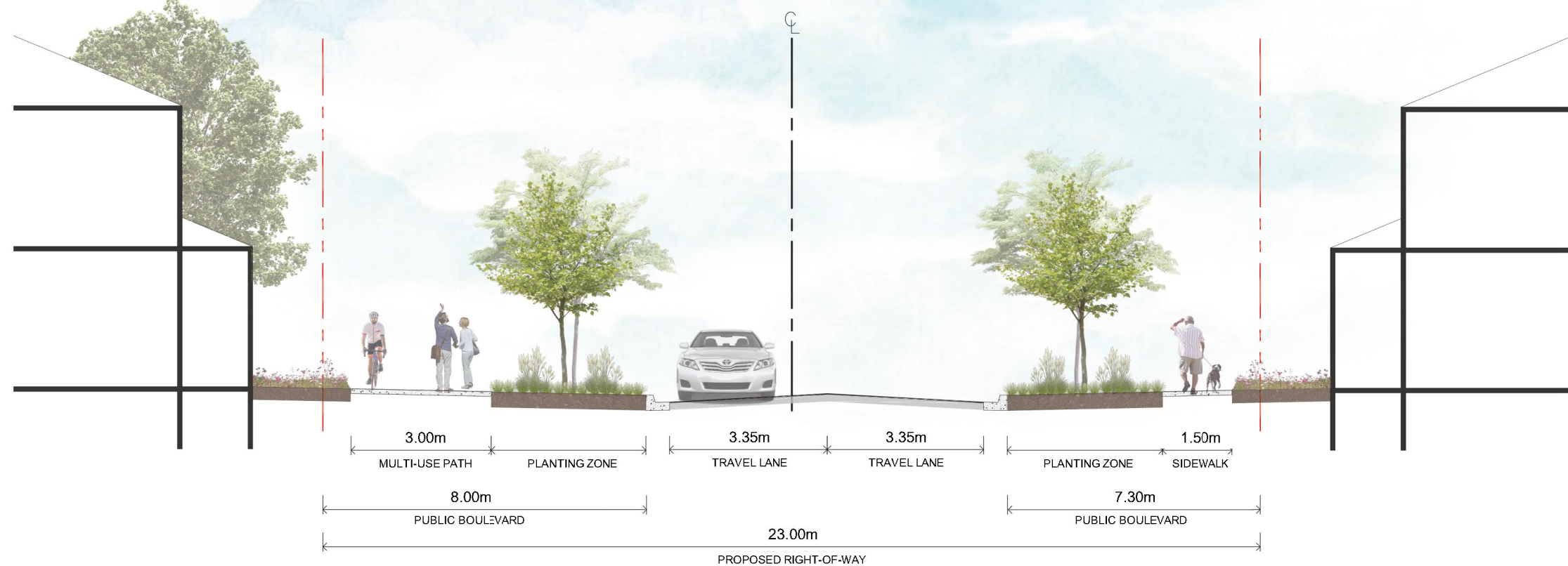
MAP CREATED BY: LJP
MAP CHECKED BY: LAH
MAP COORDINATE SYSTEM: NAD 1983 CSRS UTM Zone 17N

STATUS: FINAL

PROJECT: 23-5735

DATE: August 28, 2024

File Location: c:\pw working directory\projects 2020\32kyd\dms18944\202559-02-site-fig.dwg August, 28, 2024 3:23 PM



DESIGN CONCEPT #2 - 23m ROW

OFF-STREET CYCLING FACILITIES (MUP) AND NO PARKING

**TECUMSEH HAMLET SECONDARY
PLAN AREA ENVIRONMENTAL STUDY
REPORT**

**NORTH COLLECTOR ROAD
ALTERNATIVE DESIGN CONCEPT #2
AND SOUTH COLLECTOR ROAD
ALTERNATIVE DESIGN CONCEPT #2**

FIGURE 5-2



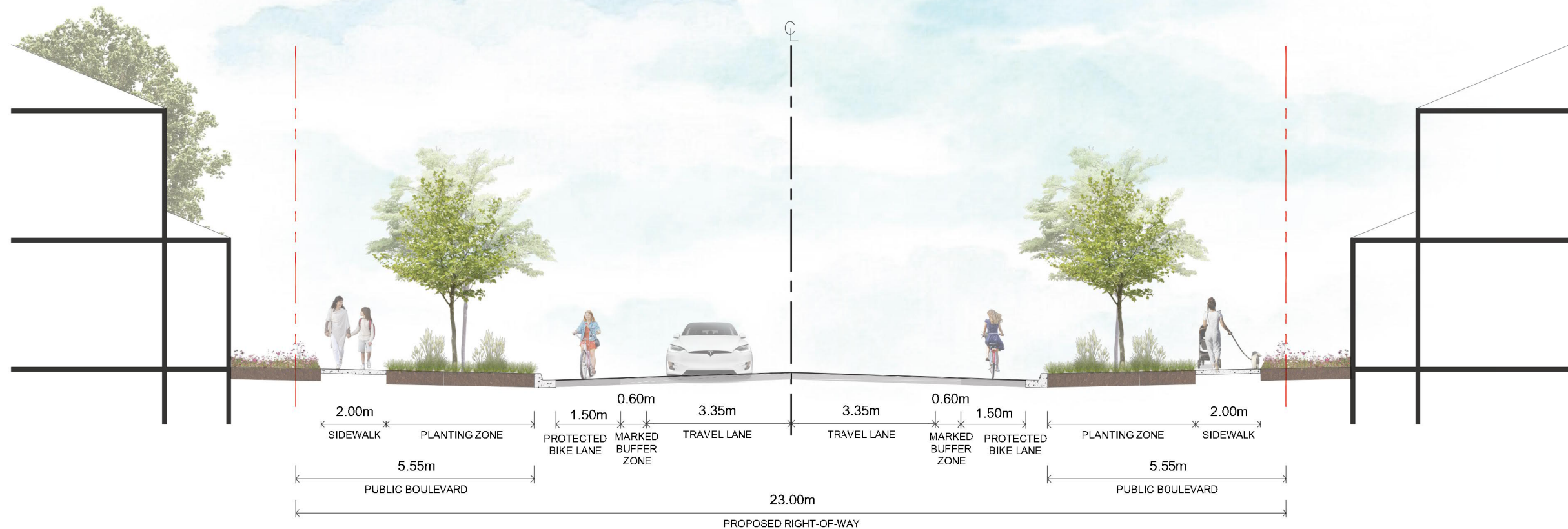
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STATUS: FINAL

PROJECT: 23-5735

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DESIGN CONCEPT #3 - 23m ROW

ON-STREET CYCLING FACILITIES AND NO PARKING

TECUMSEH HAMLET SECONDARY PLAN AREA ENVIRONMENTAL STUDY REPORT

NORTH COLLECTOR ROAD ALTERNATIVE DESIGN CONCEPT #3 AND SOUTH COLLECTOR ROAD ALTERNATIVE DESIGN CONCEPT #3

FIGURE 5-3



MAP CREATED BY: LJP
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STATUS: FINAL

PROJECT: 23-5735

DATE: August 28, 2024

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5.3.2 Roads Recommended Preferred Design Concepts

The outcomes of the comparative evaluations of alternatives for each area and the resulting preferred design concepts are described below.

5.3.2.1 Evaluation of Alternative Design Concepts: Collector Roads North of the CP Railway

Appendix F includes a detailed evaluation of the three design concepts (Table F.2) which are summarized below for reference:

Natural Environment

There are minimal differences in potential impact to the natural environment across the alternative design concepts. This is mostly due to the ROW width (23 m) being consistent across the design concepts which results in the same area of impact. Alternatives with the lowest road surface area are preferred as they will have the lower corresponding runoff rates and highest quality levels. Design Concept #2 is most preferred offering the lowest quantity of hard surfaces and greatest planting zone.

Socio-Cultural Environment

The primary differences between the alternative design concepts are the provisions to include on-street parking and how to accommodate active transportation. Alternative Design Concept # 1 includes on-street parking which can have economic benefit to the THSPA area by reducing the need for private parking areas and promoting in/out traffic accessing local business. The typical 23.0m right-of-way will accommodate parking, however this will compromise public space with the municipal boulevard and other amenities (plantings, trees, active transportation). The Town's Complete Streets Design Handbook does not promote the use of on-street parking on collector roadways that accept higher volumes of traffic compared to local roadways. All local streets will permit on street parking throughout the study area.

Active transportation facilities are imperative to meet the socio-cultural environmental goals as defined in the Secondary Plan. Per the Ontario Traffic Manual, Book 18, on-street bike lanes are often not preferred to be used by cyclists due to the proximity to vehicle traffic. To promote a corridor that is accessible to all ages and abilities, the use of a multi-use path is preferred (Alternative Concepts # 1 and #2).

Technical

Design Concept #2 is the safest alternative as it offers separated off-street cycling and pedestrian facilities that provides the greatest separation between vehicular and active transportation traffic. This concept is also the most compatible with other roadways in the area such as Lesperance Road and Banwell Road.

Financial

Design Concept #2 is estimated to have comparatively lower capital costs than the other alternatives as the total pavement width is less than both #1 and #3. Both Design Concept #2 and Design Concept #3 were estimated to have lower operating and maintenance costs due to those concepts being easier to maintain during snow removal and street cleaning. Design Concept #1 (on-street parking) can require additional time and complexity during snow removal and street cleaning. On-street parking also can require additional enforcement and potential metering or other cost recovery system.

For all alternatives, dedicated ROW allowances for the proposed roadways will need to be conveyed to the Town to fulfill the objectives of this study. Right-of-ways that are within development plan areas will be conveyed to the Town through the typical Draft Plan of Subdivision process. In areas where the existing ROW requires expansion (Intersection Road for example), additional property will need to be acquired from private property owner(s). Each road ROW will also accommodate other municipal services such as water, sanitary sewer, storm sewers as well as utilities such as gas, telecommunications, and power.

Design Concept #2 Off-Street Cycling Facility (MUP) and No Parking is the most preferred solution as it is more beneficial from a natural environment, socio-cultural environment and technical perspective.

5.3.2.2

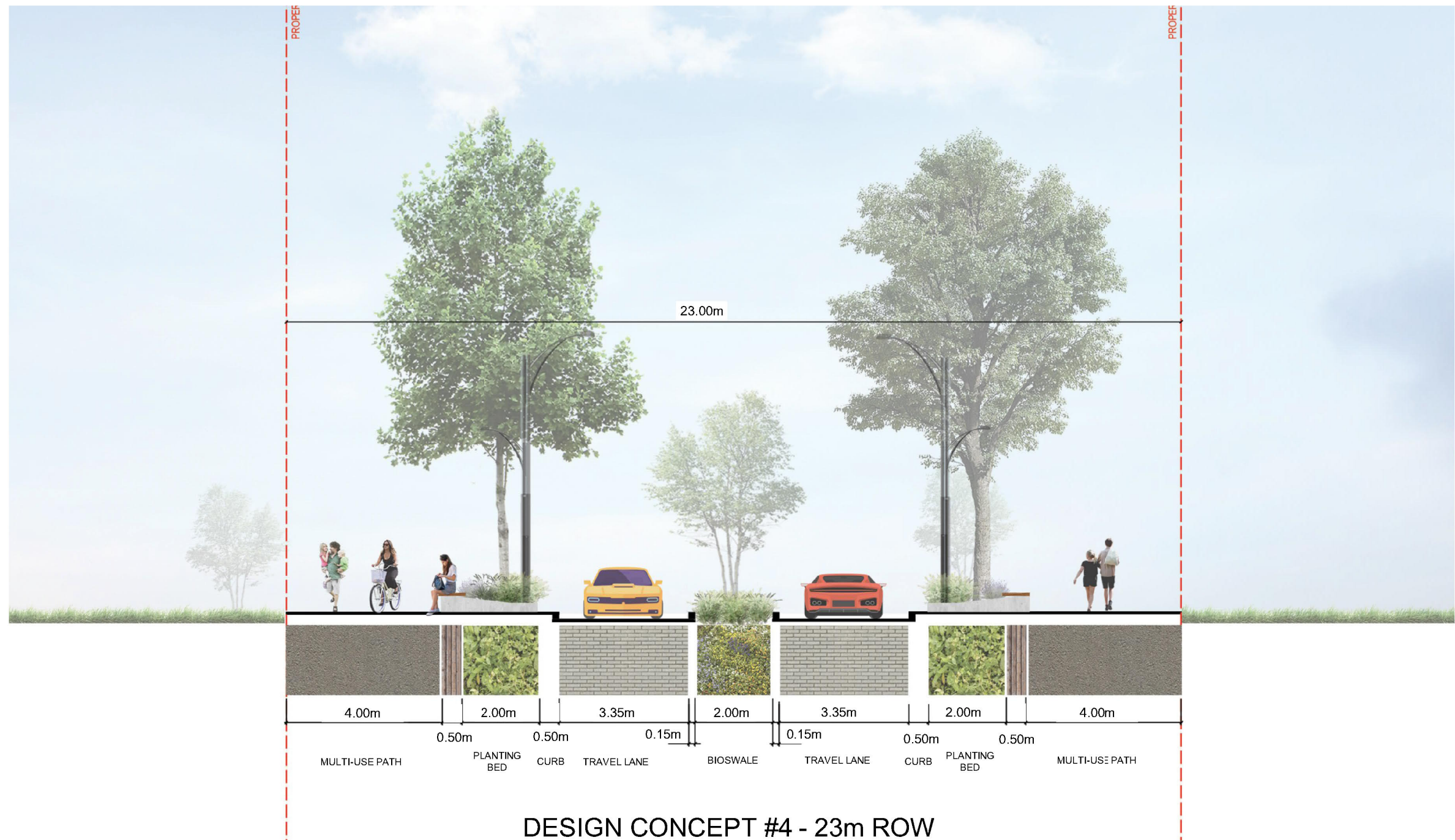
Evaluation of Alternative Design Concepts: Collector Road South of the CP Rail, Shields Street Collector Road

The preferred design concept for road improvements along Shields Street is Design Concept #4: Off-Street Cycling Facilities, No Parking, and Bioswale Median (refer to **Figure 5-4**).

Appendix F includes detailed evaluation of the four design concepts (Table F.3) which are summarized below for reference:

Natural Environment

There are minimal differences in potential impact to the natural environment across the alternative design concepts. This is mostly due to the ROW width (23 m) being consistent across the design concepts which results in the same area of impact. Design Concept #4 has the lowest comparable potential impact to the surrounding natural environment as it will incorporate features that will reduce pollutants introduced into the stormwater system and attenuate discharge into the local storm sewer network. Also, cross sectional elements, such as the bioswale median and raised planters, provide the greatest opportunity to incorporate tree canopy with the boulevard and median plantings. Bioswales can improve runoff quality and are considered green infrastructure. They may provide carbon sequestration benefits through functioning as a carbon sink.



OFF-STREET CYCLING FACILITIES (MUP),
NO PARKING, AND BIO SWALE MEDIAN

**TECUMSEH HAMLET SECONDARY
PLAN AREA ENVIRONMENTAL STUDY
REPORT**

**SHIELDS STREET ALTERNATIVE
DESIGN CONCEPT #4**

FIGURE 5-4



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STATUS: FINAL

PROJECT: 23-5735

DATE: June 17, 2025

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Socio-Cultural Environment

Design Concept # 4 is preferred based on the following rationale:

- Planting zones paired with the bioswale medians will visually enhance the public realm/streetscape resulting in lower community impacts.
- Given the close proximity of the McAuliffe Park to the Tecumseh Vista Academy School, this alternative better integrates the two land uses by providing safe designated pedestrian crossing points along Shields Street. This is accomplished through the use of decorative paving at designated crossing locations.
- Provides traffic calming which will promote pedestrian and cycling use.
- Will act as a visual gateway/feature to the community amenities.

Financial

Design Concept #4 is estimated to have highest capital costs compared than the other alternatives. Compared to the other alternatives, Design Concept # 4 includes wider active transportation facilities, enhanced landscaping, additional curbs, islands, and planters which will contribute to the greater cost. Design Concepts #2, #3, and #4 were all estimated to have lower operating and maintenance costs related to easier snow removal, street cleaning operations and lower level of landscaping.

Technical

Design Concept #4 meets transportation network requirements and is compatible with existing and proposed infrastructure in the area. It is also the safest alternative providing off-street cycling facilities and sidewalk facilities separated by raised benches and planter walls. Although this Design Concept is the most complex to implement, it will provide the safest solution that is most compatible with the enhanced McAuliffe Park plan.

Design concept #4 is most preferred solution as it is more beneficial from a natural environment, socio-cultural environment and technical perspective.

5.4 Water Supply Projects

5.4.1 Trunk Watermains Alternative Design Concepts

The proposed water servicing infrastructure will provide water service for future development in the area, provide new interconnections with the City of Windsor’s watermain system and provide improved water circulation and servicing capabilities for existing and future areas to satisfy the WWMP.

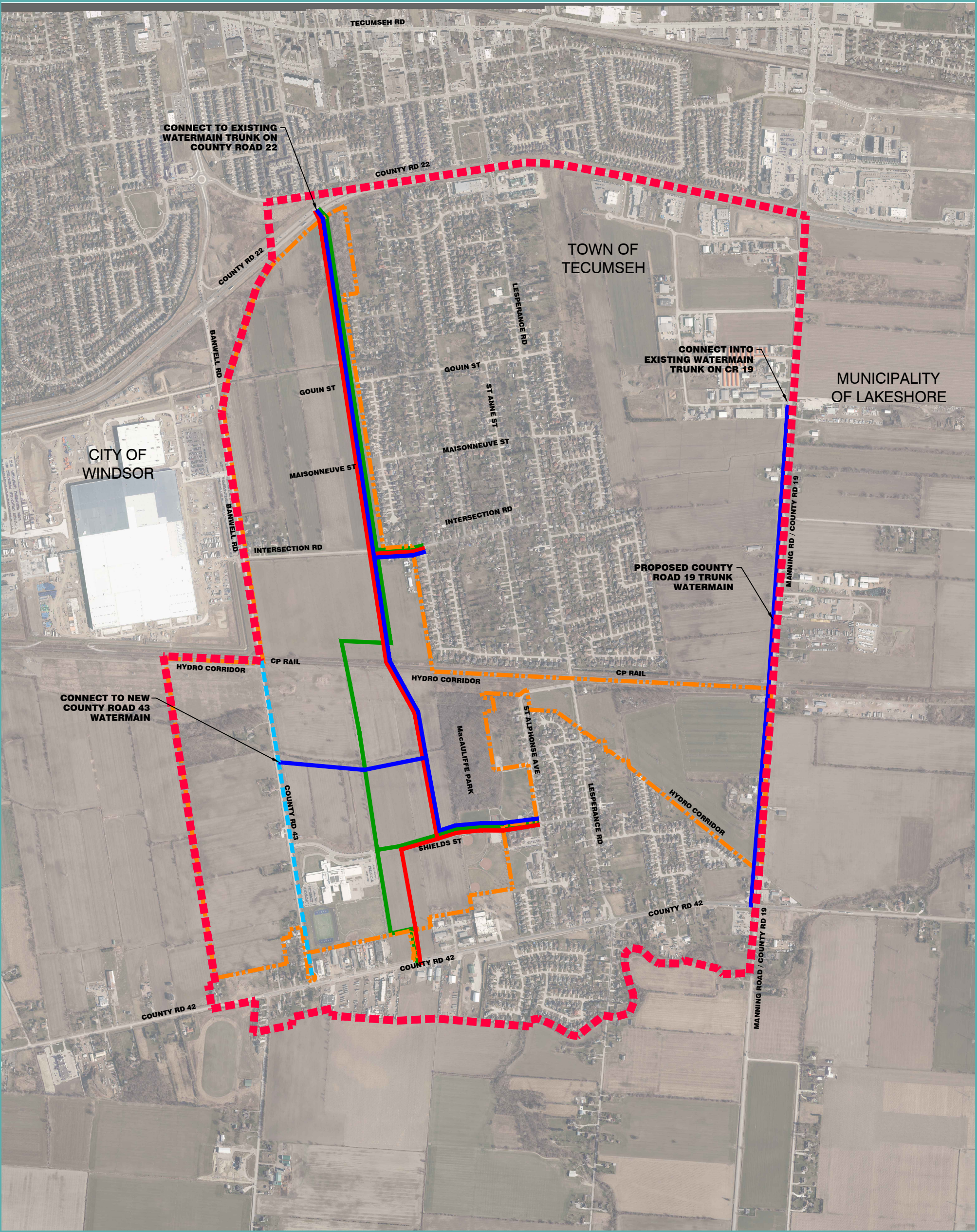
The following alternative design concepts for the water servicing infrastructure improvements were identified and evaluated.

- **Alternative Design Concept #1: East Alignment (Odessa/CR42)**
 - The West Hamlet trunk watermain would extend south of Intersection Road through the Town's proposed servicing corridor route, crossing the CP Railway and the Hydro One Corridor (as required to safely avoid existing Hydro towers and infrastructure), and continuing south to Shields Street (including the extension to Shields Street and to St. Alphonse Street) and eventually interconnecting into the Town's water system at CR42 and Odessa Drive.
- **Alternative Design Concept #2: Centre Alignment (Odessa/CR42)**
 - The West Hamlet trunk watermain would extend south of Intersection Road, through the Town's proposed servicing corridor, and shift westerly to provide a trunk facility that is centred within the THSPA development area. This alignment would have the trunk watermain cross the CP Railway and Hydro One Corridor (as required to safely avoid existing Hydro towers and infrastructure) and continue south to Shields Street (including the extension to Shields Street and to St. Alphonse Street). The watermain would continue south along the east boundary of the Tecumseh Vista Academy school property eventually interconnecting into the Town's water system at CR42 and Odessa Drive.
- **Alternative Design Concept #3: West Alignment (CR43/CR42)**
 - The West Hamlet trunk watermain would extend south of Intersection Road through the Town's proposed servicing corridor route crossing CP Railway and the Hydro One Corridor diagonally (or as required to safely avoid existing Hydro towers and infrastructure). The watermain would continue to the south to the new local east-west road, south of the Desjardins East Pond, and route westerly and connect to the new watermain trunk at CR43 and Banwell Road. An extension shall also be provided to Shields Street and to St Alphonse street.

Existing or proposed road allowances and/or utility corridors will be used to accommodate future watermains, wherever possible. This helps to ensure that servicing can proceed without undue delays resulting from the need to acquire property. Where the watermains cross the CP Railway and the Hydro One Corridor the Town shall secure necessary easements to facilitate the construction and ongoing maintenance of that facility. Road right of ways for most infrastructure will be inherited by the Town through the development process. For instances where the construction of this proposed infrastructure is planned in advance of that process, the Town shall negotiate with the affected property owners to obtain the necessary utility and working easements.

Note that alternative alignments for the trunk watermain distribution facility, north of Intersection Road, were not evaluated as the Town has previously secured the necessary service corridor to accommodate this proposed infrastructure.

The above alternative design concepts are depicted on **Figure 5-5**.



**TECUMSEH HAMLET
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**WATER SERVICING
ALTERNATIVE DESIGN
CONCEPTS**

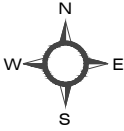
FIGURE 5-5

LEGEND

- URBAN AREA BOUNDARY
- TECUMSEH HAMLET STUDY AREA BOUNDARY
- ALTERNATE DESIGN CONCEPT 1
- ALTERNATE DESIGN CONCEPT 2
- ALTERNATE DESIGN CONCEPT 3
- EXISTING WATERMAIN



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SCALE: 1:7500
STATUS: DRAFT
PROJECT: 23-5735



DATE: June 20, 2025

5.4.2

Water Supply Recommended Preferred Design Concept

The preferred alternative for the water servicing infrastructure improvements is Design Concept #3: West Alignment (CR43/CR42).

5.4.2.1

Evaluation of Alternative Design Concepts: Water Supply

Appendix F includes detailed evaluation (Table F.4) of the three design concepts which are summarized below for reference:

Natural Environment

The three design concepts do not have a measurable difference in their impact to the natural environment.

Socio-Cultural Environment

There were minimal differences, when comparing each design concepts, in their respective impact to the socio-cultural environment.

Financial

Design Concept #3 includes interconnection with the City's system at Banwell Road/CR43 and therefore allows the trunk watermain size to be reduced from 400 mm dia. and 600 mm dia., per the WWMP (2018), to 300 mm dia. This has the lowest estimated capital costs as the proposed alignment coincides with the proposed right-of-way (ROW) within the development area reducing the required capital costs for property acquisition. This project can also be completed in conjunction with the proposed CR43 reconstruction.

Technical

From a technical servicing perspective Design Concept #3 provide the most direct connection to new development areas, especially south of the CPR/Hydro One Corridor. The east-west portion of the watermain provides more direct connection opportunities to serve areas immediately east of Banwell Road.

Although Design Concept #2 also has a central alignment, it would require a deep deflection to route beneath the Lachance SWMF and Desjardins SWMF East which would be difficult to access and maintain and could pose additional construction and maintenance challenges.

Design Concept #3 is the most preferred as it is least impactful from a financial and technical perspective.

5.5 Wastewater Projects

5.5.1 Wastewater Projects Design Concepts

The proposed wastewater servicing infrastructure improvements will provide wastewater service for future development in the area, redistribute wastewater flows to provide relief for the existing developed areas, and utilize updated design criteria and population densities that considers impacts of wet weather on the system.

The following alternative design concepts for the wastewater servicing infrastructure improvements were identified and evaluated:

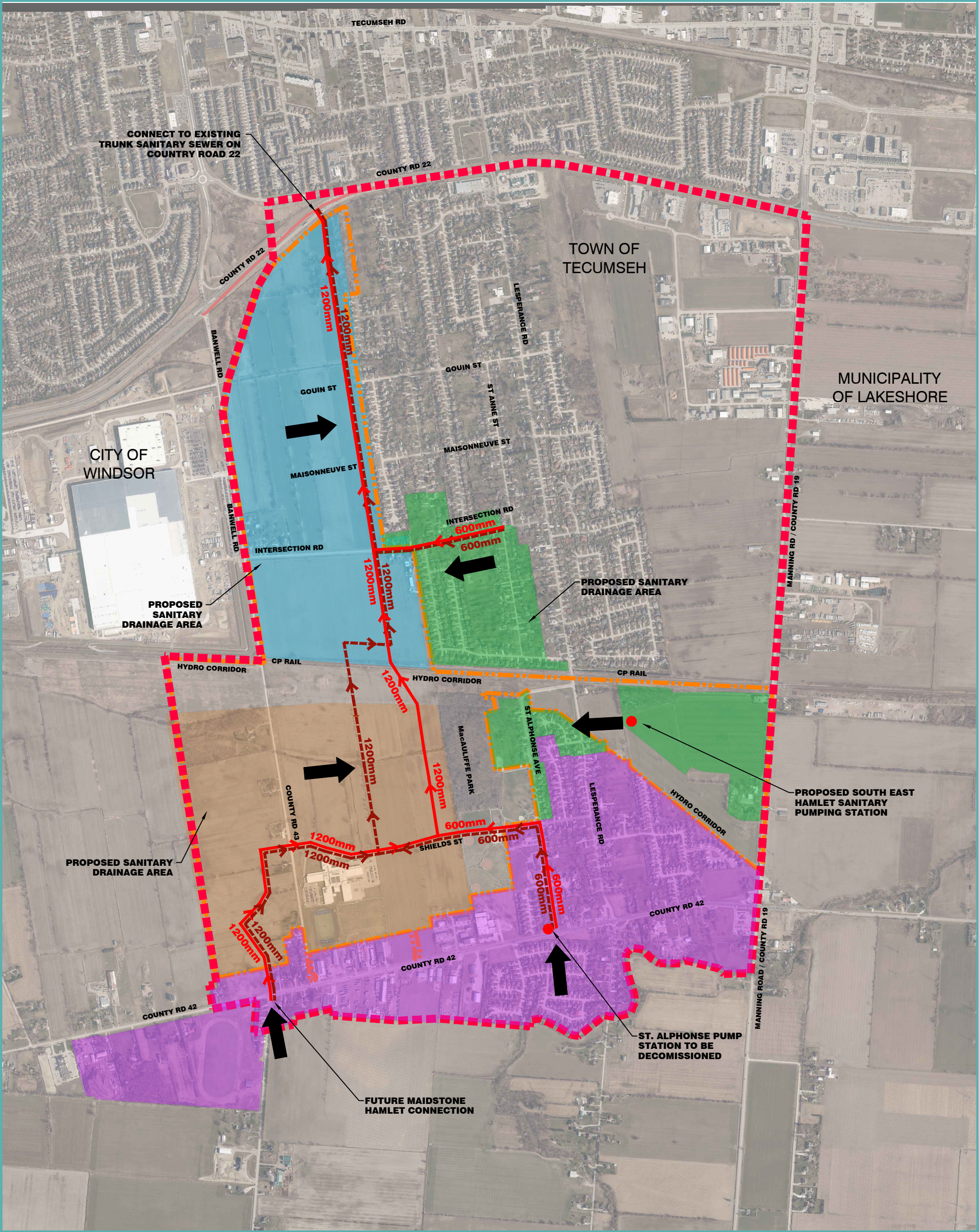
- **Alternative Design Concept #1: Central Alignment**
 - The 1200 mm dia. West Hamlet trunk sanitary sewer would extend south of Intersection Road through the Town's proposed servicing corridor route crossing CP Railway and the Hydro One Corridor (as required to safely avoid existing Hydro towers and infrastructure) and continue south to Shields Street. The 1200mm trunk heads westerly along Shields Street crossing Banwell Road, then heads southerly through the planned development area connecting to the future Maidstone Hamlet connection at CR 42. This design concept also considered a 600mm connection along Shields Street, then southerly on St Alphonse to CR 42 (where the existing pump station shall be decommissioned). A 600mm interceptor sewer shall be located along Intersection Road as part of this design concept.
- **Alternative Design Concept #2: West Alignment**
 - The 1200 mm dia. West Hamlet trunk sanitary sewer would extend south of Intersection Road through the Town's proposed servicing corridor and shift westerly to provide a trunk facility that is centred within the THSPA development area. This alignment would have the trunk sewer cross the CP Railway and Hydro One Corridor (as required to safely avoid existing Hydro towers and infrastructure) and continue south to Shields Street. The 1200mm trunk heads westerly along Shields Street crossing Banwell Road, then heads southerly through the planned development area connecting to the future Maidstone Hamlet connection at CR 42. This design concept also considered a 600mm connection along Shields Street, then southerly on St Alphonse to CR 42 (where the existing pump station shall be decommissioned). A 600mm interceptor sewer shall be located along Intersection Road as part of this design concept.

The proposed trunk sanitary sewer size does not vary with each alternative. The trunk sanitary sewers alignments have been designated with the proposed road ROW boundaries established through the THSPA. Where the trunk sewer crosses the CP Railway and the Hydro One Corridor, the Town shall secure necessary easements to facilitate the construction and ongoing maintenance of that facility.

Road ROWs for most infrastructure will be inherited by the Town through the development process. However, for instances where the construction of this proposed infrastructure is planned for construction in advance of that process, the Town shall negotiate with the affected property owners to obtain the necessary easements.

Note that alternative alignments for the trunk sanitary facility, north of Intersection Road, were not evaluated as the Town has previously secured the necessary service corridor to accommodate this proposed infrastructure. The alignment of the sanitary trunk sewer along Shields Street and St. Alphonse Avenue is also considered as final as it is consistent with the existing ROW areas. The trunk sewer shall connect to the St. Alphonse Pump Station to the east and the proposed Maidstone Hamlet forcemain outlet at CR42 and 11th Concession Road.

The above alternative design concepts are depicted on **Figure 5-6**.



**TECUMSEH HAMLET
SECONDARY PLAN AREA
ENVIRONMENTAL STUDY
REPORT**

**WASTEWATER SERVICING
ALTERNATIVE DESIGN
CONCEPTS**

FIGURE 5-6

LEGEND

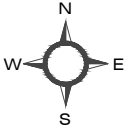
- URBAN AREA BOUNDARY
- TECUMSEH HAMLET STUDY AREA BOUNDARY
- NEW TRUNK SANITARY SEWER DESIGN CONCEPT #1
- NEW TRUNK SANITARY SEWER DESIGN CONCEPT #2
- EXISTING TRUNK SANITARY SEWER
- SANITARY PUMP STATION

- SEWAGE FLOW CONTRIBUTION
- INTERSECTION ROAD DIVERSION SEWER SERVICING DRAINAGE AREA
- NORTH TECUMSEH HAMLET SANITARY SERVICING DRAINAGE AREA
- SOUTH TECUMSEH HAMLET SANITARY SERVICING DRAINAGE AREA
- ST. ALPHONSE SANITARY SERVICING DRAINAGE AREA



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DATE: June 18, 2025

5.5.2 Wastewater Recommended Preferred Design Concept

The preferred design concept for the wastewater servicing infrastructure improvements is Design Concept #1: Central Alignment (refer to **Figure 5-6**).

5.5.2.1 Evaluation of Alternative Design Concepts: Wastewater

Appendix F includes detailed evaluation of the two design concepts (Table F.5) which are summarized below for reference:

Natural Environment

There were minimal differences in potential impact to the natural and socio-cultural environment across the alternative design concepts with the overall rating being the same across all concepts. From a natural environment perspective, both design concepts have similar estimated areas of disturbance to Candidate and Confirmed Significant Wildlife Habitat (SWH) and Species at Risk (SAR) habitat and both concepts have the potential to negatively impact a Swamp White Oak Mineral Deciduous Swamp in the northern portion of the THSPA. Prior to construction of this sewer, necessary site-specific assessments and permitting shall be completed as it relates to this work. Under permanent conditions this SWH and SAR habitat may be maintained with consideration for access provision for the underground improvements.

Socio-Cultural Environment

There were minimal differences, when comparing each design concepts, in their respective impact to the socio-cultural environment.

Financial

From a financial perspective, Design Concept #1 is estimated to have lower capital as well as operating and maintenance costs. This concept includes a shorter sewer with smaller footprint of disturbance when compared to Design Concept #2.

Technical

From a technical perspective, the Design Concept #1 alignment is more centralized to the south development area and is more accessible for future connections. The design concept is also the least complex as it requires only one easement beneath the Gouin SWMF which also results in a shorter construction duration than Design Concept #2 which crosses two additional SWMFs.

Design Concept #1 is the most preferred as it is least impactful from a financial and technical perspective.

5.6 Stormwater Management Projects

5.6.1 Stormwater Management Design Concepts

5.6.1.1 Stormwater Management – West Hamlet

The proposed stormwater management facilities (SWMF) will provide quality and quantity control of runoff to protect the upper reaches of the Little River drain, incorporate flexibility to accommodate climate change, and provide additional capacity to improve storm sewer systems upstream along existing residential streets.

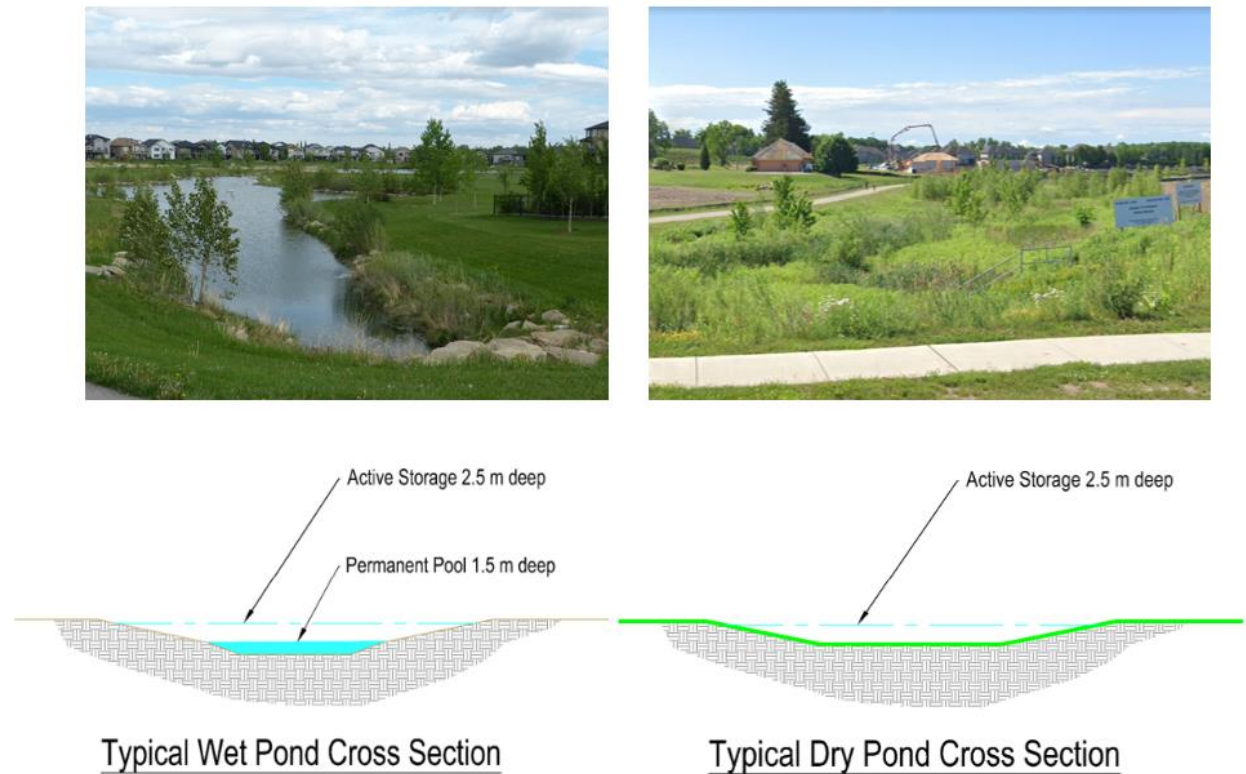
The following alternative design concepts were identified and evaluated for the Desjardins, Lachance, and Gouin stormwater management facilities:

- **Alternative Design Concept #1: Wet Pond SWMF**
 - Wet ponds with a permanent pool of water that provides both quality and quantity control of runoff.
- **Alternative Design Concept #2: Dry Pond SWMF**
 - Dry ponds that fully drains after each wet weather event. This type of facility only provides quantity control of runoff and requires the implementation of separate Manufactured Treatment Devices (MTDs) facilities upstream of the final outlet.

The above alternative design concepts are depicted on **Figure 5-7** and **Figure 5-8**.

Based on the allocated stormwater corridor areas and existing topography, the required pond bottom/normal water level and upstream storm sewer for all options are deeper than the existing downstream municipal drain network. Each SWMF will therefore be equipped with a storm pumping station to draw stored stormwater from the ponds up and into the downstream drains. The implementation of the stormwater management features requires the implementation of pumping stations to lift and control flows prior to discharge downstream. This is a requirement identified through the completion of the ULRMP. As such, it is assumed that pumping stations would be required for each design concept alternative as part of the feasible solution to provide SWM.

Figure 5-7 shows the difference between the wet and dry ponds, including a typical cross-section, and a sample image of the constructed facility. These are examples, and do not necessarily reflect the design of the ultimate preferred design concept.

Figure 5-7: Typical Cross-Section and Images of Wet Pond (Left) and Dry Pond (Right)

These images show the extended detention storage area of each pond which refers to the ‘active storage’. Active storage is used during and after a rain event to temporarily store collector runoff (MECP, Stormwater Management Plan and Design Manual). Wet ponds have permanent pools that store water permanently with the main purpose of providing water treatment for typical rain events. Stormwater pumping stations (PSs) are required to provide an outlet from each SWMF to the respective municipal drainage outlets. The PSs are sized based on the corresponding drainage area and the maximum outflow rate mandated by the ULRMP (2023). The ULRMP included a hydraulic analysis that determined the maximum outflow that could be accommodated by the downstream Little River and tributary drains.

Pumping stations are required to provide the following:

- Control of outlet flows based on the maximum outflow rates dictated by the ULRMP.
- Provide a maximum 48 hour draw down of the active storage areas of the ponds.
- Due to the relatively flat topography, the PS will lift the stormwater runoff collected in the ponds and discharge flows to the shallower downstream municipal drains.
- For Wet Ponds, provide a subdrain inlet to allow ponds to be fully drain periodically for maintenance.

- Hydraulically disconnect each SWMF from the downstream municipal drains to mitigate risks associated with backup of those drains into the facility. Backup reduces available pond storage capacity which leave the drainage areas susceptible to flooding.

Placement of SWMFs also considers the need to provide major overland flow routes to allow surface drainage to drain overland to the ponds to be stored prior to discharging to the downstream drains, up to and including a 1:100-year storm event. Under major rainfall events, overland flow of stormwater along road corridors will need to be directed to the proposed facilities via municipal rights-of-ways. Safety and access must be maintained under these conditions and will need to be refined as part of the detailed design of the proposed SWMFs and road networks. To achieve overland flow routing, critical design grades shall be used to guide the ultimate redevelopment of the THSPA; the Functional Servicing Study, in **Appendix E**, provides the recommended grading plan.

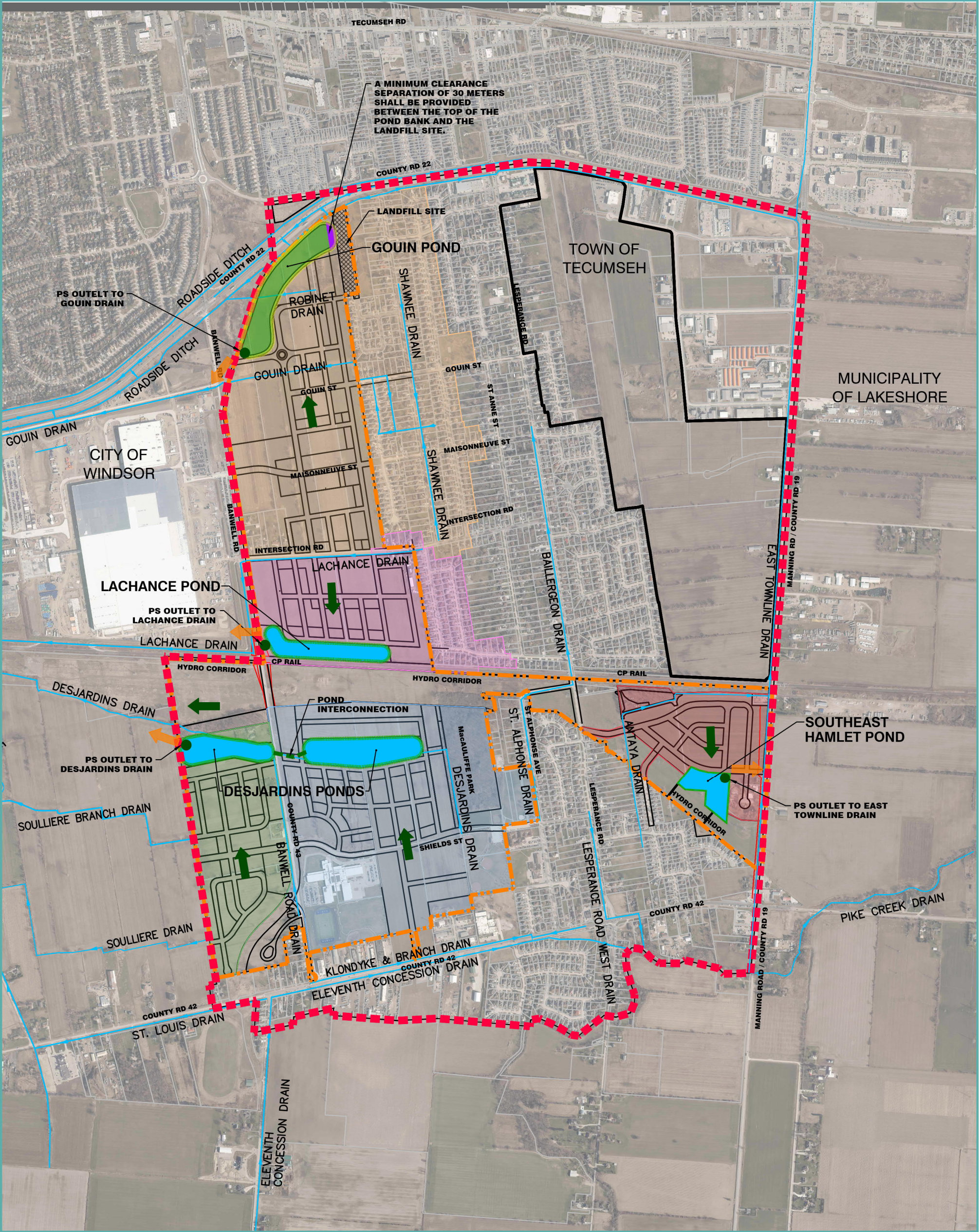
5.6.1.2 Stormwater Management – Southeast Hamlet

The SE Hamlet area currently drains to the East Townline Drain (ETLD) at the upper reaches of this drainage area. The Antaya Drain also partially serves this area outletting to the ETLD, just south of the existing CP Railway Corridor. The location of the SWMF required to control runoff associated with development of this agricultural land has not been established through previous studies, however the outlet capacity of this facility is dependent on the downstream conditions. The preferred solution outlined in **Section 4.4.2** is to control runoff from the development of this area via a SWMF. It is recommended that the existing Antaya Drain remains active, and the upstream areas continue to drain to the ETLD via a separate outlet. At the time of this ESR, a SWM study is being completed by Landmark Engineers Inc., which will recommend a maximum release rate into the ETLD. Downstream conditions (ie. enclosure of the ETLD, regional pond solutions) are being reviewed with affected stakeholders, including the Town, County of Essex, and affected developers. The outlet condition parameters shall be confirmed and the SWMF design shall be refined accordingly.

The following alternative design concepts for the SE Hamlet SWMF were identified and evaluated:

- Alternative Design Concept #1: North SWMF, South of the CP Railway Corridor; and
- Alternative Design Concept #2: South SWMF, partially within the Hydro One Corridor.

In both design concepts the SWMFs are assumed to be wet ponds that provide both quality and quantity control of stormwater runoff. The above alternative design concepts are depicted on **Figure 5-9**. The SWMF location and configuration assumes that approval to partially use the existing corridor from Hydro One is granted and the landowner is successful in obtaining all necessary agreements with Hydro One.



**TECUMSEH HAMLET
SECONDARY PLAN AREA
ENVIRONMENTAL STUDY
REPORT**

**WEST HAMLET STORMWATER
MANAGEMENT FACILITY
ALTERNATIVE DESIGN
CONCEPTS**

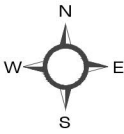
FIGURE 5-8

- URBAN AREA BOUNDARY
- TECUMSEH HAMLET STUDY AREA BOUNDARY
- WET STORMWATER
MANAGEMENT POND
- STORM PUMP STATION
- STORM SEWER DRAINAGE
- DRY STORMWATER
MANAGEMENT POND
- CONTROLLED OUTLET
- ENGINEERED LINER
- GOUIN POND DRAINAGE AREA
- LACHANCE POND DRAINAGE AREA
- DESJARDINS EAST POND DRAINAGE AREA
- DESJARDINS WEST POND DRAINAGE AREA
- SOUTH EAST HAMLET DRAINAGE AREA

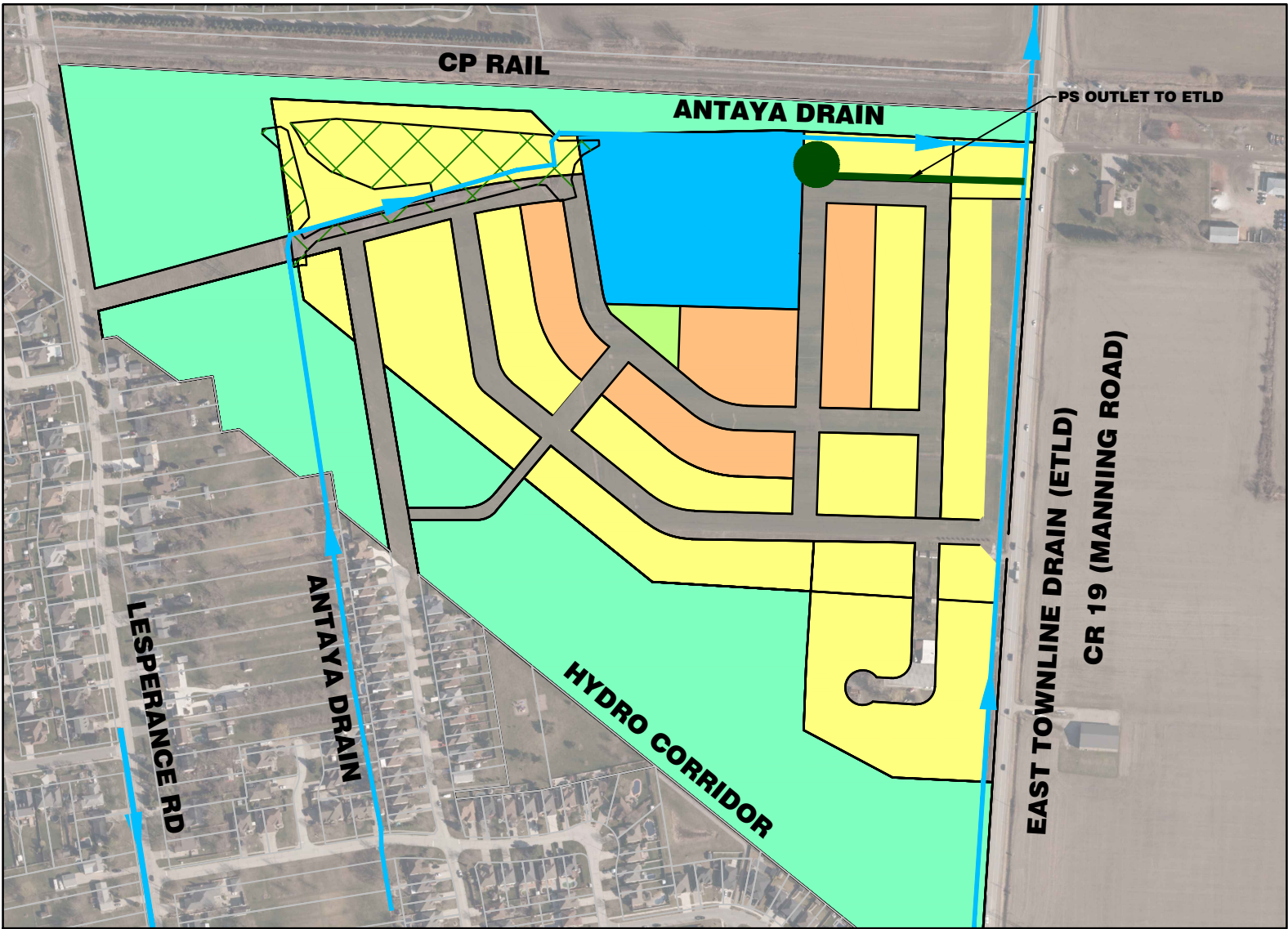


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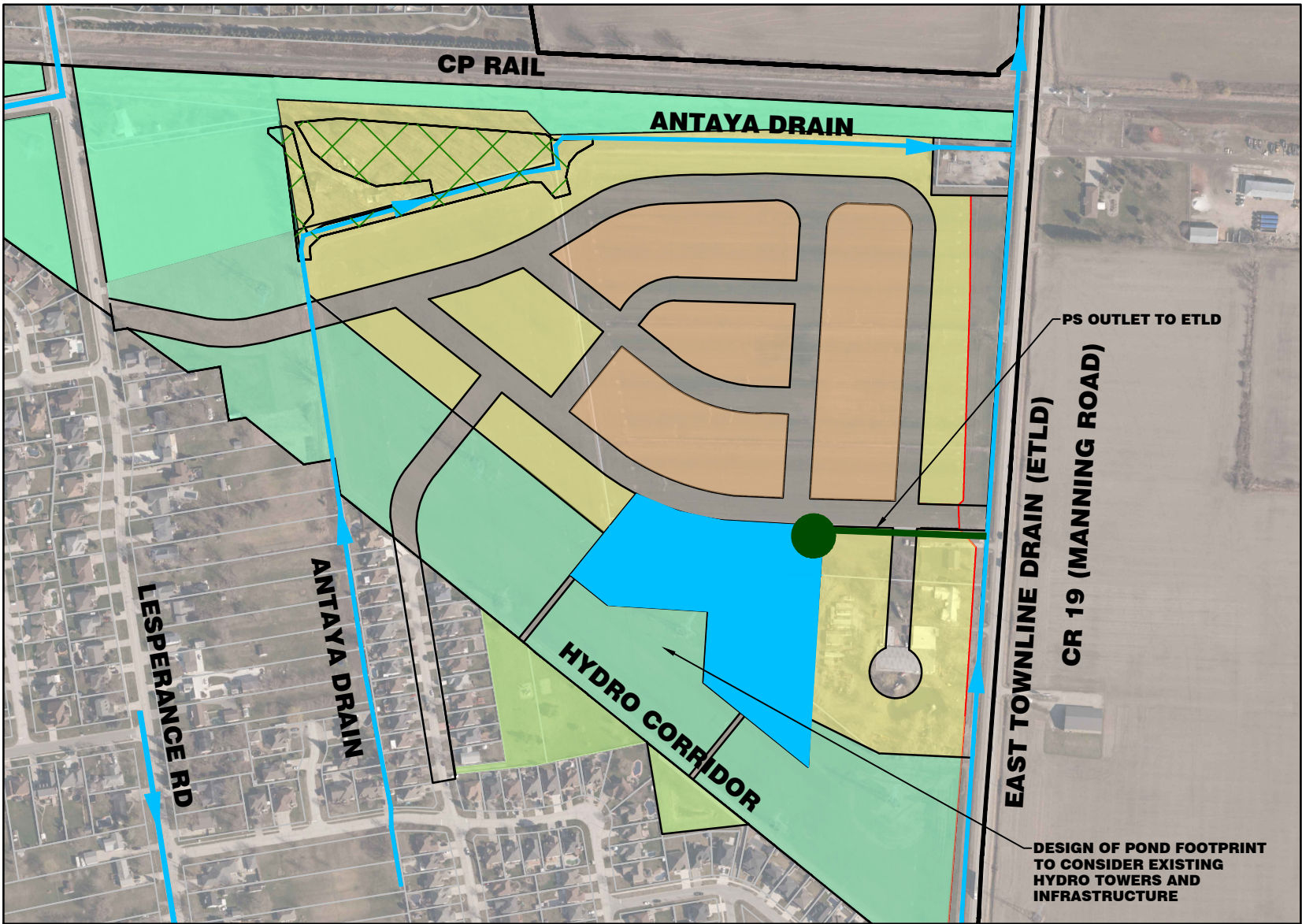
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PROJECT: 23-5735



DATE: October 24, 2025












DESIGN CONCEPT #1
NORTH STORMWATER MANAGEMENT FACILITY, SOUTH
OF THE CP RAILWAY CORRIDOR
N.T.S.



DESIGN CONCEPT #2
SOUTH STORMWATER MANAGEMENT FACILITY,
PARTIALLY WITHIN THE HYDRO ONE CORRIDOR
N.T.S.

TECUMSEH HAMLET
SECONDARY PLAN AREA
ENVIRONMENTAL STUDY
REPORT

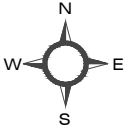
SOUTHEAST HAMLET
STORMWATER MANAGEMENT
FACILITY ALTERNATIVE
DESIGN CONCEPTS

- | | | | |
|---|----------------------------|---|---|
|  | LOW DENSITY RESIDENTIAL |  | ENVIRONMENTALLY PROTECTED AREA |
|  | MEDIUM DENSITY RESIDENTIAL |  | EXISTING MUNICIPAL DRAIN |
|  | HYDRO CORRIDOR |  | PROPOSED STORM PUMPING STATION |
|  | PARK SPACE |  | PROPOSED STORM SEWER OUTLET FROM PUMPING STATION TO RECEIVING DRAIN |
|  | STORMWATER MANAGEMENT POND | | |



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PROJECT: 23-5735



DATE: June 17, 2025

FIGURE 5-9

5.6.2 Stormwater Recommended Preferred Design Concept

The Alternative Design Concepts for the SWM Facilities in the West Hamlet were evaluated separately:

- Desjardins and Lachance SWMF
- Gouin SWMF

The key distinction between the assessment of SWMF alternatives for the Gouin Drainage area versus the Desjardins/Lachance Drainage Areas is based on the proximity of the Gouin Pond to the Windsor Airport's Obstacle Identification Surface (OLS). The OLS is a surface that establishes the limit to which objects may project into the airspace associated with an aerodrome so that aircraft operations at the aerodrome may be conducted safely. SWMF are known to attract waterflow which can pose collision hazards when near airports. Additional information on the required waterfowl mitigation measures for both dry and wet ponds are described more in Section 6.4.1.

For reference, the preferred design concepts for all SWMFs are shown in **Figure 5-8**.

Desjardins and Lachance Stormwater Management Facilities

The preferred design concept for the Desjardins and Lachance SWMF is Design Concept #1: Wet SWMF shown in **Figure 5-8**.

5.6.2.2 Evaluation of Alternative Design Concepts: Desjardins and Lachance Stormwater

Detailed comparative evaluations have been completed to determine the preferred design concepts for each SWMF. The below summarizes the key findings of the completed evaluations which can be found in **Appendix F**, Table F.6.

Natural Environment

Design Concept #1 has a comparatively greater potential impact to the natural environment. This is because wet ponds could attract waterfowl which could pose a risk to the nearby Windsor Airport operations. However, it should be noted that these SWMF are not within the footprint of the Airport's OLS. Wildlife and vegetation require control to ensure that the functionality of those measures is not compromised. These concerns can be mitigated through extensive waterfowl mitigation measures within the pond corridor.

Socio-Cultural Environment

There were no differences in potential impact to the socio-cultural environment across the alternative design concepts with the overall rating being the same across all concepts. This is because the location and footprint of the SWMF is the same regardless of the design concepts resulting in the same area of impact.

Financial

From a financial perspective, Design Concept #1 is estimated to have comparatively lower capital costs as well as operating and maintenance costs than Design Concept #2. Dry ponds are more costly than wet ponds due to the need for additional on-site quality control measures such as a separate Manufactured Treatment Device (MTD) or oil and grit separators (OGS) and/or underground detention units and ongoing operational costs associated with keeping the pond dry. From a long-term maintenance perspective, both dry and wet ponds require regular inspection and maintenance. Wet ponds require draining and regular dredging to remove sediment and ensure capacity of the ponds and treatment capacity is not compromised. Sediment removal from MTDs/OGS units or underground units is considered less invasive and easier to complete on a regular basis with a standard vacuum trunk and the replacement of filtration units to ensure over clogging does not reduce the functionality or create flow impedances.

Technical

From a technical perspective, Design Concept #1 is comparatively less complex to construct and requires a shorter construction duration as wet ponds do not require further construction components. Whereas dry ponds require the implementation of MTDs to provide quality control of runoff.

Design concept # 1: West SWMF is the most preferred for the Desjardins and Lachance SWMFs as it is least impactful from a financial and technical perspective.

5.6.2.3 Evaluation of Alternative Design Concepts: Gouin Stormwater

The Gouin SWMF is within the Windsor Airport Runway Approach Zone. As a result, it was determined that the preferred alternative design concept for this pond will be Design Concept #2: Dry SWMF to discourage the presence of waterfowl. Upstream quality control measures (MTDs/OGS) will be provided accordingly and are further described in greater detail in **Appendix E**, Functional Servicing Report. A separate evaluation of alternatives was completed and is provided under Table F.7 in **Appendix F**.

5.6.2.4 Evaluation of Alternative Design Concepts: SE Hamlet Area Stormwater

The preferred design concept for the Southeast Hamlet SWMF is Design Concept #2: South SWMF, partially within the Hydro One Corridor (refer to **Figure 5-9**). Table F.8 in **Appendix F** includes the detailed evaluation of alternatives.

Natural Environment

There were minimal differences in potential impacts to the natural environment across these alternative design concepts with the overall rating being the same across all concepts. The study area is generally used as agricultural lands, and these pond locations will not impact significant natural heritage features. Both design concepts propose that stormwater discharge to be controlled, both by quality and quantity, prior to discharge into the downstream East Townline Drain.

Design Concept #2 is the preferred choice for climate change resilience due to its adaptable pond location, which allows for modifications to depth and footprint that may be warranted in the future due to the affects of climate change. This flexibility means the SWMF can be expanded or changed in the future to accommodate increased storage needs driven by climate change, even after the area is developed.

Socio-Cultural Environment

Design Concept #2 is anticipated to have minimal socio-cultural impact, with no direct effects on cultural heritage or archaeological resources. This concept is preferred, from a planning perspective, as it utilizes the hydro corridor lands as a secondary use. Hydro corridors often represent significant linear tracts of land that are otherwise difficult to develop due to restrictions related to the power lines. This provides valuable space for stormwater infrastructure which allows for more effective use of developable lands.

Design Concept #1, however, carries a higher potential to cultural heritage, due to its close proximity to the Canadian Pacific Railway which is considered to have cultural heritage significance.

Financial

Both SWMF design concepts will be similar in size and comparable in cost. The main differentiator is that Design Concept #2 is partially within the hydro corridor and therefore it is anticipated that additional costs for property easements or acquisition will be required. Costs for land acquisition and property easements may be offset/recovered through the development of lands that might have been used for a pond. It shall be noted that if the Developer of the SE Hamlet lands are unable to procure approval from HONI for their pond (as shown in this FSR and ESR), the pond will have to be relocated outside of the hydro corridor (an EA amendment may be required at that time, developer to confirm).

Technical

From a technical perspective, both alternatives design concepts require improvements to the downstream East Townline Drain prior to implementation. Design Concept #1 is comparatively less complex as it will require less improvements to the drain as the proposed pond outlet is closer to the downstream section of this drain, just south of the CP Railway crossing.

Design Concept #2 is the most preferred as it is least impactful from a natural environment and technical perspective.

5.7 Summary of Preferred Projects

A summary of each of the preferred design concepts for the Road, Water, Wastewater and Stormwater Management projects is provided in **Table 6**.

Table 6: Summary of Preferred Projects

Project	Preferred Design Concept	MCEA Schedule
Gouin Street New Urban Collector Roadway	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
Maisonnette Street New Urban Collector Roadway	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
Intersection Road Reconstruction from Rural cross-section to Urban cross-section	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
Shields Street New Urban Collector Roadway and North-South Urban Collector Roadway	Design Concept #4: Off-Street Cycling Facilities, No Parking and Bioswale Median	C
West Tecumseh Trunk Watermain, CR 22 to CP Railway	Design Concept #3: West Alignment (CR43/CR42)	C
West Tecumseh Trunk Watermain, CP Railway to CR 42	Design Concept #3: West Alignment (CR43/CR42)	C
West Tecumseh Trunk Sewer, CR 22 to CP Railway	Design Concept #1: Central Alignment	C
West Tecumseh Trunk Sewer, CP Railway to CR 42	Design Concept #1: Central Alignment	C
Intersection Road and Shields Street Relief Sanitary Sewers including decommissioning of the St. Alphonse Pump Station.	Design Concept #1: Central Alignment	C
Gouin Stormwater Management Facility	Design Concept #2: Dry Stormwater Management Facility	C
Lachance Stormwater Management Facilities	Design Concept #1: Wet Stormwater Management Facility	C
Desjardins Stormwater Management Facilities	Design Concept #1: Wet Stormwater Management Facility	C
Southeast Hamlet Stormwater Management Facility	Design Concept #2: South Stormwater Management Facility, Partially in Hydro Corridor	C

6.0

Description of the Preferred Design Concepts

This section provides an overview of the key features of the preferred design concepts for the Tecumseh Hamlet infrastructure improvements. The functional design of the infrastructure improvements is further detailed in the Functional Servicing Report (**Appendix E**).

6.1

Road Projects

Gouin Street, Maisonneuve Street, Intersection Road, the North-South Collector, and Shields Street are to be classified as two-lane Urban Collector roads within the THSPA. All other right-of-ways within the THSPA will be classified as local roads. All collector roads are proposed to include off-street cycling facilities connecting to regional active transportation facilities on the surrounding arterial network. See **Figure 6-1**.

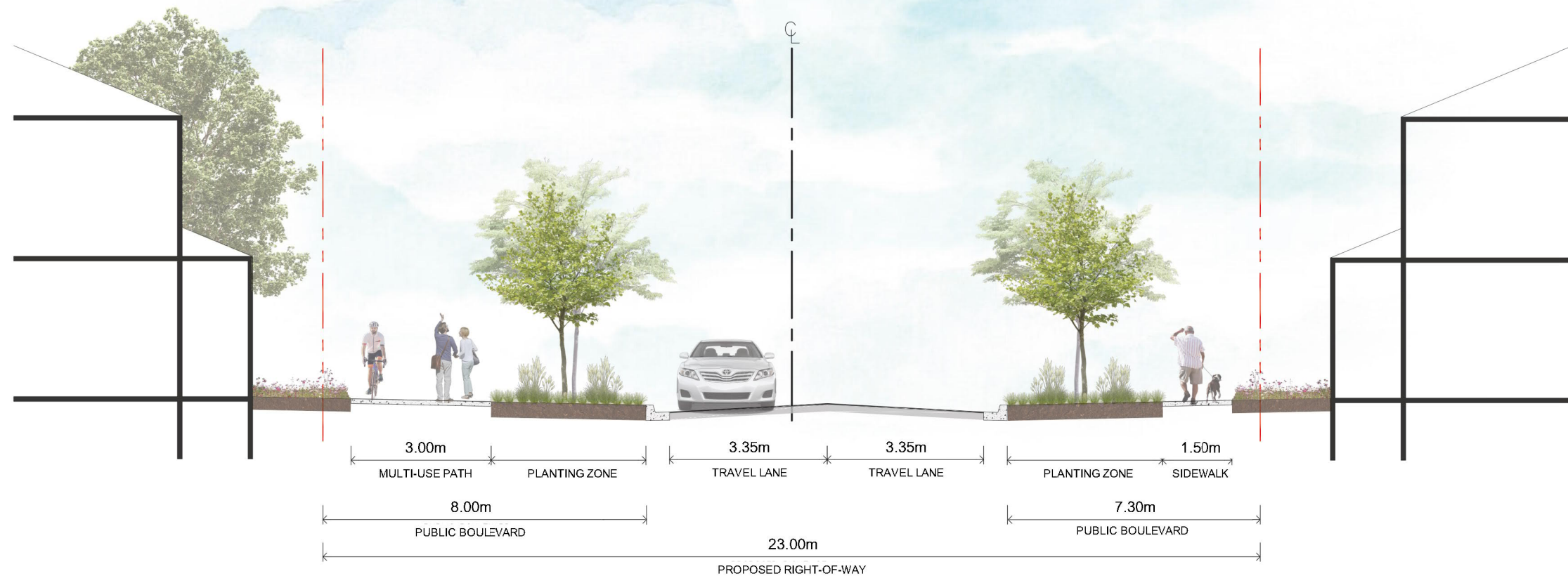
Each collector road will connect to Banwell Road, CR 42, or CR43 via signalized intersections at locations established in accordance with the corresponding EAs completed for those corridors. The THSPA Transportation Study Addendum (2024) study in **Appendix E** includes details on the analysis of this network as well as recommendations regarding the configuration of those intersections. At the time of this report, the City of Windsor was embarking on the detailed design and construction of the Banwell Road corridor inclusive of CR22 interchange. This work is underway and is estimated to be complete by 2027. The Town of Tecumseh and its engineering and planning consultants have been coordinating directly with these design and construction teams to ensure that those improvements consider the needs of the THSPA.

To accommodate the proposed collector roads within existing development areas, the existing right of way widths which range from 20 m up to 36 m are sufficient. Where the right of way is less than the standard 23 m desired width, modifications to the boulevard area configuration on either side of the road shall be undertaken.

The proposed collector roadway cross-sections for Gouin Street, Maisonneuve Street, and Intersection Road and the North-South Collector will be 23 m wide and will include an off-street multi-use pathway and concrete sidewalk. One exception is the Commercial Main Street Area along Maisonneuve Street where provisions for on-street parking will be provided. A typical road cross-section for the proposed Urban Collector Roadways is shown in **Figure 6-1**.

Shields Street will be integrated into the enhanced McAuliffe Regional Park Improvements and will include off-street multi-use pathway, no street parking and a landscaped drainage (bioswale) median as shown in **Figure 6-2**. Designated pedestrian crossover signals, wayfinding signage and raised planters will also be incorporated into the Shields Street ROW design to assist movement of pedestrians and cyclists. Park enhancements also include reconfiguration of recreational facilities.

Appendix H includes plan view figures depicting the proposed alignment for each of the collector road segments including the proposed right-of-way boundaries. **Appendix E** provides greater detail regarding the accommodation for utility and servicing needs within the collector road cross section.



DESIGN CONCEPT #2 - 23m ROW

OFF-STREET CYCLING FACILITIES (MUP) AND NO PARKING

TECUMSEH HAMLET SECONDARY PLAN AREA ENVIRONMENTAL STUDY REPORT

GOUIN STREET, MAISONNEUVE STREET, N-S COLLECTOR, AND INTERSECTION ROAD PREFERRED DESIGN CONCEPT

FIGURE 6-1



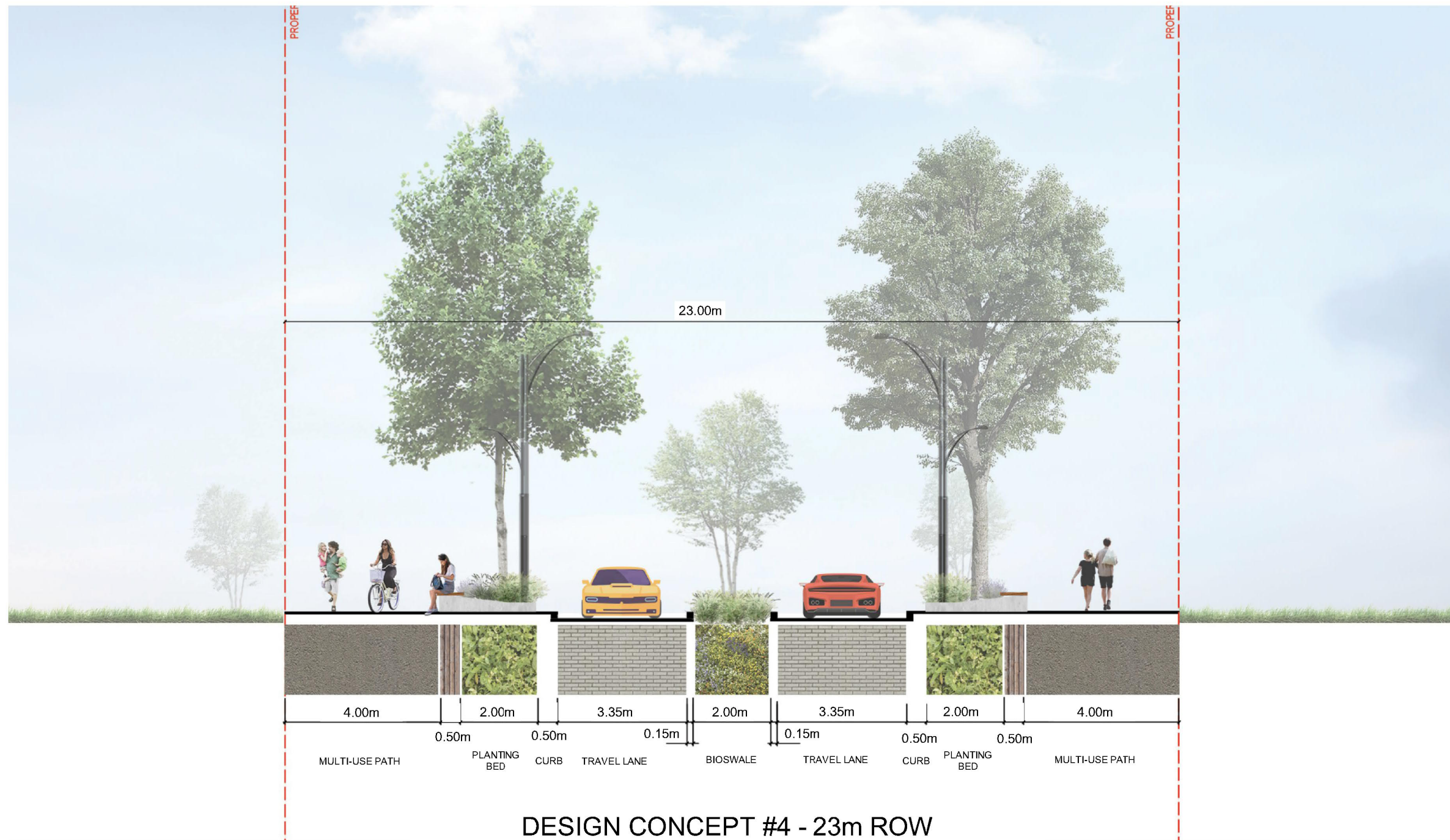
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MAP CHECKED BY: LAH
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STATUS: FINAL

PROJECT: 23-5735

DATE: August 28, 2024

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**TECUMSEH HAMLET SECONDARY
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**PREFERRED DESIGN CONCEPT
SHIELDS STREET**

FIGURE 6-2



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PROJECT: 23-5735

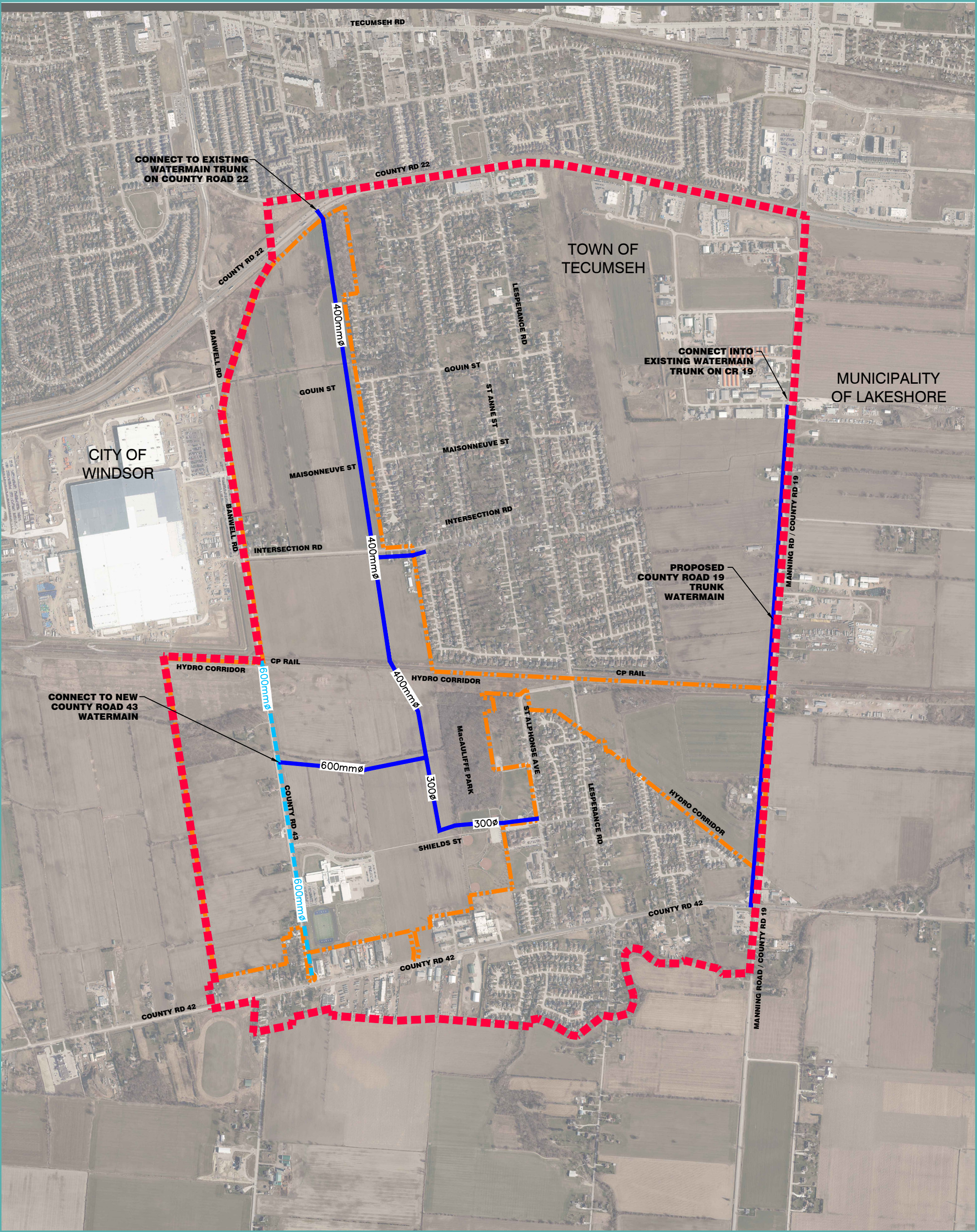
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6.2 Water Supply Projects

Subsequent to the WWMP (2018), further refinement of the water servicing strategy was undertaken in 2023 to evaluate the water distribution needs within the Town's Hamlet area. This assessment confirmed that the proposed trunk watermain along Banwell Road and CR43 would improve efficiencies within the watermain distribution system for both the Town and City of Windsor. Details on the evaluation and findings are summarized in the Town of Tecumseh, Council Report PWES-2023-42. Amendments to the 2023-2027 PWES Capital Works Plan CR43 Trunk Watermain Project W-4 (CP Rail to CR42), dated May 9, 2023 have been included: this analysis confirmed that the trunk watermain which runs through the THSPA could be reduced from its originally planned size in the WWMP 2018 from 400 mm (north of CP Railway) and 600 mm (south of CP Railway) diameter to 300 mm diameter. Following further analysis of the Town's hydraulic model, it was determined that the trunk watermain, from CR 22 to the proposed east-west roadway located south of the Desjardins SWM Pond, would remain 400mm in diameter. Details of this review is appended to the Functional Service Report is provided in **Appendix E**. The watermain recommended by the WWMP along CR43 will remain 600 mm in diameter and a stub will be provided at the Town of Tecumseh limits where Banwell Road begins.

The alignment of the proposed trunk watermain is shown in **Figure 6-3**.



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**WATERMAIN TRUNK
PREFERRED DESIGN
CONCEPT**

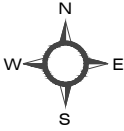
FIGURE 6-3

LEGEND

- URBAN AREA BOUNDARY
- TECUMSEH HAMLET STUDY AREA BOUNDARY
- PREFERRED DESIGN CONCEPT
- EXISTING WATERMAIN



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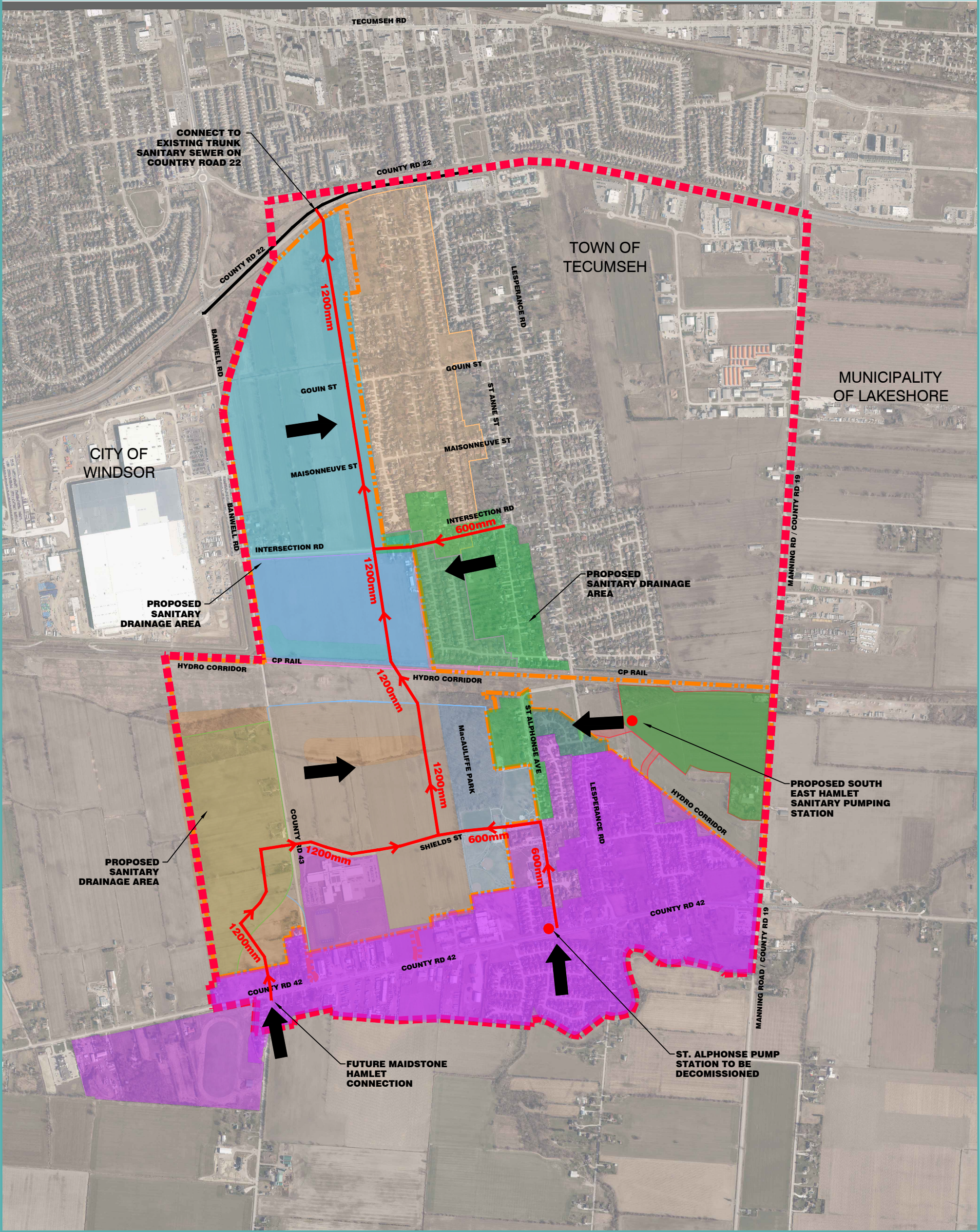
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6.3 Wastewater Projects

To confirm that the proposed population and commercial land use growth within the THSPA will not generate sewage flows in excess of area's maximum allowable release rate stipulated by the Wastewater Servicing Agreement between the Town of Tecumseh and the City of Windsor, a sanitary sewer analysis was completed using the Town's Master Sanitary Sewer Model. This memo is appended to the Functional Servicing report (**Appendix E**).

A 1200 mm dia. sanitary trunk sewer will connect to an existing stub located at CR22; the trunk will extend southernly following the preferred trunk alignment described in Section 5.5.2. Diversion sewer connections will be made at Intersection Road and Shields Street to intercept flows from the existing trunk sanitary system and relieve the sanitary system to the east. Sewer invert elevations and gradients were designed to ensure proper drainage of the entire THSPA and to provide future sanitary sewer connection opportunities from the Maidstone Hamlet and existing lands along CR42.

The alignment of the proposed trunk sanitary sewer is shown in **Figure 6-4**.



**TECUMSEH HAMLET
SECONDARY PLAN AREA
ENVIRONMENTAL STUDY
REPORT**

**SANITARY TRUNK
PREFERRED DESIGN
CONCEPT**

FIGURE 6-4

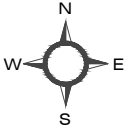
LEGEND

- URBAN AREA BOUNDARY
- TECUMSEH HAMLET STUDY AREA BOUNDARY
- PREFERRED SANITARY TRUNK ALIGNMENT
- EXISTING TRUNK SANITARY SEWER
- SANITARY PUMP STATION
- SEWAGE FLOW CONTRIBUTION

- INTERSECTION ROAD DIVERSION SEWER SERVISING DRAINAGE AREA
- NORTH TECUMSEH HAMLET SANITARY SERVISING DRAINAGE AREA
- SOUTH TECUMSEH HAMLET SANITARY SERVISING DRAINAGE AREA
- ST. ALPHONSE SANITARY SERVISING DRAINAGE AREA



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DATE: May 23, 2025

6.4 Stormwater Management Projects

The functional design of the stormwater management facilities (SWMF) consists of stormwater management ponds, each with its own pumping station and underground trunk sewers. The type and location of the pond is based on the preferred solutions described in Section 5.6.2. Due to the flat topography of the THSPA and shallow municipal drain outlets, each pond will outlet into an existing municipal drain via a storm pumping station.

The Functional Servicing Report (FSR), attached **Appendix E**, will have details on the cross-sectional dimensions and design elements of each SWMF. These parameters were used to allocate necessary land boundaries within the THSPA and to support the completion of the THSP.

Considerations for safety, landscape, recreational opportunities and integration with park space shall be fundamental in the detailed design of the proposed stormwater management ponds. To the extent possible, the aesthetics and physical surroundings of these facilities will integrate into the cultural landscape. Developers shall liaise with the Town to develop a plan that is in keeping with the vision of the community. Waterfowl mitigation measures are proposed for all SWMF within the THSPA, due to their close proximity to the Windsor International Airport and will be an important design element. As per the MECP Stormwater management plan and SWMP design guidelines the following shall be implemented “The establishment of dense woody vegetation around the perimeter of a pond or wetland is the most effective means of deterring undesirable species of waterfowl from colonizing and contaminating facilities which have a permanent pool. Minimizing the amount of manicured/ mown land will limit the preferred habitat for geese.”

6.4.1 Gouin Stormwater Management Facility

The Gouin Pond is proposed to be a dry pond located at the north end of the THSPA with connection into the Gouin Municipal Drain at Banwell Road. The Gouin Pond will provide storage for the stormwater flows within the THSPA north of Intersection Road. In addition to servicing the THSPA, the Gouin Pond will ultimately provide an adequate storm sewer outlet for the existing development to the east through connections at Gouin Street and Maisonneuve Street. The stormwater flows will be conveyed to the pond through a trunk storm sewer network.

Design parameters and mitigation measures that need to be implemented in order to operate the proposed dry pond are described in the Functional Servicing Report (**Appendix E**).

The proposed location of the Gouin Pond is near a former MTO landfill site. As a result, an engineered liner is required along the east pond wall. The liner shall be keyed into the natural clay soils below the base of the pond to prevent migration of the contaminants into the runoff. A minimum distance of 10 m is proposed between the Gouin Pond and the former MTO waste site.

The Gouin SWMF and trunk storm sewer network is shown in **Figure 6-5A** as well as the proposed mechanical treatment devices.

6.4.2 Lachance Stormwater Management Facility

The Lachance Pond is proposed to be a wet pond, situated north of the CP Railway Corridor and discharge to the west into the Lachance Municipal Drain from a pumping station. The discharge forcemain will need to cross Banwell Road and discharge to the Municipal Drain, within the City of Windsor lands. The Lachance Pond will provide storage for the stormwater flows within the THSPA south of Intersection Road and north of the CP Railway and a portion of the Hydro Corridor. In addition to servicing the THSPA, the Lachance Pond will ultimately provide relief for the existing development to the east by intercepting existing flows and channeling them to the Lachance Pond via the new trunk storm sewer network, south of Intersection Road.

The Lachance SWMF and trunk storm sewer network is shown in **Figure 6-5A**.

6.4.3 Desjardins Stormwater Management Facility

Under existing conditions the Desjardins Municipal Drain bisects the THSPA and crosses Banwell Road heading west, ultimately discharging into the Little River. Two pond cells have been proposed, Desjardins East and Desjardins West, which will be interconnected by a sewer running underneath Banwell Road. The Desjardins East Pond will provide storage for the stormwater flows within the THSPA south of the CP Railway between Banwell Road and the existing development to the east. The Desjardins West Pond will provide storage for the stormwater flows within the THSPA, south of the CP Railway to the west of Banwell Road. The stormwater flows will be conveyed to the pond through a trunk storm sewer network.

The Desjardins Ponds (East and West) and trunk storm sewer network is shown in **Figure 6-5B**.

6.4.4 Southeast Hamlet Stormwater Management Facility

The Southeast (SE) Hamlet Pond is proposed to be a wet pond within the SE Hamlet, located to the south and partially within the Hydro Corridor. The stormwater flows within the SE Hamlet area will be conveyed through the local storm sewer network and directed to the proposed pond. It is proposed that the SE Hamlet Pond will have a pumping station which will outlet to the East Townline Drain (ETLD).

The ultimate outlet of this area will depend on timing of the County's CR19 improvements. Until the ultimate storm water solutions and storm sewer system improvements are undertaken, implementation of the SWMF will need to discharge to the existing ETLD. To confirm that the pumped discharge from the SWMF will not have adverse impacts to the downstream system, and to evaluate the impacts that the pumping station outlet will have on the operation of the ETLD: It is recommended that upon detailed design of the SE Hamlet area, that the developer engage the Town of Tecumseh and County of Essex to clarify outlet conditions at the time. Collaboration with the Essex Region Conservation Authority (ERCA) will be required to establish necessary interim outlet conditions.

The SE Hamlet Pond and trunk storm sewer network is shown in **Figure 6-5C**.

6.4.5 Stormwater Pumping Stations

In order to direct water from the wet ponds to the existing drains, a stormwater pumping station is required for each pond.

Typical pumping station site layout will vary depending on the capacity of the pumping station. For pumping stations with a firm capacity lower than 0.4 cms, a standard cylindrical wet well structure will be sufficient to accommodate the required pumps. Pumping stations with a firm capacity greater than 0.4 cms capacity will require the implementation of a cast-in-place rectangular structure.

Each pumping station will be equipped with an outlet forcemain to discharge to the adjacent municipal drain. Due to the shallow elevations of the existing East Townline Drain, it was assumed that the Southeast Hamlet Pumping Station forcemain outlet will discharge to an open drain which will direct flows to the East Townline Drain which ultimately flows to Lake St. Clair.

The sizes of each pumping station wet well are summarized in **Table 7**.

Table 7: Storm Pumping Station and Pond Design Summary

Parameter	Gouin Pumping Station	Lachance Pumping Station	Desjardins Pumping Station	SE Hamlet Pumping Station
Wet Well Size (meters)	9.0 x 15.0	9.0 x 15.0	6.0 x 10.0	3.6 (diameter)
PS Required Capacity (m ³ /s)	1.75	1.21	0.6	0.2
Pond Normal Water Level (Elevation meter above sea level)	N/A	178.60	179.00	179.50
Pond Bottom (Elevation meter above sea level)	177.5	177.20	177.70	178.00
Finished Grade (Elevation meter above sea level)	181.90	182.80	182.20	181.90
Pump Configuration	2 duty pumps + 1 standby pump	2 duty pumps + 1 standby pump	2 duty pumps + 1 standby pump	1 duty pumps + 1 standby pump

6.4.6 Trunk Storm Sewer

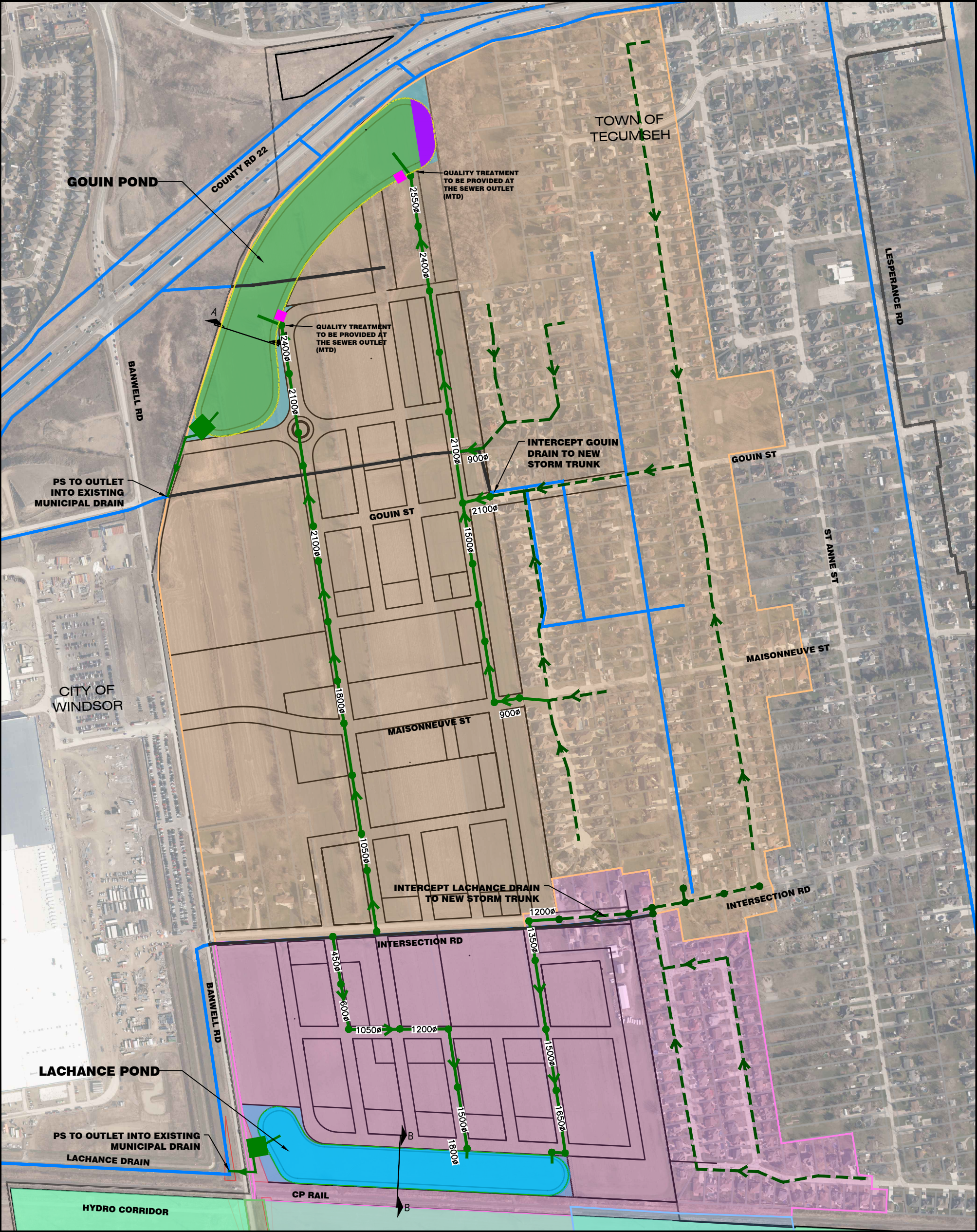
Stormwater conveyance will be provided by trunk storm sewers, generally following the location of proposed streets within the THSPA. These trunk storm sewers will generally follow the road grade to the low point within each catchment and discharge to the associated SWMF. The proposed storm sewer routing is shown in **Figures 6-5A, 6-5B and 6-5C**.


6.4.7 Municipal Drainage Works

As development is planned for this area, modifications will be necessary for each of the existing Municipal Drains servicing each area. These modifications may include drain improvements, or the abandonment of existing Drains (under the Municipal Drainage Act). The developer will be responsible for all drain modifications, including realignment, which must occur within the development lands.

A Drainage Engineering must be appointed under the Municipal Drainage Act to facilitate the proposed drainage improvements. The recommended drainage works shall be designed and implemented to ensuring they meet local regulations and address the specific needs of the development. This shall include confirming that the condition of the downstream drainage system has not changed and required the evaluation of stormwater management system outlet capacity. This includes instances where interim drainage measures are proposed to facilitate staged development.

The drainage works shall confirm that servicing of existing adjacent or upstream development is not impacted and that existing drainage outlets are maintained at a minimum and were identified through this study are expanded to accommodate future improvements to existing storm sewer drainage systems.







**TECUMSEH HAMLET
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**STORM TRUNK PREFERRED
DESIGN CONCEPT**


FIGURE 6-5A




PROPOSED WET STORMWATER
MANAGEMENT PONDS




PROPOSED DRY STORMWATER
MANAGEMENT PONDS




PROPOSED STORM PUMPING STATION (PS)




PROPOSED STORM DIAMETER




PROPOSED STORM MANHOLE




PROPOSED STORM TRUNK SEWER




EXISTING STORM TRUNK SEWER




PROPOSED MECHANICAL TREATMENT DEVICE




ABANDONED PORTION OF MUNICIPAL DRAIN




EXISTING MUNICIPAL DRAIN




PROPOSED SWALE




GOUIN POND DRAINAGE AREA



LACHANCE POND DRAINAGE AREA



ENGINEERED LINER



FUTURE ROW FOR RAIL OVERPASS

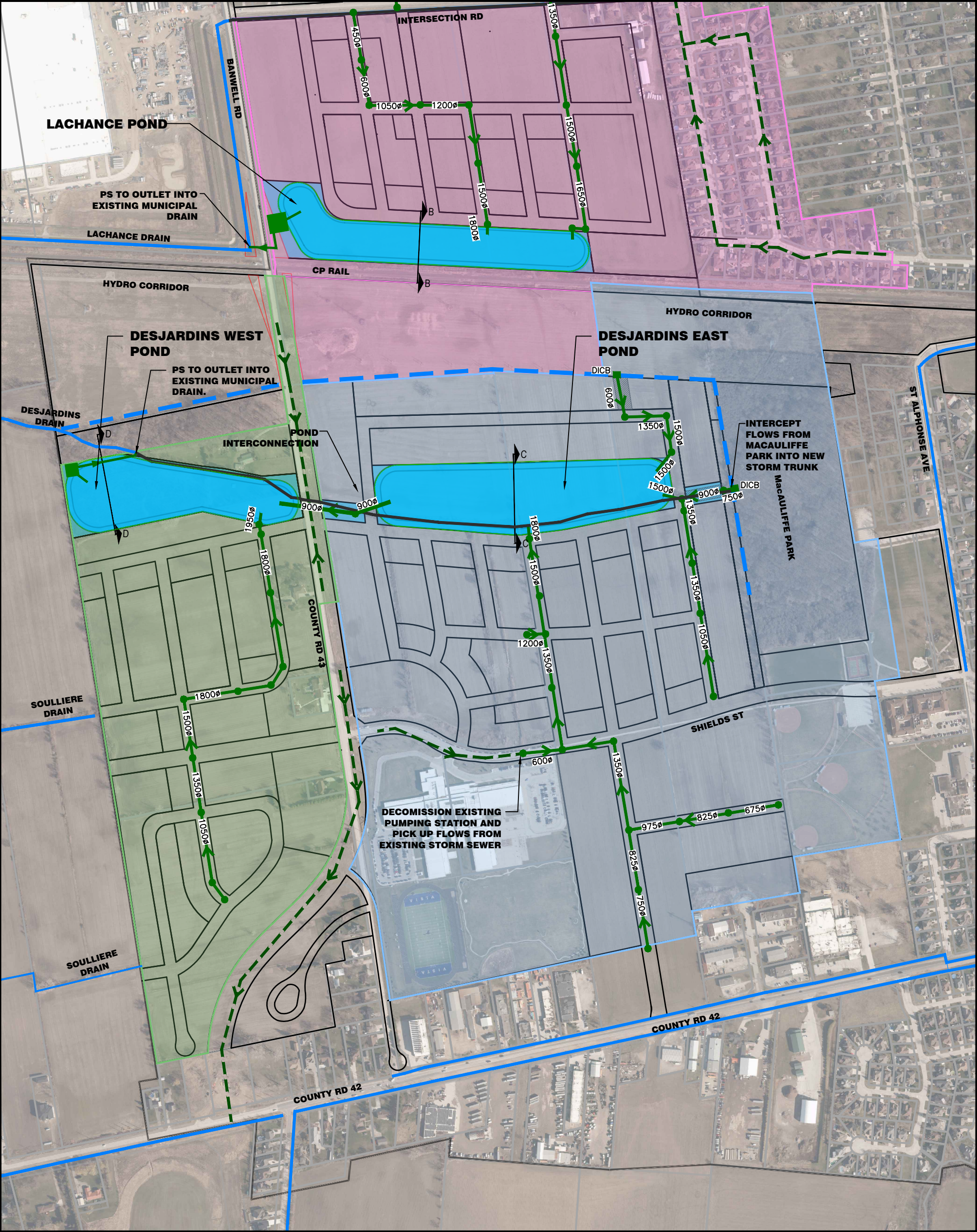



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











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REPORT**

**STORM TRUNK PREFERRED
DESIGN CONCEPT**

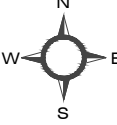
FIGURE 6-5B

	PROPOSED WET STORMWATER MANAGEMENT PONDS		ABANDONED PORTION OF MUNICIPAL DRAIN
	PROPOSED DRY STORMWATER MANAGEMENT PONDS		EXISTING MUNICIPAL DRAIN
	PROPOSED STORM PUMPING STATION (PS)		PROPOSED SWALE
	PROPOSED STORM DIAMETER 1200		DESJARDINS EAST POND DRAINAGE AREA
	PROPOSED STORM MANHOLE		DESJARDINS WEST POND DRAINAGE AREA
	PROPOSED STORM TRUNK SEWER		LACHANCE POND DRAINAGE AREA
	EXISTING STORM TRUNK SEWER		FUTURE ROW FOR RAIL OVERPASS



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SCALE: 1:3000
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PROJECT: 23-5735



DATE: June 20, 2025

6.5 Summary of Recommended Projects

Below is a list of recommended projects resulting from the evaluation of alternatives and existing condition analysis. Each project has been completed following the MCEA Schedule Class C process.

Table 8: Recommended Tecumseh Hamlet Infrastructure Improvements - Road, Water, Wastewater and Stormwater Management Projects

Project Number / Project		Preferred Design Concept	MCEA Schedule
1	Gouin Street (New Road) Urban Collector	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
2	Maisonnette Street (New Road) Urban Collector	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
3	Intersection Road (Reconstruction) from Rural cross-section to Urban cross-section	Design Concept #2: Off-Street Cycling Facilities and No Parking	C
4	Shields Street (New Road) Urban Collector	Design Concept #4: Off-Street Cycling Facilities, No Parking and Bioswale Median	C
5	West Tecumseh Trunk Watermain, CR 22 to CP Railway	Design Concept #3: West Alignment (CR43/CR42)	C
6	West Tecumseh Trunk Watermain, CP Railway to CR 42	Design Concept #3: West Alignment (CR43/CR42)	C
7	West Tecumseh Trunk Sanitary Sewer, CR 22 to CP Railway and Intersection Road Relief Sewer	Design Concept #1: Central Alignment	C
8	West Tecumseh Trunk Sanitary Sewer, CP Railway to CR 42	Design Concept #1: Central Alignment	C
9	Intersection Road and Shields Street Relief Sanitary Sewers including decommissioning of the St. Alphonse Pumping Station.	With the existing municipal right of way.	C
10	Gouin Stormwater Management Facility	Design Concept #2: Dry Stormwater Management Facility	C
11	Lachance Stormwater Management Facilities	Design Concept #1: Wet Stormwater Management Facility	C
12	Desjardins Stormwater Management Facilities	Design Concept #1: Wet Stormwater Management Facility	C
13	Southeast Hamlet Stormwater Management Facility	Design Concept #2: South Stormwater Management Facility, Partially in Hydro Corridor	C

6.6 Summary of Infrastructure Costs

Class D budgetary cost estimates were completed as part of the Functional Servicing Report (**Appendix E**) which includes key assumptions and detailed itemized cost estimates. **Table 9** below summarizes the cost estimates for the preferred design concepts for the THSPA infrastructure improvements. Engineering and contingency allowances have been applied to each estimate. Pending the nature of the project the engineering and contingency allowances vary, generally allowances range between 10%-20% and 20-30%, respectfully.

Table 9.1: Estimated Project Costs

Description	Estimated Budgetary Project Costs
Transportation Projects	
Gouin Street - New Urban Collector Roadway	\$2,305,000
Maisonneuve Street - New Urban Collector Roadway	\$2,131,000
Intersection Road Reconstruction from Rural cross-section to Urban cross-section	\$5,719,000
Shields Street and North South Collector Road - New Urban Collector Roadway	\$5,159,000
Road Reconstruction of Gouin and Maisonneuve Street	\$5,759,000
Water Servicing Projects	
West Tecumseh Trunk Watermain, CR 22 to CP Railway and Intersection Road Relief	\$4,563,000
West Tecumseh Trunk Watermain, CP Railway to CR 42	\$5,468,000
Manning Road Trunk Watermain and East Hamlet Trunk Watermain, From CR22 to CR42 and Lesperance Road	\$8,411,000
Wastewater Servicing Projects	
West Tecumseh Trunk Sanitary Sewer, CR 22 to CP Railway	\$25,041,000
Intersection Road Diversion Sewer	\$2,438,000
West Tecumseh Trunk Sanitary Sewer and Shields Diversion Sanitary Sewer, CP Railway to CR 42	\$23,464,000
County Road 42 Sanitary Sewer for Future Settlement Area Expansion	\$1,020,000
Southeast Hamlet Sanitary Pumping Station Outlet and Outlet	\$1,208,000

Description	Estimated Budgetary Project Costs
Stormwater Management Projects	
Gouin Stormwater Management Facility and Storm Trunk Sewers	\$38,066,000
Lachance Stormwater Management Facility and Storm Trunk Sewers	\$15,196,000
West Desjardins Stormwater Management Facility and Storm Trunk Sewers	\$12,928,000
East Desjardins Stormwater Management Facility and Storm Trunk Sewers	\$16,009,000
Southeast Hamlet Stormwater Management Facility and Storm Trunk Sewers	\$9,334,000

6.6.1 Cost Sharing

Costs associated with the development of private property including the municipal infrastructure required to service those areas will be the responsibility of those property owners. The Town will contribute to the capital costs for infrastructure facilities that will service a wider community to fulfill servicing needs beyond local servicing within each development.

For trunk infrastructure implemented and paid for by Town or developer, the Town or developer will recover costs through Town-wide development charges that will be based on the infrastructure listed as required through this study and the costs listed above and in **Appendix E**.

Conditions of development charges and reimbursement will be stipulated through the Draft Plan of Subdivision stage for which the landowner will enter into agreement with the Town to establish the shared cost of trunk facilities. These agreements will also include stipulation for lands that are needed for public use including SWMF corridors, natural heritage areas and parkland.

Criteria used to deem Infrastructure as "trunk" facilities are stipulated in the Town's Development Charge Study (2022). Developers will not be permitted to connect private drain or service connections to trunk infrastructure and will need to provide all local servicing infrastructure independently.

7.0 Environmental Impacts and Mitigation Measures

Overall implementation of the recommended infrastructure will result in effects and impacts on existing conditions. Implementation of the new municipal services will involve construction which, depending on the location and nature of the works, will result in permanent changes to existing conditions and will pose temporary construction impacts. Many of these projects are also proposed within future servicing corridors requiring property acquisition and alteration of existing lands.

The Town of Tecumseh is committed to implementing mitigation plans, where appropriate and practical to reduce negative effects associated with the recommended design concepts. This section provides an assessment of the potential effects associated with the preferred design concepts on the cultural, socio-economic, natural, and physical environment. Recommended mitigation measures are also described in this section.

7.1 Physical Environment

7.1.1 Physiography and Drainage

Construction of all infrastructure improvements has the potential for reduced water quality and degradation of downstream aquatic habitat (e.g. surface water flow into the municipal drain, wetlands, or watercourses) as well as disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil. There is also potential for localized surface water impacts as a result of spills, discharge or dumping of materials, fluids and other wastes during construction.

Table 10 identifies potential impacts and mitigation measures on the physical environment including physiography and drainage.

Table 10: Assessment of Potential Effects on the Physical Environment

Potential Impacts	Proposed Mitigation and Monitoring
Alteration of natural surface drainage patterns	<ul style="list-style-type: none"> • Store excavated material in a manner that does not interfere with natural drainage patterns. • Control surface drainage on construction site. • Obtain necessary ERCA permits. • Implement temporary drainage infrastructure. • Proposed development grading should follow the recommendations of the Functional Servicing Report (Appendix E). • Ensure all existing flows through future development lands are maintained and provided sufficient outlet.
Potential for Erosion and Sedimentation	<ul style="list-style-type: none"> • During construction activities erosion and sediment control (ESC) measures operate effectively and to monitor the potential impact.
Soil Contamination	<ul style="list-style-type: none"> • All construction waste must be disposed of according to the Ministry's requirements. The Contractor should proceed with construction cautiously and be aware of the potential for contaminated soils and ensure compliance with Excess Soils regulations (O.Reg. 406/19). • If contaminated material/soils are encountered, halt work and coordinate with the project designated Qualified Person (QP) on necessary next steps.
Soil Management	<ul style="list-style-type: none"> • Geotechnical investigation and excess soil management reports shall be completed. • Soil Characterization Testing per O. Reg. 419 shall be completed to determine acceptable soil reuse requirements. • Utilizing the Resource Productivity and Recovery Authority (RPRA) Excess soil registry for soils exported from the project site.
Reduction in surface water quality	<ul style="list-style-type: none"> • During construction precautions to mitigated contamination of surface water shall be implemented. • Under ultimate conditions, the proposed stormwater infrastructure will treat runoff from new and existing impervious areas.
Diversion of Surface Water Flows	<ul style="list-style-type: none"> • Surface water will be conveyed to the proposed SWM facilities to attenuate flows and provide quality control of runoff prior to discharge to those municipal drains. • Establishment of overland flow routes to mitigate flood risk during large storm events according to recommendations of the FSR (Appendix E).

7.1.2

Source Water Protection

The proposed water and wastewater infrastructure improvements, stormwater ponds and Intersection Road and Shields Street improvements are partially located within areas identified as IPZ-3 where contaminants may reach a source water intake during an extreme weather event within 24 hours. The same areas are also partially located within areas identified as Event Based Areas (EBA) where a spill from specific activities could contaminate source water. In order to protect source water, projects must consider and follow policies described in the Essex Region Source Protection Plan (SPP), May 2019.

Table 11 identifies potential impacts and mitigation measures on source water protection.

Table 11: Source Water Protection Mitigation Measures

Source Water Concern	Measure	Policy Requirements	Implementation Considerations
Significant Drinking Water Threats Threat: Handling and Storage of Liquid Fuel	Volume greater than 15,000 Litres (L) permanent or temporary.	Notify the Essex Region's Risk Management Official to develop a Section 58 Risk Management Plan	Projects identified do not require this volume of fuel to be used or installed. On a project-by-project basis, the proponent of the project shall develop a Risk Management Plan. Where applicable, spills response program shall be in place.
Transport Pathways Threat: Alteration of delineation of vulnerable areas.	Creation, relocation or removal of drainage infrastructure.	Formal updates to the Source Protection Plan and Assessment Report	It is likely that the proposed works will alter the delineation of vulnerable areas. As projects are implemented, ERCA shall be notified as it relates to changes to the current vulnerable area delineation.
Groundwater Threat: Area is within a significant groundwater recharge area (SGRA).			Projects shall not result in increased contamination of the aquifer. Developers shall consider contributions of phosphorus to receiving water bodies (i.e. Lake St. Clair and the Detroit River) that may be affected by changing overland or sanitary sewer drainage. Site assessments to identify existing groundwater wells shall be completed and abandonment of wells shall be completed.

7.1.3

Groundwater

As noted in **Section 3.2.3** the former MTO Landfill site, located in the northeastern part of the THSPA, was investigated. Due to the findings, there is an indication that the site's refuse does appear to be influencing groundwater in the development lands in the THSPA. As a result, the following measures shall be taken:

- The Gouin SWM pond, located in the northern area of the Hamlet SPA, is adjacent to the former MTO waste disposal site. The pond shall have a 10 m set back from the former MTO waste disposal site property boundary. Although such technical controls are not required at this site due to the lack of impacts from leachate or landfill gas, it is also recommended that an engineered liner be installed in parts of the storm water pond within 30 m of the former MTO waste disposal site to prevent groundwater from infiltrating the storm water pond.
- The trunk sanitary sewer and watermain proposed to traverse the THSPA, west of the former MTO waste disposal site. It is recommended that the trunk sanitary sewer and watermain and other proposed buried utilities, have a 10 m set back from the former MTO waste disposal site. As a best practice it is recommended that clay cut offs are installed in utility trenches within 30 m of the former MTO waste disposal site to prevent groundwater from infiltrating the utility trenches and acting as a preferential pathway.
- The Gouin stormwater management (SWMF), trunk watermain and sanitary sewers have been identified as "compatible uses", as detailed in Section 5.1.2 of the D-4 Guidelines.
- Upon development of site plans, necessary residential setbacks shall be maintained per the Groundwater and Methane Report (**Appendix A**).
- Prior to development proceeding in this area, the proponent (developer) shall complete the D.4 Study as per the D.4 Guidelines Study (Section 6.2). It is recommended that the D-4 study be completed by the developer after the MTO 'Source Characterization Report' has been made available for their review (under review by the MECP as of May 2025). The municipality is responsible for ensuring the results are complete and necessary controls are implemented as per (Section 6.3) of the D.4 Guidelines Study.

7.2 Natural Environment

7.2.1 Aquatic Environment

All drains located within the Project Area are Class F municipal drains which means they have an intermittent flow regime with no sensitive fish species presence. Further, due to the low water levels and lack of habitat within the drains, the presence of fish is unlikely even during periods of higher flow. As such, no adverse effects to the aquatic environment are expected to occur because of Project activities provided appropriate mitigation measures are undertaken. Below summarizes mitigation measures that shall be implemented as part of future projects:

- Works shall occur outside of fish spawning timing window(s).
- Sediment and erosion control measures should be recommended and implemented at the construction stage.
- Works shall occur during periods of low or no-flow.
- Guidelines for Maintenance and Repairing of Municipal Drains shall follow the Drainage Act.

7.2.2 Species at Risk (SAR)

Where projects are within or immediately adjacent to the identified Ecological Land Classification locations, prior to construction necessary site-specific field assessments or permits will be required as noted below in **Table 12**.

Table 12: SAR Mitigation Measures

Species at Risk	Ecological Land Classification Locations	Mitigation
SAR Birds		
Eastern Meadowlark and Bobolink	Open, grassy meadows and cultivated lands associated with Mixed Meadow (MEM) and Annual row Crop (OAGM1).	Breeding bird surveys are recommended closer to the date of construction and application submission by individual landowners to confirm or rule-out the presence of habitat for the three above-mentioned species.
Wood Thrush and Red-headed Woodpecker	Mixed and deciduous forests, such as the swamp (SWDM1-1, SWDM1) and deciduous forest (FOD and FODM1-2).	
SAR Bats		
Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, and Tri-colored Bat	SAR bat habitat within the FOD, FODM1-2, SWDM1, SWDM1-1, and TAGM 5 communities within the Study Area.	Direct impacts to SAR bats from tree clearing can be avoided if trees representing potential roosts are cleared during the non-active bat season (October – March). Further site-specific studies may be required to confirm the presence of SAR bat habitat and to confirm whether permitting under the ESA is required.
SAR Snakes		
Butler’s Gartersnake and Eastern Foxsnake	Swamp (SWDM1, SWDM1-1), Fencerows (TAGM5), Mixed Meadow (MEM), Deciduous Thicket (THDM4-1, THDM2-11), and Deciduous Forest (FOD, FODM1-2).	During the pre-design phase, snake surveys shall be conducted to identify presence of SAR snakes as well as potential hibernacula within and/or adjacent the Study Area. If presence or habitat is confirmed, the MECF will be consulted to determine whether a permit under the Endangered Species Act (ESA) is required.
SAR Vegetation		
Eastern Flowering Dogwood and Butternut	Fencerow (TAGM5), Deciduous Forest (FOD, FODM1-2), and Swamp (SWDM1 and SWDM1-1)	Additional site-specific natural environment assessments shall be completed to identify next steps prior to construction.
Willowleaf Aster	Fencerow (TAGM5), Deciduous Thicket (THDM2-11, THDM4-1), Deciduous Forest (FOD, FODM1-2), Mixed Meadow (MEM) and Swamp (SWDM1, SWDM1-1)	

Species at Risk	Ecological Land Classification Locations	Mitigation
Eastern Prairie Fringed-orchid	Swamp (SWDM1 and SWDM1-1), Deciduous Thicket (THDM2-11, THDM4-1), and Mixed Meadow (MEM)	
Purple Twayblade	Deciduous Thicket (THDM2-11), Deciduous Forest (FODM1-2), and Deciduous Swamp (SWDM1)	

7.2.3 Natural Heritage Features

All the proposed infrastructure improvements will require the clearing of lands and subsurface disturbance. These improvements will pose temporary construction impacts to the immediate and surrounding areas. Some of the water, wastewater, and road infrastructure improvements are within existing municipal ROW corridors however, many of these improvements are within undeveloped agricultural lands and while there could be temporary construction impacts, permanent displacement of natural features may be required. The Natural Heritage Report included in **Appendix B** provides additional details on impacts including recommendations regarding mitigation measures.

Direct impacts are those that are immediately evident as a result of municipal infrastructure improvements. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development.

Potential impacts may occur as a result of the proposed improvements to the aforementioned natural heritage features identified in **Section 3.3.2** and are further summarized in **Table 13**.

Table 13: Natural Environment Feature Mitigation Measures

Parameter	Potential Impacts	Proposed Mitigation and Monitoring
Vegetation	The proposed infrastructure improvements will require tree and ground vegetation removal.	<ul style="list-style-type: none"> Compatible vegetation will be retained and buffered to protect sensitive receptors, where required. Vegetation removals will be minimized to the extent possible and replanted/seeded with compatible vegetation as required. Follow recommendation of the Natural Environment Report (Appendix B) to confirm proposed infrastructure is outside of designated buffer areas. Limits of the workspace should be clearly marked to avoid encroachment into adjacent vegetated areas and to avoid unnecessary tree removals and encroachment.

Parameter	Potential Impacts	Proposed Mitigation and Monitoring
Fish and Fish Habitat	Potential disturbance to fish habitat as a result of vegetation loss, soil erosion, sedimentation, etc.	<ul style="list-style-type: none"> The creation of new water crossings during construction will be avoided to the extent feasible by using existing access and crossings (e.g., bridges, culverts) and by accessing work areas from either side of watercourses/drains, where practical. If permanent or temporary works are required below the high-water mark of a watercourse with potential fish habitat, a Request for Review will be prepared and submitted to the Department of Fisheries and Oceans Canada (DFO) in support of a Letter of Advance and/or approvals under the Fisheries Act. Works shall occur outside of fish spawning timing window(s). Sediment and erosion control measures should be recommended and implemented at the construction stage. Works shall occur during periods of low or no-flow. Guidelines for Maintenance and Repairing of Municipal Drains shall follow the Drainage Act.
Wildlife Habitat	Potential disturbance or loss of wildlife habitat, including habitat fragmentation.	<ul style="list-style-type: none"> Boundaries of important wildlife habitats will be identified and flagged prior to clearing. Construction personnel will be aware of the potential for wildlife which may be encountered within the general work areas.
Invasive Species	Potential for inadvertent spread of invasive species.	<ul style="list-style-type: none"> Construction crews will be educated on the importance of avoiding inadvertent spread of invasive species, and to identify the invasive species that are known to occur or are likely to occur within work areas.

7.2.4 Natural Heritage System Environment

In addition to protecting existing features, the proposed secondary plan recommended the implementation of a Natural Heritage System (NHS). The goal of the proposed NHS would be to protect existing natural heritage features, provide linkages to support wildlife movement, as well as provide congruency to the neighbouring NHS of the City of Windsor to the west. Details on the plan extent and policies associated with the NHS are included in a memo entitled “Tecumseh Hamlet Environmental Policy Review and Recommended Natural Heritage System” dated, May 2024. This memo recommended the following:

- NHS Interconnections
- Natural Heritage System Designations
- Protective Buffers

7.2.5 Atmospheric Environment (Air Emissions and Odour)

Air emissions (including greenhouse gases) from vehicle and equipment use (for example, exhaust and dust) will occur during construction, operation and site-specific maintenance activities during operations. Based on the scope of this study, completion of a detailed qualitative air quality assessment is not considered effective at this stage. Road construction, development and other municipal servicing elements will be implemented over the next 20+ years with development generally anticipated to occur from the north boundaries routing south.

Timing of development will be developer driven and difficult to predict. Qualitative assessments cannot adequately identify reasonable mitigation measures as the baseline environment conditions are considered to change due to the development. The areas surrounding the THSPA are rapidly expanding, making it difficult to establish a baseline condition assessment. Specifically, construction of the Stellantis EV Battery Plant to the west, construction of the CR22/Banwell Road Highway Interchange, Banwell Road and CR43 corridor to the west, CR42 road reconstruction to the south, and CR19 (Manning Road) road construction, are all projects that were underway at the time of the completion of this ESR.

Table 14 identifies the potential impacts and mitigation measures on the natural environment (which includes the atmospheric environment).

Table 14: Assessment of Potential Effects on the Natural Environment

Parameter	Proposed Mitigation and Monitoring	Net Effects
Increase in air emissions during construction and maintenance activities	<ul style="list-style-type: none"> Equip vehicles with emission controls, as applicable, and operate within regulatory requirements. Limit long-term idling, where possible. Implement dust control measures during dry and windy conditions. Limit construction activities during high wind events. Only non-chloride dust suppressants be applied during construction. 	Temporary, localized increase in air emissions.
Increase in air emissions during the operation of emergency back up generators.	<ul style="list-style-type: none"> If applicable, an air & noise ECA will be required prior to construction of each pumping station and where required, engineering controls to mitigate the increase to air emissions will be implemented. Implement proper ventilation inside the generator building, including proper airflow requirements for the generator during operation as well as for occupants who may enter the building during operation. 	Intermittent localized increase in air emissions

7.3 Socio-Economic Environment

7.3.1 Community and Residents

Stormwater management ponds will become part of the permanent urban landscape. **Table 15** identifies potential impacts and mitigation measures on the socio-economic environment. It is anticipated, that despite the temporary impacts, the development and urbanization of the THSPA will have an overall benefit to the local economy and support the need to provide housing and municipal infrastructure improvements.

Table 15: Assessment of Potential Effects on the Socio-Economic Environment

Parameter	Proposed Mitigation and Monitoring	Net Effects
Noise and dust during construction	<ul style="list-style-type: none"> Construction activities will be carried out in compliance with Town of Tecumseh noise by-laws. Implement dust control measures during dry and windy conditions. 	Temporary, localized increase in nuisance noise and dust
Traffic disruptions during construction	<ul style="list-style-type: none"> Traffic access will be maintained, where possible, during construction. If required, temporary detour routes will be provided to reduce potential impacts to drivers. Appropriate traffic management procedures and signage will be put in place. Emergency access will be maintained. 	Temporary traffic disruptions during construction
Loss of agricultural lands	<ul style="list-style-type: none"> Timing of infrastructure shall align with the approved development so as not to take farmland out of production prematurely 	Long-term loss of agricultural lands
Visual impact	<ul style="list-style-type: none"> Stormwater management ponds and roads will be designed to enhance the community and include features to support recreation while considering safety. 	No net effects are anticipated

7.3.2 Private Property Acquisitions and Easements

There are a number of solutions recommended that require the acquisition of property and/or easements to accommodate new infrastructure. Most notably, shared regional facilities such as collector road right-of-ways and stormwater management corridors will need to be conveyed to the Town of Tecumseh as municipally owned land. The road corridor ROW will include road, sewer, utility, active transportation, and lighting infrastructure.

There are varying methods for which property is conveyed for this infrastructure.

- For proposed ROWs, lands may be conveyed to the municipality through a Draft Plan of Subdivision, or
- For shared regional facilities, the Town will coordinate with the developers to provide compensation for lands required.

Land acquisition or easements required are expected to be obtained before infrastructure is required and therefore the timing of property acquisitions will be dependent on the need for those elements and the development buildout schedule within the area.

Road Right-of-Ways (ROWs)

Section 6.1 describes the various ROW corridor widths required to accommodate the proposed municipal infrastructure, and the location of each corridor can be referenced in the Preferred Collector Road Network **Figure 4.1**.

Stormwater Management Facilities

SMWFs will include stormwater management ponds, stormwater quality control infrastructure, pumping stations, maintenance pathways, natural heritage linkages and recreation pathways. This land is not considered parkland, and developers are to provide compensation of necessary lands for parkland separately as described in the Secondary Plan. Through the completion of this ESR, facilities are designated as Schedule C projects. Accordingly, the Town may choose to proceed with the acquisition of land as identified in this plan and provide fair compensation to property owners. Below summarizes the area of land required for the stormwater management corridors.

Table 16 includes a list of private properties impacted and the description of outreach or discussions.

Table 16: Private Property Easement/Acquisition Consultation

Solution Name	Property Acquisition Description	Area Required (Ha)
Gouin SWMF	Stormwater Management Facility including Dry Pond, Pumping Station, Manufactured Treatment Devices (MTD), maintenance pathways, natural heritage linkages, and recreation pathways	6.9
Lachance SWMF	Stormwater Management Facility including Wet Pond, Pumping Station, maintenance pathways, natural heritage linkages, and recreation pathways	3.9
Desjardins SWMF	Stormwater Management Facility including Wet Pond, Pumping Station, maintenance pathways, natural heritage linkages, and recreation pathways	8.6
SE Hamlet SWMF	Stormwater Management Facility including Wet Pond, Pumping Station, maintenance pathways, natural heritage linkages, and recreation pathways	2.4 (1.6 within Hydro One Corridor and 0.8 within private property)

Property owners will be compensated for required property based on third party land appraisal that will estimate land costs based on the most current market conditions at time of acquisitions.

7.3.3

McAuliffe Park

To accommodate the extension of Shields Street, concerns over the safety and impacts to the existing McAuliffe Park have been addressed: these mitigation measures are meant to reduce risks associated with new road and include:

- Site specific road right of way layout on Shields Street adjacent to McAuliffe Park to include narrow lanes, centre median, landscape beds to separate active transportation areas from the vehicular lanes.
- Safety elements including pedestrian cross overs and cycling cross rides at key crossing locations.
- Safety to be considered in the McAuliffe Park enhancements that will need to accompany the road improvements including providing parking areas on both sides of the road.

7.4

Cultural Environmental

7.4.1

Built Heritage Resources and Cultural Heritage Landscapes

The Cultural Heritage Report (CHR) (Appendix D - Table 2 and Table 5) within the Study Area provides a detailed analysis of the potential impacts to the identified known Cultural Heritage (CHL), three potential CHLs, one potential built heritage resource (BHR), and one commemorative feature (CF) within the Study Area. Table 17 identifies potential impacts and mitigation measures on the cultural environment including built heritage resources and cultural heritage landscapes.

Table 17: Summary of Cultural Heritage Resources

Cultural Heritage Resource	Location	Potential Impacts	Mitigation Measures
Known CHL	Smith Cemetery; Smith Black Cemetery; Banwell Cemetery	Construction of SWMFs, sanitary and watermain trunk facilities.	Resource-specific Heritage Impact Assessment (HIA) is required to be completed prior to the construction of the proposed Desjardins SWMF. Mitigate vibrational impacts.
Potential CHL	Lachance Farm	Reconstruction of Intersection Road.	Adversely impacts to the property's heritage attributes are not expected. Mitigate vibrational impacts.
Potential CHL	Canadian Pacific Railway)	Construction of SWMFs, sanitary and watermain trunk facilities.	Mitigate vibrational impacts.
Potential CHL	Banwell Road (Streetscape)	Collector Road construction.	City is undertaking the reconstructing this corridor.
Potential BHR	2551 Banwell Road	Watermain Improvements	Mitigate vibrational impacts.

Cultural Heritage Resource	Location	Potential Impacts	Mitigation Measures
CF	Provincial plaque (commemorates the former Banwell Road Area Black Settlement)	Construction of SWMFs, sanitary and watermain trunk facilities.	No direct or indirect adverse impacts are anticipated as a result of the proposed infrastructure improvements.

The proposed projects do not require the demolition or removal of any identified (known or potential) built heritage resource/cultural heritage landscapes. Generally, the proposed works will be completed in existing municipal right of ways or greater than 50 m away from the sites identified and therefore risks are considered minimal. As a precaution, vibrational impacts that may arise during construction must be mitigated during pre-design. Modifications to design or specific construction methods should be considered during construction. Measures to protect each site shall be provided to avoid conflict with construction. If required, the implementation of vibration monitoring may be used during construction.

7.4.2 Archaeological Resources

High archaeological potential areas within the Study Area should be subjected to a Stage 2 Archaeological Assessment prior to any development. Any further recommended archaeological assessment (e.g. Stage 3-4) should be completed as early as possible in the detailed design phase and prior to any ground disturbing activities. Refer to Appendix C for high archaeological potential areas and recommendations further assessment.

8.0 Public and Agency Consultation

The following summarizes the consultation activities undertaken for the project. All consultation was undertaken in accordance with the requirements of the Class EA and comments received were considered in the recommendations of the ESR.

Copies of all consultation materials, discussed in the following subsections, including the contact list, copies of notices, display boards and comments received are included in **Appendix G**.

Consultation completed for this ESR was completed in conjunction with public and stakeholder agency consultation that was completed throughout the Tecumseh Hamlet Secondary Plan Process undertaken by the Town and their planning representative, DIALOG. Materials and outcomes of that consultation are detailed in the Town's Secondary Plan document.

8.1 Contact List

A comprehensive project contact list was maintained through the duration of the project. The list was used for the circulation of project notifications to stakeholders including members of the public, agencies, Indigenous Communities, and interest groups. The contact list was updated throughout the project and was periodically reviewed by the Town to ensure accuracy.

8.2 Notice of Study Commencement

A Notice of Study Commencement and Public Information Centre (PIC) #1 was first issued on March 7, 2023, to the project contact list (including relevant federal agencies, provincial agencies, municipalities, Indigenous Communities, interest groups, and members of the public). The notice was also posted on the Town's website and in the Windsor Star on March 7 and 14, 2023.

The Notice included the purpose of the project, a description of the study, and advised the public about the details of the in-person PIC #1. Details regarding the PIC are summarized in **Section 8.3.1**.

8.3 Public Information Centres

Two Public Information Centres (PIC) were held to provide the public with the opportunity to be informed and provide feedback regarding the project. The two PICs are summarized in detail below and include feedback received and how it has been addressed within the project.

8.3.1 Public Information Centre #1

The Notice of Public Information Centre (PIC) #1 was included in the Notice of Study Commencement, as outlined in **Section 8.2**. An in-person PIC was held on April 13, 2023, from 4:00 p.m. to 6:00 p.m. at the Tecumseh Recreation Complex and Arena.

The PIC was presented as an open house format with display boards for self-guided review and opportunity to discuss with the project team. A copy of the display boards is posted on the Town's website.

The purpose of the PIC was to provide stakeholders with an opportunity to learn more about the project and to review and provide comments on the findings of Phase 1 (Problem Opportunity Statement) and Phase 2 (Alternative Solutions) of the EA process. The PIC materials, including the notice, and presentation slides are found in **Appendix G**.

8.3.1.1

PIC #1 Feedback

PIC #1 was attended by 32 people. Participants were offered the opportunity to fill in a comment form once they had a chance to review the display boards and speak to the Project Team. A total of three (3) comment forms were completed. Two of the comment forms were completed by members of the public and one of the comment forms was completed by a utility provider. In addition to the comments received through the comment forms, comments and questions received verbally during the PIC were also documented and are summarized in **Table 18**.

Table 18: PIC #1 Summary of Comments and Responses

No.	Comment/Theme	Team Response/Outcomes
1	Banwell Road, south of Shields Street, is in poor condition and should be restored.	This road is owned and operated by the County of Essex and City of Windsor and is therefore outside the scope of this study, but this concern is being communicated with the Town. A portion of this road will be reconstructed as part of the Banwell Road and CR43 Road projects.
2	How will existing subdrains be intercepted or addressed as part of development?	As development proceeds, existing field tiles shall be redirected or intercepted as required to maintain existing field tile outlets.
3	The west post section of the proposed Desjardins Pond SWM pond is impacting the property owner that resides just north of the Drain, west of Banwell Road. (Also see email dated April 14, 2014)	The project team will review the placement of this stormwater management facility in relation to this property and evaluate the alternative locations. Subsequently, the Town met with the property owner to discuss solutions. (Refer to email dated June 12, 2024)
4	How will the ponds be designed to mitigate hazards associated with waterfowl?	The engineering team is considering the Airport Hazard Zones in the detailed design of the stormwater management facilities. A detailed plan addressing mitigation measures and continued pond monitoring to ensure measures are implemented and effective.

No.	Comment/Theme	Team Response/Outcomes
5	How will the stormwater management facilities be implemented? How will they be paid for?	This EA will provide the basis for the location and design of the facilities. SWM plans will need to be incorporated into development applications to the Town during the Draft Plan of Subdivisions Process. Cost sharing for regional infrastructure will be addressed through Development Charges. More information will be available from the Town as development proceeds.
6	What is the timeline for CR42?	This concerns is outside the scope of this study but Dillon informed persons of the current CR 42 timeline and referred them to the County of Essex website for regular updates.
7	How will all of this development be paid for?	Cost sharing for regional infrastructure will be addressed through Development Charges. More information will be available from the Town as development proceeds.
8	For the Southeast portion of the Hamlet, why is the drain being cleaned before the project? How will the Sylvestre benefit from this work?	This concerns is outside the scope of this study, however the persons were directed to speak to the Town of Tecumseh drainage department regarding drainage assessment and timing questions.

The comments received as part of PIC#1 were considered as part of the finalization of the alternative design concepts and the evaluation of potential impacts of the project to the physical, natural, socio-economic, and cultural environments.

8.3.2 Public Information Centre #2

The Notice of PIC #2 was issued on October 27, 2023, to the project contact list. The notice was also posted on the Town's website.

An in-person PIC was held on November 27, 2023, from 4:00 p.m. to 7:00 p.m. at the Tecumseh Recreation Complex and Arena. The PIC was presented as an open house format with display boards for self-guided review and opportunity to discuss with the project team. A copy of the display boards is posted on the Town's website.

The purpose of the PIC was to provide stakeholders with an opportunity to learn more about the project and to review and provide comments on the findings of Phase 3 (Alternative Design Concepts) of the EA process.

In addition to Phase 3 elements of the Tecumseh Hamlet EA, the Town's Secondary Plan project team presented and update on the completion of that plan including additional supplementary information regarding the proposed Shield Street and McAuliffe Park Enhancement, the revised land use plan and additional context regarding policies associated with medium density development.

8.3.2.1

Summary of PIC #2

The PIC was held to provide an update on both the Municipal Class EA process and the secondary planning process. The PIC materials, including the notice, and presentation slides are found in **Appendix G**.

PIC #2 was attended by 67 people. Participants were offered the opportunity to fill in a comment form once they had a chance to review the display boards and speak to the Project Team. A total of 13 comment forms were completed.

8.3.2.2

PIC #2 Feedback

Participants were offered the opportunity to fill in a comment form once they had a chance to review the display boards and speak to the Project Team. In addition to the comments received through the comment forms, comments and questions received verbally during the PIC were also documented and are summarized in **Table 19**.

Table 19: PIC #2 Summary of Comments and Responses

No.	Comment/Theme	Team Response/Outcomes
1	Traffic impacts both during construction and under ultimate conditions.	During construction, necessary traffic detours will be implemented control traffic. Local traffic will be maintained. Consideration for staging of works and maintenance of access will be considered during the implementation stage. A traffic impact study was completed to assess the impacts of the proposed development on the surrounding road network. Where required, recommendations to modify proposed intersection configurations have been made. The TIS has considered internal development as well as the effects of the surrounding developed lands such as the Stellantis EV Battery Plant.
2	Land use designations, specifically areas adjacent to existing developed lands	Development land use designation policies is outside the scope of this study, but concerns and comments have been shared with the Town and the Tecumseh Hamlet Secondary Plan team.
3	Location of the Desjardins West stormwater management pond.	Concerns regarding the placement of the SWMF as it relates to the impact to the overall developable land area. This pond location is in keeping with the SWM corridor alignment established in the ULRMP (2023) as it discharges directly to the Desjardins Drain within the Windsor City Limits. The SWM pond cannot be shifted north as it will pose additional impacts to existing residential property, natural environment area and the Black Smith Cemetery.
4	Existing issues with invasive species in the area	See mitigation measures noted in Table 7-3.
5	Impacts to McAuliffe Park	To mitigate impacts to park users and the community due to the placement of Shields Street through the McAuliffe Park an enhanced park improvement plan and road right of way is proposed to include elements to reduce risks and mitigate hazards while providing the required east/west traffic connectivity.

No.	Comment/Theme	Team Response/Outcomes
6	Impacts to Drainage and Flooding	<p>The proposed stormwater management facilities and storm sewer system shall be designed as follows:</p> <ul style="list-style-type: none"> • Drainage from existing areas have been accounted for and will be directed to the new SWMFs for control and treatment. • The design will allow the existing drainage systems to be improved to a higher level of service to meet current design guidelines. • All flows from new develop will be control through the new facilities. • Discharge from each SWMF will not exceed the maximum allowance release rates stipulated in studies/reports complete for the downstream drains.
7	Support for the incorporation of green space and multi-use pathways.	N/A
8	General support for storm, sanitary and watermain infrastructure improvements.	N/A

The comments received as part of the PIC were considered as part of the finalization of the preferred design concepts.

A number of residents have come forward to the project team regarding the proposed land use plan and secondary plan policy, specifically with regard to the introduction of medium density residential land uses in close proximity to the existing low density residential development to the east. A group of residents, mostly along Corbi Lane have provided feedback requesting modifications to the land use plan. These questions and concerns have been forwarded to the Town's Secondary Plan team to review and address.

Feedback received were directly related to the community planning aspect of this THSPA, except for potentially increased traffic issues in the area. Stakeholders noted concerns over the current traffic issue caused by improvements along CR42 and other construction projects. Concerns on how the development of the Stellantis EV Battery Plant and new development would have on the existing road network were raised. It is acknowledged that the proposed development will increase the volume of traffic on the collector road network within the Hamlet. Development of vacant lands has been considered in the planning and design of the surrounding arterial road network.

A traffic assessment was conducted to ensure that traffic operations are acceptable and to inform the functional design of the road network, taking into account the future demand from the THSPA and the external areas, including the MRSPA and the Stellantis EV Battery Plant.

The Secondary Plan process and Official Plan policy revisions are being undertaken through a separate process. From a municipal servicing perspective, the municipal servicing infrastructure assumes that residential density will be as shown in the land use plan presented by the Town. Concerns pertaining to land use will not be addressed through this Environmental Assessment report however all correspondence has been received as part of the Secondary Plan process.

8.4 Stakeholder Consultation

8.4.1 Federal Agencies

The following federal agencies were contacted regarding the project:

- Department of Fisheries and Oceans Canada
- Nav Canada
- CP Rail
- CN Rail
- Canada Post Corporation

No comments were received from the above federal agencies.

8.4.2 Provincial Agencies

The following provincial agencies were contacted regarding the project:

- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Citizenship and Multiculturalism (MCM)
- Ministry of Indigenous Affairs
- Ministry of Environment, Conservation and Parks (MECP)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Transportation (MTO)
- Ministry of Health (MOH)
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
- Infrastructure Ontario (IO)
- Essex Region Conservation Authority (ERCA)

8.4.2.1

Essex Region Conservation Authority (ERCA).

The project team met with ERCA twice during the duration of this project (July 2023 and February 7, 2024).

In July 2023, the group reviewed the findings from the outlet condition assessments conducted in 2021 for this area. As part of earlier analyses, a hydraulic assessment was performed to evaluate the municipal drain outlet conditions at the Town's boundary with the City's drains, along with a refined outlet capacity assessment completed during this EA's functional servicing review. Based on these discussions, ERCA generally agreed with the servicing strategy, allowing the project team to move forward with the environmental evaluation and functional design of the THSPA system.

In February 2024, a status update meeting was held with the Town, the project team, and ERCA to discuss the evaluation of alternatives and recommended stormwater management servicing solutions. The following topics were addressed:

- To enhance system resilience against flood events, ERCA requested that the stormwater corridor plans align with the strategy outlined in the ULRMP.
- For municipal drainage within the upper reaches of the Little River watershed, it was advised to check release rates and note any changes in upstream drainage areas from their current state.
- The SE Hamlet area currently discharges to the East Townline Drain (ETLD). The internal SWMF was designed to control outflow to pre-development conditions. Dillon mentioned that the County Road 19/County Road 22 Environmental Assessment recommended rerouting the Antaya Drain south to Pike Creek as part of the future CR19 Road Improvements. ERCA noted that Pike Creek has capacity constraints, therefore solutions to redirect the outlet flows must be feasible and adequately evaluated. The existing outlet to ETLD and using the allowable release rate is sufficient for the functional design analysis. Due to unknowns related to the improvements along CR19 associated timing, any improvements would need to factor in the flow from this development area (per pre-development conditions).

In April 2025, ERCA reviewed the draft ESR and accompanying appendices, comments and responses to those comments can be found in **Appendix G**.

8.4.2.2

Ministry of Citizenship and Multiculturalism (MCM)

In a letter dated March 20, 2023, the MCM responded to the Notice of Study Commencement to indicate that MCM's interest in this Class EA relates to its mandate of conserving Ontario's cultural heritage including archaeological resources, built heritage resources, and cultural heritage landscapes. MCM indicated that a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment will be needed for the entire study area and that the project should be screened using the Ministry's *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. This report was completed by ASI in August of 2023 and is provided under **Appendix D**.

8.4.2.3

Ministry of Environment, Conservation and Parks (MECP)

In a letter dated March 31, 2023, the MECP responded to the Notice of Study Commencement to confirm that as this Class EA project was initiated after the date that the approved amendments were posted, the project must proceed in accordance with the amended Municipal Class EA (2023). MECP recommended consideration of whether it would be appropriate to complete this Class EA study as a Master Plan, rather than a single Schedule C project given the scope includes the planning and design for transportation, water, wastewater, and stormwater infrastructure. The MECP also provided a list of Indigenous Communities required to be consulted (refer to **Section 0** for additional details).

A meeting was held on April 21, 2023, with MECP to provide an overview of the project process, design concepts, and next steps. Presentation and meeting minutes of this meeting are included in Appendix G. Key discussion points and outcomes are listed below:

- MECP identified the potential to integrate the Secondary Plan process and the Environmental Assessment process or to initiate a co-proponent with area developers.
 - The Secondary Plan process had already commenced and initially it was anticipated that it would be complete prior to the development of engineering solutions. Subsequently, additional cooperation with Developers as well as the need to modify the plan to ensure that elements of other projects have been incorporated have required these two projects to occur concurrently. The Environmental Assessment plan team however has worked closely with the Secondary Plan team to develop a comprehensive plan that meets the planning objectives, developer needs and is serviceable.
- It was discussed that much of the municipal infrastructure (Roads, Water and Wastewater projects) has been approved through previously completed Master Plans. The Town has embarked on various studies (such as the ESR, and the Secondary plan) to establish a regional servicing strategy that integrates the service projects identified in previous master plans. With the required stormwater management to ensure that a comprehensive plan may be implemented in an orderly fashion.

The MECP provided comments, via letter, in response to PIC # 2, dated January 5, 2024. This letter has been appended to this report. This response requested that potential impacts to Source Water be documented and discussed in this report. Section 7.1.2 of this addresses the requirements they have listed.

A draft copy of this study inclusive of the Functional Servicing Report, was provided to the MECP for initial review prior to the distribution of the Notice of Completion. The MECP provided comments via letter date December 12, 2024, to which Dillon responded via letter dated March 26, 2025. Refer to **Appendix G** for records of correspondence.

8.4.2.4

Ministry of Natural Resources and Forestry (MNR)

In an email dated March 9, 2023, the MNR responded to the Notice of Study Commencement to provide guidance on identifying and assessing natural features and resources as required by applicable policies and legislation.

8.5

Municipalities

The following municipalities were contacted regarding the project:

- City of Windsor
- Municipality of Lakeshore
- County of Essex

Meetings were held with the City of Windsor and the County of Essex on February 7, 2024. The purpose of these meetings was to provide each municipality an overview of the proposed planning elements and municipal servicing recommendations for this project.

On July 12, 2024, the Town met with the City and the County to review the findings of the results of the THSPA Transportation Study Addendum memo. A presentation was provided to the group summarizing the findings and corresponding conclusions. Meeting minutes of that meeting and a copy of this presentation can be found in **Appendix G**.

On December 10, 2024, the City of Windsor responded via email to the Town of Tecumseh regarding the Hamlet Secondary Plan Transportation Study Addendum, which was initially sent on August 7, 2024, along with follow-up emails sent to the City of Windsor on September 23, 2024. The complete correspondence is available in **Appendix G**.

8.6

Other Agencies & Interest Groups

Other agencies and interest groups were also contacted regarding the project, this includes local school boards, emergency services, utilities and telecommunication companies. In addition to the organizations listed below, local interest groups including community organizations, environmental organizations, and businesses were also contacted.

8.6.1

McAuliffe Park Consultation

The project team understood the importance of consulting with park users and community groups as the park is impacted by the extension of Shields Street. Currently, McAuliffe Park is used for regular programed sports such as soccer and baseball. The project team met with McAuliffe Sports group to discuss the proposed works: and to develop plans for the expansion of the park land to the west to enhance the park layout and improve usage and access to the park from the existing and proposed adjoining communities.

A pre-consultation meeting was held with the McAuliffe Sports group on July 10, 2023, to provide an introduction to the project and review the THSPA land use plan.

The project team met with the THSPA planning team, representatives from the Town's Community and Recreation Services Department, Public Works and Engineering Services Department, and members of the local McAuliffe Sports group on September 11, 2023.

The purpose of this meeting was to have a concept design development workshop for which plans for the proposed park reconfiguration could be evaluated and refined based on sport team needs, public park access and usage of park facilities (ie. splash pad, play equipment, picnic areas, and parking). Safety was a major discussion point due to the proximity of public traffic to the park. The need to relocate parking and park features were highlighted.

8.7 Landowner Consultation

In addition to the public information centres the Town has held many individual meetings with several property owners who have showed interest in this Tecumseh Hamlet Project. Since the start of this project the project team has met with developers and development groups that currently own developable lands within the THSPA. Consultation with Indigenous Communities

The following Indigenous communities and organizations were notified of this project and the various consultation touch points that were scheduled throughout the process:

- Can-Am Indian Friendship Centre
- Chippewas of the Thames First Nation
- Chippewas of Kettle & Stony Point First Nation
- Aamjiwnaang First Nation
- Bkejwanong Territory (Walpole Island First Nation)
- Caldwell First Nation
- Oneida Nation of the Thames
- Metis Nation of Ontario
- Windsor Essex Kent Metis Council (Metis Nation of Ontario)
- Union of Ontario Indians
- Chiefs of Ontario
- London District Chiefs Council

The Notice of Study Commencement and Public Information Centre #1 was sent to the above Indigenous communities via email on March 7, 2023.

The Notice of Public Information Centre #2 was sent via email on October 27, 2023. Follow-up phone calls were also made to the identified Indigenous communities to:

- Confirm receipt of the Notice
- Ensure the appropriate contact has been identified
- Ensure the community is aware of the project
- Provide opportunity to participate or obtain additional information on this study

Various Indigenous communities reached out in response to the notifications provided. Consultation has been included and described in the Indigenous Community Consultation Log in **Appendix G**. More detail consultation has occurred with two of the indigenous groups which is summarised below:

Chippewas of the Thames First Nation (COTTFN)

- A meeting was held on January 30, 2024, with COTTFN, Dillon, DIALOG, and Town representatives to provide an overview of the project and to receive comments and understand interests of the COTTFN. This meeting is the first of other broader consultation the Town has had with COTTFN.
- The Town provided a copy of the Town of Tecumseh Natural Heritage Inventory which provides details on the natural areas within the Tecumseh Hamlet Secondary Plan study area.
- The final Natural Heritage Characterization report will also be provided to COTTFN for review.

Caldwell First Nation (CFN)

- CFN representative shared a Technical Review of the Public Information Centre # 2 (PIC #2) completed by CFN's Environment and Consultation Department providing comments on the design concepts for the Tecumseh Hamlet MCEA. Refer to letter dated Jan. 4, 2024. Key comments include:
 - Acknowledgement of preliminary recommendations presented in the PIC # 2 materials.
 - Questions regarding the selection of dry ponds vs wet ponds for the various stormwater management facilities.
 - Emphasis on the importance of using local native plant species in public right of way spaces.
 - Create a compensation or offsetting plan for the natural communities lost, damaged, or disadvantaged due to construction.
- A detailed response letter (dated Sept. 2024) was provided to CFN providing detailed response to questions and comments provided.

If responses have not been included herein or **Appendix G**, this denotes that this project team has not received direct responses from those groups.

9.0 Project Implementation

This study lays out a plan that will ensure that the THSPA will develop in an orderly fashion and be adequately serviced. Development of this area will be completed over many years; therefore, it is expected that changes to this plan will occur and further, this plan will need to be reviewed and updated on a regular basis. The MCEA stipulates that master plans shall be thoroughly reviewed every 5 years to ensure that any revisions required are captured in an addendum report. It is recommended that the Town continuously review the progress of development in this Study Area as development proceeds and any lessons learned or design standard revisions shall be incorporated into the subsequent updates. As infrastructure is constructed the Town shall include those assets in their Asset Management Plans.

9.1 Environmental Clearances and Approvals

The following environmental clearances and approvals may be required for the proposed infrastructure improvements:

- DFO Request for Review to be prepared and submitted to the DFO in support of a Letter of Advance and/or approvals under the Fisheries Act. DFO Authorization may be needed pending feedback from DFO on the Request for Review.
- ERCA Permit for any work within the regulated area, municipal drains, and/or for any wetland removal.
- Overall Benefit Permit under Ontario Regulation 242/08 of the ESA if it is identified that SAR or SAR habitat is confirmed and will be impacted.
- Confirmation and approval from the Town of Tecumseh for the removal of any significant woodlands and unevaluated wetlands.
- Compliance with the Town's Consolidated Linear Infrastructure - Environmental Compliance Approval (CLI-ECA) for new sanitary and stormwater infrastructure.
- Completion of necessary assessments and reporting required under O. Reg. 406/19 On-Site and Excess Soil Management.

9.2 Future Municipal Infrastructure Detailed Design

As part of the implementation of the proposed infrastructure and detailed design of the functional design solutions outlined within this study, it is recommended that the following design considerations be included:

- The need for abandonment or modification to the existing municipal drains will be required. The scope of those drainage works will depend highly on the staging and timeline of development versus the implementation of stormwater management infrastructure. A Municipal Drainage Engineer must be appointed to facilitate any municipal drain alteration in accordance with the Municipal Drainage Act.

- All applicable storm system improvement projects shall follow the minimum ERCA Regulatory minimum Floodplain Projection Elevations. Prior to detailed design, outlet conditions and capacity shall be confirmed. Stormwater management solutions may require mitigation measures required to confirm solutions do not have downstream impacts to these existing watercourses.
- The alignment of proposed water and wastewater trunk infrastructure is within the proposed ROW and will accommodate for future local services infrastructure.
- Site specific Traffic Impact Assessments must be completed to confirm current traffic volumes and identify design measures necessary to accommodate development along proposed and existing roadways.
- Excess soil characterisation testing and reporting shall be completed to fulfill the requirements of O. Reg. 406/19: On-Site and Excess Soil Management.
- Detailed site-specific geotechnical assessments are completed to confirm the soil conditions.
- Erosion and sediment control plans.
- Noise Impact Studies related to the pumping station and back-up power generators.
- Erosion and sediment control plans during construction of in-water works.
- Obtain permits from appropriate agencies as required.
- Use of Low Impact Development techniques, where possible, as best practices to manage stormwater in addition to the proposed stormwater management strategy developed thorough this study.
- Compliance with the Windsor/ Essex Region Stormwater Manual and the Town's CLI-ECA for new sanitary and stormwater infrastructure, along with MECP design guidelines, including the Design Criteria for Sanitary Sewers, storms ewes and Forcemains for Alternations Authorized under an Environmental Compliance Approval. (MECP, May 31, 2023).

9.3 Construction Phasing

As development occurs within the THSPA recommended municipal infrastructure will need to be implemented in stages.

Table 20 is a summary of infrastructure project timing that has been developed in conjunction with the Town's Capital Works budget, and external improvements with the City and County Lands.

Table 20: Infrastructure Project Timing

Service	Estimated Construction Timeline
<u>Transportation</u>	
<u>Collector Road Improvements</u>	
Intersection Road Reconstruction (Lesperance Rd. to Shawnee Rd.)	5-10 Years
Intersection Road Reconstruction (Shawnee Rd. to Banwell Rd.)	Development Driven
Gouin Street Extension	Development Driven
Maisonneuve Street Extension	Development Driven
Shields Street Extension and McAuliffe Park Expansion	Development Driven
<u>Arterial Road Improvements (By Others)</u>	
Banwell/CR22 Interchange Improvements (City of Windsor)	2025-2027
CR43 Diversion (County of Essex)	Complete
CR42 Improvements – (County of Essex)	Underway
<u>Watermain</u>	
Banwell Road and CR43 Trunk Watermain (City and County)	Underway
West Hamlet Trunk Watermain CR22 to Intersection Road	Underway
West Hamlet Trunk Watermain Intersection Road to Hydro Corridor (2025)	5-10 Years
West Hamlet Trunk Watermain - Hydro Corridor to CR43	5-10 Years
<u>Wastewater</u>	
West Hamlet Trunk Sanitary Sewer - CR22 to Intersection Road	Underway
West Hamlet Trunk Sanitary Sewer- Intersection Road to Hydro Corridor	5-10 Years
West Hamlet Trunk Sanitary Sewer - Hydro Corridor to CR42	5-10 Years
Intersection Road Sanitary Relief Sewer	Underway
<u>Stormwater Management</u>	
Four (4) Stormwater Management Ponds, Four (4) Pumping Stations and outlets	Development Driven
Trunk Storm Sewer Infrastructure – Within THSPA	Development Driven
<u>Municipal Drainage Improvements</u>	
As works associated with ROW improvements are undertaken, existing municipal drains will require abandonment and corresponding drainage flows shall be directed to the proposed stormwater management ponds, various municipal drain improvements and abandonments will be required.	As Needed

Next Steps

Most of the projects identified through this study will be initiated to respond to development proposals brought forward by developers and property owners within the Study Area. Section 6.5 identifies the MCEA schedule for each project proposed in this study.

The Town may, as proponent, proceed with the implementation of the capital projects identified and assessed as C projects in this study or classified as Exempt projects (Class A/A+) in the MCEA, including:

- Watermain, storm and sanitary sewers and road reconstructions identified as Exempt projects.
- Stormwater management ponds, pumping stations, collector roads and trunk sewer facilities and other Schedule C projects that have been recommended. These projects will be listed in the Notice of Completion for the ESR, completing the last remaining consultation step.

Continued Monitoring and Servicing

Recommendations identified including staging of the proposed improvements reflect full buildout of proposed development areas. Staging and implementation of proposed improvements will be triggered based on development demands and actual population and building densities implemented. This study along with the THSPA provides the parameters for future development and should be followed to ensure that the municipal services proposed will adequately serve the full build out scenario. As development proceeds, each developer will be responsible for providing justification for the corresponding development including the completion of Traffic Impact Studies, Stormwater Management Reports and site-specific functional servicing reports.

The following studies, design and approval requirements will influence the schedule for implementation of the solutions outlined in this report:

- Detailed design of all recommended improvements.
- Necessary site assessments, approvals and permits to satisfy regulatory and best management practices.
- Ministry of Environment, Conservation and Parks (MECP), Environmental Compliance Approval.
- The Town of Tecumseh has implemented the Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI-ECAs) for both stormwater and wastewater collection systems, If the works meet the pre-authorization criteria, the Town can proceed with the works under conditions in the CLI-ECA.
- Essex Region Conservation Authority and municipal permitting and approvals.

The Town will need to review the need to complete a detailed formal review and/or update of this ESR every 5 years. Potential changes which may trigger the need for a detailed review are as follows:

- Major changes to original assumptions
- Major changes to components of the ESR
- Significant new environmental effects
- Major changes in proposed timing of projects within the ESR

10.0

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