PW-10-2023 Appendix A

Smithville Transportation Master Plan

Township of West Lincoln

ProjectReference: Smithville Master Community Plan
Project number: 60619866

March 10 2023

Delivering a better world

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.

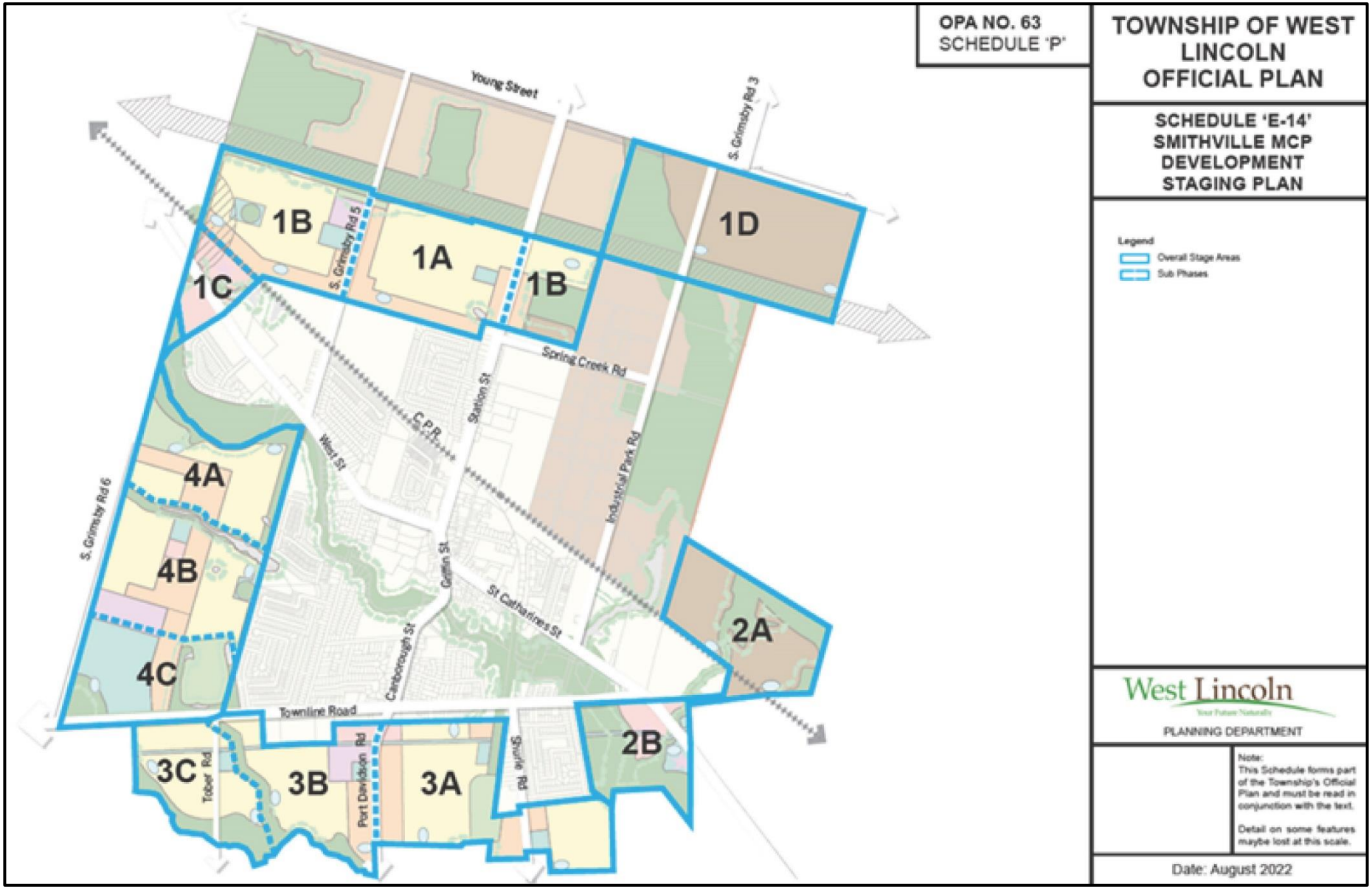
Smithville is located on a key east west corridor in the Niagara peninsula (Regional Road 20), while also being home to about six thousand people and a number of industries and businesses. Trip mode choice is currently dominated by private vehicle, although a small proportion of trips mostly within town 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

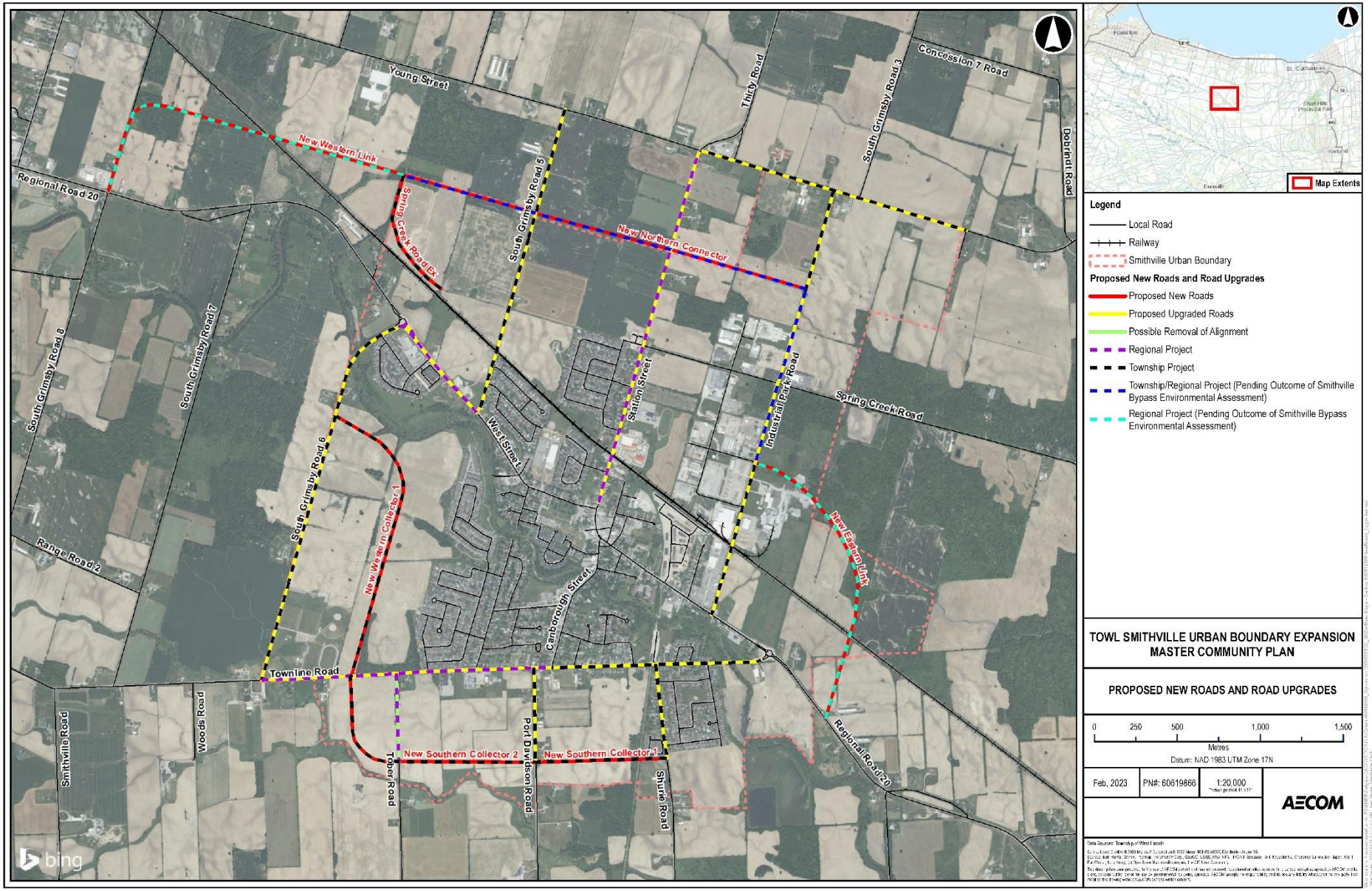


Figure ES-3: Planned Junction Improvements

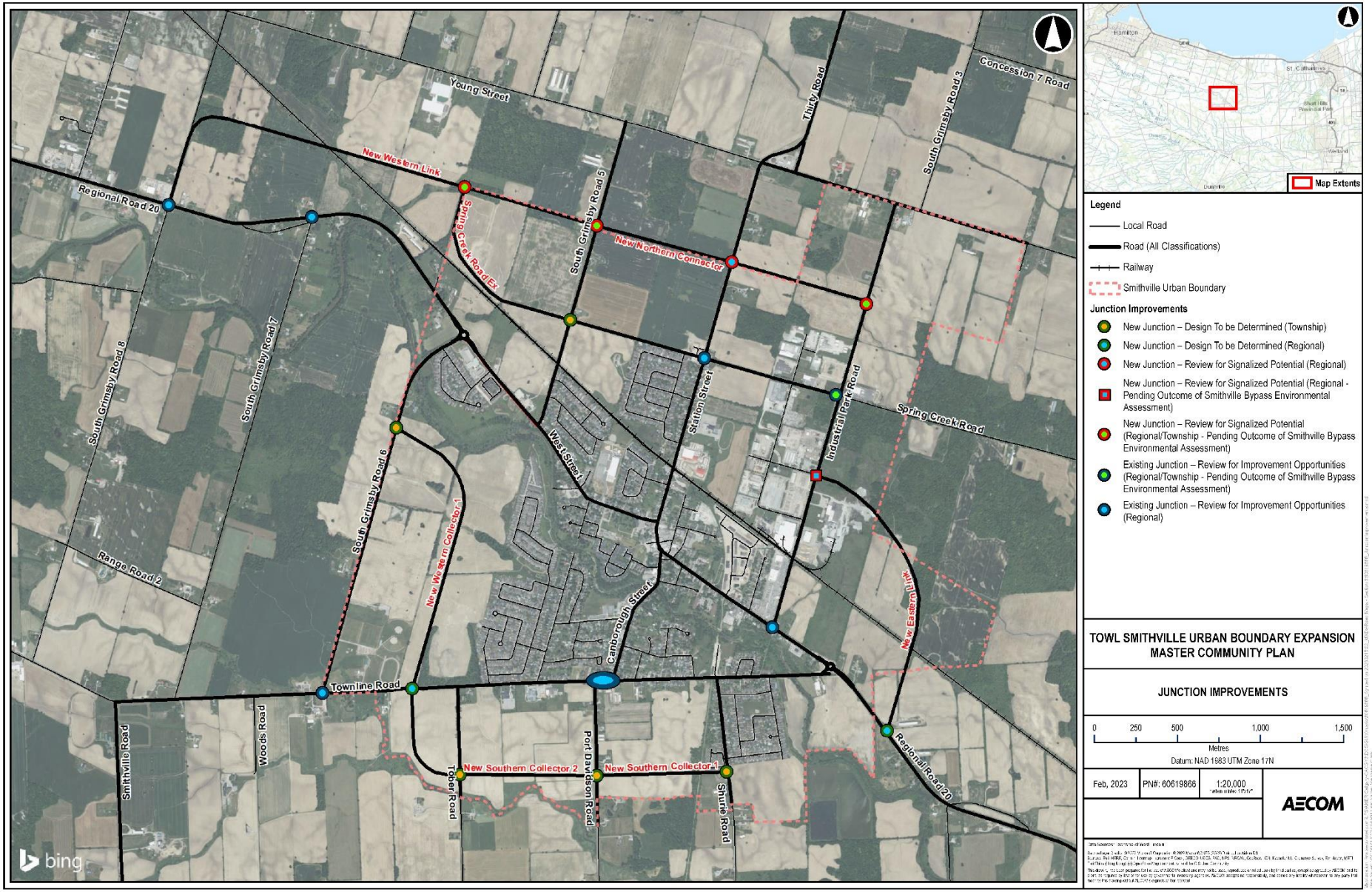
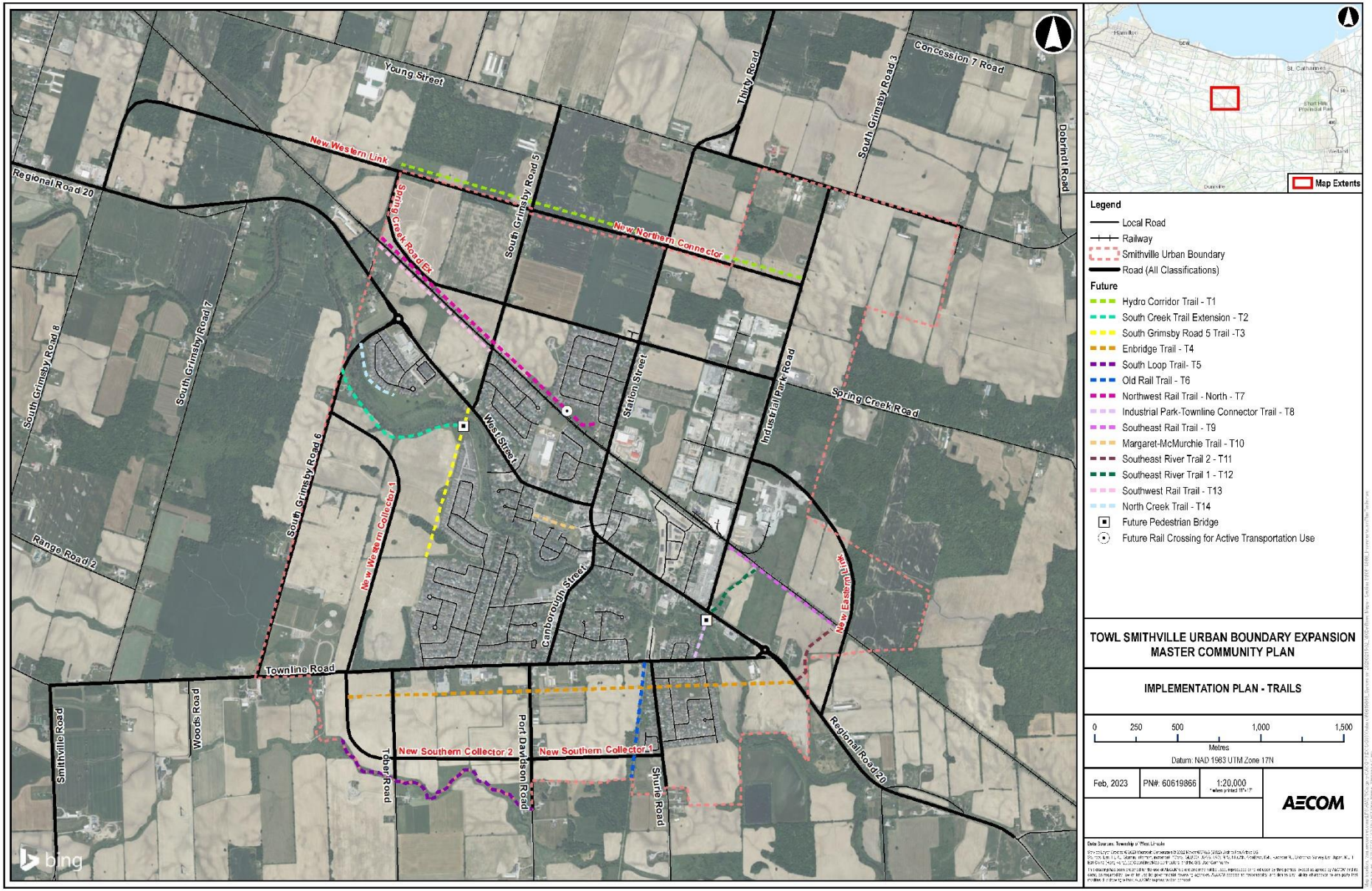


Figure ES-4: Implementation Plan – Trails



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.