REPORT

PUBLIC WORKS/RECREATION/ARENA COMMITTEE

DATE: March 27, 2023

REPORT NO: PW-10-2023

SUBJECT: **Transportation, Water and Wastewater, Subwatershed and Stormwater Master Plans for Endorsement, prepared as part of the Master Community Plan**

CONTACT: Jennifer Bernard, C.E.T., Coordinator of Engineering Services
Mike DiPaola, P.Eng., Director of Public Works and Recreation

OVERVIEW:

- Work on the Township's Master Community Plan commenced in October 2019 to provide a framework for Smithville to grow over the next 30 years.
- As part of the Master Community Plan, a Transportation Master Plan, Water and Wastewater Master Servicing Plan, Subwatershed Study and Stormwater Master Plan for Infill and Intensification Areas were developed.
- The Integrated Municipal Class Environmental Assessment (MCEA) Report and the issuance of the MCEA Notice of Completion will occur subject to Niagara Region Council Notice of Approval of OPA 62 and OPA 63.

RECOMMENDATION:

1. That, Recommendation Report PW-10-2023, regarding "Transportation, Water and Wastewater, Subwatershed and Stormwater Master Plans for Endorsement, prepared as part of the Master Community Plan" dated March 27, 2023 be received; and,
2. That, the Township Council endorse the Transportation Master Plan, Water and Wastewater Master Servicing Plan, Subwatershed Study and Stormwater Master Plan for Infill and Intensification Areas, prepared as part of the Master Community Plan; and,
3. That, subject to Niagara Region Council Notice of Approval of Official Plan Amendment 62 and 63, the Township Council endorse the issuance of the MCEA Notice of Completion.

ALIGNMENT TO STRATEGIC PLAN:

Theme #3

Strategic, Responsible Growth - West Lincoln will grow strategically and responsibly – welcoming new residents and businesses and respecting the heritage and rural character that people value.

BACKGROUND:

The Township of West Lincoln's Master Community Plan (MCP) commenced in October 2019, this plan was initiated to provide a framework for Smithville to grow over the next 30 years. To accommodate the projected growth, lands were added to the urban boundary of Smithville and supporting policies and schedules were established through Official Plan Amendment 62 (OPA 62) and Official Plan Amendment 63 (OPA 63).

The Master Community Plan is being completed through an Integrated Environmental Assessment as set out in the Municipal Engineers Association Municipal Class Environmental Assessment (MCEA) document (as recently amended in 2015). The Master Community Plan process and related Transportation Master Plan, Water and Wastewater Master Servicing Plan, Subwatershed Study and 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 Smithville Master Community Plan is following the approach of integration with the Planning Act. This approach recognizes the benefits of integrating the Municipal Class EA process with approvals under the Planning Act, especially with larger projects such as Secondary Plans. This means that the requirements of the Environmental Assessment Act (primarily through the MCEA process) and the Planning Act, including public notice requirements, 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 municipal infrastructure servicing solutions for the Community to be implemented over the 30 year planning horizon (to 2051). This information is presented in the Integrated MCEA Report.

If there are no appeals to the Regional Municipality of Niagara OPA 62 and OPA 63 (anticipated to be considered by Niagara Region Council in April 2023), the proponent (Township or Region) may proceed to implementation (design and construction) once approvals are received under the Planning Act. The Integrated MCEA Report and the issuance of the MCEA Notice of Completion concludes Phase 2 of the MCEA process. The 30 day MCEA comment period commences when Niagara Region issues its Notice of Approval of OPA 62 and 63 which includes the public 20-day opportunity to appeal period as set out under the Planning Act.

CURRENT SITUATION:

Staff are recommending that Council endorse the following Master Plans:

<u>Transportation Master Plan</u>

AECOM Canada Ltd. completed a traffic assessment of Smithville's existing transportation network. The assessment considered how Smithville's transportation network is currently performing and how it will be impacted by the projected growth. The master plan identifies upgrades required to existing corridors and intersections and the development of new

transportation connections as well as CPR grade separations, where required. It also identifies opportunities for new trail connections for pedestrians and cyclists. The proposed timing of these transportation projects was determined considering many factors including: The Niagara Region's Transportation Master Plan, the Niagara Region's Water and Wastewater Master Servicing Plan and the Township's Water and Wastewater Master Plan which informed the Development Staging Plan presented in OPA 62 and OPA 63.

The Transportation Master Plan executive summary, which includes the recommended transportation project list and maps, is provided in Appendix A.

Water and Wastewater Master Servicing Plan

AECOM Canada Ltd. completed modelling of the existing water and wastewater networks. The modelling determined how the current systems are operating and the approach required to provide water and wastewater servicing to support the existing population and provide future capacity for planned growth. The proposed timing of new infrastructure projects was determined considering many factors including: The Niagara Region's Water and Wastewater Master Servicing Plan, the Niagara Region's Transportation Master Plan and the Township's Transportation Master Plan which informed the Development Staging Plan presented in OPA 62 and OPA 63.

The Water and Wastewater Master Servicing Plan executive summary, which includes the recommended water and wastewater infrastructure project list and maps, is provided in Appendix B.

Subwatershed Study and Stormwater Master Plan for Infill and Intensification Areas

Wood Environmental & Infrastructure Solutions and WSP completed the Subwatershed Study and the Stormwater Master Plan for Infill and Intensification Areas.

The Subwatershed Study was completed in three phases to: characterize the subwatershed; evaluate the impacts of planned urbanization on the natural environment; and provide recommendations for water management including an implementation and monitoring plan.

The Stormwater Master Plan for Infill and Intensification Areas was developed to identify local constraints within the existing receiving infrastructure that may impact the lands identified for infill and intensification in Smithville.

The executive summaries for the Subwatershed Study and Stormwater Master Plan for Infill and Intensification Areas are provided in Appendices C and D.

Integrated MCEA Report

The Integrated MCEA Report and issuance of the MCEA Notice of Completion can occur once Niagara Region Council adopts OPA 62 and OPA 63. The Integrated MCEA Report executive summary is provided in Appendix E.

Revisions to Development Staging

Application of the Master Plans will ensure Smithville develops at a sustainable rate with the supporting infrastructure necessary to accommodate the projected growth.

It is important to note that Official Plan Amendment 63 (OPA 63), policy 6.11.7.6.3 h) 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 MCP". This policy allows flexibility for the Township to maintain the momentum needed for development to continue and meet the needs for the future population of Smithville.

It is important for development and its supportive infrastructure to proceed in a logical, coordinated and cost efficient manner. Town staff have initiated the preparation of a Block Plan (BP) and Master Environmental Servicing Plan (MESP) Terms of Reference (T of R) to guide development in the Block Plans as outlined in OPA 63. The BP & MESP T of R is expected to come to Public Works Committee for endorsement in May.

FINANCIAL IMPLICATIONS:

Each of the Master Plans identify Township and Regional infrastructure projects required for the future development of Smithville. The Appendices attached to this report estimate the following Township infrastructure needs within the next ten years: Transportation Infrastructure – between $89 million to $117 million and Water and Wastewater infrastructure of approximately $40 million. The Township infrastructure projects outlined in the Appendices will be assessed for inclusion in the next Township Development Charges Background Study. There are substantial infrastructure investments required to develop the urban expansion areas, some of which are Regional costs, Township costs and in large part costs to be paid for by the developer.

In 2023, the Township will also be undertaking a Parks and Recreation Master Plan as well as a Trails and Corridor Master Plan. These Master Plans are included in the 2023 Budget. These studies will also inform the Official Plan update. Once the Parks & Recreation Master Plan and the Trails & Corridor Master Plans are finalized, a Development Charges Background Study will be initiated. This Study will provide further data as to the costs that will be borne by the Township and the portion that will be eligible for development charge funding. The results will also be incorporated into the Township's Ten Year Capital Budget. The completion of these infrastructure projects will also likely require front ending agreements and costs sharing agreements between Developers and the Township.

INTER-DEPARTMENTAL COMMENTS:

This report has been reviewed by the Planning, Finance, and Clerk's Departments, as well as the CAO.

CONCLUSION:

In summary, Staff recommends that Council endorse the Master Plans and the issuance of the Integrated MCEA Notice of Completion after OPA 62 and OPA 63 have been adopted by Niagara Region Council.

ATTACHMENTS:

- Appendix A – Transportation Master Plan Executive Summary
- Appendix B – Water and Wastewater Servicing Master Plan Executive Summary
- Appendix C – Subwatershed Study Executive Summary
- Appendix D – Stormwater Master Plan for Infill and Intensification Areas Executive Summary
- Appendix E – Integrated MCEA Report Executive Summary

Prepared & Submitted by:

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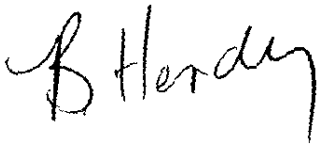
Jennifer Bernard C.E.T.,
Coordinator of Engineering Services

Approved by:



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Beverly Hendry,
CAO

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Mike DiPaola, P.Eng.,
Director of Public Works & Recreation

Smithville Transportation Master Plan

Township of West Lincoln

ProjectReference: Smithville Master Community Plan
Project number: 60619866

March 10 2023

Executive Summary

Master Community Planning Integration

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.

Policy 6.11.7.6.3 h) of Official Plan Amendment 63 (OPA 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 MCP." 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 Assessments, 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 previsions of OPA 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. OPA 63 recommendations were presented to the public, Council, and the landowners on multiple occasions including: the Public Meeting, Council adoption of OPA 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.

The transportation recommendations for the Smithville Area have been developed based on several key elements and considerations:

- The infrastructure recommendations of the Transportation Master Plan have been developed based on the proposed Block Plan approach developed and adopted in OPA 63.

- The Township of West Lincoln and the Niagara Region represent the two municipal tiers of highway responsibility that own and manage assets within the study area. As such both municipalities have been involved and consulted throughout the development of the Transportation Master Plan.
- In developing the staging of the proposed transportation network, the recommendations were collaboratively assessed and integrated with other planned municipal and regional infrastructure as part of the Master Community Plan and Master Plan development process.
- In developing the proposed road network, consideration of the Township and Regional existing, planned, and programmed infrastructure improvements and policies were also considered.

The recommendations have been staged in a manner as to support the planned timelines envisioned for the block plan process detailed in OPA 63. As such there are three main phases for the transportation program:

Within the next 10 years:

- Primarily located in the northwestern area of Smithville, upgrades to both Spring Creek Road and Regional Road 14 will be required to support development during this period.
- Development in the North and East of Smithville will be supported by improvements to Industrial Park Road and Young Street.
- In addition to these local improvements, a Regional examination of the alignment of the Smithville Bypass will have been conducted and the new northern connector will be constructed either as a municipal road or a Regional bypass.

10 to 20 years:

- During this time development to the South and southeast of the existing Smithville Urban Area will be occurring. To support the development the upgrading of Townline Road will need to occur in advance of development.
- Additionally to support the development of these blocks, upgrades to a series of connecting and local roads will be needed, including the improvement of the junction of Townline/Canborough/Port Davidson, and the realignment of Tober Road.

Greater than 20 years:

- To support the development of the western area of the urban boundary expansion, improvements to South Grimsby Road 6, and a new supporting western link will be required.
- As the volume of westbound traffic also increases, improvements to intersections along Regional Road 20 will also be required to support the increased demand.

Transportation Master Plan Summary

The town of Smithville located in the Township of West Lincoln, in the Niagara Region is currently planning for future development and growth out to 2051 and beyond as part of the Master Community Plan process. A key feature of the planned growth will be the development of a transportation system that supports the uses and needs of existing behaviours while supplying the future capacity and options to support the growth of the area. The development of a Transportation Master Plan is a key document in supporting the growth of the Smithville area and represents one of the Regional Master Plans being developed to support the Master Community Plan process. The Transportation Master Plan provides an understanding of the existing transportation infrastructure and patterns, the potential demand of proposed development and the infrastructure and programs recommended to mitigate the impact and support the new requirements of the town.

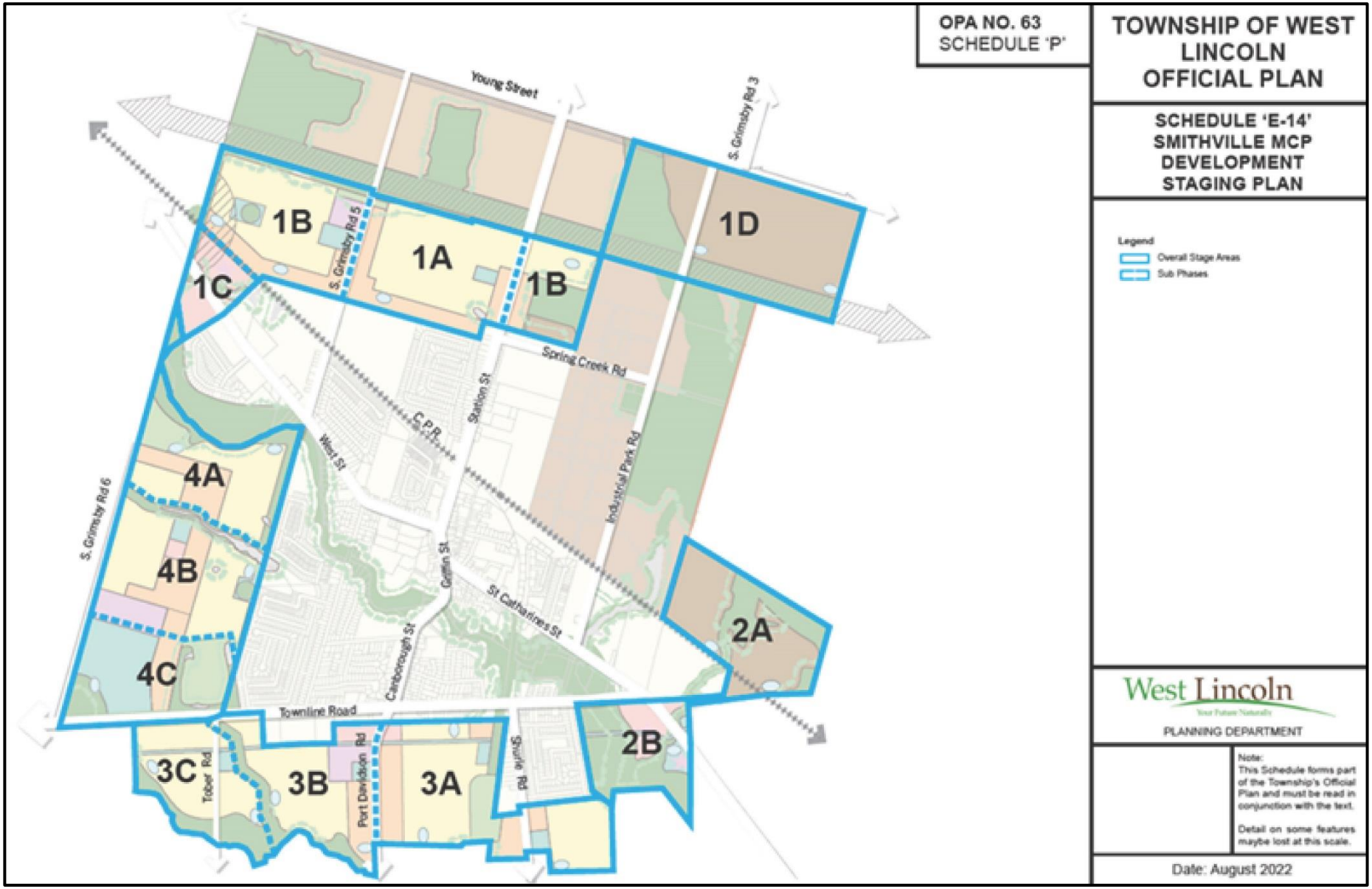
Smithville is located on a key east west corridor in the Niagara peninsula (Regional Road 20), while also being home to about six thousand people and a number of industries and businesses. Trip mode choice is currently dominated by private vehicle, although a small proportion of trips mostly within town are made by bicycle or walking. The town has not previously had a Transportation Master Plan to provide oversight to the transportation network, travel patterns and future growth, although as a lower tier municipality major transportation infrastructure has previously been identified in the various iterations of the Niagara Region transportation master plan. In addition to the regional transportation master plan, provincial and township policies and guidance have been utilised to develop a vision and a series objectives that the Transportation Master Plan should aim to follow:

- **Create a complete transportation network**
- **Incorporate both local and regional economic growth**
- **Sustainably grow the community**
- **Provide convenient mode choices**
- **Improve health and safety**

Smithville currently has a transportation network that is developed around two regional roads, Regional Road 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 Canadian Pacific rail line also runs through the town in an east/west alignment, which currently includes three at grade crossings. The town has additional secondary arterial roads providing connections around town including Townline Road and Canborough Street. 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. Current trip patterns show a significant number of journeys involve private vehicles heading west to and from Hamilton, and secondly heading north to Grimsby and the Queen Elizabeth Way.

The urban boundary expansion and associated development will bring an additional 540 hectares within the town limits, effectively doubling the size of the town, and leading to a forecast population of about 29,000 by 2051. This level of growth requires an assessment of the existing road network to understand what the possible impacts of the new development are, this exercise was conducted using a traffic model which replicates existing traffic conditions on the towns road network and then forecasts the growth in trips across the network as a result of the new development. This assessment forms the primary method for assessing possible mitigation measures which can include upgrades to existing corridors as well as the development of new connections. In assessing the existing road network it was identified that almost all roads operate at less than 50% of available capacity and that congestion was a rare occurrence usually created by non-reoccurring events. The proposed development planned out to 2051 and presented in **Figure ES-1** when modelled indicate that the existing road network was in-sufficient to provide a similar level of service to existingconditions. Forecasts for 2051 suggested that the performance of several intersectionswould 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 overcapacity, and areas around the downtown also become constrained as additional localtraffic is impacted by increases in regional traffic.

Figure ES-1: Preferred Concept for Urban Boundary Expansion Area



In support of the modelling 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 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 mitigation 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 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 (OPA 63). In developing the options and measures for implementation, the Transportation Master 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 ES-2**, **Figure ES-3** and **Figure ES-4** highlight the implementation plans created to address these requirements.

Figure ES-2: Proposed New Roads and Road Upgrades

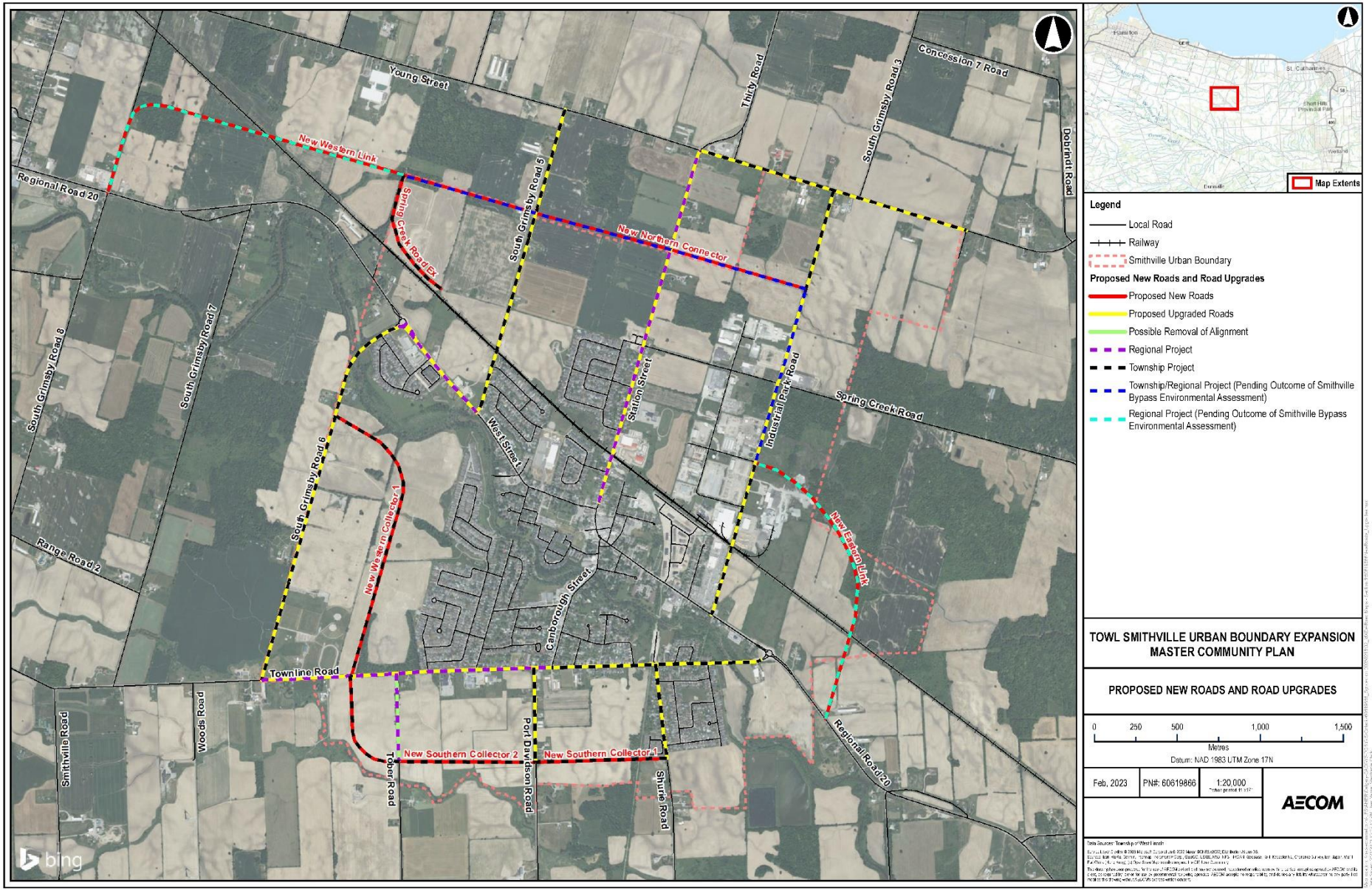


Figure ES-3: Planned Junction Improvements

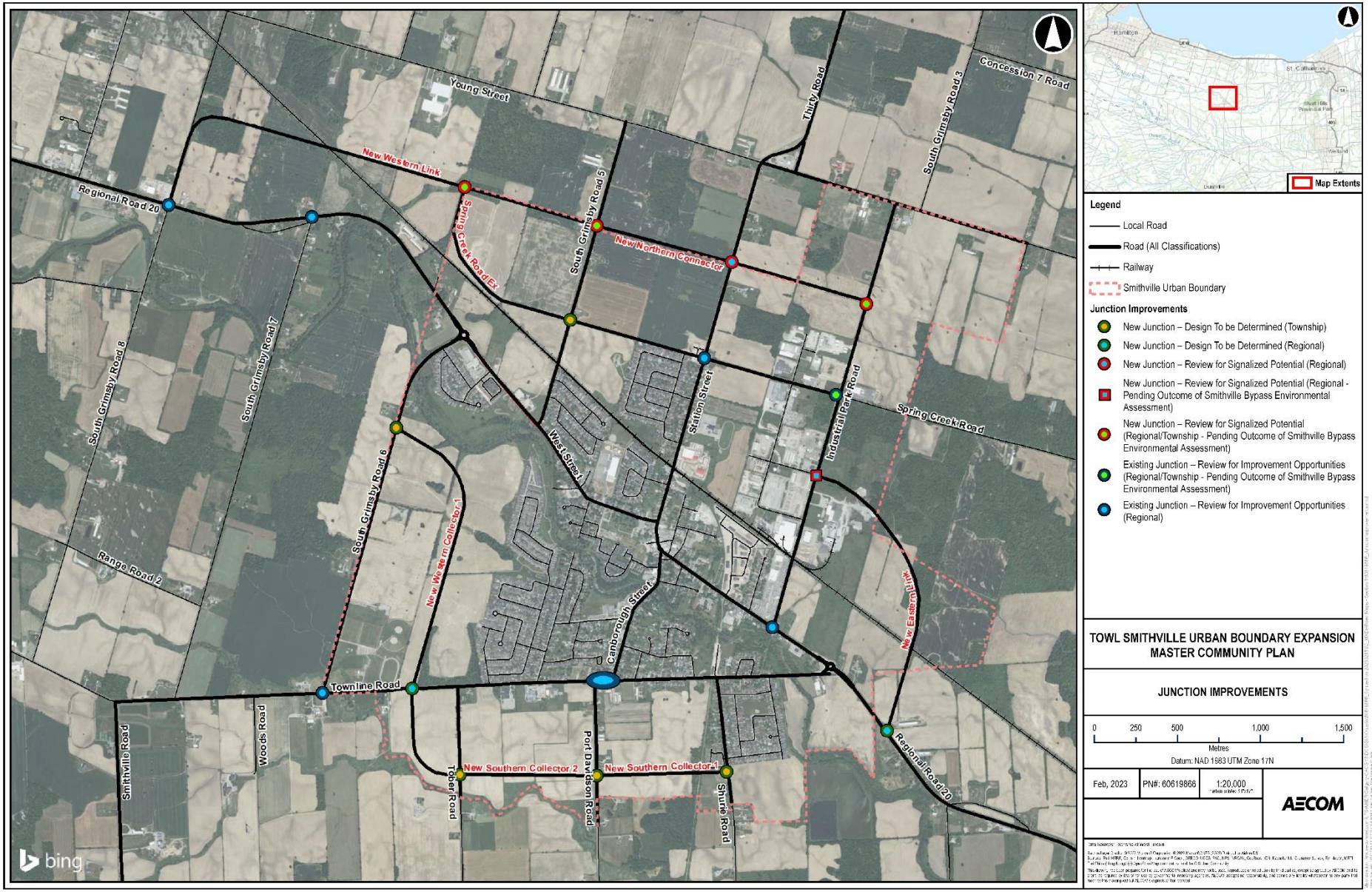
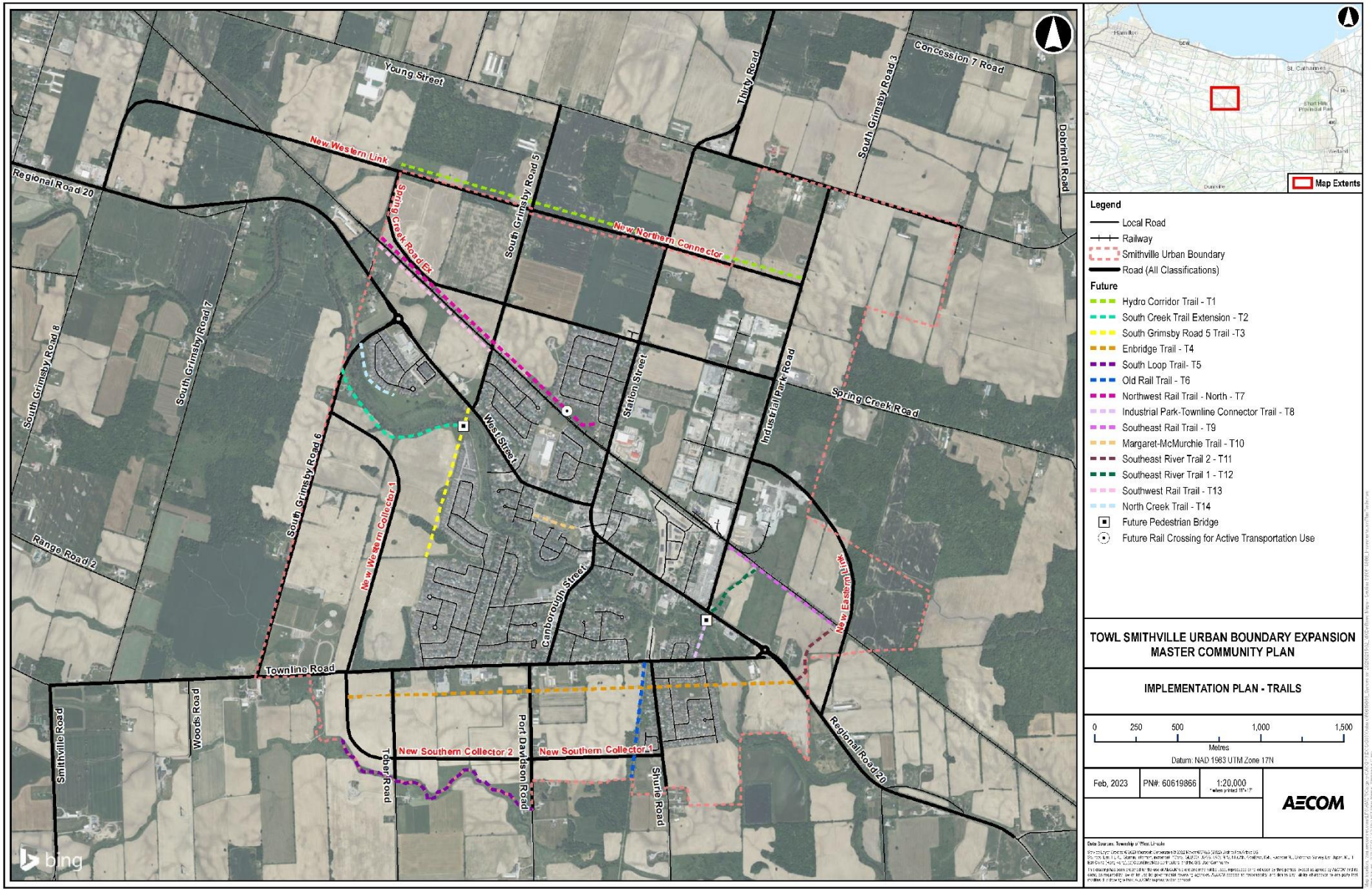


Figure ES-4: Implementation Plan – Trails



Refer to **Table ES-1** and **Table ES-2** for summaries of phasing and capital cost estimates for Niagara Region and Township recommendations, respectively. **Table ES-3** through **Table ES-6** provide a detailed breakdown of the infrastructure and non-infrastructure recommendations.

Table ES-1: Estimated Capital Costs for Recommendations (Niagara Region Projects)

Phasing Timeframe	Roads & On-Street Cycling Facilities	Non-Infrastructure Measures
Within the next 10 years	$74.2M to $87.7	$40,000
10 to 20 years	$14.3M	$40,000
Greater than 20 years	$5.4M	$40,000
Total	**$93.9M to $107.4M**	**$120,000**

Table ES-2: Estimated Capital Costs for Recommendations (Township Projects)

Phasing Timeframe	Roads & On-Street Cycling Facilities	Trails	Non-Infrastructure Measures
Within the next 10 years	$79.8M to $105.3M	$8.875M to $11.175M	$320,000 to $465,000
10 to 20 years	$45.5M to $49M	$8.775M to $10.575M	$245,000 to $265,000
Greater than 20 years	$27.2M to $48.7M	$4M to $5.3M	$245,000 to $265,000
Total	**$152.5M to $203M**	**$21.65M to $27.05M**	**$810,000 to $995,000**

The Smithville Transportation Master Plan represents a key document for the future development of the town, providing a roadmap to support the growth and development of the town, while maintaining the needs and expectations of existing residents and business to move freely around the town and connect to services and entertainment. The Transportation Master Plan also supports the growth of sustainable transportation modes such as transit and active transportation and promotes continued economic development and prosperity.

Table ES-3: Infrastructure Measures – Phasing and Capital Cost – Niagara Region Projects

Transportation Master Plan ID	Project Name	Project Description	Phasing Timeframe	Estimated Capital Cost (2022 CAD)
RR/TWL-Road-02	■ New Northern Connector	■ New Road – Collector at minimum - range represents Collector to Regional Road (Arterial A)	■ Within the next 10 years (based on Regional Bypass Study)	■ $17,500,000-$25,000,000
RR-Road-03	■ New Western Link	■ New Road – Collector at minimum - range represents Collector to Regional Road (Arterial A)	■ Within the next 10 years (based on Regional Bypass Study)	■ *To be determine through additional study (assume will be over $10 Million construction cost)*
RR-Road-04	■ New Eastern Link	■ New Road – Collector at minimum - range represents Collector to Regional Road (Arterial A)	■ Within the next 10 years (based on Regional Bypass Study)	■ *To be determine through additional study (assume will be over $10 Million construction cost)*
RR-Road-11	■ Regional Road 14 (between Young Street and New Northern Connector)	■ Road Upgrade/ Retrofit- Arterial B	■ Within the next 10 years	■ $5,000,000
RR-Road-12	■ Regional Road 14 (between New Northern Connector and Spring Creek Road)	■ Road Upgrade/ Retrofit - Arterial B	■ Within the next 10 years	■ $5,000,000
RR-Road-13	■ Regional Road 14 (between Spring Creek Road and Regional Road 20)	■ Road Upgrade/ Retrofit- Arterial B	■ Within the next 10 years	■ $10,000,000-$13,000,000
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 (Arterial A)	■ Within the next 10 years	■ $7,000,000-$10,000,000
RR-Road-17b	■ Townline Road (between Regional Road 14 (Canborough Street) and New Western Collector 1)	■ Road Upgrade/Retrofit - Arterial B	■ 10 to 20 years	■ $10,000,000
RR-Road-18	■ Townline Road (between New Western Collector 1 and South Grimsby Road 6)	■ Road Upgrade/ Retrofit - Collector	■ Greater than 20 years	■ $4,500,000
RR-Junction-01	■ Regional Road 14 (Station Street) and Spring Creek Road	■ Junction Improvement	■ Within the next 10 years	■ $2,000,000
RR-Junction-03	■ Regional Road 20, South Grimsby Road 8, and New Western Link	■ Junction Improvement	■ Within the next 10 years (based on Regional Bypass Study)	■ $900,000
RR-Junction-04	■ Regional Road 20 and South Grimsby Road 7	■ Junction Improvement	■ 10 to 20 years	■ $900,000
RR/TWL-Junction-05	■ Spring Creek Road Extension and New Western Link/New Northern Collector	■ Junction Improvement	■ Within the next 10 years	■ $700,000
RR/TWL-Junction-06	■ South Grimsby Road 5 and New Northern Connector	■ Junction Improvement	■ Within the next 10 years	■ $900,000
RR-Junction-07	■ Regional Road 14 (Station Street) and New Northern Connector	■ Junction Improvement	■ Within the next 10 years	■ $900,000
RR/TWL-Junction-08	■ Industrial Park Road and New Northern Connector	■ Junction Improvement	■ Within the next 10 years	■ $900,000
RR/TWL-Junction-09	■ Industrial Park Road and Spring Creek Road	■ Junction Improvement	■ Within the next 10 years	■ $900,000
RR-Junction-10	■ Regional Road 20 (St. Catharines Street) and Industrial Park Road	■ Junction Improvement	■ Within the next 10 years	■ $900,000
RR-Junction-11	■ Regional Road 14 (Canborough Street)/Port Davidson Road and Townline Road	■ Junction Improvement	■ 10 to 20 years	■ $2,500,000
RR-Junction-12	■ South Grimsby Road 6 and Townline Road	■ Junction Improvement	■ Greater than 20 years	■ $900,000
RR-Junction-13	■ New Eastern Link and Industrial Park Road	■ Junction Improvement	■ Within the next 10 years (based on Regional Bypass Study)	■ $900,000
RR-Junction-14	■ Regional Road 20 and New Eastern Link	■ Junction Improvement	■ Within the next 10 years (based on Regional Bypass Study)	■ $700,000
RR-Junction-15	■ Townline Road/New Western Collector 1/Tober Road Realignment	■ Junction Improvement	■ 10 to 20 years	■ $900,000

Table ES-4: Infrastructure Measures – Phasing and Capital Cost – Township Projects

Transportation Master Plan ID	Project Name	Project Description	Phasing Timeframe	Estimated Capital Cost (2022 CAD)
TWL-Road-01	Spring Creek Road Extension	New Road – Collector	Within the next 10 years	$7,000,000
RR/TWL-Road-02	New Northern Connector	New Road – Collector at minimum - range represents Collector to Arterial A	Within the next 10 years	$17,500,000-$25,000,000
TWL-Road-05	Tober Road Realignment/New Southern Collector 2/New Southern Collector 1	New Road -Collector	10 – 20 years	$14,000,000-$17,500,000
TWL-Road-06	New Western Collector 1	New Road – Collector	Greater than 20 years	$15,500,000-$24,000,000
TWL-Road-07	Spring Creek Road (between Spring Creek Road Extension and Regional Road 14)	Road Upgrade/Retrofit - Collector	Within the next 10 years	$9,000,000-$13,500,000
TWL-Road-08	South Grimsby Road 5 (between Young Street and New Northern Connector)	Road Upgrade/Retrofit- Collector	Within the next 10 years	$4,500,000
TWL-Road-09	South Grimsby Road 5 (between New Northern Connector and Spring Creek Road)	Road Upgrade/Retrofit - Collector	Within the next 10 years	$4,500,000
TWL-Road-10	South Grimsby Road 5 (between Spring Creek Road and Regional Road 20)	Road Upgrade/Retrofit -Collector	Within the next 10 years	$4,500,000-$7,000,000
TWL-Road-14	Industrial Park Road (between Young Street and New Northern Connector)	Road Upgrade/Retrofit- Collector	Within the next 10 years	$4,500,000
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 (Arterial A)	Within the next 10 years	$7,000,000-$10,000,000
TWL-Road-16	Industrial Park Road (between New Eastern Link and Regional Road 20)	Road Upgrade/Retrofit – Arterial B	Within the next 10 years	$10,000,0000
TWL-Road-17a	Townline Road (between Regional Road 20 and Regional Road 14 (Canborough Street))	Road Upgrade/Retrofit – Arterial B	10 – 20 years	$20,000,000
TWL-Road-19	Port Davidson Road (between Townline Road and New Southern Collector 2)	Road Upgrade/ Retrofit – Collector	10 – 20 years	$4,500,000
TWL-Road-20	Shurie Road (between Townline Road and New Southern Collector 1)	Road Upgrade/ Retrofit – Collector	10 – 20 years	$4,500,000
TWL-Road-21	South Grimsby Road 6 (between New Western Collector 1 and Townline Road)	Road Upgrade/ Retrofit – Rural Edge Route	Greater than 20 years	$7,000,000-$15,000,000
TWL-Road-22	South Grimsby Road 6 (between Regional Road 20 and New Western Collector 1)	Road Upgrade/ Retrofit – Collector	Greater than 20 years	$4,500,000-$9,000,000
TWL-Road-23	Young Street (between Regional Road 14 and South Grimsby Road 2)	Road Upgrade/Retrofit – Rural Edge Route	Within the next 10 years	$7,000,000-$15,000,000
TWL-Junction-02	South Grimsby Road 5 and Spring Creek Road	Junction Improvement	Within the next 10 years	$900,000
RR/TWL-Junction-05	Spring Creek Road Extension and New Western Link/New Northern Collector	Junction Improvement	Within the next 10 years	$700,000
RR/TWL-Junction-06	South Grimsby Road 5 and New Northern Connector	Junction Improvement	Within the next 10 years	$900,000
RR/TWL-Junction-08	Industrial Park Road and New Northern Connector	Junction Improvement	Within the next 10 years	$900,000
RR/TWL-Junction-09	Industrial Park Road and Spring Creek Road	Junction Improvement	Within the next 10 years	$900,000
TWL-Junction-16	Tober Road/New Southern Collector 2	Junction Improvement	10 – 20 years	$900,000
TWL-Junction-17	Port Davidson Road/New Southern Collector 1/New Southern Collector 2	Junction Improvement	10 – 20 years	$900,000
TWL-Junction-18	Shurie Road and New Southern Collector 1	Junction Improvement	10 – 20 years	$700,000
TWL-Junction-19	South Grimsby Road 6 and New Western Collector 1	Junction Improvement	Greater than 20 years	$700,000
TWL-Trail-01	Hydro Corridor Trail	New Trail*	Within the next 10 years	$3,250,000
TWL-Trail-02	South Creek Trail Extension	New Trail*	Greater than 20 years	$1,500,000
TWL-Trail-03	South Grimsby Road 5 Trail	New Trail*	Greater than 20 years	$1,500,000
TWL-Trail-03a	South Grimsby Road 5 Trail – Pedestrian Bridge	Pedestrian Bridge	Greater than 20 years	$1,000,000 - $2,300,000
TWL-Trail-04	Enbridge Trail	New Trail*	10 – 20 years	$3,200,000
TWL-Trail-05	South Loop Trail	New Trail*	10 – 20 years	$3,000,000-$3,500,000
TWL-Trail-06	Old Rail Trail	New Trail*	10 – 20 years	$1,200,000
TWL-Trail-07	Northwest Rail Trail – North	New Trail*	Within the next 10 years	$1,500,000-$2,300,000
TWL-Trail-08	Industrial Park-Townline Connector Trail	New Trail*	10 – 20 years	$375,000
TWL-Trail-08a	Industrial Park-Townline Connector Trail – Pedestrian Bridge	Pedestrian Bridge	10 – 20 years	$1,000,000 - $2,300,000
TWL-Trail-09	Southeast Rail Trail	New Trail*	Within the next 10 years	$750,000-$1,500,000
TWL-Trail-10	Margaret-McMurchie Trail	New Trail*	Within the next 10 years	$375,000
TWL-Trail-11	Southeast River Trail 2	New Trail*	Within the next 10 years	$750,000
TWL-Trail-12	Southeast River Trail 1	New Trail*	Within the next 10 years	$750,000
TWL-Trail-13	Southwest Rail Trail	New Trail*	Within the next 10 years	$750,000-$1,500,000
TWL-Trail-14	North Creek Trail	New Trail*	Within the next 10 years	$750,000

Notes: *All new trails costed as 3 m wide asphalt trails. Midblock trail crossings factored where applicable; trail crossings at intersections not included.
**Pedestrian bridge estimated cost range represents a span of between 4.5 m -100 m and a width of 3 m. To be determined as part of future study.

Table ES-5: Non-Infrastructure Measures – Phasing and Capital Cost – Niagara Region Projects

Project ID	Project Name	Phasing Timeframe	Estimated Annual Cost (2022 CAD)	Estimated Total Capital Cost (2022 CAD)	Notes
RR-AT-01	■ Support Region in Strategic Cycling Network Implementation	■ Ongoing	■ -	■ -	■ Ongoing collaboration with Niagara Region, non-financial investment.
RR-AT-02	■ Supporting Region in Installing Pavement Markings and Signage in Missing Links	■ Ongoing	■ -	■ -	■ Ongoing collaboration with Niagara Region, non-financial investment.
RR-Transit-01	■ Promote Existing NRT OnDemand Services	■ Within the next 10 years	■ $4000	■ $120,000	■ Annual collaboration with NRT, covers 2023-2051.
RR-Transit-02	■ Partnership to Develop Transit in Smithville	■ Within the next 10 years	■ -	■ -	■ Ongoing collaboration with NRT, non-financial investment.
RR-Safety-02	■ Support Niagara Region for Vision Zero	■ Ongoing	■ -	■ -	■ Ongoing collaboration with Niagara Region, non-financial investment.

Table ES-6: Non-Infrastructure Measures – Phasing and Capital Cost – Township Projects

Project ID	Project Name	Phasing Timeframe	Estimated Annual Cost (2022 CAD)	Estimated Total Capital Cost (2022 CAD)	Notes
TWL-AT-03	■ Supporting Cycling Equipment	■ Ongoing	■ $2,000	■ $60,000	■ Total capital cost covers 2023-2051.
TWL-AT-04	■ Incorporation of Trail Crossing Standards	■ Within the next 10 years	■ -	■ -	■ Capital investment incorporated into infrastructure recommendations.
TWL-AT-05	■ Transition Facilities for Terminating Trails	■ Within the next 10 years	■ -	■ -	■ Capital investment incorporated into infrastructure recommendations.
TWL-AT-06	■ Align Pedestrian Facilities with Smithville Cross-section Standards	■ Within the next 10 years	■ -	■ -	■ Capital investment incorporated into infrastructure recommendations.
TWL-AT-07	■ Complete Pedestrian Facilities at Intersections	■ Within the next 10 years	■ -	■ -	■ Capital investment incorporated into infrastructure recommendations.
TWL-Safety-01	■ Collision Analysis Task	■ Within the next 10 years	■ -	■ $25,000 - $150,000	■ Cost subject to safety studies undertaken.
TWL-Safety-03	■ Safety Programs for Schools	■ Ongoing	■ $2,500 - $4,500	■ $75,000 - $135,000	■ Total capital cost covers 2023-2051.
TWL-Safety-04	■ Traffic Calming Programs	■ Ongoing	■ $20,000	■ $600,000	■ Total capital cost covers 2023-2051.
TWL-TDM-01	■ Parking Strategy	■ Within the next 10 years	■ -	■ $50,000	■ Total capital cost represents one-time investment.
TWL-TDM-02	■ Thresholds for Travel Plans	■ Ongoing	■ -	■ -	■ -
TWL-TDM-03	■ School Incentive Program	■ Ongoing	■ -	■ -	■ Ongoing collaboration, non-financial investment.
TWL-TDM-04	■ Promoting Economic Vitality in Downtown Core	■ Ongoing	■ -	■ -	■ Ongoing collaboration, non-financial investment.

AECOM

Smithville Water Wastewater Master Plan

Township of West Lincoln

ProjectReference: Smithville Master Community Plan
Project number: 60619866

March 10 2023

Delivering a better world

Executive Summary

The Smithville settlement area located in the Township of West Lincoln, in the Niagara Region is currently planning for the expansion of the existing urban boundary to accommodate the anticipated growth. A key feature of the planned growth will be the development of a water and wastewater servicing system that supports the uses and needs of existing populations whilst supplying the future capacity and options to support the growth of the area. This water and wastewater master servicing plan document sets out to provide an understanding of the existing water and wastewater infrastructure, the potential demand of proposed development, the potential permits needed for development, and the infrastructure and programs recommended to provide a sustainable service for Smithville.

Smithville is located on a key east west corridor in the Niagara peninsula (Highway 20), while also being home to about six thousand people and a number of industries and businesses. Current water and wastewater systems are serviced by a single water pumping station and two sanitary pumping stations. The Township has not previously had a Water and Wastewater Master Plan, however, as a lower tier municipality, major water and wastewater infrastructure has been previously identified in various iterations of the Niagara Region Water and Wastewater Master Plan. In addition to the Region's Master Plan, provincial and Township policies and guidance have been utilised to develop a vision and series of objectives tat the Water and Wastewater Master Plan should aim to follow:

1. Create a complete water and wastewater network;
2. Incorporate both local and regional economic growth;
3. Sustainably servicing to the community; and
4. Consistent implementation.

The Smithville settlement area currently has a water-wastewater network that is developed around one water pumping station and two sewer pumping stations. In addition, Smithville is dependent on an inground reservoir, an elevated storage facility and two sewer lift stations. The current overall water-wastewater system is comprised of roughly 33 kilometres of watermains and 34 kilometres of sewerlines and provides servicing to a population of 7,140 and 1,860 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.

The urban boundary expansion and associated development will bring an additional 540 hectares adjacent to the current Smithville urban boundary, effectively doubling the size of the community of Smithville, and leading to a forecasted population of about 29,000 by 2051. This level of growth requires 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.

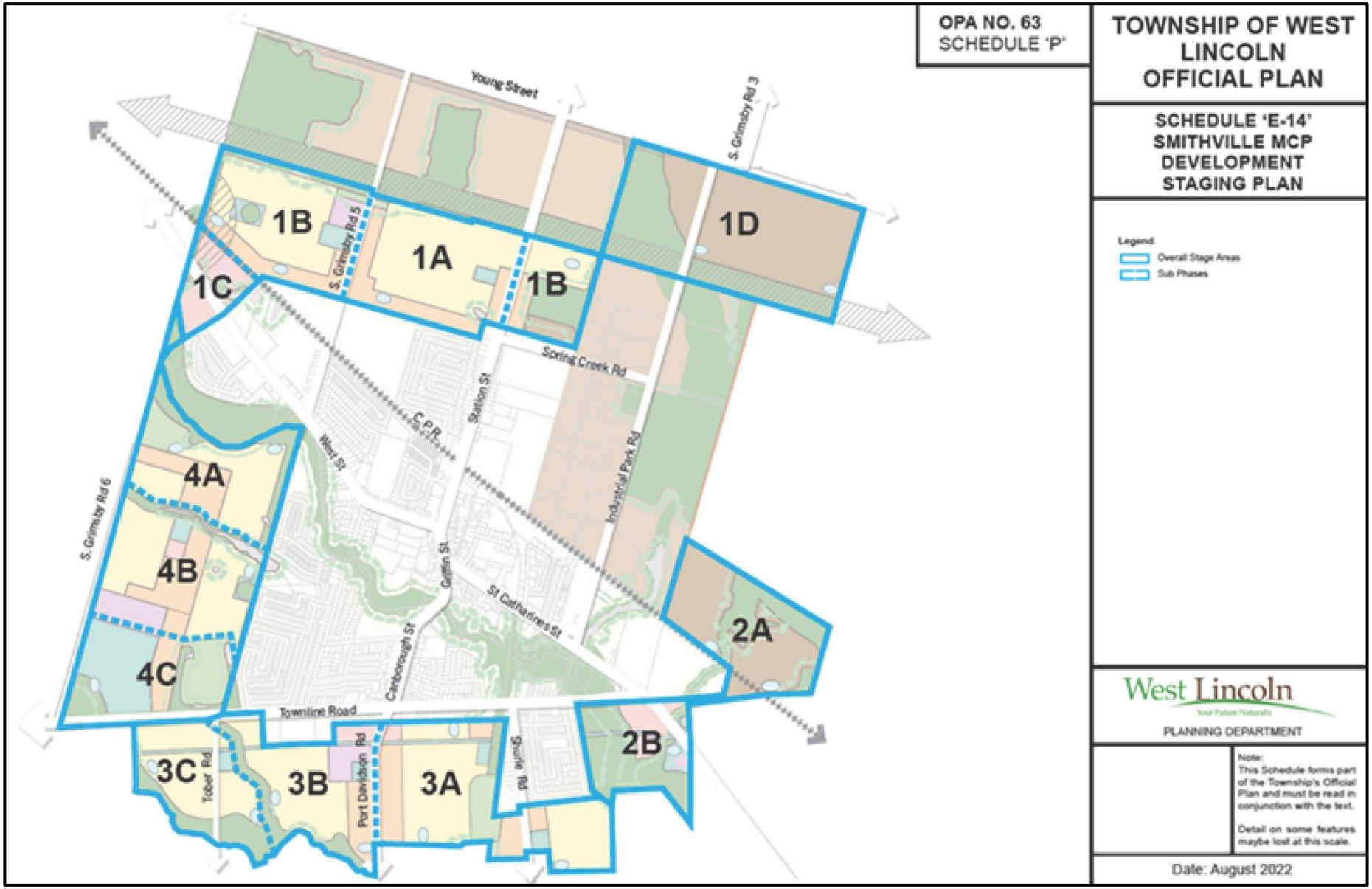
The development Staging Plan was prepared as part of OPA No. 63 and is shown in **Figure ES-1**.

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.

Policy 6.11.7.6.3 h) of Official Plan Amendment 63 (OPA 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 MCP.” The policies provide for an appropriate level of flexibility and provide a solid framework for implementation through more detailed Block Plans, MESP’s 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 previsions of OPA 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. OPA 63 recommendations were presented to the public, Council, and the landowners on multiple occasions including: the Public Meeting, Council adoption of OPA 63, and Technical Advisory Committee meetings as late as December 16, 2022.

Figure ES-1: Development Staging Plan



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.

The water and wastewater system assessment forms the primary method for assessing possible mitigation measures which can include upgrades to existing servicing infrastructure as well as the development of new infrastructure including water and forcemains, gravity sewers, and pumps.

In assessing the existing water system, it was identified that the available pumping capacity at the existing London Road Pumping Station would be sufficient to meet the projected demands with the future Smithville Elevated Tank being implemented. An additional pump would be required at the station to meet the fire flow requirement. The future elevated tank has been identified in the Regional's DC Study (Region's DC Study project number: W-S-010)

In assessing the existing wastewater system involving the Smithville Sewage Pump Station and Streamside Sewage Pump Station, it was identified that both stations require pumping capacity upgrades to meet the future peak wet weather flow. The Region is currently undergoing a capacity increase at Streamside Sewage Pump Station; the upgraded station is expected to provide adequate capacity to address the future peak wet weather flow. The Region also identified a future upgrade at the Smithville Sewage Pump Station in their DC study for addressing the future needs (Region's DC Study project number: WW-SPS-012).

Current urban boundary expansion plans were developed to improve existing infrastructure and centre 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 impacts. The following section provides the list of preferred options for each stage's servicing strategy.

Table ES-1: List of Preferred Options for Each Stage's 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-2 and **Figure ES-3** present the preferred water and wastewater servicing strategy, respectively.

Figure ES-2: Preferred Water Servicing Strategy

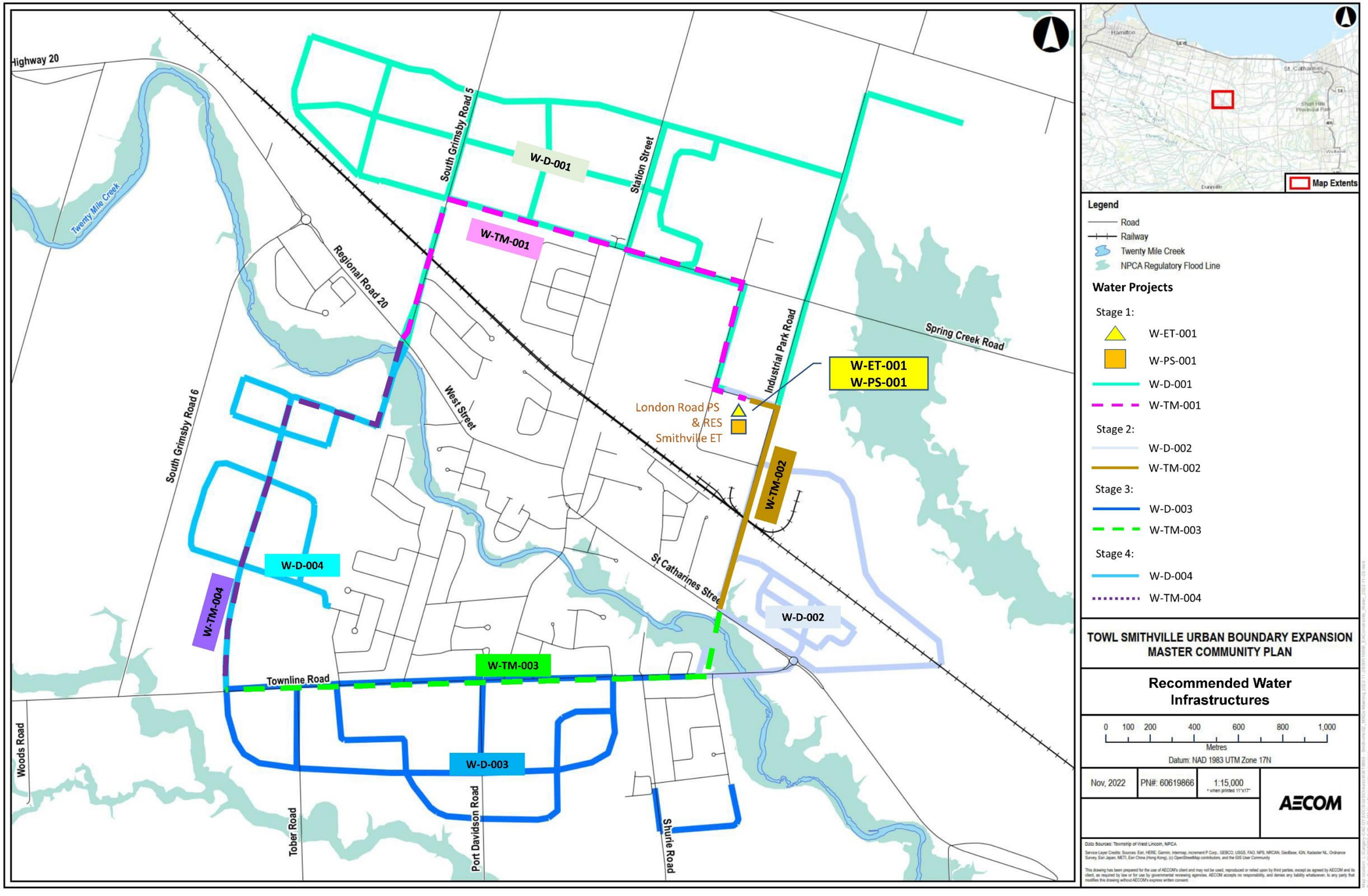


Figure ES-3: Preferred Wastewater Servicing Strategy

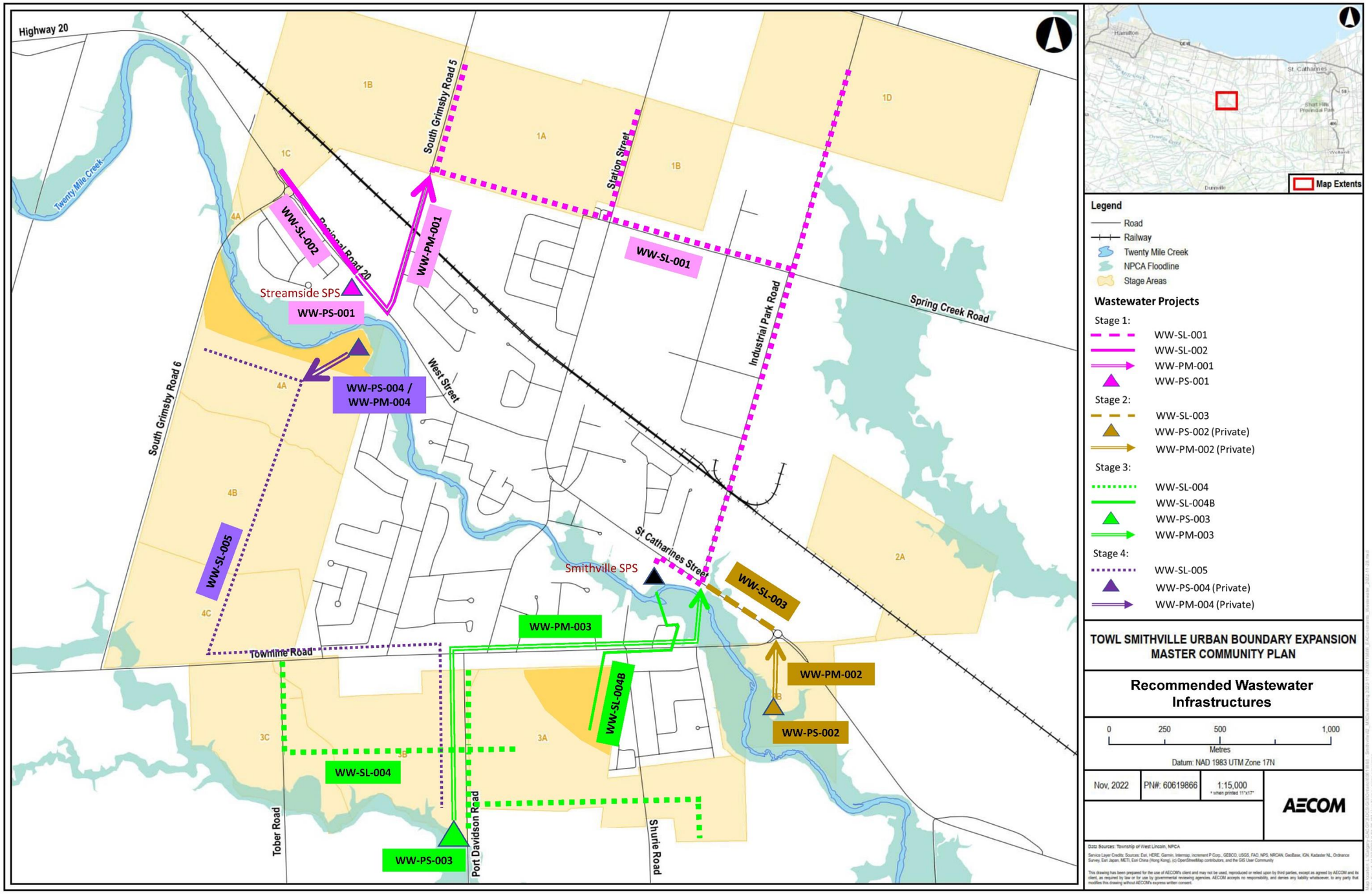


Table ES-2: Capital Costs Summary for the Recommended Water Infrastructures for the Township of West Lincoln

Capital Project ID	Stage	Descriptions	Size	Costs (2022$)	Class Environmental Assessment Project Schedule	Anticipated Schedule
W-D-001	1	Local distribution mains for Stage 1	300mm	$ 13,579,650	A	Next 10 years
W-D-002	2	Local distribution mains for Stage 2	300mm	$ 5,308,538	A	Next 10 years
W-D-003	3	Local distribution mains for Stage 3	300mm	$ 7,763,648	A	10 – 20 years
W-D-004	4	Local distribution mains for Stage 4	300mm	$ 4,235,490	A	> 20 years

Table ES-3: Capital Costs Summary for the Recommended Water Infrastructures for the Region of Niagara

Capital Project ID	Stage	Descriptions	Size	Costs (2022$)	Class Environmental Assessment Project Schedule	Anticipated Implementation Schedule
W-TM-001	1	■ 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	■ 400mm	■ $ 5,852,576	■ A	■ Next 10 years
W-TM-002	2	■ 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	■ 400mm	■ $ 3,787,184	■ A	■ Next 10 years
W-TM-003	3	■ 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	■ 400mm	■ $ 8,674,160	■ A	■ 10 – 20 years
W-TM-004	4	■ 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	■ 400mm	■ $ 8,311,280	■ A	■ > 20 years
W-ET-001	1	■ New elevated tank (8.8 ML)	■ 8.8 ML	■ $ 14,850,000	■ B	■ Next 10 years
W-PS-001	1	■ Dedicated fire pump (356 Litres per second)	■ 356 Litres per second	■ $ 675,000	■ A	■ Next 10 years

Table ES-4: Capital Costs Summary for Recommended Wastewater Infrastructures for the Township of West Lincoln

Capital Project ID	Stage	Descriptions	Size	Costs (2022$)	Class Environmental Assessment Project Schedule[1]	Anticipated Implementation Schedule
WW-SL-001	1	■ 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	■ $ 10,352,238	■ A	■ Next 10 years
WW-SL-002	1	■ New gravity main on Regional Road 20 to Streamside Sanitary Pumping Station	■ 375 millimetres	■ $ 1,556,820	■ A	■ Next 10 years
WW-SL-003	2	■ 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	■ $ 1,826,904	■ A	■ Next 10 years
WW-SL-004	3	■ New Gravity Sewer follows Stage 3 North South and easterly local collector road starting at Townline Road ■ Connection to new Sewage Pump 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	■ $ 8,132,061	■ A	■ 10 – 20 years
WW-SL-004B	3	■ 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	■ $ 727,935	■ A	■ Nex 10 years
WW-SL-005	4	■ 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 Sewage Pump Station	■ 300 to 525 millimetres	■ $ 5,939,325	■ A	■ > 20 years
WW-PS-002	2	■ New Sewage Pump Station for Stage 2B ■ Assumed to be privately owned / operated pumping system	■ 4.8 Litres per second	■ $ 0	■ Subject to Town's / Region's approval	■ Next 10 years
WW-PS-003[2]	3	■ Infrastructure Option S1; New Sewage Pump Station for Stages 3 & 4	■ 143 Litres per second	■ $ 4,374,000	■ A	■ 10 – 20 years
WW-PS-004 / WW-PM-004	4A	■ New Sewage Pump 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 Litres per second / 200 millimetres	■ $ 0	■ Subject to Town's / Region's approval	■ > 20 years
WW-PM-002	2	■ New FM for future Sewage Pump Station to future gravity sewer on RR20 ■ Assumed to be privately owned / operated pumping system	■ 150 millimetres	■ $ 0	■ Subject to Town's / Region's approval	■ Next 10 years
WW-PM-003	3	■ New forcemain extending Northernly on port Davidson Road from Sewage Pump 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	■ $ 8,363,342	■ A	■ 10 – 20 years

1. *as approved under the integrated MCEA process and subject to no OPA 63 appeal.*
2. *Based on the required capacity for the SPS, the implementation of WW-PS-003 & WW-PM-003 would be completed by the Township and the Region of Niagara will assume the ownership and O&M in accordance with the Region's SPS policy*

Table ES-5: Capital Costs Summary for the Recommended Wastewater Infrastructures for the Region of Niagara

Capital Project ID	Stage	Descriptions	Size	Costs (2022$)	Class Environmental Assessment Project Schedule	Anticipated Implementation Schedule
WW-PS-001	1	■ Streamside Sewage Pump Station Upgrade; Increase capacity to 42.6 Litres per second	■ 42.6 Litres per second	■ $ 3,611,250	■ A	■ Next 10 years
WW-PM-001	1	■ New FM on South Grimsby Road 5 for Streamside Sewage Pump Station connect to future gravity sewer on Spring Creek Road	■ 250 millimetres	■ $ 3,368,421	■ A	■ Next 10 years

In support of the modelling 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 around the Smithville settlement area, it was determined that there were several key measures that were required to mitigate the impacts of the new development on the water and wastewater system.

- The assessment indicated that either a water storage capacity increase or a new water pumping station is required to address the future water peak hour demands. In addition, a new sewer pumping station and new forcemains are required to address the future wet weather demands.
- A significant amount of development is planned on either side of Twenty Mile Creek and North Creek. To address this, a number of trenchless crossings are required to service future developments.
- The reduction of construction complexity will be a key part of reducing the impact of maintenance works for the new system. By employing designs with shorter pipe distances, easier access and less potential disturbances it ensures that potential infrastructure repairs can be completed in a timely manner.

The Water and Wastewater Master Plan has developed a capital program to support the phased implementation of the various water and wastewater infrastructure programs which is tied to the block plan process proposed under official plan amendment 63 (OPA 63). In developing the options and measures for implementation the Water and Wastewater Master Plan has addressed the phase 1 and 2 requirements of the Municipal Class Environmental Assessment process, and has also identified Class D cost estimates for each of the proposed measures. The recommended capital works will provide all necessary information to support the required Township's DC study update.

The Smithville Water and Wastewater Master Plan represents a key document for the future development of the Smithville settlement area, providing an infrastructure network to support the growth and development within the settlement area, while maintaining the needs and expectations of existing residents and businesses to have adequate connection to water and wastewater services. The Water and Wastewater Master Plan also supports the development of industrial and commercial facilities that increase employment opportunities in Smithville, promoting continued economic development and prosperity.

TOWNSHIP OF WEST LINCOLN

SMITHVILLE SUBWATERSHED STUDY AND STORMWATER MANAGEMENT PLAN

MASTER COMMUNITY PLAN STUDY

MARCH 15, 2023

EXECUTIVE SUMMARY

Introduction

The Township of West Lincoln has initiated a Master Community Plan Study to plan for future growth in the Community of Smithville. This process includes the preparation of a Subwatershed Study (SWS), as a companion study being completed in parallel with the Master Community Plan Study. The Study Area for the Subwatershed Study is located along the perimeter of the existing urban boundary of the Community of Smithville and is generally bounded by Young Street to the north, the North Creek to the south, South Grimsby Road 6 to the west, and South Grimsby Road 2 to the east.

Subwatershed Study Process

The Subwatershed Study ensures that all applicable Provincial, Regional and Municipal land use planning requirements, including Conservation Authority regulations, are achieved. The core Work Plan of the Subwatershed Study process has been structured to be carried out in the following three (3) phases:

- Phase 1: Subwatershed Characterization and Integration
- Phase 2: Impact Assessment,
- Phase 3: Management, Implementation and Monitoring Plan,

The purpose of Phase 1 Subwatershed Characterization and Integration is to gain a better understanding of the state, health and general character of the subwatershed. Reviews of existing studies and reports, fieldwork and, where appropriate, modelling has been undertaken, in order to understand the baseline of conditions related to the following key components: Hydrology/Hydraulics, Hydrogeology, Karst Features, Water Quality, Stream Morphology and Aquatic and Terrestrial Resources. These components have been considered and assessed as part of the Phase 1 report to characterize the Subwatershed areas of interest.

The Phase 2 Impact Assessment involves evaluating the impacts of future planned urbanization of the land use plan, as prescribed by the Master Community Plan. This initial evaluation is intended to provide direction to the Land Use Team, who then refined the Land Use Plan in accordance with the direction from the first iteration of testing. The refined Land Use Plan was then advanced for a second round of testing and assessment. Working Targets and preliminary management strategies to address potential impacts associated with future development, as related to the natural environment and stormwater, have been developed. Watercourses and natural heritage features have been assessed and given a constraint ranking, followed by an overall net rating. Any refinements to the Region's Natural Heritage System have been identified and discussed through this phase.

The Phase 3 Management, Implementation and Monitoring Plan formalizes the recommendations for water management, including traditional and low impact development practices, as well as specifics related to environmental management, including parameters for stream stability and terrestrial and aquatic system protection and enhancement. This process also included developing an implementation and monitoring plan, to provide further direction on the implementation procedures related to the plan recommendations, including priorities, specific policies, need for follow-up studies and related study requirements.

Phase 1: Subwatershed Characterization and Integration

Hydrogeology

The study area lies within the Haldimand Clay Plain physiographic region. The larger region generally consists of stratified clay related to glacial Lake Warren although the northern area, including Smithville, may consist of an intermixture of stratified clay and till.

The bedrock underlying the study area consists of a sequence of bedded dolostones and shales, generally sloping from north to south with an elevation range of approximately 25 metres in the area of the proposed urban expansion. Elevated bedrock areas exist south of Twenty Mile Creek in the southwestern portion of the urban expansion area and in the northern portion of the urban expansion area, as well further north beyond the urban expansion area. Twenty Mile Creek tends to follow a bedrock depression just west of, and through, the Community of Smithville.

The surficial geology consists primarily of fine-grained sediments characterized by the glaciolacustrine clay and silt throughout the majority of the urban expansion area with minor areas of clay to clayey silt till. Stream deposits are predominately clay and silt with some sand and gravel. The Eramosa dolostone is exposed in bedrock outcrops along portions of Twenty Mile Creek and areas northeast of the urban expansion area.

The overburden is less than 6 m thick throughout the majority of the urban expansion area, with the least amount of overburden correlating with the bedrock highs and bedrock outcrops. Overburden thickness generally increases south of the urban expansion area in a southerly direction correlated with the slope of the bedrock.

Fractures occur in lateral bedding planes and as vertical and sub-vertical fractures above and below the bedding planes. Joint spacing is noted to be more frequent in the uppermost portions of the bedrock and decreases with depth and exhibits preferential orientations.

Groundwater flow within the bedrock is governed by the horizontal and vertical hydraulic gradients as well as the general characteristics of the fracture network and solution channels. Groundwater flow moves from the bedrock surface vertically through the vertical fractures (joints) to the bedding planes where the joints are connected. The vertical flux through the upper bedrock will depend on the spatial frequency of the joints, and their size, particularly related to the history of dissolution, and the water made available from ground surface through the overburden. The combined bedding plane/joint network provides for significant lateral groundwater flow and less frequent vertical flow conduits.

Groundwater flow within the upper bedrock is considered to be the primary flow pathway that is potentially connected to Twenty Mile Creek and the majority of the domestic wells. Groundwater flow in the upper bedrock generally flows from northwest to the southeast but within the Town of Smithville flow is directed towards Twenty Mile Creek from the north and from Townline Road in the south. There is a strong correlation between the horizontal flow direction in the shallow bedrock and the bedrock topography. It is expected that more local shallow groundwater flow will be controlled to varying extents by the fractured nature of the bedrock and particularly the larger solution channels and conduit flow. The orientation of these features may direct flow in directions not consistent with the larger scale hydraulic gradients.

Twenty Mile Creek is known to have no flow through the study area at various periods in the summer months. Groundwater discharge may occur seasonally when the more regional groundwater levels are higher, thus feeding some amount groundwater discharge. Pools along Twenty Mile Creek also exist in the summer months indicating varying amounts of local discharge, likely through the discrete fracture/solution channel network. Substantive spring flow contributes to Twenty Mile Creek in the vicinity of Canborough Street and its source is related to a significant conduit connected to the Smithville Cave along with additional springs in the vicinity of Rock Park.

The local wetlands within the study area are currently not considered to have any significant functional groundwater discharge associated with them consistent with observations and the characteristics of the low permeability overburden groundwater flow system.

The municipal water supply for the Community of Smithville is a lake-based supply. Outside of the existing urban area, individual water supplies are provided through domestic wells that generally get their water from the fractures and solution channels that are more common in upper 15 metres of the bedrock.

Areas referred to as Highly Vulnerable Aquifer have been developed through the Source Water Protection study. The Niagara Peninsula Conservation Authority used an overburden thickness of less than 5 metres to delineate these areas as the thinner overburden offers less protection of contaminants migrating to the shallow bedrock aquifers related to the Eramosa Member and the Guelph Formation. These Highly Vulnerable Aquifer areas correlate well with the areas of overburden less than 6 metres thick. This current subwatershed study presented that an overburden thickness of less than 6 metres represents a more accurate value hydrogeological sensitivity related to contaminant migration to the underlying bedrock aquifer.

Karst

Reconnaissance and detailed site investigations focused on known and potential karst features but also involved observing water flow in ditches and surface channels as well surface ponding during rain events and spring snowmelt.

Surface water observations in December 2019 and March 2020, during rain and snowmelt did not provide indications of significant karst capture in road-side ditches or along several streams. Significant surface ponding was observed during 2020, particularly in northern portions of the study area between Young Road and the southern boundary of the hydro right-of-way. Surface pondings in the northern area did not demonstrate reductions in that area from March 10 through March 26, 2020 and many wet ponds and saturated soils continued into early May of the same year.

A total of 11 karst features were investigated and documented. Seven of the features were located within the study area of which 6 were distinct sinkholes and the other a short stream reach that appeared to be gradually losing flow in the downstream direction and is likely not karstic.

In general, the largest most significant karst features occur in the western portion of the study area adjacent to South Grimsby Road 6 in the vicinity of the rail road and west of Wade Road. Of these features, 2 appear to be the result of man-made factors such as an under-sized culvert beneath the rail line resulting in upstream flooding and, possibly consequences of forest clearing prior to agricultural tilling. All features are within about 500 metres of Twenty Mile Creek, averaging 330 metres.

Karst hazard assessments are required by the Provincial Policy Statement. Hazardous sites are also regulated under the Conservation Authorities Act and the Niagara Peninsula Conservation Authority's specific regulation for development in these areas is Ontario Reg. 155/06. The specific hazard defined by the Provincial Policy Statement is "unstable bedrock" related to solution and removal of bedrock potentially creating a geophysical hazard to development and/or the public. However, development in and around Karst Hazardous Sites can also result in problems associated with flooding or loss of flow to connected springs. The latter situation is the most common in Southwest Ontario and also has the potential to create ecological impacts.

In this regard, the assessment of hazard constraints depends on the size and depth of the karst solution, rate of soil sloughing, and the capacity of the conduits to transport surface flows

underground. Mitigation alternatives range from leave in place and buffer to accommodate potential flooding to complete removal and by-pass of the feature. In all cases, development should not result in increased flows to the feature. Depending on water balance and flow dynamics, the feature may be subject to excavation and grouting.

Shallow overburden over bedrock represents a broad constraint. The silt-clay glaciolacustrine deposits in the study area generally restrict significant infiltration, particularly in the area of the hydro line right-of-way, along Young Street, and in the Southwest from Townline Road and South Grimsby Road 6.

All karst features occur with about 500 metres straight line distance of Twenty Mile Creek, the longest being about 550 metres. No surface karst was observed in the northernmost portion of the study area including along the hydro line and towards Young Road. This suggests that the hydraulic gradient provided by the creek valley is playing a role in the initiation and development of the karst. Smithville Cave is known to be connected to the creek in terms of taking water directly from the creek and discharging within the creek valley.

The Eramosa Formation within the study area is a karst aquifer. This conclusion is principally defined on the basis of relatively high hydraulic gradients, the presence of at least one large cave, and several sinkholes.

Hydrology and Hydraulics

The urban expansion area and the existing urban area fall within three subwatersheds, namely the Twenty Mile Creek subwatershed, the North Creek subwatershed, and the Spring Creek subwatershed. The main branch of Twenty Mile Creek runs west to east across the existing urban area. The main branch of North Creek runs west to east along the south boundary of the urban expansion area. A major tributary of Spring Creek runs northwest to southeast outside of the urban expansion area and through the existing urban area towards the east. The urban expansion area is characterized with mainly headwater drainage features along with several regulated watercourses. The existing urban area is characterized with open ditches and storm sewer drainage systems, overland flow drainage systems, and stormwater management facilities.

Soils within the urban expansion area and the existing urban area are noted to primarily consist of glaciolacustrine clay and silt, with small deposits of diamicton clay to clayey silt, stream deposits of clay and silt, and paleozoic bedrock. Stream deposits and Lockport Formation are concentrated along Twenty Mile Creek. Overall, the soils exhibit low permeability and low infiltration potential, with high potential for generating runoff. The surface slopes within the urban expansion area and the existing urban area tend to be moderate between 1 percent and 2 percent. There are slightly steeper areas along Twenty Mile Creek.

Within the urban expansion area, the existing land use conditions are primarily agricultural lands with headwater drainage features. Within the existing urban area, the land use conditions are a mixture of median to high density residential areas, park areas and open lands, industrial areas along Industrial Park Road, and commercial areas along West Street and St. Catherines Street.

A field monitoring program was implemented to collect streamflow data to support the validation of the hydrologic modelling. In addition, a rain gauge was installed at the Smithville Arena to collect continuous rainfall amount data. A local hydrologic model has been developed for the urban expansion area and the existing urban area at the local level. In addition, the Niagara Peninsula Conservation Authority’s hydrologic model for the watershed has been refined within the study area.

The erosive flows occurred for 0.5 percent of the 22 year simulation period along the Twenty Mile Creek tributary, 0.6 percent to 0.8 percent of the 22 year simulation period along the North Creek, and 1.0 percent to 1.3 percent of the 22 year simulation period along the Spring Creek reach.

Hydraulic models have been developed for the regulated watercourses within and downstream of the study area. The resulting Regulatory Floodplain is contained within the current flood hazard defined by Niagara Peninsula Conservation Authority.

Fluvial Geomorphology

Using topographical data, watercourse reaches were identified as unconfined, partially confined, and confined. Based on their degree of confinement, meander belt and stable top of slope hazards were delineated accordingly based on channel planform or valley geometry, aerial photography, surface contours, and base mapping. This was completed at a high-level for the purpose of characterizing the subwatershed study area, and developing an initial characterization of area hazards.

Field Investigations were completed to fill data gaps, and confirm or update the desktop results. Watercourses underwent Rapid Field Assessments and detailed geomorphic reach surveys. The rapid assessments noted that stream reaches were mainly in a state of “transition”, or “in regime”.

Detailed field surveys were completed for 3 reaches to characterize the system and develop threshold values for particle entrainment which highlights the channel capacity to mobilize the median particle size.

Headwater Drainage Features within the Study Area were first identified through a review of Niagara Peninsula Conservation Authority watercourse mapping and recent aerial photography. A detailed field study of Headwater Drainage Features was completed following the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines*.

Several Headwater Drainage Features provide linkages to provincially significant wetlands. In addition, several Headwater Drainage Features appear to be seasonally fed by small wetland pockets that are found in the middle of tilled agricultural fields. In general, there were more wetland connections to Headwater Drainage Features in the northwest and northeast parts of the Study Area, in the Twenty Mile Creek and Spring Creek subwatersheds respectively. Several Headwater Drainage Features within the study area were also found to be connected to karst features. In several cases where Headwater Drainage Features were dry but showed evidence of recent flow, such as fresh erosion or sorted sediment, the features were classified as Mitigation to provide a conservative recommendation.

Surface Water Quality

The water quality monitoring samples received from the Niagara Peninsula Conservation Authority indicate that the concentrations of typical contaminants in the proximity of the study area are generally in comparable ranges with relatively higher levels compared with similar land uses in other study areas. High concentrations of organics, nutrients, and metals are noted for Twenty Mile Creek and North Creek. The existing land use conditions are largely agricultural. Therefore, the high concentrations and exceedances are considered largely attributable to intensive farming activities and lack of formal water quality measures.

Aquatic Resources

The watercourses occurring within the study area are located within the Twenty Mile Creek, North Creek, and Spring Creek Subwatersheds. Most of the watercourses lie within the Twenty

Mile Creek subwatershed and functionally collect and convey the majority of water from within the study area to the main branch of Twenty Mile Creek. Watercourses within the southern portion of the study area, and generally south of Smithville, flow south to North Creek. The northeast corner of the study area occurs within the Spring Creek subwatershed, which collects and diverts flow southeast toward Spring Creek, which lies outside of the study area boundary. Watercourses were classified as Critical, Important, and Marginal habitats and were assigned a cold, cold-cool, cool, cool-warm, or warm water designations based on summer temperature measurements and fish presence.

Three watercourses were confirmed as permanent within the study area, namely the main channel of Twenty Mile Creek, the main channel of North Creek, and a small portion of an inflowing tributary located south of Twenty Mile Creek in Rock Street Park. Portions of Twenty Mile and North Creeks are intermittently dry, isolating the wetted portions of each feature. Twenty Mile Creek contains many areas of exposed bedrock and its flows are influenced heavily by karst features in the area. Twenty Mile Creek is confirmed fish habitat, providing a cool-warm water thermal regime. North Creek also provides direct fish habitat, and a cool water thermal regime. The small watercourse in Rock Street Park provides indirect fish habitat and coldwater contribution to Twenty Mile Creek throughout the year.

The study area contains intermittent watercourses and small ponds, as well as Headwater Drainage Features.

During field surveys, 19 fish species were observed within the study area, including one new species for the area. The fish community is considered fairly diverse and is characterized by a variety of small-bodied and larger-bodied fish, including recreationally valuable species. The highest fish diversity (17 species) and abundance was observed within the main channel of Twenty Mile Creek, which is the largest watercourse of the three, and which provided the most habitat. One species of Special Concern has the potential to occur in Twenty Mile Creek and North Creek, but the species was not observed during field investigations. Critical Habitat for the species is not found within the study area.

Terrestrial Resources

The study area consists primarily of agricultural fields and rural properties surrounding the Community of Smithville, within Ecoregion 7E. Isolated natural heritage features are found distributed through the study area, and along Twenty Mile Creek, which bisects the Community of Smithville. The study area borders numerous residential subdivisions, industrial and commercial lands comprised within the Community of Smithville. The natural features within the study area consist of woodlands, wetlands, and watercourses. The wetlands are generally part of the Lower Twenty Mile Creek Provincially Significant Wetland Complex.

In regard to vegetation, 3 Species of Conservation Concern were observed, 13 regionally rare vegetation species, and 19 species that are considered uncommon. In total, 27 species were documented that are indicative of high quality intact habitats.

Two bird Species at Risk were observed in the study area. These species may be breeding within the study area, depending on the crop and management of the agricultural fields. Species of Special Concern are present in the study area.

Field investigations confirmed the presence of 12 herpetofaunal species, including 5 species of anurans that were noted as generally well-distributed throughout the study area, 3 species of snakes, 2 turtle species, and 1 salamander species. Other wildlife observations included 12 species of mammal, 9 butterfly species, and 13 odonate species.

Wildfire Screening

A Wildland Fire Screening was conducted for the subject lands and no areas were identified to pose a high threat for wildland fire within the study area.

Phase 2: Impact Assessment

Hydrogeology

An increase in impervious surfaces reduces the natural infiltration of groundwater and when unmitigated generally leads to a subsequent decrease in groundwater levels and potential decrease to groundwater discharge to wetlands and stream reaches where it may occur. The integrated groundwater, aquatic and terrestrial characterization indicates a lack of significant groundwater connection supporting the related ecological functions with limited groundwater input, and as such the potential ecological impacts related to groundwater are expected to be limited and more related to potential changes to overland flow.

This reduction in infiltration may also lead to a potential decrease in recharge to the deeper water producing units and more specifically to the shallow fractured dolostone. The potential reduction in recharge to the bedrock is expected to be greater where the overburden is thinner and hydraulically more connected to the bedrock. As has been characterized, the areas of greater hydraulic connection to the bedrock can occur where the overburden is less than 6 metres thick.

Where there are direct overland flow inputs to karst features, the local groundwater levels appear to respond quickly and more dramatically with regard to water quantity. Changes to the quantity and quality of water directed to any karst sinkholes will result in potential changes to the local recharge quantity and quality the upper bedrock groundwater flow system.

The installation of water and sewer infrastructure can lead to the interception of the shallow water table altering shallow groundwater flow paths and creating leakage into sanitary and storm sewers. Installation of infrastructure below the water table leads to the potential need for dewatering during construction and post construction and a decrease in groundwater levels. The potential infrastructure groundwater impacts would be greater and more prevalent in geologic units that have a greater hydraulic conductivity, particularly the shallow fracture bedrock or areas where there is sand and gravel at the bedrock contact.

Groundwater flow within the overburden where it is less than 6 m thick and groundwater flow within the shallow fractured bedrock allow for a greater potential for contaminant movement. Any existing domestic wells within the development area can provide a direct conduit from ground surface to the open portion of the well for contaminants to enter the groundwater flow system. Additionally, monitoring wells can provide the same short-circuiting pathway if they are not maintained.

Karst

Karst sinkholes have the potential to impact development via bedrock instability and flooding. The Provincial Policy Statement defines “Karst Topography” as having the potential to be a “Karst Hazardous Site” which could impact development. The Niagara Peninsula Conservation Authority regulates karst features under Regulation 155/06 which requires an evaluation of each feature. The Niagara Peninsula Conservation Authority Policy Document does not specify setbacks/buffers to all karst features, but those deemed to be a Karst Hazardous Site require buffers of 50 metres subject to confirmation from further studies.

Of the 7 karst features mapped within the study area, three have been evaluated as having a high constraint based factors such as size, positon in the landscape, and

hydrological/hydrogeological role. These are all considered to be Karst Hazardous Sites with a requirement to buffer by 50 m.

Most of the sinkholes are located in or adjacent to open fields without significant flow during most of the year. Two features have a more regular flow regime and lie within naturally vegetated valleys which has greater consideration pertaining to ecolgical features or functions.

One feature was likely formed due to back flooding from an undersized culvert beneath the rail line. Although this feature does not pose significant structural or flooding hazards, its location within the Right-of-Way of South Grimsby Road 6 could pose minor flooding issues for the road. The best mitigation for this would be to re-size the culvert.

Two karst features also do not pose significant structural or flooding hazards and could be left or by-passed.

One feature, is probably not a karst feature. It most likely represents shallow soil groundwater conditions along the small creek.

All identified karst features, as well as any new features identified through the subsequent stages of planning and design, are to be assessed as part of the Master Environmental Servicing Plans, and management recommendations established accordingly in consultation with Niagara Peninsula Conservation Authority.

Hydrology and Hydraulics

In the absence of stormwater management, the future development within the urban expansion boundary for the Community of Smithville would result in increased local flood risk and erosion potential alond 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.

Water Quality

The future development within the future development in the Community of Smithville is anticipated to result in increased mass loadings of various water quality contaminants, including heavy metals, nutrients, and thermal enrichment. The stormwater management system within future development area is required to address Provincial standards for stormwater quality control to an Enhanced standard of treatment by adopting a treatment train approach per Provincial guidance, as well as measures to mitigate increased temperature of storm runoff.

Watercourses and Headwater Drainage Features

A review of the Land Use Plan has revealed that the preliminary Natural Heritage System largely protects watercourse and Headwater Drainage Features and associated setbacks. The current preliminary state of the plan does not allow for further detailed analysis in terms of road crossings and grading, which should be evaluated at subsequent planning and design stages. Erosion thresholds were evaluated through a duration and volume exceedance analysis, and the recommended stormwater management plan and sizing criteria would adequately mitigate impacts related to channel erosion or aggradation.

Ecological Resources and Natural Heritage System

A proposed Natural Heritage System has been developed for the Community of Smithville to protect its signficant natural heritage features through a connected system that will have the greatest benefit to the ecological features. The proposed Smithville Natural Heritage System has been identified based on a review of existing provincial, regional, and municipal policy and integration of field work conducted as part of the Subwatershed Study. The Smithville Natural Heritage System is comprised of Core Areas, Conceptual Buffers, Linkages, and Recommended Restoration Areas. Core Areas are comprised of Significant Wetlands, Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat, fish habitat, and habitat for endangered and threatened species. Although there is flexibility in the precise identification of Linkages, Buffers, and Restoration Areas, the size of these as identified through the Subwatershed Study is required to come close to the 30 percent cover target aspired to in the Township Official Plan, as well as recommended through the Subwatershed Study. Buffers are generally recommended to be 30 metres wide. Linkages within the study area are generally mapped as Primary Linkages 200 metres wide and Secondary Linkages 50 metres wide. High constraint watercourses typically require a buffer of 30 metres, thereby leading to a 60 metre wide Linkage. The Smithville Natural Heritage System, if implemented as recommended, provides 28.4 percent natural cover the Community once the areas are naturalized. This includes Linkages, Restoration Areas, and Buffers that all require naturalization as they are currently comprised of active agrictultural fields for the most part.

Additional areas may be added to the Smithville Natural Heritage System through site specific study, as in the further identification of Significant Wildlife Habitat or habitat for Species at Risk, and the integration of small wetland units, karst, floodplain, or erosion hazard sites. It is recommended that compatible land uses be situated next to the Smithville Natural Heritage System that will contribute to the protection of natural heritage features and the overall enhancement of the natural environment within the community. For instance, locating stormwater management facilities, Low Impact Development practices, parks, and schools next to the Smithville Natural Heritage System can provide opportunities to enhance the Natural Heritage System even further, while also providing the public with access to natural areas for their enjoyment, recreation, and nature appreciation. The Smithville Natural Heritage System provides an opportunity to design the proposed development in an environmentally sensitive way that mitigates climate change, protects and enhances the natural heritage features, and benefits the adjacent development.

It is recommended that buffers, Linkages, and Restoration Areas be naturalized through active restoration of these areas by planting and seeding of native species. Through the development approval processes, it is recommended that detailed planting plans be established for the restoration of these areas adjacent to the proposed development. It is recommended that the active agricultural areas identified for restoration be graded appropriately and amended with additional topsoil. A variety of habitats may be restored, depending on the adjacent natural areas, such as woodlands, wetlands, or watercourses, as well as providing some meadow and thicket habitats. Providing habitat for significant species should be considered. For instance, Milkweed should be included in most seeding plans to benefit Monarch butterfly. Native seed mixes should be used along with plantings in a range of sizes. It is recommended that the Linkage aligned with the hydro corridor be naturalized.

A trail network should be considered at the outset of development. Creating a network of trails within the Smithville Natural Heritage System, especially within the buffer areas, will provide residents with walking trails at the outset, which will discourage the creation of ad hoc trails. Trails will foster nature appreciation and allow for passive recreation opportunities, which is part of a sustainable community.

The Smithville Natural Heritage System must be managed and maintained, which includes stewardship and management opportunities.

Future studies may refine the proposed Smithville Natural Heritage System by identifying additional natural heritage constraints, identifying appropriate buffers, and refining restoration areas. However, the Smithville Natural Heritage System proposed through the Subwatershed Study provides the Township with the direction it needs to create and maintain a robust, sustainable Natural Heritage System that will protect and enhance existing natural heritage features, provide climate change resiliency, and provide residents with the "green" system they desire.

Climate Change

It is widely accepted that, as warming increases, climate-related risks and impacts also increase. Higher rates and amounts of warming make it more difficult for adaptation actions to offer sufficient protection against these impacts. Consequently, significant impacts would remain despite the implementation of adaptation measures, thus limiting the effectiveness and potential of achieving adaptation. The limitations to adaptation are reached when there are no longer any practical or feasible adaptation options available, requiring that otherwise unacceptable risks must be accepted, adaptation objectives must be abandoned and/or transformation and "last resort" measures, such as relocation or retreat, must take place.

Within Niagara, the Region's Background Study Report states "climate change is expected to result in increased variability in extreme local weather events that will affect natural features, ecological functions and natural processes" and states "municipalities need 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". Although the specific magnitude of impact/change remains uncertain, the anticipated impacts noted above are supported by observations and analysis and result in significant economic and health impacts.

There are important linkages between actions that reduce greenhouse gas emissions and actions that build resilience to deal with climate change impacts. Co-benefits and synergies between these actions can also be obtained. These co-benefits and synergies include the use of nature-based approaches to adaptation in cities to create urban environments that are more resilient to heat waves and to intense rainfall, while also sequestering carbon and reducing energy demand. As well, it is recognized that risk trade-offs can emerge from particular actions that are designed to meet only one objective, but that can adversely affect the other objective, such as certain adaptation decisions which can result in an increase in greenhouse gas emissions, as well as certain mitigation choices which would increase local vulnerability or risk. As a general practice and preference, priority should be given to minimizing or avoiding these negative consequences when planning actions to respond to climate change.

The management recommendations presented in the Subwatershed Study are recognized to address requirements to mitigate impacts of climate change by incorporating Green Infrastructure into stormwater management plans to promote resiliency and enhance stormwater quality, erosion, and quantity control, providing green spaces which reduce heat effects and provide additional opportunities for incorporating Green Infrastructure into development, and planning for a robust Natural Heritage System, including linkages and enhancement areas, which actively reduces harmful greenhouse gas emissions, mitigates heat effects from urban development, and maintains water budget.

Phase 3: Management, Implementation, and Monitoring Plan

Implementation Plan

The urban expansion area for the Community of Smithville has been subdivided 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 serivicing and transportation infrastructure. The Block Plans are to be supported by Master Environmental Servicing Plans.

Monitoring Plan

Monitoring and Adaptive Management Plans are generally developed as part of Master Environmental Servicing Plans, Environmental Impact Studies, or as conditions of approval for stormwater management plans and watercourse reconstructions/realignments. The information collected as part of these plans is intended to verify the performance of the environmental and stormwater management system, as well as to provide guidance for potential modifications to the management plan to satisfy the objectives of the Subwatershed Study.

Overall, the baseline monitoring program would extend 2 to 3 years, then annual during-construction monitoring, followed by three years of monitoring spread over 5 years post-construction. This is to be confirmed on a site-by-site basis through the development of an Environmental Monitoring and Adaptive Management Plan as approved by the Niagara Peninsula Conservation Authority, Township, and Region, and may include scoping various components of the program based upon site-specific conditions and findings from the initial years of monitoring. Additional details regarding the framework for various components of the monitoring and adaptive management plan are provided within the main reports of the Subwatershed Study.

Annual reports are to be prepared for all monitoring programs. Annual monitoring reports to verify facility performance prior to assumption by the Township should be submitted to the Township and any other permitting agencies per the conditions of approval. Annual monitoring reports for the holistic monitoring programs should be submitted to Township of West Lincoln, Niagara Region, and Niagara Peninsula Conservation Authority.

TOWNSHIP OF WEST LINCOLN

STORMWATER MASTER PLAN FOR SMITHVILLE INFILL AND INTENSIFICATION AREAS

MASTER COMMUNITY PLAN STUDY

MARCH 15, 2023

EXECUTIVE SUMMARY

The Township of West Lincoln has initiated a Master Community Plan Study to plan for future growth in the Community of Smithville. This process includes the preparation of a Stormwater Master Plan for the existing urban centre within the Community of Smithville, as a companion study, to provide guidance and direction for the stormwater management requirements associated with the infill, intensification, and redevelopment anticipated within the existing urban centre within the Community of Smithville.

The existing stormwater system within the urban centre of Smithville is comprised of storm pipes (minor system) and street, creeks and ditches (major system). The future development and increased densities within the core of the municipality are anticipated to have limited effect to the overall system, due to the relatively minor differences in the impervious coverage under future conditions compared to existing conditions. The areas along St Catharine Street were identified as being impacted under future land use conditions, due to the extent of land available for infill development in this area. Stormwater management requirements for all future infill and redevelopment are to be determined on a case-by-case basis and in consultation with the Township. For the St. Catherine Street sewershed, opportunity exists to replace two sections of pipe to provide greater capacity of the minor system at this location and accommodate the increased flow from the future infill and intensification within this sewershed. The ultimate acceptance of this alternative is subject to approval from the Township and Region and supported by further study and analysis.

It is recognized that the climate patterns have changed over the past decades. As a result, it is generally accepted that the frequency and intensity of the storm events would increase and extreme events would be more frequently seen. In combination with the future development and increased impervious coverages, the capacity of the storm infrastructure would potentially be reduced. The conclusions presented above regarding the anticipated impact of future development to the existing sewer network would be anticipated to be the same if comparing existing and future land use conditions under a climate change scenario. Nevertheless, it is recognized that improvements to the storm drainage system may be required as a result of climate change.

In addition to the foregoing, it is recommended that all future infill, intensification, and redevelopment within the existing urban centre of Smithville incorporate measures to provide stormwater quality control, erosion control, and reduce runoff volume. These requirements may be addressed through the implementation of Low Impact Development Best Management Practices (LID BMPs) within the future development area and tailored to the specific conditions of the development itself.

It is further recommended that the foregoing findings be verified as part of the detailed design submissions for the respective development parcels within the existing urban centre of Smithville.

Smithville Integrated Report

Township of West Lincoln

ProjectReference: Smithville Master Community Plan
Project number: 60619866

March 10 2023

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 document (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 co-ordinated 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 Number 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 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 municipal infrastructure servicing solutions for the Community to be implemented over the 30 year planning horizon (to 2051).

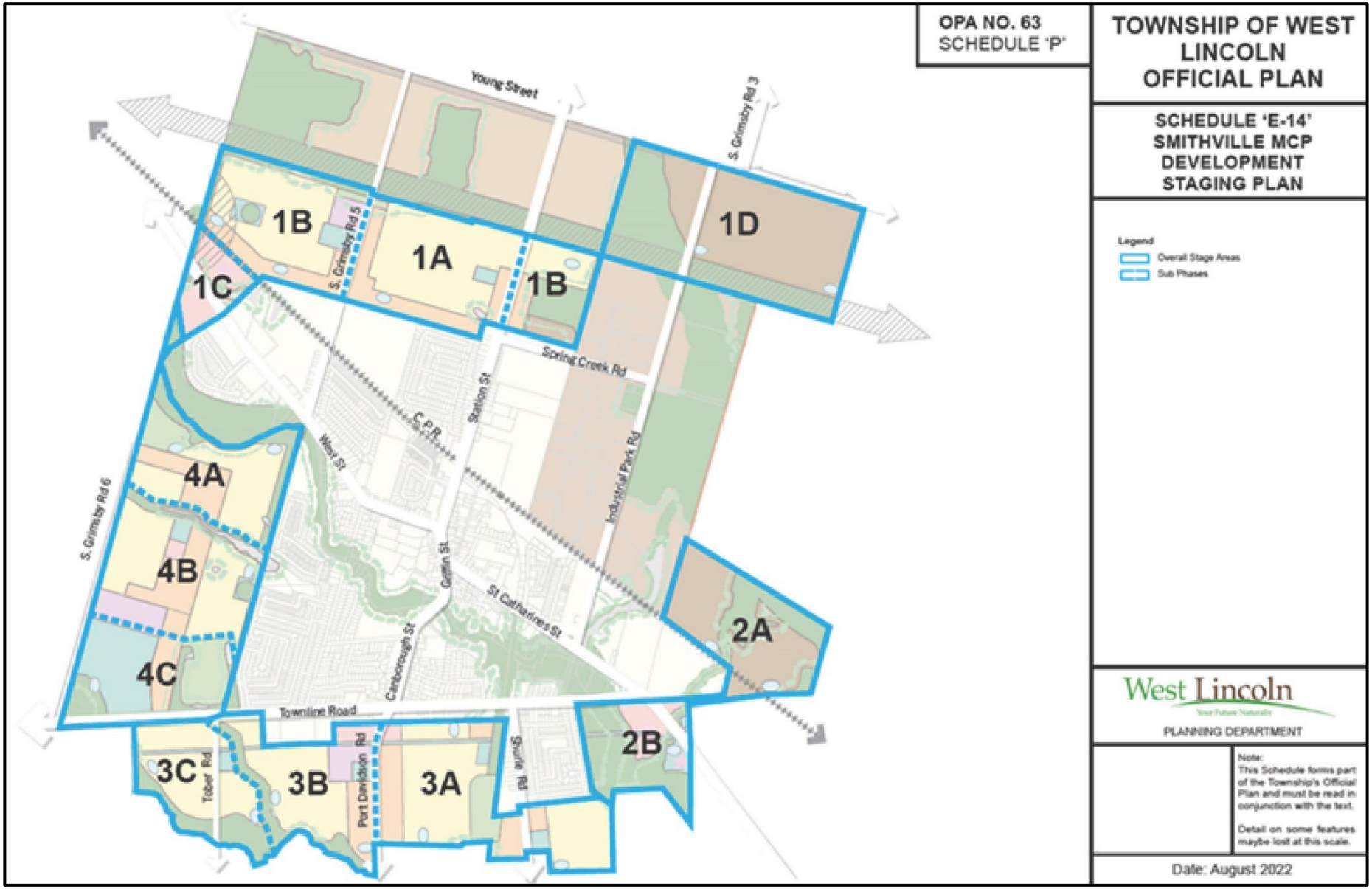
Successful completion of the Integrated Master Plan Approach No. 4 results in all Schedule B projects to be considered a Schedule A under the Municipal Class Environmental Assessment (i.e., pre-approved), if there are no appeals, or upon the resolution of any appeals, to The Regional Municipality of Niagara Niagara's decision on the Township of West Lincoln Official Plan Amendment Number 63 (OPA 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 OPA 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 OPA 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



Policy 6.11.7.6.3 h) of Official Plan Amendment 63 (OPA 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 MCP." 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 OPA 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. OPA 63 recommendations were presented to the public, Council, and the landowners on multiple occasions including: the Public Meeting, Council Decision of OPA 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 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. 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 lads. This urban expansion provides an opportunity to create a sustainable, compact, complete and resilient Smithville community. This 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 Concept (**Figure ES-2**) and Preferred Concept Plan (**Figure ES-3**) 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 QEW to the north. In addition to these roads the CP rail line also runs through the town in an east/west alignment, which currently includes three at grade crossings. The town 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 to understand what the possible impacts of the new development are, this exercise was conducted using a traffic model which replicates existing traffic conditions on the community's road network and then forecasts the growth in trips across the network as a result of the new development.

The proposed development planned out to 2051 and presented in **Figure ES-1** when modelled 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 Concept

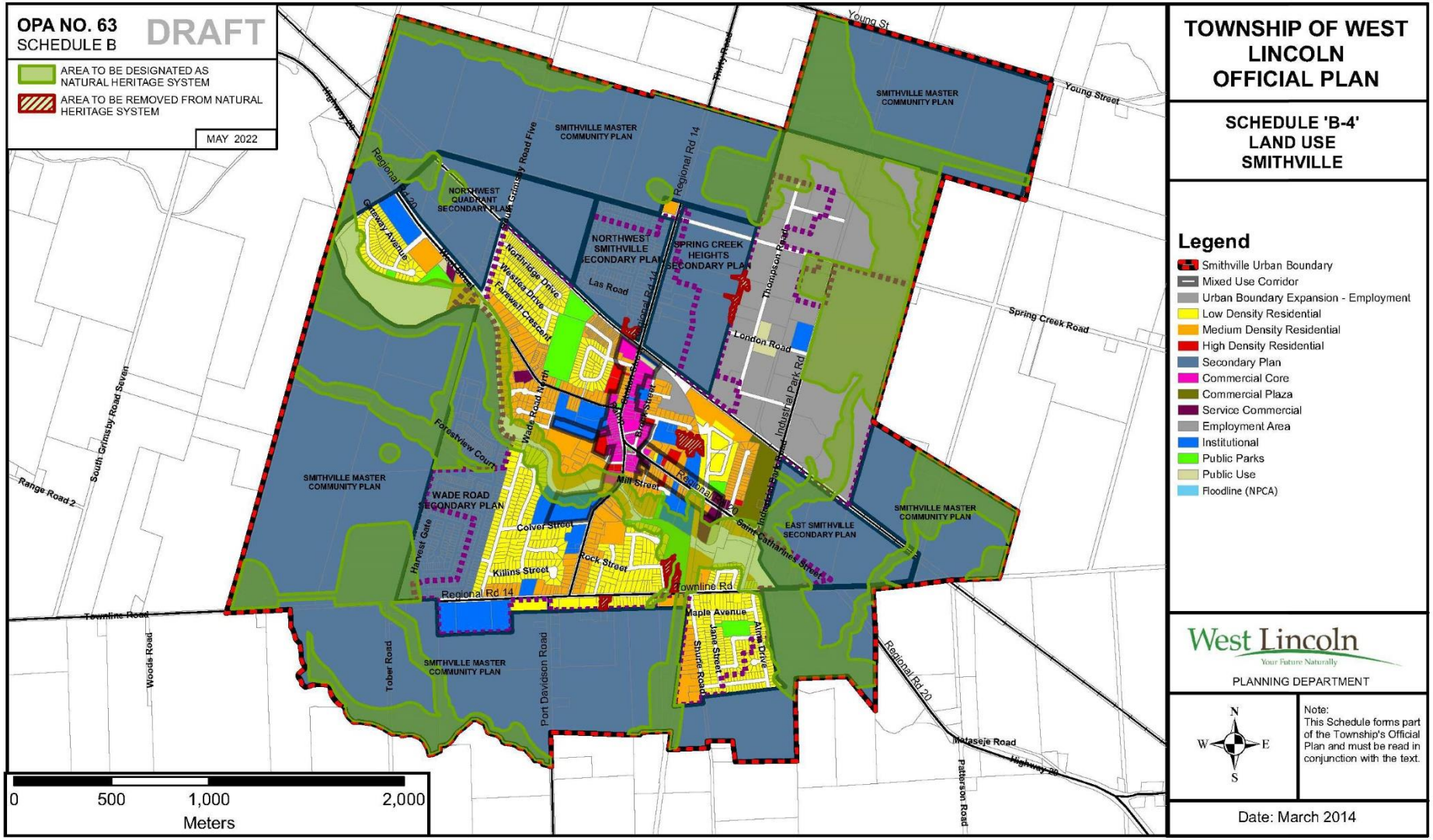


Figure ES-3: Preferred Concept Plan

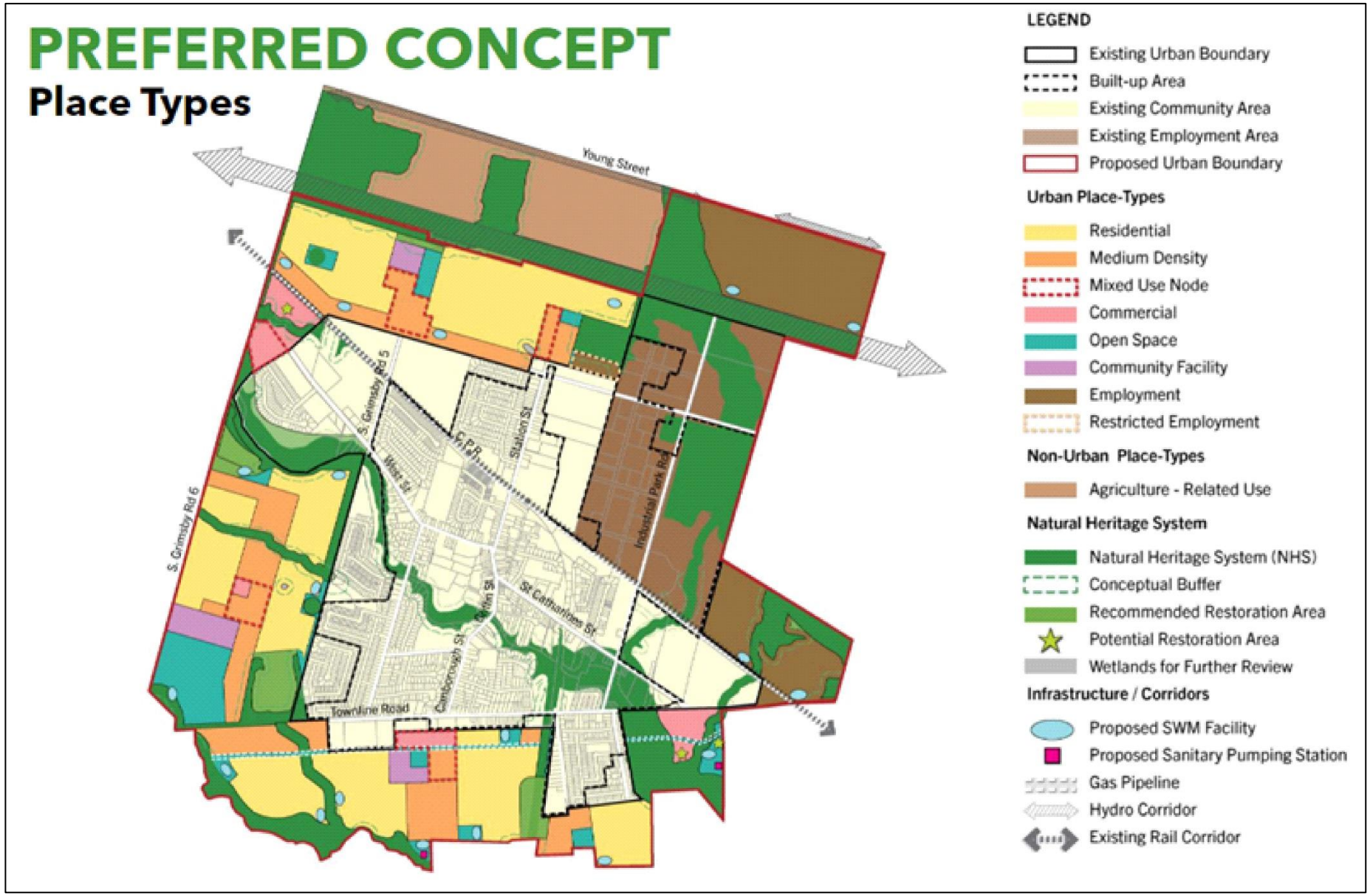


Figure ES-4, **Figure ES-5** and **Figure ES-6** highlight the implementation plans created to address these requirements.

Whilst the Master Plan 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 Servicing 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 B of this report for the complete Project Listings table.

Water and Wastewater

Smithville currently has a water-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-wastewater system is comprised of roughly 33 kilometres of watermains and 34 kilometres of sewer lines and provides servicing to a population of 7,625 and 1,115 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.

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

Figure ES-4: Proposed New Roads and Road Upgrades

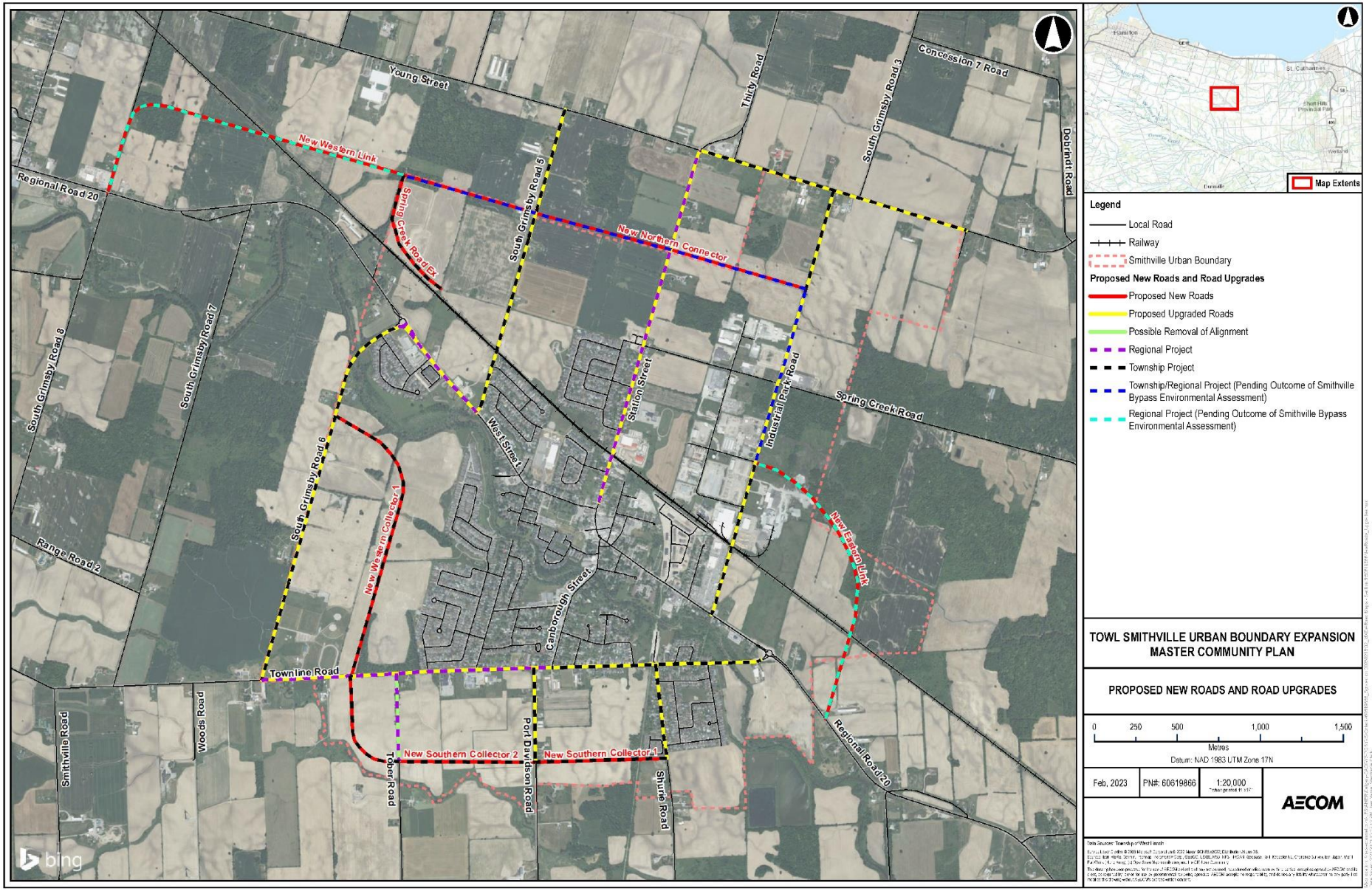


Figure ES-5: Planned Junction Improvements

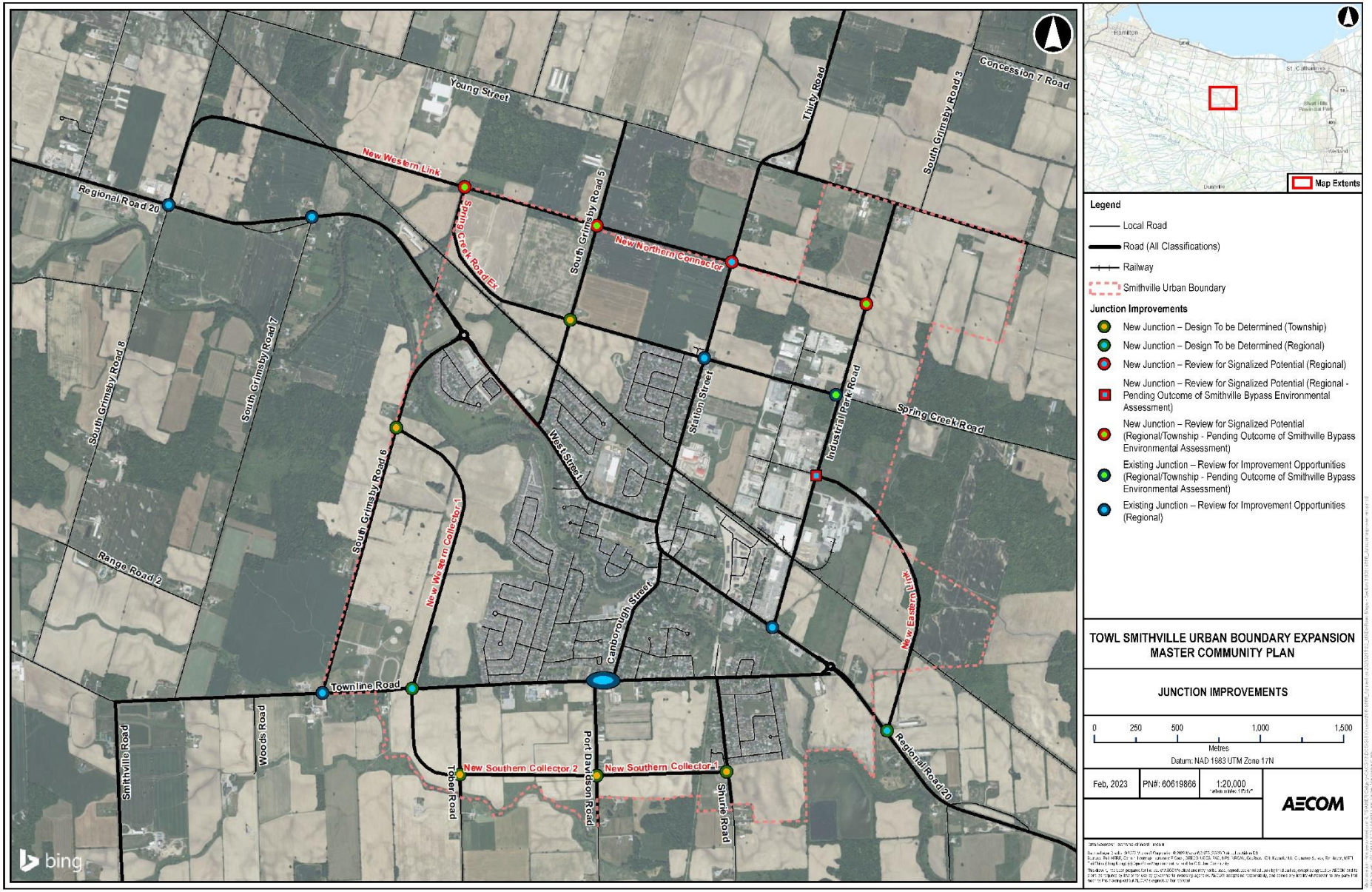
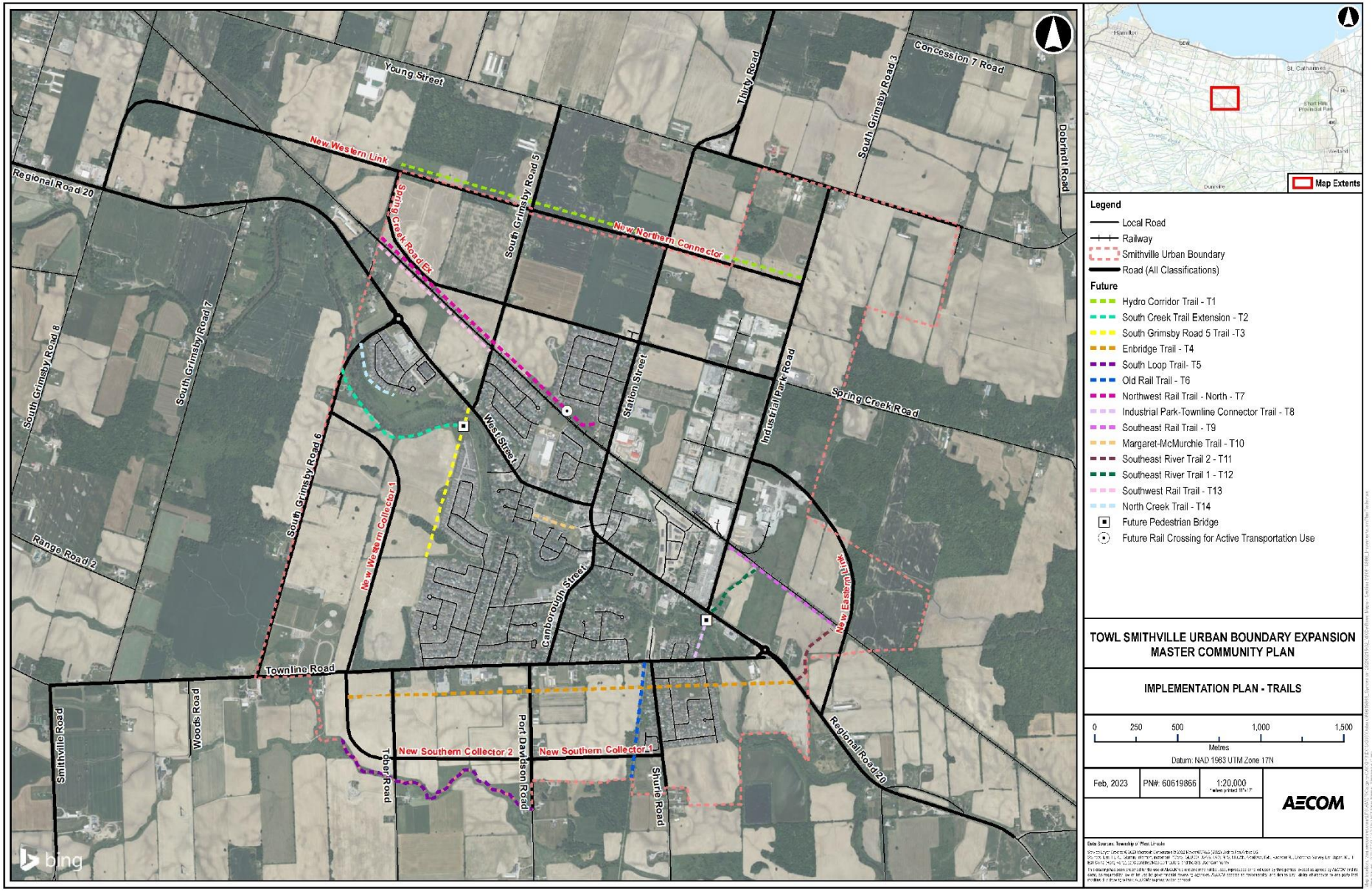


Figure ES-6: Implementation Plan – Trails



The recommended strategy for the water wastewater system to accommodate the urban boundary expansion concept was identified based on the overall environment assessment results, technical feasibility and financial implications.

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

Table ES-1: List of Preferred Options for Each Stage's 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 Master Plan will not reference the matrices utilised to evaluate alternative water and wastewater strategies, this information is documented in the Water-Wastewater Master Servicing Plan.

The Water-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 C of this report for the complete Project Listings table.

Figure ES-7: Preferred Water Servicing Strategy

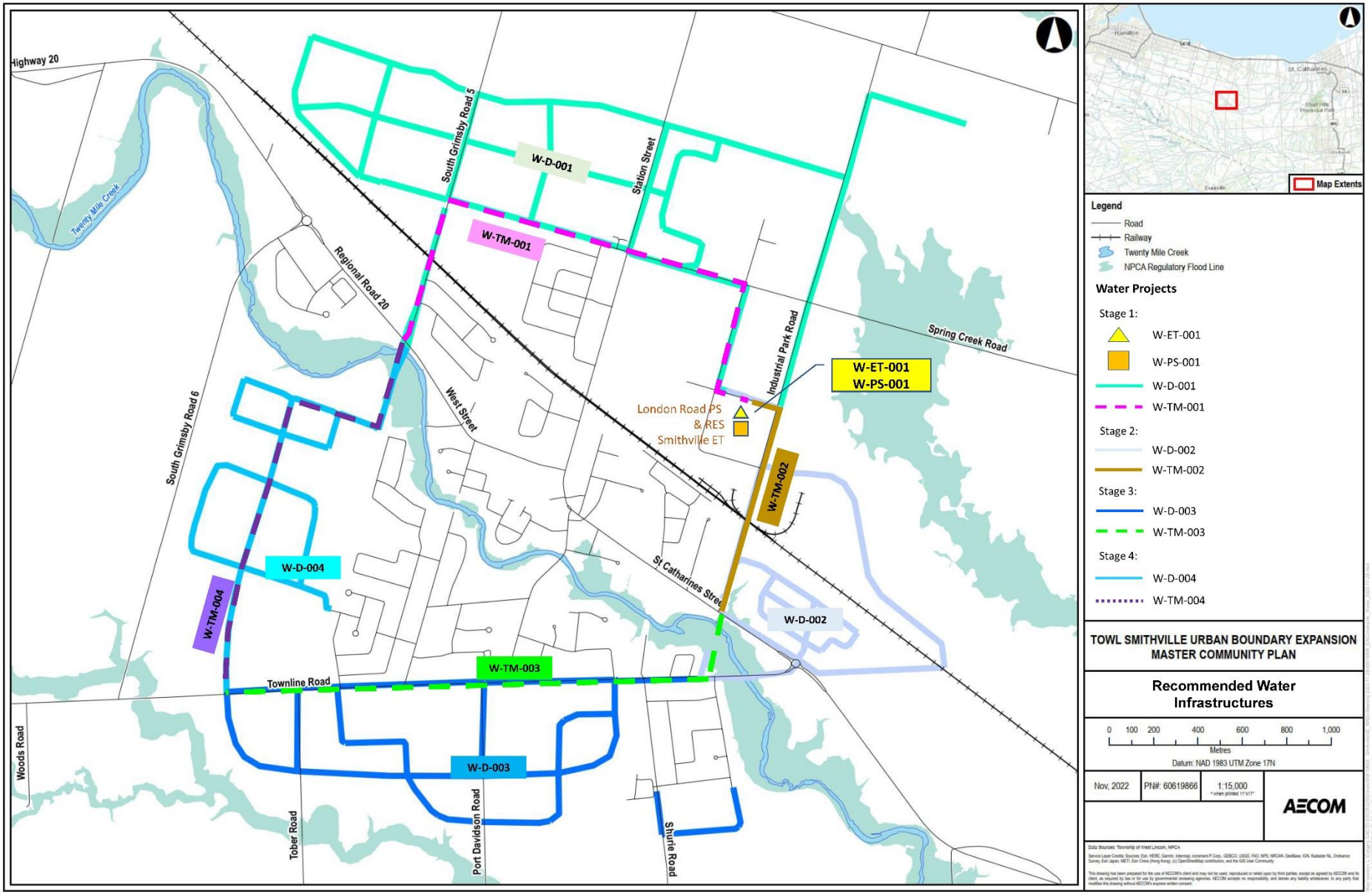
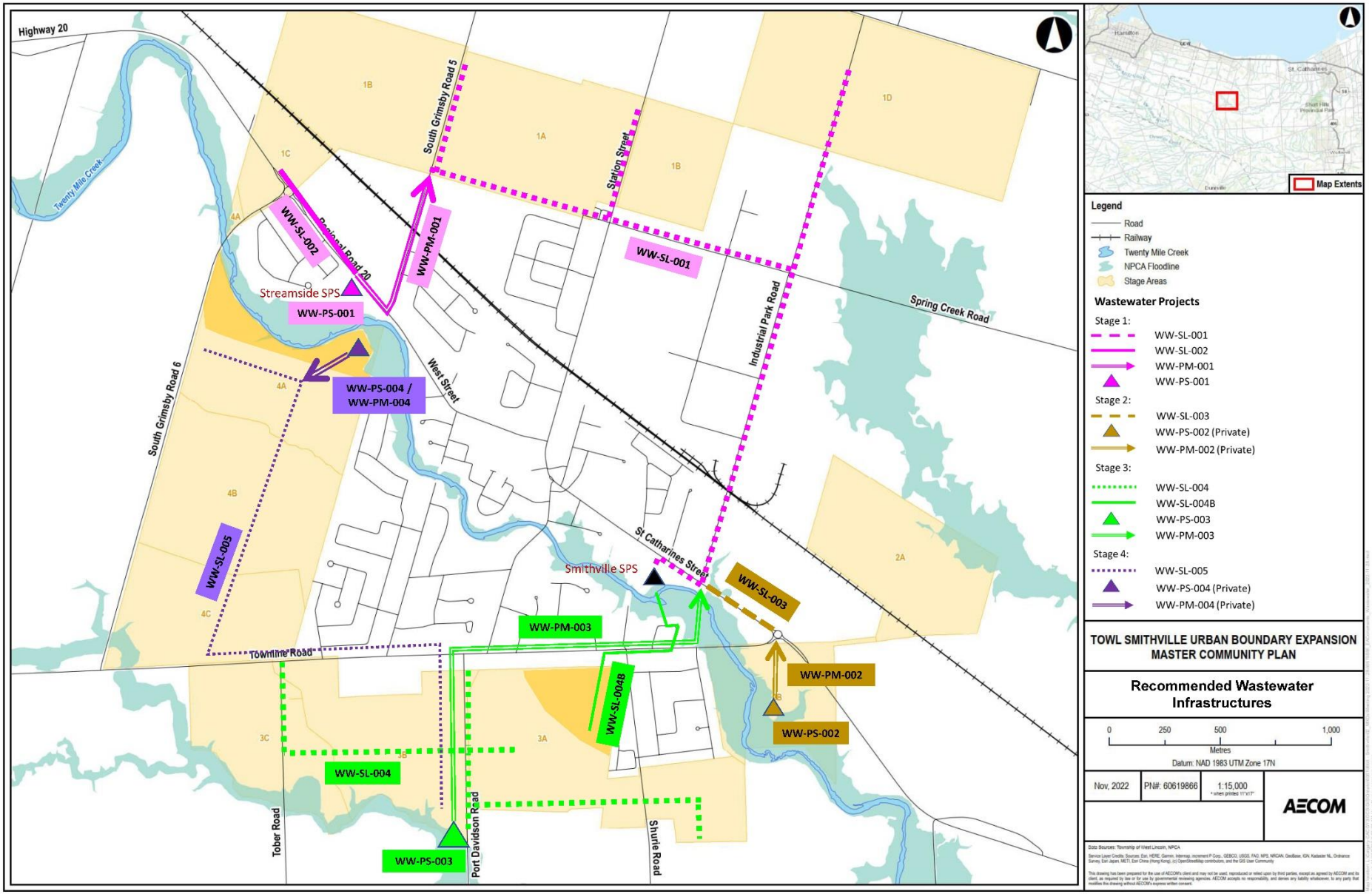


Figure ES-8: Preferred Wastewater Servicing Strategy



Subwatershed Study

In addition to guiding the Master Community Plan land use concept/policy planning and OPA 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.

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. Upon completion, the Subwatershed Study and the Stormwater Management Master Plan will be endorsed by Council.

With respect to alternative solutions, various technologies and practices have been considered to address the stormwater management criteria as per current (2003) Ministry of Environment 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: LID infiltration BMPs, urban terrestrial canopy (also NHS), 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-3**. Similarly storm sewer alignments follow the preferred Master Community Plan road network and in some cases existing roads and easements.

Once OPA 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 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

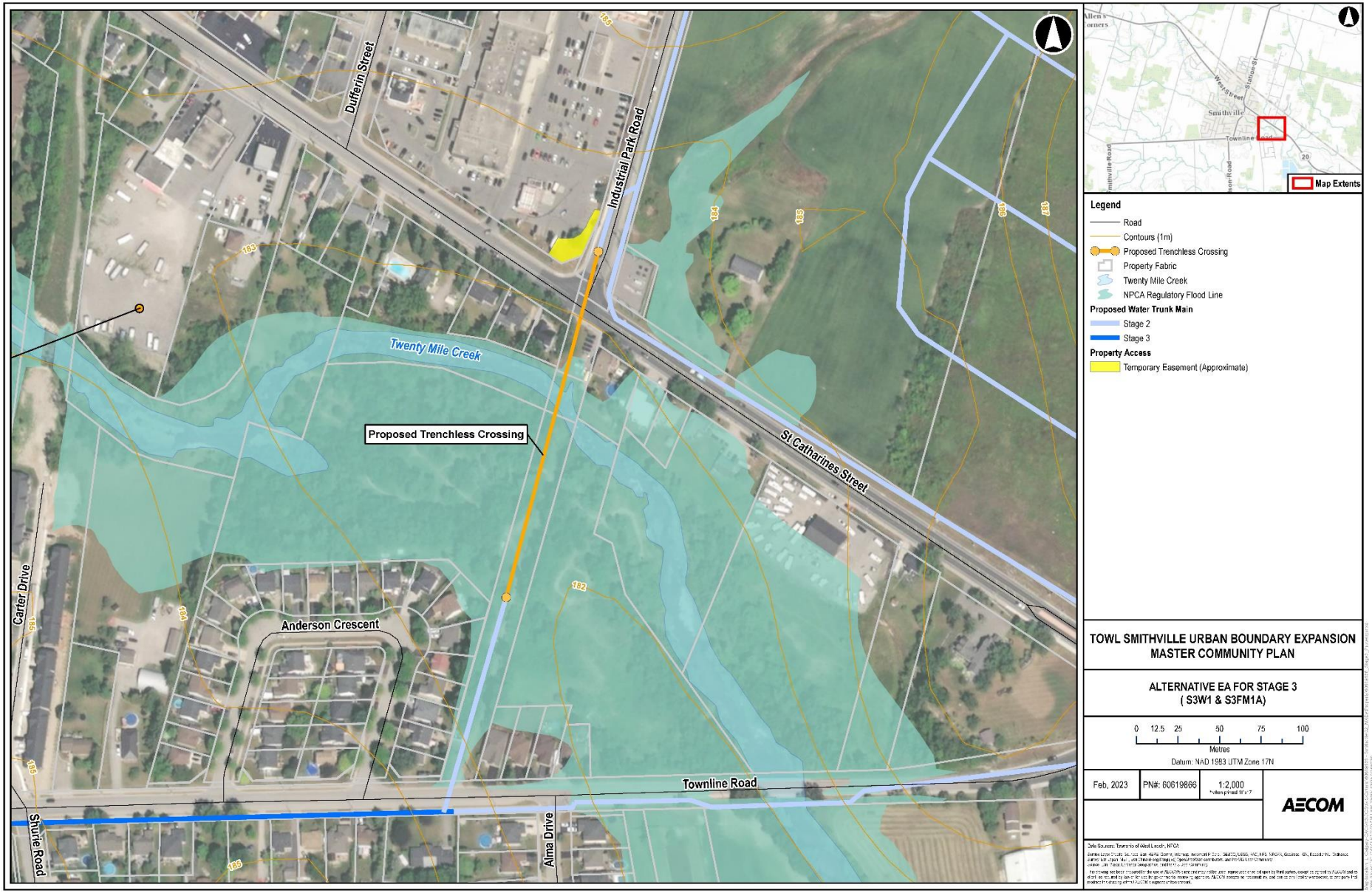
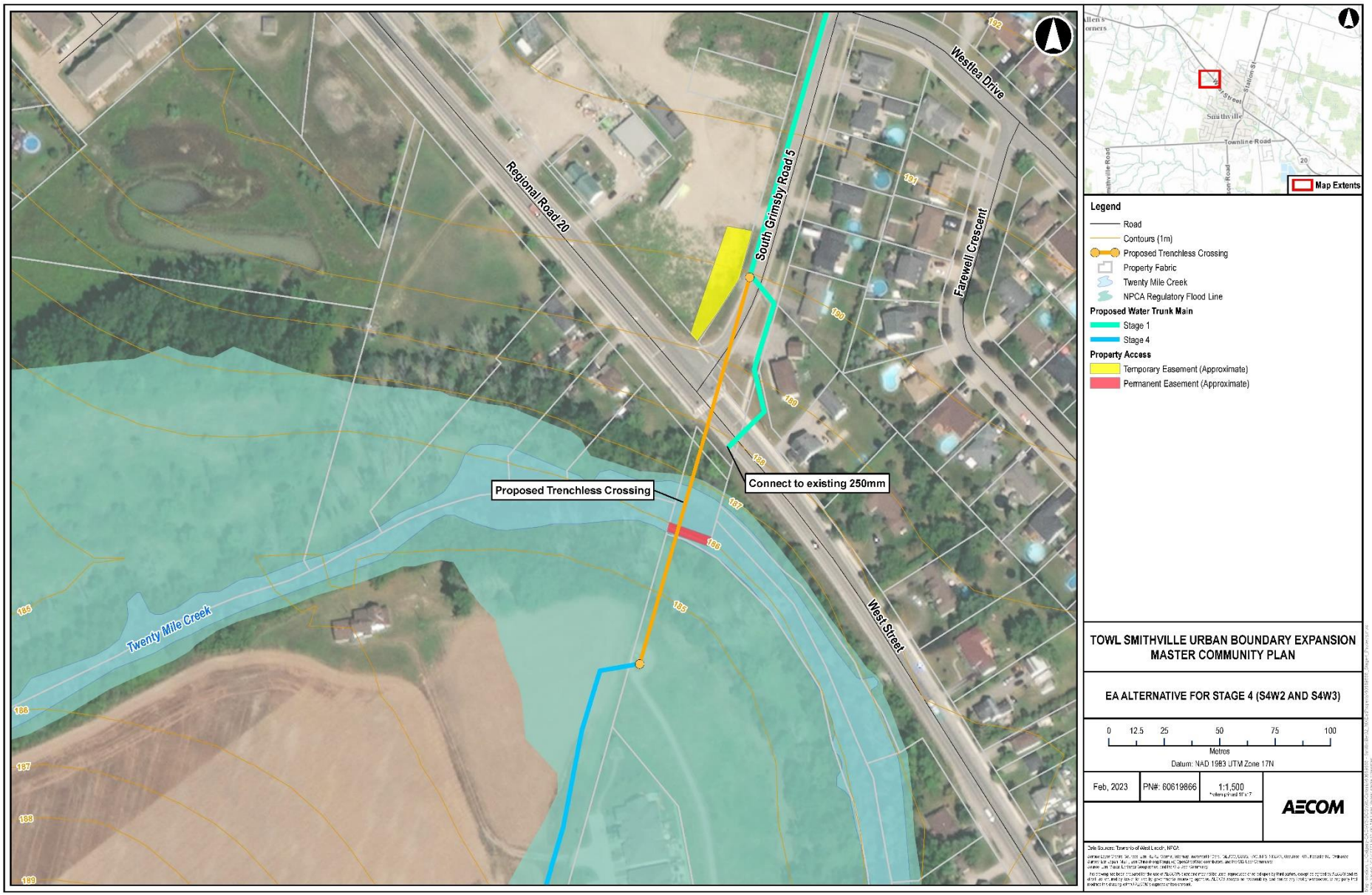


Figure ES-10: Stage 4 Property Requirements



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, co-ordinated 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 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.

Conclusions

This Municipal Class Environmental Assessment Study fulfills the requirements for Schedule B projects as outlined in the MEA 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 OPA 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.