Smithville Master Community Plan

Integrated Municipal Class Environmental Assessment Master Plan Report

Township of West Lincoln

60619866

April 2023

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AECOM: 2015-04-13

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Revision History

Revision Number	Date	Revised By	Revision Description
-	April 26, 2023	-	Final report for 30-day review

Executive Summary

Background

In 2019, the Township of West Lincoln (Township) initiated a Master Community Plan process to guide the future development of the community of Smithville through a comprehensive, watershed-based, integrated land use and infrastructure planning approach. The process involved extensive consultation and engagement with the public and key stakeholders including public agencies and partners, area landowners and their consultant representatives and advisors, in addition to Indigenous communities. The Master Community Plan is a detailed land-use plan and policy document which provides a comprehensive plan for sustainable future growth and expansion in the Smithville Urban Area. The Master Community Plan process has been undertaken to determine the location and amount of potentially developable land to be added to the Smithville Urban Area.

The total land area within Master Community Plan Study Area is approximately 685 hectares, and the total land area to be added to the Smithville Urban Area boundary is approximately 540 hectares.

Integrated Environmental Assessment Process

The Master Community Plan is being completed through an integrated Environmental Assessment as set out in the Municipal Engineers Association Municipal Class Environmental Assessment (as amended in 2015). The Master Community Plan process and related Transportation Master Plan, Water and Wastewater Master Servicing Plan, Subwatershed Study/Stormwater Master Plan for Infill and Intensification Areas studies are designed to form a comprehensive and coordinated planning process that will meet the required approvals necessary under the Planning Act and the Environmental Assessment Act. The Subwatershed Study characterizes the ecological and water resources systems, and establishes an environmental and stormwater management plan associated with the Twenty Mile Creek watershed. The Subwatershed Study supports the Master Community Plan Study including the Municipal Class Environmental Assessment process.

The Smithville Master Community Plan is following Approach No. 4 (Integration with the Planning Act). Master Plan Approach No. 4 recognizes the benefits of integrating Phases 1 and 2 of the Schedule ‘B’ Municipal Class Environmental Assessment Master Plan process with approvals under the Planning Act, especially with larger projects such as Secondary Plans. This means that the requirement of the Environmental Assessment Act (primarily through the Municipal Class Environmental Assessment

process) and the Planning Act, including public notice requirements are met as one integrated and coordinated process and with streamlined approvals and appeals. This approach is desirable for long term planning where interdependent decisions which impact servicing and land use are being made and the range of servicing alternatives needs to be addressed in an integrated fashion, so as to recommend the best overall municipal infrastructure servicing solutions for the Community to be implemented over the 30-year planning horizon (to 2051).

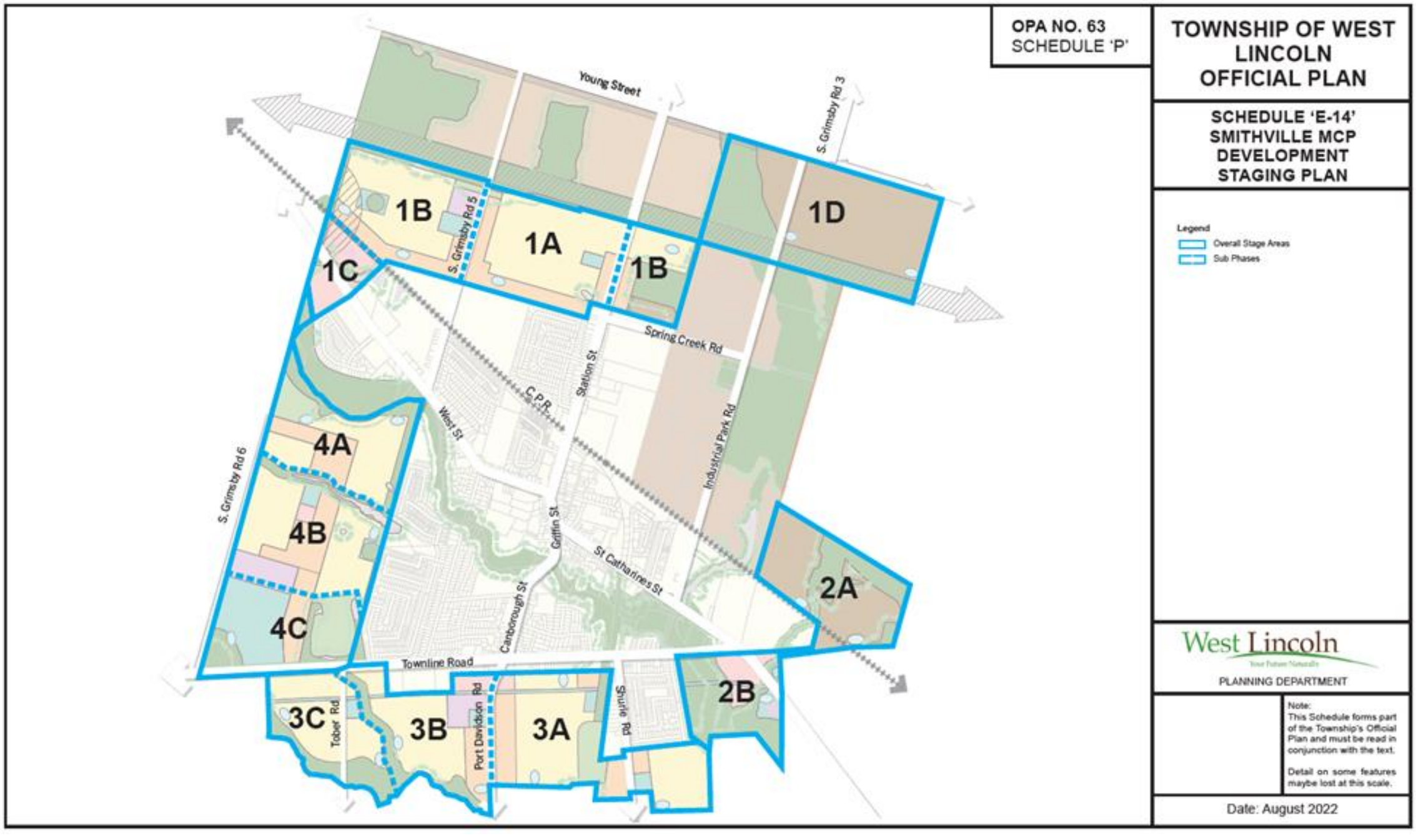
Successful completion of the Integrated Master Plan Approach No. 4 results in all Schedule B projects to be considered a Schedule A under the Municipal Class Environmental Assessment (i.e. pre-approved), if there are no appeals, or upon the resolution of any appeals, to The Regional Municipality of Niagara Niagara's decision on the Township of West Lincoln Official Plan Amendment No. 63 (which implements the Master Community Plan as a Secondary Plan (to be considered by Niagara Region Council in April 2023). Therefore, subject to no appeals, or upon the resolution of any appeals, the proponent (Township or Region) may therefore proceed to design and construct the project upon coming into effect or approval under the Planning Act. Placement of the Integrated Municipal Class Environmental Assessment report for public review on the Township's website and issuance of the Municipal Class Environmental Assessment Notice of Completion completes Phase 2 of the Municipal Class Environmental Assessment process. The 30-day Municipal Class Environmental Assessment comment period commences when Niagara Region issues its Notice of Decision of Official Plan Amendment 63 which includes the 20-day appeal period as set out under the Planning Act.

Development Staging

The development Staging Plan was prepared as part of Official Plan Amendment No. 63 and is shown in **Figure ES-1**.

The Master Community Plan is a 30-year plan for accommodating growth in Smithville to 2051 through both intensification and greenfield development to achieve a complete community. To achieve the level of growth planned in a well-designed, balanced and inclusive manner, while ensuring minimal disruption to the existing community it is necessary to develop an orderly and aligned staging program for the provision of the necessary infrastructure, transportation improvements and community facilities. The development rational and identification of infrastructure to support the development of Smithville are detailed in a series of supporting Master Plans.

Figure ES-1: Development Staging Plan (OPA No. 63 Schedule 'P')



Policy 6.11.7.6.3 h) of Official Plan Amendment 63 provides that "The Township may, at its sole discretion, revise the Development Staging Plan without an amendment to this Plan where circumstances warrant, such as, but not limited to, unreasonable delay by landowner(s), in order to facilitate the planned progression of growth and development in a manner that supports the implementation of the Master Community Plan." The policies provide for an appropriate level of flexibility and provide a solid framework for implementation through more detailed Block Plans, Master Environmental Servicing Plans, and Environmental Assessment addendums, while acknowledging that future updates and changes may be needed over the 30-year time period of the plan.

Although the various Master Plan documents set out anticipated timescales and staging program for the design and implementation of various infrastructure requirements within Smithville. The flexibility provisions of Official Plan Amendment 63 have been specifically designed to reflect the need to accommodate changes and adjustment that can occur over the 30-year planning horizon of the Master Community Plan. Official Plan Amendment 63 recommendations were presented to the public, Council, and the landowners on multiple occasions including: the Public Meeting, Council Decision of Official Plan Amendment 63, and Technical Advisory Committee meetings as late as December 16, 2022.

As part of the Township's Official Plan, additional flexibility is provided through periodic review and updating of the plan and policies over the 30-year planning horizon of the plan.

Planning Policy Context

The provincial, regional, and municipal planning framework directs that future population, housing and employment growth shall be focused in urban settlement areas with municipal services and accommodated through infilling and intensification balanced with compact development in greenfield areas.

Several key provincial planning policies have been reviewed in depth to support the Smithville Master Community Plan including the Provincial Policy Statement and a Place to Grow: Growth Plan for the Greater Golden Horseshoe. The Smithville Master Community Plan process has been completed to be consistent with the Provincial Policy Statement. The Provincial Policy Statement has also been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

As a lower tier municipality, the Township of West Lincoln and development within Smithville are subject to Niagara Region's Official Plan and Sewage Policy. The Smithville Master Community Plan has been completed in keeping with the policies of

the Niagara Region Official Plan. The Secondary Plan for the urban boundary expansion implements the new urban boundaries for Smithville in the new Niagara Region Official Plan as identified in Official Plan Amendments No. 62 and No. 63 to the Township's Official Plan. Other Master Plan documents have been utilised to identify key recommendations for servicing within transportation, water and wastewater systems.

At the Township level, The Township's Official Plan and a number of related plans, documents, and Master Plans were reviewed to support the Smithville Master Community Plan. The Township of West Lincoln Master and Secondary Plans have been reviewed in the development of Municipal infrastructure servicing strategies in support of the Smithville Master Community Plan. Current Parks and Recreation, and Trails and Corridors Master Plans were considered in the development of alternative and preferred Master Plan development concepts. The proposed municipal infrastructure servicing strategies have been reviewed in the context of the Source Protection Plan for the Niagara Peninsula Source Protection Area.

Problem or Opportunity Statement

Smithville is a vibrant community – the area is filled with cultural heritage, natural environmental features and is the largest settlement area and the only full-serviced urban centre in the Township of West Lincoln. Dramatic growth in the Greater Golden Horseshoe over the next three decades will place increasing demands on residential and commercial facilities across the Township. Current servicing capacities of transportation, municipal water and wastewater, and stormwater management systems are insufficient to accommodate this planned growth and does not exist within future development lands. This urban expansion provides an opportunity to create a sustainable, compact, complete and resilient Smithville community. The integration of the planning and Class EA processes also streamlines the municipal planning and infrastructure planning processes, allowing land use planning decisions to occur at the same time as evaluating infrastructure servicing alternatives and associated works.

Population Growth Forecasts

As of the 2021 census, the estimated population for the Smithville Urban Area was 7140. The Township intends to accommodate the population and employment growth forecasts provided for the Township of West Lincoln in the Niagara Region Official Plan which are based on projections to the year 2051 provided in the Growth Plan. The Niagara Region Official Plan directs the Township of West Lincoln to plan for a total population of 38,370 people and for total employment of 10,480 jobs by 2051 of which 29,030 people and 7,360 jobs will be in Smithville.

Master Plan Development

The Master Community Plan is intended to guide and direct future sustainable development in the Smithville urban expansion area and through intensification of the built-up area over the next 30 years; it will be implemented through three Master Servicing Plans, transportation, water and wastewater, and stormwater management, as well as the Subwatershed Study. The goal of these plans is to ensure that future development proposals align with the Preferred Land Use and Concept Plan and the objectives, strategies, targets, and policies of the Master Community Plan.

Transportation

Smithville currently has a transportation network that is developed around two regional roads, Highway 20 running east/west and Thirty Road which provides a connection to the Queen Elizabeth Way to the north. In addition to these roads the CP rail line also runs through the Smithville Urban Settlement Area in an east/west alignment, which currently includes three at grade crossings. The Smithville Urban Settlement Area has additional secondary arterial roads providing connections around town including Townline/Regional Road 14 and Canborough Street/Regional Road 14. In addition to the road network there are a series of off street trails that provide cycling and pedestrian connections to some of the existing facilities across the town, although there are a number of gaps in this network.

Forecasted growth required an assessment of the existing road network and traffic patterns to understand what the possible impacts of the new development could be. This exercise was conducted using a traffic model which is developed to replicate existing traffic conditions on the community's road network and then forecast the growth in trips across the network as a result of the new development. This assessment was conducted using two modeling software packages, Aimsun and Equilibre Multimodal Multimodal Equilibrium.

The proposed development planned out to 2051 and presented in **Figure ES-2** and **Figure ES-3** when modeled indicate that the existing road network was insufficient to provide a similar level of service to existing conditions. Forecasts for 2051 suggested that the performance of several intersections would fall below acceptable standards, creating significant delays. It also highlighted that several constraints existed including north/south crossing of the CP rail corridor, movements west towards Hamilton become congestion as existing roads are over capacity, and areas around the downtown also become constrained as additional local traffic is impacted by increases in regional traffic.

Figure ES-2: Preferred Land Use Schedule (OPA No. 63 – Schedule 'B')

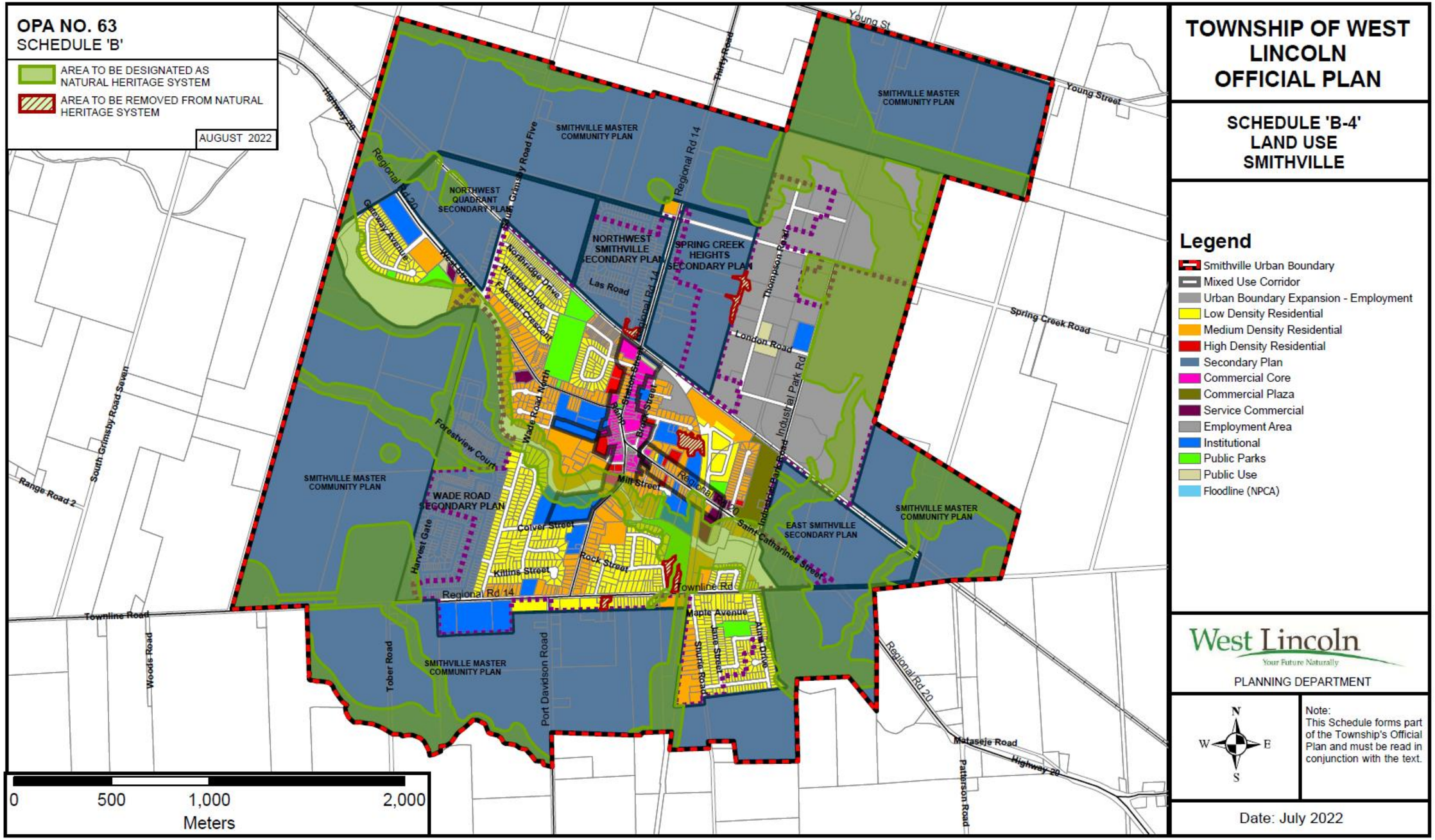


Figure ES-3: Preferred Concept Plan

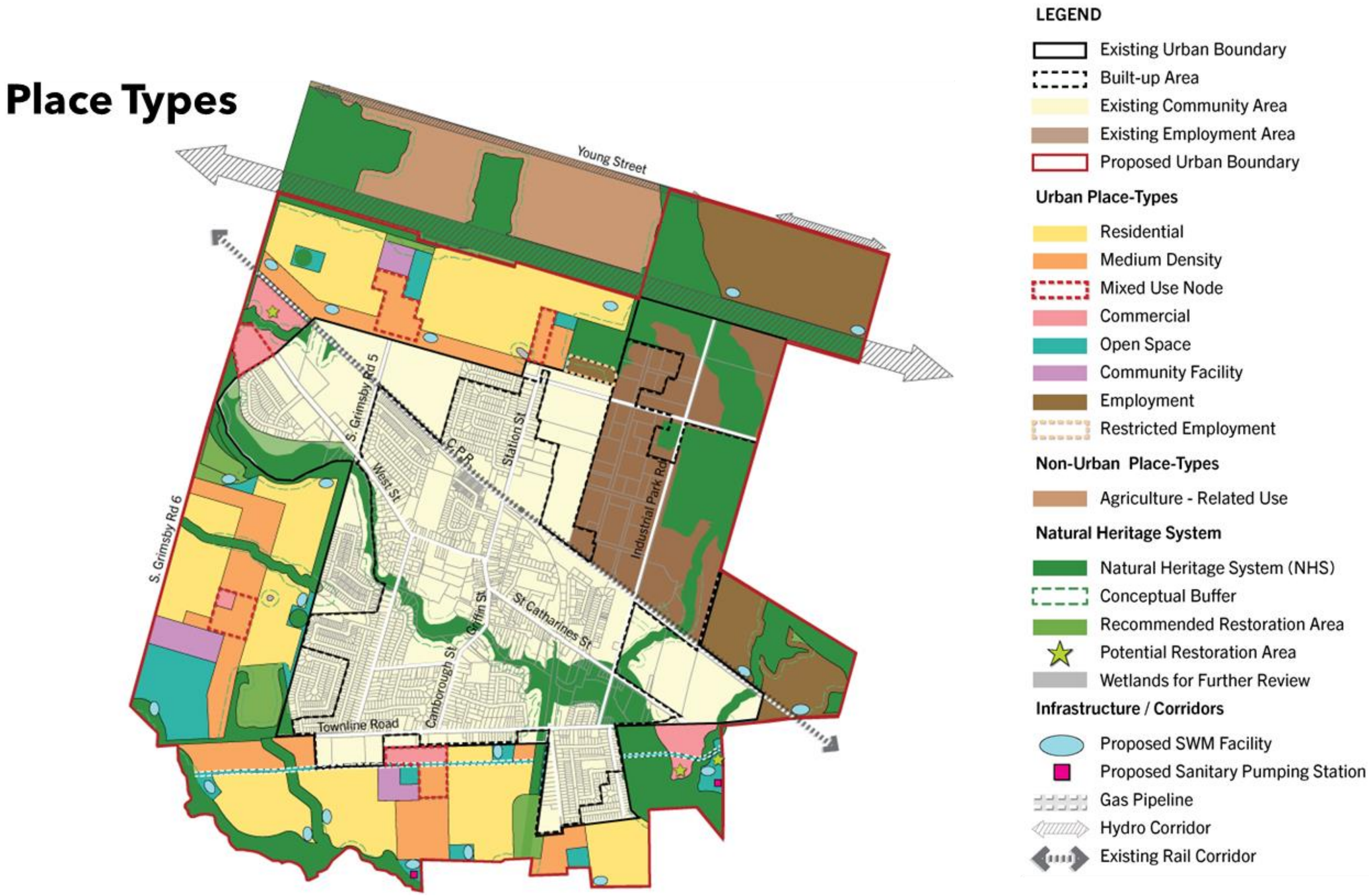


Figure ES-4, Figure ES-5, and **Figure ES-6** highlight the implementation plans created to address these requirements.

Whilst the Integrated Environmental Assessment Report will not reference the specific criteria utilised to evaluate alternative transportation strategies, this information is documented in the Transportation Master Servicing Plan.

The recommended strategy for the transportation system to accommodate the urban boundary expansion concept was identified based on the overall environment assessment results, technical feasibility, safety, ability to accommodate multiple transportation methods, and financial implications. The Transportation Master Plan was endorsed by Township Council on March 27, 2023.

The Transportation Master Plan includes a project listing of recommended transportation capital works projects to be implemented by the Township of West Lincoln and Niagara Region as the Master Community Plan develops over time. The project listing will also be used to support the Township and Region's development studies. Refer to **Appendix C** of this report for the complete Project Listings table.

Water and Wastewater

Smithville currently has a water and wastewater network that is developed around one water pumping station and two sewage pumping stations. In addition, Smithville is dependent on an inground reservoir, an elevated storage facility and two sewer lift stations. The current overall water and wastewater system is comprised of roughly 33 kilometres of watermains and 34 kilometres of sewerlines and provides servicing to a population of 7625 and 1115 jobs. Whilst the infrastructure network within the existing urban boundary of Smithville is extensive, current imaging highlights the network as a limiting factor in population growth.

Forecasted growth required an assessment of the existing water and wastewater network to understand what the possible impacts of the new development are, this exercise was conducted using a hydraulic model which replicates existing water and wastewater conditions and servicing capacity and then forecasts the growth system usage as a result of the new development. The water hydraulic modelling analysis was completed by utilizing the InfoWater Hydraulic Model used in the Region of Niagara's Water and Wastewater Master Servicing Plan Study (2016). The wastewater hydraulic modelling analysis was completed by utilizing the Hydraulic Model used in the Region of Niagara's Baker Road Wastewater Treatment Plant Pollution Prevention Control Plan & Master Servicing Plan Update (2022)

Figure ES-4: Proposed New Roads and Road Upgrades

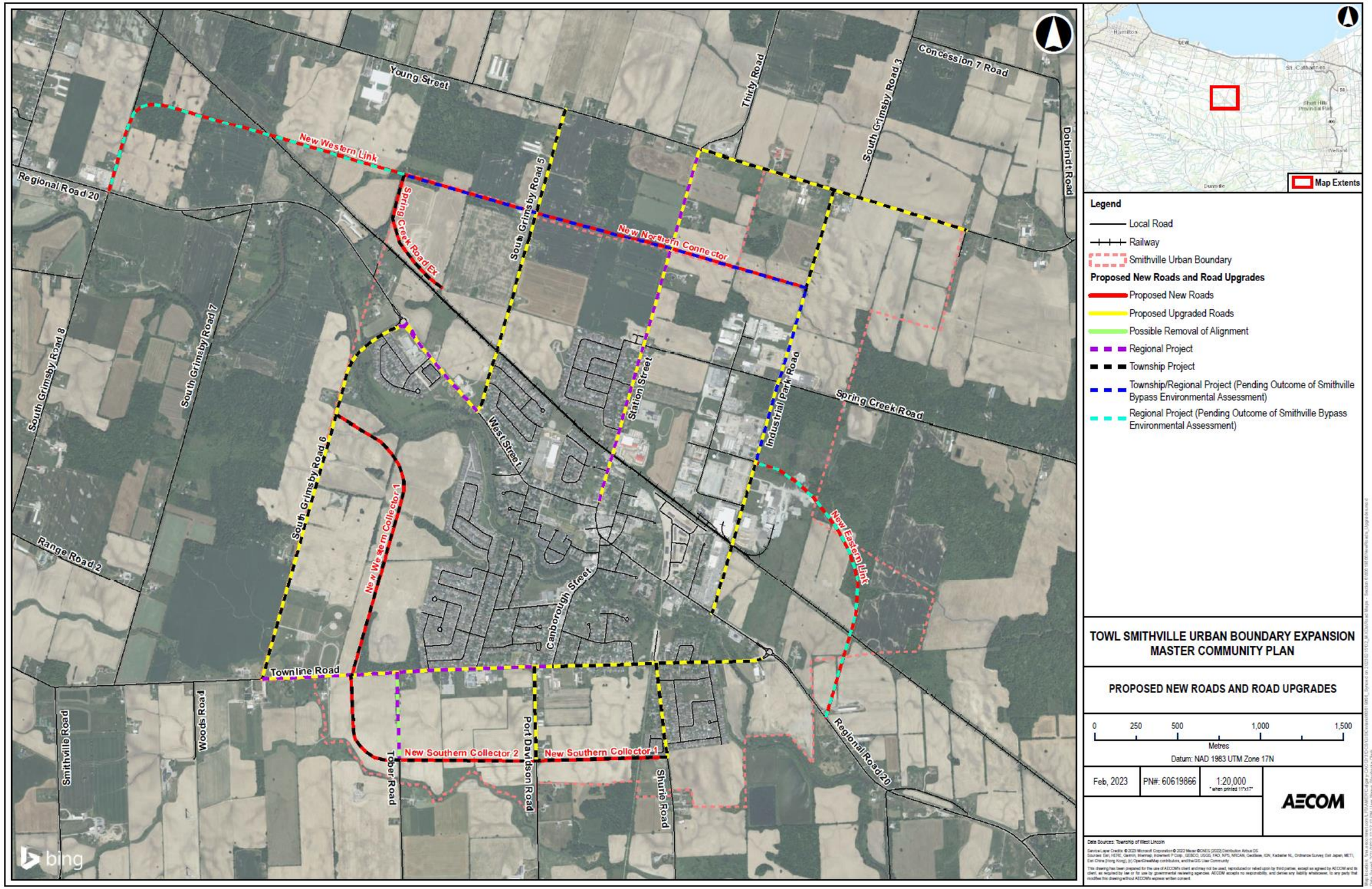


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Figure ES-5: Planned Junction Improvements

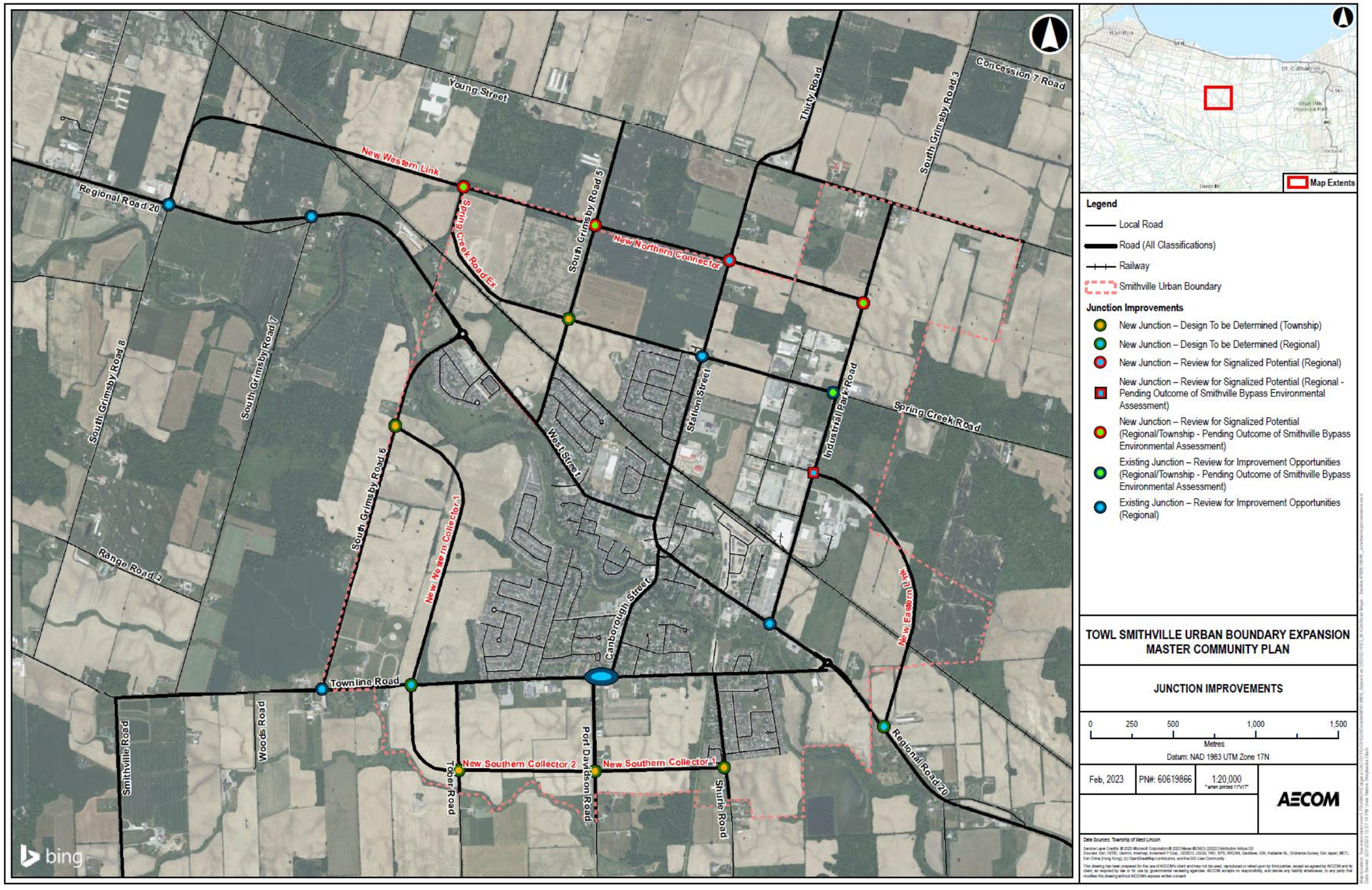
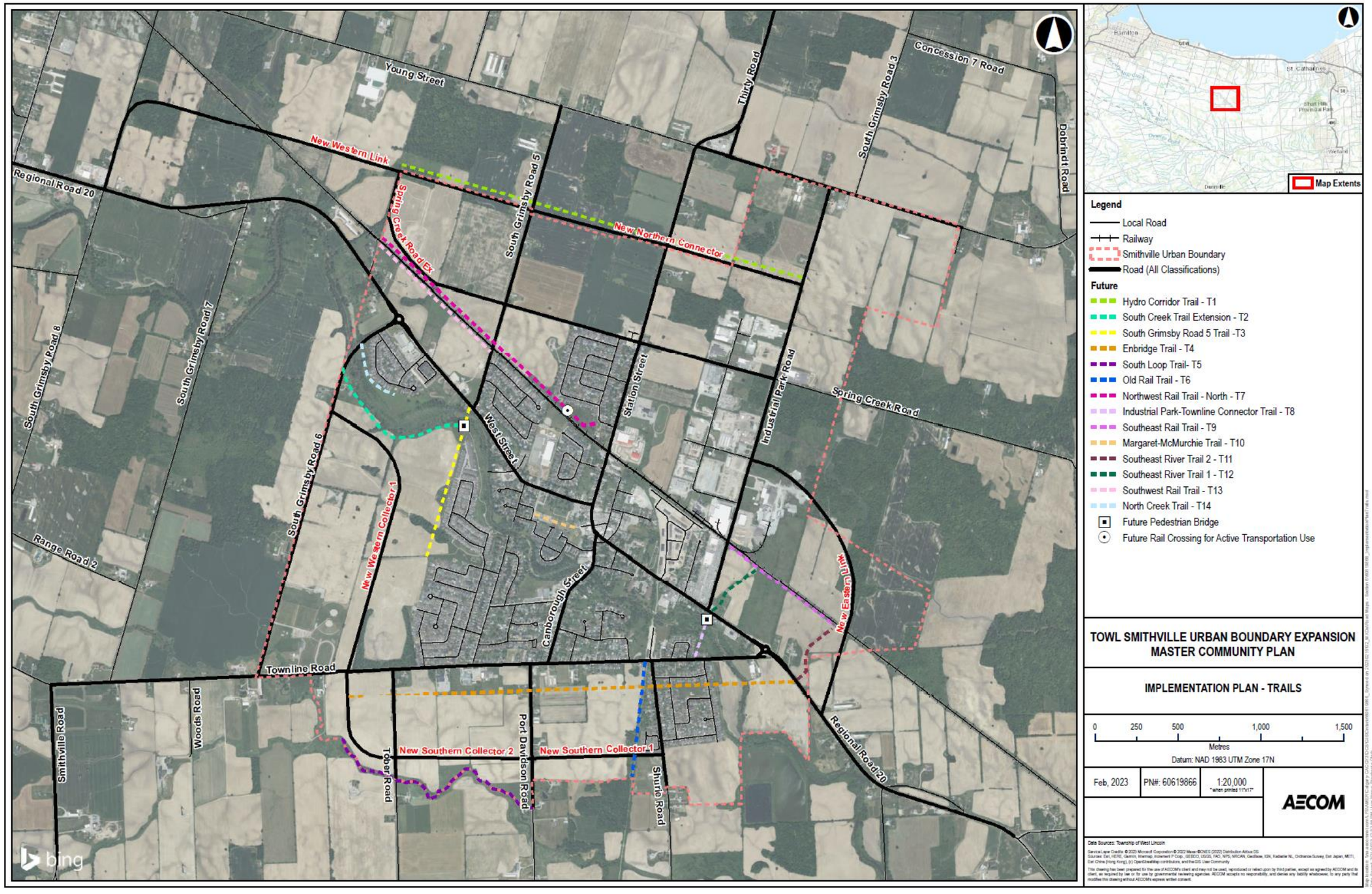


Figure ES-6: Implementation Plan – Trails



Current urban boundary expansion plans to improve existing infrastructure center around four distinct development Stages (1 to 4) with each stage requiring an individualized water and wastewater servicing strategy to both fit the needs of Township and minimize.

The recommended strategy for the water and wastewater system to accommodate the urban boundary expansion concept was identified based on the overall environment assessment results, technical feasibility and financial implications. The Water and Wastewater Master Servicing Plan was endorsed by Township Council on March 27, 2023.

The following table provides the list of preferred options for each stage's servicing strategy.

Table ES-1: Preferred Water and Wastewater Servicing Strategy

Stage	Preferred Water Servicing Strategy	Preferred Wastewater Servicing Strategy
1	S1W1	S1WW1
2	S2W2	S2WW1
3	S3W1	S3WW1A, S3-FM1B, S3WW2A
4	S4W3	S4WW1, S4-FM2

Figure ES 7 and **Figure ES-8** present the preferred water and wastewater servicing strategy, respectively.

Whilst the Integrated Municipal Class Environmental Assessment Report will not reference the matrices utilised to evaluate alternative water and wastewater strategies, this information is documented in the Water and Wastewater Master Servicing Plan (**Appendix D**).

The Water and Wastewater Master Servicing Plan includes a project listing of recommended water and wastewater capital works projects to be implemented by the Township of West Lincoln and Niagara Region as the Master Community Plan develops over time. The project listing will also be used to support the Township and Region's development studies. Refer to **Appendix D** of this report for the complete Project Listings table.

Subwatershed Study

In addition to guiding the Master Community Plan land use concept/policy planning and Official Plan Amendment process, the Subwatershed Study also supported the Integrated Municipal Class Environmental Assessment planning process that followed specific steps outlined in the Municipal Engineers Association Municipal Class Environmental Assessment document (as amended in 2015) and outlined in Section A.2.9.3

Figure ES 7: Preferred Water Servicing Strategy

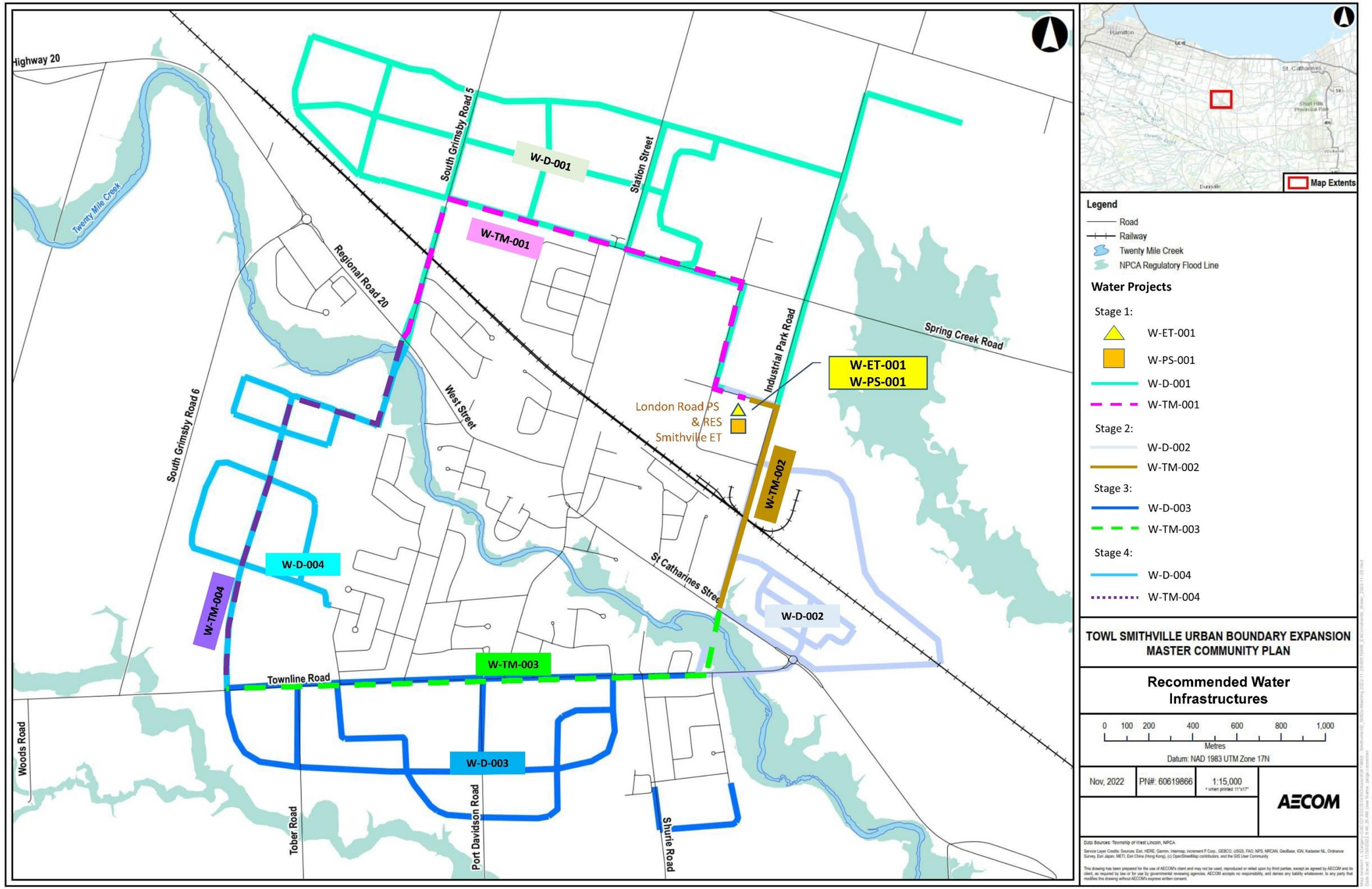
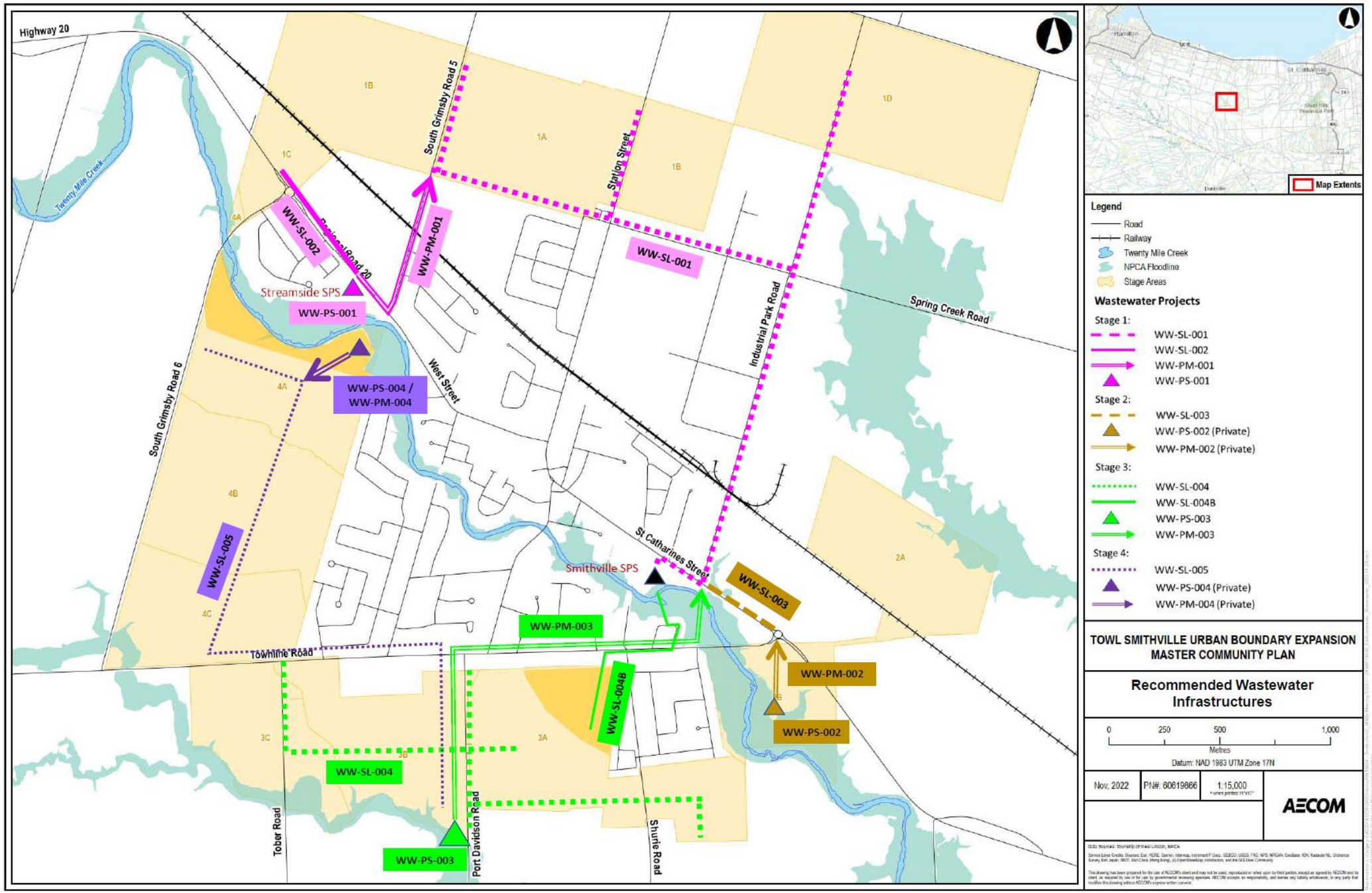


Figure ES-8: Preferred Wastewater Servicing Strategy



The Subwatershed Study has been completed in three phases corresponding to Subwatershed “Characterization and Integration”, “Impact Assessment”, and “Management, Implementation, and Monitoring Plan”. The Subwatershed Study analyses and findings have provided inputs to the Municipal Class Environmental Assessment Phase 1 Problem/Opportunity Statement, in addition to Municipal Class Environmental Assessment Phase 2 Existing Conditions and Alternatives Evaluations where applicable. The Subwatershed Study includes the preparation of a Stormwater Management Master Plan, which establishes the stormwater management requirements for the future intensification and infill areas within urban Smithville. The Subwatershed Study and the Stormwater Management Master Plan was endorsed by Township Council on March 27,2023.

With respect to alternative solutions, various technologies and practices have been considered to address the stormwater management criteria as per current (2003) Ministry of the Environment, Conservation, and Parks criteria and emerging guidance for providing a treatment-train for stormwater management combining controls at source and end-of-pipe noted in the Phase 2: Impact Assessment Subwatershed Study, some of these may include: wet end-of-pipe facilities (i.e. wetlands, wet ponds, hybrid facilities), vegetated technologies (i.e. grassed swales, buffer strips, etc.), oil/grit separators, bioswales/biofilters, and infiltration trenches.

Approaches for thermal control: Low Impact Development Infiltration Best Management Practices, urban terrestrial canopy (also Natural Heritage System), facility shading (includes orientation and length/width ratio), facility cooling trenches, facility bottom draws, stormwater management facility orientation, Concrete Sewer System, Underground Storage Facilities, Green & White roofs, Floating Islands, and other measures.

It should be noted that preliminary stormwater management facility locations have been determined based upon study area topography and within Master Community Plan park – open space blocks and that these, including Stormwater Management Facilities are conceptually shown on Figure ES-2 . Similarly storm sewer alignments follow the preferred Master Community Plan road network and in some cases existing roads and easements.

Once Official Plan Amendment 63 is approved under the Planning Act (subject to no appeals or following the resolution of appeals) select Schedule B projects (e.g. new Stormwater Management Facility, where property is required) are automatically approved as Schedule A projects. This also aligns with Municipal Class Environmental Assessment document Appendix 1 Project Schedules, (Schedule A Wastewater Protect # 17) “the construction of stormwater facilities establishment which are required as a condition of site plan, consent plan, plan of subdivision or condominium which come into

effect under the Planning Act prior to construction of the facility" are automatically approved. It is also important to note that any change in infrastructure location (example Stormwater Management Facility) would be documented in a Master Environmental Servicing Plan and Municipal Class Environmental Assessment Addendum process in conjunction with the Block Plan process.

Implementation Plan

As identified in the Phase 3 Subwatershed Study, the urban expansion area for the Community of Smithville has been organized into contiguous blocks, representing areas with common infrastructure for servicing and transportation. At the next stage of planning, the land use for the blocks will be refined to develop more detail for the respective Block Plans. These Block Plans may represent the individual blocks identified, or encompass contiguous groups of blocks, depending upon the timing of development for the respective blocks and servicing and transportation infrastructure. The Block Plans are to be supported by Master Environmental Servicing Plans (Master Environmental Servicing Plans) which will be guided by the Terms of Reference (provided under separate cover)

Property Requirements

The majority of planned infrastructure will be located within future development blocks in addition to existing and future roads and easements. Specific to the water servicing strategy, temporary easements have been identified related to the watermain crossing on Twenty Mile Creek at South Grimsby Road 5 and Regional Road 20 (West Street) in addition to Industrial Park Road at Regional Road 20 (St. Catharines Street) as shown on **Figure ES-9** and **Figure ES-10**. A permanent easement has also been identified related to the watermain crossing on Twenty Mile Creek at South Grimsby Road 5 and Regional Road 20 (West Street) as shown in **Figure ES-10**. It is accordingly recommended that the Township approach the affected land owners who secured the temporary easements so that the watermains can be constructed at the appropriate time. It is also recognized that future temporary or permanent easements may be identified through the future Block Plan and Master Environmental Servicing Plan process.

Figure ES-9: Stage 3 Property Requirements

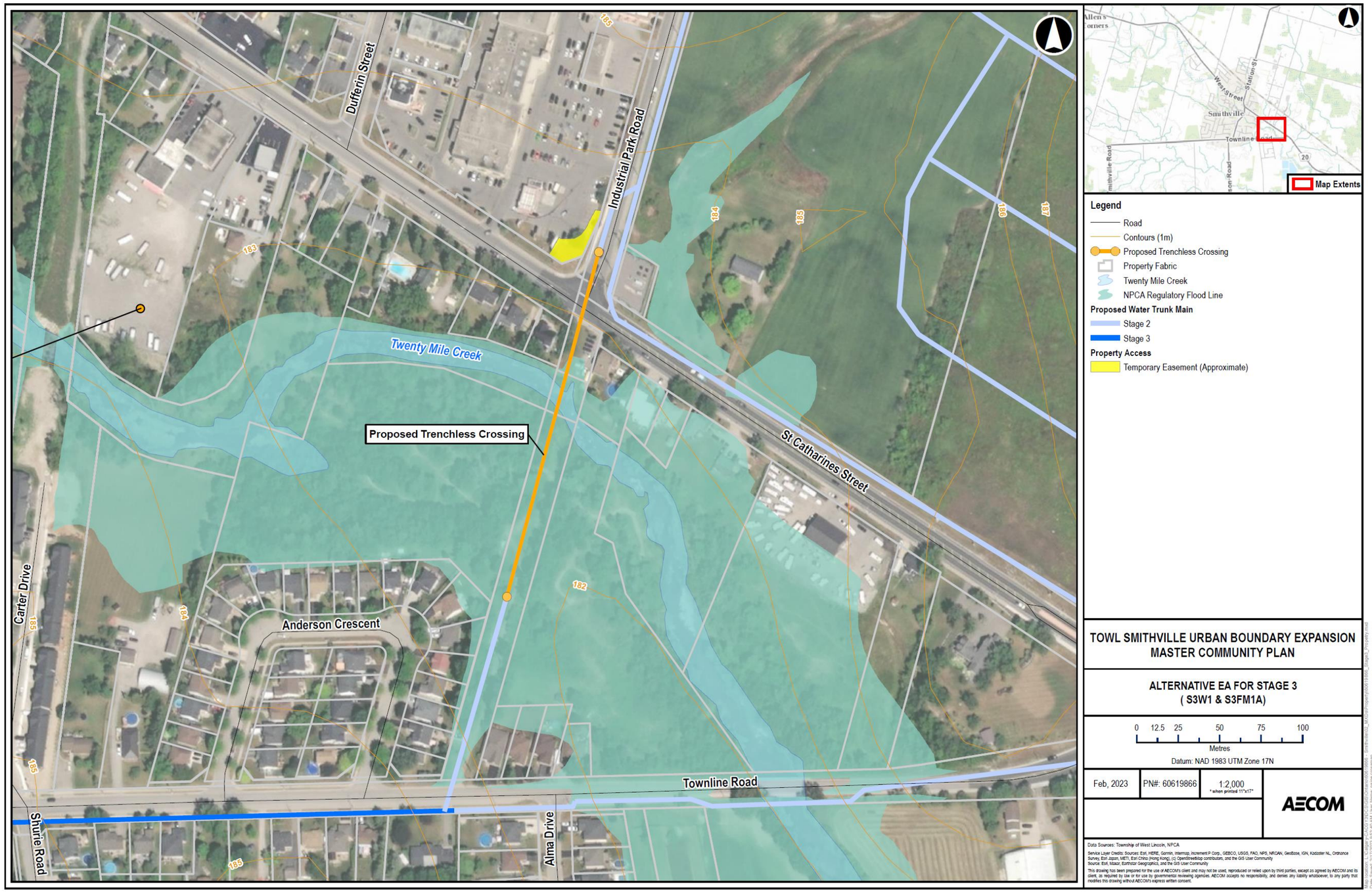
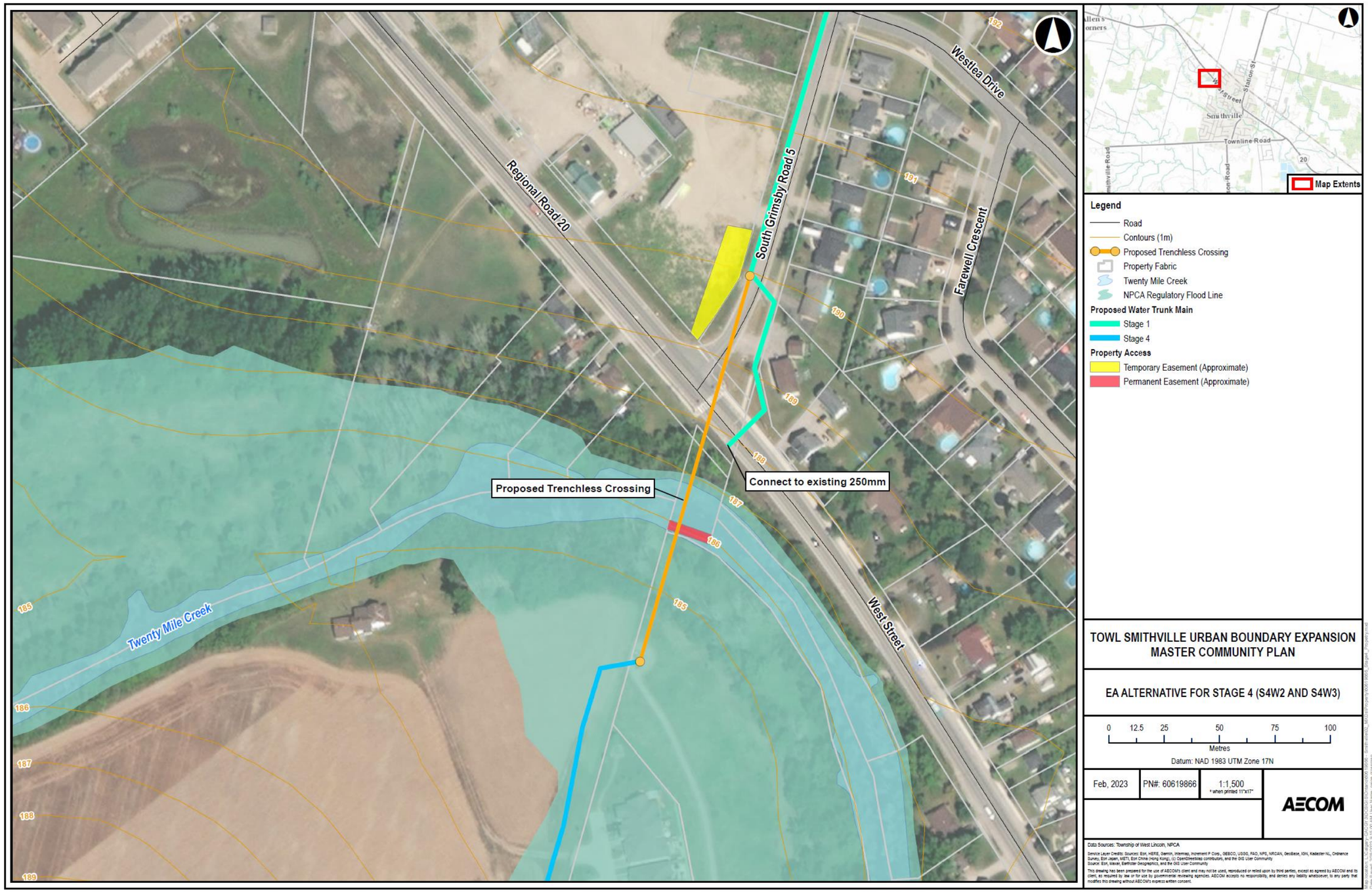


Figure ES-10: Stage 4 Property Requirements



Potential Impacts and Recommended Mitigation Measures

Impacts related to construction of the recommended transportation, water, wastewater and stormwater projects will be largely limited to the duration and location of construction.

Based on the preferred municipal infrastructure servicing strategies and proposed construction techniques, construction is expected to have varied effects on the environment and community. Efforts to minimize impacts such as loss or disruption to terrestrial and aquatic natural heritage features, land use disturbances, noise and vibration, traffic flow and property access disruptions will be made by implementing standard construction and best management practices that will be further developed during the Block Plan and Master Environmental Servicing Plan processes as well as preliminary and detailed design phases by means of further studies and permit applications, where applicable.

Community and Stakeholder Engagement

Community and stakeholder engagement has been undertaken strategic points along the project schedule, and included:

- With respect to Planning Act and Municipal Class Environmental Assessment Integration consultation, coordinated Planning Act/Class Environmental Assessment public notices were sent out and presentations to Township Council were made with all disciplines present.
- Public Information Centres (in-person/ virtual) – to provide information about the project to the community. Public Information Centres also facilitate dialogue between the Township, consultant team and members of the public. These events are important milestones to seek community feedback to improve our work. There are a total of four Public Information Centres being held throughout the duration of this study.
- Plansmithville.ca – virtual engagement platform with project information and the opportunity to provide feedback on various aspects of the project.
- In addition to the Steering Committee, a Technical Advisory Committee was formed which further spawned sub Technical Advisory Committees that also helped focus individual disciplines. This also included a number of meetings with landowner representatives and their consultants to review the recommended servicing strategies and staging. Technical Advisory Committee workshops with stakeholders such as Niagara Region Public Works and Planning, Niagara Peninsula Conservation Authority, and landowner group representatives – were held at strategic points in the project timeline to review and comment on technical work prior to supporting decisions and presentation to the public.

- Other meetings held with stakeholders, including the school boards, Municipal of Ministry Affairs and Housing, and Hydro One and NPEI to provide an opportunity early in the planning process to comment on how land uses are conceptually integrated into the Master Community Plan.
- Local Indigenous Communities and organizations were notified as part of the integrated Municipal Class Environmental Assessment consultation process that included issuance of all notifications (e.g., study commencement and Public Information Centre notices). Local Indigenous Communities and organizations were also offered the opportunity to meet to confirm their interests in the Master Community Plan Integrated Environmental Assessment process and how they would like to be engaged. Follow-up reminders were also issued to the Indigenous groups on the contact list informing them of the anticipated date of issuance for the Notice of Completion with an opportunity to ask any questions/ provide feedback prior to that date.

Conclusions

This Municipal Class Environmental Assessment Study fulfills the requirements for Schedule B projects as outlined in the Municipal Engineers Association's Municipal Class Environmental Assessment Guide. Consultation requirements of the Municipal Class Environmental Assessment process have been fulfilled through consultation with stakeholders, review agencies, and local Indigenous Communities, and the submission of this Integrated Environmental Assessment report. Subject to no appeals, or following the resolution of appeals, to Niagara Region's decision on Official Plan Amendment 63 the proposed transportation, water and wastewater and stormwater infrastructure works may proceed to the Block Plan and Master Environmental Servicing Plan as well as the design and property acquisition (temporary easements) phases. Lastly, it is noted that select Schedule C projects as identified in the Transportation Master Servicing Plan (e.g., Townline Road widening improvements and Smithville By-pass) will be addressed through separate Schedule C planning processes that will use the Transportation Master Servicing Plan to address Phases 1 and 2 of the Municipal Class Environmental Assessment process.

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Appendices

Please note that the complete appendices are available upon request. Please contact the Township of West Lincoln to request a copy.

PART A: Introduction

1. Background

In October 2019, the Township of West Lincoln (Township) initiated a Master Community Plan process to guide the future development of the community of Smithville through a comprehensive, watershed-based, integrated land use and infrastructure planning approach. The process involved extensive consultation and engagement with the public and key stakeholders including public agencies and partners, area landowners and their consultant representatives and advisors in addition to Indigenous communities. The Master Community Plan is a detailed land-use plan and policy document which provides a comprehensive plan for sustainable future growth and expansion in the Smithville Urban Area. The Master Community Plan process has been undertaken to determine the location and amount of potentially developable land to be added to the Smithville Urban Area.

The total land area within Master Community Plan Study Area, as discussed in the **Study Area Context** section is approximately 685 hectares, and the total land area to be added to the Smithville Urban Area boundary is approximately 540 hectares.

The Master Community Plan for the land to be added to the Smithville Urban Area has been developed by the GSP Group under the *Planning Act* and is integrated with related infrastructure planning in accordance with the requirements of the Municipal Engineers Association's Municipal Class Environmental Assessment for Water, Wastewater and Roads (as amended in 2015) Master Plan Approach #4. AECOM Canada Ltd. (AECOM) has been retained by the Township to complete the integrated infrastructure planning component which is the primary focus of this report.

1.1 Study Goals/Objectives

The objective of the Smithville Master Community Plan process is to comprehensively plan for the sustainable future growth and expansion of the Smithville Urban Area. The planning process involves related infrastructure studies that inform the Master Community Plan, including a Subwatershed Study, Transportation Master Plan, Water and Wastewater Master Servicing Plans, and Master Drainage Plan for the existing urban area of Smithville; infrastructure studies are summarized and appended to this integrated Environmental Assessment report.

The Subwatershed Study was undertaken by WSP Limited concurrently to address environmental and stormwater considerations associated with the Twenty Mile Creek

watershed and support the Master Community Plan Study, including the Municipal Class Environmental Assessment process.

The Master Community Plan will:

- Work towards the vision of Smithville as a compact, complete, healthy, and resilient community;
- Identify the community structure for Smithville and the potential expansion lands to ensure appropriate consideration and integration of development opportunities within Smithville;
- Ensure that the new neighbourhoods and employment areas in the existing urban area of Smithville and expansion lands are developed in stages in a phased and sustainable manner;
- Include land use categories, a road/transit/cycling/trail and servicing network, an open space system and major community facility requirements; and,
- Target an increased density of persons and jobs per hectare for the existing urban area of Smithville and identify an appropriate target density and land use configuration for the expansion lands

The Master Community Plan is intended to be adopted as a Secondary Plan for the Smithville urban expansion lands, and to be implemented via the approval of separate Township-initiated Official Plan Amendments as described in **Section 3** to incorporate the Secondary Plan in the Township's Official Plan, prior to the considerations and acceptance of applications for urban development in the area.

1.2 Study Area Context

The Study Area, as shown in **Figure 1-1** is located in the Township of West Lincoln, consisting of the existing Smithville Urban Area and the land to be added to the Smithville Urban Area boundary.

The total land area within Master Community Plan Study Area is approximately 685 hectares, and the total land area to be added to the Smithville Urban Area boundary is approximately 540 hectares. The Study Area is roughly bounded by Young Street to the north, the existing urban area boundary to the east, and North Creek and South Grimsby Road Six to the south and west, respectively. As future growth is anticipated, planning policy as outlined in **Section 0** designates Smithville as the location for most desirable to accommodate the bulk of the Township's future growth **Figure 1-2** highlights the staging plan for this growth.

Figure 1-1: Smithville Expansion Study Area

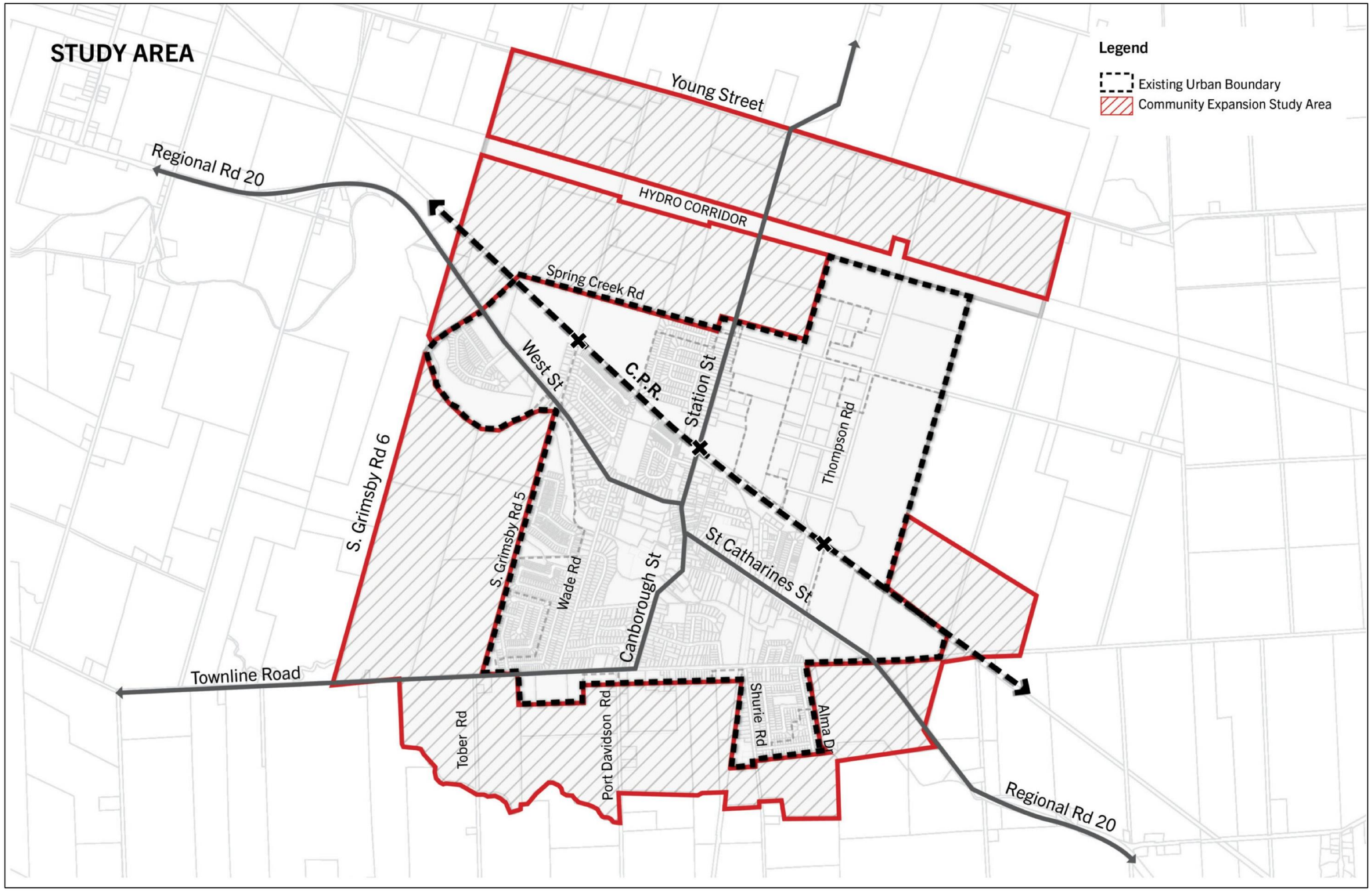
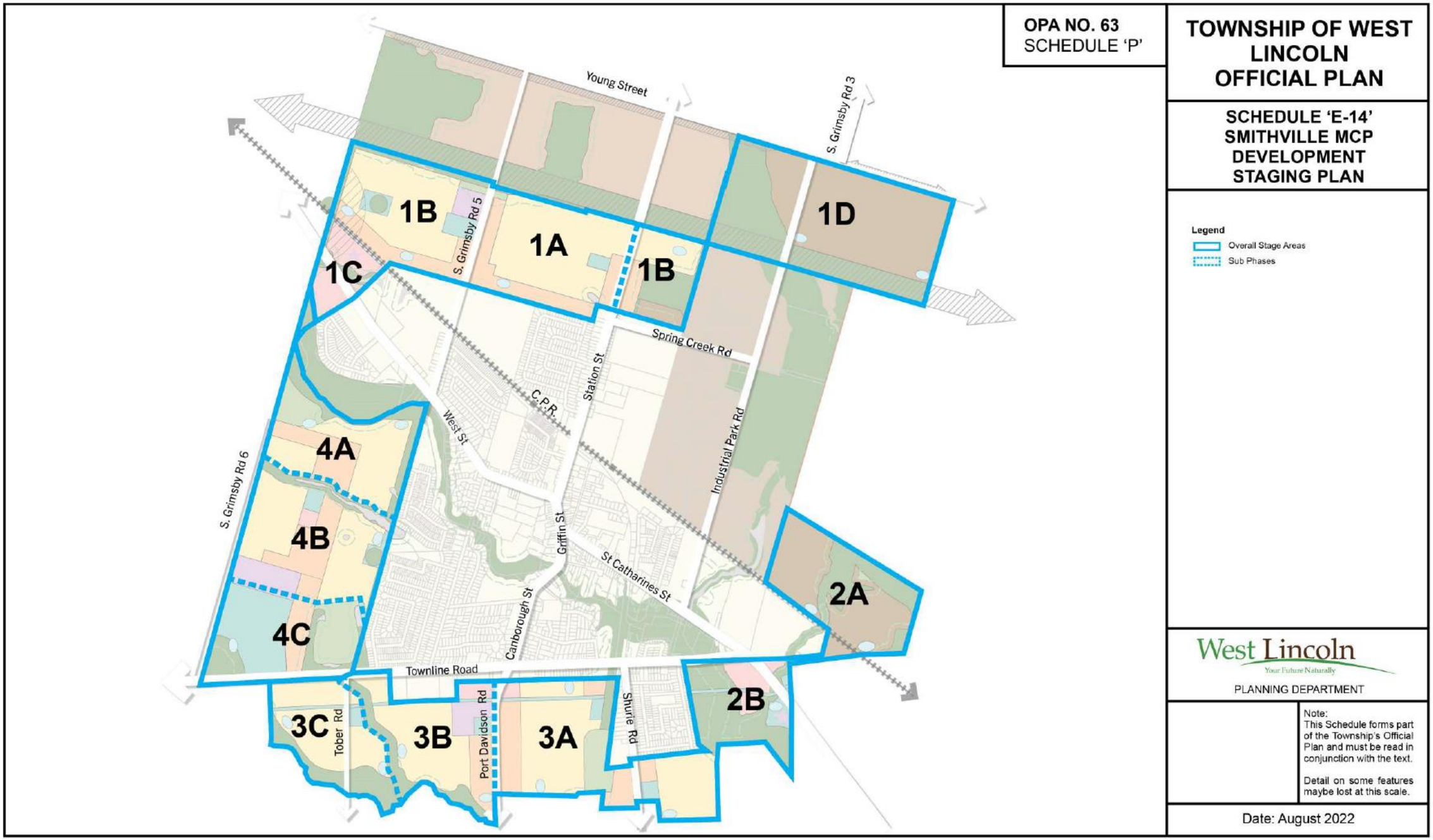


Figure 1-2: Development Staging Plan



The existing built-up area of Smithville is the Township's primary urban centre. It is characterised predominantly of residential uses with some commercial, employment, institutional and recreational uses. The expansion lands to be added to the Smithville Urban Area boundary are characterized primarily of lands currently in agricultural production. They remain predominantly undeveloped, aside from buildings and structures associated with agricultural operations and natural heritage features (e.g. woodlots).

2. Planning Policy Context

The provincial, regional, and municipal planning framework directs that future population, housing and employment growth shall be focused in urban settlement areas with municipal services and accommodated through infilling and intensification balanced with compact development in greenfield areas. This section summarizes key provincial, regional and local planning policies that inform the Smithville Master Community Plan. Refer to the Background Characterization Report (**Appendix A**) and supporting Master Plans for a detailed review of all applicable legislation and planning policies that have been reviewed to in support of the Smithville Master Community Plan.

2.1 Provincial Policy Context

2.1.1 Provincial Policy Statement

The Provincial Policy Statement came into effect on May 1, 2020. It provides policy direction on subjects and initiatives of provincial interest related to land use planning and development. The Provincial Policy Statement sets the policy foundation for regulating the development and use of land and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The Provincial Policy Statement requires Ontario municipalities to maintain the ability to accommodate residential growth for a minimum of 15 years, through residential intensification and redevelopment and, if necessary, lands that are designated and available for residential development. It also allows municipalities to use a 30-year planning horizon when planning for growth.

Relevance to Study: The Smithville Master Community Plan process has been completed to be consistent with the Provincial Policy Statement.

The Provincial Policy Statement has been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

2.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (Office Consolidation 2020) was established and approved under the *Places to Grow Act* (2005). The Growth Plan provides direction on where and how to grow, including population and employment forecasts, for all upper and single tier municipalities to better coordinate infrastructure and land use planning and accommodate growth in complete communities within the Greater

Golden Horseshoe. The Growth Plan's framework supports complete communities, which includes a strong economy, a clean and healthy environment, and social equity.

Relevance to Study: The Smithville Master Community Plan process has been completed to be conform with the Growth Plan through close partnership with the upper tier municipality – the Region of Niagara. The objective is to ensure that the new communities, neighbourhoods, and employment areas in the Smithville Urban Area and expansion lands are developed in a phased and sustainable manner meeting the objectives and requirements of the Growth Plan, as implemented through the Regional Official Plan and Township's Official Plan.

The Growth Plan has been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

2.2 Regional Policy Context

2.2.1 Regional Municipality of Niagara Official Plan

The Regional Official Plan (2014 Consolidation) was a long-range document that provides policy direction to guide the physical, economic and social development within the Region of Niagara. It has been superseded by the new Niagara Region Official Plan.

The new Niagara Region Official Plan was adopted by Regional Council on June 23, 2022, and was approved on November 4, 2022 (with several amendments) by the Ministry of Municipal Affairs and Housing.

Relevance to Study: The Smithville Master Community Plan process has been completed in keeping with the policies of the new Niagara Region Official Plan. The Secondary Plan for the urban boundary expansion will be implemented through the new urban boundaries for Smithville in the new Niagara Region Official Plan as identified in Official Plan Amendments No. 62 and No. 63 to the Township's Official Plan

The Niagara Region Official Plan and supporting Master Transportation and Servicing Plans have been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

2.2.2 Niagara Region Municipal Comprehensive Review

Launched in 2015, the Municipal Comprehensive Review consisted of four phases – Background and Technical Analysis, Issues and Opportunities, Growth Options and Preferred Growth Option. Phase 3, Growth Options, was presented to Planning and

Development Committee in November 2016 (PDS 37-2016) and deferred by Regional Council until Provincial guidance for calculating the land budget was provided which would enable the preferred growth option to be determined. Population forecasts that were established in Phase 3 of the Municipal Comprehensive Review were utilized to inform the:

1. Transportation Master Plan and Water and Wastewater Master Servicing Plan (Go, Grow and Flow) to help determine the infrastructure requirements needed to support future growth
2. Region's Development Charges Study

With the approval of the Place to Grow Plan for the Greater Golden Horseshoe in 2006, a Municipal Comprehensive Review was undertaken as a series of background reports that inform a new official plan or amendment to an official plan and that comprehensively applies the policies and schedules of the Growth Plan.

As a result, from a planning point of view, the Municipal Comprehensive Review initiated in 2015 has served its purpose and is complete. The work that has been done to date was subsequently integrated into the growth management program for the new Regional Official Plan. The growth management program consists of the following components – Regional Land Needs Assessment Urban Structure, Employment Lands Strategy and Housing Strategy.

Relevance to Study: The need to add land to the Smithville Urban Area and to a lesser extent to certain hamlets within the Township of West Lincoln has been established through a Municipal Comprehensive Review completed by Niagara Region leading to the creation of a new Niagara Region Official Plan in 2022 providing the basis for planning to accommodate growth and for directing and managing land use changes and development in the Region to the year 2051. As noted above, the new Niagara Region Official Plan was adopted by Regional Council on June 23, 2022, and was approved by the Ministry of Municipal Affairs and Housing on November 4, 2022.

2.2.3 Niagara Region Transportation Master Plan

The 2017 Niagara Region Transportation Master Plan is a comprehensive strategic planning document that defines policies, programs and infrastructure improvements required to address transportation and growth needs from today through to 2041.

The Transportation Master Plan provides a strategic vision for transportation in Niagara and ensures that future transportation needs are addressed through:

- Pedestrian and cycling facilities
- Demand-responsive and conventional transit
- Integrated network of roads and highways for the movement of people and goods

The Transportation Master Plan highlights key recommendations and supporting actions to meet the long-term transportation vision. The final Transportation Master Plan was approved by Regional Council (July 2017) and updated to reflect comments received through the 45-day Environmental Assessment review period (September 2017).

Relevance to Study: Specific to Smithville, the Region's Transportation Master Plan recommends a Smithville Bypass that will be implemented through a future Niagara Region Municipal Class Environmental Assessment planning process. The recommended Smithville Bypass was reviewed, validated, refined and optimized through the 2022 Smithville Transportation Master Plan (**Appendix C**).

2.2.4 Niagara Region Water and Wastewater Master Servicing Plan

The Water and Wastewater Master Servicing Plan (2016) forms part of the Region's overall master servicing plan, building off the 2011 Master Servicing Plan. The Master Servicing Plan provides the framework and direction on the current and future operations and delivery of the Region's water and wastewater servicing. Volume 3 (Water Master Servicing Plan Updates) documents the preferred water servicing strategy and Volume 4 documents the preferred wastewater servicing strategy. The Region is currently completing an update to its 2016 Water and Wastewater Master Servicing Plan.

Volume 3 describes the existing opportunities and constraints for the Smithville water system:

- Smithville has sufficient pumping and storage capacity within the zone, as well as adequate fire flow and pressure capacity
- Additional conveyance is required to support 2041 peak hour pressure and fire flows

Volume 3, Section 2.6 of the Water and Wastewater MSP provides a process for sizing of water infrastructure capacity.

Volume 4 describes the existing opportunities and constraints for West Lincoln's wastewater system:

- Significant infill and intensification growth is expected to occur in Smithville along the north, west, and south
- Township is currently undertaking works to manage existing wet weather flow issues

- Growth will trigger upgrade needs at the Smithville Sewage Pumping Station, including downstream forcemain and sewer system
- Increased conveyance is needed to move growth flows from the north, west, and south boundaries of the Smithville Sewage Pumping Station
- Capacity upgrades at Streamside Sewage Pumping Station may be required depending on local growth plans and servicing strategies

Volume 4, Section 2.6 of the Water and Wastewater Master Servicing Plan provides a process for sizing of wastewater infrastructure capacity. Niagara Region is currently updating the 2016 Water and Wastewater Master Servicing Plan.

Relevance to Study: The Region's Water and Wastewater Master Servicing Plan has been reviewed to confirm available water and wastewater treatment capacities and inform the evaluation of strategies for functional servicing for the Smithville Water and Wastewater Master Plan. The Water and Wastewater Master Servicing Plan also identified the implementation of a looped Smithville watermain ring system encircling the community and an expanded Smithville Sewage Pumping Station and related downstream sewage works (sewage treatment plant and feeder line capacity) that will receive future development flows as the preferred water and wastewater strategies for servicing long term growth in Smithville. These strategies were also confirmed and refined, as part of the integrated Master Community Plan exercise, for Smithville functional water and wastewater servicing.

2.2.5 Niagara Region Sewage Pumping Stations and Forcemains Policy (PWA 49-2010 dated June 15, 2010)

In 2010, the Niagara Region Sewage Pumping Stations and Forcemains Policy was amended to better provide direction on how the need for a new Sewage Pumping Station should be considered in the context of proposed development proposals, including secondary plans and in the case of this Study, urban boundary expansion. Key considerations for development proposals includes:

- Documenting and agreeing on the need for new Sewage Pumping Station(s)
- Once the need for a new Sewage Pumping Station is agreed upon, confirm responsibility for funding the new Sewage Pumping Station and associated works
- Clarify and compare a new Sewage Pumping Station against the option of servicing by gravity sewers - based on a life cycle cost analysis

Upon agreement to the above, the Region will ultimately own, operate and maintain specific pumping stations that are planned, funded and constructed in accordance with this policy.

Relevance to Study: The noted policy informs the evaluation of development concepts for functional servicing for the Smithville Water and Wastewater Master Plan, including the need for a new Sewage Pumping Station(s).

2.3 Municipal Policy Context

2.3.1 Township of West Lincoln Official Plan

The Official Plan of the Township of West Lincoln (July 2021 Consolidation) details policies for land use and development within the municipality. As per the Official Plan, Smithville is the only fully serviced urban settlement area located within the Township.

Relevance to Study: Through the Master Community Plan process, the Township has initiated and prepared a Secondary Plan for the urban boundary expansion area that implements the Niagara Region Official Plan and, by amendment, the Township's Official Plan.

The *Planning Act* requires the Council of the Township of West Lincoln to, among other things, to:

- Revise its Official Plan to ensure that it conforms with provincial plans or does not conflict with them (Planning Act s. 26(1)(a)), including the Growth Plan for the Greater Golden Horseshoe (2019, amended in 2020) which establishes population and employment forecasts for the Region of Niagara to the year 2051 as well as intensification targets for delineated built-up areas and minimum density targets for designated greenfield areas
- Amend its Official Plan to conform with the Niagara Region Official Plan (Planning Act s. 27(1)) which establishes a settlement area boundary and the geographic limits of the delineated built-up area and designated greenfield area for the Smithville Urban Area, the boundaries of rural settlement areas (hamlets) in the Township of West Lincoln, as well as population and employment growth forecasts and intensification and greenfield density targets to the year 2051 for the Township of West Lincoln.

The Region's and Township's Official Plans have been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

2.3.2 Township of West Lincoln Secondary Plans

The Township currently has five secondary plans in place: the Spring Creek Heights Secondary Plan, Northwest Smithville Secondary Plan, Wade Road Secondary Plan, Northwest Quadrant Secondary Plan and East Smithville Secondary Plan.

Relevance to Study: Through the Master Community plan process, the Township has initiated and prepared the new Secondary Plan for the urban boundary expansion area.

The existing secondary plans have also been reviewed in the development of municipal infrastructure servicing strategies in support of the Smithville Master Community Plan.

2.3.3 Township of West Lincoln Parks and Recreation Master Plan

The Township of West Lincoln Parks and Recreation Master Plan (2010) provides an overview of the parks and recreation facilities within the Township, including future directions or changes that are required to meet the recreational needs of the Township's residents to the year 2031. This includes specific recommendations regarding the future use/direction of the Fairground and Leisureplex lands, two major recreational facilities in the Township.

Relevance to Study: The Parks and Recreational Master Plan was considered in the development of the alternative, preliminary preferred, and preferred Master Community Plan development concepts.

2.3.4 Smithville Trails and Corridors Master Plan

The Smithville Trails and Corridors Master Plan (2012) provides guidance for the planning and development a trails and corridor system in Smithville to support a more complete and walkable community. The Township of West Lincoln Parks and Recreation Master Plan (2010) recommended the need for the Smithville Trails and Corridors Master Plan.

Relevance to Study: The Smithville Trails and Corridors Master Plan was considered in the development of the alternative, preliminary preferred, and preferred Master Community Plan land use concepts in addition to the recommended active transportation system identified in the Smithville Transportation Master Plan.

2.3.5 Source Protection Plan for the Niagara Peninsula Source Protection Area

Section A.2.10.6 of the Municipal Class Environmental Assessment document directs proponents, including the Township to consider Source Water Protection in the context of the Clean Water Act. Projects proposed within a Source Water Protection vulnerable area are required to consider policies in the applicable Source Protection Plan, including their impact with respect to the project. A watershed-based Source Protection Plan contains policies to reduce existing and future threats to drinking water in order to safeguard human health through addressing activities that have the potential to impact municipal drinking water systems.

The Township of West Lincoln including the community of Smithville is governed by the policies in the Source Protection Plan for the Niagara Peninsula Source Protection Area.

There are four types of vulnerable areas covered by the Source Protection Plan

1. Intake protection zones– Refers to the area around a surface body of water where water is drawn in and conveyed for municipal drinking water.
2. Highly vulnerable aquifers– Aquifers are underground layers of water that supply wells. HVAs are susceptible to contamination due to their proximity to the ground surface or where the types of materials in the ground around it are highly permeable.
3. Significant groundwater recharge areas – Recharge areas that are characterized as having porous soils (e.g. sand or gravel), which allow for water to easily seep into the ground and flow to an aquifer.
4. Wellhead protection areas – Refers to areas of land around a municipal well where land use activities have the greatest potential to affect the quality of water flowing into the well.

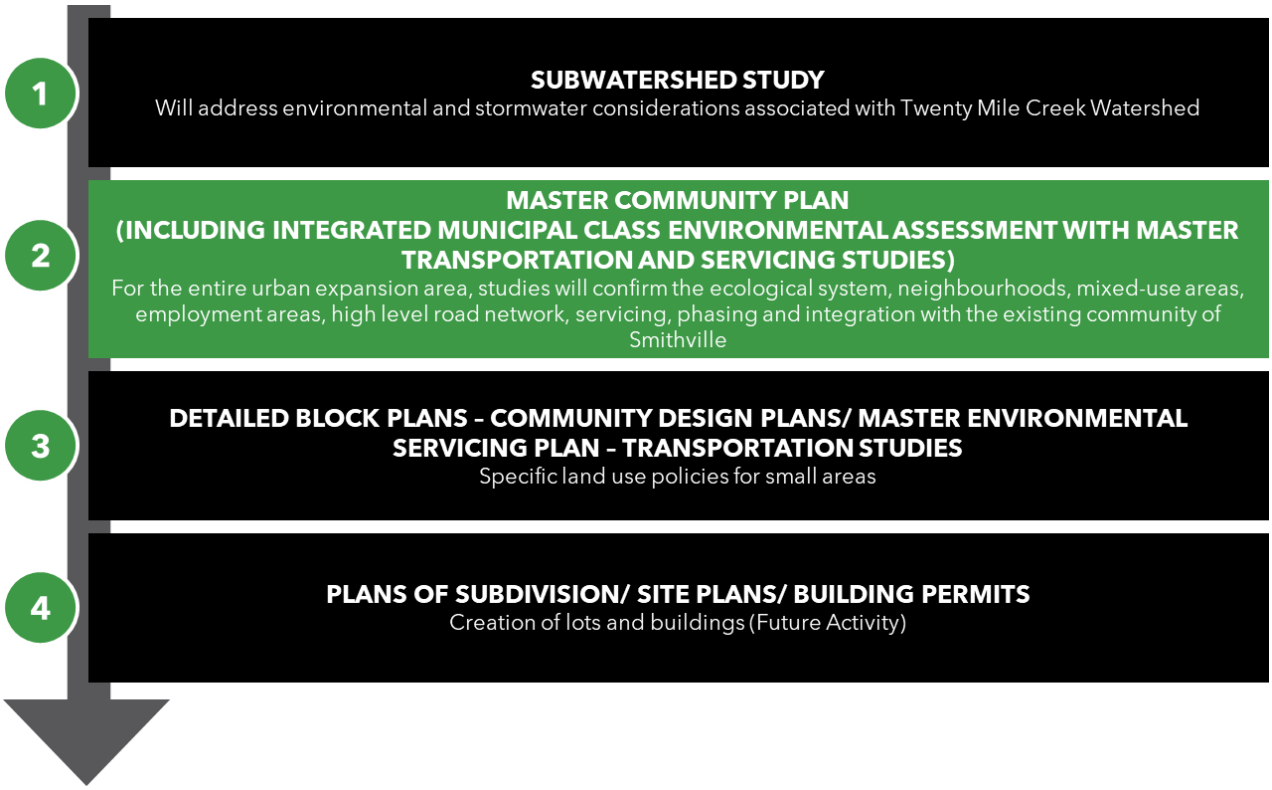
Relevance to Study: The proposed municipal infrastructure servicing strategies have been reviewed in the context of the Source Protection Plan for the Niagara Peninsula Source Protection Area. The Township of West Lincoln is situated within a Highly Vulnerable Aquifer with a score of 6. No other vulnerable areas covered by the Source Protection Plan exist in the community of Smithville.

3. Master Community Plan and Integrated Municipal Class Environmental Assessment Process

3.1 Master Community Plan Process

The Master Community Plan is being completed through an integrated Environmental Assessment. The Master Community Plan process and related studies are designed to form a comprehensive and coordinated planning process that will meet the required approvals necessary under the *Planning Act* and the *Environmental Assessment Act*. A number of studies and plans are required before development takes place. **Figure 3-1** provides an overview of the overall development process of studies, plans, and approvals leading to development. The Master Community Plan sets the overall vision for growth. Future plans will provide more specific details and contemplate growth at a more granular level. Steps 1 and 2 are concurrent.

Figure 3-1: Overall Development Process Diagram



As previously noted, the Master Community Plan is intended to be adopted as a Secondary Plan for the Smithville urban expansion lands, and to be implemented via the approval of separate Township-initiated Official Plan Amendment(s) to incorporate the Secondary Plan in the Township's Official Plan, prior to the considerations and acceptance of applications for urban development in the area.

Official Plan Amendments No. 62 and No. 63 to the Official Plan of the Township of West Lincoln are described below.

3.1.1 Smithville Urban Boundary Expansion (Official Plan Amendment 62)

The purpose of Amendment Number 62 (Smithville Urban Area Expansion) is to revise specific policies and schedules of the Official Plan of the Township of West Lincoln to:

- Update the population and employment growth forecasts and the greenfield density and intensification targets of the Official Plan consistent with those of the Niagara Region Official Plan, pursuant to the Growth Plan for the Greater Golden Horseshoe, to the 2051 planning horizon.
- Add land to the boundary of the Smithville Urban Area by implementing the settlement area boundary recommended through the Smithville Master Community Plan process and corresponding to the expanded settlement area boundary for Smithville delineated in the Niagara Region Official Plan.
- Designate the land to be added to the boundary of the Smithville Urban Area as "Future Greenfield Area" corresponding to the limits of the Designated Greenfield Area delineated in the Niagara Region Official Plan for the expanded Smithville Urban Area.
- Identify the land to be added to the boundary of the Smithville Urban Area as a Secondary Plan area being the Master Community Plan for Smithville.
- Establish interim policies for the Smithville Master Community Plan Secondary Plan area to reserve these areas for appropriate future urban land uses, public service facilities and infrastructure, transportation and natural heritage systems based on land use mapping and policies to be incorporated in the Official Plan through a future/separate Township-initiated Official Plan Amendment(s) to implement the Smithville Master Community Plan. The Smithville Master Community Plan is intended to be implemented as a Secondary Plan via future/separate Township-initiated Official Plan Amendment(s).

The Master Community Plan process includes the development of a Secondary Plan for the urban expansion area. Official Plan Amendment No. 63 (**Section 3.1.2**) has been drafted to implement the Secondary Plan for the urban expansion area subsequent to the approval of this Official Plan Amendment No. 62. Official Plan Amendment Number 62 (Smithville Urban Area Expansion) was adopted by Council on April 27, 2022. Niagara Region Council approved Official Plan Amendment No. 62 in 2023 on April 20, 2023. The Notice of Decision was issued by the Region on April 27, 2023. Refer to Appendix E for the notice. Similarly, the Township of West Lincoln also issued a Notice of Completion on April 27, 2023. Refer to Appendix E for the notice.

3.1.2 Smithville Master Community Plan - Secondary Plan (Official Plan Amendment 63)

The purpose of Amendment Number 63 (Smithville Master Community Plan) is to revise specific policies and schedules of the Official Plan to:

- Articulate and support the achievement of the Vision for the future growth and expansion of Smithville to accommodate growth over a period of approximately 30 years (to 2051) as a compact, complete, resilient and sustainable community with enhanced small-town character, a robust natural heritage system, efficient and optimized infrastructure systems, well-defined community edges, transportation choice and convenience, and supportive of the agricultural sector.
- Designate the land added to the Smithville Urban Area via the Niagara Region Official Plan and Township Official Plan Amendment No. 62 for specific urban land uses and for the protection, restoration and enhancement of the natural environment by implementing the Smithville Master Community Plan as a new Secondary Plan area based on the preferred concept plan and the recommended natural heritage system identified in the related Subwatershed Study, and establish related goals and policies
- Identify Block Plan Areas within the Smithville Master Community Plan Area and establish policies for the future preparation of Block Plans to undertake further planning and Master Environmental Servicing Plans to establish the details of future land use and required servicing, transportation and natural heritage systems.
- Designate and establish a special policy area for agricultural-related and farm supportive uses on land to the north-west of the Master Community Plan Area.

- Establish policies to recognize and protect existing farm operations within the Master Community Plan Area while providing for the future transition of the area to urban land uses and designate a special policy area for specific land within the Master Community Plan Area where land uses will be limited until such time as constraints related to the proximity of the land to an existing livestock operation are addressed or no longer exist.
- Identify and establish policies for the recommended Smithville Transportation Plan and to guide and direct future transportation system improvements as well as future streets and active transportation/trail routes and including the potential alignment of a future alternative truck route/Regional Road 20 by-pass conceptually identified in the Niagara Region Official Plan.
- Establish a Development Staging Plan for the Smithville Master Community Plan Area including overall stage areas and sub-phases to direct the coordinated and orderly development of the area for urban land uses aligned with the timing of required infrastructure and transportation systems in accordance with the Township's Master Servicing Plan and Transportation Master Plan.

Official Plan Amendment Number 63 (Smithville Master Community Plan – Secondary Plan) was adopted by Township of West Lincoln Council on June 27, 2022. Niagara Region Council approved Official Plan Amendment No. 63 in 2023 on April 20, 2023. The Notice of Decision was issued by the Region on April 27, 2023. The Notice includes direction on how one can appeal Official Plan Amendment 63. Refer to Appendix E for the notice. Similarly, the Township of West Lincoln also issued a Notice of Completion on April 27, 2023. Refer to Appendix E for the notice.

3.2 Integrated Municipal Class Environmental Assessment Process

3.2.1 Overview of the Municipal Class Environmental Assessment Process

All municipalities in Ontario are subject to the provisions of the *Ontario Environmental Assessment Act* and its requirements to prepare an Environmental Assessment for applicable public works projects. The Ontario Municipal Engineers Association "Municipal Class Environmental Assessment" manual (October 2000, as amended in 2007, 2011, 2015 and 2023) provides municipalities with a phased planning procedure, to plan and undertake all municipal sewage, water, stormwater management and transportation projects that occur frequently, are usually limited in scale and have a

predictable range of environmental impacts and applicable mitigation measures. This Master Plan was undertaken in accordance with the 2015 document.

In Ontario, infrastructure projects are subject to the Municipal Class Environmental Assessment process and must follow a series of mandatory steps as outlined in the Municipal Class Environmental Assessment manual. The phases are summarized below:

- **Phase 1 – Problem or Opportunity:**
  Identify the problems or opportunities to be addressed and the needs and justification.
- **Phase 2 – Alternative Solutions:**
  Identify alternative solutions to the problems or opportunities by taking into consideration the existing environment, and establish the preferred solution considering public and agency review and input.
- **Phase 3 – Alternative Design Concepts for the Preferred Solution:**
  Examine alternative methods of implementing the preferred solution based upon the existing environment, public and agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
- **Phase 4 – Environmental Study Report:**
  Document in an Environmental Study Report, a summary of the rationale, planning, design and consultation process for the project as established through Phases 1 to 3 above and make such documentation available for scrutiny by review agencies and the public.
- **Phase 5 – Implementation:**
  Complete contract drawings and documents, proceed to construction and operation, and monitor construction for adherence to environmental provisions and commitments. Also, where special conditions dictate, monitor the operation of the completed facilities.

The Master Plan must address at least the first two phases of the Municipal Class Environmental Assessment process.

3.2.2 Project Planning Schedules

The Municipal Class Environmental Assessment defines four types of projects and the processes required for each (referred to as Schedule A, A+, B, or C). The selection of the appropriate schedule is dependent on the anticipated level of environmental impact, and for some projects, the anticipated construction costs. Projects are categorized

according to their environmental significance and their effects on the surrounding environment. This study has been developed to satisfy requirements for a Schedule B planning activity. The following describes the Municipal Class Environmental Assessment planning schedules:

- **Schedule A:** Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are pre-approved and may proceed to implementation without following the full Municipal Class Environmental Assessment planning process.[1]
- **Schedule A+:** The purpose of Schedule A+ is to ensure appropriate public notification for certain projects that are pre-approved under the Municipal Class Environmental Assessment. It is appropriate to inform the public of municipal infrastructure project(s) being constructed or implemented in their area.
- **Schedule B:** Projects have the potential for some adverse environmental effects. The proponent is required to undertake a screening process (Phases 1 and 2), involving mandatory contact with directly affected public and with relevant review agencies to ensure that they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. At the end of Phase 2, a Project File documenting the planning process followed through Phases 1 and 2 shall be finalized and made available for public and agency review. However, if a concern is raised related to aboriginal and treaty rights which cannot be resolved, a Section 16 Order may be requested and considered by the Minister of the Environment, Conservation and Parks. Alternatively, the proponent may elect voluntarily to plan the project as a Schedule C undertaking.
- **Schedule C:** Projects have the potential for significant adverse environmental effects and must proceed under the full planning and documentation (Phases 1 to 4) procedures specified in the Municipal Class Environmental Assessment manual. Schedule C projects require that an Environmental Study Report be prepared and filed for review by the public and review agencies. If concerns related to aboriginal and treaty rights are raised that cannot be resolved, then a Section 16 Order may be requested.

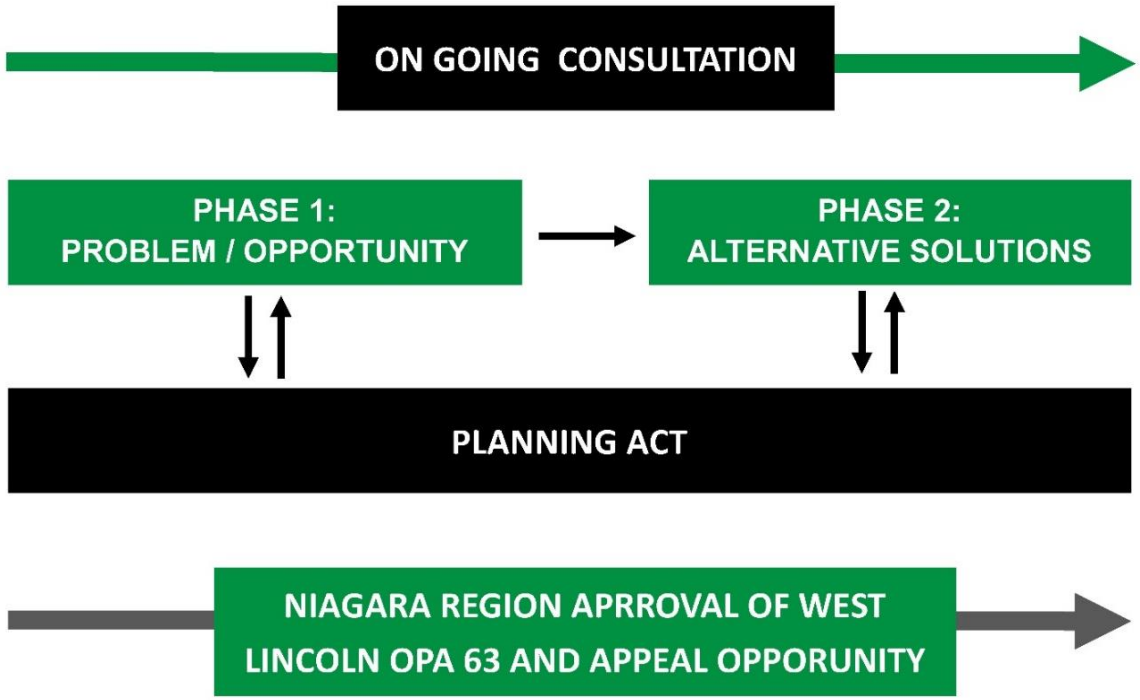
1. *Historically, projects classified as Schedule A and A+ were considered pre-approved; however, the passing of Bill 108 (More Homes, More Choice Act) resulted in an amendment to the EA Act so that these low impact projects are now considered exempt from the Act. Schedule A and A+ projects can proceed to implementation; and as such can proceed to design and construction without any public notifications. However, Schedule A+ projects must complete some form of public notification suitable to the project prior to construction.*

This Municipal Class Environmental Assessment process is addressing requirements for Schedule B projects and identifying future Schedule C Projects. Examples of Schedule B projects include, among others, specific road widenings that fall below the Municipal Class Environmental Assessment $2.7 million capital cost threshold, establishment of new wastewater pumping stations or stormwater management facilities and all necessary linear works to connect the facilities where they are located outside of existing road allowances or utility corridors. Example of a Schedule C Project identified includes specific road widenings or extensions that fall above the Municipal Class Environmental Assessment $2.7 million capital cost threshold.

3.2.3 Master Planning Process – Approach No. 4

The Master Plan must address at least the first two phases (i.e., Phase 1 and Phase 2) of the Municipal Class Environmental Assessment process as described above and shown in **Figure 3-2.**

Figure 3-2: Municipal Class Environmental Assessment Planning Process



There are four approaches to the master planning process and the Smithville Master Community Plan is following Approach No. 4 (Integration with the Planning Act). Master Plan Approach No. 4 recognizes the benefits of integrating Phases 1 and 2 of the Schedule ‘B’ Master Plan process with approvals under the Planning Act, especially with larger projects such as Secondary Plans. This means that the requirement of the

Environmental Assessment Act (primarily through the Municipal Class Environmental Assessment process) and the Planning Act are met as one integrated and co-ordinated process and with streamlined approvals and appeals. This approach is desirable for long term planning where interdependent decisions which impact servicing and land use are being made and the range of servicing alternatives needs to be addressed in an integrated fashion, so as to recommend the best overall solution for the Community.

Together with the Environmental Assessment Act, the Master Community Plan includes the location of arterial and collector roads, distribution and density of land uses, water and wastewater (including stormwater) servicing, environmental protection and sustainable design policies. The Plan identifies the preferred approach to phasing that will guide future development and address all infrastructure requirements for the lands to be added to the Smithville Urban Area.

An integrated Planning Act/Municipal Class Environmental Assessment has specific process requirements:

- Must fulfill the process requirements outlined in the Municipal Engineers Association Municipal Class Environmental Assessment document (see **Table 3-1** below).
- Requires notification of the infrastructure projects as per Municipal Engineers Association Municipal Class Environmental Assessment requirements.
- Requires both Planning Act applications (in this case the Smithville Master Community Plan) and the Municipal Infrastructure Municipal Class Environmental Assessment to be planned concurrently.
- The Municipal Servicing-Infrastructure Municipal Class Environmental Assessment is submitted concurrently with the Smithville Master Community Plan Planning Act approval submission.

Infrastructure projects that are planned in accordance with this process are considered to be pre-approved as Municipal Class Environmental Assessment Schedule A as long as the Planning Act (i.e. Smithville Master Community Plan) application is approved (subject to no appeals) and the Municipal Class Environmental Assessment requirements have been followed.

As per Section A.2.9.3 of the Municipal Engineers Association Municipal Class Environmental Assessment document, the following steps outlined in **Table 3-1** must be followed when using the integrated approach.

If the Planning Act application is not approved, the Municipal Class Environmental Assessment infrastructure projects are also not approved.

Table 3-1: Master Plan Approach No. 4 (Schedule B) Integrated Planning and Environmental Assessment Process

Municipal Class Environmental Assessment Activity	Description	Status
Identify the problem or opportunity	■ Development of a clear statement of the identified problems or opportunities to be addressed. ■ Refer to Part B –for the Problem or Opportunity Statement.	■ Complete
Identify alternative solutions to the problem or opportunity	■ Identification of municipal infrastructure servicing strategies. Refer to Part C: – Preliminary Concept Options (**Section 8**) – Subwatershed / Stormwater management (**Section 10**) – Transportation (**Section 11**) – Water (**Section 12**) – Wastewater (**Section 13**)	■ Complete
Carry out an inventory of the environment, including the natural, social, cultural and economic environment	■ Inventory of existing conditions are summarized in Part B –and in the following documents: – Background Characterization Report (**Appendix A**) – Subwatershed study (**Appendix B**) – Transportation Master Plan (**Appendix C**) – Water and Wastewater Master Plan (**Appendix D**) ■ Existing conditions supported the development of land use concept options and evaluation of alternative solutions.	■ Complete
Carry out a comparative evaluation of the alternative solutions and identify a preliminary preferred solution	■ Evaluation of municipal infrastructure servicing strategies, including identification of the preferred solution - strategies in support of the Master Community Plan. Refer to Part C:Subwatershed / Stormwater management (**Section 10**) – Transportation (**Section 11**) – Water (**Section 12**) – Wastewater (**Section 13**)	■ Complete
Identify the potential impacts of the alternative solutions on the environment and any measures needed to mitigate those impacts	■ Identification of mitigation measures to address potential impacts are summarized in Part D – **Section 17**	■ Complete
Discretionary and Mandatory Points of Consultation – notify and consult with review agencies and the public	■ Issuance of the following notifications to the public, stakeholders, agencies and Indigenous Communities: – Notice of Commencement and Visioning Public Information Centre – Notice of Public Information Centre 1 ■ Consulting public, stakeholders, agencies and Indigenous Communities ■ Hosting Public Information Centres ■ Refer to Part E: Overview of Community and Stakeholder Engagement and Appendix F: Agency and Stakeholder Consultation Record	■ Complete
Determine the preferred alternative-strategies-solutions (project) based on the results of the comparative evaluation and feedback received from review agencies and the public	■ Confirm the final preferred servicing municipal infrastructure and Preferred Master Community Plan Structure - Secondary Land Use Plan based on the supporting studies and feedback received from the public, stakeholders, agencies and Indigenous Communities ■ Planning Act Point of Consultation ■ Issuance of the following notifications to the public, stakeholders, agencies and Indigenous Communities: – Notice of Public Information Centre 2 – Notice of Public Open House and Public Meeting for Public Matters for proposed Official Plan Amendment No. 62 – Smithville Master Community Plan – Township of West Lincoln Notice of Decision for Official Plan Amendment No. 62 – Notice of Public Open House and Public Meeting for Public Matters for proposed Official Plan Amendment No. 63 – Smithville Master Community Plan draft Secondary Plan and Integrated Environmental Assessment Municipal Servicing – Township of West Lincoln Notice of Decision for Official Plan Amendment No. 63	■ Complete

Municipal Class Environmental Assessment Activity	Description	Status
Key Decision Point – At this point in the process, the proponent must confirm the applicable Municipal Class Environmental Assessment Schedule for the preferred solution (project): **If the project would have been defined as a Schedule B project under this Municipal Class Environmental Assessment, then the proponent must:** ■ **Document the study process and description of the physical location and dimensions of the project in a public document. Documentation must be consistent with the requirements in Section A.2.9.4 (Documentation) of this Class Environmental Assessment** ■ **Issue mandatory notification (e.g. a Notice of Completion) to review agencies and the public about the availability of the study documentation for public review, as well as the appeal rights under the Planning Act** ■ **Proceed to Phase 5 (Implementation) of this Class Environmental Assessment below.**	■ Confirm municipal project description and applicable Municipal Class Environmental Assessment planning schedule (i.e. A, A+ B and C) ■ Complete the Integrated Master Plan Report. ■ Present final Subwatershed Study, Transportation Master Plan and Water and Wastewater Master Plan to West Lincoln Council for endorsement by West Lincoln Council ■ Township of West Lincoln Council endorsed the three Master Plans presented as part of the Master Community Plan and the issuance of the Integrated Notice of Completion following the Niagara Region Council adoption of Official Plan Amendment 62 and 63. ■ Official Plan Amendment 62 and 63 have been approved by Niagara Region Planning Committee ■ Niagara Region Council approved Official Plan Amendment 62 and 63 ■ Issue Notice of Completion and file Integrated Municipal Class Environmental Assessment Report on the Township's website for 30-day public review in parallel with Niagara Region Notice of Decision (opportunity to appeal Official Plan Amendment. 63). 20-day appeal period under the Planning Act applies from the date of the notice (No extra ten days under the 30 day Municipal Class Environmental Assessment) ■ Both the public and agencies who have reviewed the Class Environmental Assessment should be provided with the Final notices for integrated policies, plans or projects. ■ This notice may also note that any changes to proposed servicing strategies will be addressed through future Municipal Class Environmental Assessment addendums that will be captured through the block plan and Master Environmental Servicing Plan Process.	■ Complete

3.2.4 Appeals/Objections Under the Planning Act

Under the Planning Act, decision(s) may be appealed to the Ontario Municipal Board, now referred to as Local Planning Appeal Tribunal. The Local Planning Appeal Tribunal is the administrative body to which appeals of the land use planning decision, including the supporting infrastructure can be made.

If a project has been appealed to the Local Planning Appeal Tribunal, the requirements of the integrated approach have not been met until the Local Planning Appeal Tribunal renders a decision allowing the project to proceed. The intended purpose of the integration provisions is to coordinate requirements under the Planning Act with this Municipal Class Environmental Assessment. As outlined in **Section 3.2.5** of this report, a Section 16 Order request may also be made to the Ministry of the Environment, Conservation and Parks.

3.2.5 Placement of the Integrated Municipal Class Environmental Assessment Master Plan Report for Public Review

This Master Plan comprises the documentation for Schedule B requirements. As described above successful completion of the Integrated Master Plan Approach No. 4 results in all Schedule B projects to be considered a Schedule A under the Municipal Class Environmental Assessment (i.e. pre-approved). Therefore the proponent (Township or Region) may therefore proceed to design and construct the project upon coming into effect or approval under the Planning Act.

Placement of the Project File report for public review on the Township's website (https://www.niagararegion.ca/news/notices/) completes Phase 2 of this Municipal Class Environmental Assessment study. The 30-day comment period commences on April 27, 2023 and ends on May 27, 2023. Interested persons may provide written comments to our study team by May 27, 2023. All comments and concerns should be sent directly to the Township:

Contact: Gerrit Boerema (gboerema@westlincoln.ca) and Jenn Bernard (jbernard@westlincoln.ca)

Alternative arrangements to view the reports are available upon request.

A Section 16 Order request may be made to the Ministry of the Environment, Conservation and Parks or Minister for an order requiring a higher level of study (i.e., requiring an individual/comprehensive Environmental Assessment approval before

being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests for a Section 16 Order would apply to any subsequent Municipal Class Environmental Assessment Addendums which is assumed the be addressed during the Block Plan and Master Environmental Servicing Plan (refer to section 17) process.

The Section 16 Order request should be sent in writing or by email by **May 27, 2023** to both contacts below and copies to the Township contacts:

Requests should include your full name and contact information and be sent to both:

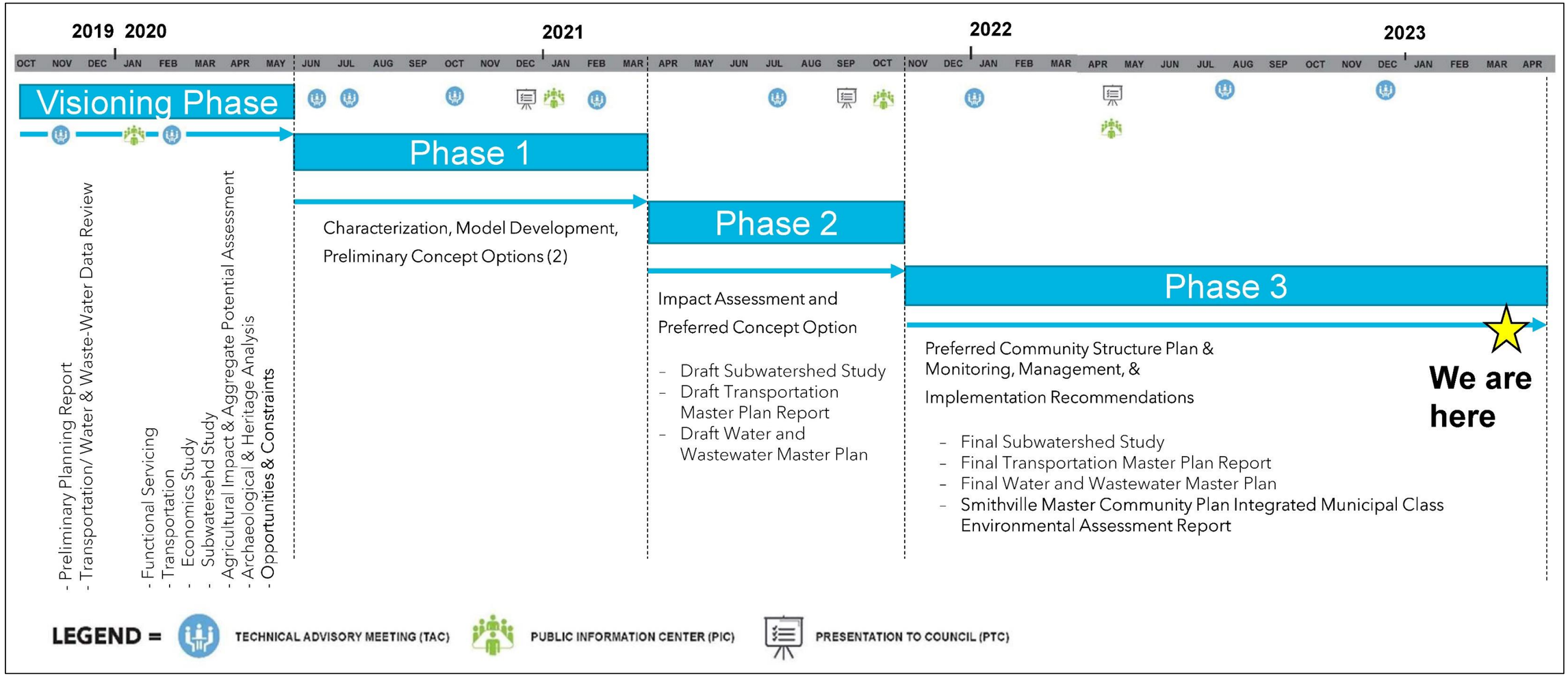
- **Minister of the Environment, Conservation and Parks**
  Ministry of Environment, Conservation and Parks
  777 Bay Street, 5th Floor
  Toronto, Ontario M7A 2J3
  Email: minister.mecp@ontario.ca
- **Director, Environmental Assessment Branch**
  Ministry of Environment, Conservation and Parks
  135 St. Clair Avenue West, 1st Floor
  Toronto, Ontario M4V 1P5
  Email: EABDirector@ontario.ca

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of Section 30 of the Environmental Assessment Act and maintained for the purpose of creating a record that is available to the general public. With the exception of personal information, all comments will become part of the public record of the Study.

Subject to no appeals or resolution of appeals to Official Plan Amendment No. 63 and no Section 16 Orders, the recommended infrastructure works as noted in this Integrated Planning Act and Municipal Class Environmental Assessment Report will be formally approved and can proceed to the Block Plan and Master Environmental Servicing Plan process and subsequent development applications under the Planning Act.

The timeline and process for the Master Community Plan is shown in **Figure 3-3.**

Figure 3-3: Project Timeline



PART B: Visioning and Phase 1 – Characterization, Model Development, and Preliminary Concept Options

4. Visioning

The Master Community Plan project was commenced under the direction of the Township in collaboration with Niagara Region following an update to the Region's Growth Management Strategy, which forecasted new 2041 population and employment targets for West Lincoln and designates Smithville as the location for most of the Township's anticipated future growth. Based on changes to the Place to Grow Act, part way through the Master Community Plan project, the population and employment targets for West Lincoln were expanded to 2051. The 2051 Targets were used to complete the Master Community Plan.

The premise of the Master Community Plan was that population and employment growth within West Lincoln and the Smithville community will require an expansion to the Smithville urban area.

The Master Community Plan is a detailed land-use planning and policy document that will expand the urban growth boundary while providing guidance for community development. It is an evidence-based document, built on background research and studies that will form the basis for Master Infrastructure Plans for the Master Community Plan. Documentation includes items such as a Transportation Master Plan, Water and Wastewater Servicing Master Plan and a Subwatershed Study, and a Stormwater Master Plan for existing Smithville. The Master Community Plan, which will be aligned with Provincial policies and legislation, will also support amendments (changes) to existing planning documents such as the Official Plans of the Regional Municipality of Niagara and Township of West Lincoln.

The Master Community Plan will identify the preferred approach to infrastructure staging that will guide future development and address all infrastructure requirements for Smithville. The Master Community Plan will include the location of roads, distribution and density of land use, water, and wastewater (including stormwater) servicing, environmental protection, and sustainable design policies.

More detailed land-use vision and planning policies are needed to accommodate forecasted future population and employment growth within Smithville. The objective of the Master Community Plan is to comprehensively plan for sustainable growth and expansion in the Smithville urban settlement area. In order to achieve this, the following objectives will be met:

- Plan for a compact, complete, healthy, and resilient community.
- Identify the community structure for Smithville.
- Ensure that the new neighborhoods and employment areas are developed in a phased and sustainable manner.
- Establish land-use designations, a road/ transit/ cycling/ trail, and servicing network, an open space system, and major community facility requirements.
- Identify and plan to achieve appropriate targets for intensification and density.

5. Problem and Opportunity Statement

The following key points form the Project's need and justification, or problem and opportunity statement:

The Township of West Lincoln, including the community of Smithville has experienced steady population, housing and employment growth over the past decade. As directed by the Regional Municipality of Niagara Official Plan and the Township's Growth Targets, continued significant growth is anticipated but is constrained by a shortage of available land and servicing capacity of transportation, water, wastewater and stormwater management municipal infrastructure.

The existing road network and capacity are considered to be insufficient to meet the servicing demands of the projected growth. The transportation network will need to provide sufficient capacity and connections to serve the needs of all road users (e.g. vehicular, active transportation and transit), both for recreational and commercial trip purposes. The planned expansion of the Smithville community will also require careful consideration of existing and new regional connections that should improve accessibility and the standard of living for all residents and businesses. To support the growth and development of the community, transportation policies and infrastructure that promote the intensification of the Community Improvement Plan (Smithville Downtown core area), an increase of employment opportunities and north-south connections with the Queen Elizabeth Way will be required.

Part of the local municipal water and wastewater (sanitary sewage) network is insufficient to accommodate planned growth and does not currently exist within the subject future development lands. These lands, once assessed and confirmed, will be brought into the Smithville settlement area through an urban area boundary expansion. Given Smithville's current reliance on a single municipal water feed from the London Road storage facility, there is also a need to improve security of supply. There is also a need to consider current wastewater pollution prevention and control including Inflow and Infiltration reduction initiatives in addition to available municipal water and wastewater treatment capacity in the context of ultimate community build out.

Urbanization of the future urban growth drainage areas requires an overall strategy to manage storm runoff and snowmelt for flood and erosion control, as well as stormwater quality control to ensure that natural heritage systems and watercourses, do not become degraded. There is also a need to consider stormwater management requirements for future infill and redevelopment areas in the existing community, recognizing constraints imposed by existing drainage infrastructure within the existing urban area.

In order to address the above, a Municipal Class Environmental Assessment Servicing Plan is required to provide the framework for transportation (including potential Canadian Pacific Railway grade separations and future Smithville By pass), water and wastewater, and stormwater management services to be implemented in support of the Smithville Master Community Plan.

The Master Community Plan including Integrated Planning Act and Municipal Class Environmental Assessment process provides an opportunity to create a sustainable, compact, complete and resilient Smithville community. The study will identify and assess suitable corridors for any new transportation connections and provide a framework for any subsequent environmental assessment studies. It also streamlines the municipal planning and infrastructure planning processes, allowing land use planning decisions to occur at the same time as evaluating infrastructure servicing alternatives and associated works.

The Master Community Plan will be guided by the findings from a Subwatershed Study for the Study Area and conclude with the development of a municipal infrastructure servicing master plan or “road map” that will support future capital works planning, including funding opportunities, and meet the needs of the existing and future community.

6. Background Characterization

Background characterization provides a greater understanding of the existing conditions and challenges facing Smithville that must be taken into consideration when planning for future growth. Various studies have been completed for the following disciplines:

- Water and Wastewater
- Transportation
- Agriculture Impact Assessment
- Aggregate Potential Assessment
- Economic Analysis
- Archaeological Resources
- Cultural Heritage

The findings from the above studies, along with those of the Subwatershed Study, help to inform the Concept Plans (both preliminary and final) for the Master Community Plan.

6.1 Planning Horizons

As the Master Community Plan is intended to guide and direct future sustainable development in the Smithville urban expansion area and through intensification of the built-up area over the next 30 years as shown in **Figure 6-1**, it will be implemented through amendments to the Township of West Lincoln Official Plan. The goal is to ensure that future development proposals align with the Preferred Concept Plan and the objectives, strategies, targets, and policies of the Master Community Plan.

Incorporating the Smithville Master Community Plan in the Official Plan will occur in two steps:

1. Draft Official Plan Amendment No. 62 establishes the 2051 growth forecasts, targets and the expanded Smithville urban boundary and related policy and mapping updates to reflect these changes, consistent with Niagara Region's new Official Plan. Official Plan Amendment 62 will also update the settlement area boundaries of the Township's Rural Settlement Areas to be consistent with those of the Region's new Official Plan, specifically for the Rural Settlement Areas of Abingdon, Caistorville, Wellandport, Fulton and Bismark (which are not part of the Smithville Master Community Plan).

2. Draft Official Plan Amendment No. 63 is proposed to implement the policies, land use designations and infrastructure, transportation and natural heritage system policies and mapping of the Smithville urban expansion area.

6.1.1 Population & Employment Growth Forecast

With the intensification and build-out of the existing urban area and the future development of the land proposed to be added to the urban area, the Niagara Region Official Plan directs the Township of West Lincoln to plan for a total population of 38,370 people and for total employment of 10,480 jobs by 2051 of which 29,030 people and 7,360 jobs will be in Smithville.

Figure 6-1: Current and Future Land Areas

6.2 Subwatershed / Stormwater Management

Stormwater management for the urban expansion area is required to address the following criteria:

- extended detention storage and quantity controls for all future development within the Spring Creek Subwatershed.
- extended detention storage and strategic quantity controls for future development within development areas discharging toward the North Creek and Twenty Mile Creek.
- Provide stormwater quality control to an “Enhanced” standard of treatment, per current Provincial guidelines (ref. Ministry of the Environment, Conservation, and Parks, 2003), and address thermal enrichment of urban storm runoff.

The recommended stormwater management strategy based on the criteria is summarized as follows:

- All future development areas are to incorporate extended detention storage within the stormwater management systems for erosion control.
- All future development within the Spring Creek Subwatershed are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition.
- The future development areas within the North Creek Subwatershed which drain through private properties external to the development area are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition; those portions of the future development area within the North Creek Subwatershed which discharge directly to the North Creek are not required to incorporate quantity controls above the extended detention storage component of the facility.
- The future development areas within the Twenty Mile Creek Subwatershed which drain through private properties external to the development area are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition; those portions of the future development area within the Twenty Mile Creek Subwatershed which discharge directly to the Twenty Mile Creek are not required to incorporate quantity controls above the extended detention storage component of the facility.
- All future development areas are to incorporate Low Impact Development Best Management Practices maintain water budget and enhance erosion protection within the receiving watercourses.

Various technologies are available to satisfy stormwater management criteria identified herein. The specific technology/technique selected depends upon contributing land use, size of drainage area, and the stormwater management function required. **Table 6-1** provides a summary of various practices, and the corresponding function provided by the technology. As the summary above indicates, a variety of stormwater management objectives are required under the recommended plan, hence it is anticipated that a combination of technologies will be required for all future development areas, in order to achieve the requisite objective.

Table 6-1: Summary of Stormwater Management Practices and Corresponding Functions

Practice	Flood Control	Erosion Control	Quality Control	Thermal Mitigation	Water Balance	Evapotranspiration	Groundwater Recharge
End-of-Pipe (Wet Pond/Wetland/Hybrid)	X	X	X	X	-	-	-
Dry Pond	X	X	-	-	-	-	-
Rooftop Detention Storage	X	-	-	-	-	-	-
Parking Lot Storage	X	-	-	-	-	-	-
Amended Topsoil	-	X	X	X	X	X	X
Green Roofs	-	X	X	X	X	X	-
White Roofs	-	-	-	X	X	X	-
Tree Trench Boxes	-	X	X	X	X	X	X
Oil/Grit Separators	-	-	X	-	-	-	-
Rainwater Harvesting	-	X	-	-	X	-	-
Pervious Pipes	-	X	X	X	X	-	X
Oversized Pipes	X	-	-	-	-	-	
Permeable Pavement	-	X	X	X	X	-	X
Soakaway Pits	-	X	X	X	X	-	X
Infiltration Trenches	-	X	X	X	X	-	X
Bioretention Bumpouts	-	X	X	X	X	X	X
Grassed Swales	-	-	X	X	-	-	-
Biofilters/Bioswales	-	X	X	X	X	X	X

In general, the selection of the appropriate stormwater management practice is dependent upon the size (i.e. drainage area) and land use conditions within the proposed development area draining to the specific stormwater management facility. The following general principles have been applied in developing the recommended stormwater management plan:

1. Wet end-of-pipe facilities are preferred, particularly for residential developments, due to their ability to address multiple stormwater management requirements (i.e. quantity, quality, thermal mitigation, and erosion control).
2. Where drainage areas are insufficient to support an end-of-pipe facility (i.e. generally drainage areas less than 5 hectares), source controls (i.e. underground storage, surface storage, Low Impact Development Best Management Practices, oil/grit separators, vegetated technologies, etc.) are to be applied.
3. Low Impact Development Best Management Practices are to be applied throughout the urban expansion area, with more passive and distributed Low Impact Development infiltration Best Management Practices encouraged (i.e. increased topsoil thickness, bioswales), versus Low Impact Development infiltration Best Management Practices which promote enhanced permeability (i.e. sand columns).

The above long list of stormwater management practices has been reviewed with Township of West Lincoln staff to determine the practices acceptable to the municipality for specific land uses. **Table 6-2** provides a summary of the practices acceptable to the Township of West Lincoln.

The recommended stormwater management plan is presented in the Subwatershed Study in Drawing WR-1. The following sections provide further details regarding the stormwater management plan for urban expansion area. The unitary sizing criteria and corresponding stormwater management facility sizing is to be verified and refined as part of ongoing subwatershed studies.

A Subwatershed Study also investigates natural features, natural hazards, and movement of water within and surrounding the existing and future development areas. It analyzes the impacts of urban development to the area’s wildlife, vegetation communities, groundwater, flood risk, and watercourses. These findings are the basis for developing a plan to mitigate these impacts, preserve and enhance the natural environment and protect existing development.

Table 6-2: Summary of Acceptable Stormwater Management Practices Within the Township of West Lincoln

Stormwater Management Practice	Residential Land Use	Employment Land Use	Commercial Land Use	Institutional Land Use	Comments
End-of-Pipe (Wet Pond / Wetland / Hybrid)	Yes	Yes	Yes	Yes	■ Not acceptable for grade schools (if assumed by Township); emp/comm/inst. generally privately owned; residential pond assumed by Township unless condo development; preference toward wet pond
Dry Pond	Yes	Yes	Yes	Yes	■ Assumption criteria similar to that of wet ponds
Rooftop Detention Storage	No	Yes	Yes	Yes	■ Acceptable to Township if privately owned
Parking Lot Storage	No	Yes	Yes	Yes	■ Acceptable to Township if privately owned
Underground Storage Tanks / Superpipes	No	Yes	Yes	Yes	■ Acceptable to Township if privately owned
Amended Topsoil	Yes	Yes	Yes	Yes	■ Acceptable to Township; applicable on private property and in public Right-of-Ways and public properties
Oil/Grit Separators	Yes	Yes	Yes	Yes	-
Rainwater Harvesting	Yes	Yes	Yes	Yes	■ Privately-owned
Soakaway Pits	Yes	Yes	Yes	Yes	■ Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Infiltration Trenches	Yes	Yes	Yes	Yes	■ Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Bioretention Bumpouts	Yes	Yes	Yes	Yes	■ Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Grassed Swales	Yes	Yes	Yes	Yes	-
Biofilters/Bioswales	Yes	Yes	Yes	Yes	■ Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned

The Subwatershed Study team has reviewed all available background information and completed field investigations to develop a detailed understanding of the natural features and systems and their interdependencies. The field investigations were completed over the course of 2020 to assess the natural environment during various seasons, and included detailed investigations of the area's:

- Groundwater
- Karst
- Surface Water
- Stream Morphology (Watercourses)
- Aquatic Ecology (Fisheries)
- Terrestrial Ecology (Vegetation and Wildlife)
- Climate Change

In 2021, the Subwatershed Study Team completed the first stage of the impact assessment to determine the effects of urbanization on the area's natural and water resource systems, and on area karst features. In 2022, the Subwatershed Study Team completed the second stage of the impact assessment to evaluate alternative strategies and approaches to mitigate the impacts and provide a recommended environmental and stormwater management plan. These assessments and recommendations have also incorporated measures to mitigate and manage the impacts of climate change.

6.2.1 Groundwater

It is important to understand the interrelationship between hydrogeologic conditions, ecosystem, and use of groundwater for human needs, in order to assess and manage potential impacts from future land use changes on the groundwater flow system. In particular, it is important to identify and evaluate the functional relationship and interactions groundwater may have with existing surface watercourses and terrestrial resources.

The study area is covered with a varying thickness of a clay overlying bedrock. The clay reduces the amount of water that can move downwards to the bedrock except where open fractures, rooting channels and animal burrows allow for greater movement of water. These pathways are more prevalent where the clay is less than 6 metres thick, which allows for more 'recharge' to bedrock.

The underlying bedrock consists of a network of vertical and horizontal fractures and solution channels. The solution channels form when water moving through the fractures dissolves the rock. Water that moves through the clay enters into the bedrock flow system through these fractures and solution channels, generally moving horizontally

from north to south in the shallow bedrock with a limited amount of groundwater discharging to Twenty Mile Creek. Groundwater also moves vertically to the deeper bedrock and follows similar fractures and solution channels. The fractures and solution channels that are more common in the upper 15 metres provide the water for most household wells outside the existing urban area.

Stream reaches and wetlands that sit on top of the clay receive very limited amounts of groundwater compared to overland flow and direct precipitation.

Areas where the clay is thin, 6 metres or less, allow for a greater potential for waterborne contaminants from ground surface to enter the bedrock groundwater system.

Impacts from the proposed development can be mitigated by implementing Low Impact Development infiltration techniques, and redirection of groundwater flow along utility trenches may be mitigated by implementing anti-seepage collars or clay plugs.

Dewatering activities must follow the guidelines provided by the Ministry of the Environment, Conservation and Parks to address potential impacts related to the reduction in groundwater levels as well as water quantity and quality impacts related to dewatering discharge.

6.2.2 Karst

Karst is a geoscience that deals with the development of surface and subsurface landforms resulting from complex physical and chemical processes. Karst occurs only in certain types of rocks including limestone and dolostone (‘carbonates’), gypsum, and halite (rock salt). The carbonates are chemically dissolved by weak acids contained in rainwater, snowmelt, and soil seepage, forming sinkholes and pathways to move the water underground. This influences the water supply to natural features and systems. The information collected informs a hazard and constraint assessment, related to the geotechnical stability of the karst feature and bedrock.

Ten karst features have been observed in the study area.

Preliminary constraints to development from karst occur within three areas:

- Four features are considered low constraints, would not present a constraint to development.
- Two are considered moderate constraint and require further investigation to determine their contributions to the system and associated hazard.
- Two more are considered high constraint and are to be protected in-situ and buffered.

Two additional features are located within the Twenty Mile Creek valley and are protected by virtue of their location.

In all cases, additional runoff should not be directed toward sinkholes post-development; this can be achieved by implementing Low Impact Development practices to manage water budget to high constraint karst features, and diverting surplus runoff around/away from the feature.

6.2.3 Surface Water

The surface water assessment characterizes and evaluates the movement of surface runoff to natural wetlands, woodlands, watercourses, and karst features. This information is used to determine the change in the rate and volume of runoff following development, the associated impacts to flood and erosion hazard, and provides direct input to developing management strategies to mitigate these impacts from future development.

Floodline mapping developed by the Niagara Peninsula Conservation Authority established the flood hazard for regulated watercourses surrounding the study area. These are primarily located along the Twenty Mile Creek and North Creek, as well as a tributary of the Spring Creek located toward the east limit of the study area.

Certain karst features within the area intercept surface runoff and convey it underground. Certain terrestrial features rely on the supply of water to sustain the ecology and habitat within the feature. The future development will need to manage the supply of water to these features.

The area watercourses exhibit a moderate erosion sensitivity. The changes in erosion sensitivity following development are being assessed as part of the impact assessment, and a strategy to mitigate these impacts will be developed accordingly.

Impacts to erosion and surface water quality can be mitigated by implementing stormwater management practices for all future development in accordance with current Provincial and Municipal standards.

Flood impacts can be mitigated by implementing stormwater management quantity controls throughout the development within the Spring Creek Subwatershed, and at strategic locations within the areas draining toward the Twenty Mile Creek and North Creek, as well as implementing Low Impact Development Best Management Practices to maintain existing groundwater recharge.

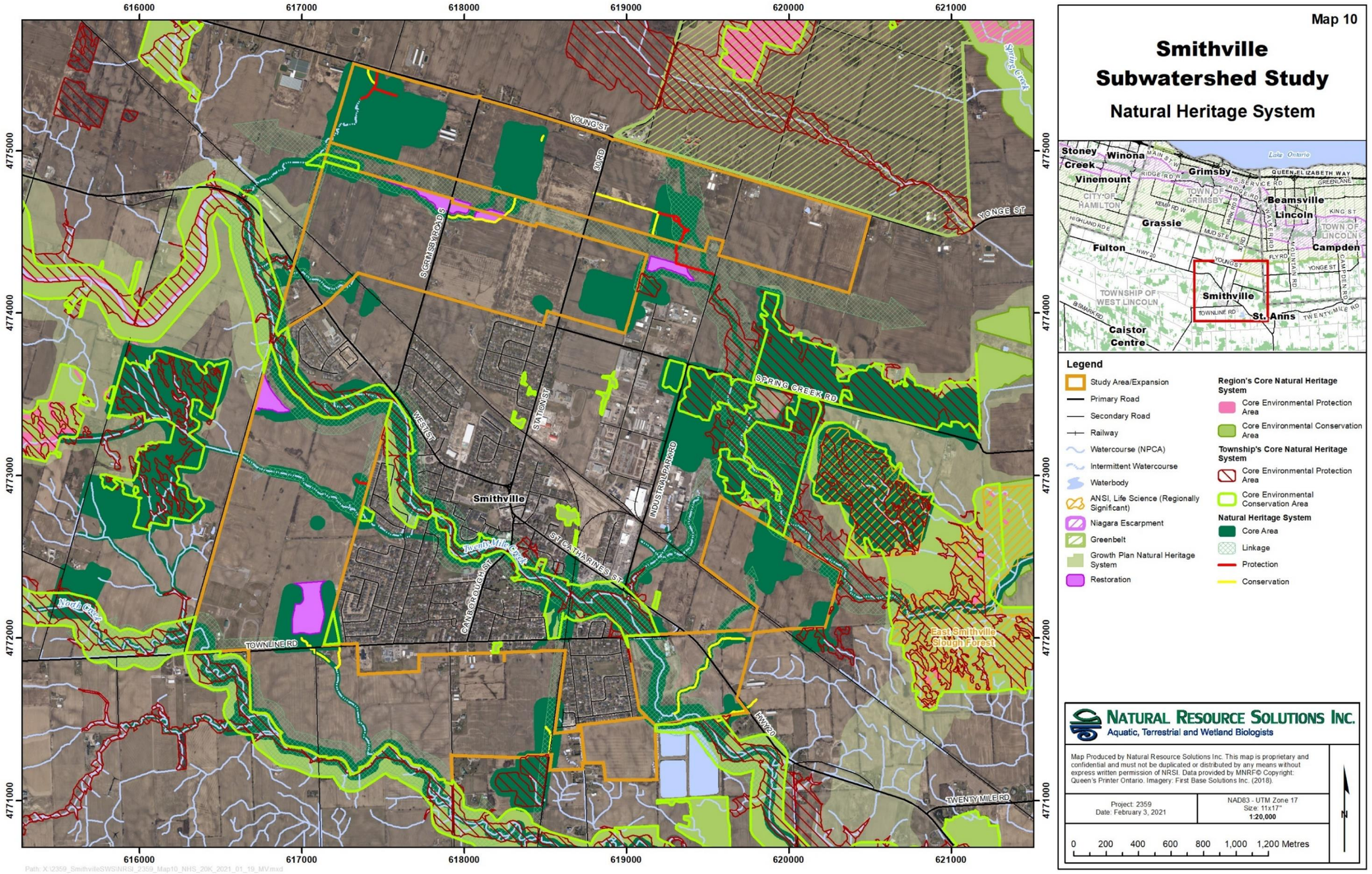
Impacts to water budget can be mitigated by implementing Low Impact Development Best Management Practices throughout the future development.

Conceptual stormwater management facility locations have been identified within the preferred land use plan, which are to be further refined as part of subsequent stages of planning and design for the future development areas.

Future development would increase peak flows locally, increasing local and offsite flood potential, increasing erosion within receiving watercourses, and increasing pollutant loadings to receiving watercourses supporting aquatic and terrestrial habitat.

The Niagara Peninsula Conservation Authority has developed flood hazard mapping for regulated watercourses within its jurisdiction. The flood hazard mapping determines the flood risk to properties, and informs determining the limit of future development. The analyses completed for the Subwatershed Study has built upon this information from the Niagara Peninsula Conservation Authority as can be seen in **Figure 6-2** and has been used to determine the change in flood potential following development, as well as the effectiveness of the stormwater management plan in mitigating these impacts.

Figure 6-2: Smithville Natural Heritage System



6.2.4 Stream Morphology (Watercourses)

The purpose of the stream morphology study is to identify and characterize surface water features within and downstream of the study area to evaluate sensitivity to development, and to limit risk to settlement areas from watercourse erosion hazards. The results of the study are used to provide guidance to proposed land use changes to ensure that existing channel dynamics continue unimpeded by development, and to ensure that any potential impact to downstream channels is minimized.

The study has included:

- A background review of previous studies, guidance documents and mapping. This included a review of historic photographs dating back to 1934. Using available mapping, features were delineated into reaches, which are lengths of channel that exhibit similar characteristics.
- The meander belt width, which is the area that a watercourse currently occupies or can be expected to occupy in the future, was mapped for each watercourse reach. Erosion hazard limits were also mapped for Twenty Mile Creek which flows through a defined valley.
- A field assessment of watercourse reaches within and downstream of the study area. Channel health and function, size, bank, and bed materials were assessed. As well, watercourse stability was assessed based on evidence of channel widening, downcutting (degradation), sediment build-up (aggradation) and meandering.
- Three sites that were identified as sensitive to erosion were studied in greater detail to determine the flow characteristics that could trigger erosion. These flow characteristics differed between each site because of differences in watercourse size and shape, bed and bank material, slope, and vegetation. The three sites were distributed across the three subwatersheds within the study area.
- Headwater drainage features– non-permanently flowing drainage features that may not have defined beds or banks, such as swales (shallow, vegetated channels) – were assessed following established guidelines. The assessment involves three site visits in the spring and late summer to determine the role of each feature in terms of hydrology, riparian vegetation (vegetation along river networks) and fish habitat.
- Impacts from the proposed development have been assessed, and recommendations to mitigate these impacts to the area streams and watercourses have been provided.

The study area intersects the North Creek, Spring Creek, and Twenty Mile Creek watercourse corridors. The study area also contains several watercourse tributaries to Twenty Mile Creek and North Creek, and over 180 headwater drainage features.

The historical assessment indicated that watercourse meandering has been fairly limited since 1934 inside the study area. As well, some reaches within and downstream of the study area have been historically altered.

Most watercourse reaches were found to be in a moderate or poor state of overall health and function. Sediment accumulation (aggradation) and channel widening were some of the more common types of channel adjustments within the study area.

Twenty Mile Creek is the most significant watercourse and valley system within Smithville. North Creek is the second most significant watercourse in the vicinity of Smithville. It is generally unconfined within the study area and has a well-defined floodplain. Spring Creek near the study area generally does not have a well-defined channel and is located in a wide floodplain.

Surface water features are influenced by karst. One tributary and two headwater draining features were observed to enter sinkholes.

Many headwater drainage features have been impacted by agriculture. They supply fine sediment to the downstream drainage network.

Several headwater drainage features are found within or provide linkages to wetlands.

Using information from the larger interdisciplinary study team along with the results of the stream morphology study, preliminary constraint rankings were given to each headwater drainage feature and watercourse feature in the study area. These rankings are being confirmed, and management implications associated with the constraint rankings will be outlined as part of the impact assessment.

Watercourses within the study area do not always flow year-round. This allows vegetation to establish inside some channels.

Impacts of the proposed development to watercourse erosion can be mitigated by incorporating erosion controls within the stormwater management facilities.

Regulated watercourses can be managed by appropriately sizing watercourse corridors for natural channel meander and flood conveyance, properly sizing watercourse crossings (bridges and culverts) to maintain channel form and function, maintaining natural cover along watercourses, and rehabilitating degraded watercourses.

6.2.5 Aquatic Ecology (Fisheries)

It is important to identify and characterize the aquatic features and fish community within the study area, such as permanent and intermittent features and fish habitat suitability to properly assess their significance, individually and as a part of the overall landscape, in order to protect their form and function. Fish habitat is protected.

Field surveys conducted throughout 2020 include:

- Aquatic habitat characterization;
- Fish community surveys;
- Thermal regime analysis; and,
- Fish Habitat Type classification.

Twenty Mile Creek and North Creek provide year-round fish habitat within the study area, which supports a diverse fish community comprised of warm and cool water fish species, including recreationally valuable top-predator species such as Northern Pike, Largemouth Bass, and White Crappie. Intermittent watercourses and headwater drainage features are also present.

Twenty Mile Creek and the intermittent watercourses are classified as cool-warmwater features and North Creek is classified as a cool water feature based on summer water temperature measurements and the temperature preferences of the fish species that were captured within them.

Twenty Mile Creek and North Creek both provide critical fish habitat year-round, though sections of the creeks do become dry in the summer. Intermittent features and headwater drainage features that were noted to contain fish in the spring provide important seasonal habitat for the local fish community and also provide indirect benefits to the larger creeks. The remaining features across the study area provide habitat to a limited number of species but do provide some indirect benefits to the larger creeks as well. Intermittent watercourses and headwater drainage features become dry in the summer and do not provide fish habitat during that time.

6.2.6 Terrestrial Ecology (Vegetation and Wildlife)

It is important to identify the terrestrial features and wildlife within the study area, such as woodlands, wetlands, plants, and animals to properly assess their significance, individually and as a part of the overall landscape, in order to protect their form and function. Significant natural heritage features and Species at Risk are protected in Ontario.

Field surveys conducted throughout 2020 include:

- Plant surveys and vegetation community identification;
- Breeding bird surveys;
- Anuran (frog and toad) surveys;
- Snake cover board surveys;
- Wildlife surveys; and,
- Wildland Fire Hazard Screening.

Integrated Natural Heritage System developed to protect, enhance, and restore the natural environment.

The study area includes many significant wetlands, significant woodlands, significant wildlife habitat, and Species at Risk. Significant wetlands within the study area make up part of the much larger Lower Twenty Mile Creek Wetland Complex, which extends across the study area and includes areas along Twenty Mile Creek and North Creek.

Significant wildlife habitat includes:

- Deer wintering habitat;
- Wetland amphibian breeding habitat;
- Terrestrial crayfish habitat;
- Reptile hibernacula;
- Turtle wintering and Snapping Turtle habitat; and,
- Habitat for Species of Conservation Concern, such as:
  - Eastern Wood-Pewee;
  - Lizard’s Tail;
  - Black Gum; and,
  - Hirsute Sedge.

Significant species found include:

- Barn Swallow;
- Bobolink;
- Eastern Meadowlark;
- Eastern Wood-Pewee;
- Monarch;
- Snapping Turtle;
- Lizard’s Tail;
- Black Gum; and,
- Hirsute Sedge.

The lands have been classified as low to moderate risk for wildfire based on low proportions of coniferous trees within woodlots and across the study area.

6.2.7 Natural Heritage System

A Natural Heritage System has been identified within the study area based on existing policy, a background review, and field surveys.

Other opportunities to mitigate impacts from future development include:

- Implementation of a robust Natural Heritage System;
- Developing tree protection plans to minimize tree removal and harm;
- Timing vegetation removal avoiding the active season of wildlife (esp. bats, migratory birds);
- Conducting appropriate surveys as necessary if vegetation removal is to occur during the wildlife active seasons (e.g. bat acoustic surveys, bird nest searches in simple habitats);
- Complying with Endangered Species Act requirements and permitting where necessary;
- Implementing compensation for wildlife habitats directly removed;
- Implementing Low Impact Development Best Management Practices into stormwater management plans;
- Sizing road crossings to accommodate wildlife passage; and,
- Public education.

6.2.8 Climate Change

All levels of government recognize climate change as having the potential to affect almost every aspect of our lives, including human health and well-being and environmental impacts.

Climate change is recognized to be a result of greenhouse gas emissions (CO2, CH4, N2O, water vapour).

The projected changes in climate are recognized to increase risk for Canada’s ageing infrastructure, causing structural damage, compromising system reliability, and threatening health and safety.

Provincial and Regional policies require municipalities to consider the potential impacts of climate change as part of natural environment planning in order to better protect the natural environment system and reduce economic costs.

Anticipated impacts of climate change within Niagara Region:

- Increase in annual average temperature
- Trend towards more days with temperatures over 30 degrees Celsius and more heat waves of 3 or more consecutive hot days
- Longer growing season, with May and September significantly warmer
- Increase in average number of frost-free days
- Increased numbers of freeze-thaw cycles
- Small increase in annual precipitation, with most of the increase coming in winter
- More rain and less snow in winter
- More summer droughts and dry spells
- Increase in heavy rain events

While the specific magnitude of impact/ change is still uncertain, the anticipated impacts are supported by observations and analysis and result in significant economic and health impacts.

There is a correlation between actions that reduce greenhouse gas (GHG) emissions (climate change mitigation) and actions that build resilience to deal with climate change impacts (adaptation).

Nature-based solutions and mitigation measures – such as forests and wetlands, working landscapes, and other open spaces that conserve or enhance ecosystem values and functions – also mitigate water-related impacts of climate change.

Green infrastructure and nature-based adaptation methods such as green roofs, bioswales, bioretention ponds, rain gardens, and vegetative swales are recognized to reduce the risks from stormwater runoff.

Green spaces and infrastructure, such as parks, wetlands and green roofs increase the quality of life for residents and improve climate resilience.

These methods, combined with more traditional stormwater management measures – such as wet ponds for flood control and incorporating natural channel design into watercourse corridor designs – would reduce the risks from riverine flooding and enhance resilience of infrastructure to impacts from climate change.

Mitigation measures proposed for Smithville include the following which would contribute toward mitigating and managing the impacts of climate change:

- Incorporating Green Infrastructure and Low Impact Development Best Management Practices into the stormwater management plan promotes resiliency and enhances stormwater quality, erosion, and quantity control.

- Providing green spaces – such as parks and wetlands – reduces heat effects and provides additional opportunities for incorporating Green Infrastructure into development.
- Planning for a robust Natural Heritage System, including linkages and enhancement areas, actively reduces harmful greenhouse gas emissions, mitigates heat effects from urban development, and maintains water budget.

6.3 Municipal Water

The Region of Niagara is responsible for providing the following key water servicing infrastructure for Smithville:

- Water treatment;
- Transmission;
- Storage facilities; and
- Pumping stations.

With the continued growth in Smithville, there is increasing evidence of a need for strategies to manage current and future water demands within the Township and to establish and plan for future improvements integrated with local growth and development and coordinated with Region's planned infrastructure.

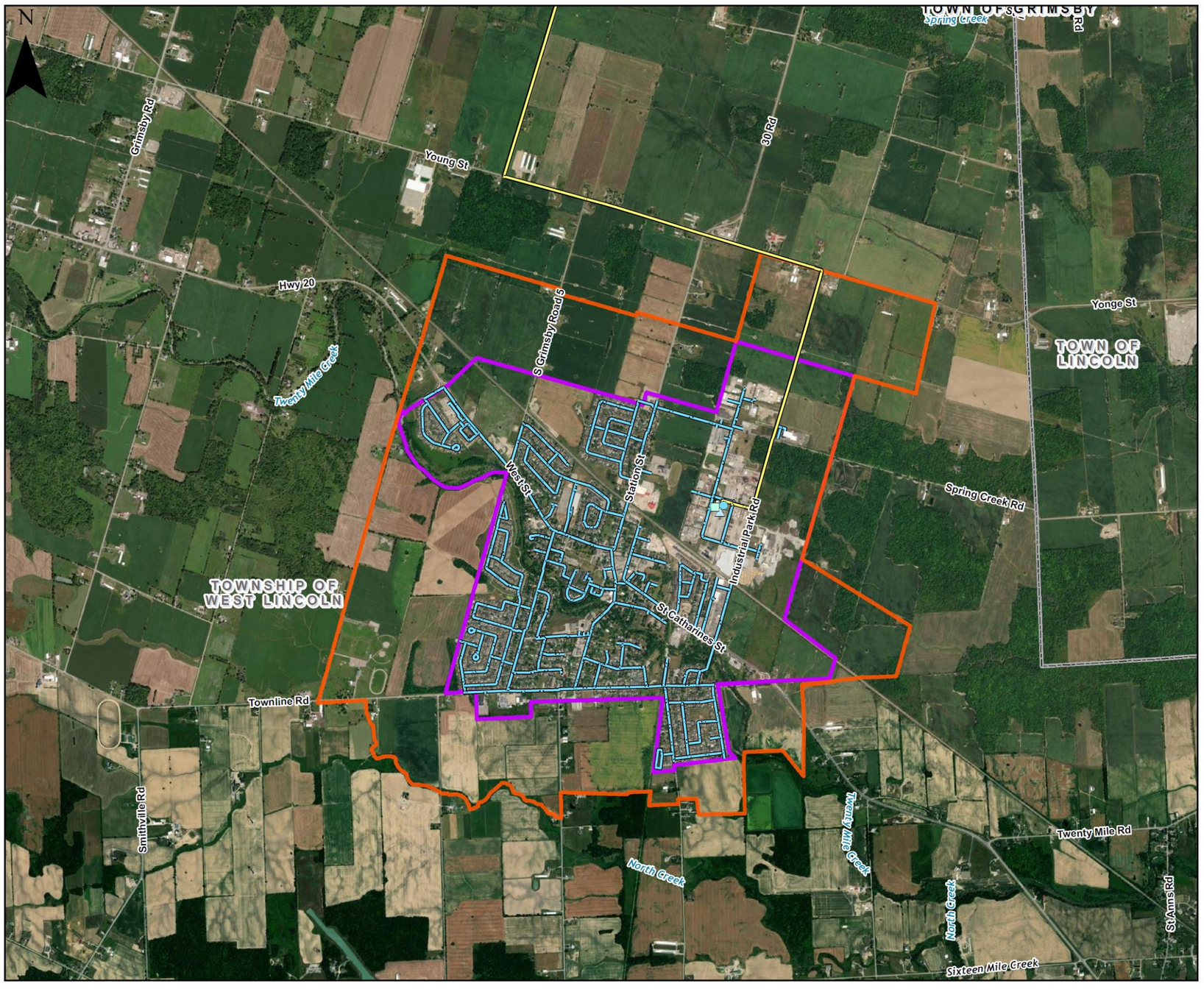
The Township of West Lincoln is responsible for providing local water distribution.

The Township of West Lincoln and the Regional Municipality of Niagara need to understand what new municipal water infrastructure is required to meet planned future growth in the most economic and sustainable manner while considering phasing and capital/operating costs. Models are being used to confirm current and future infrastructure requirements to meet future growth based on the selected Smithville development concept.

The Niagara Region Water hydraulic models were reviewed and updated to reflect the latest below ground linear (i.e. watermains/sanitary) and above ground (i.e. water, pumping and storage) infrastructure. **Figure 6-3** presents the existing Smithville Water System.

The constraints and opportunities for the existing Smithville water system were evaluated based on existing water facilities' capacity, topography and existing water distribution system serviceability as indicated in the existing water hydraulic model provided by the Region. For reviewing the constraints and opportunities, the population information and water demands as per the Region's 2016 Water and Wastewater Master Plan.

Figure 6-3: Existing Smithville Water System



Legend

- Community Expansion Study Area
- Existing Urban Boundary and Community Study Area
- Lower/Single Tier Municipality
- Niagara Region Watermain
- Smithville Watermain
- Smithville Elevated Tank
- Smithville Pump Station
- Smithville Reservoir

0 250 500 1,000 1,500
Meters

Smithville MCP

Water System

Oct 2022	1:25,000	Datum: NAD 1983 UTM Zone 17N
AECOM		Figure

6.3.1 Pumping Capacity Review

Based on the existing firm pumping capacity of 19.4 millilitres per day at the London Road Pumping Station, the following **Table 6-3** summarizes the constraints and opportunities from the available pumping capacity. As noted above, the available pumping capacity at the existing London Road Pumping Station would be able to accommodate additional growth in the study area only if the storage capacity at the existing Smithville Elevated Tank could meet the required equalization storage. If the Smithville Elevated Tank could not meet the required equalization storage, a capacity increase at the London Road Pumping Station would be required to provide peak hour demand for future growth in the system. Storage Capacity Review.

Table 6-3: London Road Pumping Capacity Constraints and Opportunity

Pump Capacity Evaluation Parameters	Flow	Capacity Surplus (+) or Deficit (-)
Existing Firm Capacity at London Road Pumping Station	19.4 millilitres per day	-
Existing Maximum Day Demands	4.8 millilitres per day	+14.6 millilitres per day
Existing Peak Hour Demands	9.6 millilitres per day	+9.8 millilitres per day
Future Maximum Day Demands	11.7 millilitres per day	+7.7 millilitres per day
Future Peak Hour Demands	23.4 millilitres per day	-4.0 millilitres per day

The storage requirement evaluation method was based on the Ministry of Environment, Conservation and Park's recommendation, which is consistent with those applied in the Region's Water and Wastewater Master Servicing Plan Study. The following summarizes the storage evaluation results. The storage evaluation results presented in **Table 6-3** were compared with the available storage capacity in the existing Smithville system to determine the constraints and opportunities for water storage facilities. The existing storages for the Smithville water system were sufficient to meet the existing and future conditions with storage to be delivered via pumping from the London Road Inground Reservoir (surplus of 6.35 millilitres and 1.84 millilitres for existing and future conditions, respectively). With pumping applied to deliver the storage, the existing Smithville Elevated Tank would not be able to meet the required storage (deficit of 1.35 millilitres and 5.86 millilitres for existing and future, respectively).

According to the information that was shared by the Region, the Smithville Elevated Tank is reaching its service life expectancy and it could be replaced by a new elevated tank with larger capacity to provide full floating storage to Smithville water system.

6.3.2 Storage versus Pumping

When considering the pump capacity review results and storage capacity review the following opportunities were identified for supporting the urban boundary expansion:

Option 1: Maintain existing storage facilities / capacity. This option will require the following potential infrastructure upgrades:

- Sufficient standby power to provide emergency storage;
- Increase pump capacity to provide fire storage (fire flow); and
- Increase pump capacity with variable frequency drive capability to provide equalization storage for future condition only; existing floating storage in Smithville Elevated Tank was sufficient to meet the existing equalization requirement.

Option 2: Replace existing Smithville Elevated Tank to provide full floating storage to Smithville water system (>= 8.16 millilitres). This option could avoid London Road Pumping Station upgrades as noted in Option 1 since the available pumping capacity had a surplus capacity of 7.7 millilitres per day to accommodate future growth.

Option 3: Replace existing Smithville Elevated Tank to provide partial floating storage to minimize the potential infrastructure upgrades at London Road Pumping Station as noted in Option 1. This option could minimize the potential water quality concerns that could happen in Option 2 due to lack of demands when a larger elevated tank is commissioned. The following sub-options could be considered for the future Smithville Elevated Tank:

Option 3A: To meet equalization storage only. The following upgrades in London Road Pumping Station would be required:

- Sufficient standby power to provide emergency storage; and
- Increase pump capacity to provide fire storage (fire flow).

Option 3B: To meet equalization and fire storage. The following upgrades to the London Road Pumping Station would be required:

- Sufficient standby power to provide emergency storage; potable standby power unit could be considered if station building expandability was not feasible.

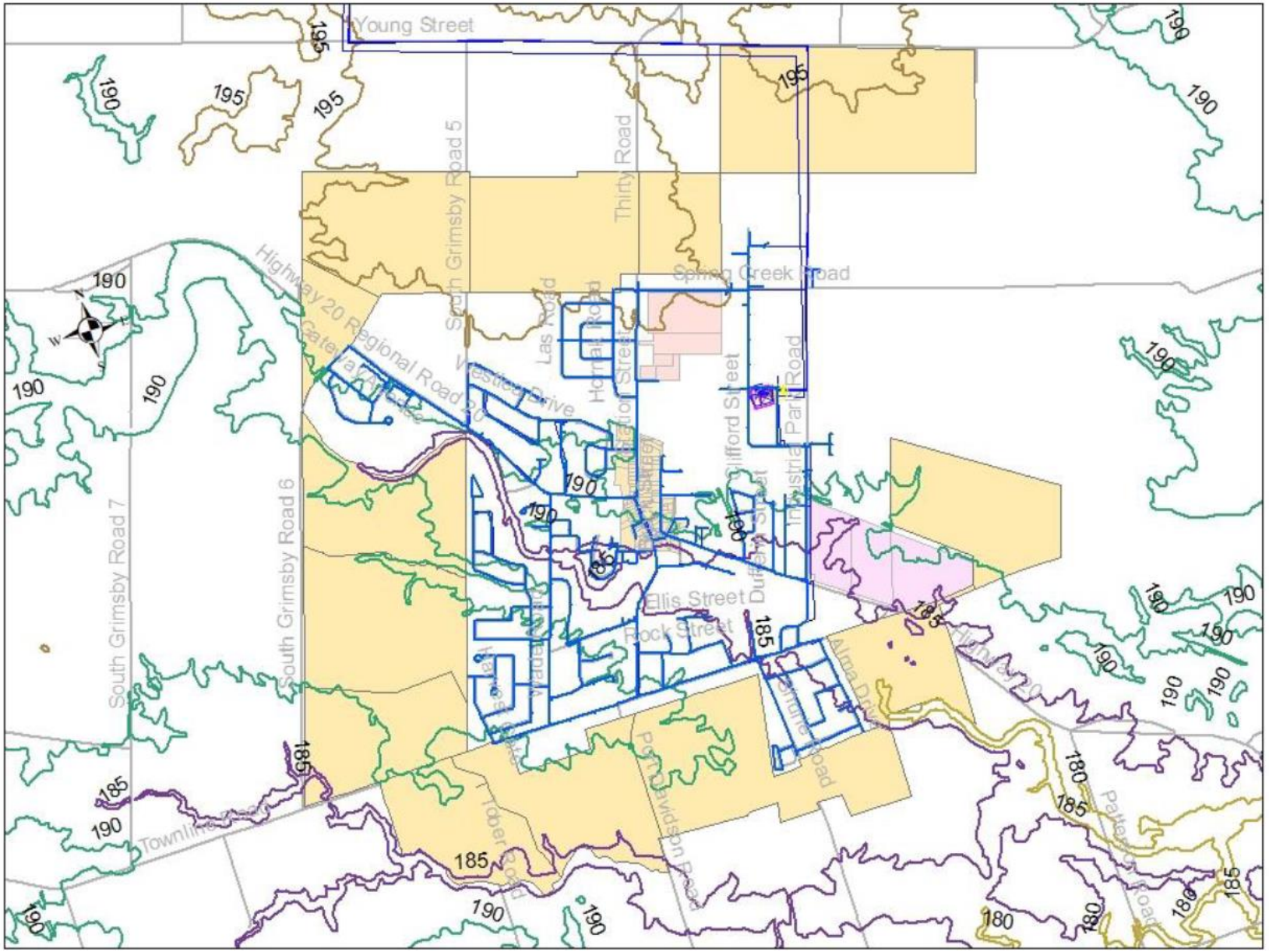
6.3.3 Topography Review

A high-level review of the existing topography in the Smithville Water System was conducted to confirm the need for new pressure zone(s) to support the proposed urban boundary expansion as shown in **Figure 6-4**. The review was completed based on the Region's design criteria for maximum and minimum pressures as well as the design hydraulic gradelines for the system. The following summarizes the parameters applied for reviewing the topography in the system.

- Design Hydraulic Gradelines = 239 metres;
- Maximum Static Pressure = 100 pounds per square inch (70.3 metres);
- Minimum Static Pressure = 40 pounds per square inch (28.1 metres);
- Minimum elevation to maintain maximum static pressure = 239 metres minus 70.3 metres = 168.7 metres; and
- Maximum elevation to maintain minimum static pressure = 239 metres minus 28.1 metres = 210.9 metres.

Based on the above noted parameters, the elevation contours for the Smithville water system were reviewed and **Figure 6-4** presents the elevations within the vicinity of existing Smithville water system and the urban boundary expansion concept. As per **Figure 6-4**, the urban boundary expansion could be serviced by the system without the development of new pressure zone(s).

Figure 6-4: Topographic Review for Smithville Water System



6.4 Municipal Wastewater

The Region of Niagara is responsible for providing the following key wastewater servicing infrastructure for Smithville:

- Wastewater treatment;
- Forcemains; and
- Sewage pumping stations.

With the continued growth in Smithville, there is increasing evidence of a need for strategies to manage current and future sanitary sewer flows within the Township and to establish and plan for future improvements integrated with local growth and development and coordinated with Region's planned infrastructure.

The Township of West Lincoln is responsible for providing local wastewater collection systems.

The Township of West Lincoln and the Regional Municipality of Niagara need to understand what new wastewater infrastructure is required to meet planned future growth in the most economic and sustainable manner while considering phasing and capital/operating costs. Models are being used to confirm current and future infrastructure requirements to meet future growth based on the selected Smithville development concept.

The Niagara Region Wastewater hydraulic models were reviewed and updated to reflect the latest below ground linear (i.e., forcemains/gravity sewers) and above ground (i.e. wastewater pumping) infrastructure.

The Smithville Water and Wastewater Master Plan reviewed the existing Niagara Region wastewater model and updated to reflect local sanitary sewer collection system.

6.4.1 Wastewater System

The Smithville wastewater system is an integral part of the overall Baker Road wastewater system within the Region of Niagara. The sewerage generated in the Smithville wastewater system is treated by the Baker Road Wastewater Treatment Plant. The details of the overall Baker Road wastewater system are documented in the Region of Niagara Water and Wastewater Master Servicing Plan (2016); which is currently being updated.

The Smithville wastewater system is comprised with two sewer lift stations, Streamside sanitary pumping station and Smithville sanitary pumping station. The sanitary pumping stations and their associated forcemains are owned and operated by the Region of Niagara; the local collection system is owned and operated by the Township of West Lincoln. The overall wastewater collection system comprises with roughly 33.5 kilometres of sewer lines with sizes ranging from 150 millimetres to 450 millimetres. The following summarizes the key technical details of the wastewater facilities responsible for providing service to Smithville and **Figure 6-5** presents the existing Smithville Wastewater System.

- Rated capacity of Baker Road Wastewater Treatment Plant: 31.3 millilitres per day,
- Streamside sanitary pumping station rated capacity: 23.6 Litres per second,
- Smithville sanitary pumping station rated capacity: 120.0 Litres per second, and
- 600 cubic metres of CSO tank at Smithville sanitary pumping station.

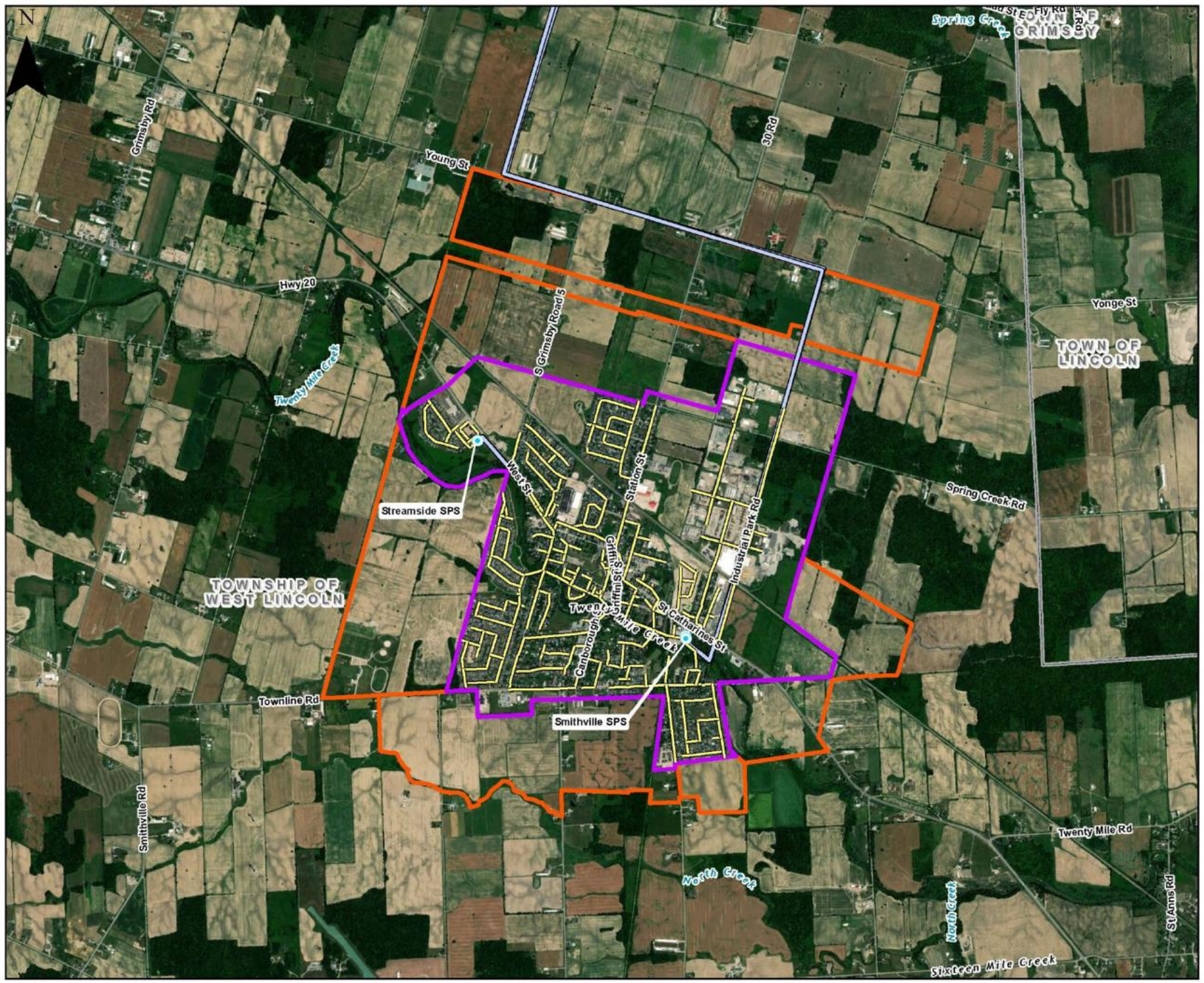
6.4.2 Topography Review

A high-level review of the existing topography in the Smithville Wastewater System was conducted to confirm the servicing method for urban boundary expansion. **Figure 6-6** presents the elevation and contour slope (red arrows) within each urban boundary expansion stage concept. The topography review establishes the basis for identifying the future sanitary sewer servicing strategy and the associated infrastructure.

The review of the contour information related to each urban boundary expansion stage resulted in the following key understandings of the future sanitary sewer system.

- All stage areas would convey the sanitary sewer flows to Smithville sanitary pumping station; which would trigger the pump capacity upgrades at Smithville sanitary pumping station;
- Serviced by gravity sewerlines were available for the stage areas 1A, 1B, 1D and 2A for conveying flow to Smithville sanitary pumping station;
- Stage area 1C would convey the sanitary sewer flows to Streamside sanitary pumping station; which could trigger the pump capacity upgrades at Streamside sanitary pumping station;
- New sanitary pumping station together with gravity sewerlines and forcemain was required for servicing stage areas 3A, 3B, 3C, 4A, 4B and 4C. The sanitary sewer flows would be conveyed to Smithville sanitary pumping station with crossing of Twenty Mile Creek;

Figure 6-5: Existing Smithville Wastewater System



Legend

- Community Expansion Study Area
- Existing Urban Boundary and Community Study Area
- Lower/Single Tier Municipality
- Sanitary Sewer System
- Sanitary Forcemain
- Sewage Pump Station (SPS)

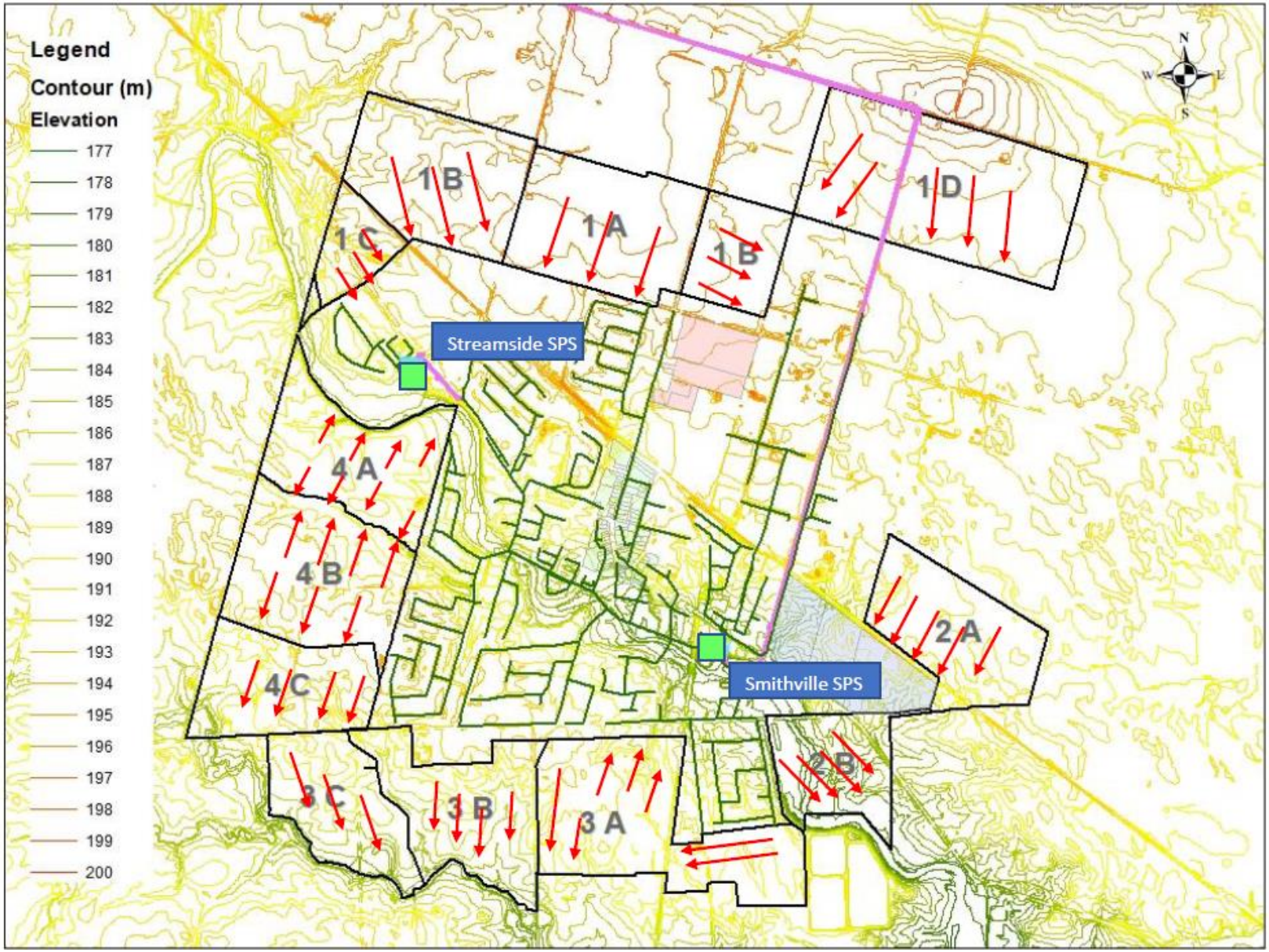
0 250 500 1,000 1,500
Meters

Smithville MCP

Wastewater System

Jun 2020	1:25,000	Datum: NAD 1983 UTM Zone 17N
AECOM		Figure

Figure 6-6: Topographic Review for Smithville Wastewater System



- Potentially 2 new sanitary pumping station was required for servicing stages area 2B and NE corner of 3A, due to the minor required pumping capacity;
- Stage areas 4A and partial 4B could convey their sanitary sewer flows from South to North or North to South due to the change in elevations;
  - Conveying the sanitary sewer flows from South to North would require a future private sewage pumping station and forcemain to cross the Twenty Mile Creek. In addition to the creek crossing, the sanitary sewer flows could either convey to the Streamside sanitary pumping station or convey the flows to the future gravity sewerline on Spring Creek Road via pumping; which would require a third new pumping station: and
  - Conveying the sanitary sewer flows from North to South would be serviced by future gravity sewerlines that also service stage areas 4C, 3B and 3C. The depth of the gravity sewerlines would be relatively deeper; the slope and depth of the future gravity sewer will be reviewed in the hydraulic analysis section.

6.5 Transportation

The main roadways into Smithville are Regional Road 20 and Regional Road 14, which intersect at the centre of the community. Within and outside of the current urban boundaries of Smithville, there are four roadway classifications present: arterial, township arterial, collector, and local roads. The roads within the existing urban boundary of Smithville are typically two-lane roads with stop-controlled or uncontrolled intersections. In addition, Canadian Pacific Railway's Hamilton Subdivision, which currently carries freight services, also crosses through the settlement area. Within the community, there are:

Two Signalized Intersections

- Regional Road 20 (St Catharines Street), Regional Road 14 (Griffin Street), and Regional Road 14/Regional Road 20 (Griffin Street North); and
- Regional Road 20 (West Street), Regional Road 14 (Station Street), and Regional Road 14/Regional Road 20 (Griffin Street North).

Two Roundabouts

- Regional Road 20 and Townline Road; and
- Regional Road 20 and South Grimsby Road Six.

Three At-Grade Rail Crossings

- South Grimsby Road 5 (Local Road);
- Regional Road 14 (Arterial Road); and
- Industrial Park Road (Collector Road).

6.6 Agricultural Impact Assessment

An Agricultural Impact Assessment (**Appendix A**) was completed by DBH Soil Services Inc. in support of the integrated Municipal Class Environmental Assessment and Master Community Plan for Smithville. The purpose of an Agricultural Impact Assessment is to ensure the protection and effective use of finite agricultural resources, when managing growth through land use planning. Effective land use planning protects unique and high capability agricultural lands to allow for productive and sustainable farming, while permitting for controlled urban growth.

The objectives of the Agricultural Impact Assessment are to identify agricultural characteristics, assess potential impacts to agriculture, development recommendations and improvement measures to mitigate potential impacts to agriculture, farm operations in the Study Area, which is expansion lands to be added to the Smithville Urban Area and in the surrounding Secondary Study Area 1.5 km buffer.

The following summarizes the results of the Agricultural Impact Assessment. Refer to the details of the assessment in **Appendix A** for the complete methodology, findings, conclusions, and mapping completed for this study.

6.6.1 Geographical Limits

The Study Area was defined as an area of land extending out from the north, south and west portions of Smithville. The Study Area did not extend areas to the east of Smithville. Portions of the southern Study Area boundary included a tributary to Twenty Mile Creek. The western portions of the Study Area extended out to South Grimsby Road 6 and to the north from the existing urban boundary to Young Street, omitting the lands associated with the hydro corridor.

The entire Study Area is located within Prime Agricultural Area as defined in the Provincial Land Base mapping through the Growth Plan (2019) online mapping. The majority of the Secondary Study Area is within the Prime Agricultural Area. A portion of the Secondary Study Area located north of Young Street between 30 Road and Dobrindt Road were identified as a Provincially designated Specialty Crop Area.

6.6.2 Agricultural Land Use

The predominant agricultural land use in the Study Area, as shown in **Figure 6-7,** was the production of common field crops (including corn, soybean, wheat, and forage crops). Smaller areas of woodlots were noted particularly in the area between the hydro corridor and Young Street. Also noted in this same area were fields used for forage or pasture. Smaller areas of scrub lands and built-up areas were observed.

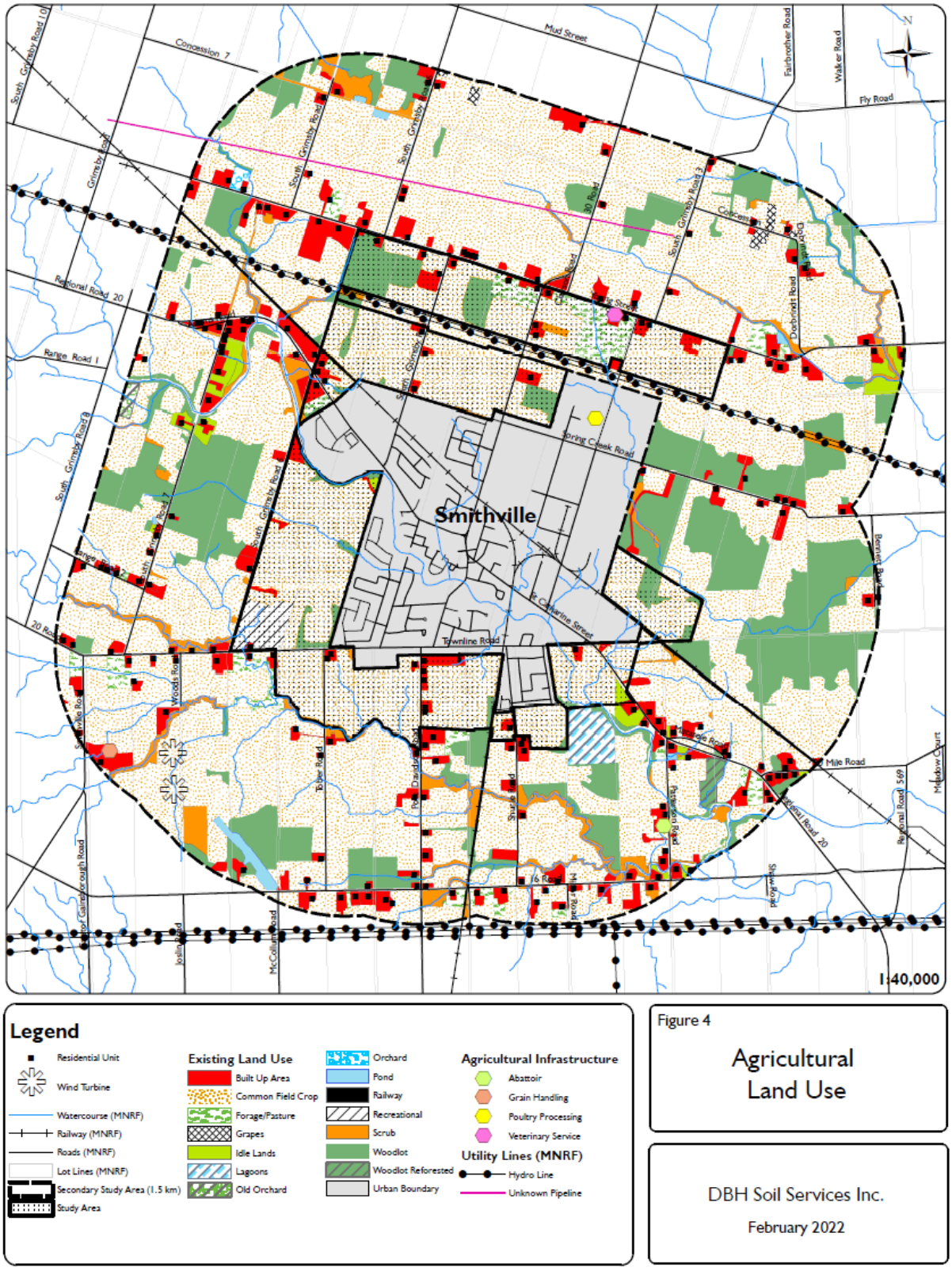
Numerous residential units were observed along the south side of Young Street. A few residential units were noted along the west side of South Grimsby Road 6, south of 20 Road.

The predominant land use within the Secondary Study Area is common field crop. Second in area to common field crop is the woodlot classification. Woodlots appear to be more prominent to the west between Young Street and Townline Road, and South Grimsby Road 6 and the western limit of the Secondary Study Area. Similarly, a large concentration of woodlot areas was noted to the east side of Smithville between the hydro corridor to the north and the rail line to the south. These large areas of woodlots appear to be reflective of poorly drained soils and have resulted in the creation of areas with smaller agricultural fields, some with odd shapes which can make large scale field cropping more challenging. Smaller fields and fields with odd shapes require more turning and result in the expenditure of more time required in the field.

A small area of orchard was noted to the north side of Young Street just west of South Grimsby Road 6. A small area of old orchard was observed along the western central edge of the Secondary Study Area. Small areas of grapes were noted in the northeast portion of the Secondary Study Area near the bend in the road along Dobrindt Road. Two areas of grape production were noted. One was observed on the northside at the bend in the road, while the second was noted on the south side of the Dobrindt Road between the bend and South Grimsby Road 3.

Numerous residential units were noted along Young Street, South Grimsby Road 6, Smithville Road, 16 Road, Port Davidson Road and 20 Road.

Figure 6-7: Agricultural Land Use



6.6.3 Agricultural Investment and Minimum Distance Separation

A total of 129 potential agricultural facilities or complexes (multiple barns at one location) were identified prior to completing the roadside reconnaissance survey. The information collected during the roadside reconnaissance survey was used to verify existing livestock facilities and potential livestock facilities. The buildings that had livestock and/or had the potential to house livestock were singled out for the inclusion of the Minimum Distance Separation assessment and calculations. Although there were 129 potential agricultural facilities (including complexes), approximately 134 barns were observed in total (some farms contain more than one barn).

Of the 129 potential agricultural facilities or complexes identified, 20 were within the Study Area with the remaining 109 being within the Secondary Study Area.

An abattoir was observed along the west side of Patterson Road, between St. Catharines Street and 16 Road. A large grain handling facility was noted along the east side of Smithville Road south of 20 Road.

Small areas of random tile drainage location in the fields south of Townline Road, east of the rail line and west of Regional Road 20. Some larger areas of both random and systematic tile drainage were noted in the Secondary Study Area. Areas of random and systematic tile drainage were located to the south between the rail line and Patterson Road, to the southwest near Smithville Road and Twenty Road. Smaller areas of systematic tile drainage were noted to the north along the east side of 30 Road, north of Concession 7 Road, and north of Spring Creek Road. There is limited investment in tile drainage on the Study Area and within the Secondary Study Area.

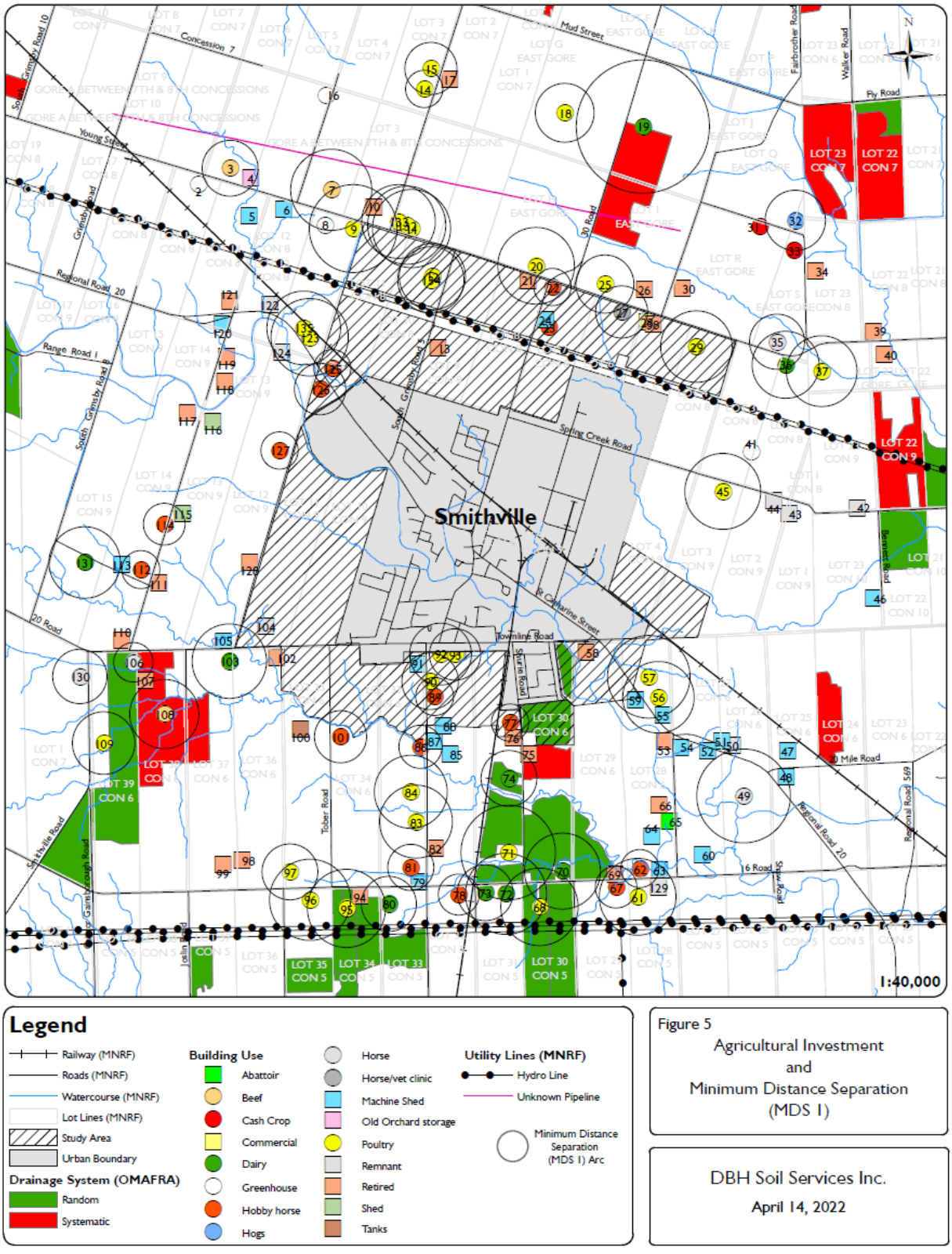
There is no investment in irrigation in the Study Area or the Secondary Study Area. There is no investment in land forming in the Study Area or the Secondary Study Area.

There is significant agricultural infrastructure located in an area just above the Niagara Escarpment, and between the Niagara Escarpment and Lake Ontario. Those locations comprise Provincially Designated Specialty Crop lands and contain numerous wineries, specialty farms, pick-your-own farms, and farmers markets.

In the local context, Smithville contains a large poultry processing plant, and an abattoir was noted just south of Smithville along the west side of Patterson Road.

The agricultural facilities identified in the Agricultural Impact Assessment, that contained or had the potential to contain/house livestock, were selected for the calculation of Minimum Distance Separation 1. Refer to **Figure 6-8** for the location of buildings, agricultural facilities and tile drainage for the Study Area and Secondary Study Area.

Figure 6-8: Agricultural Investment and Minimum Distance Separation



Legend

- Railway (MNRF)
- Roads (MNRF)
- Watercourse (MNRF)
- Lot Lines (MNRF)
- Study Area
- Urban Boundary

Drainage System (OMAFRA)

- Random
- Systematic

Building Use

- Abattoir
- Beef
- Cash Crop
- Commercial
- Dairy
- Greenhouse
- Hobby horse
- Hogs
- Horse
- Horse/vet clinic
- Machine Shed
- Old Orchard storage
- Poultry
- Remnant
- Retired
- Shed
- Tanks

Utility Lines (MNRF)

- Hydro Line
- Unknown Pipeline

- Minimum Distance Separation (MDS I) Arc

Figure 5
Agricultural Investment
and
Minimum Distance Separation
(MDS I)

DBH Soil Services Inc.
April 14, 2022

Figure 6-8 also illustrates the respective Minimum Distance Separation 1 arcs from the barns/buildings/facilities that either had livestock or the potential to house livestock for the study area and secondary study area . Due to scale limitations, and for the sake of clarity, the Minimum Distance Separation 1 arc from the respective manure storage structures have not been displayed.

6.6.4 Land Fragmentation

The greatest percent of parcels in the Study Area and the Secondary Study Area occurs in the 0.0 – 9.9 and 10.0 – 69.9-acre splits. On a count basis there are more smaller parcels than there are larger parcels. In the Township of West Lincoln and in the Regional Municipality of Niagara there are greater numbers of parcels in the 10.0 – 69.9 and 70.0 – 12.9.9 data splits.

This illustrates that the Study Area and Secondary Study Area lands parcel size is a reflection of a number of factors including the close proximity to an urban area (Smithville) and due to land severances as a result of linear features such as rail lines, the road network and the hydro corridors.

6.6.5 Soils – Canada Land Inventory and Specialty Crop Ratings

Approximately 94.5 percent of the Study Area is considered as Canada Land Inventory 1 – 3, and approximately 91.1 percent of the Secondary Study Area is considered as Canada Land Inventory 1 – 3. Class 1 – 3 lands are considered as Prime Agricultural Lands in the Provincial Policy Statement (2020). As stated in the Provincial Policy Statement (2020), “Specialty crop areas shall be given the highest priority for protection, followed by Canada Land Inventory Class 1, 2, and 3 lands, and any associated Class 4 through 7 lands within the prime agricultural area, in this order of priority”.

Large areas of Class 2 lands were noted in the Study Area, particularly on the west. Areas of Class 3 lands are noted to the north of the existing urban boundary up to the hydro corridor. Smaller areas of Class 3 lands were noted to the east and the south within the Study Area.

As there are no designated Specialty Crop lands in the Study Area, or the potential area of urban expansion, Specialty Crop ratings were not required, nor were completed for the soils within the Study Area.

6.6.6 Traffic Impacts

Due to the existing road network, the any future development within the Study Area is not expected to be a great source in traffic related impacts to agriculture as the transportation routes in the area are already well traveled by non-farm vehicles.

6.6.7 Other Recommendations

It is also recommended that prior to any future development within the Study Area, that the Minimum Distance Separation calculations be revisited. Given that there may be significant time before development may occur, the livestock housing capacity of the barns identified in the Agricultural Impact Assessment may change. A barn may be removed, or become remnant/derelict, which would result in a change to the calculated Medium Distance Separation. The removal of a barn, or the loss of capability of a barn to house livestock would result in the removal of the Medium Distance Separation arc, or a reduction in the Medium Distance Separation arc.

Given the geographical location of these lands, it is the conclusion of this study that the proposed future development of the Study Area lands would have minimal impact on the surrounding agricultural activities within the Secondary Study Area.

6.7 Aggregate Potential Assessment

An Aggregate Potential Assessment was completed in support of the integrated Municipal Class Environmental Assessment and Master Community Plan for Smithville. The objectives were as follows:

- Characterize the Aggregate Potential within and outside the immediate boundary of the expansion lands to be added to the Smithville Urban Area through review of available background information.
- Assess the quantity, quality, and priority of the Aggregate Potential Area(s) within the Study Area
- Review applicable provincial policies to ensure the Aggregate Potential Assessment will be consistent with policies as they relate to the protection of aggregate resources and the proposed expansion lands;
- Assess the capacity for extraction of any identified Aggregate Potential Area(s) and immediate surrounding area; including potential impacts on Natural Heritage Features/Systems and existing Community of Smithville, existing residential development and agricultural operations within 120 metres of each Aggregate Potential Area, and transportation infrastructure.

- Develop, as appropriate, an Interim Strategy for the various identified Aggregate Potential Areas.

6.7.1 Physical Environment

The physical environment within and surrounding the Community of Smithville, including expansion lands to be added to the Urban Area, includes a mixture of various erosional and depositional geological processes / features. Refer to the Aggregate Potential Assessment (**Completed as part of Appendix A**) for a detailed overview of the local physical setting, including physiography, surficial geology, quaternary geology, overburden thickness, bedrock geology, and groundwater resources.

6.7.2 Aggregate Resource Potential

6.7.2.1 Overburden Resources

Potential for the development of unconsolidated (i.e., sand and/or gravel) overburden aggregate resources is considered to be low within the Smithville area given the known local geologic profile and depositional origin. Where present, any sand and/or gravel resources that may exist locally would be restricted in quality, thickness, and areal extent.

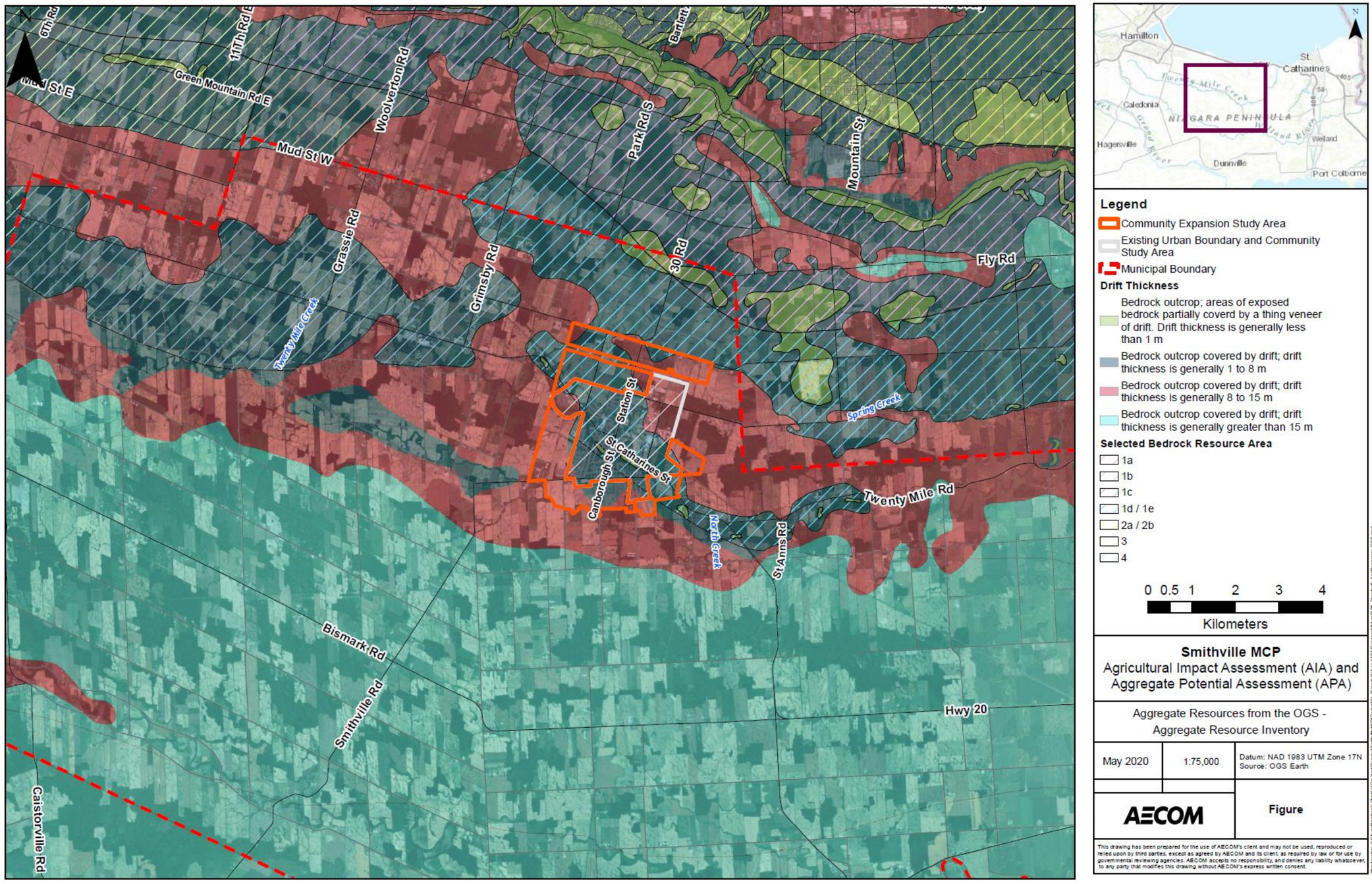
Ontario Geological Survey (1985) has classified overburden sand and gravel (unconsolidated) within the area as a Tertiary Resource, and thus has not been selected for resource protection. This interpretation is supported by Schedule D2 (Potential Resource Areas: Sand and Gravel) of the Region of Niagara's Official Plan which does not identify any unconsolidated aggregate resource areas within the Township of West Lincoln, save for two isolated locales along its western boundary with the City of Hamilton.

Based on the foregoing, unconsolidated aggregate resources have not been considered further as part of the current Aggregate Potential Assessment.

6.7.3 Bedrock Resources

Locally, two specific bedrock areas have been identified by Ontario Geological Survey (1985) for protection, as illustrated by aggregate resource areas #1d / #1e in **Figure 6-9** The location and extent of these aggregate resource areas generally corresponds with that which currently is presented in Schedule 'C-5' of the Township of West Lincoln's Official Plan, as well as Schedule D1 of the Region of Niagara's Official Plan.

Figure 6-9: Aggregate Resources from the OGS – Aggregate Resource Inventory



The identified resource areas above pertain to dolostone bedrock of the Lockport Fm., and thus represents the focus of the current Aggregate Potential Assessment. Consideration of bedrock resources of the Guelph Fm. to the south and west is not provided herein.

Within Resource Area #1 (**Figure 6-10**), the overburden is typically less than 8 metres (25 feet) thick, and overlies the Lockport Fm. Locally, within Resource Areas #1d / #1e, the Eramosa Mb., together with part of the underlying Goat Island Mb. and Gasport Mb. have been identified by Ontario Geological Survey (1985) for possible aggregate extraction.

An average thickness of 9 metres (30 feet) has been estimated by Ontario Geological Survey for the Eramosa Mb. within the Smithville area, however, it may potentially exceed 21 metres (70 feet) as which occurs at the Lincoln Quarry situated approximately 3 km northeast of the current developed limits of the Community of Smithville. Since the underlying Goat Island Mb. and Gasport Mb. also are well-suited for aggregate resource development, an 18 metres (60 feet) workable thickness estimate was adopted for Resource Areas #1d / #1e by OGS (1985), a value which has been incorporated into the current Aggregate Potential Assessment, as summarized in **Figure 6-9.**

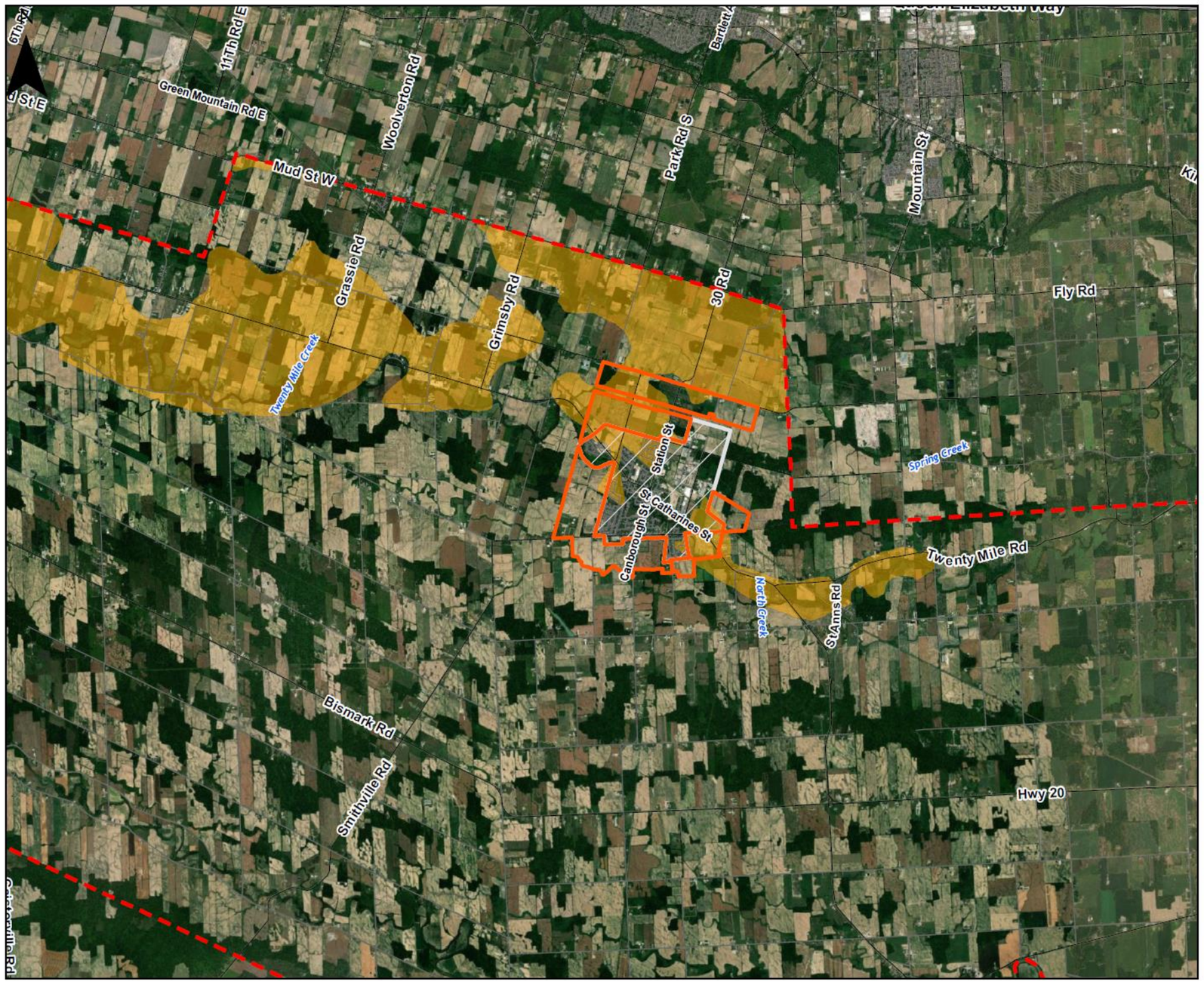
An average unit weight of dolostone bedrock of 2.68 tonnes/m^3 has been allocated for each of the three geologic members of the Lockport Fm.

Review of Ministry of Natural Resources and Forestry's Pits and Quarries online database has not indicated the presence of any licensed aggregate properties within or in the vicinity of the Community of Smithville; inclusive of the expansion lands to be added to the Smithville Urban Area. The nearest licensed aggregate properties are the Lincoln Quarry (Nelson Aggregate Co.) and Spring Creek Aggregates (Walker Aggregates), located outside of the Township (within Town of Lincoln), at distances of approximately 3 km and 3.75 km to the northeast, respectively. Based on this review, a value of '0' (zero) has been allocated for existing 'extracted area' within each CESA in **Table 6-4.**

Table 6-4: Aggregate Resource Volume Assessment

CESA No.	Total Area (hectares)	Unlicensed Area (hectares)	Natural Environment Setback (hectares)	Extracted Area (hectares)	Available Resource Area (hectares)	Available Resources (millions of tonnes)
1	167.3	65.3	18.3	0.0	47.0	22.7
2	129.8	109.5	1.1	0.0	108.4	52.3
3	129.1	9.5	1.6	0.0	7.9	3.8
4	120.9	0.0	0.0	0.0	0.0	0.0
5	15.4	0.4	0.3	0.0	0.1	<0.1
6	76.6	42.1	18.0	0.0	24.1	11.6
Total	**639.1**	**226.8**	**39.3**	**0.0**	**187.5**	**90.5**

Figure 6-10: Aggregate Resources from Schedule 'C5' of the Township's (2018) Official Plan



The ‘total area’, ‘unlicensed area’ and ‘natural environment setback’ values in **Table 6-4** have been estimated through a Geographical Information System exercise based on the proposed expansion lands boundaries to be added to the Smithville Urban Area, and utilizing mapping contained in Schedule ‘C’ of the Township’s Official Plan (**Figure 6-9**). Based on the assessment, potential bedrock aggregate resource volumes ranging from 0 to 52.3 million tonnes has been estimated for each proposed expansion land areas to be added to the Smithville Urban Area.

6.7.4 Recommendations

Aggregate potential in Smithville must be taken into consideration when planning for future growth inside and outside of the approved urban boundary.

It is recognized that lands residing north of Smithville and Yonge Street have aggregate potential. It is further recognized that growth adjacent to and closest to those areas may potentially result in land use compatibility issues with possible future aggregate operations.

Work that has been completed to-date as part of the Master Community Plan for Smithville has provided due consideration for the existing mapped aggregate resources areas and provisions of the Provincial Policy Statement, 2020, as detailed within the Background Characterization Report (**Appendix A**).

An urban use would be considered to be in the greater public interest from an aggregate resource perspective within the boundary of the lands to be added to the Smithville Urban Area.

6.8 Economic Analysis

A background assessment has been undertaken to provide analysis and recommendations related to Smithville’s economic and demographic context to facilitate greater understanding of the anticipated future housing needs as well as employment and commercial floor space demand within the Study Area as they relate to the needs of future residents. This Economic Analysis was prepared based on the original 2041 population and employment forecasts provided by the Region of Niagara based on the 2019 Growth Plan (A Place to Grow: Growth Plan for the Greater Golden Horseshoe).

Based on further economic review using the required 2051 Provincial growth targets and the updated Place to Grow Growth Plan for the Greater Golden Horseshoe and subsequent Provincial Directives, this economic analysis no longer appeared to be applicable as it was superseded by population and jobs growth forecasts and Land Needs Assessment by the Region of Niagara. The updated 2051 growth forecasts and related

analysis were used to determine the types and density of residential uses as well as the number and density of jobs in the required Employment lands designated for development by the Master Community Plan.

6.9 Archaeological Resources

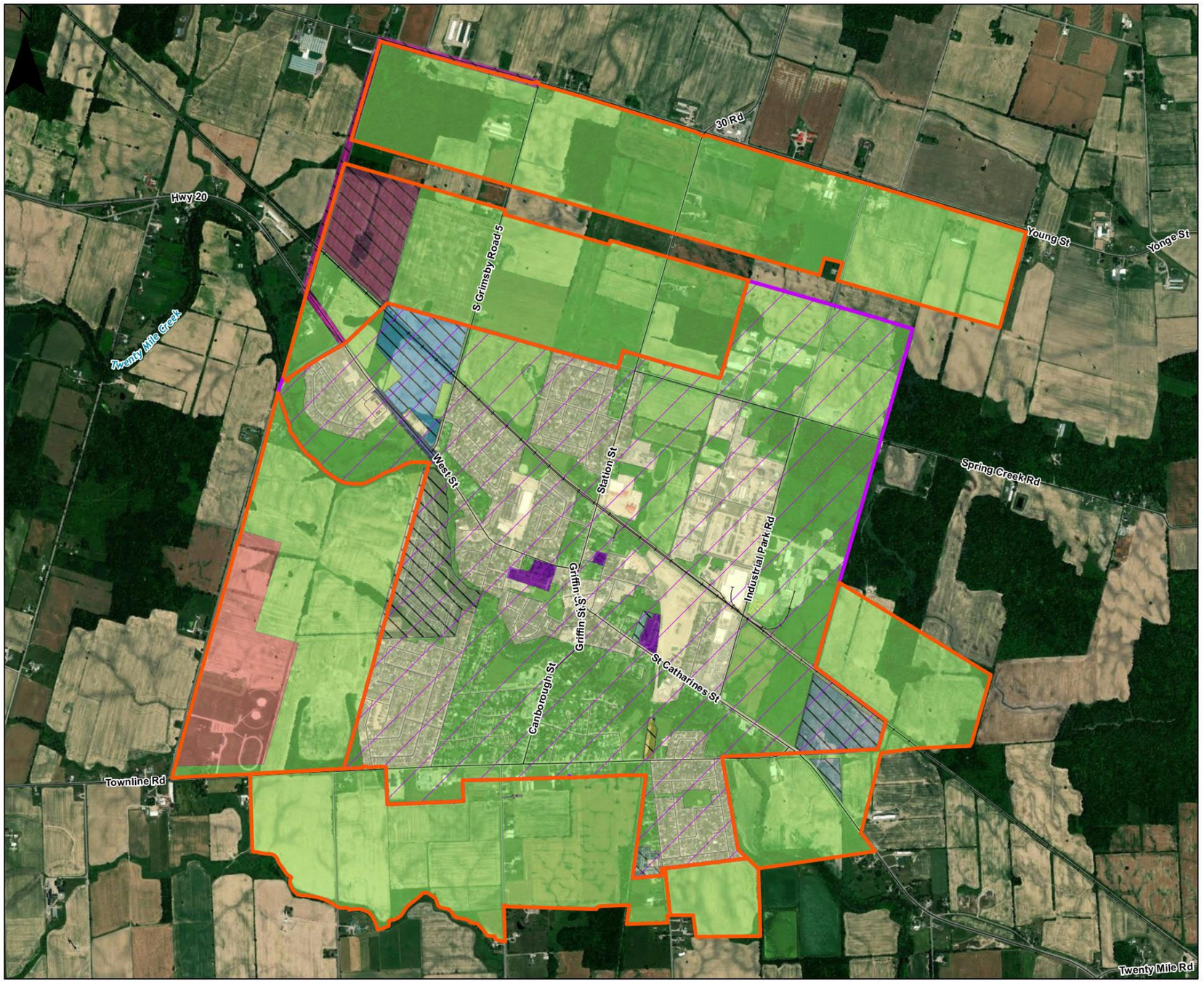
A Stage 1 archaeological assessment (**Appendix A**) was completed for the Study Area in support of the integrated Municipal Class Environmental Assessment and Master Community Plan for Smithville.

The Stage 1 archaeological assessment report details the rationale, methods and results of the stage 1 archaeological assessment. As a property inspection was not conducted, the Stage 1 archaeological assessment was completed using background research to describe the geography, land use history, previous archaeological fieldwork and current conditions of the study area to determine its archaeological potential. In addition, satellite imagery and thematic and historic maps were analyzed. The results of the Stage 1 archaeological assessment indicate while some of the study area does not contain archaeological potential as it has been extensively and deeply disturbed by past residential and commercial construction activity, or been cleared by previous assessments, there are sections of the study area that are not obviously disturbed and will therefore require a Stage 2 archaeological assessment. This Stage 1 background archaeological assessment and review is necessarily high level due to the early stage of planning. As the design is refined and there is a better understanding of the planned impacts, areas that require further archaeological assessment will be examined against the type of impact planned to formulate the appropriate Stage 2 archaeological assessment strategy on a property by property basis.

In light of these results, prior to any ground disturbing activities, a Stage 2 archaeological assessment is recommended for all land identified as retaining archaeological potential.

1. Stage 2 archaeological assessments must be conducted for all areas identified in the Stage 1 Archaeological Assessment report as retaining moderate to high archaeological potential shaded in green on **Figure 6-11**.
2. Areas that are marked in hatching on **Figure 6-11** have been subject to previous archaeological assessment that have cleared the land of archaeological concerns, therefore no further archaeological work is recommended for those areas.

Figure 6-11: Results of Previous Archaeological Assessments



Legend

- Community Expansion Study Area
- Existing Urban Boundary and Community Study Area

Stage 1 Results

- Areas of Moderate or High Archaeological Potential
- Areas of Low Archaeological Potential
- Cemetery

Previous Assessments

- Stantec (2016e, 2016f, 2017a), Stage 2-4 complete, further work required for a portion of the study area
- AMICK (2015), Stage 1-2 complete, no further work required
- AMICK (2017), Stage 1-2 complete, no further work required
- ASI (2017a, 2017b), Stage 1-2 complete, Stage 3 cemetery assessment complete, no further work required
- Amec (2016), Stage 2 complete, no further work required
- Detritus Consulting Ltd. (2014), Stage 1-2 complete, no further work required
- NDA (2006), Stage 4 complete, no further work required
- Stantec (2016b), Stage 1-2 complete, no further work required
- Stantec (2016c), Stage 1-2 complete, no further work required
- Stantec (2016d), Stage 1-2 complete, no further work required
- Stantec (2017b), Stage 1-2 complete, no further work required

0 200 400 800 1,200
Meters

Smithville MCP

Stage 1 Results

May 2020	1:18,000	Datum: NAD 1983 UTM Zone 17N
AECOM		Figure 6

3. Areas with yellow shading indicate areas of low archaeological potential and will require a comprehensive property inspection as part of the Stage 2 field survey in order to determine the extent of previous disturbance (**Figure 6-11**).
4. Further archaeological assessments must be conducted by a licensed archaeologist and must follow the requirements set out in the Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011). The requirements for standard surface archaeological survey include:
    i. Test pit survey at 5 m intervals in all areas that will be impacted by the project and where ploughing is not possible (e.g., woodlots, overgrown areas, manicured lawns);
    ii. Pedestrian survey at 5 m intervals where ploughing is possible (e.g. agricultural fields). This assessment will occur when agricultural fields have been recently ploughed, weathered, and exhibit at least 80% surface visibility.
5. It should be noted that special consideration and recommendations must be made for land within the cemeteries located within the study area, including Smithville Union Cemetery, Saint Luke Anglican Church Cemetery and Smithville United Church Cemetery (**Figure 6-11**):
    i. Given the early-19th century establishment of the cemeteries, current fence lines or marked cemetery boundaries do not necessarily represent the limits of the cemetery below ground.
    ii. As a precautionary measure, it is recommended that after Stages 1 and 2 archaeological assessments are completed, should any ground disturbing activities be conducted adjacent to the cemeteries located within the study area, a Stage 3 Cemetery Investigation must be conducted around the cemetery in a buffer of 10 m to determine if human remains are present. Recommendations for the Stage 3 Cemetery Investigation are as follows:
        a. Mechanical topsoil removal is required to determine if deeply buried archaeological resources or human remains are present. Mechanical topsoil removal must be conducted in the presence of a licensed archaeologist as per Section 3.3.3 of the Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011);

b. The results and effectiveness of this protection strategy must be reported to the MHSTCI as part of a Stage 3 cemetery investigation. The Stage 1 Archaeological Assessment report will document the monitoring of the mechanical topsoil removal and will provide details on any findings related to the presence or absence of grave shafts and/or human remains;

c. If human remains are encountered during construction, work must cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of Burial Sites, War Graves, Abandoned Cemeteries, and Cemetery Closures of the Ministry of Consumer Services.

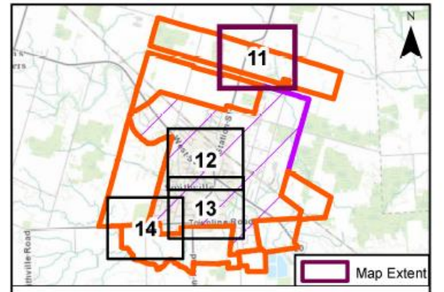
6. The six registered archaeological sites (AgGv-71, AgGv-68, AgGv-67, AgGv-55, AgGv-145, and AgGv-137) within the study area which still retain cultural heritage value or interest and should be subject to further archaeological assessment by a licensed consultant archaeologist, in accordance with the previous consultants' recommendations outlined in Section 1.1.3 of the Stage 1 Archaeological Assessment report and the Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011) prior to any ground disturbing activities.

6.10 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions (hereafter Cultural Heritage Report) was completed as a supporting document for the Smithville Master Community Plan and Integrated Municipal Class Environmental Assessment study. Information regarding this process and can be found in **Appendix A**. The Cultural Heritage Report encompasses the Smithville Urban Area and lands to be added to the Smithville Urban Area.

The background research and data collection conducted determined that a total of 111 cultural heritage resources and three cultural heritage landscapes are located within the Study Area; this includes three properties destinated under Part IV of the *Ontario Heritage Act* and 108 properties with potential cultural heritage value or interest. The cultural heritage resources are shown on **Figure 6-12, Figure 6-13, Figure 6-14,** and **Figure 6-15.**

Figure 6-12: Cultural Heritage Resources within the Study Area – Section 11



Legend

Smithville Development Study Area (SDSA)

Smithville Urban Area

Heritage Designation

Potential

0 50 100 200 300

Meters

Smithville MCP

Heritage Resource Results in the Study Area

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AECOM		Figure

Map location: C:\Users\stephens.l\Desktop\Ongoing\smithMCP\Design\01_Reports\03AA and 04 Reports\04_Figure1_Designations.mxd
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Figure 6-13: Cultural Heritage Resources within the Study Area – Section 12

Figure 6-14: Cultural Heritage Resources within the Study Area – Section 13

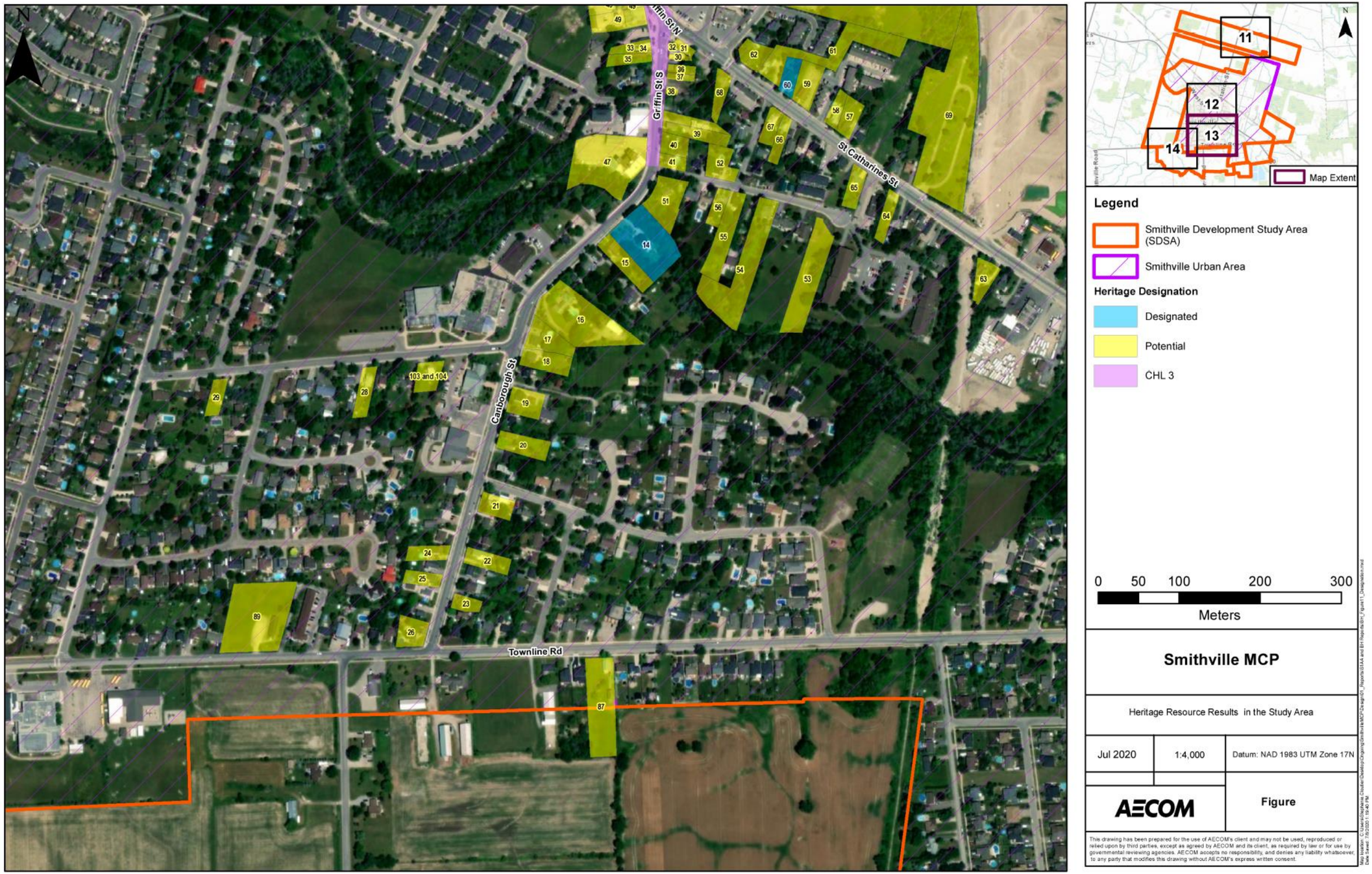
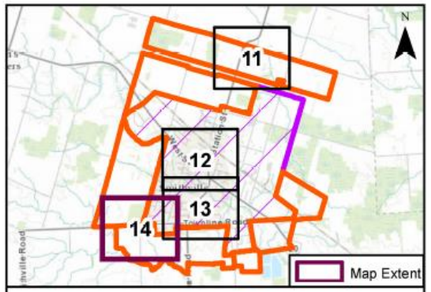


Figure 6-15: Cultural Heritage Resources within the Study Area – Section 14



Legend

- Smithville Development Study Area (SDSA)
- Smithville Urban Area

Heritage Designation

- Potential

0 50 100 200 300
Meters

Smithville MCP

Heritage Resource Results in the Study Area

Jul 2020	1:4,000	Datum: NAD 1983 UTM Zone 17N
AECOM		Figure 14

Based on the results of the Cultural Heritage Report, the following recommendations have been developed:

- A total of 111 cultural heritage resources and three cultural heritage landscapes were identified within the Study Area. They are historically, architecturally, and/or contextually significant urban and rural residential properties and farmscapes. Accordingly, all are identified as candidates for conservation and integration into future land use developments in the secondary plan area. Land use development in the Master Community Plan should be appropriately planned to conserve these cultural heritage resources and integrate them into future land use development through retention of heritage attributes that express the resource's cultural heritage significance that may include, but are not limited to, attributes such as standing buildings, building remnants, roadscapes, entrance laneways, tree lines and fences. Retention of resources on their original site should be a priority. Consideration should also be given to appropriate adaptive reuse for the cultural heritage resources.
  - 111 cultural heritage resources and three cultural heritage landscapes were evaluated to confirm that they retain some degree of historical, architectural, and/or contextual values. These resources should be considered candidates for municipal designation under Section 29 the *Ontario Heritage Act* or should be considered for listing on the Municipal Register of Cultural Heritage Resources (as per Part IV, Subsection 27 of the *Ontario Heritage Act.)*
  - Based on the Study Area prepared by the Township of West Lincoln, it is expected that all 111 cultural heritage resources and three cultural heritage landscapes within the Study Area may be subject to impacts as a result of future development or land use changes. A Heritage Impact Assessment should be completed for the previously identified and potential cultural heritage resources within the Study Area.
  - The Smithville Master Community Plan should incorporate policies that ensure the long-term viability and presence of significant built heritage resources and cultural heritage landscapes, including significant heritage character areas.
  - New development adjacent to cultural heritage resources or incorporating a cultural heritage resource should, from an urban perspective, be respectful of the resource, having regard for scale, massing, setbacks, building materials, and design features. Urban design guidelines should be developed for areas of clusters of cultural

heritage resources. Consider the Cultural Heritage Landscapes as candidates for future Heritage Conservation Districts.

- Opportunities for interpretative strategies within the Master Community Plan should be identified and implemented and may include, but not limited to: installation of interpretative plaquing, naming roads, development of trail systems that communicate the cultural heritage significance of extant cultural heritage resources that may be subject to demolition or removal in future development.
- Although not identified in this study, identify significant historical views and focal points which should be established in the Master Community Plan.

7. Model Development

7.1 Subwatershed Hydrologic and Hydraulic Model

As noted in the Subwatershed Phase 1 report (**Appendix B**), a personal computer stormwater management hydrologic model was developed complete the local-scale hydrologic analyses of the existing land use conditions within the future development area and the community of Smithville. The results of the 22-year hydrologic continuous simulation have also been used to update the assessment for the existing watercourse systems under existing and future land use conditions.

7.2 Transportation Model

A modelling assessment was conducted using two modeling software packages, Aimsun and Equilibre Multimodal Multimodal Equilibrium, to assess existing and forecasted traffic conditions to 2051 within Smithville and conduct testing of various options aimed at improving the flow of vehicles. The modelling assessment also assessed the need for a bypass around Smithville and tested a series of conceptual alignments. A summary of the recommendations from the assessment is provided in the Transportation Master Plan.

7.3 Water Model

For evaluating the water and wastewater infrastructure requirements to support the projected growth for urban boundary expansion, the Region of Niagara's latest hydraulic models were utilized.

The water hydraulic modelling analysis was completed by utilizing the InfoWater Hydraulic Model used in the Region of Niagara's Water and Wastewater Master Servicing Plan Study (2016). The model was reviewed and compared with the Geographical Information System to confirm the network accuracy and executability of the simulation. The modelling inputs such as water demands, water demand patterns (diurnal patterns), watermain c-factors and water facilities' parameters were reviewed to confirm their applicability for the Smithville Master Community Plan. The review of the water hydraulic model concluded that the Region's water hydraulic model was suitable for completing the infrastructure evaluation for the Smithville Master Community Plan.

To perform the infrastructure evaluation, several updates were applied to the hydraulic model and the next section provided the details of those updates.

The Smithville water model was updated to include the future infrastructure and associated water demands for the proposed developments for Northwest Quadrant (Station Meadows West, Dunloe and Marz). The model was also updated to include the future infrastructure as per the latest Region's Development Charge study and future Smithville local distribution system upgrades and upsizing.

7.4 Wastewater Model

The wastewater hydraulic modelling analysis was completed by utilizing the Hydraulic Model used in the Region of Niagara's Baker Road Wastewater Treatment Plant Pollution Prevention Control Plan & Master Servicing Plan Update (2022). The model was calibrated with the flow monitoring study results completed in 2021. The calibrated model was reviewed with the Smithville Master Community Plan project team and Niagara Region to confirm the network accuracy and executability of the simulation. The model included the scenario that utilized 5-year design storm for simulating the wastewater collection system for Smithville. The modelling inputs such as sanitary sewer loadings and design storm were reviewed to confirm the applicability for the Smithville Master Community Plan. The review of the wastewater hydraulic model concluded that the Region's sanitary sewer hydraulic model was suitable for completing the infrastructure evaluation for the Smithville Master Community Plan.

To evaluate the feasibility of the wastewater servicing concept, several updates were applied to the hydraulic model and the next section provides the details of those updates.

The Smithville wastewater model was updated to include the future infrastructure and associated sanitary sewer loadings for the proposed developments for Northwest Quadrant (Station Meadows West, Dunloe and Marz).

8. Preliminary Concept Options and Municipal Servicing

8.1 Preliminary Concepts

Building on the input received during the initial community consultation, a review of opportunities and constraints, and requirements of Provincial, Regional and Township planning policies, two initial Concept Plans were developed for Smithville's future growth and expansion. Each concept explored different arrangements of land use and street layouts within the Study Area. Refer to **Figure 8-1** and **Figure 8-2** for the initial concept plans as presented at Public Information Centre Number 1.

One distinction between the two Concept Plans was the confinement of Industrial expansion to the North and Eastern section of the Smithville Master Community Plan as opposed to an even distribution between multiple locations.

Below describes how municipal servicing alternatives were considered in the context of the initial concepts.

8.1.1 Transportation Alternatives

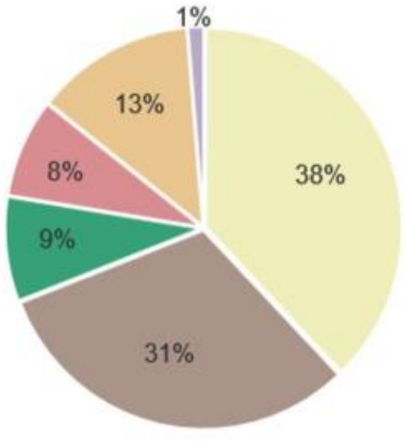
Each of the preferred concept iterations included a similar road network consisting of local, collector and arterial road systems required to service the proposed land uses. The iterations do differ in that one includes a north Smithville By pass option and the other includes a south Smithville By pass option. Concept 1 (north Smithville By pass) was identified as preferred as it better aligns with a possible future new Niagara Escarpment crossing, can potentially utilize parts of the proposed Master Community Plan arterial road network and avoids land fragmentation within the Smithville Master Community Plan area. The Smithville By pass will be further studied as part of a future Municipal Class Environmental Assessment to be undertaken by Niagara Region. In addition, a road capacity increase to Townline Road between Regional Road 20 and South Grimsby Road 6 was identified with the recommendation being addition of adding a center turning lane. This project falls under Schedule C and will evaluate a four-lane cross section versus three-lane as part of a future Municipal Class Environmental Assessment.

Figure 8-1: Initial Concept 1

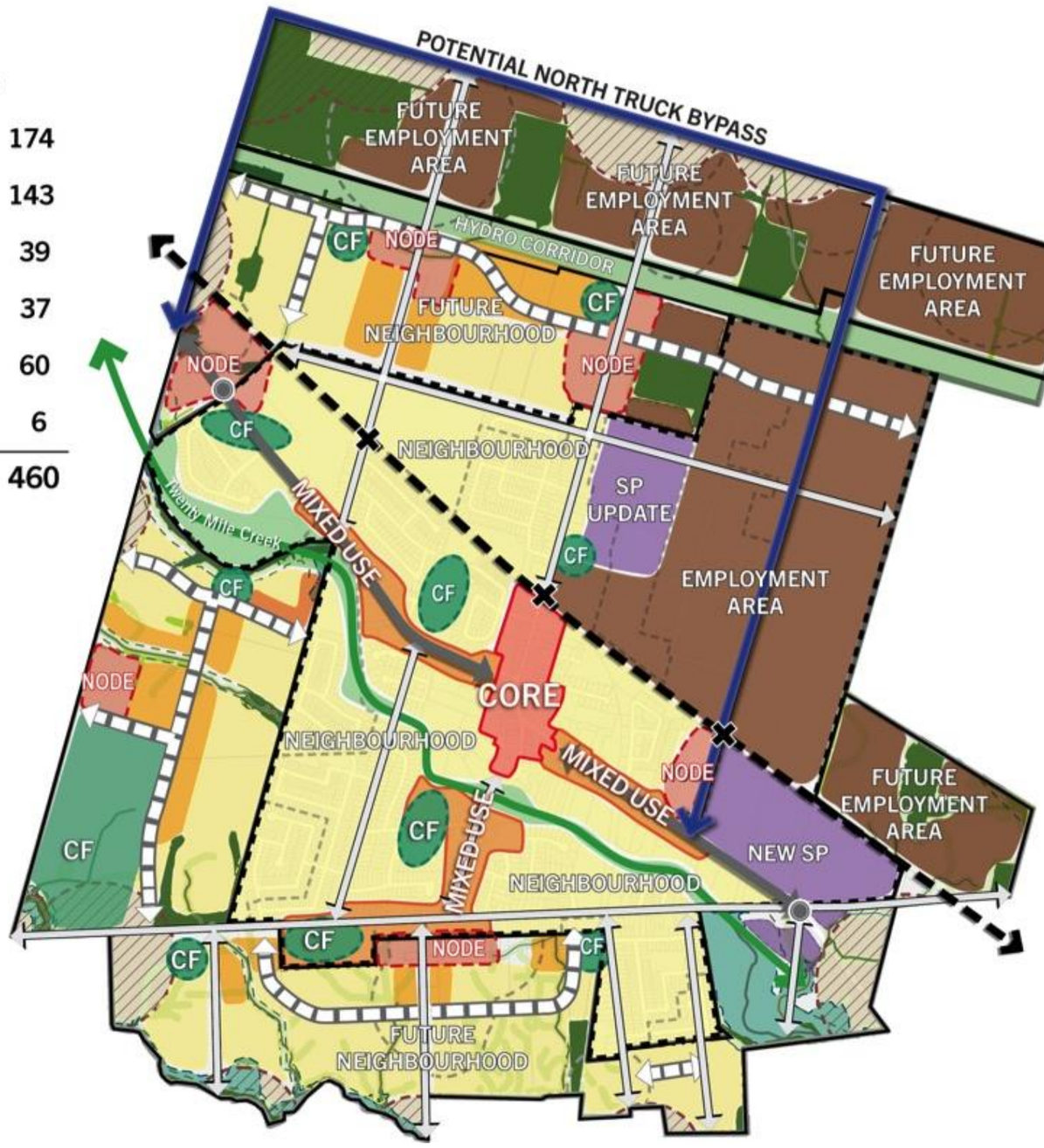
CONCEPT PLAN 1

POTENTIAL EXPANSION AREA:

LOW DENSITY RESIDENTIAL (HA):	174
EMPLOYMENT AREA (HA):	143
COMMUNITY FACILITIES (HA):	39
NODES: (HA):	37
MIXED USE/MED. DENSITY (HA):	60
SECONDARY PLAN (HA):	6
GROSS LAND USE AREA (HA):	460



Land Area by Place-Type



LEGEND

- Existing Urban Boundary
- Community Expansion Study Area

Community Place-Types

- Downtown Core
- Commercial Node
- Mixed Use Corridor
- Employment Area
- New / Updated Secondary Plan

Neighbourhood Place-Types

- Residential
- Medium Density / Mixed Use
- CF Community Facility
- Open Space
- NHS

Road Network

- Potential Green Corridor
- Potential Truck Bypass Corridor
- Future Collector Street/Complete Street
- Arterial Street
- Collector / Potential Complete Street
- Existing Rail Corridor

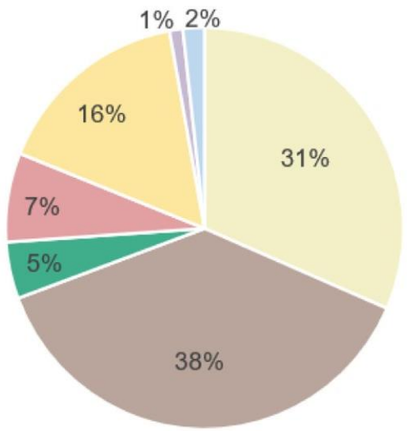
- Existing Rail Crossings
- Future Roundabout
- Minimum Distance Separation (MDSI) Setback

Figure 8-2: Initial Concept 2

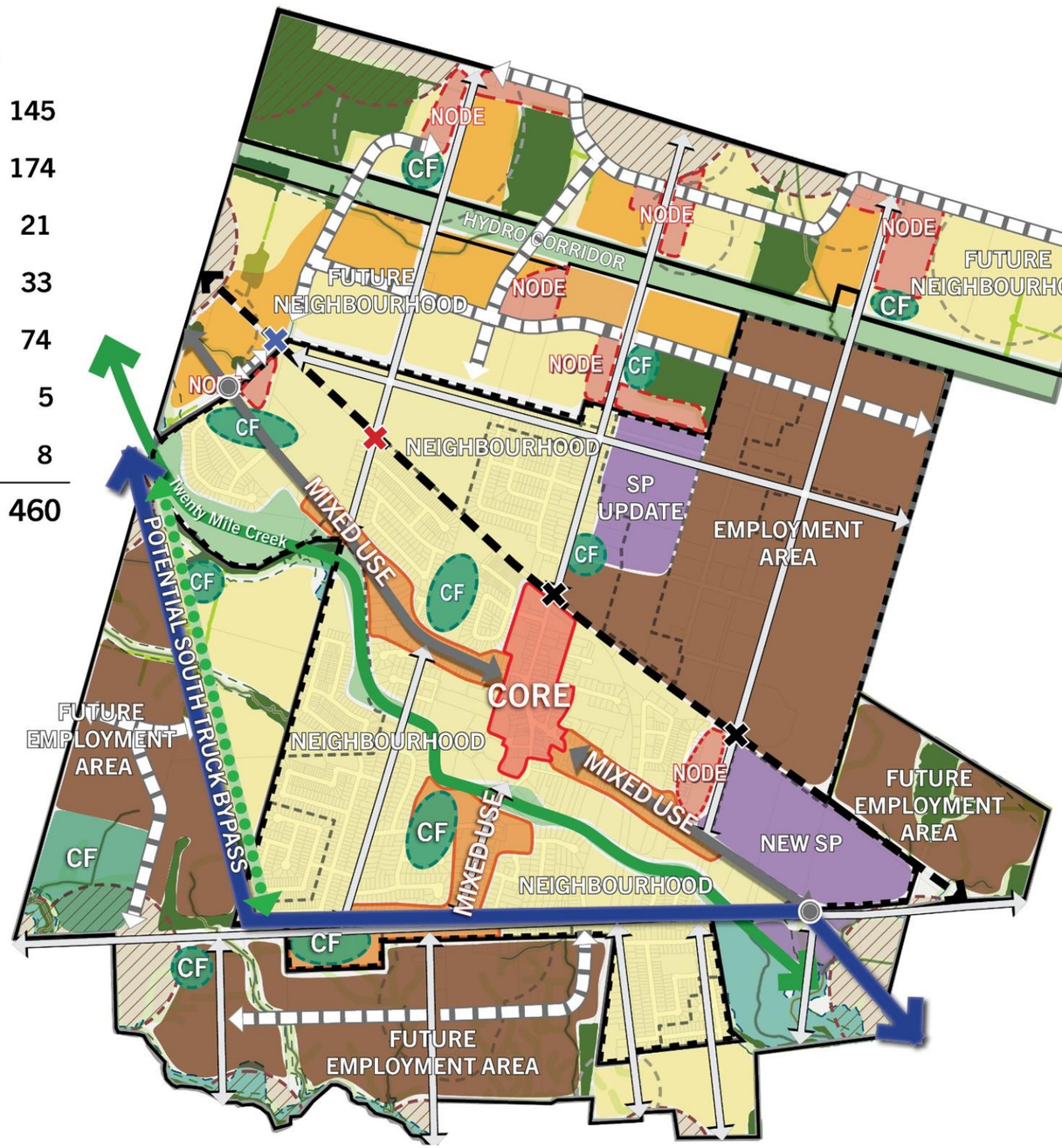
CONCEPT PLAN 2

POTENTIAL EXPANSION AREA:

LOW DENSITY RESIDENTIAL (HA):	**145**
EMPLOYMENT AREA (HA):	**174**
COMMUNITY FACILITIES (HA):	**21**
NODES: (HA):	**33**
MIXED USE/MED. DENSITY (HA):	**74**
SECONDARY PLAN (HA):	**5**
TRUCK BY-PASS (HA):	**8**
GROSS LAND USE AREA (HA):	**460**



Land Area by Place-Type



LEGEND

- Existing Urban Boundary
- Community Expansion Study Area

Community Place-Types

- Downtown Core
- Commercial Node
- Mixed Use Corridor
- Employment Area
- New / Updated Secondary Plan

Neighbourhood Place-Types

- Residential
- Medium Density / Mixed Use
- CF Community Facility
- Open Space
- NHS

Road Network

- Potential Green Corridor
- Potential Truck Bypass Corridor
- Future Collector Street / Complete Street
- Arterial Street
- Collector / Potential Complete Street
- Existing Rail Corridor

- Existing Rail Crossings
- Potential Rail Crossing
- Potential Removal of Existing Crossing
- Future Roundabout
- Minimum Distance Separation (MDSI) Setback

8.1.2 Water Servicing Alternatives

For water servicing each of the concept iterations are based on a similar water transmission main ring system strategy as identified in the Region's 2016 Water and Wastewater Servicing Master Plan. There are no alternative transmission main ring systems, however, alternative Twenty Mile Creek transmission main crossings were identified and evaluated.

8.1.3 Wastewater Servicing Alternatives

Similar to water servicing each of the concept iterations are based on a similar wastewater servicing strategy that will send future development flows to an upgraded Smithville Sewage Pumping Station via new conveyance systems and sewage pumping stations as identified in the Region's 2016 Water and Wastewater Servicing Master Plan. Alternative wastewater servicing strategies, including , alternative ways of conveying wastewater flows across Twenty Mile Creek were identified and evaluated. Alternative locations for new sewage pumping stations were not identified and evaluated as facility locations were guided by topography (preference for optimized gravity flow and avoidance of deep pumping station) and siting the facility in planned park and open space blocks as identified in the preferred concept plan.

8.1.4 Stormwater Management

Stormwater management for the urban expansion area is required to address the following criteria:

- extended detention storage and quantity controls for all future development within the Spring Creek Subwatershed;
- extended detention storage and strategic quantity controls for future development within development areas discharging toward the North Creek and Twenty Mile Creek; and
- provide stormwater quality control to an "Enhanced" standard of treatment, per current Provincial guidelines (ref. Ministry of Environment, 2003), and address thermal enrichment of urban storm runoff.

The recommended stormwater management strategy based on the criteria is summarized as follows:

- All future development areas are to incorporate extended detention storage within the stormwater management systems for erosion control.

- All future development within the Spring Creek Subwatershed are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition.
- The future development areas within the North Creek Subwatershed which drain through private properties external to the development area are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition; those portions of the future development area within the North Creek Subwatershed which discharge directly to the North Creek are not required to incorporate quantity controls above the extended detention storage component of the facility.
- The future development areas within the Twenty Mile Creek Subwatershed which drain through private properties external to the development area are to incorporate quantity controls to control post-development flows to pre-development levels for all events up to and including the 100 year frequency flow condition; those portions of the future development area within the Twenty Mile Creek Subwatershed which discharge directly to the Twenty Mile Creek are not required to incorporate quantity controls above the extended detention storage component of the facility.
- All future development areas are to incorporate Low Impact Development Best Management Practices to maintain water budget and enhance erosion protection within the receiving watercourses.

Various technologies are available to satisfy stormwater management criteria identified herein. The specific technology/technique selected depends upon contributing land use, size of drainage area, and the stormwater management function required**. Table 8-1** provides a summary of various practices, and the corresponding function provided by the technology. As the summary above indicates, a variety of stormwater management objectives are required under the recommended plan, hence it is anticipated that a combination of technologies will be required for all future development areas, in order to achieve the requisite objective.

In general, the selection of the appropriate stormwater management practice is dependent upon the size (i.e. drainage area) and land use conditions within the proposed development area draining to the specific stormwater management facility.

Table 8-1: Summary of Stormwater Management Practices and Corresponding Functions

Practice	Flood Control	Erosion Control	Quality Control	Thermal Mitigation	Water Balance	Evapotranspiration	Groundwater Recharge
End-of-Pipe (Wet Pond / Wetland/Hybrid)	X	X	X	X	-	-	-
Dry Pond	X	X	-	-	-	-	-
Rooftop Detention Storage	X	-	-	-	-	-	-
Parking Lot Storage	X	-	-	-		-	-
Amended Topsoil	-	X	X	X	X	X	X
Green Roofs	-	X	X	X	X	X	-
White Roofs	-	-	-	X	X	X	-
Tree Trench Boxes	-	X	X	X	X	X	X
Oil/Grit Separators	-	-	X	-	-	-	-
Rainwater Harvesting	-	X	-	-	X	-	-
Pervious Pipes	-	X	X	X	X		X
Oversized Pipes	X	-	-	-	-	-	-
Permeable Pavement	-	X	X	X	X	-	X
Soakaway Pits	-	X	X	X	X	-	X
Infiltration Trenches	-	X	X	X	X	-	X
Bioretention Bumpouts	-	X	X	X	X	X	X
Grassed Swales	-	-	X	X	-	-	-
Biofilters/Bioswales	-	X	X	X	X	X	X

The following general principles have been applied in developing the recommended stormwater management plan:

1. Wet end-of-pipe facilities are preferred, particularly for residential developments, due to their ability to address multiple stormwater management requirements (i.e. quantity, quality, thermal mitigation, and erosion control).
2. Where drainage areas are insufficient to support an end-of-pipe facility (i.e. generally drainage areas less than 5 hectares), source controls (i.e. underground storage, surface storage, Low Impact Development Best Management Practices , oil/grit separators, vegetated technologies, etc.) are to be applied.
3. Low Impact Development Best Management Practices are to be applied throughout the urban expansion area, with more passive and distributed Low Impact Development infiltration Best Management Practices encouraged (i.e. increased topsoil thickness, bioswales), versus Low Impact Development infiltration Best Management Practices which promote enhanced permeability (i.e. sand columns).

The above long list of stormwater management practices has been reviewed with Township of West Lincoln staff to determine the practices acceptable to the municipality for specific land uses**. Table 8-2** provides a summary of the practices acceptable to the Township of West Lincoln.

The recommended stormwater management plan is presented in **Phase 3** of the **Subwatershed Study** in Drawing WR-1. The following sections provide further details regarding the stormwater management plan for urban expansion area. The unitary sizing criteria and corresponding stormwater management facility sizing is to be verified and refined as part of future studies.

8.1.5 Erosion Control

Unitary storage and discharge criteria have been established as part of the Phase 2 Subwatershed Impact Assessment to mitigate erosion impacts at key locations within Twenty Mile Creek Watershed, North Creek Watershed, and Spring Creek Watershed. These criteria have been developed, premised upon providing extended detention storage within the end-of-pipe facilities to maintain the volume of runoff above the critical flow rate at existing levels, i.e. <5% residual increase in duration and volume of critical flow exceedance, and facility drawdown times generally five days or less. The unitary storage and discharge requirements within the end-of-pipe facilities for erosion control are presented in **Table 8-3.**

Table 8-2: Acceptable Stormwater Management Practices as per Land Use

Stormwater Management Practice	Residential	Employment	Commercial	Institutional	Comments
End-of-Pipe (Wet Pond/ Wetland/Hybrid)	Y	Y	Y	Y	Not acceptable for grade schools (if assumed by Township); emp/comm/inst. generally privately owned; residential pond assumed by Township unless condo development; preference toward wet pond
Dry Pond	Y	Y	Y	Y	Assumption criteria similar to that of wet ponds
Rooftop Detention Storage	N	Y	Y	Y	Acceptable to Township if privately owned
Parking Lot Storage	N	Y	Y	Y	Acceptable to Township if privately owned
Underground Storage Tanks/Superpipes	N	Y	Y	Y	Acceptable to Township if privately owned
Amended Topsoil	Y	Y	Y	Y	Acceptable to Township; applicable on private property and in public Right-of-Ways and public properties
Oil/Grit Separators	Y	Y	Y	Y	-
Rainwater Harvesting	Y	Y	Y	Y	Privately-owned
Soakaway Pits	Y	Y	Y	Y	Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Infiltration Trenches	Y	Y	Y	Y	Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Bioretention Bumpouts	Y	Y	Y	Y	Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned
Grassed Swales	Y	Y	Y	Y	-
Biofilters/Bioswales	Y	Y	Y	Y	Can be considered as alternative to Stormwater Management facility for stormwater quality control, and in combination with other practices for erosion/quantity control, provided they are privately owned

Table 8-3: Stormwater Management Facility Sizing Criteria for Erosion Control – Twenty Mile Creek, North Creek, and Spring Creek

Quality Component	Cumulative Unitary Volume (m^3/impervious hectares)	Unitary Discharge (m^3/s/ha)
Erosion	400	0.001

8.1.6 Flood Control

Unitary storage and discharge criteria have similarly been established as part of the Phase 2 Impact Assessment to mitigate increased flood potential at key locations along the Twenty Mile Creek Main Branch as well as along minor tributaries within Twenty Mile Creek Watershed downstream of the urban expansion area, including within the North Creek Subwatershed and the Spring Creek Subwatershed, resulting from the future development, for all events up to the 100 year return period storm. The unitary storage and discharge for flood control is presented in **Table 8-4.**

8.1.7 Stormwater Quality Control

Stormwater quality control for the future development is required to control runoff to an "Enhanced" standard of treatment, per current Provincial standards (ref. Ministry of the Environment, Conservation, and Parks, 2003). Wet ponds have been advanced, as the Township's preferred type of end-of-pipe facility for providing stormwater management, due to the opportunities to incorporate multiple stormwater management functions within the facility (i.e. stormwater quality, erosion, and quantity/flood control). In addition, areas recommended to incorporate source controls for stormwater management have been identified, where the size of contributing drainage area and/or impervious coverage is anticipated to be too small to support wet pond facilities. The estimated permanent pool and extended detention storage volumes for the end-of-pipe wet pond facilities are presented in **Phase 3** of the **Subwatershed Study** in Table 2.2.5 based upon current Provincial Criteria (ref. Ministry of the Environment, Conservation, and Parks, 2003) for stormwater quality control, and the sizing criteria for flooding and erosion control presented in **Table 8-3** and **Table 8-4**. The total storage volumes for areas incorporating source controls are summarized in **Phase 3** of the **Subwatershed Study** in Table 2.2.6**.** The locations of wet pond facilities are described in the Subwatershed Study and Stormwater Evaluation Master Plan in addition to the preferred concept plan**.**

Similar to new sewage pumping station's alternative locations for stormwater management facilities were not identified and evaluated as facility locations were guided by topography (preference for optimized gravity flow) and siting the facility in planned park and open space blocks as identified in the preferred concept plan.

Please refer to the Subwatershed Study for more details surrounding the preliminary concepts.

Table 8-4: Unitary Storage and Discharge Criteria for Flood Control

Location	Node	Location	Erosion Unity Volume (m^3/imp.ha)	Erosion Unitary Flow (m^3/s/ha)
Twenty Mile Creek	JS26D	Young Street	400	0.001
Twenty Mile Creek	WC17	confluence; north of CNR	400	0.001
Twenty Mile Creek	WC20	trib, South of West Street	400	0.001
Twenty Mile Creek	WC116	810 metres +/- West of S Grimsby Rd 6	400	0.001
Twenty Mile Creek	JS43US; DICBMH_418	Las Road; Nornak Road	400	0.001
Twenty Mile Creek	JS32D	D/S of Townline Road	400	0.001
Twenty Mile Creek	WC11; WC12	130 metres +/- U/S of Highway 20; 140 metres +/- D/S of Highway 20	400	0.001
North Creek	OF6	east of Port Davideson Road	400	0.001
North Creek	OF7 +OF15	trib, west of Shurie Road	400	0.001
Spring Creek	WC15	200 metres +/- S/E of South of Spring Creek Road	400	0.001

NOTE: 1. Cumulative unitary volumes are inclusive of extended detention storage requirements for erosion control (ref. **Table 8-4**).

PART C: Phase 2 – Impact Assessment and Preferred Community Concept Option

9. Preferred Concept Option

A Preliminary Preferred Concept Plan has been created from a review and evaluation of the previous Concept Plans 1 and 2, including consideration of the feedback received on these earlier concepts.

Specifically Concept 1 was selected based on:

- Preference to consolidate urban employment lands in the northeast part of the expansion area which is more compatible with existing land uses, compared to Concept 2 where proposed employment areas would be located in the southern part of the expansion area which is close to existing residences and institutional uses (schools);
- Preference to designate the northwest part of the expansion area as agricultural employment lands which is more compatible with existing and proposed land uses (particularly aggregate resource extraction operations), compared to Concept 2 where proposed residential use areas would be located in the northern part of the expansion area;
- The potential Smithville By pass for Concept 1 avoids using Townline Road (existing residences and institutional uses - schools) and diagonally bisecting - fragmenting Stage 4 development lands. Additionally Concept 1 (north Smithville By pass) was also identified as preferred as it better aligns with connecting to a future Niagara Escarpment crossing, and can potentially utilize parts of the proposed Master Community Plan arterial road network. The traffic assessment also found that Concept 1 performed better at alleviating congestion in the downtown core, by providing a more attractive alternative route for through vehicles; and
- Unanimous support from the community, landowner group and Township Council.

Other than above there were no distinct differences between Concepts 1 and 2 with respect to the Natural Heritage System, archaeological and cultural heritage resources in addition to municipal infrastructure (water and wastewater and stormwater management) servicing strategies.

Key features of the Preliminary Preferred Concept Plan are summarized in the next subsections.

9.1 Agriculture-Related Employment Area

- Located between the hydro corridor and Young Street
- Protect existing farms, woodlands and wetlands
- Well-suited for future businesses that serve the agricultural sector with a future potential truck route and the future Niagara Escarpment Crossing
- Continue to permit agriculture, agriculture-related, and on-farm diversified uses supportive of the agricultural sector

9.2 Urban Employment Areas

- Expand the existing Smithville Industrial Park to the north and east to accommodate a significant share of future employment growth
- Directing industries to this area will maintain separation from existing and future residential areas and offer enhanced transportation access in conjunction with a future potential truck route and the future Niagara Escarpment Crossing

9.3 Residential Areas

- Proposed in the north-west, west and south to accommodate most of the future housing growth primarily in the form of single and semi-detached dwellings and street townhomes
- The street pattern and trail networks will provide connectivity throughout these areas, with convenient access to parks, open space and nearby neighbourhood centres with local retail and services

9.4 Mixed Use / Medium Density Areas

- Proposed to frame the future residential areas along existing and future main and collector streets in each of the new neighbourhoods
- Multi-unit housing, primarily townhomes in a range of built forms such as cluster, back-to-back and stacked townhouses, and compatible business uses and services at a neighbourhood scale

- Will help to support a complete neighbourhood with a mix of housing types, local businesses and services, walking, cycling and future local transit

9.5 Commercial / Mixed Use Nodes

- Proposed as neighbourhood centres located at main street junctions
- A hub of local services and activities will be promoted through mixed-use buildings with street-level business frontages and office and residential apartments above
- Neighbourhood focal points intended to be pedestrian-oriented, with character buildings and complete streets that are well-connected to the surrounding areas

9.6 Community Facilities and Open Space

- Locations for future schools, community centres, parks, indoor and/or outdoor recreation facilities, places of worship and similar places serving the local area and/or the community of Smithville as a whole
- Central location of schools and other community facilities, parks and Nodes within each neighbourhood to maximize convenient access to these destinations

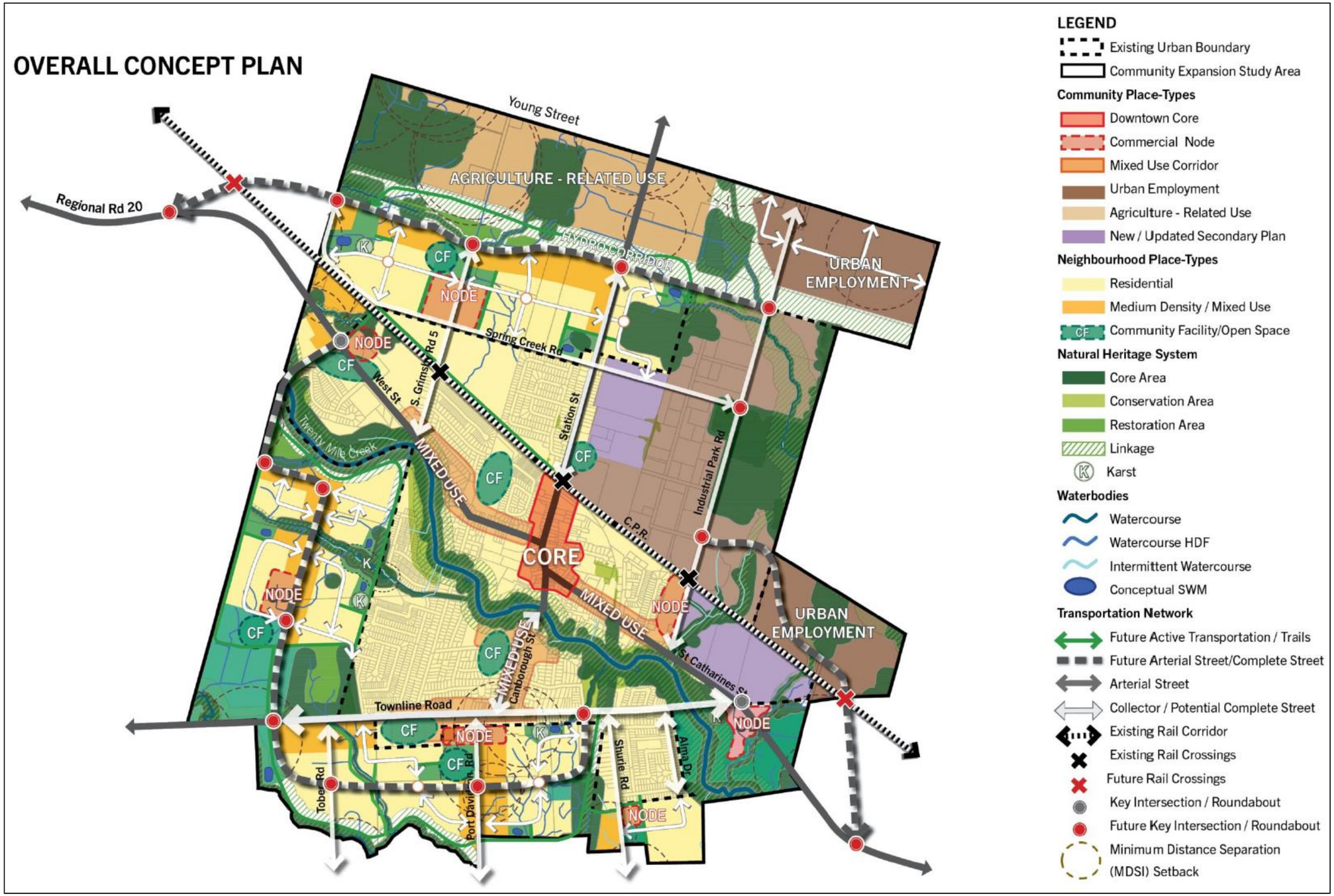
9.7 Natural Heritage System

- Paces described above are laid out within a connected system of natural features and open spaces that form the proposed Natural Heritage System
- Natural Heritage System will conserve and connect key features of the natural environment, protecting habitats, biodiversity and overall health and quality of the watershed
- Includes trails and other compatible forms of public access to natural areas where they can be accommodated

Subsequent to the completion of the Impact Assessments, modifications were completed for the Preliminary Preferred Concept Plan based upon the findings from the Impact Assessments, and further consultation through the integrated land use planning process. The revised Preliminary Preferred Concept Plan is presented in **Figure 9-1.**

The revised Preliminary Preferred Concept Plan was then used to evaluate alternatives and develop recommended servicing strategies, as presented in **Part C** of this report.

Figure 9-1: Preliminary Preferred Concept Option



10. Subwatershed / Stormwater Management

10.1 Identification and Evaluation of Alternative Strategies

10.1.1 Hydrologic Impact Assessment

Hydrologic analyses have been completed in order to assess the impacts of the proposed change in land use per the Preliminary and Preferred Concept Plan, in the absence of stormwater management controls for erosion and flood control as a baseline. This assessment was undertaken using the Preliminary and Preferred Concept Plan and is presented in **Figure 9-1,** it also provided guidance for the subsequent revisions to the land use plan.

The results of the hydrologic analyses indicate that, in the absence of stormwater management, the future development within the study area would be anticipated to increase local peak flows by between 11 % and 160% along the local receiving systems, with the greatest increases occurring during the more frequent and less formative storm events. The results also indicate that the proposed change in land use would be anticipated to marginally increase peak return period flows along the main branches of the Twenty Mile Creek, North Creek, and Spring Creek, with increases generally less than 1% above existing levels. Consequently, the proposed development within the study area would be anticipated to significantly increase peak flows locally, with relatively minor residual increases occurring along the main branches of the Twenty Mile Creek, North Creek, and Spring Creek.

The results also indicate that the proposed change in land use would be anticipated to marginally increase peak return period flows along the main branches of the Twenty Mile Creek, North Creek, and Spring Creek, with increases generally less than 1% above existing levels. Consequently, the proposed development within the study area would be anticipated to significantly increase peak flows locally, with relatively minor residual increases occurring along the main branches of the Twenty Mile Creek, North Creek, and Spring Creek. A complete breakdown of the results from this assessment can be found in **Phase 2** of the **Subwatershed Study**.

The results in the Subwatershed Phase 3 Report indicate that, in the absence of stormwater management, the future development would be anticipated to increase the surface runoff volume toward the high and medium constraint karst features by between

41.7 % and 129 % compared to existing levels, thus representing an increased flood risk for the lands surrounding the feature, and a potentially increased geotechnical hazard.

10.1.2 Preliminary Stormwater Management

Hydrologic analyses have been completed to establish stormwater management criteria for the future development within the study area, and to develop a stormwater management plan for the future development areas accordingly.

The future development within the urban expansion boundary for the Community of Smithville would result in increased local flood risk and erosion potential along the local watercourses, and would be anticipated to decrease groundwater recharge and increase surface runoff volume to area karst features. The impacts to the development may be mitigated by implementing extended detention storage and drawdown within stormwater management plans, as well as the application of quantity controls for all future development within the Spring Creek Subwatershed, and strategic quantity controls for future development within development areas discharging toward the North Creek and Twenty Mile Creek to mitigate local flood risk as outlined herein. Unitary sizing criteria have been developed to provide the requisite erosion and flood control for the future development. Opportunities exist to refine the unitary sizing criteria as part of future studies, which should also account for the application of Low Impact Development Best Management Practices within the overall stormwater management plan.

A complete breakdown of the results from this assessment can be found in Phase 2 of the Subwatershed Study.

10.2 Preferred Strategy

10.2.1 Stormwater Management

Various technologies are available to satisfy stormwater management criteria identified herein. The specific technology/technique selected depends upon contributing land use, size of drainage area, and the stormwater management function required. **Phase 2** of the **Subwatershed Study** provides a summary of various practices, and the corresponding function provided by the technology. As the summary above indicates, a variety of stormwater management objectives are required under the recommended plan, hence it is anticipated that a combination of technologies will be required for all future development areas, in order to achieve the requisite objective.

In general, the selection of the appropriate stormwater management practice is dependent upon the size (i.e. drainage area) and land use conditions within the

proposed development area draining to the specific stormwater management facility. The following general principles have been applied in developing the recommended stormwater management plan:

- Wet end-of-pipe facilities are preferred, particularly for residential developments, due to their ability to address multiple stormwater management requirements (i.e. quantity, quality, thermal mitigation, and erosion control).
- Where drainage areas are insufficient to support an end-of-pipe facility (i.e. generally drainage areas less than 5 hectares), source controls (i.e. underground storage, surface storage, Low Impact Development Best Management Practices, oil/grit separators, vegetated technologies, etc.) are to be applied.
- Low Impact Development Best Management Practices are to be applied throughout the urban expansion area, with more passive and distributed Low Impact Development infiltration Best Management Practices encouraged (i.e. increased topsoil thickness, bioswales), versus Low Impact Development infiltration Best Management Practices which promote enhanced permeability (i.e. sand columns).

The above long list of stormwater management practices has been reviewed with Township of West Lincoln staff to determine the practices acceptable to the municipality for specific land uses. Table 2.2.2 provides a summary of the practices acceptable to the Township of West Lincoln.

The recommended stormwater management plan is presented in **Phase 3** of the **Subwatershed Study** in Drawing WR-1. The unitary sizing criteria and corresponding stormwater management facility sizing is to be verified and refined as part of future studies.

10.3 Recommended Capital Works

10.3.1 Management Recommendations

10.3.1.1 Other Stormwater Management Considerations

In addition to the above minor system upgrades, it is recognized that all future infill, intensification, and redevelopment within the existing urban center would be required to implement stormwater management practices for stormwater quality and erosion control. These practices are recommended to be designed based upon the total

impervious coverages of the site. In addition, and consistent with emerging guidance from the Province of Ontario, it is recommended that the stormwater management practices incorporate measures to promote infiltration and reduce runoff volume to the receiving infrastructure, in order to enhance the sustainability and longevity of the urban drainage systems.

10.3.1.2 Erosion Control

Unitary storage and discharge criteria have been established as part of **Phase 2** of the **Subwatershed Study** to mitigate erosion impacts at key locations within Twenty Mile Creek Watershed, North Creek Watershed, and Spring Creek Watershed. These criteria have been developed, premised upon providing extended detention storage within the end-of-pipe facilities to maintain the volume of runoff above the critical flow rate at existing levels, i.e. <5% residual increase in duration and volume of critical flow exceedance, and facility drawdown times generally five days or less. The unitary storage and discharge requirements within the end-of-pipe facilities for erosion control are presented in **Table 10-1.**

Table 10-1: Stormwater Management Facility Sizing Criteria for Erosion Control – Twenty Mile Creek, North Creek, and Spring Creek

Quantity Component	Cumulative Unitary Volume (m^3/impervious hectares)	Unitary Discharge (m^3/s/ha)
Erosion	400	0.001

10.3.1.3 Flood Control

Unitary storage and discharge criteria have similarly been established as part of the Phase 2 Impact Assessment to mitigate increased flood potential at key locations along the Twenty Mile Creek Main Branch as well as along minor tributaries within Twenty Mile Creek Watershed downstream of the urban expansion area, including within the North Creek Subwatershed and the Spring Creek Subwatershed, resulting from the future development, for all events up to the 100-year return period storm. The unitary storage and discharge for flood control is presented in **Phase 3** of the **Subwatershed Study**.

10.3.1.4 Stormwater Quality Control

Stormwater quality control for the future development is required to control runoff to an “Enhanced” standard of treatment, per current Provincial standards (ref. Ministry of the Environment, Conservation, and Parks, 2003). Wet ponds have been advanced, as the Township’s preferred type of end-of-pipe facility for providing stormwater management,

due to the opportunities to incorporate multiple stormwater management functions within the facility (i.e. stormwater quality, erosion, and quantity/flood control). In addition, areas recommended to incorporate source controls for stormwater management have been identified, where the size of contributing drainage area and/or impervious coverage is anticipated to be too small to support wet pond facilities. The estimated permanent pool and extended detention storage volumes for the end-of-pipe wet pond facilities are presented in **Phase 3** of the **Subwatershed Study** based upon current Provincial Criteria (ref. Ministry of the Environment, Conservation, and Parks 2003) for stormwater quality control, and the sizing criteria for flooding and erosion control The total storage volumes for areas incorporating source controls are summarized in **Phase 3** of the **Subwatershed Study.**

11. Transportation

A **Transportation Master Plan** (**Appendix C**) has been developed to create an overall vision for transportation within the Smithville community to the year 2051 and beyond. The Transportation Master Plan provides a framework for the transportation network, in terms of the overall vision, goals and objectives with an examination of the current and future transportation conditions within the community. Solutions for the settlement area are recommended, outlining the implementation and monitoring that would need to occur. Below summarizes the recommended transportation infrastructure.

11.1 Identification and Evaluation of Alternative Strategies

Each of the preferred concept iterations included a similar road network consisting of local, collector and arterial road systems required to service the proposed land uses. The iterations do differ in that one includes a north Smithville By pass option and the other includes a south Smithville By pass option. Concept 1 (north Smithville By pass) was identified as preferred as it better aligns with future the Niagara Escarpment crossing, can potentially utilize parts of the proposed Master Community Plan arterial road network, improves congestion in the downtown core and avoids land fragmentation within the Smithville Master Community Plan area. The Smithville By pass will be further studied as part of a future Municipal Class Environmental Assessment to be undertaken by Niagara Region. In addition, a road capacity increase to Townline Road between Regional Road 20 and South Grimsby Road 6 was identified with the recommendation being addition of adding a center turning lane, the assessment also identified the need to widen Station Street between Regional Road 20 and a new northern connector to a three lane profile, as well as select sections of Industrial Park Road. These project falls under Schedule C and will be evaluated further as part of a future Municipal Class Environmental Assessment.

11.2 Preferred Strategy

In support of the modeling exercise, a series of public and stakeholder engagement exercises were conducted to gain feedback and understand some of the challenges and opportunities facing Smithville. The information gathered from these exercises was reviewed and a series of mitigation measures that aligned with the stated objectives were developed and tested. In assessing the impacts of the proposed development

across the town, it was determined that there were several key measures that were required to mitigate the impacts of the new development on the transportation system.

- The assessment indicated that a new bypass of Smithville is required to address the growth of both internal and regional movements that conflict with each other and create congestion within the town.
- A significant amount of development is planned on either side of Townline Road which results in the level of traffic on this corridor becoming greater than the available capacity. To address this the widening of Townline Road to a three lane profile is required.
- The growth in north/south trips within the internal area means that the capacity and function of Station Street will change, to mitigate this a three lane profile is proposed to allow for a turning lane.
- The support of alternative modes of transportation will be a key part of reducing the impact of the new development on the road network. To support this a series of streetscape standards have been developed that provide dedicated space for alternative modes.

In addition to these mitigations measures, a series of other measures have been planned, including signalization of certain intersections, development of new river crossings for active transportation modes and recommendations regarding a number of road safety and other educational programs. These measures packaged together will provide the required infrastructure and programs to minimize the impact of the new development on the existing transportation network in Smithville.

The Transportation Master Servicing Plan has developed a program to support the phased implementation of the various transportation infrastructure programs which is tied to the block plan process proposed under official plan amendment 63. In developing the options and measures for implementation, the Transportation Master Servicing Plan has addressed the phase 1 and 2 requirements of the Municipal Class Environmental Assessment process, and has also identified high-level cost estimates for each of the proposed measures. **Figure 11-1**, **Figure 11-2**, and **Figure 11-3:** highlight the implementation plans created to address these requirements.

Figure 11-1: Proposed New Roads and Road Upgrades

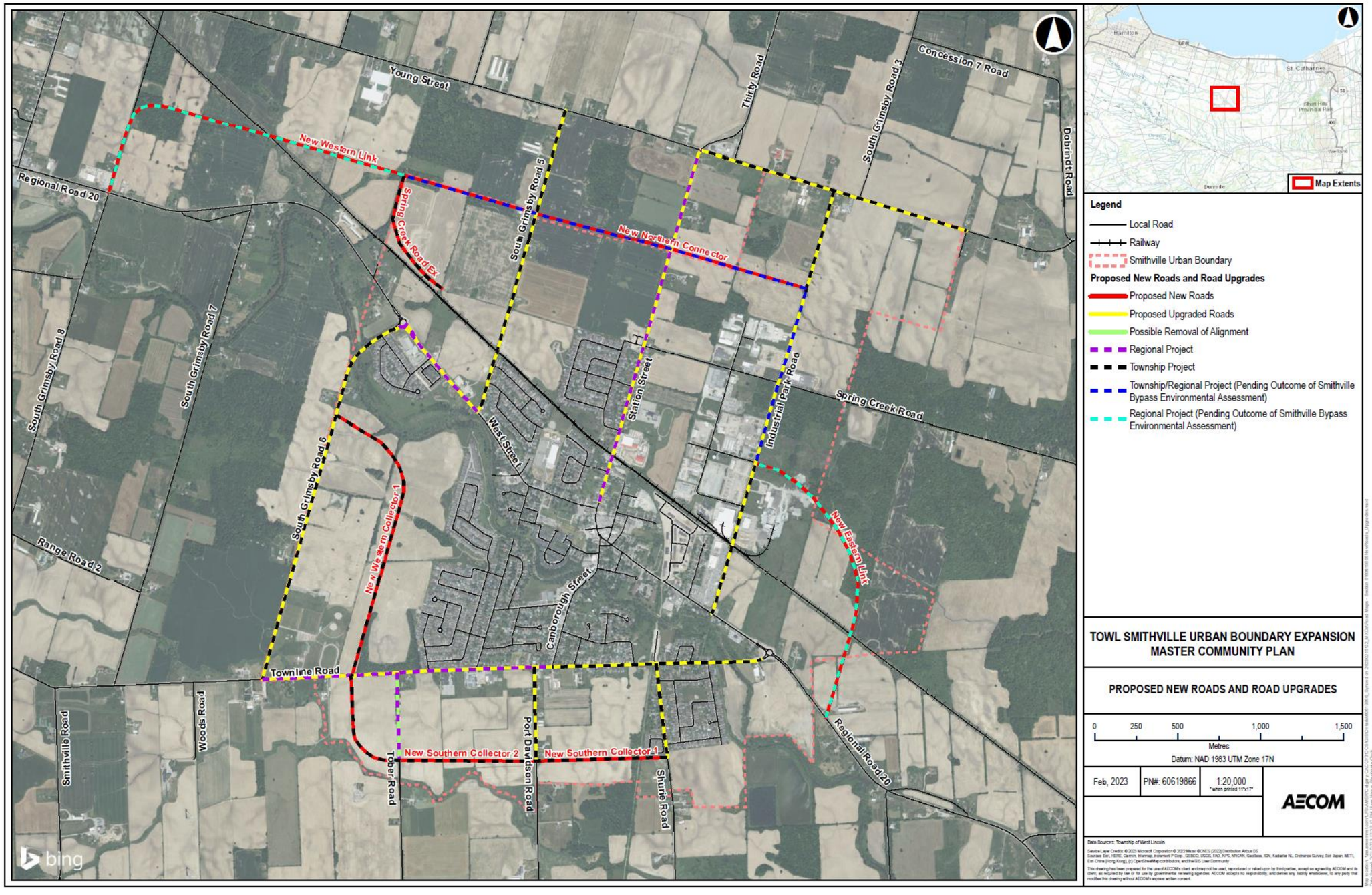


Figure 11-2: Planned Junction Improvements

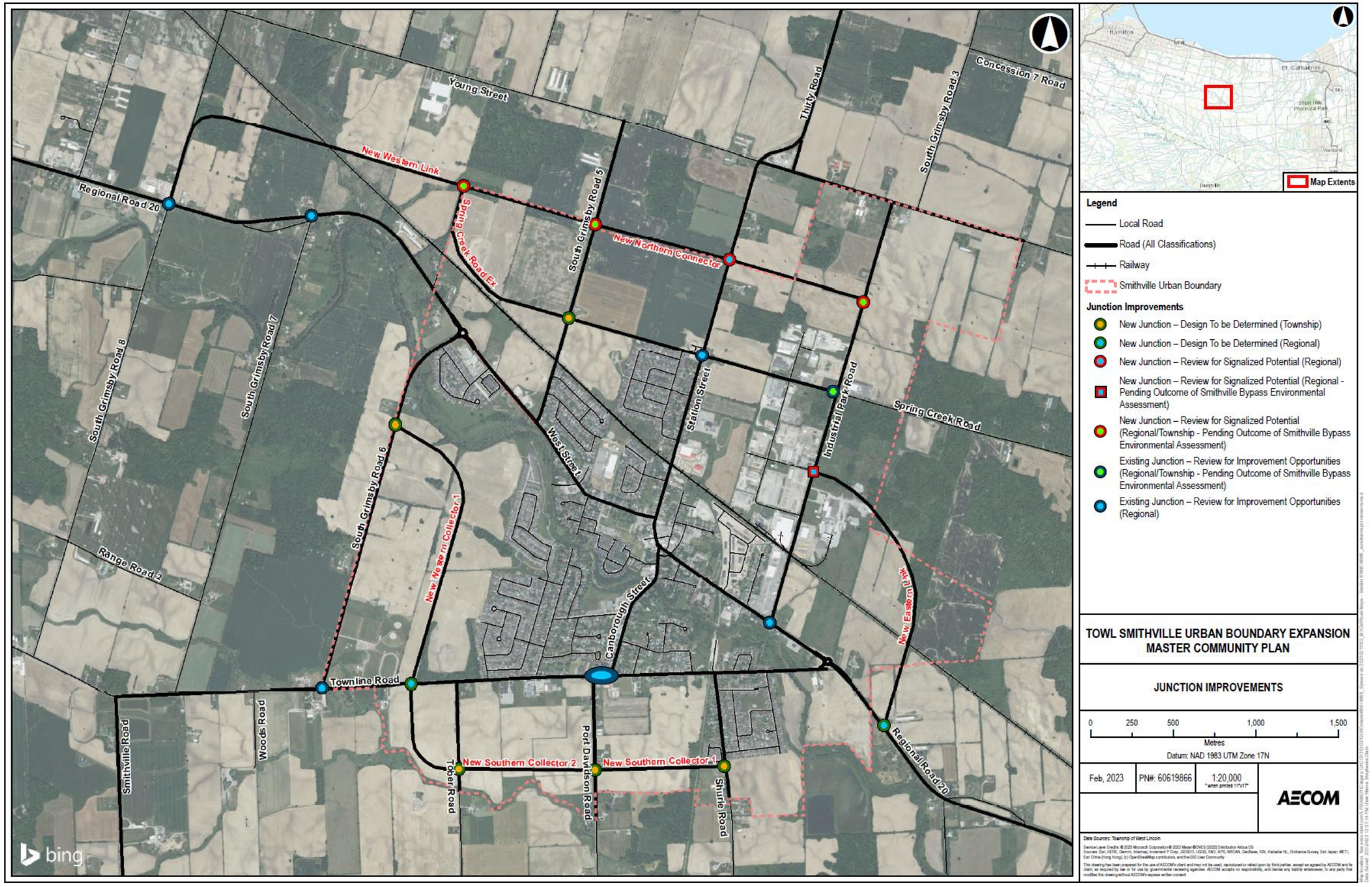
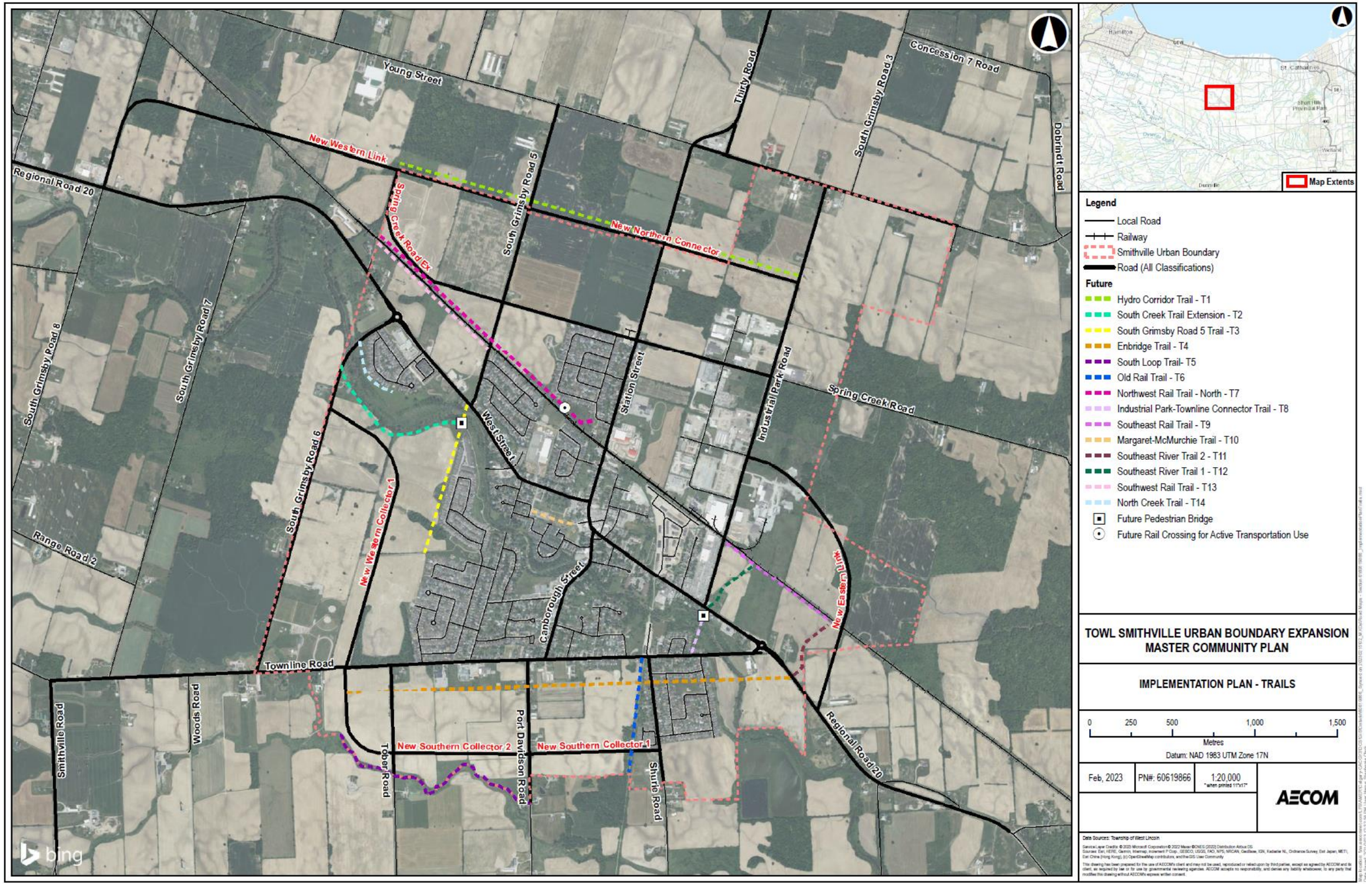


Figure 11-3: Implementation Plan – Trails



11.3 Preferred Road Cross Sections – Complete Streets

Complete streets supports the development of cohesive transportation corridors. They envision how different modes of transportation, from driving a private vehicle to cycling and walking, interconnect and how supporting amenities such as landscaping and street furniture can support a vibrant public realm. The Region developed Complete Streets Design Guidelines as part of their Transportation Master Servicing Plan and the Township has policies within their Official Plan dictating the implementation of complete streets in support of healthy communities:

Policy 3.5.2. g) “Road design and transportation planning shall be done within a complete streets design framework.”; and

Policy 3.5.2. i) “Land use and development shall be planned using a complete streets approach considering the needs of all users – pedestrians, bicyclists, and motorists of all ages and abilities, and shall give priority to street connectivity and active transportation infrastructure”.

To support the integration of Smithville-specific complete streets into the planning framework, a series of cross sections were developed outlining six standard streetscape environments which could be found in Smithville. The streetscapes are summarized in **Table 11-1** and their implementation would be determined by the classification of road as well as characteristics. The streetscapes were developed with consideration of the existing and future planned Niagara Region Complete Streets framework and were adjusted to reflect Smithville’s unique characteristics while maintaining design best practices and provincial standards. Refer to **Figure 11-4, Figure 11-5, Figure 11-6,** and **Figure 11-7** for the streetscape cross sections.

Table 11-1: Streetscape Summary

Streetscape	Total Right of Way (Metres)	Total Vehicular Travel Lanes	On-Street Parking	On-Street Cycling Facilities	Multi-Use Path	Sidewalks
Regional Road (Arterial)	■ 30.5*	■ Regional Road under Regional Jurisdiction	■ –	■ –	■ –	■ –
Township Arterial (Arterial B)	■ 25	■ 2 travel lanes and 1 centre turning lane	■ –	■ On-street bike lanes on both sides of road	■ –	■ Sidewalks on both sides of ROW
Collector Road	■ 22	■ 2	■ –	■ On-street bike lanes on both sides of road	■ –	■ Sidewalks on both sides of ROW
Local Road	■ 20	■ 2	■ –	■ –	■ –	■ Sidewalk on one side of ROW. ■ Addition of sidewalk on other side of ROW optional.
Rural Edge Route	■ 24.6	■ 2	■ –	■ –	■ Two-directional multi-use path on one side of ROW	■ –

Figure 11-4: Streetscape Cross Section – Township Arterial

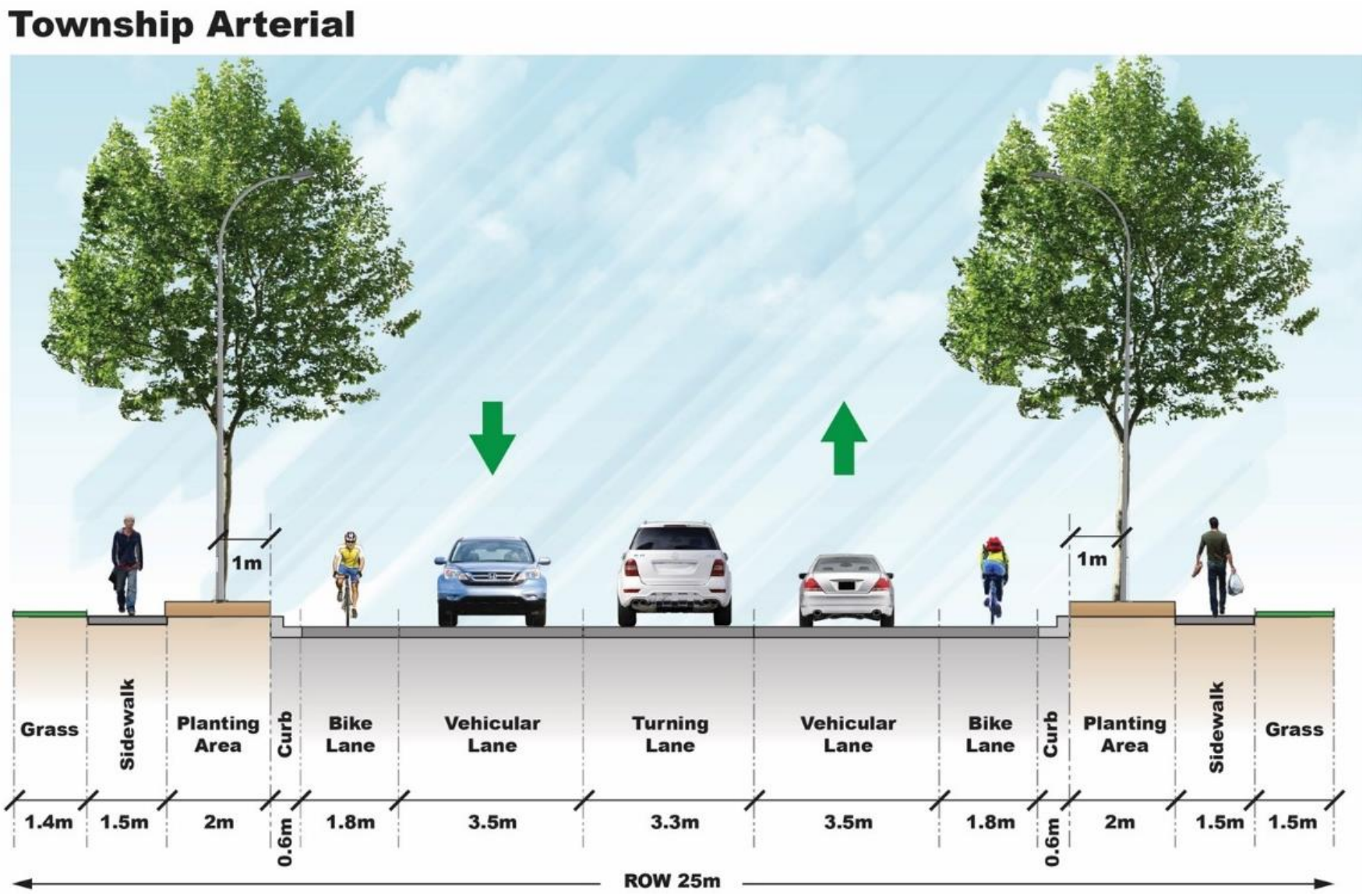


Figure 11-5: Streetscape Cross Section – Collector Road

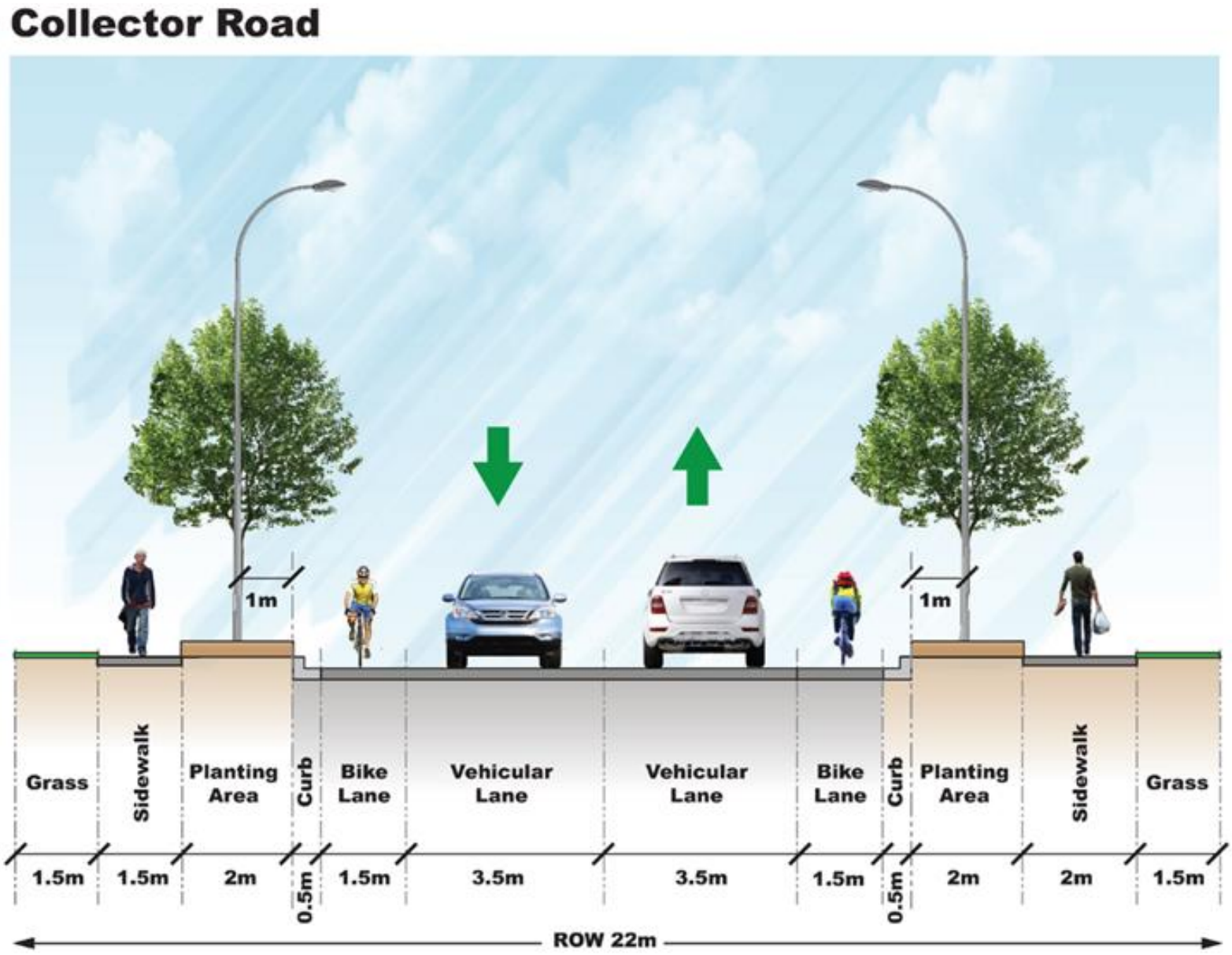


Figure 11-6: Streetscape Cross Section – Local Road

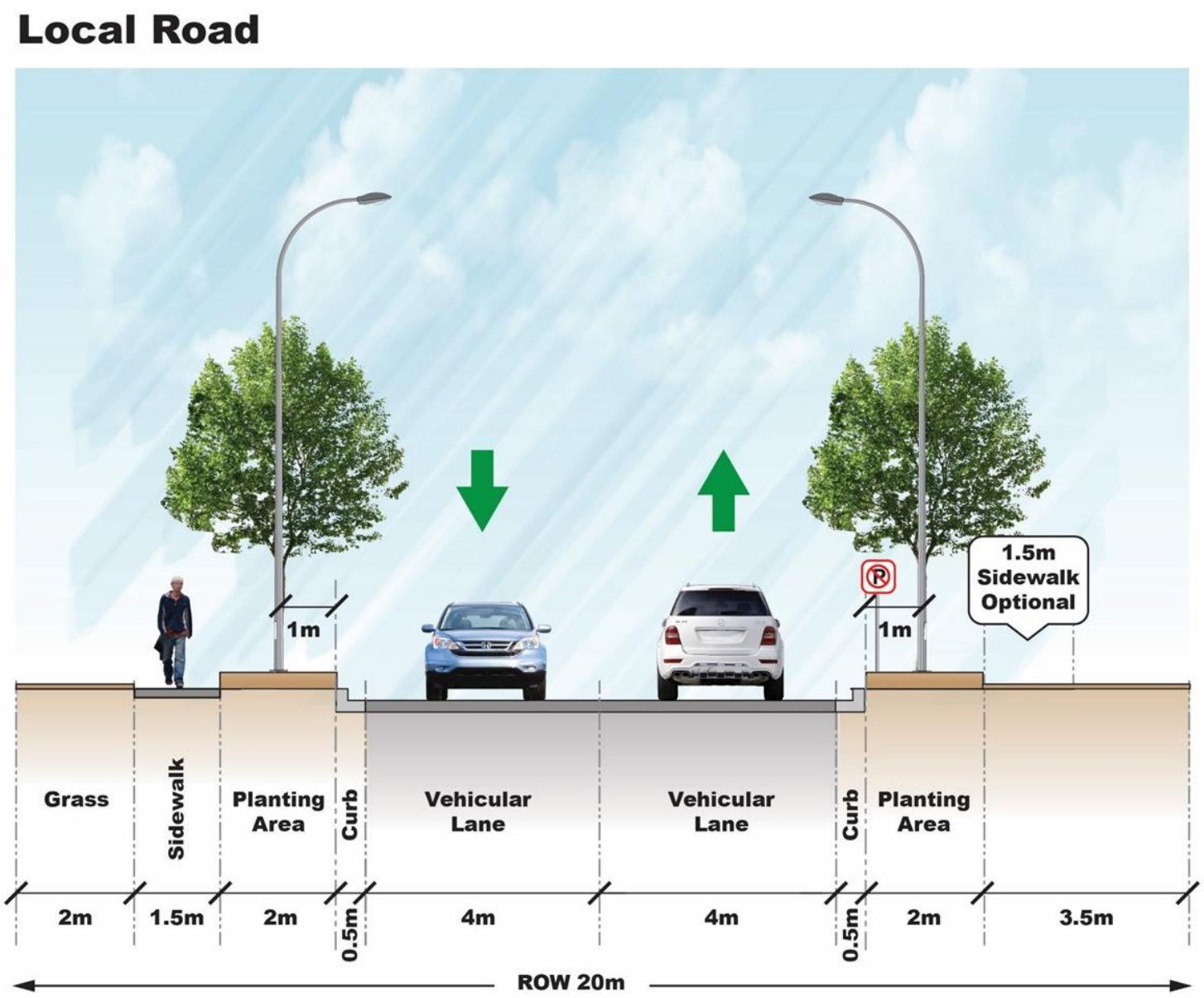
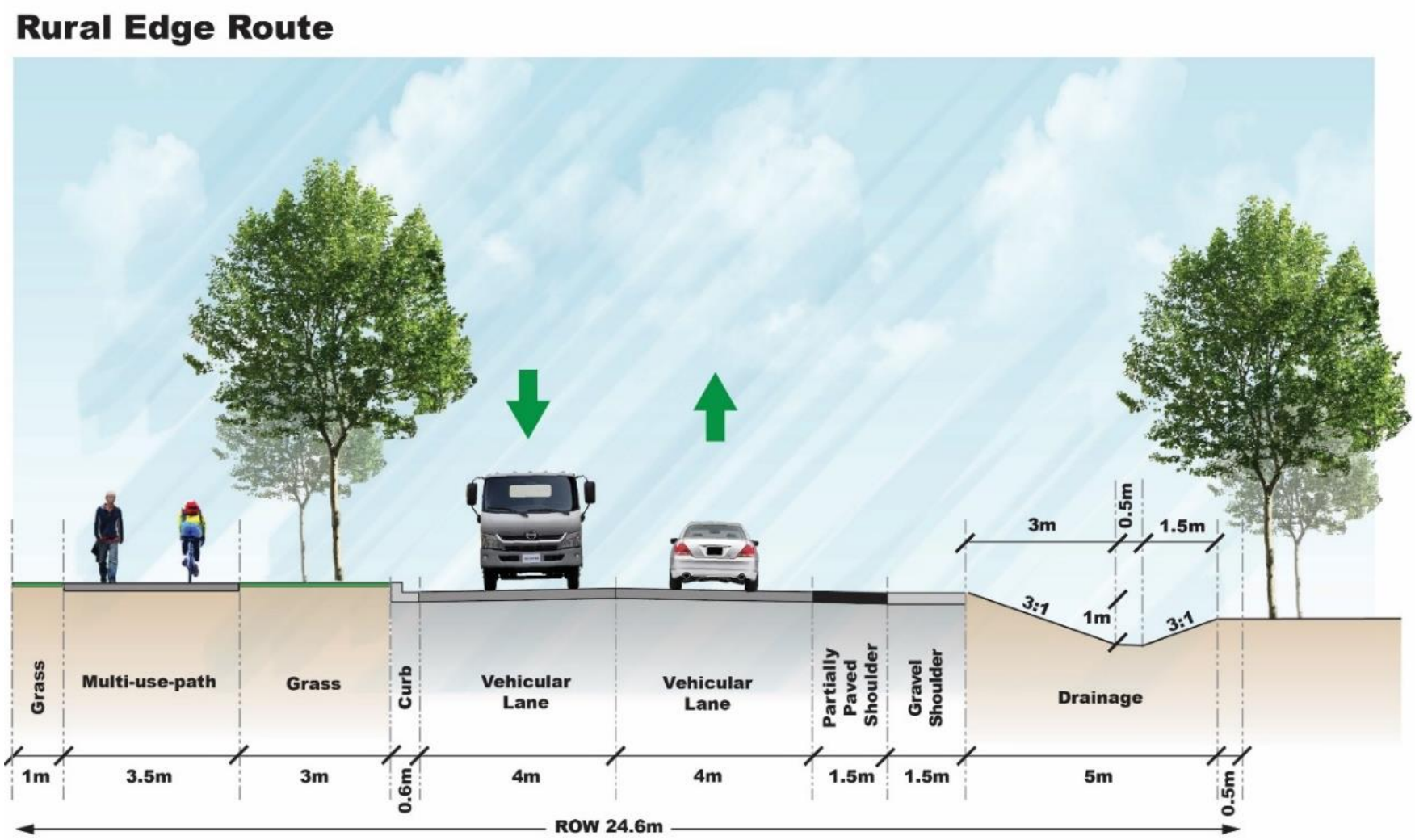


Figure 11-7: Streetscape Cross Section - Rural Edge Route



11.4 Smithville Bypass

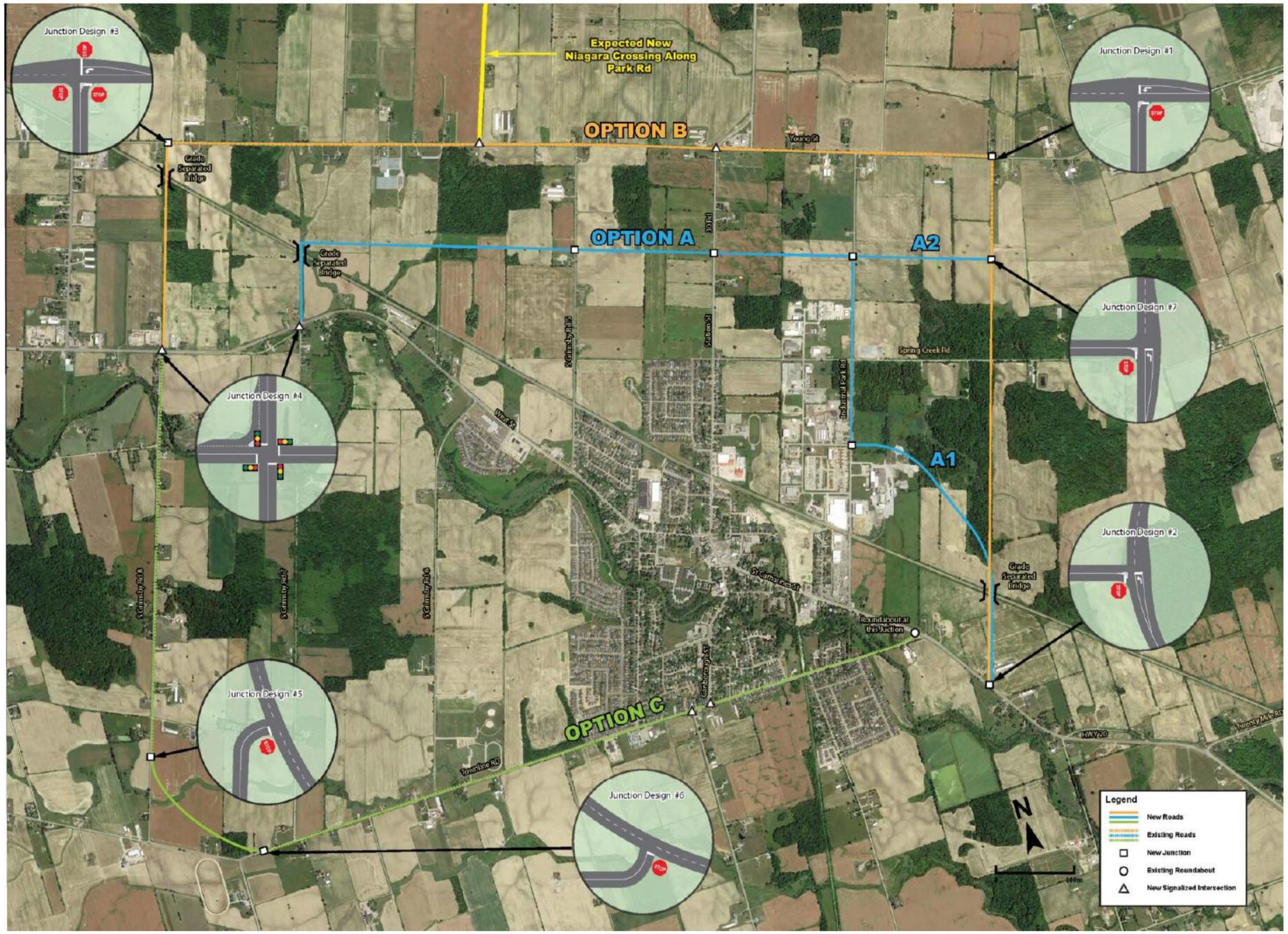
The modeling assessment considered the need for a bypass around Smithville and tested a series of conceptual alignments. Based on the data and information available at the time of the assessment, a bypass that can provide relief to traffic congestion in the downtown core is recommended. The bypass will provide relief to the increased volume of traffic generated by development within the urban boundary expansion, mitigate the impact of having through traffic in downtown Smithville, and provide improved connectivity to other strategic infrastructure (such as the potential Niagara Escarpment Crossing). The proposed connectors for bypass Option A are as follows and as shown on **Figure 11-8:**

- **New Eastern Link:** On the east side of Smithville, this new link would connect to Regional Road 20 (prior to the urban boundary), head north over the Canadian Pacific Railway corridor through a grade separated crossing, and travel west to connect to Industrial Park Road.
- **Industrial Park Road:** The bypass would follow along the existing Industrial Park Road from the New Eastern Link to the New Northern Connector.
- **New Northern Connector and New Western Link:** A new link that travels alongside the existing hydro corridor would connect Industrial Park Road and Regional Road 20 west of the South Grimsby Road 6 roundabout, and provide a grade separated crossing of the Canadian Pacific Railway corridor. The New Western Link could connect back to Regional Road 20 at the South Grimsby Road 8 intersection.

All works to support the implementation of the bypass would be required to go through an Environmental Assessment conducted by the Region. The Township should support the Region in the completion of the Environmental Assessment early on within the Master Community Plan process.

- **Signalize Regional Road 20 and South Grimsby Road 8 Intersection:** This would support the efficient movement of vehicles. It is recommended at the design and geometry of this intersection be reviewed further.
- **Signalized Intersections to Support Bypass:** The following intersections are recommended to be signalized to support the Smithville Bypass, all of which would need to be confirmed through the Environmental Assessment to be conducted by the Region on the Smithville Bypass:
  - New Eastern Link and Industrial Park Road;
  - Industrial Park Road and New Northern Connector;
  - Regional Road 14 (Station Street) and New Northern Connector;
  - South Grimsby Road 5 and New Northern Connector; and
  - Spring Creek Road Extension and New Western Link.

Figure 11-8: Smithville By-Pass Route Alternatives



11.5 Road Network Mitigations

The modeling assessment identified a series of new and upgraded roads that will be required to meet the additional demand generated through the new development. The Block Plan Phasing approach (Official Plan Amendment No. 63) has allowed for the linking of these various road network improvements to particular areas of development within the urban boundary expansion area. Details on specific road network improvements and mitigations can be found in the Transportation Master Plan. All of the new and upgraded roads will be required to be designed to corresponding streetscape cross section standards:

11.5.1 Stage 1

Prior to the completion of all Block Plans under this stage the following road improvements are required to be funded by the developer and constructed by the Township or Region as jurisdiction dictates. All Roads to be designed to the indicated standard identified in the Smithville Transportation Master Plan:

- Funding and construction of Spring Creek Road extension
- Funding and construction of new Northern Connector
- Funding and construction of the upgrades to South Grimsby Road 5 and Station Road

Final alignment and detailed design of the following trails and off road routes to be funded by the developer and constructed by the Township prior to the competition of all Blocks Plans under this stage:

- Northwest Rail Trail
- Southwest Rail Trail
- Hydro Corridor Trail

11.5.2 Stage 2

Prior to the Completion of all Block Plans under this stage the following road improvements are required to be funded by the developer and constructed by the Township or Region as jurisdiction dictates. All Roads to be designed to the indicated standard identified in the Smithville Transportation Master Plan:

- Funding and construction of the upgrades to Industrial Park Road

Final alignment and detailed design of the following trails and off road routes are to be funded by the developer and constructed by the Township prior to the competition of all Blocks Plans under this stage:

- Southeast Rail Trail
- Southeast River Trail 1
- Southeast River Trail 2
- Industrial Park-Townline Connector Trail

11.5.3 Stage 3

Prior to the Completion of all Block Plans under this stage the following road improvements are required to be funded by the developer and constructed by the Township or Region as jurisdiction dictates. All Roads to be designed to the indicated standard identified in the Smithville Transportation Master Plan:

- Funding and construction of new Southern Collector 1 and 2
- Funding and construction of the upgrades to Townline Road
- Funding and construction of the upgrades to Tober Road, Port Davidson Road and Shurie Road

Final alignment and detailed design of the following trails and off road routes are to be funded by the developer and constructed by the Township prior to the competition of all Blocks Plans under this stage:

- Old Rail Trail
- Enbridge Trail
- South Loop Trail

11.5.4 Stage 4

Prior to the Completion of all Block Plans under this stage the following road improvements are required to be funded by the developer and constructed by the Township or Region as jurisdiction dictates. All Roads to be designed to the indicated standard identified in the Smithville Transportation Master Plan:

- Funding and construction of new Western Collector 1
- Funding and construction of the upgrades to South Grimsby Road 6

Final alignment and detailed design of the following trails and off road routes to be funded by the developer and constructed by the Township prior to the competition of all Blocks Plans under this stage:

- South Creek Trail Extension
- South Grimsby Road 5 Trail

Through the implementation of new roads and upgraded roads, it is recommended to promote the integration of Smithville-specific complete streets through the standard streetscape that cross sections be developed for the community and augment with Regional design guidance for complete streets, where needed.

11.6 Infrastructure Measures

The infrastructure measures were developed using three-stage processes; one for determining roads and junctions, and another for determining on-street cycling facilities.

Process 1: Roads and Junctions

1. Modelling Assessment → 2. Block Plan Requirements → 3. Supporting Upgrades)

1. **Modelling Assessment:** A modelling assessment was conducted using Aimsun and Equilibre Multimodal Multimodal Equilibrium transportation planning software to assess existing and forecasted traffic conditions to 2051 within Smithville and test options to optimize the flow of vehicles.

   The modelling assessment informed the infrastructure recommendations outlined below to support the urban boundary expansion, organized by Regional and Township projects. All infrastructure recommendations would need to be planned, designed, and constructed in accordance with all relevant standards and requirements.

2. **Block Plan Requirements:** In addition to the recommendations derived from the modelling assessment, roads were identified for upgrading or retrofitting based on Block Plan requirements outlined in Official Plan Amendment No. 63. The Development Staging Plan outlined in **Figure 15-1** can be referenced for the roads adjacent to the development block areas.

3. **Supporting Upgrades:** In response to the Block Plan requirements, remaining segments of roads already identified for upgrades or retrofitting as outlined in Official Plan Amendment No. 63 were added to the list of recommendations. The intent of this step was to identify remaining road segments which would fill in the upgrading gaps across the road network; allowing for a consistent and seamless transition between segments.

Process 2: On-Street Cycling Facilities

1. New Roads and Streetscape Cross Sections → 2. Block Plan Phasing Requirements / Regional Strategic Cycling Network → 3. Supporting Links)

1. **New Roads and Streetscape Cross Sections:** On-street cycling facilities for new roads were identified based on the streetscape cross sections.
2. **Block Plan Phasing Requirements / Regional Strategic Cycling Network:** Roads were identified for upgrading or retrofitting in response to Block Plan Phasing requirements outlined in Official Plan Amendment No. 63 or to support the implementation of the strategic cycling network outlined in the Region's Transportation Master Servicing Plan. Through such upgrades and/or retrofitting works, cycling facilities would be implemented based on the road's classification and corresponding streetscape cross sections):
3. **Supporting Links:** Additional roads were identified for retrofitting to provide links for the cycling network (and to match other sections of the same roads identified for upgrades). Completing such works would address gaps in the cycling network when only considering upgrades required for Block Plan Phasing or segments of the Region's planned strategic cycling network. The intent of this step was round-out the assessment of producing a seamless cycling network across Smithville.

The infrastructure recommendations are summarized in the following tables and figures:

Roads, On-street Cycling Facilities, and Junctions

- **Table 11-2** (Regional) and **Table 11-3** (Township) summarize the recommended infrastructure projects in the form of roads (including on-street cycling facilities) and junctions. The relevant step of the three-stage processes are identified, where applicable.
- **Figure 11-1, Figure 11-2,** and **Figure 11-3:** outlined the updated road classifications, new and upgrades roads, and junction improvements identified in the Transportation Master Servicing Plan. Only major roads such Regional, Arterial, and Collector road classifications that will act as key travel paths within Smithville were identified; the identification of local roads for implementation or upgrading would be subject to Block Plan development.

11.7 Recommended Capital Works

Table 11-2: Infrastructure Measures – Phasing and Cost Estimates – Niagara Region Projects

TMP ID	Project Name	Project Description	Assumed Jurisdiction	Phasing Timeframe	Estimated Capital Cost (2022 CAD)	Class EA Schedule & Reference
RR/TWL-Road-02	■ New Northern Connector	■ New Road – Collector at minimum - range represents Collector to Regional Road	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years (based on Regional Bypass Study)	■ $17,500,000-$25,000,000	■ MCEA Schedule C (MCEA Road Project #20)* ■ *Considered as part of future Smithville Bypass EA
RR-Road-03	■ New Western Link	■ New Road – Collector at minimum - range represents Collector to Regional Road	■ Regional (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years (based on Regional Bypass Study)	■ *To be determine through additional study (assume will be over $10 Million construction cost)*	■ MCEA Schedule C (MCEA Road Project #20)* *Considered as part of future Smithville Bypass EA
RR-Road-04	■ New Eastern Link	■ New Road – Collector at minimum - range represents Collector to Regional Road	■ Regional (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years (based on Regional Bypass Study)	■ *To be determine through additional study (assume will be over $10 Million construction cost)*	■ MCEA Schedule C (MCEA Road Project #20)* ■ *Considered as part of future Smithville Bypass EA
RR-Road-11	■ Regional Road 14 (between Young Street and New Northern Connector)	■ Road Upgrade/ Retrofit- Arterial B	■ Regional	■ Within the next 10 years	■ $5,000,000	■ MCEA Schedule C (MCEA Road Project #20)
RR-Road-12	■ Regional Road 14 (between New Northern Connector and Spring Creek Road)	■ Road Upgrade/ Retrofit - Arterial B	■ Regional	■ Within the next 10 years	■ $5,000,000	■ MCEA Schedule C (MCEA Road Project #20)
RR-Road-13	■ Regional Road 14 (between Spring Creek Road and Regional Road 20)	■ Road Upgrade/ Retrofit- Arterial B	■ Regional	■ Within the next 10 years	■ $10,000,000-$13,000,000	■ MCEA Schedule C (MCEA Road Project #20)
RR/TWL-Road-15	■ Industrial Park Road (between New Northern Connector and New Eastern Link)	■ Road Upgrade/ Retrofit – Collector at minimum – range represents Collector to Regional Road	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $7,000,000-$10,000,000	■ MCEA Schedule C (MCEA Road Project #20)* *Considered as part of future Smithville Bypass EA
RR-Road-17b	■ Townline Road (between Regional Road 14 (Canborough Street) and New Western Collector 1)	■ Road Upgrade/Retrofit – Arterial B	■ Regional	■ 10 – 20 years	■ $10,000,000	■ MCEA Schedule C (MCEA Road Project #20)
RR-Road-18	■ Townline Road (between New Western Collector 1 and South Grimsby Road 6)	■ Road Upgrade/ Retrofit – Collector	■ Regional	■ Greater than 20 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
RR-Junction-01	■ Regional Road 14 (Station Street) and Spring Creek Road	■ Junction Improvement	■ Regional	■ Within the next 10 years	■ $2,000,000	■ MCEA Schedule A (MCEA Road Project #13)
RR-Junction-03	■ Regional Road 20, South Grimsby Road 8, and New Western Link	■ Junction Improvement	■ Regional	■ Within the next 10 years (based on Regional Bypass Study)	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR-Junction-04	■ Regional Road 20 and South Grimsby Road 7	■ Junction Improvement	■ Regional	■ 10 – 20 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)

TMP ID	Project Name	Project Description	Assumed Jurisdiction	Phasing Timeframe	Estimated Capital Cost (2022 CAD)	Class EA Schedule & Reference
RR/TWL-Junction-05	■ Spring Creek Road Extension and New Western Link/New Northern Collector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $700,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-06	■ South Grimsby Road 5 and New Northern Connector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* ■ *Considered as part of future Smithville Bypass EA
RR-Junction-07	■ Regional Road 14 (Station Street) and New Northern Connector	■ Junction Improvement	■ Regional	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-08	■ Industrial Park Road and New Northern Connector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-09	■ Industrial Park Road and Spring Creek Road	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR-Junction-10	■ Regional Road 20 (St. Catharines Street) and Industrial Park Road	■ Junction Improvement	■ Regional	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)
RR-Junction-11	■ Regional Road 14 (Canborough Street)/Port Davidson Road and Townline Road	■ Junction Improvement	■ Regional	■ 10 – 20 years	■ $2,500,000	■ MCEA Schedule A (MCEA Road Project #13)
RR-Junction-12	■ South Grimsby Road 6 and Townline Road	■ Junction Improvement	■ Regional	■ Greater than 20 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)
RR-Junction-13	■ New Eastern Link and Industrial Park Road	■ Junction Improvement	■ Regional (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years (based on Regional Bypass Study)	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR-Junction-14	■ Regional Road 20 and New Eastern Link	■ Junction Improvement	■ Regional	■ Within the next 10 years (based on Regional Bypass Study)	■ $700,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR-Junction-15	■ Townline Road/New Western Collector 1/Tober Road Realignment	■ Junction Improvement	■ Regional	■ 10 – 20 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)

Table 11-3: Infrastructure Measures - Phasing and Cost Estimate - Township Projects

TMP ID	Project Name	Project Description	Assumed Jurisdiction	Phasing Timeframe	Estimated Capital Cost (2022 CAD)	Class EA Schedule & Reference
TWL-Road-01	■ Spring Creek Road Extension	■ New Road – Collector	■ Township	■ Within the next 10 years	■ $7,000,000	■ MCEA Schedule C (MCEA Road Project #20)
RR/TWL-Road-02	■ New Northern Connector	■ New Road – Collector at minimum – range represents Collector to Regional Road	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $17,500,000-$25,000,000	■ MCEA Schedule C (MCEA Road Project #20)* *Considered as part of future Smithville Bypass EA
TWL-Road-05	■ Tober Road Realignment/New Southern Collector 2/New Southern Collector 1	■ New Road – Collector	■ Township	■ 10 – 20 years	■ $14,000,000-$17,500,000	■ MCEA Schedule C (MCEA Road Project #20)
TWL-Road-06	■ New Western Collector 1	■ New Road – Collector	■ Township	■ Greater than 20 years	■ $15,500,000-$24,000,000	■ MCEA Schedule C (MCEA Road Project #20)
TWL-Road-07	■ Spring Creek Road (between Spring Creek Road Extension and Regional Road 14)	■ Road Upgrade/ Retrofit – Collector (addressed through ongoing planning applications)	■ Township	■ Within the next 10 years	■ $9,000,000-$13,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-08	■ South Grimsby Road 5 (between Young Street and New Northern Connector)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ Within the next 10 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-09	■ South Grimsby Road 5 (between New Northern Connector and Spring Creek Road)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ Within the next 10 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-10	■ South Grimsby Road 5 (between Spring Creek Road and Regional Road 20)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ Within the next 10 years	■ $4,500,000-$7,000,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-14	■ Industrial Park Road (between Young Street and New Northern Connector)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ Within the next 10 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
RR/TWL-Road-15	■ Industrial Park Road (between New Northern Connector and New Eastern Link)	■ Road Upgrade/ Retrofit – Collector at minimum - range represents Collector to Regional Road	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $7,000,000-$10,000,000	■ MCEA Schedule C (MCEA Road Project #20)
TWL-Road-16	■ Industrial Park Road (between New Eastern Link and Regional Road 20)	■ Road Upgrade/ Retrofit – Arterial B	■ Township	■ Within the next 10 years	■ $10,000,0000	■ MCEA Schedule C (MCEA Road Project #20)
TWL-Road-17a	■ Townline Road (between Regional Road 20 and Regional Road 14 (Canborough Street))	■ Road Upgrade/Retrofit – Arterial B	■ Township	■ 10 – 20 years	■ $20,000,000	■ MCEA Schedule C (MCEA Road Project #20)
TWL-Road-19	■ Port Davidson Road (between Townline Road and New Southern Collector 2)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ 10 – 20 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-20	■ Shurie Road (between Townline Road and New Southern Collector 1)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ 10 – 20 years	■ $4,500,000	■ MCEA Schedule A+ (MCEA Road Project #19)

TMP ID	Project Name	Project Description	Assumed Jurisdiction	Phasing Timeframe	Estimated Capital Cost (2022 CAD)	Class EA Schedule & Reference
TWL-Road-21	■ South Grimsby Road 6 (between New Western Collector 1 and Townline Road)	■ Road Upgrade/ Retrofit – Rural Edge Route	■ Township	■ Greater than 20 years	■ $7,000,000-$15,000,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-22	■ South Grimsby Road 6 (between Regional Road 20 and New Western Collector 1)	■ Road Upgrade/ Retrofit – Collector	■ Township	■ Greater than 20 years	■ $4,500,000-$9,000,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Road-23	■ Young Street (between Regional Road 14 and South Grimsby Road 2)	■ Road Upgrade/Retrofit – Rural Edge Route	■ Township	■ Within the next 10 years	■ $7,000,000-$15,000,000	■ MCEA Schedule A+ (MCEA Road Project #19)
TWL-Junction-02	■ South Grimsby Road 5 and Spring Creek Road	■ Junction Improvement	■ Township	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)
RR/TWL-Junction-05	■ Spring Creek Road Extension and New Western Link/New Northern Collector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $700,000	■ MCEA Schedule A (MCEA Road Project #13)* ■ *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-06	■ South Grimsby Road 5 and New Northern Connector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-08	■ Industrial Park Road and New Northern Connector	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
RR/TWL-Junction-09	■ Industrial Park Road and Spring Creek Road	■ Junction Improvement	■ Regional/Township (Pending Outcome of Smithville Bypass EA)	■ Within the next 10 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)* *Considered as part of future Smithville Bypass EA
TWL-Junction-16	■ Tober Road/New Southern Collector 2	■ Junction Improvement	■ Township	■ 10 – 20 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)
TWL-Junction-17	■ Port Davidson Road/New Southern Collector 1/New Southern Collector 2	■ Junction Improvement	■ Township	■ 10 – 20 years	■ $900,000	■ MCEA Schedule A (MCEA Road Project #13)
TWL-Junction-18	■ Shurie Road and New Southern Collector 1	■ Junction Improvement	■ Township	■ 10 – 20 years	■ $700,000	■ MCEA Schedule A (MCEA Road Project #13)
TWL-Junction-19	■ South Grimsby Road 6 and New Western Collector 1	■ Junction Improvement	■ Township	■ Greater than 20 years	■ $700,000	■ MCEA Schedule A (MCEA Road Project #13)
TWL-Trail-01	■ Hydro Corridor Trail	■ New Trail*	■ Township	■ Within the next 10 years	■ $3,250,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-02	■ South Creek Trail Extension	■ New Trail*	■ Township	■ Greater than 20 years	■ $1,500,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-03	■ South Grimsby Road 5 Trail	■ New Trail*	■ Township	■ Greater than 20 years	■ $1,500,000	■ Not covered under MCEA EA – addressed through future planning approvals

TMP ID	Project Name	Project Description	Assumed Jurisdiction	Phasing Timeframe	Estimated Capital Cost (2022 CAD)	Class EA Schedule & Reference
TWL-Trail-03a (Pedestrian Bridge)	■ South Grimsby Road 5 Trail – Pedestrian Bridge	■ Pedestrian Bridge**	■ Township	■ Greater than 20 years	■ $1,000,000 - $2,300,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-04	■ Enbridge Trail	■ New Trail*	■ Township	■ 10 – 20 years	■ $3,200,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-05	■ South Loop Trail	■ New Trail*	■ Township	■ 10 – 20 years	■ $3,000,000-$3,500,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-06	■ Old Rail Trail	■ New Trail*	■ Township	■ 10 – 20 years	■ $1,200,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-07	■ Northwest Rail Trail – North	■ New Trail*	■ Township	■ Within the next 10 years	■ $1,500,000-$2,300,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-08	■ Industrial Park-Townline Connector Trail	■ New Trail*	■ Township	■ 10 – 20 years	■ $375,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-08a (Pedestrian Bridge)	■ Industrial Park-Townline Connector Trail (Pedestrian Bridge)	■ Pedestrian Bridge**	■ Township	■ 10 – 20 years	■ $1,000,000 - $2,300,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-09	■ Southeast Rail Trail	■ New Trail*	■ Township	■ Within the next 10 years	■ $750,000-$1,500,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-10	■ Margaret-McMurchie Trail	■ New Trail*	■ Township	■ Within the next 10 years	■ $375,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-11	■ Southeast River Trail 2	■ New Trail*	■ Township	■ Within the next 10 years	■ $750,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-12	■ Southeast River Trail 1	■ New Trail*	■ Township	■ Within the next 10 years	■ $750,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-13	■ Southwest Rail Trail	■ New Trail*	■ Township	■ Within the next 10 years	■ $750,000-$1,500,000	■ Not covered under MCEA EA – addressed through future planning approvals
TWL-Trail-14	■ North Creek Trail	■ New Trail*	■ Township	■ Within the next 10 years	■ $750,000	■ Not covered under MCEA EA – addressed through future planning approvals

Notes: *Proposed road implementation or upgrades, including estimated lengths and road classifications, to enable cycling facilities are subject to change. All works would be subject to Environmental Assessment due diligence and the appropriate planning and design.
**Regional or Township (Pending Outcome of Smithville Bypass EA)

12. Water

12.1 Identification and Evaluation of Alternative Strategies

Utilizing the preliminary water servicing concept (**Section 8**), various infrastructure strategies / alignment options were reviewed. The strategies were developed based on the following considerations.

- Region's Development Charge Projects (W-M-006 & W-M-018);
- Future Road improvement works;
- Creek and railway crossing;
- Urban boundary expansion location;
- Opportunity to improve existing infrastructures; and
- Construction complexity.

The estimated conceptual cost for each strategy was based on $1,120 per metre of 400 millimetres watermain. The costs for creek crossings, railway crossing, pump station upgrade and new elevated tank were excluded in the assessment since they were common for all strategies; the estimated costs for these new infrastructures will be included in the recommended capital projects for Urban Boundary Expansion.

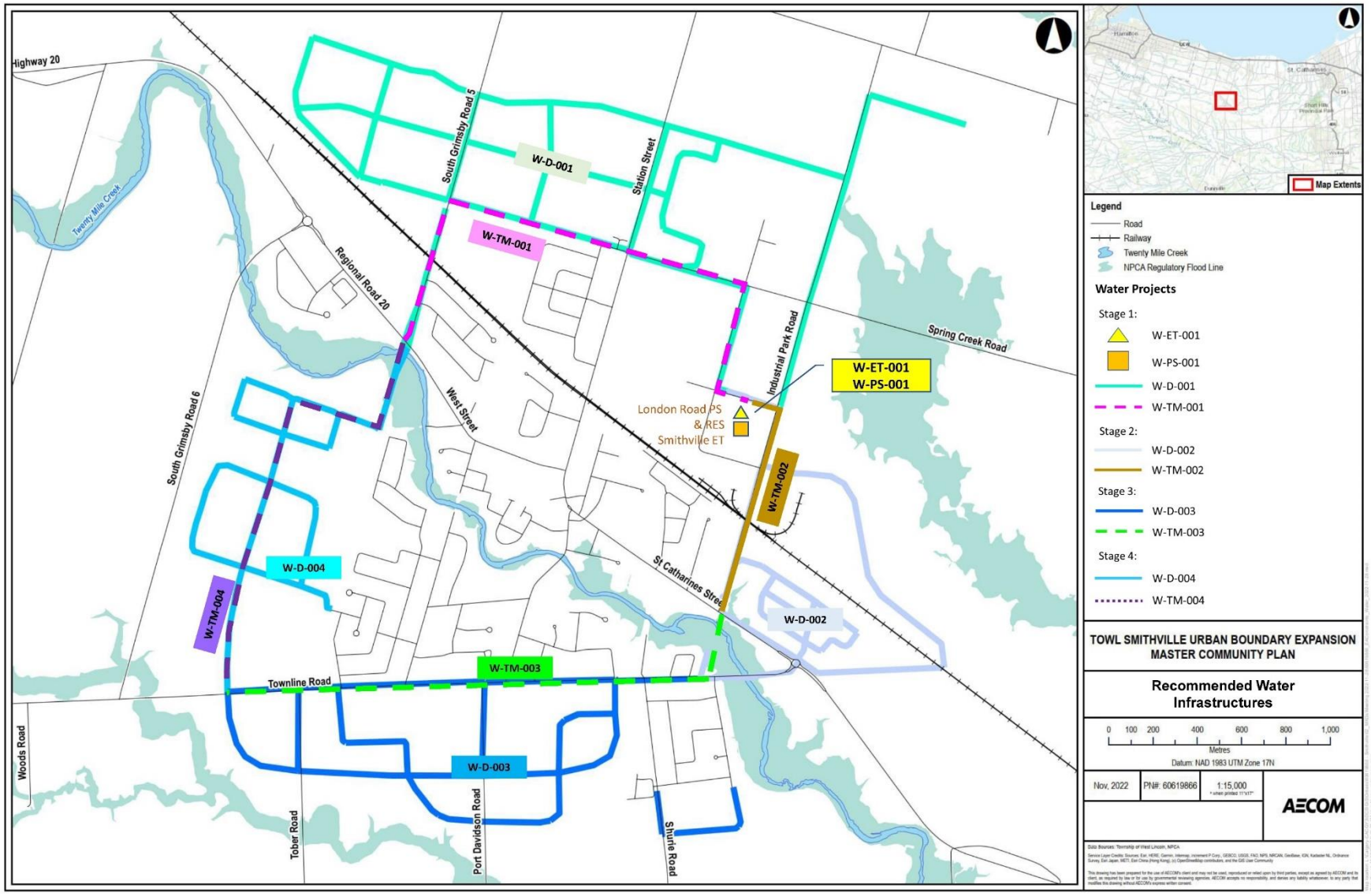
Figure 12-1 presents the water infrastructure options. The Water and Wastewater Master Plan (**Appendix D**) summarizes the assessment results for each strategy.

12.2 Overview of Preferred Strategy

The recommended strategy for the water system to accommodate the urban boundary expansion concept was identified based on the overall environment assessment results, technical feasibility and financial implications. According to the assessment results presented in the Smithville Master Community Plan, the recommended strategies for the water system was Strategy S1W1, S2W2, S3W1, and S4W3. **Figure 12-1** presents the water servicing strategy. The required infrastructures for each strategy were colour coded based on the associated staging as per the urban boundary expansion concept. Refer to the Smithville Water and Wastewater Evaluation Matrix (**Appendix D**) for the complete evaluation matrix utilized for each staging strategy.

With respect to water transmission main routing transmission main alignments follow the preferred Master Community Plan road network and in some cases existing roads and easements that were evaluated and primarily focused on crossing Twenty Mile Creek as described below.

Figure 12-1: Water Infrastructure Servicing Strategy



12.3 Identification and Evaluation of Staging Servicing Options

In support of the preferred strategy, and as part of the integrated Municipal Class Environmental Assessment planning process, alternative ways of implementing the preferred strategy were identified and evaluated with a focus on conveyance across Twenty Mile Creek and completion of the watermain ring network strategy that will service Stages 1-4. Refer to **Appendix D** for the associated servicing option evaluation matrices.

12.3.1 Stage 1

There is one potential route that the watermain can follow to provide water servicing to Stage 1 of the Smithville area.

- **S1W1** – Watermain extends northerly on South Grimsby Road 5 from Regional Road 20 to Spring Creek Road, easterly along Spring Creek Road to Thompson Road, southerly on Thompson Road and easterly to London Road Pumping Station. There is no crossing of Twenty Mile Creek and one crossing of rail tracks on South Grimsby Road 5.

12.3.2 Stage 2

There are two potential routes that the watermain can follow to provide water servicing to Stage 2 of the Smithville area.

- **S2W1** – Watermain extends southerly from London Road Pumping Station down Industrial Park Road and easterly on Industrial Park Road towards Regional Road 20 and Townline Road roundabout. There are no crossings of Twenty Mile Creek and one crossing of rail tracks on Industrial Park Road; and
- **S2W2** – Watermain extends southerly from London Road Pumping Station towards Industrial Park Road and Regional Road 20 (St. Catharines Street) intersection. There are no crossings of Twenty Mile Creek and one crossing of rail tracks on Industrial Park Road.

12.3.3 Stage 3

There are two potential routes that the watermain can follow to provide water servicing to Stage 3 of the Smithville area.

- **S3W1** – New watermain extends easterly along Townline Road to existing North South easement east of Anderson Crescent, northerly from easement to Industrial Park Road / Regional Road 20 and connects to the future Stage 2 watermain. There is a trenchless crossing of Twenty Mile Creek south of Industrial Park Road and Regional Road 20; and
- **S3W2** – New watermain extends southerly from Townline Road and Stage 4 North South local collector road and follows southerly / easterly / northerly along the internal stage 3 local collector road to Townline Road. It then follows easterly along Townline Road and the Regional Road 20 roundabout and connects to the future Stage 2 watermain trenchless crossing of Twenty Mile Creek along Townline Road.

12.3.4 Stage 4

There are three potential routes that the watermain can follow to provide water servicing the Smithville area.

- **S4W1** – Watermain follows Regional Road 20 from South Grimsby Road 5 to South Grimsby Road 6. The route extends southerly on South Grimsby Road 6 with a trenchless crossing of Twenty Mile Creek. Watermain continues on South Grimsby Road 6 to Townline Road with two trenchless crossings of North Creek.
- **S4W2** – Watermain extends southerly from Regional Road 20 and South Grimsby Road 5 intersection along future development lands to South Grimsby Road 6. There is a trenchless crossing of Twenty Mile Creek on South Grimsby Road 5 and then the watermain extends southerly on South Grimsby Road 6 to Townline Road with two trenchless crossings of North Creek; and
- **S4W3** – Watermain extends southerly from Regional Road 20 along future development lands to Townline Road. There is a trenchless crossing of Twenty Mile Creek on South Grimsby Road 5.

12.3.5 Evaluation Criteria

In order to evaluate the routing alternatives for the Smithville Urban Expansion study area, a set of criteria were chosen which are categorized as follows in **Table 12-1**

Table 12-1 presents the evaluation criteria and weighting scoring developed for the Smithville Water and Wastewater System Expansion Municipal Class Environmental Assessment in order to ensure a logical and replicable evaluation and decision-making process.

Table 12-1: Proposed Evaluation Criteria for Water and Wastewater Alternatives Evaluation

Category	Criteria
Technical Environment	■ Potential degree of construction complexities, including number and type of water crossings, anticipated rock removal, access, working area and duration to build. ■ Potential effects on roadway and utility infrastructure. ■ Provides good site access for maintenance vehicles, future operation and maintenance and servicing. ■ Operation efficiency. ■ Potential opportunity for current infrastructure to be decommissioned in favour of gravity solutions ■ Potential effects on traffic. ■ Dependency on the completion of other Stages ■ Degree of permitting and approvals complexity ■ Potential degree of construction complexities, including number and type of water crossings, anticipated rock removal, access, working area and duration to build. ■ Potential effects on roadway and utility infrastructure.
Land Use	■ Potential to conform to approved local (e.g. Official Plan, provincial (e.g. Ministry of Transportation, Provincial Policy Statement) and federal (e.g. Transport Canada) plans and policies. ■ Identify existing official plans and schedule B1, B3 and B4 Natural Heritage. ■ Potential effects on current and future land uses, including development plans.
Natural Environment	■ Potential effects on terrestrial/aquatic habitat and species. ■ Potential effects on species at risk and species at risk habitat. ■ Potential to encounter soil and water contamination and waste disposal. ■ Anticipated environmental permitting and approval considerations. ■ Potential effects on surface water and groundwater due to construction (i.e. dewatering of trenches during installation of feeder watermain, control of erosion and sedimentation, construction and/or dredging at intake locations). ■ Source water protection considerations.

Category	Criteria
Natural Environment – Socio-Economic Environment	■ Potential nuisance impacts (e.g., disruption to access, air, dust, noise and vibration) from construction and operations. ■ Potential property requirements (temporary and permanent).
Natural Environment – Climate Change	■ Potential carbon footprint (e.g. energy usage, use of construction materials, construction methods and operations). ■ Ability to achieve sustainable and resilient infrastructure including support for climate change adaptation. ■ Ability to achieve sustainable and resilient infrastructure including support for climate change adaptation.
Natural Environment – Cultural Environment	■ Potential effects on archaeological resources. ■ Potential for disruption of built heritage resources and cultural heritage landscapes.
Natural Environment – Cost	■ Cost of construction (including property acquisition). ■ Cost of operation / maintenance.

The evaluation was completed using professional judgement and has been informed through documentation of existing conditions. Input solicited from the public, agencies, land owners, other stakeholders and Indigenous communities through the Municipal Class Environmental Assessment process has also been considered and incorporated, where applicable.

12.3.6 Evaluation of Smithville Water Staging Strategies

A detailed qualitative assessment of each transmission main routing alternative was completed based on the previously described evaluation components and criteria. In this evaluation approach, trade-offs consider the advantages and disadvantages of each option to address the problem and opportunity statement with the least environmental effects and the most technical benefits which forms the rationale for the identification of the preferred watermain routing alternative.

Each evaluation category was evaluated based on the following scoring system. Low impact is considered a preferred solution compared to moderate or high impact. A brief summary of the rationale for preferred solutions is provided below, a full evaluation matrix for the Smithville East Watermain Routes is provided in **Appendix D**:

- **Stage 1:**
  As only one option was evaluated for the water servicing for Stage 1, **S1W1** is the preferred solution.
- **Stage 2:**
  Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 2 is **S2W2**. This route avoids

impacts to paved surfaces and significant community disruption within the existing Smithville urban area.

- **Stage 3:**
  Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 3 is **S3W1**. This route alignment follows road allowances and does not need to be coordinated with Stage 3 developments. This route also allows for the decommissioning of existing watermain within the current easement.

- **Stage 4:**
  Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 4 is **S4W3**. This route has a reduced construction complexity including the fewest trenchless crossings. This route also has the lowest carbon footprint associated with construction and maintenance.

12.4 Future Water Infrastructure

Table 12-2 and **Table 12-3** present the recommended water infrastructure projects to be implemented over the 30 year planning horizon for the Township of West Lincoln and the Region of Niagara, respectively**. Figure 12-2** presents the overall preferred water infrastructures.

Table 12-2: Recommended Water Infrastructure Projects for the Township of West Lincoln Over the 30-Year Planning Horizon

Capital Project ID	Stage	Preferred Servicing Strategy ID	Descriptions	Region's Development Charge Project ID	Size	Length	Railway / Creek Crossing	Construction Costs	Design Costs	Contingency Costs	Costs (2022$)	Class Environmental Assessment Project Schedule[2]	Anticipated Implementation Schedule
W-D-001	1	S1W1	■ Local distribution mains for Stage 1	-	300 millimetres	9,580 metres	-	$ 10,059,000	$ 1,508,850	$ 2,011,800	$ 13,579,650	A	Next 15 years
W-D-002	2	S2W2	■ Local distribution mains for Stage 2	-	300 millimetres	3,745 metres	-	$ 3,932,250	$ 589,838	$ 786,450	$ 5,308,538	A	Next 15 years
W-D-003	3	S3W1	■ Local distribution mains for Stage 3	-	300 millimetres	5,477 metres	-	$ 5,750,850	$ 862,628	$ 1,150,170	$ 7,763,648	A	15 to 20 years
W-D-004	4	S4W3	■ Local distribution mains for Stage 4	-	300 millimetres	2,988 metres	-	$ 3,137,400	$ 470,610	$ 627,480	$ 4,235,490	A	Greater than 20 years
Total Estimated Costs for Water Capital Projects (2022$)	--	--	--	--	--	--	--	--	--	--	**$ 30,887,326**	--	--

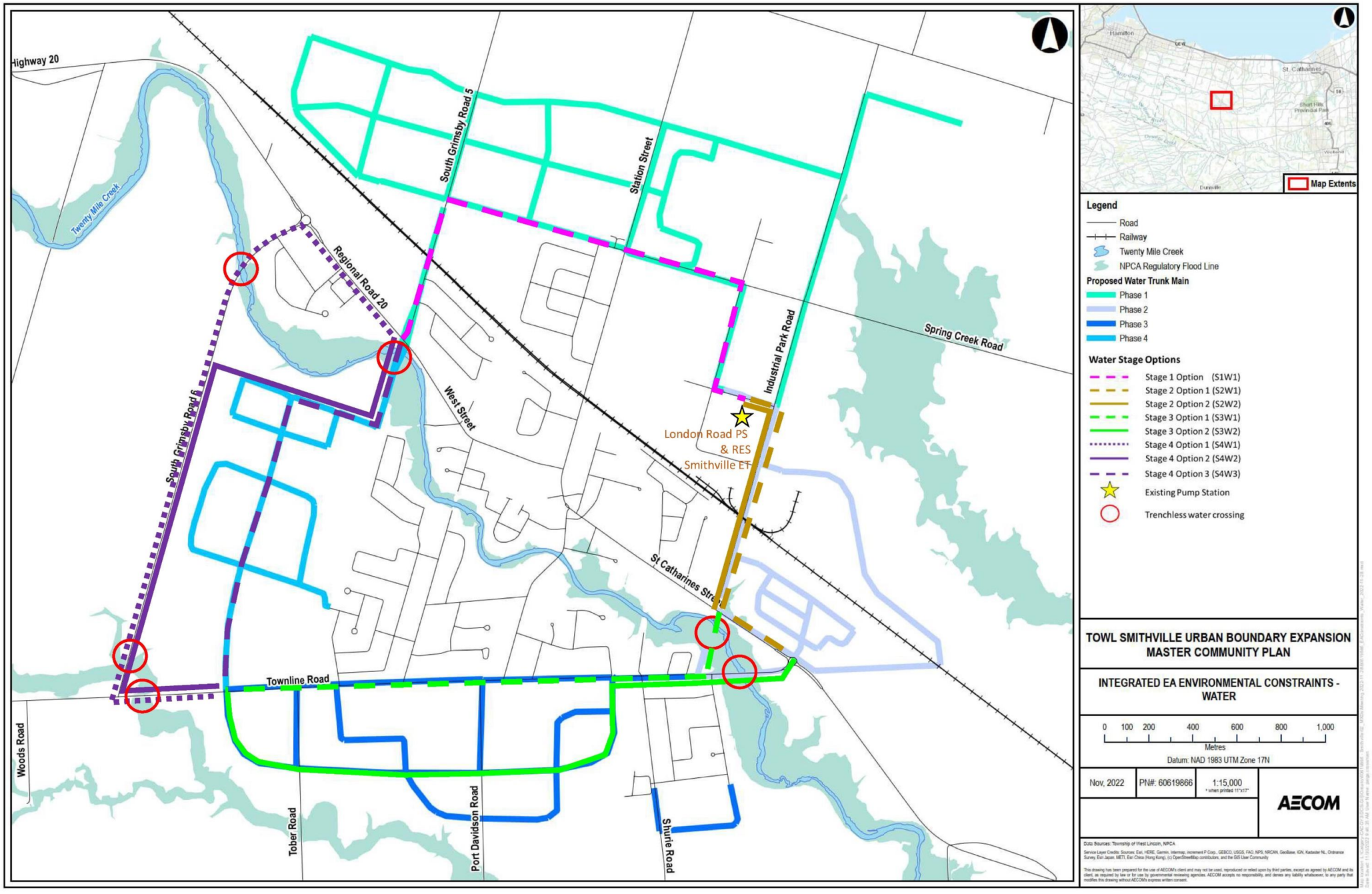
2. as approved under the integrated MCEA process and subject to no Official Plan Amendment 63 appeal

Table 12-3: Recommended Water Infrastructure Projects for the Region of Niagara Over the 30-Year Planning Horizon

Capital Project ID	Stage	Preferred Servicing Strategy ID	Descriptions	Region's Development Charge project ID	Size	Length	Railway / Creek Crossing	Construction Costs	Design Costs	Contingency Costs	Costs (2022$)	Class Environmental Assessment Project Schedule[3]	Anticipated Implementation Schedule
W-TM-001	1	S1W1	■ Watermain extends northernly on South Grimsby Road 5 from Regional Road 20 to Spring Creek Road ■ Easternly along Spring Creek Road to Thompson Road ■ Southernly on Thompson Road and easternly to London Road pumping station ■ No crossing of Twenty Mile Creek ■ Crossing of rail tracks on South Grimsby Road 5	W-M-006	400 millimetres	2,548 metres	$ 2,000,000 (1 railway crossing)	$ 2,853,760	$ 428,064	$ 570,752	$ 5,852,576	A	Next 15 years
W-TM-002	2	S2W2	■ Watermain extends southernly from London Road Pumping Station towards Industrial Park Road and Regional Road 20 (St Catharines Street) intersection ■ No crossing of Twenty Mile Creek ■ Crossing of rail tracks on Industrial Park Road	W-M-018	400 millimetres	1,182 metres	$ 2,000,000 (1 railway crossing)	$ 1,323,840	$ 198,576	$ 264,768	$ 3,787,184	A	Next 15 years
W-TM-003	3	S3W1	■ New watermain extends easternly along Townline Road to existing North South easement east of Anderson Crescent ■ Northernly from easement to Industrial Park Road / Regional Road 20 and connection future Stage 2 watermain ■ Trenchless crossing of Twenty Mile Creek south of Industrial Park Road and Regional Road 20	W-M-018	400 millimetres	1,633 metres	$ 5,000,000 (1 creek crossing) $ 2,000,000 (1 railway crossing)	$2,721,600	$ 408,240	$ 544,320	$ 8,674,160	A	15 – 20 years
W-TM-004	4	S4W3	■ Watermain extends southernly from Regional Road 20 along future development lands to Townline Road ■ Trenchless crossing of Twenty Mile Creek on South Grimsby Road 5 ■ Within planned utility / active transportation corridor and planned Stage 4 local collector road ■ Southernly on local north south collector road to Townline Road	-	400 millimetres	2,190 metres	$ 5,000,000 (1 creek crossing)	$ 2,452,800	$ 367,920	$ 490,560	$ 8,311,280	A	> 20 years
W-ET-001	1	-	■ New elevated tank (8.8 millilitres)	W-S-010[4]	8.8 millilitres	-	-	$ 11,000,000	$ 1,650,000	$ 2,200,000	$ 14,850,000	B	Next 15 years
W-PS-001	1	-	■ Dedicated fire pump (356 Litres per second)	W-P-004[5]	356 Litres per second	-	-	$ 500,000	$ 75,000	$ 100,000	$ 675,000	A	Next 15 years
Total Estimated Costs for Water Capital Projects (2022$)			■								**$ 42,150,200**		

3. *as approved under the integrated MCEA process and subject to no Official Plan Amendment 63 appeal*
4. *Region of Niagara Development Charge Study 2022 indicated that the estimated budget for W-S-010 was $12,570,000. The Schedule B Class EA study should be completed by the Region.*
5. *Region of Niagara Development Charge Study 2022 indicated that the estimated budget for W-P-004 was $1,544,400. Based on the descriptions for W-P-004 from the Region's Development Charge study, the recommended dedicated fire pump was not part of the project and therefore the estimated costs presented herein would be considered an additional costs for W-P-004 ($1,544,400 + $675,000 =$2,219,400)*

Figure 12-2: Water Infrastructure Options



13. Wastewater

13.1 Identification and Evaluation of Alternative Strategies

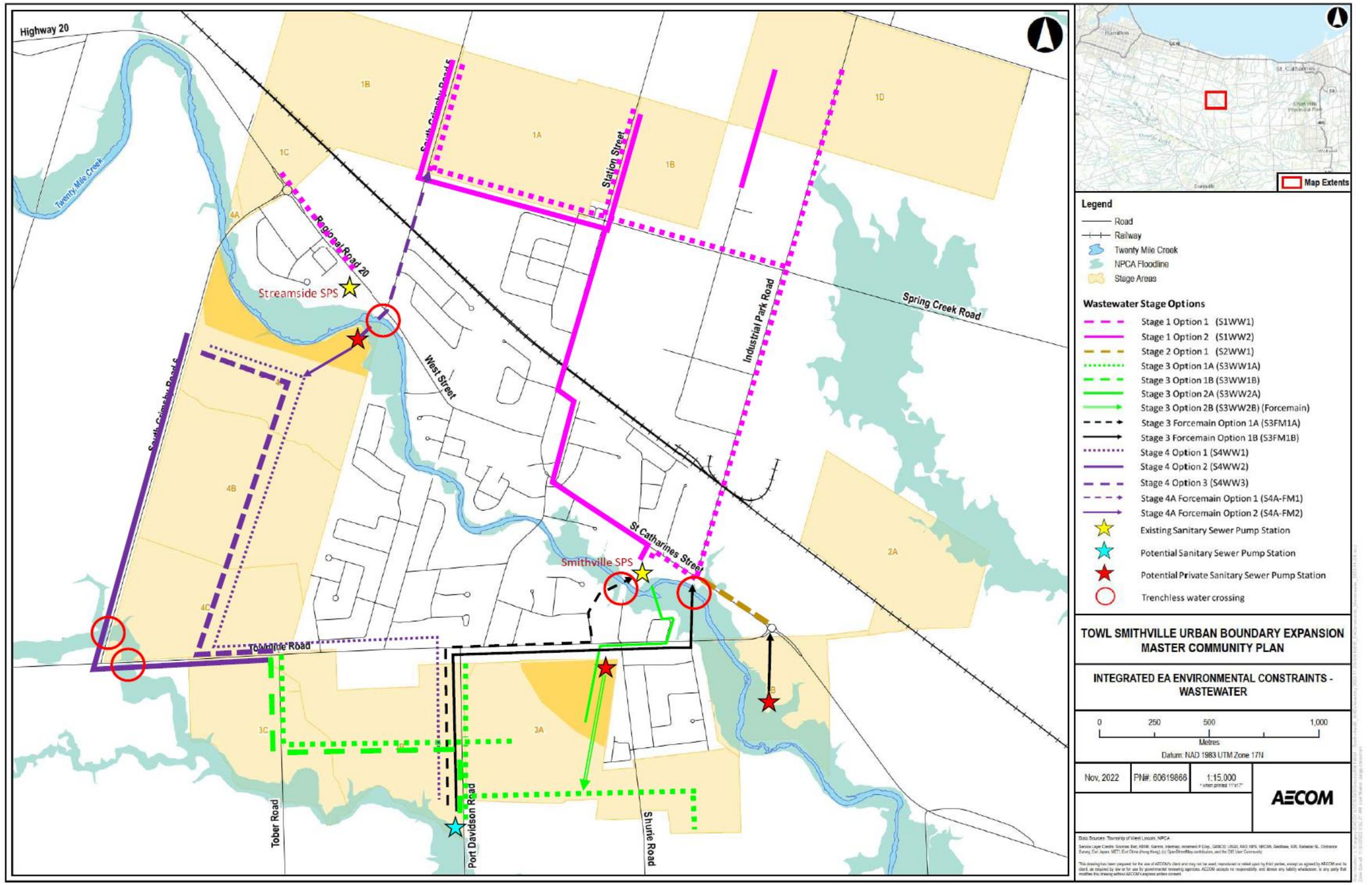
Utilizing the preliminary wastewater servicing concept presented in Section 8.4, various infrastructure strategies / alignment options were reviewed. The strategies were developed based on the following considerations.

- Future Road improvement works;
- Creek and railway crossing;
- Urban boundary expansion location;
- Opportunity to improve existing infrastructures; and
- Construction complexity.

Figure 13-1 presents the wastewater infrastructure options. **Appendix D** summarizes the assessment results for each key strategy.

In estimating the conceptual cost for each strategy, the costs for creek crossings, railway crossing, new sanitary sewer pumping stations and existing pumping station upgrades were excluded in the assessment since they were common for all strategies. The estimated costs for these components will be included in the recommended capital projects for Urban Boundary Expansion. In addition, the unit costs for the future gravity sewer mains that were near the existing urban areas (e.g. Infrastructure Option 8) were increased by 100% to address the design / construction complexity.

Figure 13-1: Wastewater Infrastructure Options

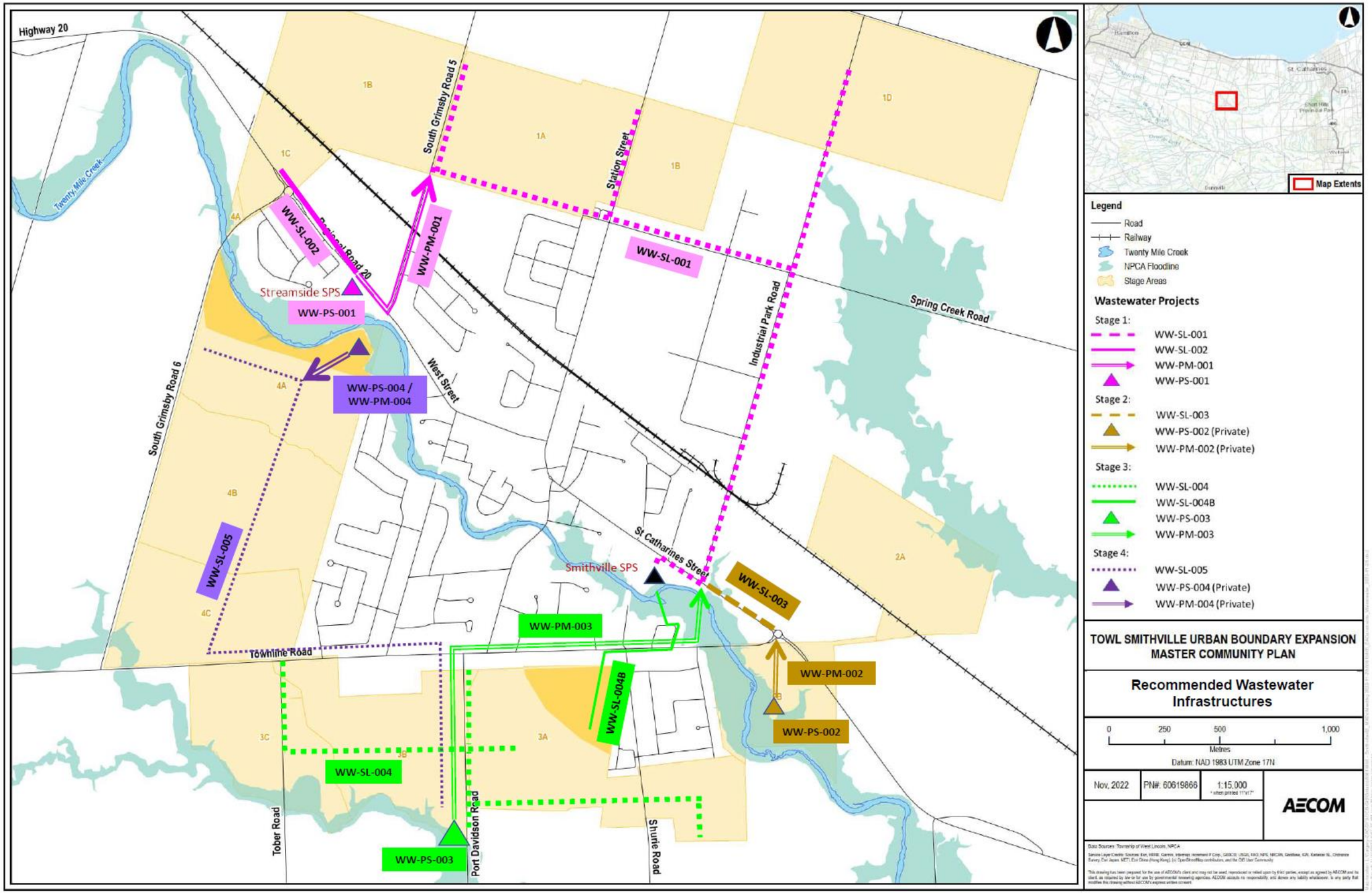


13.2 Overview of Preferred Strategy

The recommended strategy for the wastewater system (Refer to **Figure 13-2**) to accommodate the urban boundary expansion concept was identified based on the overall environment assessment results, technical feasibility and financial implications. According to the assessment results presented in the Smithville Master Community Plan, the recommended strategies for the wastewater system was Strategy **S1WW1, S2WW1, S3WW1A, S3-FM1B, S3WW2A, S4WW1,** and **S4-FM2**. **Appendix D** presents the wastewater strategy. The required infrastructures for each strategy were colour code based on the associated staging as per the urban boundary expansion concept. Refer to **Appendix D** for each servicing option evaluation matrices.

With respect to wastewater pumping stations, siting options were integrated with identified Master Community Plan stormwater management and park – open space blocks with low enough elevation that can receive gravity flows and provide adequate service for the area. Wastewater sanitary forcemain, and sewer alignments follow the preferred Master Community Plan road network and in some cases existing roads and easements that were evaluated and primarily focussed on crossing Twenty Mile Creek as described below.

Figure 13-2: Preferred Wastewater Servicing Strategy



13.3 Identification and Evaluation of Sewer Network Options

In support of the preferred strategy, the final part of the integrated Municipal Class Environmental Assessment planning process alternative ways of implementing the preferred strategy were identified and evaluated with a focus on conveyance across Twenty Mile Creek and completion of the forcemain connection to the existing Smithville Pumping Station that will service Stages 1-4. A full evaluation matrix for the Smithville West Wastewater Routes is provided in **Appendix D**.

13.3.1 Stage 1

There are two potential routes that the gravity sewer can follow to provide wastewater servicing to Stage 1 of the Smithville area.

- **S1WW1** – New sewer gravity main on Spring Creek Road from South Grimsby Road 5 and easternly to Industrial Park Road. The gravity sewer continues southerly down Industrial Park Road to Regional Road 20 then westerly to Smithville Pumping Station. There is no crossing of Twenty Mile Creek, and one crossing of rail tracks on Industrial Park Road; and
- **S1WW2** – New sewer gravity main on Spring Creek Road from South Grimsby Road 5 and easterly towards Station Street. The gravity sewer continues southerly down Station Street to Regional Road 20 then westerly to Smithville Pumping Station. There is no crossing of Twenty Mile Creek, and one crossing of rail tracks on Station Street.

13.3.2 Stage 2

There is one potential route that gravity sewer can follow to provide wastewater servicing to Stage 2 of the Smithville area.

- **S2WW1** – New sewer gravity main from Smithville sanitary pumping station on east side from Regional Road 20 towards Townline Road. There is no crossing of Twenty mile Creek.

13.3.3 Stage 3

There are four potential routes that the gravity sewer can follow to provide wastewater servicing to Stage 3 of the Smithville area; and two potential routes that the forcemain can follow to provide wastewater servicing to Stage 3. .

- **S3WW1A** – New gravity sewer follows Stage 3 North South and easterly local collector road starting at Townline Road. There is a connection to the new sanitary pumping station at Port Davidson Road / North Creek. This route also includes flow from new gravity sewers within Stage 3 east of Port Davidson Road. There is a trenchless crossing of Twenty Mile Creek. This gravity sewer does not service Stage 4;
- **S3WW1B** – New gravity sewer follows Stage 3 North South and easterly local collector road starting at Townline Road. There is a connection to the new sanitary pumping station at Port Davidson Road / North Creek. This route also includes flow from new gravity sewers within Stage 3 east of Port Davidson Road. There is a trenchless crossing of Twenty Mile Creek. A deeper gravity sewer is anticipated to allow for the Stage 4 Wastewater to be completed;
- **S3WW2A** - New gravity sewer northerly from Stage 3A area to Townline Road, easterly along Townline Road to Anderson Crescent and northerly on Anderson Crescent via existing easement to the southside of Twenty Mile Creek;
- **S3WW2B** – New sanitary pumping station for Stage 3A service area and forcemain southerly to Stage 3 development area connecting to east west gravity sewer that sends flow to new sanitary pumping station at Port Davidson Road and North Creek. New sanitary pumping station is a private pumping station;
- **S3FM1A** – New forcemain extending Northerly on Port Davidson Road from the sanitary pumping station towards Townline Road. It runs easterly along Townline Road to Rock Street and northerly up Rock Street towards Twenty Mile Creek crossing Rock Street Park. There is a trenchless crossing of Twenty Mile Creek. This new forcemain connects to the pumping station at Regional Road 20 and Industrial Park Road; and
- **S3FM1B** – New forcemain extending northerly on Port Davidson Road from the sanitary pumping station towards Townline Road. It runs easterly along Townline Road to the watermain easement and northerly through the easement towards Twenty Mile Creek. There is a trenchless crossing of Twenty Mile Creek. This new forcemain connects to future gravity sewer at Regional Road 20 and Industrial Park Road.

13.3.4 Stage 4

There are three potential routes that the gravity sewer can follow to provide wastewater servicing to Stage 4 of the Smithville area; and two potential routes that the forcemain can follow to provide wastewater servicing to Stage 4.

- **S4WW1** – Gravity sewer starting at north end of South Grimsby Road 6 and easterly across the Stage 4 local collector road and southerly on north south local collector road to Townline Road. This new gravity sewer connects directly to future Port Davidson Sanitary Pumping Station;
- **S4WW2** – Gravity sewer south on South Grimsby Road 6 connecting to Townline Road and easterly on Townline Road to connect to the future Stage 3 gravity sewer S3WW1A. there are two crossings of North Creek;
- **S4WW3** – Gravity sewer starting at north end of South Grimsby Road 6. The gravity sewer runs easterly through the Stage 4 local collector road, southerly on north south local collector road to Townline Road and easterly on Townline Road to connect to future Stage 3 gravity sewer S3WW1A;
- **S4AFM1** - New sanitary pumping station on the south side of Twenty Mile Creek within Staging Area 4A. This station is considered a private pumping system. There is a new forcemain going north on South Grimsby Road 5 connecting northerly to Spring Creek Road. There is a trenchless crossing of Twenty Mile Creek and one crossing of the railway; and
- **S4AFM2** – New sanitary pumping station on the south side of Twenty Mile Creek within Staging Area 4A. This station is considered a private pumping system. This includes a new forcemain connect to future gravity sewer within Stage 4.

13.3.5 Evaluation Criteria

In order to evaluate the routing alternatives for the Smithville Urban Expansion study area, a set of criteria were chosen which are categorized as follows in **Table 12-1.**

Table 12-1 presented the evaluation criteria and weighting scoring developed for the Smithville Water and Wastewater System Expansion Municipal Class Environmental Assessment in order to ensure a logical and replicable evaluation and decision-making process.

The evaluation was completed using professional judgement and has been informed through documentation of existing conditions. Input solicited from the public, agencies, stakeholders and Indigenous communities through the Municipal Class Environmental Assessment process has also been considered and incorporated, where applicable.

13.3.6 Evaluation of Smithville Study Area Wastewater Routes

A detailed qualitative assessment of each forcemain main routing alternative was completed based on the previously described evaluation components and criteria. In this evaluation approach, trade-offs consider the advantages and disadvantages of each option to address the problem and opportunity statement with the least environmental effects and the most technical benefits which forms the rationale for the identification of the preferred forcemain routing alternative.

Each evaluation category was evaluated based on the following scoring system. Low impact is considered a preferred solution compared to moderate or high impact. A brief summary of the rationale for preferred solutions is provided below:

- **Stage 1:**

  Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 1 is **S1WW1**. This route avoids impacts to paved surfaces and can easily be coordinated with near term development. This route also has a reduced construction complexity and avoids significant utility conflicts within the existing Smithville area.

- **Stage 2:**

  As only one option was evaluated for the wastewater servicing for Stage 2, **S2WW1** is the preferred solution.

- **Stage 3:**

  Based on the criteria and methodology applied as part of the evaluation process, the preferred solutions for Stage 3 are **S3WW1A, S3WW2A, S3-FM1B**.

  The route of S3WW1A has a reduced construction complexity as the gravity sewer exists closer to the surface. This route also allows for the decommissioning of existing watermain within the current easement.

  The route of S3WW2A has a reduced construction complexity and avoids significant community disruption. This route also follows road allowances and does not need to be coordinated with Stage 3 developments.

The route of S3-FM1B has a reduced construction complexity as it avoids Rock Park. This route also can be coordinated with the preferred Stage 3 water projects and Twenty Mile Creek Crossing.

- **Stage 4:**

Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 4 is **S4WW1**. This route alignment can be directly connected to future Port Davidson sanitary pumping station. This route also avoids trenchless crossings and minimizes impacts to paved surfaces.

Based on the criteria and methodology applied as part of the evaluation process, the preferred solution for Stage 4 is **S4-FM2**. This route has a reduced construction complexity. This route also avoids trenchless crossings and minimizes impacts to paved surfaces.

13.4 Future Wastewater Infrastructure

Table 13-1 and **Table 13-2** present the recommended wastewater infrastructure projects to be implemented over the 30 year planning horizon for the Township of West Lincoln and the Region of Niagara, respectively. **Figure 13-1** presents the overall preferred wastewater infrastructures.

Table 13-1: Recommended Wastewater Infrastructure Projects for the Township of West Lincoln Over the 30 Year Planning Horizon

Capital Project ID	Stage	Preferred Servicing Strategy ID	Descriptions	Size	Length	Railway / Creek Crossing	Construction Costs	Design Costs	Contingency Costs	Costs (2022$)	Class Environmental Assessment Project Schedule[6]	Anticipated Implementation Schedule
WW-SL-001	1	S1WW1	■ New sewer gravity main on Spring Creek Road from South Grimsby Road 5 and easterly to Industrial Park Road ■ Gravity sewer continues southernly down Industrial Park Road ■ Industrial Park to Regional Road 20 ■ Westerly on Regional Road 20 to Smithville Pumping Station ■ No crossing of Twenty Mile Creek required ■ Crossing of rail tracks on Industrial Park Road	375 to 525 millimetres	2,548 metres	$ 2,000,000 (railway crossing)	$ 6,186,843	$ 928,026	$ 1,237,369	$ 10,352,238	A	Next 15 years
WW-SL-002	1	S1WW1	■ New gravity main on Regional Road 20 to Streamside sanitary pumping station	375 millimetres	961 metres	$ 0	$ 1,153,200	$ 172,980	$ 230,640	$ 1,556,820	A	Next 15 years
WW-SL-003	2	S2WW1	■ New sewer gravity main from Smithville sanitary pumping station on east side from Regional Road 20 (St Catharines Street) towards Townline Road ■ No crossing of Twenty Mile Creek required ■ No crossing of rail tracks	375 to 525 millimetres	1,633 metres	$ 0	$ 1,353,262	$ 202,989	$ 270,652	$ 1,826,904	A	Next 15 years
WW-SL-004	3	S3WW1A	■ New Gravity Sewer follows Stage 3 North South and easterly local collector road starting at Townline Road ■ Connection to new sanitary pumping station at Port Davidson Road / North Creek ■ Also includes flow from new gravity sewers within Stage 3 east of Port Davidson Road ■ Trenchless crossing of Twenty Mile Creek required ■ Does not service Stage 4	375 to 525 millimetres	4,543 metres	$0	$ 6,891,578	$ 1,033,737	$ 206,747	$ 8,132,061	A	15 – 20 years
WW-SL-004B	3	S3WW2A	■ New gravity sewer northernly from Stage 3A area to Townline Road ■ Easternly along Townline Road to Anderson Crescent ■ Northernly on Anderson Crescent via existing easement to southside of Twenty Mile Creek	New gravity sewerline: 250 millimetres Ex. Gravity sewerline replacement 250 millimetres / 300 millimetres	New Gravity sewerline: 380 metres Ex. Gravity sewerline replacement 513 metres	$0[7]	$ 539,211	$ 80,882	$ 107,843	$ 727,935	A	15 – 20 years

6. As approved under the integrated MCEA process and subject to no Official Plan Amendment 63 appeal.
7. The existing gravity sewer that crosses the Twenty Mile Creek will be maintained as 250mm as higher flow / velocity would be beneficial in archiving higher scouring velocity and also it was a cost-effective method for accommodating Stage 3A.

Capital Project ID	Stage	Preferred Servicing Strategy ID	Descriptions	Size	Length	Railway / Creek Crossing	Construction Costs	Design Costs	Contingency Costs	Costs (2022$)	Class Environmental Assessment Project Schedule[6]	Anticipated Implementation Schedule
WW-SL-005	4	S4WW1	■ Gravity sewer starting at north end of South Grimsby Road 6 ■ Easternly across the Stage 4 local collector road ■ Southernly on north south local collector road to Townline Road ■ Connects directly to future Port Davidson sanitary pumping station	300 to 525 millimetres	3,531 metres	$0	$ 4,399,500	$ 659,925	$ 879,900	$ 5,939,325	A	> 20 years
WW-PS-002	2	S2WW1	■ New sanitary pumping station for Stage 2B ■ Assumed to be privately owned / operated pumping system	4.8 L/s	-	$0	$ 0	$ 0	$ 0	$ 0	Subject to Town's / Region's approval	Next 15 years
WW-PS-003[8]	3	S3WW1A	■ Infrastructure Option S1; New sanitary pumping station for Stages 3 & 4	148 L/s	-	$ 0	$ 3,240,000	$ 486,000	$ 648,000	$ 4,374,000	A	15 – 20 years
WW-PS-004 / WW-PM-004	4A	S4A-FM2	■ New sanitary pumping station on south side of Twenty Mile Creek within staging area 4A; this station is considered a private pumping system ■ New forcemain on Regional Road 20 to future gravity sewer within Stage 4	7.0 L/s / 200 millimetres	210 metres	$ 0	$ 0	$ 0	$ 0	$ 0	Subject to Town's / Region's approval	> 20 years
WW-PM-002	2	S2WW1	■ New FM for future sanitary pumping station to future gravity sewer on RR20 ■ Assumed to be privately owned / operated pumping system	150 millimetres	516 metres	$ 0	$ 0	$ 0	$ 0	$ 0	Subject to Town's / Region's approval	Next 15 years
WW-PM-003	3	S3FM1B	■ New forcemain extending Northernly on port Davidson Road from sanitary pumping station towards Townline road ■ Easternly along Townline Road to watermain easement. Northernly through easement towards Twenty Mile Creek ■ Trenchless crossing of Twenty Mile Creek ■ Connects to future gravity sewer at Regional Road 20 and Industrial Park Road	500 millimetres	2,030 metres	$ 5,000,000 (1 creek crossing)	$ 2,491,364	$ 373,705	$ 498,273	$ 8,363,342	A	15 – 20 years
Total Estimated Costs for Wastewater Capital Projects (2022$)	–	–	–	–	–	–	–	–	–	**$ 41,272,625**	–	–

8, *Based on the required capacity for the SPS, the implementation of WW-PS-003 would be completed by the Township and the Region of Niagara will assume the ownership, O&M of the station in accordance with the Region's SPS policy.*

Table 13-2: Recommended Wastewater Infrastructure Projects for the Region of Niagara Over the 30 Year Planning Horizon

Capital Project ID	Stage	Preferred Servicing Strategy ID	Descriptions	Region's Development Charge project ID	Size	Length	Railway / Creek Crossing	Construction Costs	Design Costs	Contingency Costs	Costs (2022$)	Class Environmental Assessment Project Schedule[9]	Anticipated Implementation Schedule
WW-PS-001	1	S1WW1	■ Streamside sanitary pumping station Upgrade; Increase capacity to 42.6 L/s	WW-SPS-041	42.6 L/s	-	$ 0	$ 2,675,000	$ 401,250	$ 535,000	$ 3,611,250	A	Next 15 years
WW-PM-001	1	S1WW1	■ New FM on South Grimsby Road 5 for Streamside sanitary pumping station connect to future gravity sewer on Spring Creek Road	WW-FM-017	250 millimetres	953 metres	$ 2,000,000 (railway crossing)	$ 1,013,645	$ 152,047	$ 202,729	$ 3,368,421	A	Next 15 years
Total Estimated Costs for Wastewater Capital Projects (2022$)	–	–	–	–	–	–	–	–	–	–	**$ 6,979,671**	–	–

9. as approved under the integrated MCEA process and subject to no Official Plan Amendment 63 appeal

PART D: Phase 3 – Preferred Community Structure Plan & Monitoring, Management, and Implementation Recommendations

14. Preferred Master Community Plan Structure – Secondary Plan

14.1 Preferred Concept

The findings from the supporting studies for the land use and infrastructure planning processes were used in combination with evaluation of the initial Concept Plans to develop a Preliminary Preferred Concept Plan for the first stage of Impact Assessment. The land use concept for the Preliminary Preferred Concept Plan is presented **Figure 14-1**, which also includes the proposed locations for stormwater management facilities. **Figure 14-2**, **Figure 14-3** and **Figure 14-4** represent the Natural Heritage System, Transportation Servicing, Water Servicing, and Wastewater Servicing respectively. The preferred water and wastewater servicing can also be found in **Figure 12-1** and **Figure 13-1**.

The Preliminary Preferred Concept will see 143 hectares of employment area expansion or 21% of the land development area with both urban employment and agricultural uses. The additional industrial area will result in 31% of Smithville land being employment area. Across all sections of Smithville, an additional 5500 jobs are anticipated based on the above employment area expansion.

Residential expansion including both low density and mixed use/ medium density, represents the greatest percentage of land area accounting for 32% of the land development area with 234 hectares. The additional single and multi-unit dwellings will result in 38% of Smithville land being residential area. Across all sections of Smithville, a population increase of 21,890 persons is anticipated based on the above expansion.

Figure 14-1: Preliminary Preferred Concept Plan

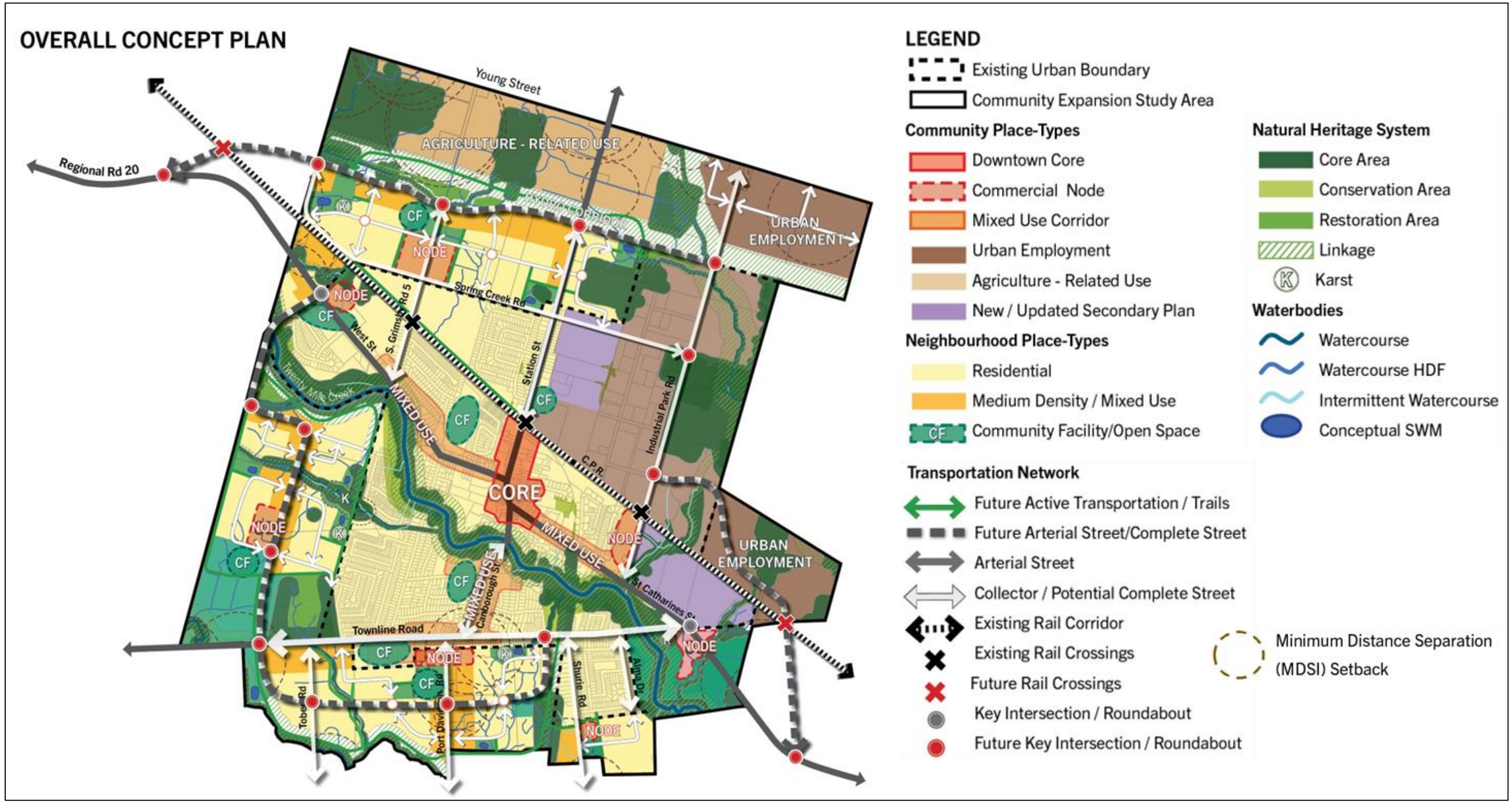


Figure 14-2: Preferred Concept Natural Heritage System

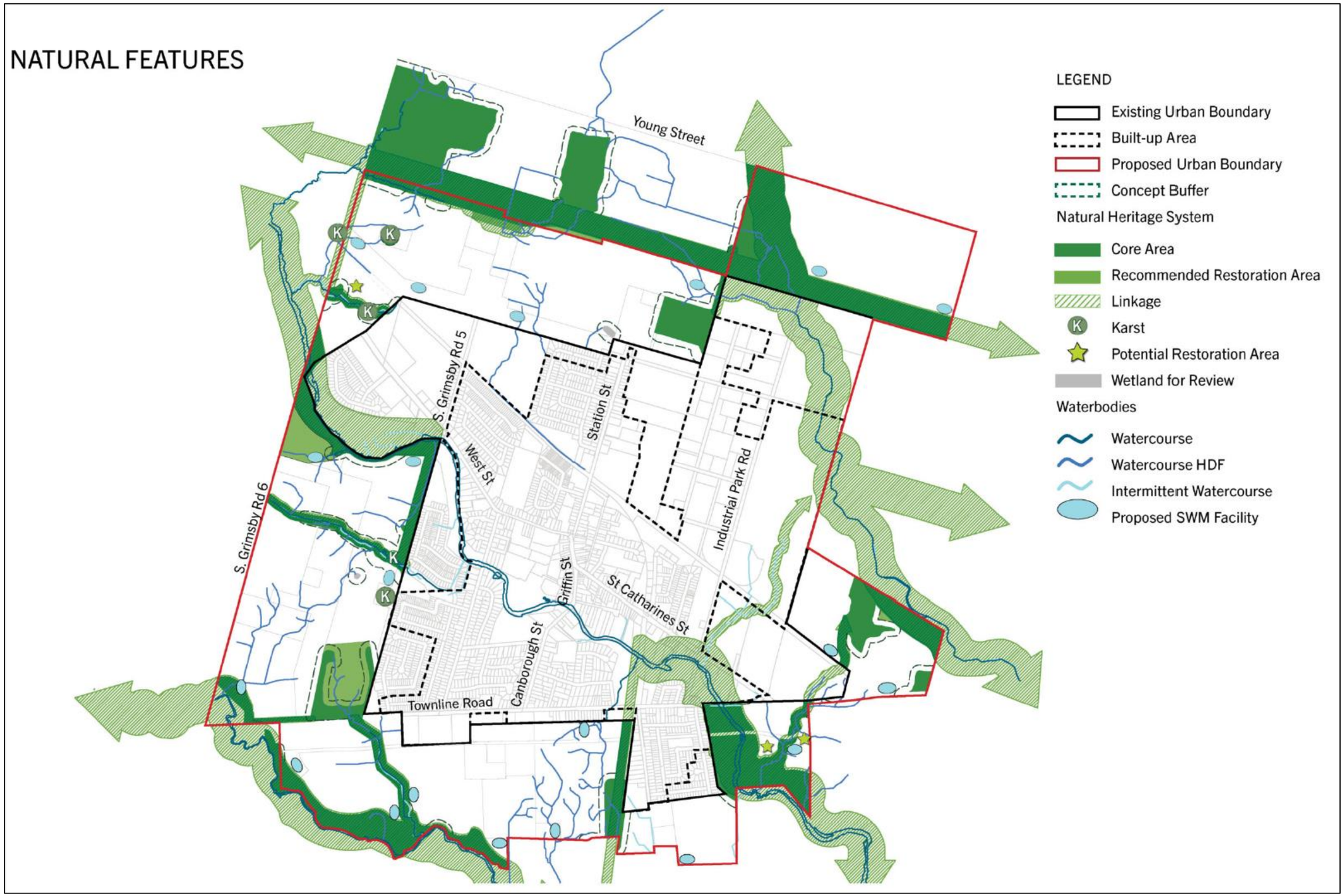


Figure 14-3: Preferred Concept Transportation System

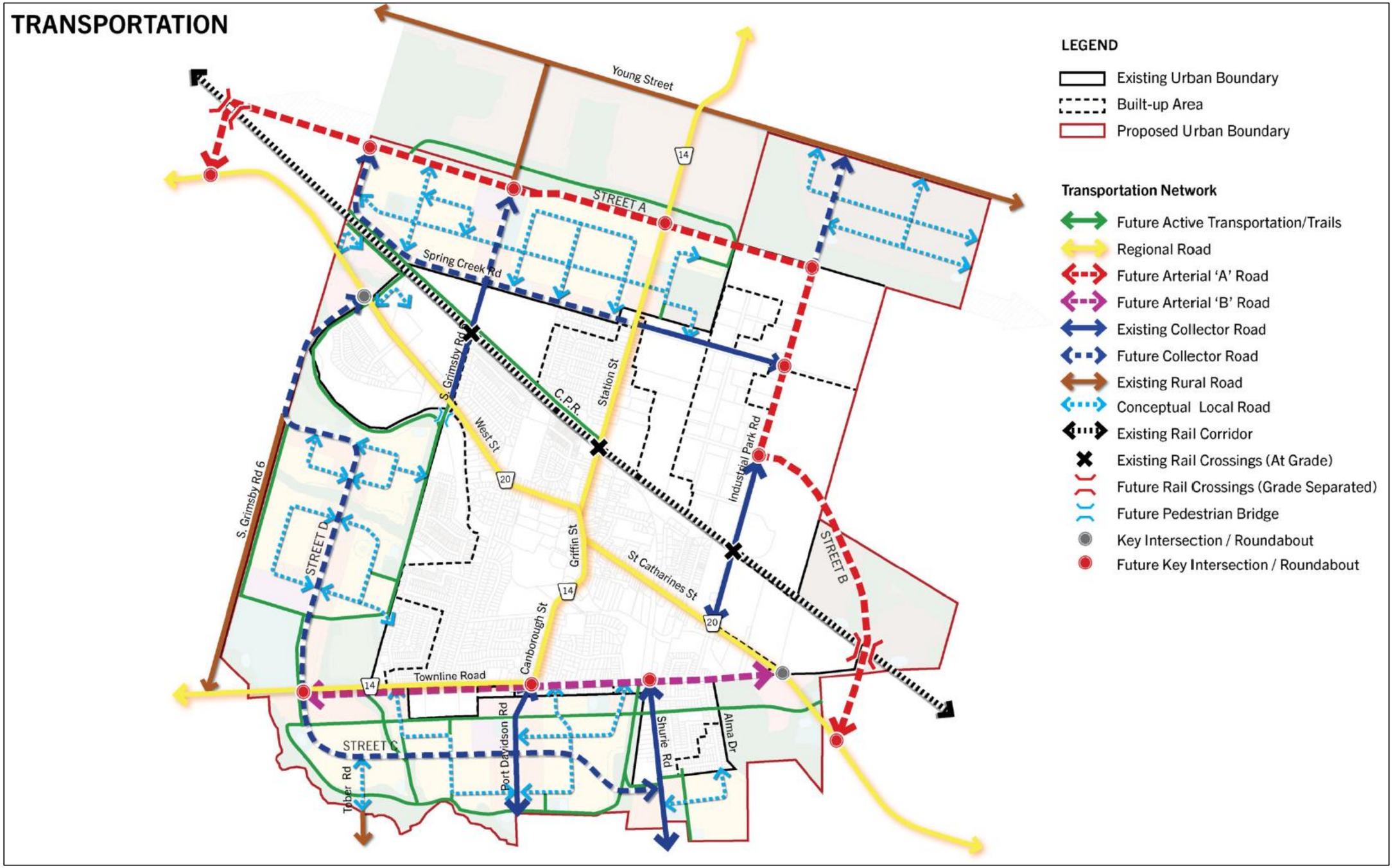


Figure 14-4: Preferred Water Strategy

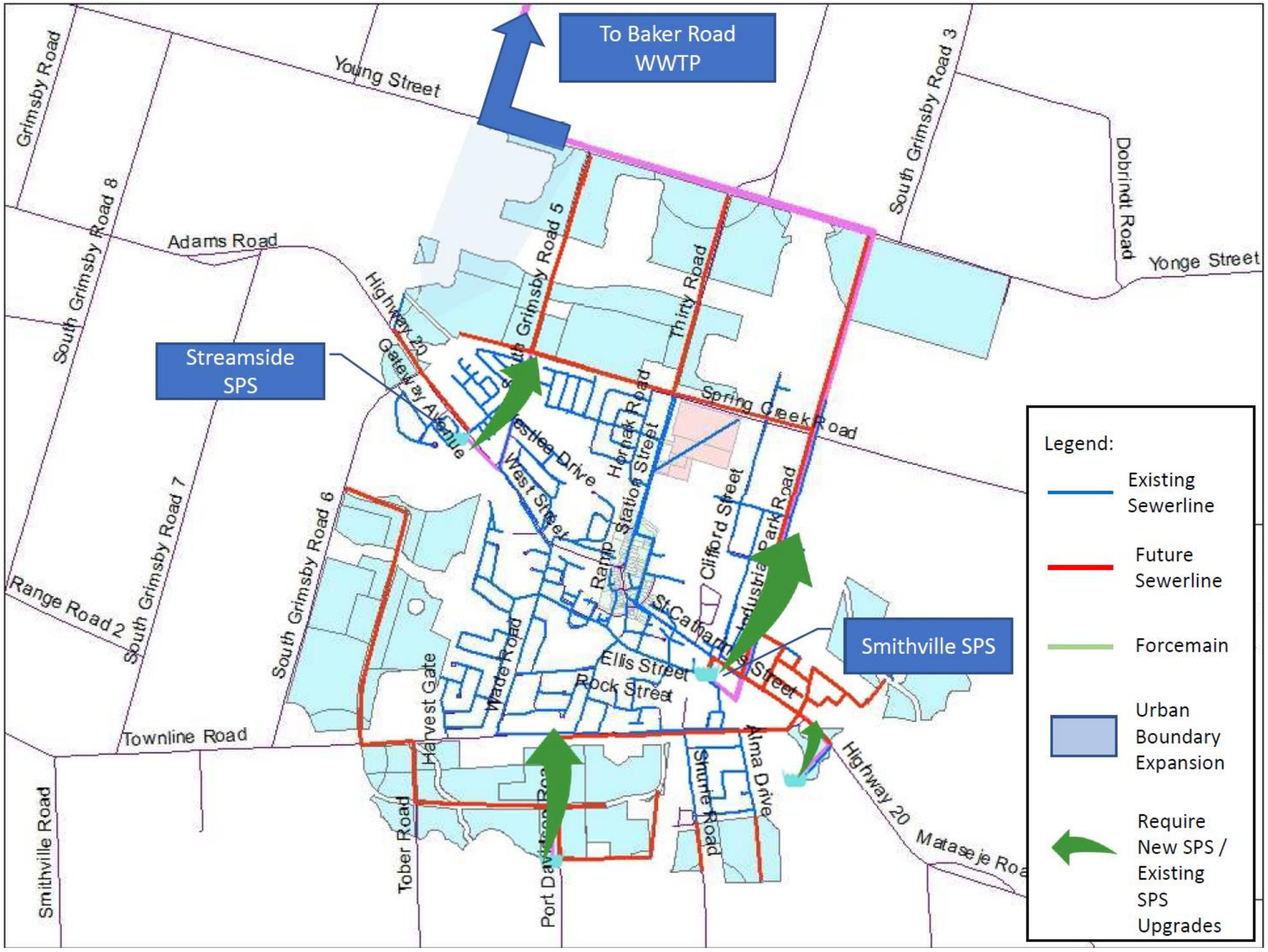
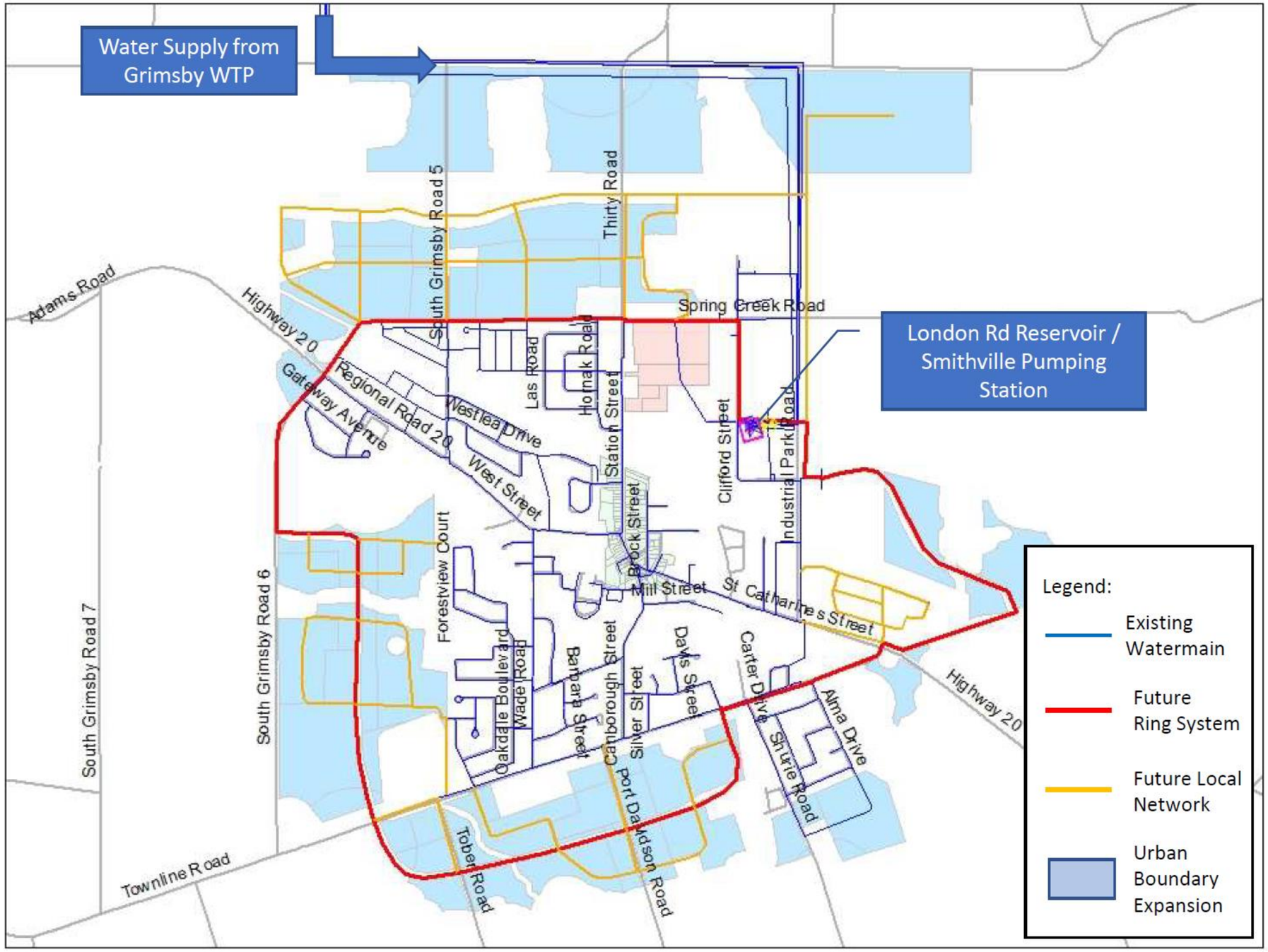


Figure 14-5: Preferred Wastewater Strategy

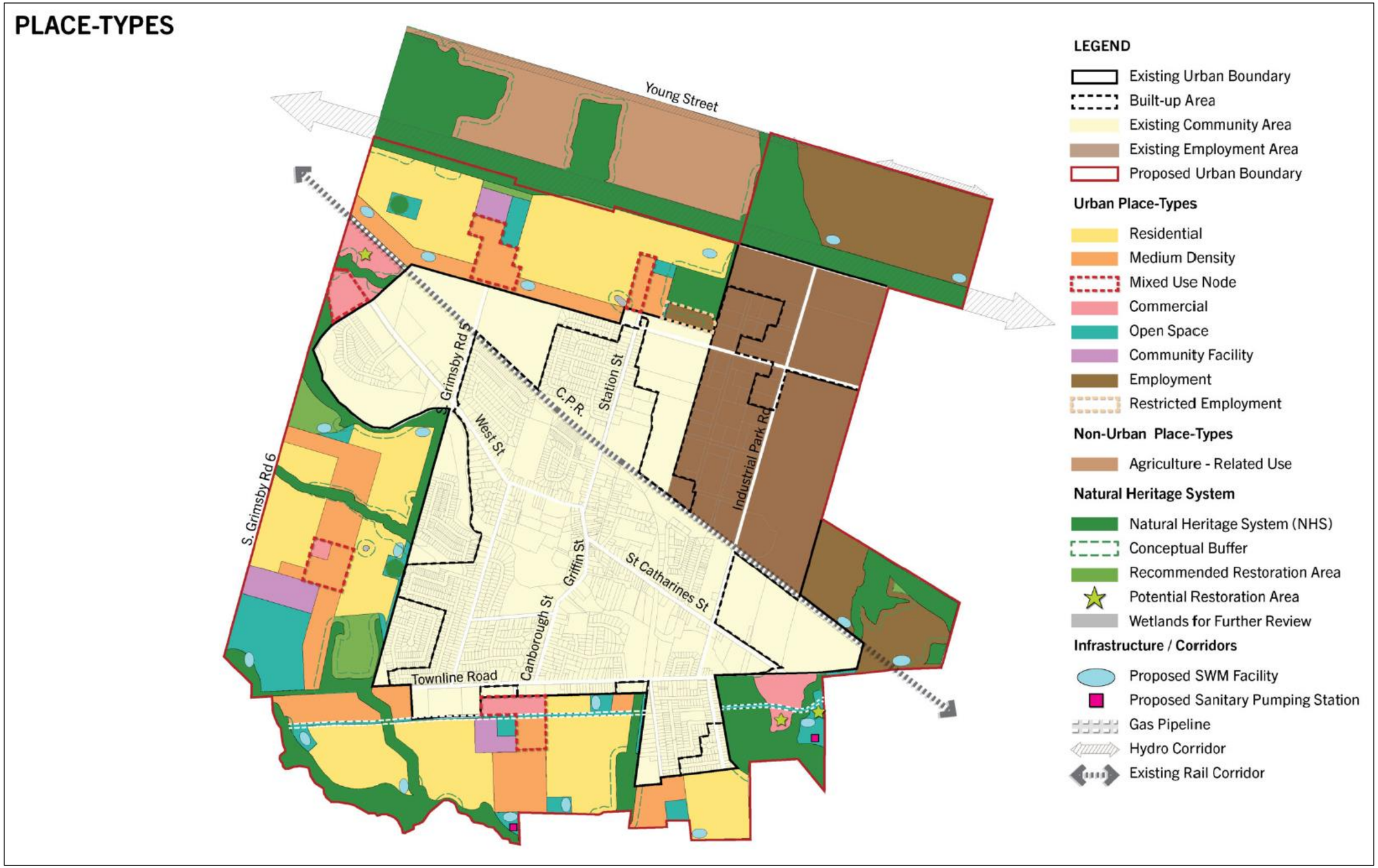


The preferred concept plan has divided Smithville into four areas with the following individual growth estimates:

- **North Area**
  - +4590 Population
  - +1690 Households
  - +950 Jobs
- **West Area**
  - +3550 Population
  - +1150 Households
  - +700 Jobs
- **South Area**
  - +5800 Population
  - +1900 Households
  - +1100 Jobs
- **East Area**
  - +0 Population
  - +0 Households
  - +1250 Jobs

Since the original design of the Preliminary Concept Plan, a few minor modifications were made building on the input received during community consultation, a review of opportunities and constraints, and requirements of Provincial, Regional and Township planning policies. **Figure 14-6** highlights the updated preferred concept.

Figure 14-6: Modifications to the Preliminary Preferred Concept – Place Types



15. Preferred Staging Strategy

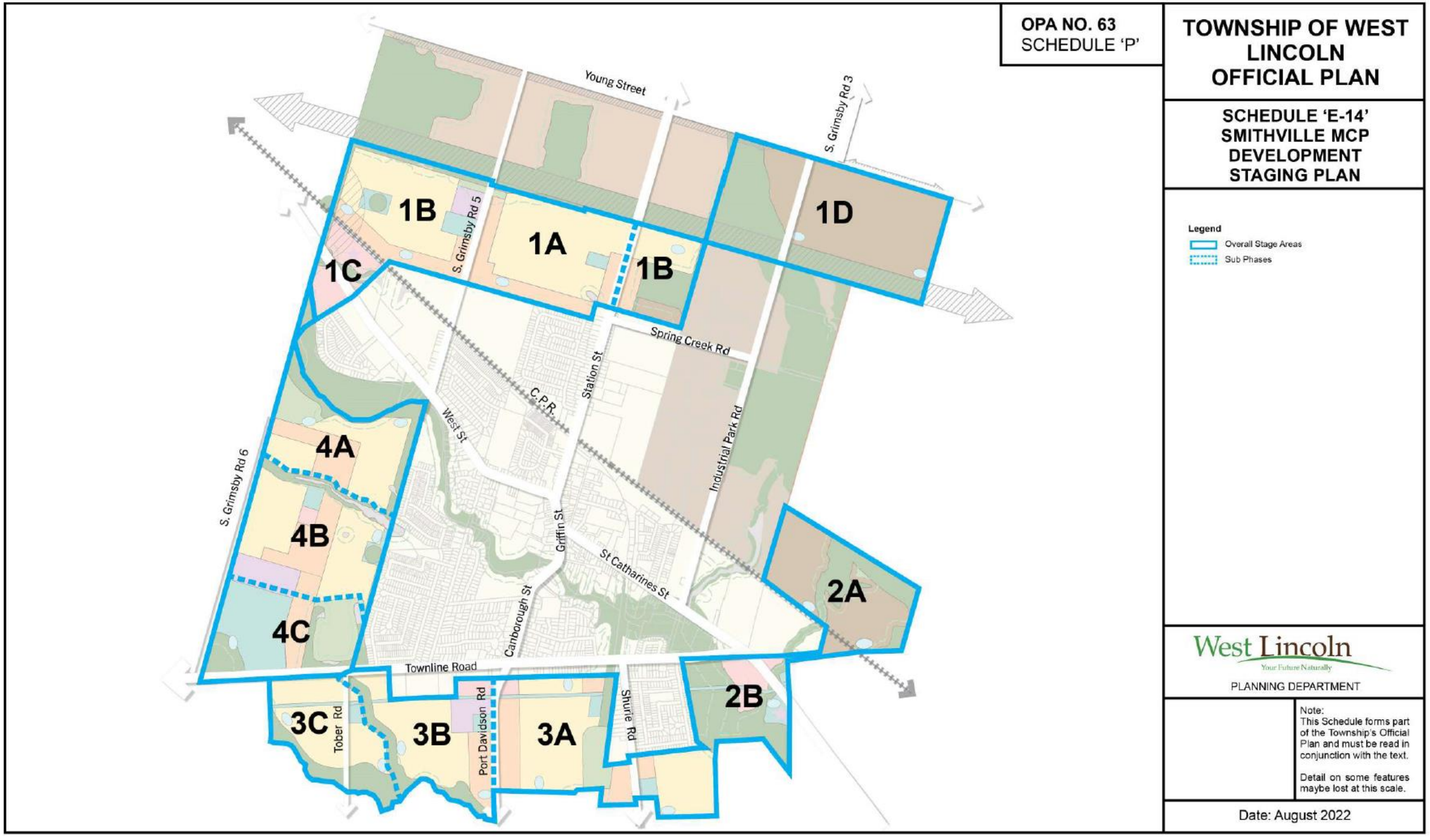
A staging plan has been developed to implement the complete Master Community Plan of the Study Area. The staging plan has been prepared such that it is consistent with the planning reports (including Northwest quadrant development and the Master Community Plan Official Plan Amendment) in addition to the transportation, and Water and Wastewater Master Plans. The staging plan recognizes the imminent Northwest quadrant build out and its association with the Water and Wastewater Master Plan recommended water transmission main network. For example, the first part of the transmission main will extend from Regional Road 20 up South Grimsby Road 5 and then head East along Spring Creek Road (future extension and existing road) which will in turn facilitate the servicing of the stage 1 area.

The staging plan has also been developed based on maintaining existing road networks and access locations, the construction of new roads, improvements required for existing infrastructure and the future servicing strategy.

The staging plan was identified based on the servicing analysis to implement the future road configuration as identified in the preferred Master Community Plan prepared for Study Area. The staging plan will assist with identifying when and how development can occur and the scope of improvements will need to be completed in a chronological order. The Staging Plan also considers the triggers that dictate when certain works are to occur prior to proceeding with development into a subsequent stage.

Thirteen stages of development and their associated areas have been identified in the staging plan. The staging plan includes four stages within the Study Area and subsequent substages as identified in **Figure 15-1**.

Figure 15-1: Development Staging Plan



16. Future Block Plan and Master Environmental Servicing Plan

16.1 Master Environmental Servicing Plan Requirements

Master Environmental Servicing Plans (Master Environmental Servicing Plans) are to be completed in support of the Block Plans for the future development areas encompassed in this Subwatershed Study. The Master Environmental Servicing Plans are intended to build upon the Subwatershed Study recommendations and refine the analyses and recommendations as appropriate based upon additional study and investigation, particularly for non-participating lands during the Subwatershed Study process.

Key outcomes from the Master Environmental Servicing Plan include:

1. Stormwater management facility siting and refined sizing criteria,
2. Updated and refined water budget assessment and Low Impact Development capture targets and general guidance for siting Low Impact Development Best Management Practices.
3. Update formal Regulatory floodline mapping
4. Headwater drainage features and watercourse management recommendations
5. Staked top-of-bank for confined watercourse systems
6. Establish the Natural Heritage System to ensure proper delineation of natural hazard lands (flooding and erosion hazards) and regulatory allowances, and the application of appropriate buffer/setbacks to the natural features; additional studies will need to be completed as part of the Master Environmental Servicing Plan to establish/refine buffers/setbacks to Natural Heritage System Features
7. Confirm/reflect Significant Wildlife Habitat and Significant Woodlands from Subwatershed Study
8. Provide guidance regarding principles and objectives where salvage of natural features can occur
9. Linkage and enhancement area refinements to be completed.

10. Establish watercourse/valley crossing locations, and corresponding sizes and geometry of structure for morphological criteria, hydraulic design criteria of freeboard and clearance, regulatory peak flow conveyance, and wildlife passage.
11. Identify general guidance and requirements for holistic monitoring program and principles for developing local monitoring programs.
12. Detailed assessment of karst features NW-3 and SW-2, including dye tracing (to the extent possible), to verify and refine the characterization and management recommendations advanced herein for the features (to the satisfaction of Niagara Peninsula Conservation Authority), and to demonstrate no impacts or hazard to the adjacent development.
13. For karst feature NW-1, additional analyses should be completed to demonstrate that the management recommendation advanced in the Master Environmental Servicing Plan would not increase flood risk to the adjacent development, and would not increase the risk of structural failure within the adjacent development.

Pre-consultation with the Township, Region, and the Niagara Peninsula Conservation Authority is recommended to develop Terms of Reference for Master Environmental Servicing Plans. The Master Environmental Servicing Plans are to provide a refinement to the Subwatershed Study by providing more detail through site specific study.

From a natural heritage perspective, The Master Environmental Servicing Plans shall include the following:

- Site specific terrestrial field surveys to provide detailed and updated review of Master Environmental Servicing Plan study areas, including standard anuran, breeding bird, and vegetation surveys.
- Site specific aquatic field surveys to provide detailed and updated review of Master Environmental Servicing Plan study areas, including standard habitat assessments and fish community surveys.
- Assessment and evaluation of “wetlands for further review” and other such areas to determine whether or not they meet the Conservation Authority Act definition of wetland.
- Staking and survey of wetland boundaries with the Township and Niagara Peninsula Conservation Authority . The Northern Division of the Ministry of Natural Resources and Forestry should be consulted with regards to the wetlands and potential provincial significance.
- Staking and survey of woodland boundaries with the Township and Region.

- Assessment of Significant Wildlife Habitat through more detailed surveys and review of Master Environmental Servicing Plan study areas. This is also to include the following:
  - Snake emergence surveys where there is potential for a snake hibernaculum, especially in the area of the rail line and former woodland west of Shurie Road.
  - Assessment of Raptor Wintering Areas Significant Wildlife Habitat east of Industrial Park Road and north of the rail line within the milieu of woodland, forest, meadow, and thicket habitat.
  - Assessment of Turtle Nesting Areas Significant Wildlife Habitat along North Creek and Twenty Mile Creek, as well as adjacent to any ponds that provide suitable habitat for turtles.
- Identification of appropriate buffers from natural heritage features, including woodlands, wetlands, and watercourses. Appropriate justification for changes from the buffers recommended through the SUBWATERSHED Study.
- Assessment of non-significant woodlands and treed areas in order to consider retention or compensation.
- Surveys for bat Species at Risk where habitat is proposed for removal, including woodlands and buildings. This must include consultation with the Ministry of The Environment, Conservation, And Parks.
- Site specific surveys for Species at Risk, including Bobolink, Eastern Meadowlark, and Barn Swallow. The Endangered Species Act must be followed and the Ministry of The Environment, Conservation, And Parks must be consulted as required.
- Address compensation requirements if natural heritage features are proposed for removal.
- Assessment and refinement of Recommended Restoration Areas. Justification for changes from the Restoration Areas recommended through the Subwatershed Study.
- Assessment and refinement of Linkages. Justification for changes from the Linkages recommended through the Subwatershed Study.
- Refinement of the Smithville Natural Heritage System to meet Subwatershed Study objectives. Justification for changes from the Natural Heritage System recommended through the Subwatershed Study ensuring the intent, objectives, and targets of the overall study area are met.

- Monitoring plan for pre-construction, during construction, and post-construction.
- A preliminary feature-based water balance assessment to ensure the water balance of features that may be impacted by development can be maintained to pre-development conditions. This includes wetlands, headwater drainage features , and watercourses.
- Provision of spatial data relating to the Smithville Natural Heritage System to be provided to the reviewing agencies at the conclusion of each Master Environmental Servicing Plan, which is to include natural heritage feature boundaries, Linkages, Buffers, and Restoration Areas.

It is expected that additional data will be collected at the Master Environmental Servicing Plan stage to support local scale characterization of the hydrogeologic system with specifics documented in the individual Master Environmental Servicing Plans. The additional data would include all the various types of hydrogeological field data necessary to define the site specific hydrogeologic setting and associated groundwater surface water connections (i.e. borehole logs, monitoring wells, groundwater levels, discharge areas). The number and location would need to be determined by proponent's consultant at the Master Environmental Servicing Plan stage. Where substantive differences in current conditions are identified in soil type (e.g. sand vs. till), subsurface geology, overburden thickness, groundwater depth, groundwater flow direction, groundwater discharge locations, the local characterization should be refined and include a discussion of how these local refinements may influence or change the hydrogeological characterization presented in the Subwatershed Study. Where the refinements in the local characterization are interpreted to have potential to substantively change in potential infiltration, recharge, groundwater levels, groundwater flow direction, gradients or groundwater discharge, it is recommended that the groundwater management plan presented in Section 2.3 and associated stormwater management plan in Section 2.2 be assessed accordingly.

The predominance of fine-grained material and thickness of the overburden provides a high level of water quality protection to the shallow bedrock aquifer from typical urban runoff and infiltration. Areas where the overburden is thinners, less than 6 metres, as shown in Appendix B, would be more hydrogeological sensitive.

In addition, the following should be considered at the Master Environmental Servicing Plan stage to minimize potential water quality impacts:

- Hydrogeological sensitivity for locating underground storage tanks (i.e. surficial sand unit, proximity to water course or wetland). Require associated groundwater monitoring for storage tanks.

- Spills management plans.
- Minimize application of fertilizer, pesticides, and herbicides.
- Maintain a contaminant threats inventory.

To prevent potential contaminants from entering the groundwater flow system through abandoned private domestic wells or unused monitoring wells it is necessary that they be properly decommissioned as per Ministry of the Environment, Conservation, And Parks Ontario Regulation 903.

The existence and potential removal of tile drainage may increase the local water table and could potentially reduce short term groundwater discharge to local surface features. Dewatering and construction considerations along with any related site-specific water management practices should take this into account.

Management direction and consideration for site specific feature-based water balance assessments are expected to address and the extent of assessment determined based on any future refinements to the ecological connection or the current requirements from the Niagara Peninsula Conservation Authority . Areas recommended for further study are expected to carry out a groundwater field program to refine the groundwater function and provide appropriate groundwater management options.

The Master Environmental Servicing Plans would be submitted to the Township, Niagara Peninsula Conservation Authority , and Niagara Region for review and approval.

A Block Plan and Master Environmental Servicing Plan Terms of Reference is being developed that will capture – expand upon the above which will also include transportation and water and wastewater requirements.

17. Mitigation, Monitoring, Management and Implementation Recommendations

Potential effects related to construction of the recommended capital works as described in Part C for Subwatershed/stormwater management, transportation, water and wastewater servicing will be limited to the duration and location of construction, where possible. Based on the preferred solution and associated project description, construction, operation and maintenance of the Project, it is recognized that the infrastructure improvements will result in some impact on the existing environment. By incorporating proper best management practices and construction techniques, adverse construction related effects can be minimized. In order to address potential effects, the following approach has been undertaken:

- **Avoidance:** The first priority is to prevent the occurrence of negative or adverse environmental effects associated with construction of the recommended works.
- **Mitigation:** Where adverse environmental effects cannot be avoided, it will be necessary to develop appropriate measures to eliminate, or reduce to some degree, the negative effects associated with construction of the recommended works.
- **Compensation:** In situations where appropriate mitigation measures are not available, or significant net adverse effects will remain following the application of mitigation measures, compensation measures may be required to counterbalance the negative effect through replacement in kind, or provision of a substitute or reimbursement.

The existing conditions were used as baseline conditions against which changes due to the project (effects) were assessed. Based on the project description for the preferred alternative strategies identified in Part C, avoidance measures can be applied in many cases, thereby reducing the extent of potential adverse environmental effects requiring the application of mitigation measures. The mitigation measures summarized below in **Table 17-1** are general in nature based on the preferred infrastructure strategies and recommended to ensure that any short and long-term disturbances are managed efficiently through a variety of measures. These measures will be confirmed and refined during the future block plan and Master Environmental Servicing Plan processes preliminary / detailed design phases of the recommended works.

Table 17-1: Potential Impacts and Mitigation Measures

Indicator	Project Phases	Potential Impacts	Potential Mitigation
Existing Utilities and Infrastructure	■ Master Environmental Servicing Plan ■ Preliminary and Detailed Design ■ Construction	■ Potential need to relocate and/or protect existing utilities and infrastructure. ■ Disruption to Canadian Pacific Railway corridor train movements.	■ Preliminary and Detailed design to confirm utilities. ■ During construction, flagmen will be retained for safety purposes and the contractor will coordinate work within the corridor with Canadian Pacific Railway to avoid scheduled train movements. Canadian Pacific Railway requires detailed workplan and staging documents.
Excess Soil Management	■ Construction	■ Discharge of a contaminant into the natural environment.	■ These activities will be completed in accordance with the Ministry of the Environment, Conservation, And Parks' current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).
Control of Inadvertent Spills	■ Construction	■ Contamination of soils through spills and leaks.	■ Contamination of soils through spills and leaks can be avoided by ensuring that fuel storage, refuelling and maintenance of construction equipment are handled properly and not allowed in or adjacent to watercourses. ■ Contingency plans will be prepared before construction begins for the control and clean-up of a spill, should one occur. ■ The Ministry of the Environment, Conservation, And Parks Spills Action Centre must be contacted if a spill occurs.
Vehicular Traffic, Travelling Public and Property Access	■ Construction	■ Temporary nuisance impacts where Water or forcemain crosses Twenty Mile Creek, roundabouts and other roads during construction.	■ During construction, local residential traffic may be temporarily disrupted. ■ The following measures will be employed to ensure that impacts are eliminated or minimized: ■ Maintain one open lane of traffic, where feasible. ■ Alternatively, implement temporary detour and issue a Public Service Advisory (notice of upcoming construction), as required.
Noise, Vibration and Dust	■ Construction	■ Noise, vibration and dust emissions, during construction.	■ Construction operations will be restricted to the day shift (when working in urbanized areas). In addition, the Contractor will be required to adhere to local noise by-laws, where required. ■ Employ Best Management Practices, including engine maintenance and use of dust suppressors. ■ Dust suppressants during dry periods should be applied to those areas which generate large amounts of dust ■ Restrict earth movement immediately adjacent to woodlands during periods of high dust generation
Climate Change	■ Construction	■ Carbon footprint and Resilience to Extreme Weather Events	■ To minimize potential effects during construction, the idling of construction equipment will be avoided, and equipment in good working order will be used to reduce inefficiencies in the operation of the equipment. ■ The design of the water and wastewater infrastructure should take into consideration key factors and climate change trends such as constructing to withstand extreme weather (e.g. frost).
Archaeology and Cultural Heritage	■ Master Environmental Servicing Plan ■ Preliminary and Detailed Design	■ Loss or disruption to archaeological resources. ■ Potential indirect or direct impacts to built heritage resources and or cultural heritage landscapes	■ A Stage 2 Archaeological Assessment (and further assessments, as recommended) is required for all land not demonstrated to be previously disturbed within the construction footprint limits of the preferred solution. ■ A visual assessment should be completed at the time of the Stage 2 assessment in order to confirm areas of archaeological potential, wet/sloped areas and areas of disturbance where applicable. ■ Where archaeological resources are impacted by Environmental Assessment project work, the Ministry of Citizenship and Multiculturalism will be notified by contacting archaeology@ontario.ca. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists. ■ If human remains are encountered, all activities must cease immediately, and the local police and coroner must be contacted. In situations where human remains are associated with archaeological resources, Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act. ■ A total of 111 cultural heritage resources and three cultural heritage landscapes were identified within the Study Area and may be subject to impacts as a result of future development or land use changes. A Heritage Impact Assessment should be completed for the previously identified and potential cultural heritage resources within the Study Area if there are impacts to these resources. ■ New development adjacent to cultural heritage resources or incorporating a cultural heritage resource should, from an urban perspective, be respectful of the resource, having regard for scale, massing, setbacks, building materials, and design features. Refer to the Cultural Heritage Report in Appendix A for the complete set of recommendations developed for the Smithville MCP.

Indicator	Project Phases	Potential Impacts	Potential Mitigation
Designated Natural Areas	■ Construction	■ Minimal vegetation removal along the edge of Twenty Mile Creek Provincially Significant Wetland and other waterbodies may be required for Water and Forcemain systems within the TWC corridor. ■ Potential effects of erosion / sedimentation on unevaluated wetlands	■ Refer to increased soil and sedimentation for Erosion and Sediment Control mitigation below. ■ Refer below to mitigation measures described for Vegetation Communities. ■ Avoid vegetation removal within the Twenty Mile Creek Provincially Significant Wetland and other waterbodies to the extent possible. ■ The Twenty Mile Creek Provincially Significant Wetland limits should be staked in the field during detailed design in consultation with the Ministry of Natural Resources and Forestry. The Provincially Significant Wetland limits will be identified on construction drawings. If vegetation removal is required within the Provincially Significant Wetland limits, any approval requirements or mitigation measures to minimize impacts should be confirmed with the Ministry of Natural Resources and Forestry.
Policy Areas	■ Construction	■ Vegetation removal within Regulated Areas including the Twenty Mile Creek Provincially Significant Wetland	■ Refer below to mitigation measures described for Vegetation Communities. ■ Recommendations for additional mitigation measures related to construction activities may be determined through consultation with the Ministry of Natural Resources and Forestry.
Vegetation Communities	■ Construction	■ Removal of a variety of vegetation as well as isolated trees may be required ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion	■ Vegetation removal will be kept to a minimum and limited to within the Twenty Mile Creek Corridor or municipal road Right-of-Way. ■ Avoid tree and shrub removal to the extent possible. ■ Construction protective fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation. These will remain in place until all construction activities are completed. ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and / or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ■ Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds). Refer to the wildlife and wildlife habitat mitigation measures described below.
Vegetation Communities	■ Construction	■ Indirect loss of vegetation through dust suppression	■ Dust suppressants during dry periods should be applied to those areas which generate large amounts of dust. ■ Restrict earth movement immediately adjacent to woodlands or water features during periods of high dust generation.
Vegetation Communities	■ Construction	■ Degradation of plant health and loss of vegetation leading to vegetation community changes as result of dewatering activities	■ During detailed design the need for a dewatering zone of influence assessment and dewatering monitoring plan should be evaluated. The dewatering monitoring plan, should it be deemed required, will be developed in consultation with the Ministry of Natural Resources and Forestry, will monitor for potential negative effects on the associated water crossing and adjacent vegetation communities if affected due to dewatering activities, and will provide an adaptive management plan should said negative effects be observed.
Vegetation Communities	■ Construction	■ Potential for the spread of emerald ash borer, (*Agrilus planipennis*) associated with removal, handing and transport of ash trees	■ Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive 'D-03-08: Phytosanitary Requirements to Prevent the Introduction into and spread within Canada of the emerald ash borer, *Agrilus planipennis (Fairmaire)*. To comply with this Directive, all Ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.
Vegetation Communities	■ Construction	■ Increased soil and sedimentation	■ Mitigation measures are recommended to be used for erosion and sediment control to prohibit sediment from entering any identified vegetation communities and watercourses during construction. The primary principles associated with sedimentation and erosion protection measures are to: – minimize the duration of soil exposure – retain existing vegetation, where feasible – encourage re-vegetation – divert runoff away from exposed soils – keep runoff velocities low – trap sediment as close to the source as possible ■ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint, prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities and prevent entry of sediment into the watercourse or wetland.

Indicator	Project Phases	Potential Impacts	Potential Mitigation
			■ The contractor shall monitor the weather several days in advance of the onset of the project to ensure that the works will be conducted during favourable weather conditions. Should an unexpected storm arise, the contractor will remove all unfixed items from the Regional Storm Floodplain and slope that would have the potential to cause a spill/ pollution (i.e., fuel tanks, porta-potties, machinery) or an obstruction to flow (i.e. machinery, equipment). Prior to forecasted precipitation event, all Erosion and Sediment Control measures are to be inspected and confirmed to be in good condition. ■ Stockpiled materials and equipment will be stored within the construction footprint but shall be kept at least 30 metres away from the watercourse or wetland. ■ Details of the type and placement of sediment and erosion control to be used will be outlined in an Erosion and Sediment Control Plan to be drafted prior to construction
Vegetation Communities	■ Construction	■ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use ■ Introduction and spread of invasive species	■ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Refuelling of equipment will occur at least 30 metres away from a watercourse or wetland vegetation. ■ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran *et al*., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species between locations.
Wildlife	■ Construction	■ Disturbance, displacement or mortality of wildlife ■ Wildlife movement is not anticipated to be significantly affected by the temporary construction work as the preferred route will be within existing road or railroad Right-of-Ways, which is already disturbed. Vegetation within temporarily disturbed areas are anticipated to recover quickly	■ Construction personnel will be trained in ways to prevent a wildlife encounter from occurring, including the following: – No personnel shall approach, feed or harass wildlife; – Food waste will be properly stored and disposed of; and – Vehicles will yield to wildlife. ■ The following mitigation measures are recommended to minimize impacts to wildlife. Upon the first encounter of any wildlife including Species at Risk (Endangered, Threatened or Special Concern) the following steps are to be taken: – Work in the immediate vicinity of the observation is to come to a stop – If the animal is uninjured, it should be allowed to leave the work zone under its own power and a record made of the observation – Should the animal be injured, unearthed or cannot flee the work zone under its own ability, an Ecologist/Biologist should be contacted immediately. – Ecologist/Biologist will notify the District Ministry of the Environment, Conservation and Parks Biologist within 48 hours of any observation of Endangered and Threatened species and/or immediately for any species going to a wildlife custodian – It is not necessary to notify the District Ministry of the Environment, Conservation and Parks Biologist with observations of Special Concern species (i.e., Snapping Turtle) or general wildlife sightings (i.e., deer, raccoon, etc.) ■ Tree removal in forested habitats is also to occur outside of the bat roosting season which occurs from March 30 to October 1. ■ The installation of turtle exclusion fencing around any work locations adjacent to wetlands, ponds, lakes or other potential habitat with works planned between May 15 and July 15. The fencing should be erected prior to May 15 and maintained until July 15 to prevent turtles from nesting in the work area. ■ Limit construction activity to a period after 7 am and before 7 pm daily. ■ Confirm that caps on all strung pipes remain in place until immediately prior to welding to avoid trapping or confining wildlife. ■ Any open trenches will be backfilled as soon as practical following excavation. ■ Use a tarp and/or magnets to collect the bevel shavings on a daily basis to prevent ingestion or injury by wildlife.

Indicator	Project Phases	Potential Impacts	Potential Mitigation
Migratory Breeding Birds and Nests	■ Construction	■ Disturbance or destruction of migratory bird nests	■ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ■ If activities are proposed to remove natural vegetation during the general nesting period, a nest survey will be undertaken prior to required activities in simple habitat. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If an active nest of a migratory bird is found outside of this nesting period, it still must be avoided until young birds have fledged.
Aquatic Environment	■ Construction	■ Trenchless crossings will not require in water works ■ Increased sedimentation and erosion. ■ Risk of water contamination as result of spills (e.g., grease, soils, and/or fuel) from equipment use	■ Adhere to Fisheries and Oceans Canada's Timing Windows for In-Water Work anytime in-water work occurs ■ If required, in-water work must occur either: 1) 'under dry conditions' by isolating work areas with water-tight coffer dams or within isolated dry work areas along active channel banks using dewatering and flow bypass methods; or 2) with appropriate permits outside of the timing restrictions ■ Fish must be removed from isolated work areas by a qualified Biologist prior to starting work. Fish will be live released to the watercourse downstream of the work area ■ Discharge water from dewatering will be released 30 metres away from the watercourse in a vegetated area to prevent sedimentation. Water will be returned to the watercourse in a clear condition to maintain downstream water levels ■ Stockpiled material will be stored at a safe distance (30 metres) from watercourses to ensure that no deleterious substances enter the water. ■ Sediment and erosion control measures (e.g. sediment fence) will be installed and will be maintained during the work phase and until the site has been stabilized. ■ Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be inspected and maintained on a regular basis, prior to and after runoff events. ■ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Design water management system and dewatering operations (if needed, in excavated work areas above the high-water mark) to prevent erosion and/or release of sediment-laden or contaminated water to the adjacent watercourse. ■ Refuelling of equipment will occur at least 30 metres away from the watercourse. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks).
Aquatic Environment	■ Construction	■ Potential effects on vegetation communities, wetlands, fish habitat	■ If trenchless methods are selected as the preferred option for the watermain and sanitary forcemain installation across all of the water crossings the following mitigation and protection measures are recommended but may not be limited to: ■ The drill path will be designed to an appropriate depth below the watercourses to minimize the risk of frac out and to a depth to reduce the risk of the line from becoming exposed due to natural scouring of the streambed. Entry and exit pits will be far enough from the banks of all watercourses to have minimal impacts on these areas. ■ Stockpiled materials will be located at an appropriate distance from the edge of the water feature and/or wetland features. ■ Erosion and Sediment Control fencing will be installed to reduce the risk of sediment-laden runoff from entering a water feature and/or wetland features. ■ Machinery will arrive on-site clean and in good condition; a spill response plan will be prepared and implemented as necessary. ■ Water crossings will be monitored to observe signs of surface migration (frac out) of drilling mud during all phases of construction. In the event of frac out, a frac out response and contingency plan will be implemented. The Plan will consist of the following: – All material and equipment needed to contain and clean up drilling mud releases will be kept on site and readily accessible in the event of a frac out;

Indicator	Project Phases	Potential Impacts	Potential Mitigation
			– In the event of a frac out, drilling will be stopped immediately and the Ministry of the Environment, Conservation and Parks' Spills Action Centre will be notified as appropriate – Measures will be taken to contain the drilling mud and reduce the risk of its further migration into the watercourse or wetland feature. Measures may include the use of vacuum trucks, excavation of relief pits, etc.; – Cleanup and disposal activities will be prioritized; and, – Once the spill has been deemed secure, a new drill attempt beneath the river can be made or a new crossing method will be reviewed to accommodate site-specific conditions as the need arises. ■ Any disturbed areas will be seeded with native species appropriate to the soil conditions and restored as close as possible to pre-construction conditions.
Species at Risk	■ Construction	■ Removal of species at risk habitat – Disturbance, displacement, injury or mortality of individual species at risk	■ Species-specific surveys to confirm presence or absence of species at risk may be required for the preferred route. Specific mitigation measures may be developed based on the results of the species at risk surveys and detailed design of the preferred route to minimize potential effects. ■ If the proposed activities cannot avoid impacting protected Species and Risk and their habitats an authorization under the Endangered Species Act (ESA) will be required. The Ministry shall be contacted SAROntario@ontario.ca to undergo a formal review under the ESA if the proposed activities are going to have an impact.

18. Niagara Region Development Charges Update

The previous Capital Works project listing **(Section 12.5, 13.4 and 14.4)** were obtained from the Smithville Transportation Master Plan, and Water and Wastewater Master Plan and will be used accordingly to inform Niagara Region's Development Charges update which is updated every five years. It is recommended that the Transportation Master Plan and Water and Wastewater Master Plan also are updated generally in parallel and collaboratively, so they are appropriately aligned .

19. Township of West Lincoln Development Charges Update

The previous Capital Works project listing (Section 12.5, 13.4 and 14.4) were obtained from the Smithville Transportation Master Plan, and Water and Wastewater Master Plan and will be used accordingly to inform the Township of West Lincoln's Development Charges update which is updated every five years. It is recommended that the Transportation Master Plan and Water and Wastewater Master Plan also are updated generally in parallel and collaboratively, so they are appropriately aligned.

PART E: Overview of Community and Stakeholder Engagement

Community engagement is an opportunity to conduct meaningful dialogue about the growth of the Township and build awareness and excitement of the Master Community Plan. Input from the community and interested stakeholders also provided the project team with vital insight which has supported the development of a Master Community Plan that reflects the community's needs. The purpose of this section is to summarize the consultation record including development of a contact list, web platform and notices, council meetings, as the public, agency, stakeholder and Indigenous community consultation activities undertaken.

20. Study Contact List

At the onset of the Smithville Master Community Plan study, a contact list was developed that included relevant review agencies, stakeholders, Indigenous Communities, and members of the public that requested to be kept informed. The list was regularly reviewed and updated. Refer to **Appendix F** for a copy of the agency and stakeholder contact list.

21. Engagement Platform

Community consultation is vital to the success of the Smithville Master Community Plan. A web platform (**plansmithville.ca**) was developed and regularly updated in order to share key project information and receive input to inform the decision-making process.

Content included, among other information, background information, Subwatershed Study findings, impact assessment results (e.g., transportation, water and wastewater) concept plans, draft Official Plan Amendments No. 62 and 63 and information on how to provide feedback participate through the Public Information Centres. Public meeting materials were shared to allow those who could not attend the opportunity to review and provide comments.

22. Notifications

Table 22-1 summarizes the notices that were developed and circulated to meet the integrated planning notice requirements A copy of the notices are in included in the **Public Consultation Record (Appendix F**).

Table 22-1: Summary of Integrated Notices

Project Phase	Municipal Class Environmental Assessment Phase	Notice	Notification Details
Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem and/or Opportunity	■ Notice of Commencement and Visioning Public Information Centre	■ Posted in Niagara this Week: January 16, 2020, and January 23, 2020 ■ Posted in News Now: January 23, 2020, and January 30, 2020 ■ Issued to the study contact list: January 13, 2020 ■ Issued to property owners within and 120 metres beyond the expansion lands to be added to the Smithville Urban Area: January 10, 2020
Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem and/or Opportunity	■ Notice of Public Information Centre No. 1	■ Posted in Niagara this Week: February 4, 2021, and February 11, 2021 ■ Posted in News Now: January 28, 2021, and February 4, 2021 ■ Issued to the study contact list: January 26, 2021, and January 28, 2021 ■ Issued to property owners within and 120 metres beyond the expansion lands to be added to the Smithville Urban Area: January 26, 2021
Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	■ Notice of Public Information Centre No. 2	■ Posted in Niagara this Week: September 23, 2021, and September 30, 2021 ■ Posted in News Now: September 30, 2021 ■ Issued to the study contact list: October 1, 2021 ■ Issued to property owners within and 120 metres beyond the expansion lands to be added to the Smithville Urban Area: September 23, 2021
Phase 3 – Preferred Community Structure Plan & Monitoring, Management, and Implementation Recommendations	■ Phase 2: Alternative Solutions	■ Notice of Public Open House and Public Meeting for Planning Matters / Public Information Centre No. 3	■ Posted in Niagara this Week: March 17 and March 24, 2022 ■ Posted in News Now: March 17 and 24, 2022 ■ Issued to the study contact list: April 7, 2022 ■ Issued to property owners within and 120 metres beyond the expansion lands to be added to the Smithville Urban Area: April 7, 2022 ■ Public meeting for Official Plan Amendment 62: April 27, 2022 ■ Public meeting for Official Plan Amendment 63: June 27, 2022
Phase 3 – Preferred Community Structure Plan & Monitoring, Management, and Implementation Recommendations	■ Phase 2: Alternative Solutions	■ Notice of Decision/Approval and Notice of Completion	■ Posted in Niagara this Week: April 27, and May 4 2023 ■ Issued to the study contact: April 27, 2023 ■ Issued to property owners within and 120 metres beyond the expansion lands to be added to the Smithville Urban Area: April 27, 2023 ■ Niagara Region issued Notice of Decision to the required agencies and the public in accordance with the Planning Act on April 27, 2023.

23. Public Consultation

23.1 Visioning Public Information Centre

A Visioning Public Information Centre was held on January 20, 2020, from 6:00 pm to 8:00 pm at the West Lincoln Community Centre located at 177 West Street in Smithville. Approximately 110 community members participated in discussions about Smithville today and how it should grow into the future.

The format of the event was an in person drop-in centre format with a short presentation and visioning exercise. The intent of the Public Information Centre was to introduce and build awareness of the Study. Attendees were invited to drop-in between the hours specified, to speak with representatives from the Study Team and participate in a visioning exercise to identify key issues of importance to the Community and guiding principles for the Study. **Figure 23-1** summarizes the feedback from the Public Information Centre. Refer to **Appendix E** for a copy of the Public Information Centre materials.

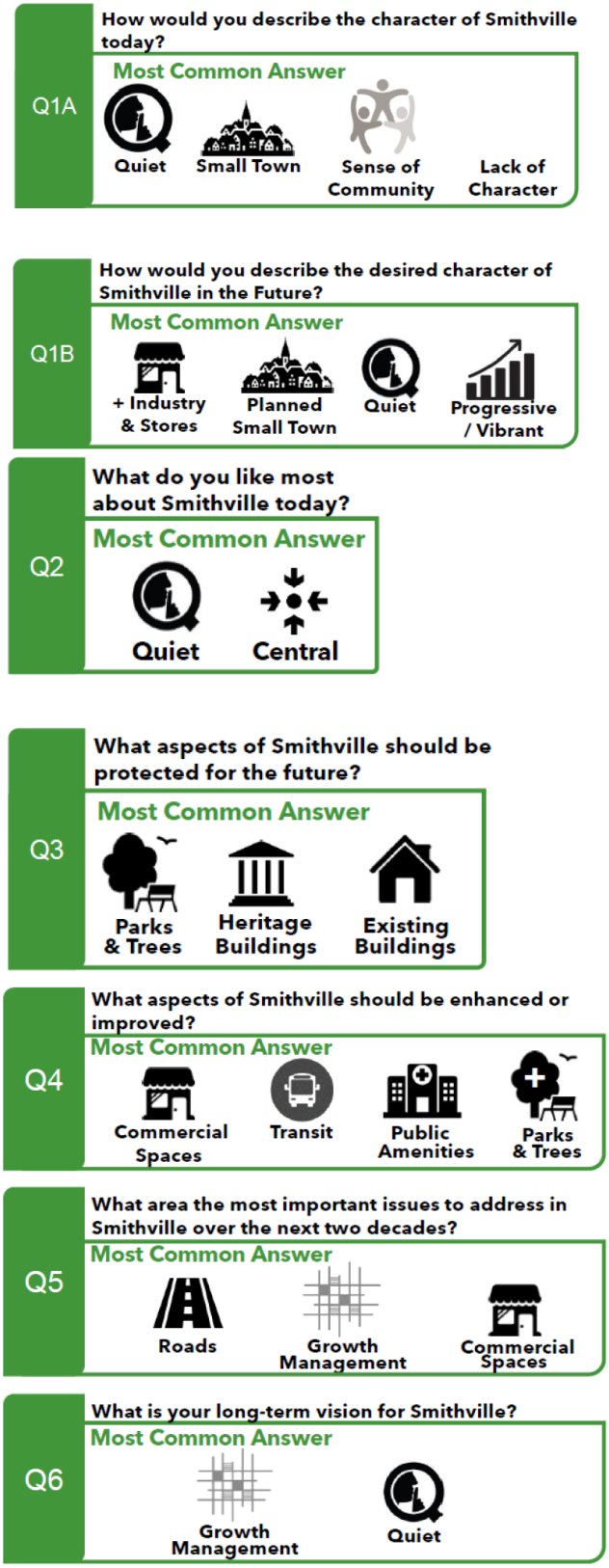
23.2 Public Information Centre No. 1

Public Information Centre No. 1 was held virtually via Zoom on February 11, 2021. The study team hosted a live presentation following by a question and answer session. Approximately 103 community members participated in discussions about the purpose and scope of the Study, existing and future study area conditions, and the preliminary land use concept options as described in **Section 8**.

Feedback was received from polls taken during the live event, the question and answer session, as well as through the engagement platform (plansmithville.ca). Polling questions throughout the meeting found that:

- Going into the meeting, people were most interested in finding out how Smithville will grow in the future and how environmental considerations will be addressed.
- Most people agreed that a truck bypass was necessary and that it should be routed to the north.
- Going forward from the meeting, most people are still interested in seeing how Smithville will grow and what its character will be.

Figure 23-1: Visioning Public Information Centre Feedback



Key themes from the overall feedback received included:

- Maintain small town character
- Balanced growth – housing, services, employment, greenspace/recreation
- Maintain separation between industry (direct north and east) and residential
- Greater preference for Option 1 over Option 2

Figure 23-2 outlines the key themes from the response to the question "what does a complete community mean for Smithville". Refer to **Appendix E** for a copy of the Public Information Centre No. 1 materials, including feedback received.

Figure 23-2: Public Information Centre No. 1 Feedback

23.3 Public Information Centre No. 2

Public Information Centre No. 2 was held virtually via Zoom on October 6, 2021. The study team hosted a live presentation following by a question and answer session. Approximately 55 community members participated in discussions about the Preliminary Preferred Concept Plan, Preliminary Impact Assessment results, integration with Smithville Master Community Plan and Municipal Class Environmental Assessment, and next steps for the Project.

Feedback was received from polls taken during the live event, the question and answer session, and an online questionnaire through the engagement platform (plansmithville.ca). In total, 17 completed questionnaires were received.

Key themes from the feedback on the Preliminary Preferred Concept Plan presented at Public Information Centre No. 2 include:

- General support for reserving the north-west area along Young Street for continued agricultural use and potential agriculture-related uses with the hydro corridor as the northerly limit of residential growth, as shown on the plan.
- Support for keeping employment / industrial land use to the north-east and maintaining separation between industry and housing.
- Improving connectivity and safety for pedestrians and cyclists through complete streets design and a linked trails system.
- Maintaining the small town feel of Smithville while also accommodating a range of housing options and a mix of densities to use the land efficiently, create walkable neighbourhoods and preserve farm land.
- Support for new and improved community facilities, parks and open space as well as commercial/mixed use areas.
- Support for improvements in Downtown Smithville such as:
  - Accessibility and safety
  - Pedestrian and cycling friendly
  - Reduced heavy truck traffic (by establishing an alternative truck route/by-pass)
  - Newer/improved buildings
  - More stores, services and/or restaurants, offices and jobs
  - More residential buildings/apartments
  - More/improved parking

Refer to **Appendix E** for a copy of the Public Information Centre No. 2 materials, including feedback received.

23.4 Public Information Centre No. 3 / Public Meeting of Council

An Online virtual Open House was hosted online at Plansmithville.ca in advance of the Public Information Centre No. 3/ Public Meeting of Council in accordance with the Planning Act. Feedback opportunities were available on the website from April 13 to April 20, 2022.

The Virtual Public Meeting / Public Information Centre No. 3 was held virtually via Zoom on April 27, 2022 and provided opportunities for feedback on the proposed amendment to the Township of West Lincoln Official Plan. The purpose and effect of Official Plan Amendment No. 62, as described in **Section 2** of this report, was to incorporate the Master Community Plan for the urban expansion of Smithville into the Township of West Lincoln Official Plan.

The Virtual Public Meeting / Public Information Centre No. 3 also presented the Impact Assessment Results and recommendations for Subwatershed / Stormwater Management, Water and Wastewater, and Transportation.

Written comments submitted to the Township Deputy Clerk by 4 PM Wednesday, April 20, 2022 were included in the Township Staff's report for the proposed Official Plan Amendment. Comments received after this date were not included in Staff's report. Comments submitted prior to Friday, April 22 at 4:00 pm were read into the public record during the meeting.

Refer to **Appendix E** for a copy of the Public Information Centre No. 3 materials.

24. Agency and Stakeholder Consultation

24.1 Technical Advisory Committee

A Technical Advisory Committee was developed to receive advisement and assistance in directing the development of the Smithville Master Community Plan. The Technical Advisory Committee consisted of various agencies and stakeholders:

- AECOM (Core Project Team)
- GSP Group (Core Project Team)
- WSP (Core Project Team)
- Township of West Lincoln (Core Project Team)

- Niagara Region (Core Project Team)
- Land owners' group and their subconsultants
- Niagara Peninsula Conservation Authority

Table 24-1 summarizes the main Technical Advisory Committee meetings held throughout the development of the Smithville Master Community Plan. The meeting minutes are included in **Appendix E.** Other smaller sub- Technical Advisory Committee meetings were also held throughout the planning process to focus on items that required further discussion from the Technical Advisory Committee meetings, as needed.

The Technical Advisory Committee structure was utilized for Phases 1 and 2. Towards the end of Phase 2 it was determined that sub Technical Advisory Committee meetings would be more efficient in order to allow the Team to focus on specific Master Community Plan, Subwatershed Study/Stormwater Management, and Infrastructure components. Approximately five sub Technical Advisory Committee meetings were held for each of the following sub Committees:

1. Planning Policy;
2. Subwatershed Study;
3. Transportation Master Plan; and
4. Water and Wastewater Master Servicing Plan

These sub Technical Advisory Committees helped focus individual disciplines so that the Agencies and Landowners and their consultants could provide more focused input to the recommended planning policies, the management/implementation strategies of the Subwatershed Study, as well as the overall Infrastructure requirements and their staging.

Table 24-1: Summary of Technical Advisory Committee Meetings

Technical Advisory Committee Meeting Number	Project Phase	Municipal Class Environmental Assessment Phase	Meeting Date	Meeting Summary
Technical Advisory Committee Meeting 1	■ Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem or Opportunity Statement	November 28, 2019	■ Introduction to Project ■ Overview of the Subwatershed Study process ■ Site visit to expansion lands proposed to be added to the Smithville Urban boundary
Technical Advisory Committee Meeting 2	■ Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem or Opportunity Statement	February 14, 2020	■ Provided an update of Project Status, background data review and work plan coordination of the Subwatershed Study and the Smithville Master Community Plan ■ Reviewed project schedule
Technical Advisory Committee Meeting 3	■ Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem or Opportunity Statement	June 12, 2020	■ Shared background information related to the Subwatershed Study, intensification and greenfield analysis and summary of technical background characterization report findings ■ Discussed opportunities and constraints in relation to the Regional context and connections, land use pattern and community structure, natural environment and agriculture ■ Discussed next steps for developing concept options
Technical Advisory Committee Meeting 4	■ Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem and/or Opportunity	July 24, 2020	■ Introduced Land Use Concept Options 1 and 2 ■ Provided an updated on progress related to transportation, water, wastewater, stormwater management and natural heritage
Technical Advisory Committee Meeting 5	■ Visioning and Phase 1 – Characterization and Preliminary Concept Options	■ Phase 1: Problem and/or Opportunity	October 2, 2020	■ Provided an update on water and wastewater ■ Shared transportation constraints, opportunities and preliminary modelling results ■ Refinement of Land Use Concepts – Screening ■ Discussed feedback related to the background characterization report and preliminary concept plan options ■ Presented the Phase 1 Problem and Opportunity Statement for the Municipal Class Environmental Assessment Process ■ Presented the refinement of land use concept options
Technical Advisory Committee Meeting 6 - Part I	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	February 24, 2021	■ Presented a recap of the draft growth forecasts, preferred Concept Plan and land needs ■ Presented and discussed the Master Community Plan high level objectives and key policy directions based on a Complete Community concept
Technical Advisory Committee Meeting 6- Part II	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	Phase 2: Alternative Solutions	July 28, 2021	■ Presentation and discussion of the Subwatershed Study Impact Assessment (Phase 2a)

24.2 Agency and Stakeholder Meetings and Correspondence

Several meetings were held with the Regional Municipality of Niagara as part of the Core Project Team and key stakeholders throughout the completion of the integrated Municipal Class Environmental Assessment for the Smithville Master Community Plan. **Table 24-2** summarizes the key agency and stakeholder meetings held.

Throughout the planning process agencies and stakeholders also provided written feedback on the Smithville Master Community Plan. **Table 24-3** provides an overview of the key incoming agency and stakeholder correspondence. Refer to **Appendix F** for a copy of the complete agency and stakeholder consultation record.

Table 24-2: Summary of Agency and Stakeholder Meetings

Agency / Stakeholder	Project Phase	Municipal Class Environmental Assessment Phase	Meeting Date	Meeting Summary
Niagara Catholic District School Board	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	September 15, 2021	■ Introduced the Project ■ Presented the Preliminary Preferred Land Use Concept , including proposed locations of future schools ■ Reviewed preliminary population forecasts that were also provided to support future School Board school facility planning
District School Board of Niagara	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	September 16, 2021	■ Introduced the Project ■ Presented the Preliminary Preferred Land Use Concept, including proposed locations of future schools ■ Reviewed preliminary population forecasts that were also provided to support future School Board school facility planning
Ministry of Municipal Affairs and Housing	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	September 22, 2021	■ Introduced the Project ■ Presented the Smithville 2051 Growth Forecast and Preliminary Preferred Land Use Concept ■ Discussed Study Area size, Designated Greenfield Area numbers for Smithville, municipal servicing and prime agricultural areas
Hydro One	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	September 22, 2021	■ Introduced the Project ■ Presented the Smithville 2051 Growth Forecast and Preliminary Preferred Land Use Concept, including an understanding of how hydro transmission and supply can service future expansion lands ■ Hydro One confirmed the needs to protect for its future uses within its corridors. Hydro One does not want encroachment on their corridors ■ Discussed Hydro One requirements for secondary land uses within the corridor, community gardens, residential development, farmers accessing the corridor, and the process for obtaining ownership of a road crossing the Hydro One corridor
Canadian Pacific Rail	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	October 19, 2021	■ Introduced the Project ■ Discussed Canadian Pacific Rail comments on other Township of West Lincoln Comments and future plans for their corridor ■ Presented the Preliminary Preferred Land Use Concept, including confirmation of proposed Canadian Pacific Railway grade separations and how proposed land uses adjacent to rail corridor may be impacted
MHBC / Aggregate Producers	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	January 13, 2022	■ Introduced the Project ■ Presented the Preliminary Preferred Land Use Concept, including findings from the Aggregate Potential Assessment and potential impacts to existing and future aggregate resource extraction operations ■ Reviewed the preliminary comments from Nelson and Walker Aggregates Inc regarding aggregates ■ Discussed the aggregate potential for lands north of Smithville and Yonge Street. These lands are not proposed to be part of the urban boundary expansion
Niagara Peninsula Energy Inc.	■ Phase 2 – Impact Assessment and Preferred Community Concept Option	■ Phase 2: Alternative Solutions	January 21, 2022	■ Introduced the Project ■ Presented the Preliminary Preferred Land Use Concept, including an understanding of how hydro transmission and supply can service future expansion lands ■ Discussed Niagara Peninsula Energy Inc.'s comments on strategic phasing for the future growth in Smithville ■ Niagara Peninsula Energy Inc. preference is overhead utilities and noted no plans at this time to bury existing hydro lines in the expansion area – lands to be added to the Smithville Urban Area.
Independent Electricity System Operator / Niagara Peninsula Energy Inc.	■ Phase 3 – Impact Assessment and Preferred Community Concept Option	■ Phase 3: Impact Assessment	January 13, 2023	■ Introduced the Project ■ Presented the Preliminary Preferred Land Use Concept, preliminary growth forecasts, and how hydro load is delivered to Smithville. ■ Discussed Hydro One and Niagara Peninsula Energy Inc's 2022 Integrated Regional Resource Plan to accommodate hydro load growth, maintain reliability, and optimize asset management replacement. ■ Hydro One will be undertaking future environmental assessment study that will examine either expanding existing Grimsby transformer station or siting a new transformer station and associated transmission lines. ■ Concluded that the Integrated Regional Resource Plan and Master Community Plan appear to be aligned and there should not be any issues related to provision of hydro to service future growth in West Lincoln as well as Grimsby / Vineland.

Table 24-3: Summary of Key Agency and Stakeholder Correspondence

Group	Agency / Stakeholder	Date Received	Summary of Agency / Stakeholder Comments	Summary of Study Team Response
Provincial	■ Niagara Escarpment Commission	January 13, 2020, and October 4, 2021	■ Smithville is outside the Niagara Escarpment Plan Area so will not be participating in the study	■ Comments noted
Provincial	■ Ministry of the Environment, Conservation and Parks	January 17, 2020	■ Response letter to the Notice of Commencement and Visioning Public Information outlining the Ministry's areas of interest ■ Identified the following communities who are potentially affected by the Project: Six Nations of the Grand River Territory, Haudenosaunee Confederacy Chiefs Council, and Mississaugas of the Credit First Nation ■ Ministry expects the Master Plan will provide direction for subsequent project-specific EAs and/or Planning Act approvals: – Discussion of servicing constraints and opportunities – Discussion of Species at Risk that may affect development opportunities – Discussion of known or suspected contaminated sites that may affect development opportunities – Discussion of climate change adaptation and mitigation and how measures would be implemented in specific projects – Discussion of how land use compatibility will be avoided ■ Provided the document "A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities"	■ The areas of interest have been considered ■ Identified Indigenous Communities have been circulated on notifications. Follow up phone calls were also made to those communities that did not respond to confirm receipt and answer any questions ■ This Master Plan report provides direction for subsequent project specific EAs and/or Planning Act approvals
Provincial	■ Ministry of the Environment, Conservation and Parks	April 24, 2023	■ Confirmed the Notice of completion is consistent with the requirements of the Municipal Class Environmental Assessment	■ The Ministry will be issued the final notice
Provincial	■ Infrastructure Ontario	January 23, 2020	■ Confirmed receipt of notice and indicated that it is the proponent that needs to verify if provincial government property is within the study area	■ Provincial property includes existing hydro transmission corridor
Provincial	■ Ministry of Municipal Affair and Housing	August 10, 2020	■ Indicated the Ministry is not able to provide a list of Indigenous communities to engage and recommended to align Indigenous engagement with the Region's new Official Plan and Municipal Comprehensive Review process	■ Ministry of the Environment, Conservation and Parks provided the list of Indigenous Communities to engage for this study
Provincial	■ Ministry of Citizenship and Multiculturalism	September 9, 2020	■ Response letter to the Notice of Commencement and Visioning Public Information outlining the Ministry's areas of interest for the Master Community Plan as it relates to its mandate of conserving Ontario's cultural heritage ■ Requested to review any technical heritage studies for this Master Plan project and provide them to the Ministry before issuing a Notice of Completion	■ Stage 1 Archaeological Assessment and a Cultural Heritage Report: Existing Conditions (hereafter Cultural Heritage Report) was completed for the Study Area ■ The Ministry will be circulated on the documentation prior to the issuance of the Notice of Completion
Provincial	■ Ministry of Northern Development, Mines, Natural Resources and Forestry	October 1, 2020	■ Provided the contact information for the Resources Operations Supervisor and District Manager	■ Contact list updated
Municipal	■ Niagara Region	September 22, 2021	■ Requested to meet to discuss the future flows proposed to the new Streamside Sewage Pumping Station. ■ In regard to Regional ownership for Water and Wastewater Infrastructure, the Regions follows the Local Service Policy in the Region Development Charge Background Study (Appendix D)	■ Meeting held to discuss the new Streamside Sewage Pumping Station ■ The Water and Wastewater Master Plan was developed in consultation with the Region

Group	Agency / Stakeholder	Date Received	Summary of Agency / Stakeholder Comments	Summary of Study Team Response
Smithville Land Owners Group	■ SGL Planning & Design Inc. on behalf of the Smithville Land Owners Group	October 2, 2020	■ Lettered dated October 2, 2022, regarding the proposed land use distribution for the two concept options and growth projection comments ■ Recommended Concept Option 1	■ Addressed through consultation through Township and ultimately addressed through AECOM's response letter dated on April 21, 2023.
Smithville Land Owners Group	■ SGL Planning & Design Inc. on behalf of the Smithville Land Owners Group	March 11, 2022	■ Provided comments following the February 24, 2022, Technical Advisory Committee meeting on the Preferred Concept Plan, land uses, Natural Heritage System, transportation, residential densities and Servicing and Phasing Plan	■ Comments were considered as part of preferred concept plan refinement and subsequent development of planning policies.
Smithville Land Owners Group	■ A.J. Clarke and Associates Ltd. on behalf of the Smithville Land Owners Group	February 19, 2021	■ Letter dated February 19, 2021, regarding the Water and Wastewater Servicing Strategy following the water and wastewater sub-TAC meeting	■ Addressed through subsequent analysis of servicing strategies and sub Technical Advisory Committee meetings.
Smithville Land Owners Group	■ A.J. Clarke and Associates Ltd. on behalf of the Smithville Land Owners Group	June 8, 2022	■ Provided infrastructure related comments (water, wastewater, and stormwater) based on the materials associated to date with the Smithville Master Community Plan	■ Addressed through subsequent analysis of servicing strategies and sub Technical Advisory Committee meetings.
Smithville Land Owners Group	■ Smithville Land Owners Group	October 21, 2020	■ Letter dated October 15, 2020, addressed to the Mayor of the Township with formal request to the Township and the Regional Municipality of Niagara to remove the existing By Pass alignment and its registration on title in the Town of Smithville as it currently exists ■ Recommended Concept Option 1 with modifications. Option 1 maximizes the residential land areas. The residential areas are located close to and are an extension of existing residential neighbourhoods. The southern by-pass in Option 2 cuts off the leisure plex from the residential community and reduces it size. Option 1 also consolidates the employment lands in one area which creates a more significant employment area to compete with other large employment areas in the GTA	■ Concept 1 was identified as the preferred concept option for the Smithville Master Community Plan and addresses option 2 (Southern By-Pass)
Smithville Land Owners Group	■ Smithville Land Owners Group Representative	April 28, 2022	■ Provided comments on the water servicing strategy following Public Information Centre 3 / Public Meeting of Council ■ Raised concern regarding the proposed wastewater servicing in the south ■ The presentation noted that the strategy was to avoid having new flows going into the existing system to avoid overloading. Noted there are ways that to enter the system safely and prove that you can avoid overloading the existing and save up to additional 300M of redundancy ■ To lay a pipe under Townline from Rock Street past Andy Alma to Regional Road 20 at the roundabout location, requires the pipe to cross the creek, forcing the remainder of the pipe from that point to be lower than the creek bed from there to the pumping station. This will likely be in rock and deeper than what is necessary. ■ Proposed solution is to enter the existing system with a pipe north through Rock Street Park, to maintenance hole (MH) 1, the first MH west of the pumping station. It could even go further, directly into the pumping station following the existing easement across the property of Bert Vis Flooring. ■ Retaining an engineering firm to provide evidence on this proposed solution	■ Addressed through consultation through Township and ultimately addressed through AECOM's response letter dated on April 21, 2023.

Group	Agency / Stakeholder	Date Received	Summary of Agency / Stakeholder Comments	Summary of Study Team Response
Smithville Land Owners Group	■ BA Group on behalf of the Smithville Land Owners Group	April 29, 2022	■ Letter dated April 29, 2022, regarding the proposed road cross sections from the draft Master Transportation Plan	■ Ultimately addressed by Transportation Master Plan
Smithville Land Owners Group	■ SGL Planning & Design Inc. on behalf of the Smithville Land Owners Group	June 6, 2022	■ Letter dated June 6, 2022, regarding the Smithville Subwatershed study Phase 2: Impact Assessment	■ Ultimately addressed by Subwatershed Study
Smithville Land Owners Group	■ A.J. Clarke and Associates Ltd. on behalf of the Smithville Land Owners Group	June 8, 2022	■ Letter dated June 8, 2022, regarding the proposed infrastructure servicing strategy for water, wastewater and stormwater management	■ Ultimately addressed by Water and Wastewater Master Plan, and Stormwater Management Master Plan
Smithville Land Owners Group	■ SGL Planning & Design Inc. on behalf of the Smithville Land Owners Group	March 31, 2023	■ Letter dated March 31, 2023 outlines comments on Official Plan Amendments No. 62 and 63 related to densities, mixed use, restoration areas, coverage target, cost sharing, alternative servicing strategy	■ Comments acknowledged and a formal response was issued regarding the insights that SGL has provided on the development of the Alternative Servicing Strategies
Other Stakeholder - Education	■ Niagara Catholic District School Board	January 26, 2021	■ Provided updated contact information for the Director of Education	■ Contact list updated
Other Stakeholder – Land Owner Representative	■ MHBC On behalf of Nelson Aggregate Co. (Nelson) and Walker Aggregates (Walker)	February 25, 2021	■ Letter dated February 21, 2021, provided preliminary comments on the Smithville Master Community Plan Draft Concept Plans and the potential Settlement Area Boundary Expansion ■ Nelson and Walker own and operate a number of licenced quarries in the Niagara Region, including three licenced sites in the Town of Lincoln, approximately 2 km east of the existing Smithville Settlement area	■ A meeting was held on January 13, 2022, to discuss the comments ■ Meeting minutes were issued and a formal response letter was issued considering MHBC comment submission to Niagara Region Official Plan Amendment 62 and 63 Planning Committee meeting held on April 5, 2023
Other Stakeholder – Land Owner Representative	■ MHBC On behalf of Nelson Aggregate Co. (Nelson) and Walker Aggregates (Walker)	April 4, 2023	■ Letter dated April 4, 2023 provided comments in response to Official Plan Amendments No. 62 and 63 ■ Recommended land use compatibility policies be incorporated int the Smithville Master Community Plan	■ Meeting minutes were issued and a formal response letter was issued considering MHBC comment submission to Niagara Region Official Plan Amendment 62 and 63 Planning Committee meeting held on April 5, 2023
Other Stakeholder – Land Owner	■ Land owners in the northwest quadrant of Smithville	December 2, 2020	■ IBI Group and the Biglieri Group representing two landowners, provided a Preliminary Servicing Strategy and Transportation memo outlining the landowners' vision for a portion of the northwest quadrant of Smithville, including the preferred land use and transportation and servicing strategies for the expansion area	■ Ultimately addressed by Transportation Master Plan
Other Stakeholder – Land Owner Representative	■ Sandra Wiles on behalf of property owner	March 31, 2021	■ Letter dated March 31, 2021 requesting clarification regarding the Minimum Distance Separation and the preferred land use related to the subject property ■ Requested to advise if the development of the subject property will be included in the expected growth forecasts ■ Commercial is the preferred land use along Regional Road 14, while a Residential land use designation is preferred to the south on the remainder of the subject property ■ Requested to confirm the required setback to the watercourse at the south end of the property ■ Requested to confirm whether development site visits have occurred on the subject property with the appropriate departments and agencies	■ Minimum Distance Separation figure and land use schedule provided for their information. ■ Official Plan Amendment 63 Land Use Schedule map covers the information inquiry in the summary of comments – Preferred land uses; – Set-backs; – Inclusion in growth forecasts. ■ If permission was granted, site visits were undertaken. ■ Further information can be found at plansmithville.ca

Group	Agency / Stakeholder	Date Received	Summary of Agency / Stakeholder Comments	Summary of Study Team Response
Utilities	■ Hydro One Networks Inc.	February 24, 2020, February 17, 2021, and October 15, 2021	■ Based on preliminary assessment confirmed Hydro One has existing high voltage Transmission facilities within the Study Area. ■ In addition to the existing infrastructure mentioned above, the affected transmission corridor may have provisions for future lines or already contain secondary land uses (i.e. pipelines, watermains, parking, etc.). Hydro One advised to take this into consideration in the planning process ■ Should the Smithville Master Community Plan result in a Hydro One station expansion or transmission line replacement and/or relocation, an Environmental Assessment (EA) will be required as described under the Class Environmental Assessment for Minor Transmission Facilities (Hydro One, 2016) ■ In planning, noted that developments should not reduce line clearances or limit access to HONI facilities at any time. Any construction activities must maintain the electrical clearance from the transmission line conductors as specified in the Ontario Health and Safety Act for the respective line voltage	■ Meeting held with Hydro One on September 22, 2021, to discuss the Project and confirm future requirements ■ Hydro One provided form to accompany all secondary land use applications
Utilities	■ Enbridge	October 12, 2021	■ Letter dated October 12, 2021, outlining requirements that must be followed with respect to development in proximity to pipelines ■ Provided mapping of the approximate location of their pipeline infrastructure. Recommended that the facilities be included one or more maps in the Master Community Plan	■ Requirements outlined will be followed. ■ Preferred concept plan identifies existing Enbridge pipeline. Also addressed by Official Plan Amendment 63 planning policies.

25. Indigenous Communities Consultation

The following Indigenous Communities and organizations were identified and notified as part of this integrated Municipal Class Environmental Assessment study:

- Haudenosaunee Confederacy Chiefs Council / Haudenosaunee Development Institute
- Six Nations of the Grand River
- Metis Nation of Ontario
- Mississaugas of the Credit First Nation
- Niagara Region Metis Council
- Niagara Regional Native Centre

The Justice Outreach for the Niagara Regional Native Centre requested to confirm their involvement in the planning process. A response letter dated February 11, 2022, was issued to the Niagara Regional Native Centre explaining the planning process and offered a meeting to discuss the Project.

The Indigenous Communities that did not respond to the study were followed up with via phone to confirm receipt of the notifications and ask if there were any questions regarding the Master Community Plan. Refer to **Appendix G** for the complete activity log and associated correspondence.

26. Council Meetings

Several Council Meetings were held throughout the development of the Smithville Master Community Plan:

- December 7, 2020 – Presentation of Concept Options and evaluation outcomes
- September 13, 2021 – Presentation of Preliminary Preferred Concept
- October 12, 2021 – Presentation of Preferred Concept
- April 27, 2022 – Presentation of draft materials and Statutory Public Meeting for Draft Official Plan Amendment 62
- June 27, 2022 - Presentation of draft materials and Statutory Public Meeting for Draft Official Plan Amendment 63

PART F: Conclusion

This Integrated Municipal Class Environmental Assessment Master Plan Report covers the processes required to ensure that the proposed servicing strategies and associated works meet the requirements of the Environmental Assessment Act and is integrated with the provision of a detailed land use plan and policies developed under the Planning Act through Township of West Lincoln Official Plan Amendments 62 and 63.

The Municipal Class Environmental Assessment process requires an assessment of potential impacts related to proposed servicing. The process has confirmed that there are no significant concerns that cannot be addressed by incorporating established mitigation measures and future Block Plan and Master Environmental Servicing Plan processes.