AURORA CONNECTS

Active Transportation Master Plan

AURORA
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Land Acknowledgment

The Town of Aurora acknowledges that the Anishinaabe lands on which we live and work are the traditional and treaty territory of the Chippewas of Georgina Island, as well as many other Nations whose presence here continues to this day. As the closest First Nation community to Aurora, we recognize the special relationship the Chippewas have with the lands and waters of this territory. They are the water protectors and environmental stewards of these lands, and as a municipality we join them in these responsibilities.

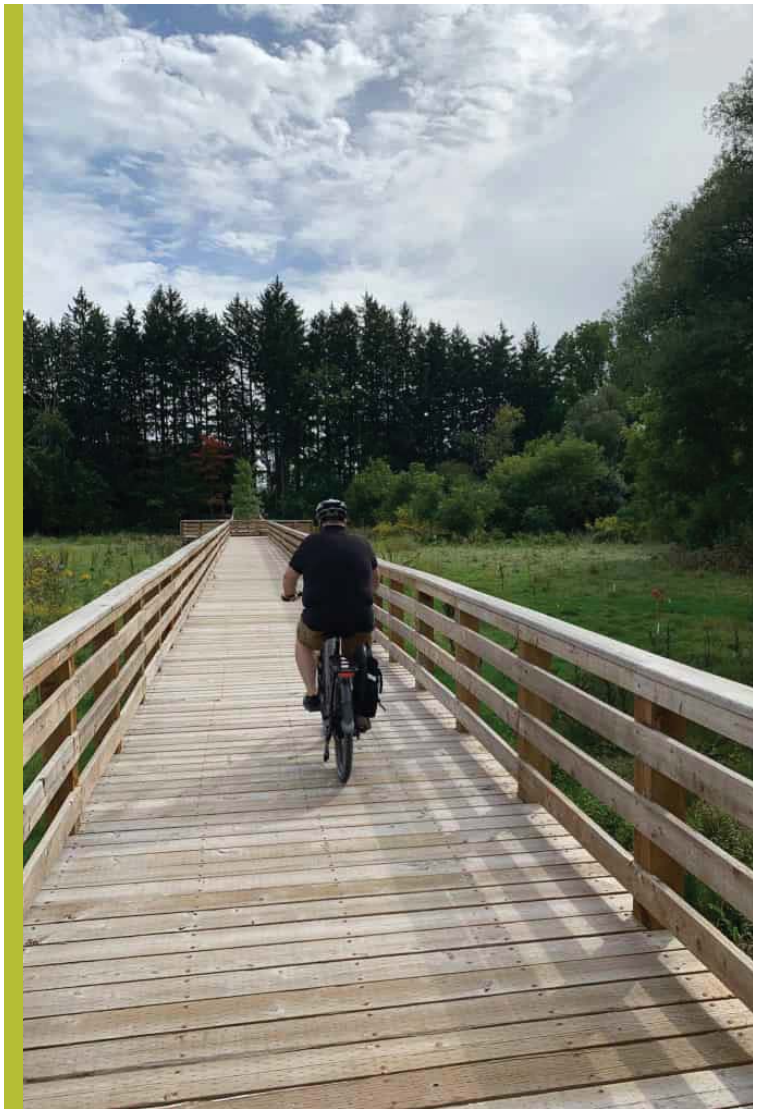
We further acknowledge that Aurora is part of the treaty lands of the Mississaugas and Chippewas, recognized through Treaty #13 as well as the Williams Treaties of 1923. A shared understanding of the rich cultural heritage that has existed for centuries, and how our collective past brought us to where we are today, will help us walk together into a better future.

Executive Summary

The Aurora Active Transportation Master Plan (ATMP) is a comprehensive blueprint for promoting and enhancing active transportation in Aurora over the next 20 years. Active transportation encompasses all human-powered forms of movement, including walking, cycling, wheelchair use, rollerblading, skateboarding, and assisted active transportation like e-bikes and electric scooters. The ATMP is a non-prescriptive roadmap, providing guidance for the community to support all forms of active transportation. It evaluates existing conditions, considers future growth, and aligns with policy objectives, strategic goals, and community needs. The ATMP was developed collaboratively with the community and its partners, ensuring alignment with best practices and garnering support for implementation.

This report includes an introduction to active transportation, the purpose and vision of the ATMP, and the study process. It delves into the Aurora context, discussing policy backgrounds, socio-economic patterns, and transportation trends. The report also reviews best practices and their impact on transportation planning, details the proposed Aurora Active Transportation Network, and suggests policies supporting the ATMP. Additionally, it focuses on education, encouragement strategies, and an implementation plan, concluding with a summary of key recommendations. Each chapter contributes significantly to the overarching goal of enhancing active transportation in Aurora.

The key findings and recommendations from the ATMP are summarized in the following sections.



ES.1 The Study Process

The ATMP study was initiated in 2021 by the Town of Aurora. WSP Canada Inc. was retained by the Town to review and update the ATMP. The Town of Aurora ATMP builds on previous municipal, regional, provincial, and federal planning documents such as the Town's 2011 Trails Master Plan and 2020 Master Transportation Study. The ATMP aims to contribute to and expand on the goals and vision previously established by the Town and other levels of government.

In the past decade, there has been an increase in support for active transportation and recreation from all levels of government. Federal, provincial, regional, and municipal governments are working together and establishing policies, research, strategies, and initiatives that provide support for investments and improvements in active transportation.

The ATMP was developed in a multi-stage approach starting with a background and existing conditions review, updates to the active transportation network, developing an implementation plan, and outlining key recommendations to grow active transportation within the town.

The approach for the study is summarized in **Figure i and is consistent with Phase 1 and 2 of the Master Planning process as identified in the Municipal Class Environmental Assessment (2023).**

Background and Technical Review	• Develop vision and objectives (Chapter 1) • Conduct Policy and Best Practices Review (Chapter 2) • Develop Engagement Strategy (Chapter 5)
Existing Conditions Review	• Conduct Socio-Economic and Travel Pattern analysis (Chapter 2) • Undertake field investigation and desktop review (Chapter 4) • Community engagement (Chapter 5)
Network Development	• Identify candidate routes and missing links (Chapter 7) • Select facility types for the network (Chapter 7) • Gather feedback on network with community and stakeholders (Chapter 5)
Implementation	• Identify policy and programming recommendations (Chapter 6, 8) • Phase and cost the recommended AT network (Chapter 9)
Reporting	• Develop ATMP Report • Develop final Council and stakeholder presentations

Figure i. Study Process

ES.2 Vision and Objectives

The policy review brought forward several key themes surrounding the vision for active transportation in Aurora. These themes were used as a foundation to build a vision statement for the ATMP. As the project progressed, the vision statements was presented and revised based on input from Town Staff, key stakeholders, and members of the public: ***Aurora's active transportation network provides safe and accessible connections to key destinations throughout the community, supporting residents to live healthy, sustainable lifestyles; and Aurora's transportation system provides safe and accessible transportation options for all users and connects people to key destinations and transit while supporting community health and sustainability.***

To support the broad vision statement, a series of more detailed Objectives have also been created based on the Town's existing policy directives, including:

Provide and Support a Variety of Transportation Options

Create a multi-modal transportation network that supports the needs of all users including those who walk, bike, roll, use transit, drive, and more.

Support Community Health

Provide transportation options that encourage residents to live healthy, active lifestyles.

Improve Connectivity

Provide connections to key destinations, communities, and transit.

Increase Sustainability

Develop a transportation network that supports sustainable modes of transportation and green infrastructure and initiatives.

Prioritize Safety and Accessibility

Ensure that all trips in Aurora, regardless of travel choice, are accessible and safe for all users.

Coordinate with Existing and Future Infrastructure Projects

Ensure the transportation network is designed to support existing infrastructure while integrating with plans for future infrastructure improvements and enhancements.

ES.3 Socio-Economic Patterns and Transportation Trends

In addition to the policy review, a data analysis of socio-economic patterns and transportation trends from the Town was conducted to develop an understanding of the current and future needs of Aurora's residents. The data from Statistics Canada and the Transportation Tomorrow Survey (TTS) underscore the importance of addressing the predominant reliance on driving, despite short commute distances, and the potential for growth in active transportation modes. Key findings from the socio-economic and transportation trend analysis of this ATMP include:

Socio-Economic Patterns and Transportation Trends

Aurora's population was just over 62,000 people according to the 2021 Census, representing a growth of approximately 12% since 2016. The Town's population is projected to reach 71,900 by 2031.

Projected population growth in Aurora is expected to be accommodated through intensification within the Built Boundary (45%) and within the Residential Designated Greenfield Area (55%).

Transportation Trends

Approximately 60% of Aurora's population commuted to work, with 22% spending under 15 minutes and 21% spending 15 to 29 minutes on their commute.

Despite the relatively short commute times, the majority of Aurora residents (87%) use driving as their main form of transportation during the week. This is followed by transit use (including GO Rail, local transit, and school buses) at 7%. Active transportation, such as walking and cycling, accounts for approximately 5% of the overall transportation mode share in Aurora.

ES.4 Community Engagement

To identify the needs and concerns of Aurora residents and stakeholders, a series of consultation and engagement activities were held to share and collect information. The Project Team conducted both in-person and virtual engagements. Information collected from these consultations was used to inform the development of the network as well as other recommendations that formed the ATMP. The feedback from the engagement activities reflects a strong community interest in enhancing active transportation infrastructure and accessibility in Aurora. This section summarizes the results of the activities and meetings.

Walking and Cycling Barriers

- Residents identified challenges in the existing network, which affect the frequent use of active transportation. These challenges include:
  - Lack of a connected cycling and trail network
  - Concerns about high speed and noise from vehicle traffic
  - Poor conditions of some existing sidewalks and trails
  - Connections to key Town destinations (e.g. GO Station)

Support for Active Transportation

- Stakeholders expressed strong support for the ATMP and its proposed network, with suggestions for improving connections, adding facilities, and prioritizing short-term builds.

Improving Accessibility

- Accessibility concerns were prevalent, emphasizing the improvement of the sidewalk network across the Town, ensuring AODA compliance, and improving access to mid-block crossings

Based on feedback from the engagement process, the Project Team made several adjustments to the proposed network, facility types, and phasing.

How Public and Stakeholder Input was Incorporated

Enhancing the On-Road Cycling and Off-Road Trail Network

- The Project Team added multi-use pathway facilities to the proposed network and added all ages and abilities bicycle paths to improve the comfort of those using active travel to access recreation opportunities.

Future Active Transportation Expansion

- The Project Team added desire lines on the trail network onto the network map to reflect long-term potential future trail corridors that are currently on private property but which the Town would like to secure, if the opportunity presents itself.
- The Project Team also added a multi-use path along Yonge Street onto the network map for implementation in the long-term to reflect stakeholder desires to improve safe north-south connections along the corridor.

ES.5 Aurora's Active Transportation Network

A key task of the ATMP was to develop a proposed active transportation network for Aurora that it was designed with an equitable lens to ensure that underserved communities will have optimal access to the network. Along with equity and connectivity considerations, the proposed network is intended to be universally accessible to people of all ages and abilities.

The process began with a review of existing conditions and routes that have been proposed in past planning documents. An inventory and review of the existing routes and facilities was conducted using a desktop approach, with a review of digital spatial data, reviews of approved planning documents, reviews with Town staff, and select field visits. The Town's pedestrian network includes over 280 km of pedestrian facilities, 201 km of which as sidewalks, the remaining are multi-use paths and trails. The Town's existing cycling network comprises of 98 km of cycling facilities of various facility types including bike lanes, trails, signed routes, and Regional facilities

The network development process is a combination of technical assessments and consultation with stakeholders, Town staff, and public members. The process in developing the Town's active transportation network is consistent with the new Ontario Traffic Manual Book 18: Cycling Facilities (2021).

ES.6 Existing Conditions

An inventory and review of the existing routes and facilities was conducted using a desktop approach, with a review of digital spatial data, reviews of approved planning documents, reviews with Town staff, and select field visits. The Town of Aurora's existing sidewalk network, trail and multi-use path network, and cycling network are illustrated in **Figure ii**, **Figure iii, and Figure iv** respectively. The Note that existing trails include trails that have been designed, funded, and scheduled to be implemented in 2024.

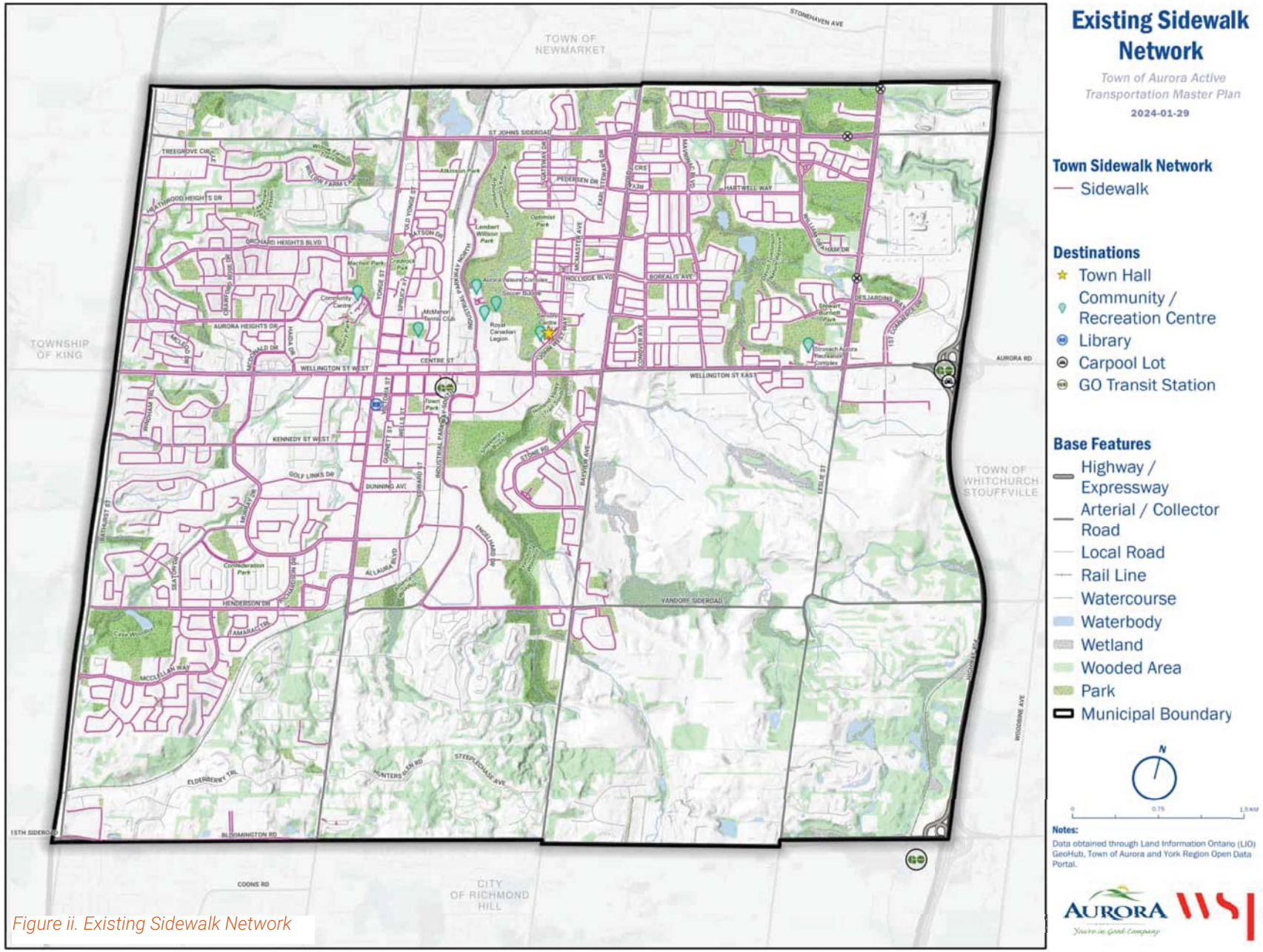


Figure ii. Existing Sidewalk Network

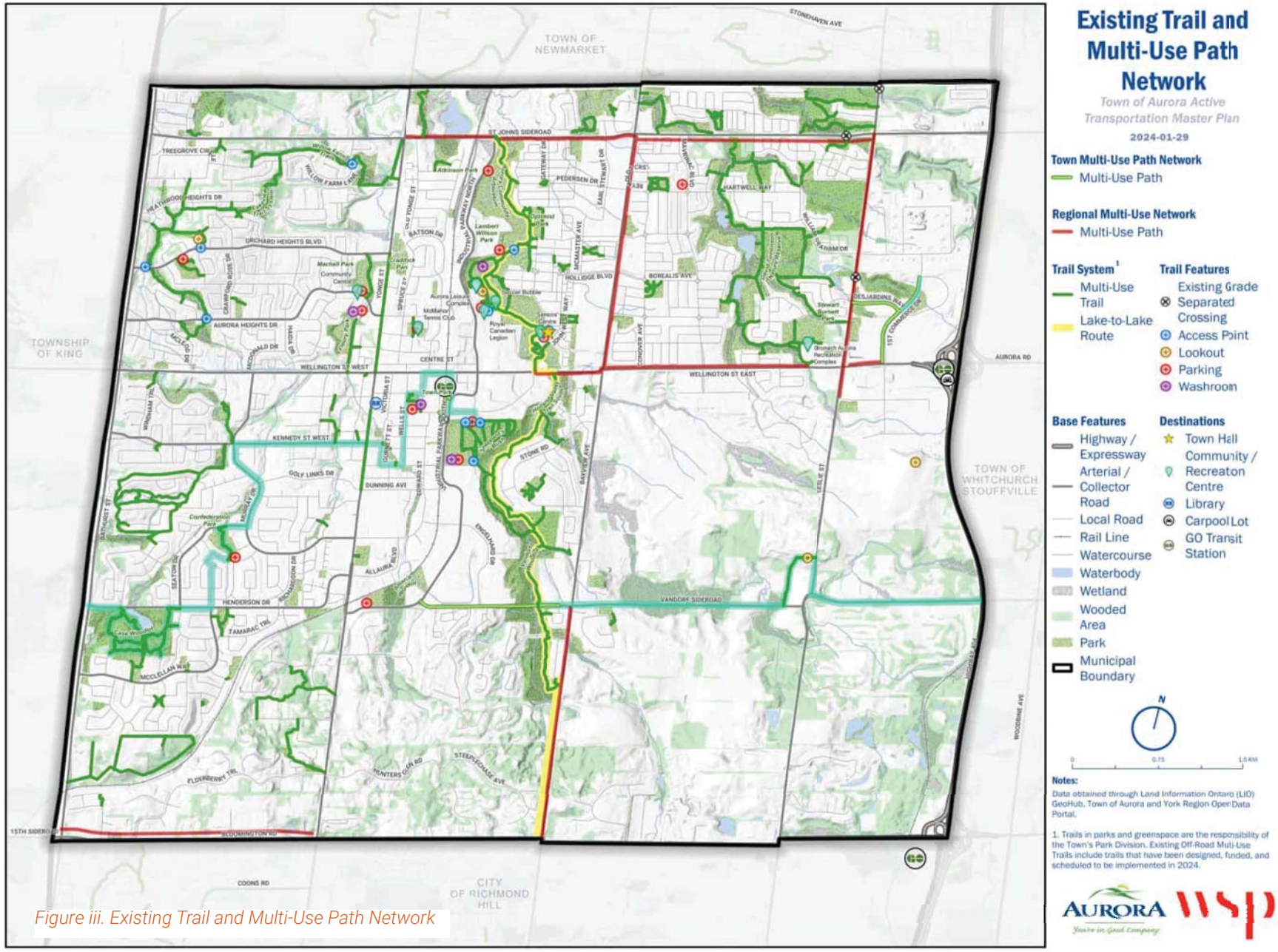


Figure iii. Existing Trail and Multi-Use Path Network

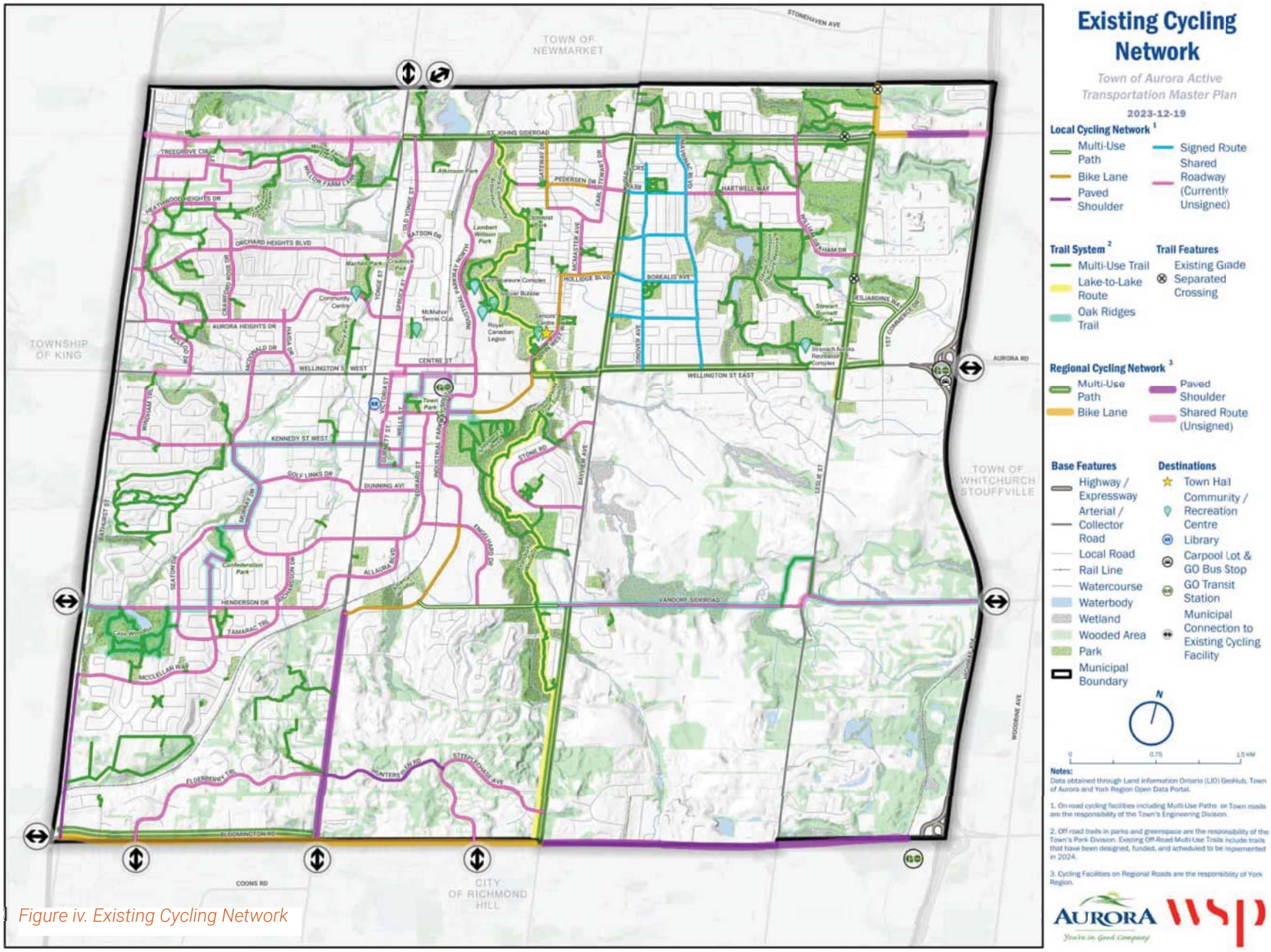


Figure iv. Existing Cycling Network

ES.7 Proposed Network

In total, the Town of Aurora's recommended active transportation and trails network is made up of almost 490 km of routes. Approximately 300 km is existing and this ATMP proposes about 190 km of new routes. A summary of the network by facility type is provided in **Table i**.

The Town's 2020 Master Transportation Study (MTS) included a Sidewalk Priority Plan that identified and prioritized the construction of new sidewalks in the Town. The Project Team reviewed the methodology and approach used in MTS and confirmed that the Town has been updating the Sidewalk Gap Analysis based on the priorities agreed upon in the MTS. The table from the 2020 Sidewalk Gap Evaluation and the latest 2024 Sidewalk Gap map are included in **Appendix B** of this report. The proposed sidewalk network is illustrated in **Figure v**.

This network is intended to be a blueprint for implementation of facility facilities and for decision making as it regards to active transportation and trails. **Figure vi** and **Figure vii** show the ultimate recommended trail and multi-use path and cycling networks, respectively.

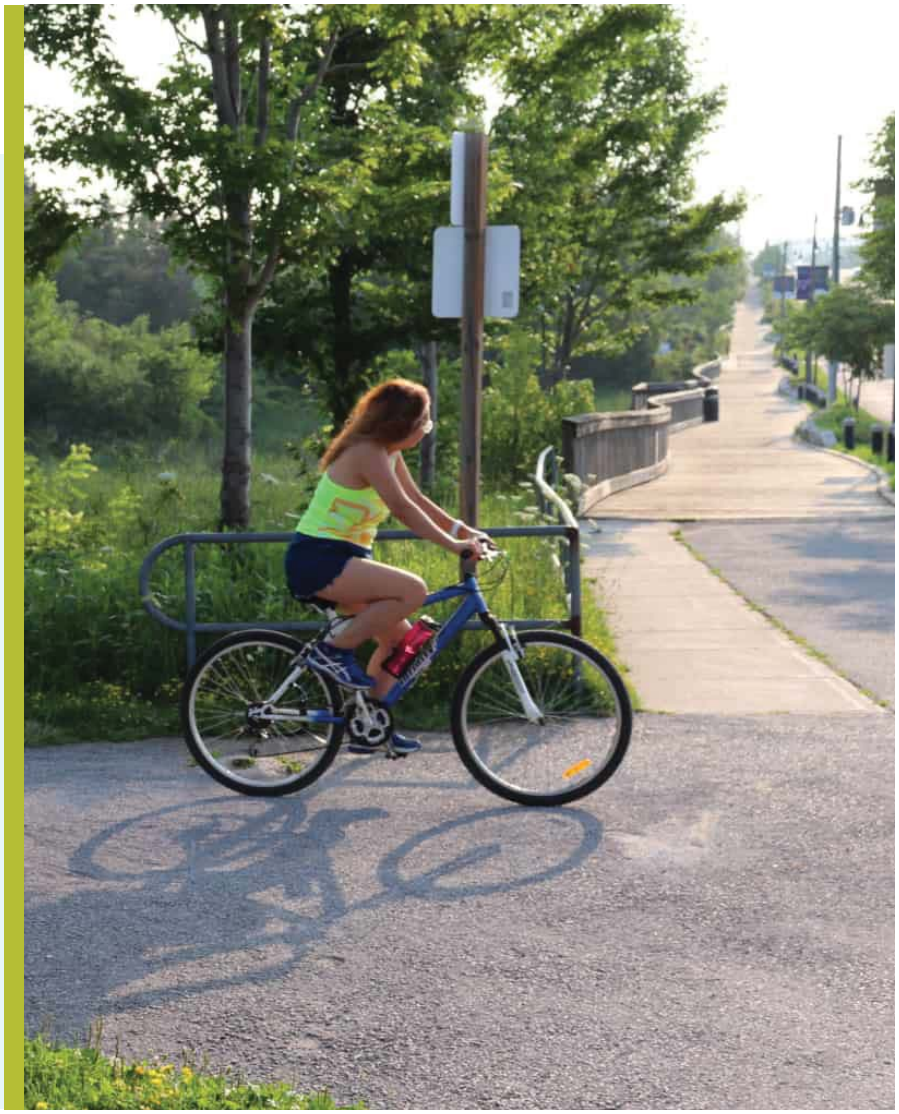


Table i. Proposed Network Facilities by Type

Facility Type	Existing Length (km)	Proposed Length (km)	Total Length (km)
Bike Lane[1]	3.6	29.4	33
Signed Route	6.4	31.5	37.9
Paved Shoulder	2.6	3.6	6.2
Multi-Use Path[2]	18.3	9.7	28.0
Separated Bike Lane[3]	0	7.5	7.5
Multi-Use Trail	61	35.5	96.5
Desire Line[4]	0	24.6	24.6
Sidewalk	201.2	33.1	234.3
Regional On-Road Cycling Facility or MUP	5.1	15.8	20.9
Total	**298.2**	**190.7**	**488.9**

Notes:

1. Bike lanes may be implemented in the interim as urban shoulders forming part of a signed cycling route.
2. This includes existing Multi-Use Paths on Regional Roads which are operated and maintained by the Town.
3. The Town may select as an interim solution to implement buffered bike lanes but the ultimate facility type is recommended to be physically separated in the long term.
4. Desire lines are intended to identify potential future trail corridors that are currently on private property but which the Town would like to secure, if the opportunity presents itself if or when these lands become available or are redeveloped in the future. As such, distances identified are approximate and subject to changes. The actual location and distances will be determined from the development reviewing process.

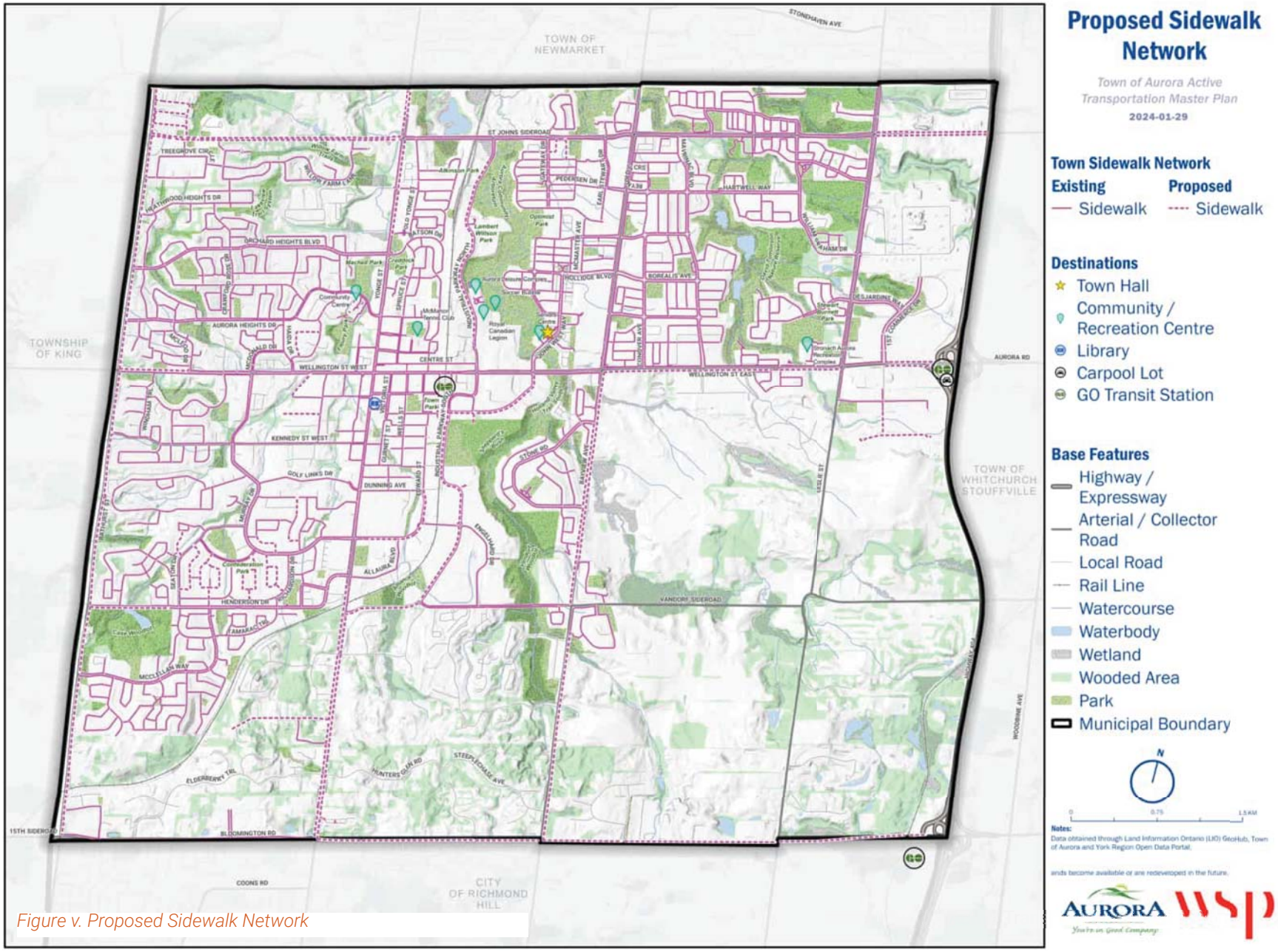


Figure v. Proposed Sidewalk Network

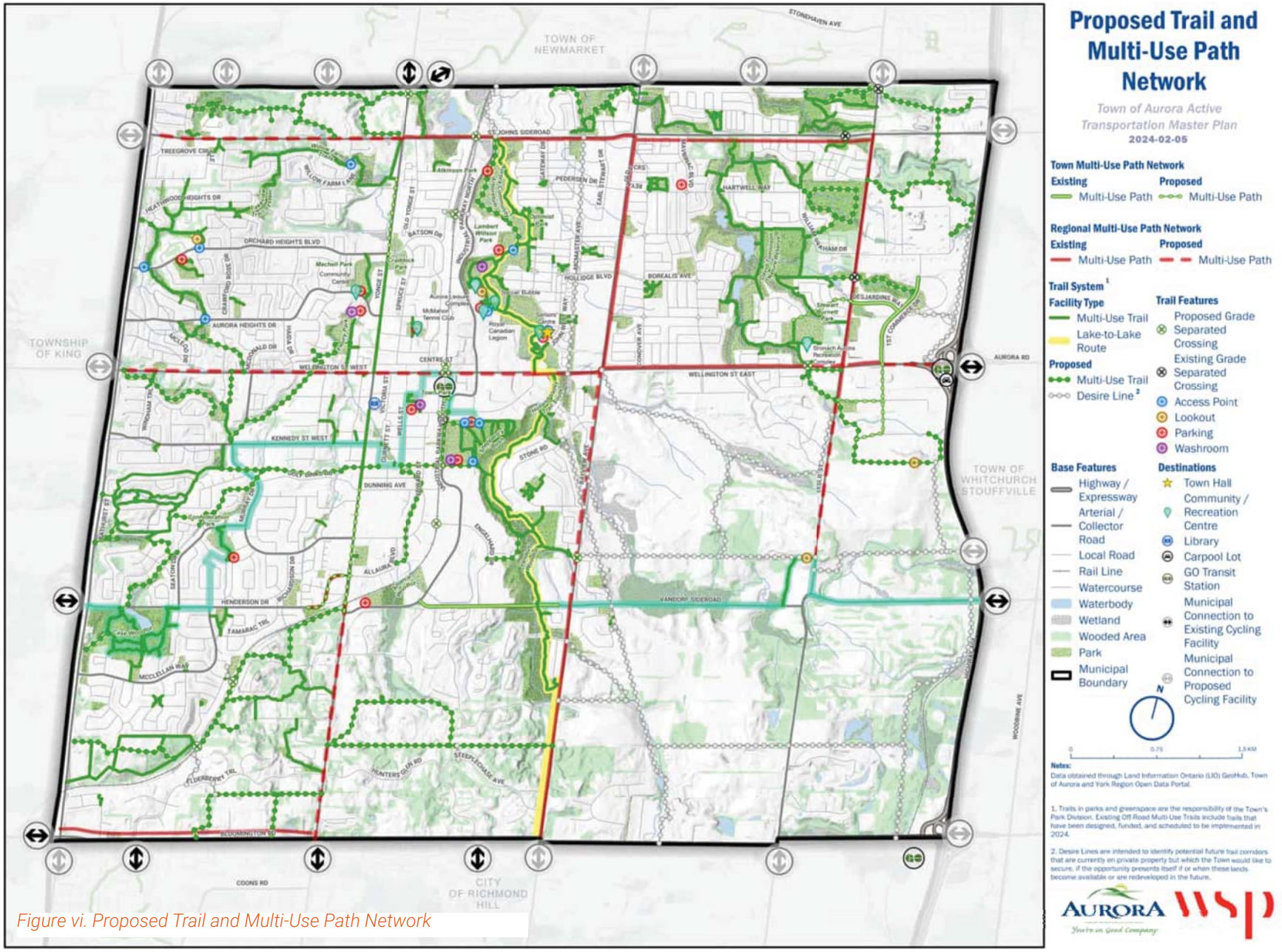


Figure vi. Proposed Trail and Multi-Use Path Network

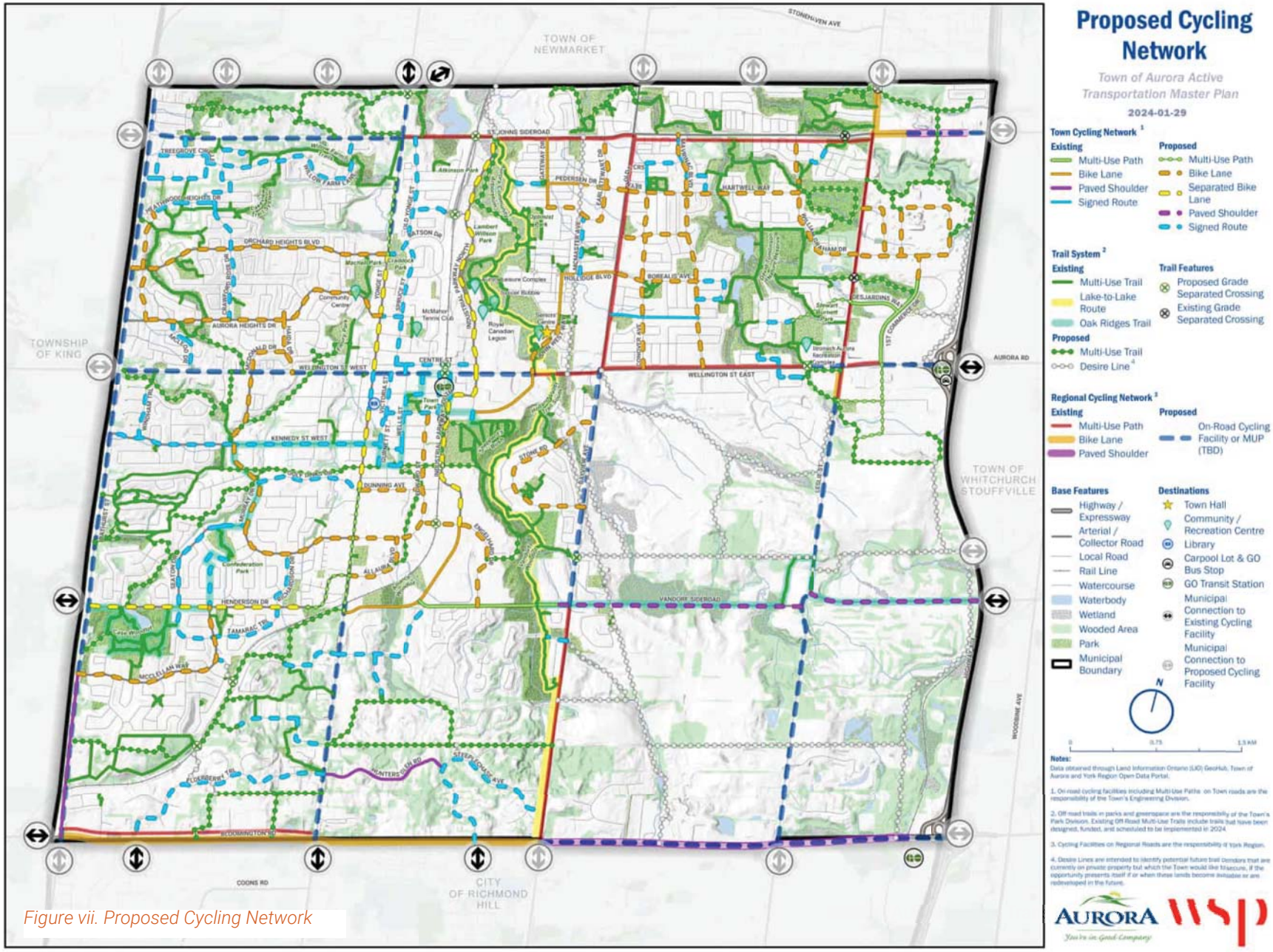


Figure vii. Proposed Cycling Network

ES.8 Education and Encouragement

The ATMP also identifies key programming partners and proposes programs to educate and encourage the community to select active modes to get around Aurora. The ATMP outlines an implementation plan that scales up the level of effort and investment as the active transportation community continues to grow in Aurora, providing programs that will reach new audiences and grow active transportation for years to come.

The ATMP outlines three phases of programming and recommended programs within each phase. It starts with Phase 1 for foundational initiatives, which leads to Phase 2 with basic programming, and gradually moves to Phase 3 with more advanced programming. Each programming phase is intended to increase participation in active transportation and facilitate a cultural shift towards more sustainable and healthy modes of travel.

ES.9 Implementation

To create a culture of walking, cycling, and micro-mobility use in the Town of Aurora, financial investment and other resources need to be strategically allocated. The ATMP outlines phasing and maintenance strategies that are intended to guide decision-making on active transportation policy and planning processes while being flexible enough to adapt to changes in active transportation trends or other opportunities that may arise over the years as the network is being implemented. As active transportation projects are implemented in the short-term horizon, they will build momentum and encourage medium and long-term efforts to build the Town's ultimate network.

Network Phasing and Cost

The phasing strategy for the active transportation network in Aurora is designed to be efficient, effective, and responsive to community needs. It is based on a comprehensive approach including input from various stakeholders and best practices. **Table ii** summarizes the high-level phasing strategy applied to the proposed AT network. **Figure viii** and **Figure ix** show the proposed phasing for the trail and multi-use path network and cycling networks, respectively. Phasing for sidewalks are based on the prioritization for sidewalks gaps outlined in the Town's MTS, sidewalk gaps identified as medium or high priority were included in the short-term phase whereas low priority sidewalk gaps are included in the long-term phase. The table from the MTS Sidewalk Gap Evaluation with prioritization and the latest 2024 Sidewalk Gap map are included in **Appendix B** of this report.

Table ii. Phasing Strategy

Short-Term 0 to 10 Years	Long-Term 11 to 20 Years and Beyond
• Low investment "quick wins" such as road diets, adding signed bike routes, conventional or buffered bike lanes, or physically separated facilities along roadways • Complete key gaps in the trails and on-road networks to support network connectivity and continuity • Sidewalks that were identified as Medium and High Priority in the Master Transportation Study Sidewalk Gap Analysis • Segments that form part of previously proposed capital/road resurfacing projects by the Town, Region, or Metrolinx	• Routes that require additional investigation such as an environmental assessment or design feasibility studies before they can be implemented • Segments that are recommended to be implemented as part of a longer-term Town, Region, or Metrolinx/Provincial capital project • Sidewalks that were identified as Low Priority in the Master Transportation Study Sidewalk Gap Analysis • Segments that should be implemented when a roadway undergoes full reconstruction in the future (i.e., not anticipated within the next 10 years)

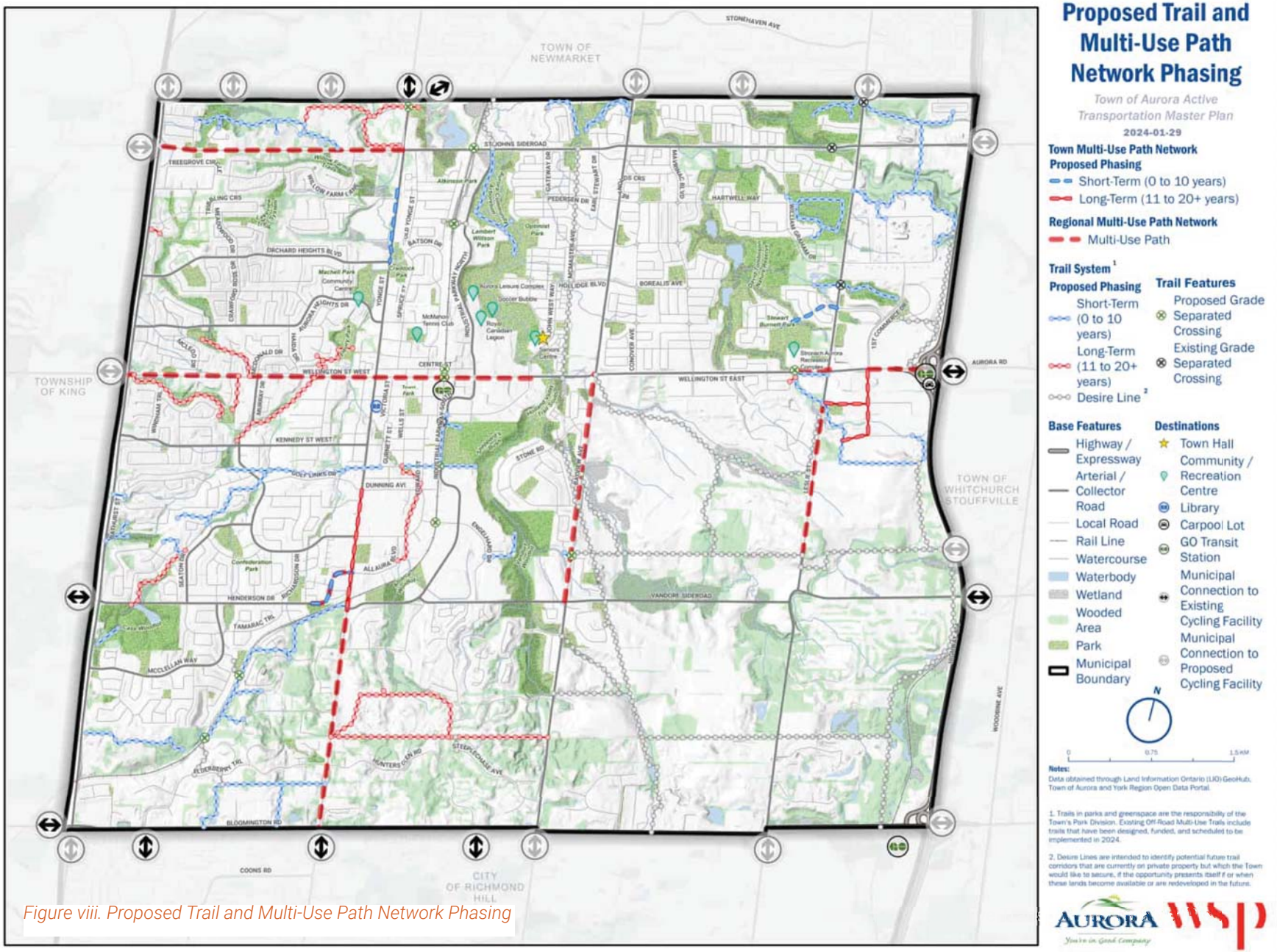


Figure viii. Proposed Trail and Multi-Use Path Network Phasing

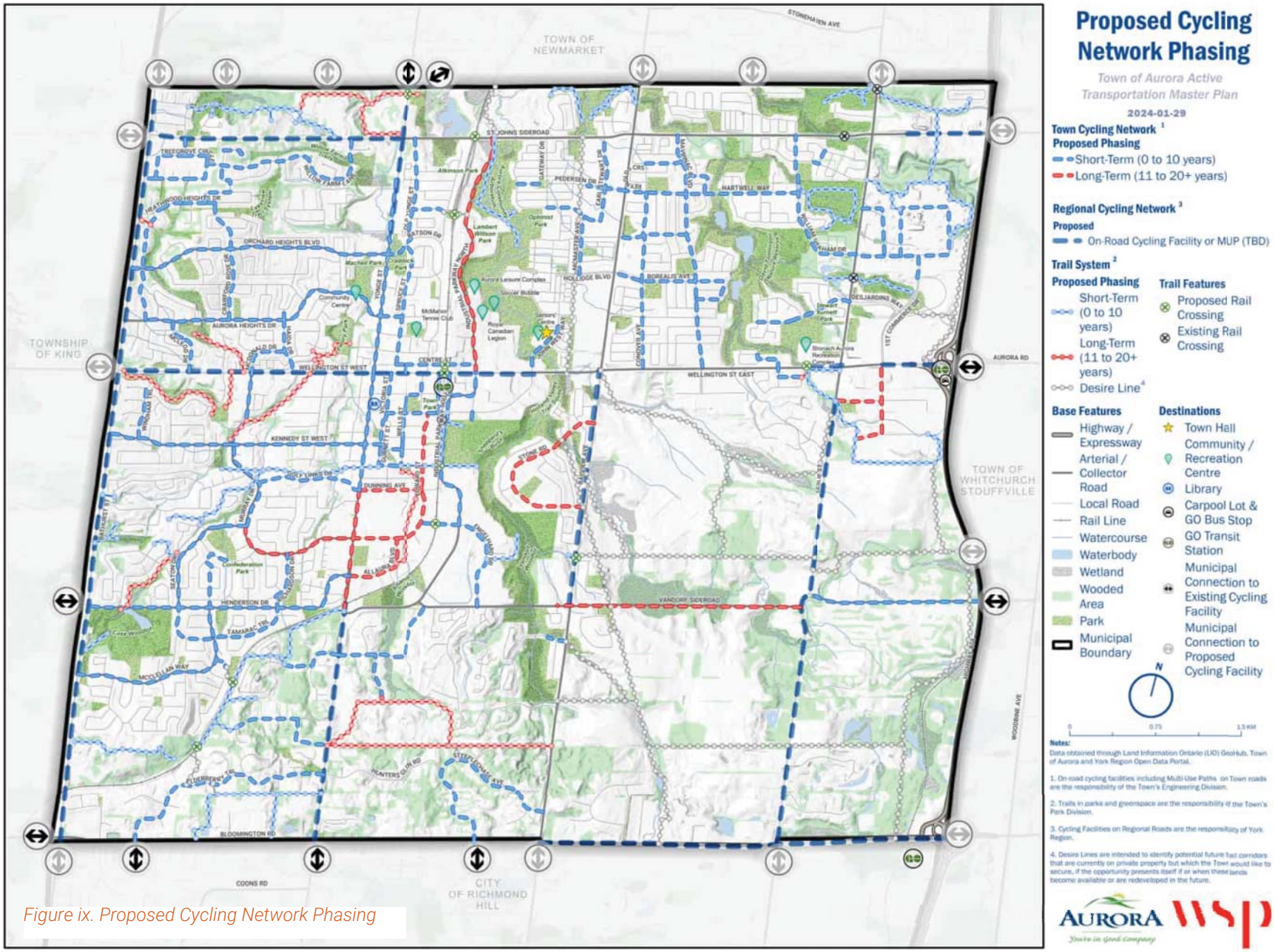


Figure ix. Proposed Cycling Network Phasing

Priority Projects

Seven priority projects identified in the short-term phasing plan have been identified with input from Town Staff as top priority projects. It is recommended that detailed planning and design for top priority projects proceed on an expedited basis, with implementation occurring within the first half of the 10-year period over which the short-term projects are to be implemented. The top priority projects recommended as part of this plan are summarized in the following illustrations.

Off-Road Trails

Addison Hall Trail
1.56 km

Shining Hill Development Trails
1.26 km

Sidewalks and Multi-Use Paths*

Yonge Street Multi-Use Path
2.03 km

Edward Street Sidewalk
0.50 km

* Projects included in the 2024 capital budget.

On-Road Cycling Facilities

Earl Stewart Drive Bike Lanes
1.22 km

Edward Street Bike Lanes
1.86 km

Murray Drive Bike Lanes
1.68 km

A high-level cost to implement the updated active transportation and trails network was developed based on 2023 unit costs to help inform future capital budgets and decision making. The unit costs used are based on best practices and recent tenders and projects of similar scope in Ontario and are not intended to be prescriptive.

Table iii provides the summary of costs by facility type and phase. On-road cycling facilities, off-road trails, and Regional facilities are split in the costing table to clearly divide responsibilities between the Town's Engineering Division, Park Division, and York Region respectively. Details on the unit pricing and a breakdown of the cost per route are provided in **Appendix A**.

Overall, the estimated cost to implement the proposed active transportation and trails network is approximately $56 million over the next 20+ years. Proposed grade separations have not been costed as further study is required to confirm feasibility and cost and this has been recommended as a future study by the Town and its partners (e.g. York Region and Metrolinx).

Table iii: Cost Summary of Proposed On-Road and Off-Road Cycling and Trails Network by Facility Type and Phase (Includes Contingency and Design)

	Short Term (0 to 10 Years)		Long Term (11 to 20 + Years)		Total	
Facility Type	**Length (km)**	**Cost**	**Length (km)**	**Cost**	**Length (km)**	**Cost**
Local On-Road Cycling Facility						
Bike Lane	23.7	$996,065	5.7	$238,143	29.4	$1,234,208
Signed Route	31.5	$54,821	0.0	$0	31.5	$54,821
Paved Shoulder[1]	1.5	$429,576	2.1	$616,225	3.6	$1,045,801
Multi-Use Path	7.4	$4,041,205	2.3	$1,246,673	9.7	$5,287,877
Separated Bike Lane[2]	5.3	$3,821,417	2.2	$1,583,735	7.5	$5,405,152
Subtotal	**69.4**	**$9,343,085**	**12.3**	**$3,684,776**	**81.6**	**$13,027,861**
Sidewalks						
Sidewalk (see **Appendix B** for locations of sidewalk gaps)	9.1	$6,583,065	24.1	$17,442,420	33.1	$24,025,485
Subtotal	**9.1**	**$6,583,065**	**24.1**	**$17,442,420**	**33.1**	**$24,025,485**
Local Off-Road Trail Network						
Multi-Use Trail	24.4	$13,281,659	11.1	$6,031,133	35.5	$19,312,792
Desire Lines					24.6	
Subtotal	**24.4**	**$13,281,659**	**11.1**	**$6,031,133**	**60.1**	**$19,312,792**
Town Subtotal	**102.9**	**$29,207,809**	**47.4**	**$27,158,329**	**174.9**	**$56,366,138**
York Region[3]						
On-Road Cycling Facility or MUP	N/A	N/A	N/A	N/A	15.7	N/A
Town + Region Total	**102.9**	**$29,207,809**	**47.4**	**$27,158,329**	**190.7**	**$56,366,138**

Notes:

1. Paved shoulder unit costs assume that the roadway is already being widened. Costs for widening the roadway platform are not included.
2. Per KM unit costs for separated bike lanes can range from $165,000 - $500,000 depending if road widening is required. For this exercise, $500,000 per km is assumed. Detailed design will confirm or modify the proposed facility type (e.g. separated bike lane could become a multi-use path or cycle track instead).
3. Funding responsibility for cycling facilities on York Region roads are the responsibility of York Region, cost of multi-use paths (MUPs) will be a local cost or cost-shared with the Region. For this exercise, 5.7 km of MUP on regional roads (Yonge St. from Bloomington Rd. to the CN rail corridor and Wellington St. from Bathurst St. to John West Way) are included in the local-on road short-term costing.
4. The cost of grade separations identified are not included and require a more detailed feasibility study /class EA to identify cost estimates.
5. Maintenance costs are dependent on the type and timing of infrastructure implementation and would be in addition to the costs in this table.

Supporting Elements

Beyond the cost of implementing the recommended active transportation and multi-use trail network, the following summarizes additional cost considerations to support the development of an active transportation system for the Town.

Education and Encouragement

$10,000 / Year

Amenities (e.g. Bike Racks)

$10,000 / Year

Class EA/Preliminary Design and Feasibility Studies for the Select Grade Separations

$500,000-750,000*

**Cost will depend on how many grade separation locations are included in the study and whether the project is a Class EA or design feasibility study only.*

Roles and Responsibilities

Cycling facilities recommended for implementation as part of the ATMP will be owned, operated, and maintained either by the Town of Aurora or York Region.

York Region

- Facilities located on the roadway of a Regional Road—such as cycle tracks and bike lanes—will be owned and operated by the Region.

Town of Aurora

- In-boulevard multi-use paths on Regional Roads will be operated and maintained by the Town.
- All facilities situated in the right-of-way of a local roads will be owned and operated by the Town.
- On-road local cycling facilities will be constructed by the Town's Engineering and Capital Delivery Division whereas off-road trails in parks and greenspace are the responsibility of the Town's Parks Division.

Master Plan Cost Estimate

Table iv combines the costs of the proposed network and supporting elements to provide a high-level cost estimate for the overall ATMP.

Table iv: Overall ATMP Cost Estimate

	Short Term (0 to 10 Years)	Long Term (11 to 20 + Years)	Total
Active Transportation Network	$29,207,809	$27,158,329	**$56,366,138**
Supporting Elements	$950,000	$200,000	**$1,150,000**
Total	**$30,157,809**	**$27,358,329**	**$57,516,138**

ES.10 Summary of Recommendations

The ATMP includes a set of recommendations which form the foundation for the Town's next steps. These recommendations were created with the support of Town Staff, the Active Transportation and Traffic Safety Advisory Committee, and Aurora residents, and are consistent with the Town's 2023 Official Plan. They are intended to act as action statements to guide supportive planning, design, implementation and operations of active transportation in Aurora.

The following is a summary of the recommendations contained in the ATMP:

Policy Recommendations (Chapter 6)

1	Adopt the 20 year cycling and pedestrian network implementation plan as identified in the ATMP and include it as a schedule in the Town's Official Plan when updated and in future updates to the Master Transportation Study. A Master Plan should be reviewed every five years to determine the need for a detailed formal review and / or updating.
2	The ATMP should be reviewed and given consideration when municipal roads, trails, and other capital infrastructure projects are identified and scheduled during the development application process. Coordinating implementation with other capital infrastructure projects will be essential to efficiently implementing the proposed cycling and pedestrian networks.
3	Work to encourage active transportation friendly streetscaping, urban design, and active transportation-oriented land development in collaboration with local area municipalities through planning and design studies and development reviews.
4	Explore land use planning initiatives and policy development such as mixed land use, higher density urban areas, and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and livability within the communities of the Town of Aurora.

Policy Recommendations (Chapter 6)

5	Recognize that implementation of the ATMP requires coordination and consistent funding from the Town and York Region. The Town of Aurora should leverage existing partnerships between different jurisdictions to build cost sharing commitments for certain sections of the network.
6	The Town should identify and support local champions and cycling advocates to help grow a culture of active transportation throughout the community. Supporting local champions should be catered towards educating and encouraging school-aged children, seniors, and workers to use active transportation for short trips, commutes, and recreation.
7	Focus greater priority on the implementation of cycling facilities between high density areas, transit stations, and schools to improve connectivity and to increase the number of people using cycling facilities. The prioritization of active transportation routes and facilities in dense areas is intended to enhance the viability for residents to engage in daily travel by bike to increase the cycling mode share in the Town of Aurora.
8	When the Town next updates their Master Transportation Study as it relates to the integration of pedestrian and cycling facilities, it should be in alignment with Ontario Traffic Manual Book 18 (2021) guidelines.
9	The implementation of cycling and pedestrian infrastructure, including on and off-road routes, should be included as part of development proposals and the park development process for new development areas.
10	Work with business improvement areas, York Region Transit, and Metrolinx to provide safe and secure bicycle parking at key destinations and transportation hubs.
11	Prioritize safe cycling and walking connections between existing GO Transit stations to improve first-/last-mile connections between Regional transportation and local residential and commercial areas.
12	Produce an annual staff report to Council that identifies progress in implementing the ATMP, including projects completed, projects planned and budgeted for the next year or two, and highlight a few key performance indicators (KPI) such as number of kilometres of new trails, multi-use paths, on-road cycling facilities, and sidewalks relative to the total distance proposed in the ATMP for each facility type.

Education and Encouragement Recommendations (Chapter 8)

1

To build a culture of active transportation within the Town of Aurora, the Town should support the uptake of social infrastructure programs in three areas:

- Connecting with Children and Educators
- Making Cycling Visible
- Supporting Champions

2

The following programming partners were identified with respective roles and responsibilities for the Town to strengthen partnerships with to enable the design and delivery of programs that address specific community needs:

- Accessibility Advisory Committee
- Parks and Recreation Advisory Committee
- York District School Board & York Region Catholic District School Board
- Aurora Cycling Clubs – B1 EVO Cycling Club & BikeSports Cycling Club
- York Region Police – Road Safety Bureau
- Downtown Aurora Business Improvement Association (BIA)
- Local Businesses
- Active Transportation and Traffic Safety Advisory Committee

3

Programming is recommended to be implemented with the following phasing to help prioritize investments and scale up effort as the active transportation community continues to grow in the Town of Aurora:

- **Phase 1: Foundation** is likely to generate the greatest participation that ought to be adopted first to establish a foundation upon which further involvement within active transportation can grow. Recommended programming include “Routine Community Slow Roll Events” and “Initiate an Active School Travel Program” for schools in the Town of Aurora. Also, it is strongly recommended that the Town establish an Active Transportation Coordinator position to be scaled up over time.
- **Phase 2: Basic Programming** maintains the momentum of foundational programming and increasing active transportation involvement and begins the process of facilitating a deeper cultural shift. Recommended programming includes “Bike-to-Work Day”.
- **Phase 3: Advanced Programming** tailors to a wider range of potential active transportation audiences and help establish a more mature culture of active transportation. Recommended programming includes “Bike Share Program”.

Phasing and Costing Recommendations (Chapter 9)

1	The Town should implement the AT network based on the recommended phasing strategy in two time frames: • **Short-Term (0 to 10 years)**: This includes low investment "quick wins", completing key gaps in the network, and segments that form part of previously proposed capital/road resurfacing projects. Top priority projects were identified to be expedited within the first half of the short-term time frame. • **Long-Term (11 to 20 years and beyond)**: This includes routes that require additional investigation, segments that are recommended to be implemented as part of a longer-term capital project, and segments that should be implemented when a roadway undergoes full reconstruction.
2	The Town should undertake a Town-Wide Pedestrian Crossing Treatment Study in partnership with York Region to improve to the frequency of pedestrian crossing of major barriers, including consideration of mid-block pedestrian crossings to improve access to trail access points and to improve overall walkability in the Town for all ages. The study should include an update to the Sidewalk Gap Analysis from the MTS.
3	The Town should consider and budget for supporting elements of an active transportation system, which include education and encouragement and amenities.
4	Should the Town want to further investigate grade separations proposed in the Trails Master Plan and the ATMP, it is recommended that a feasibility study be undertaken as a first step. Further studies may be needed depending on the outcome.

Maintenance Recommendations (Chapter 9)

1	Additional equipment and resources may be needed to accommodate additional active transportation infrastructure and will need to be considered and planned.
2	The Town should review its annual maintenance budgets to accommodate the addition of new active transportation infrastructure.
3	The Town should review and consider developing a standardized method of reporting, documenting, and addressing concerns related to active transportation maintenance and operation. The Town should utilize existing online and manual reporting mechanisms for active transportation maintenance requests.

A healthy, accessible and complete community is designed for residents of all backgrounds, abilities and stages of life to lead fulfilled lives.

This vision for Aurora includes providing an array of jobs and investment opportunities, a full range of community services and amenities, opportunities for active and public transportation, and a broad mix of building and housing types, including attainable and affordable housing options. This vision also includes providing access to a well-connected natural heritage system, places to meet and build social connections, and encourage active and healthy lifestyle choices, while ensuring accessibility to all residents.

- Official Plan 2023, Town of Aurora

Chapter 1

Introduction

1.1 What is Active Transportation?

Active Transportation and active recreation encompass all forms of movement that are primarily human-powered. This can include walking, cycling, using a wheelchair or other mobility-support device as well as a roller blading, skateboarding and more. For the purposes of this Active Transportation Master Plan (ATMP), assisted active transportation is also considered, in particular assisted wheelchairs, the growing popularity of e-bikes, as well as new mobility devices such as kick-style electric scooters.

1.2 What is the Active Transportation Master Plan?

An ATMP lays out a vision for how a community can better support all forms of active transportation. The ATMP evaluates existing conditions, considers future growth, and creates recommendations that align with the policy objectives, strategic goals and community needs within a municipality. It serves as a long-term guiding document that will provide the Town and its partners with the tools needed to grow both the physical and social infrastructure necessary to support active transportation.

An ATMP is not prescriptive, nor does it bind a community to take every action identified within it. An ATMP is a road map – it provides one set of directions on how a community can get to its ultimate destination. A community can choose to follow those directions, take a slightly different path than identified or even decide that the destination outlined in the Plan isn't where they want to go in the future – those decisions are left to the community as they determine how best to implement the Plan. When a Plan is developed collaboratively with the community and its partners, and in alignment with established best practices, it is more likely to be supported by the community and implemented according to the recommendations, which is the goal of this document.

For the Town of Aurora, the ATMP builds upon a strong foundation of policy and strategic goals. To accommodate and plan for the anticipated growth in both population and employment, the Town will build upon its existing active transportation network, including York Region's existing and proposed trails and cycling network, to encourage residents to use more active forms of transportation in their day-to-day lives. This ATMP is intended to provide strategic direction for an active transportation network that is equitable and accessible for people of all ages and abilities, and that can facilitate active living within the Town. Not only will the ATMP aim to encourage Aurora residents to use active transportation more often, but it will also aim to strengthen political support for active transportation and establish new partnerships with community stakeholders to facilitate implementation.

The Town already has a strong foundation of existing active transportation infrastructure in place including:

Extensive Trail Network

Well-Connected Sidewalk Network

Building upon this foundation, the ATMP will provide guidance towards a future where walking and cycling are more accessible, comfortable, connected and convenient for residents.

The ATMP includes recommended actions that can be taken to achieve the community's overall vision for active transportation and provide the necessary policies and guidelines to ensure that these actions align with best practices. Residents also had several opportunities to ensure their voices were heard through the community engagement process associated with the development of the ATMP. The ATMP includes an implementation strategy, identifies relevant partners, and provides an annual monitoring strategy and report to Council to document progress and guide implementation.

The ATMP will function best when considered within the broader policy context of Town, Region, Province, and Country, which will help to provide the strategic foundations upon which the master plan will be implemented.

Chapter 2 provides an overview of existing municipal, regional, provincial, and federal policies and plans that are relevant to active transportation and that informed the recommendations in this ATMP.

> *"To ensure the growth of a robust multi-modal transportation system that meets the needs of all residents and is consistent with the Town's objectives for managed growth and sustainable development. The Town will prioritize the development of a safe, comfortable and enjoyable multi-modal network for vehicles, active transportation and transit that balances the needs of each mode of travel, while providing for convenience and accessibility."*
>
> *- Official Plan 2023, Town of Aurora*

1.3 The Vision for Aurora

1.3.1 Vision Statement

The policy review brought forward several key themes surrounding the vision for active transportation in Aurora. These themes were used as a foundation to build a vision statement for the ATMP. As the project progressed, the vision statements was presented and revised based on input from Town Staff, key stakeholders, and members of the public.

> *"Aurora's active transportation network provides safe and accessible connections to key destinations throughout the community, supporting residents to live healthy, sustainable lifestyles; and Aurora's transportation system provides safe and accessible transportation options for all users and connects people to key destinations and transit while supporting community health and sustainability."*
>
> *- Official Plan 2023, Town of Aurora*

1.3.2 Objectives

To support the broad vision statement, a series of more detailed objectives have been created based on the Town's existing policy directives, such as the Strategic Plan and the Master Transportation Study. These include:

Provide and Support a Variety of Transportation Options

Create a multi-modal transportation network that supports the needs of all users including those who walk, bike, roll, use transit, and drive.

Support Community Health

Provide transportation options that encourage residents to live healthy, active lifestyles.

Improve Connectivity

Provide connections to key destinations, communities, adjacent municipalities and transit.

Increase Sustainability

Develop a transportation network that supports sustainable modes of transportation and green infrastructure and initiatives.

Prioritize Safety and Accessibility

Ensure that all trips in Aurora, regardless of travel choice, are accessible and safe for all users.

Coordinate with Existing and Future Infrastructure Projects

Ensure the transportation network is designed to support existing infrastructure while integrating with plans for future infrastructure improvements and enhancements.

1.4 The Study Process

WSP Canada Inc. was retained by the Town to prepare an ATMP. The approach for the study is summarized in **Figure 1-1 and is consistent with Phase 1 and 2 of the Master Planning process as identified in the Municipal Class Environmental Assessment (2023).**

This study is divided into ten sections:

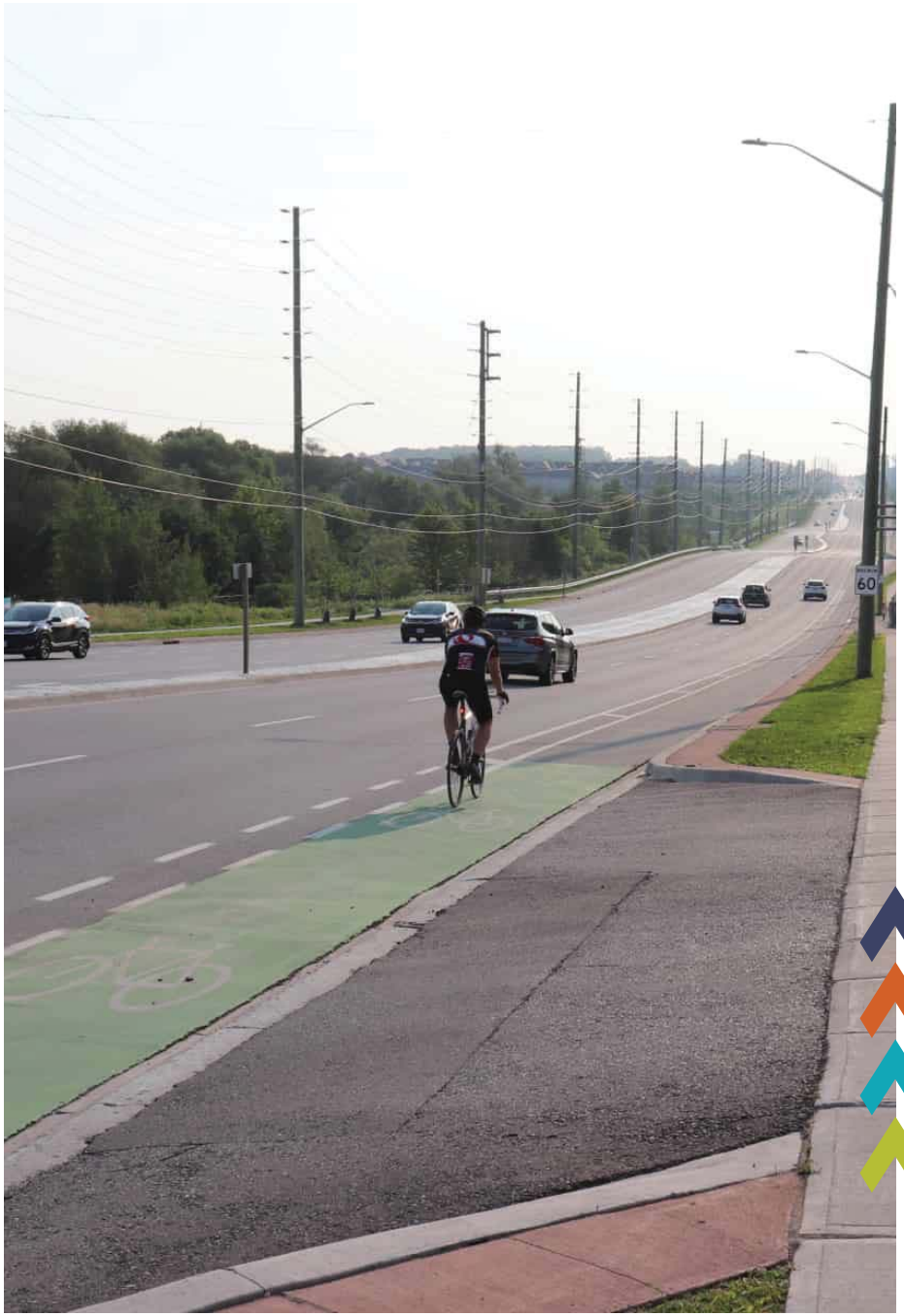
- **Chapter 2** summarizes the Aurora context, including a policy review and socio-economic analysis.
- **Chapter 3** reviews active transportation best practices from other jurisdictions.
- **Chapter 4** describes Aurora's existing active transportation network.
- **Chapter 5** summarizes the consultation and engagement activities undertaken for the study.
- **Chapter 6** outlines key policy recommendations for the Town related to active transportation.
- **Chapter 7** describes the network development approach and the recommended future active transportation network.
- **Chapter 8** summarizes education and programming recommendations to support the active transportation investment.
- **Chapter 9** provides an implementation plan, including network phasing and costing, as well as operations and maintenance considerations
- **Chapter 10** concludes with a summary of the key recommendations from each section of the report.

Background and Technical Review	• Develop vision and objectives (Chapter 1) • Conduct Policy and Best Practices Review (Chapter 2) • Develop Engagement Strategy (Chapter 5)
Existing Conditions Review	• Conduct Socio-Economic and Travel Pattern analysis (Chapter 2) • Undertake field investigation and desktop review (Chapter 4) • Community engagement (Chapter 5)
Network Development	• Identify candidate routes and missing links (Chapter 7) • Select facility types for the network (Chapter 7) • Gather feedback on network with community and stakeholders (Chapter 5)
Implementation	• Identify policy and programming recommendations (Chapter 6, 8) • Phase and cost the recommended AT network (Chapter 9)
Reporting	• Develop ATMP Report • Develop final Council and stakeholder presentations

Figure 1-1. Study Process

Chapter 2

The Aurora Context



2.1 Policy Background

The Town of Aurora ATMP aims to build on previous municipal, regional, provincial, and federal planning documents to ensure that the ATMP contributes to the goals and vision previously established by the Town and other levels of government.

In the past decade, there has been an increase in support for active transportation and recreation from all levels of government. Federal, provincial, regional, and municipal governments are working together and establishing policies, research, strategies, and initiatives that provide support for investments and improvements in active transportation.

One of the first steps in the process of creating the ATMP was developing an understanding of the plans and policies that have helped set the foundation for the ATMP, including those that have a direct influence on active transportation planning, design, and implementation in Aurora. The following is an overview of all plans and policies that were reviewed to inform

2.2 Policy Review

2.2.1 Federal Policies

The Government of Canada has several policies and funding programs designed to help municipalities transition to more sustainable modes of transportation. Recently, the Government of Canada has began integrating active transportation supportive language directly into their policies.

Federal Policies Reviewed:

- National Active Transportation Strategy (2021)
- Federal Sustainable Development Act (2008)
- Federal Sustainable Development Strategy (2019 – 2022)
- Transport Canada 2021 – 2022 Departmental Plan (2021)
- Transportation 2030: A Strategic Plan for Transportation in Canada (2016)

Federal Policy Considerations:

- Based on the federal policy review, the following are the most relevant considerations for this ATMP:
- The National Active Transportation Strategy (2021) created a $400 million Active Transportation Fund that is provided by the federal government for municipalities to use. The purpose of the fund is to aid municipalities in creating active transportation facilities. The Strategy notes that in order to qualify for the fund, municipalities must demonstrate that their planned projects will create community connections, improve user experience, assist in a modal shift, and increase equity across the municipal region.
- The Transport Canada 2021-2022 Departmental Plan (2021) and Transportation 2030: A Strategic Plan for Transportation in Canada (2016) include actions for improving the safety, accessibility, efficiency, and environmental sustainability of Canada's transportation systems. The Strategic Plan acts as the overarching blueprint for developing Canada's transportation systems over the next decade.

2.2.2 Provincial Policies

The Province of Ontario has a robust suite of policies which lend support to active transportation and accessible, universal design. These policy documents provide guidance to local municipalities which can range from suggested actions to legislated requirements. In general, provincial guidance relating to active transportation tends to take the form of suggestions, guidance, and support rather than legislative requirements for municipalities.

Provincial Policies Reviewed:

- Accessibility for Ontarians with Disabilities Act (2005)
- Ministry of Transportation Ontario Bikeway Design Manual (2014)
- Ontario Traffic Manual Book 15: Pedestrian Crossings (2016)
- Tour By Bike: Ontario's Cycling Tourism Plan (2017)
- #CycleON Strategy (2013) and Action Plan 2.0 (2018)
- Minimum Maintenance Standards for Municipal Highways O.Reg. 239/02 (2018)
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)
- Provincial Policy Statement (2020)
- Ontario Traffic Manual Book 18: Cycling Facilities (2021 update)

Provincial Policy Considerations:

- Based on the provincial policy review, the following are the most relevant considerations for this ATMP:
- Increase collaboration between governments and industry partners to develop and enhance products and experiences that support cycling tourism (e.g. heritage trails, trail tourism programs), particularly in rural regions of the province (Ontario's Cycling Tourism Plan, 2017).
- Plan and provide for a full range and equitable distribution of publicly accessible built and natural settings for recreation, including facilities, parkland, public spaces, open space areas, trails and linkages, and, where practical, water-based resources (Provincial Policy Statement, 2020, s.1.5.1.b).
- Ensure that the detailed design for active transportation facilities comply with the Bikeway Design Manual (2014) and are guided by best practices outlined in Ontario Traffic Manual Book 15 (2016) and 18 (2021).
- Promote the use of active transportation and transit in and between residential, employment (including commercial and industrial), and institutional uses and other areas (s.1.8.1.b – Provincial Policy Statement).

Provincial Policy Considerations (continued):

- The Growth Plan for the Greater Golden Horseshoe (Growth Plan) (2020) promotes enhancing connections and developing active transportation infrastructure in growth centres and major transit station areas. The Growth Plan recommends achieving these goals by:
  - Adopting a complete street approach to roadway development and reconstruction (s.3.2.2.3)
  - Developing and implementing a transportation demand management strategy to encourage a shift to a multi-modal transportation system (s. 3.2.2.4)
  - Ensuring that active transportation infrastructure is developed in tandem with new developments and is integrated to compliment existing transit corridors (s.2.2.4)
- Technical and legislative requirements are outlined in the Accessibility for Ontarians with Disabilities Act built environment guidelines and O.Reg.239/02.
- Minimum Maintenance Standards for Municipal Highways sets out the requirements that the Town is required to adhere to when designing AODA compliant facilities and maintaining all highway facilities, including cycling and pedestrian infrastructure. Additional design guidance is provided in Ontario Traffic Manual Book 15 and 18, which provide direction on pedestrian crossing treatments and cycling facilities, respectively.

2.2.3 Regional Policies

As the Town of Aurora is governed by a two-tier system, policies from York Region (upper tier) directly shape the planning, design, implementation and operation of the Town's active transportation facilities. York Region has a number of existing policies that provide specific guidance on active transportation projects, such as the Official Plan, Transportation Master Plan, and Cycling and Pedestrian Master Plan Study.

Regional Policies Reviewed:

- Regional Municipality of York Official Plan (2019)
- York Region 2019 to 2023 Strategic Plan (2019)
- Transportation Master Plan (approved by York Region Council in 2022)
- York Region Pedestrian and Cycling Master Plan Study (2008)
- York Region Draft Climate Change Action Plan (2020)
- York Region Sustainability Strategy (2007)
- York Region Pedestrian and Cycling Planning and Design Guidelines
- York Region Sustainable Mobility Wayfinding Guidelines

Regional Policy Considerations:

Based on the regional policy review, the following are the most relevant considerations for this ATMP:

- Address air quality and climate change through initiatives to reduce emissions (e.g. AT, public transit, compact development, mixed land use, etc.) (Regional Municipality of York Official Plan, 2019; York Region Draft Climate Change Action Plan, 2020).
- Improve AT by focusing on trip reduction, increasing transportation choices, and shifting towards more sustainable modes of transportation (Regional Municipality of York Official Plan, 2019).
- Support community health, safety, and well-being and building sustainable communities (York Region 2019 to 2023 Strategic Plan, 2019).
- Increase the number of regional roads with sidewalks and/or dedicated bike lanes in urban areas is listed as a key performance measure of the Strategic Plan (York Region 2019 to 2023 Strategic Plan, 2019).

Regional Policy Considerations (continued):

- Some of the relevant focus areas of the Transportation Master Plan approved by York Region Council in 2022 include:
  - Safety for all travellers
  - Transportation equity (e.g. provide transportation options that fit all lifestyles and abilities)
  - Reduce car travel, especially during rush hours
  - Environmental sustainability

- Other key guidance from the Transportation Master Plan (2022) include the following:
  - Focus on integrating active transportation within the Regional corridors in local municipalities through providing last mile solutions, addressing sidewalks gaps, building All Ages and Abilities (AAA) cycling infrastructure, enhancing safety for cyclists and pedestrians along highway interchanges and on busy streets, expanding the trails network, increasing connectivity, etc.
  - Develop a well-integrated and well-connected network of sidewalks and cycling facilities at the regional level and establish outreach programs and enhance partnerships to encourage the shift to active transportation.
  - Improve conditions for walking and cycling and integrate active transportation within the transit network.

2.2.4 Municipal Policies

The ATMP will be heavily influenced by policies at the municipal level, such as the Town's recently updated Official Plan, Strategic Plan, Master Transportation Study, Trails Master Plan, and other planning documents. The Town's Official Plan provides the most guidance on future development, as it is a statutory document required under the Planning Act and the Provincial Policy Statement. The Town's recently approved Master Transportation Study also provides a strong foundation upon which the ATMP will build. This ATMP is consistent with the goals and objectives from municipal policies summarized in the following sections.

Municipal Policies Reviewed:

- Town of Aurora Official Plan (2023)
- Town of Aurora Strategic Plan (2011-2031)
- Town of Aurora Master Transportation Study (2020)
- Town of Aurora Trails Master Plan (2011)
- Town of Aurora Parks and Recreation Services Master Plan (2023)
- Town of Aurora Community Energy Plan (2019)
- Town of Aurora Service Delivery Review (2021)

It is important that the ATMP's vision aligns with the Town's existing policies to ensure all future decisions meet the Town's overall vision and reflect the needs of the community. As these documents will provide significant guidance for the ATMP, **Table 2-1** provides a more detailed summary of some of the relevant aspects of these municipal policy documents and highlight common themes among the documents that were used to develop the vision statement and objectives for the ATMP.

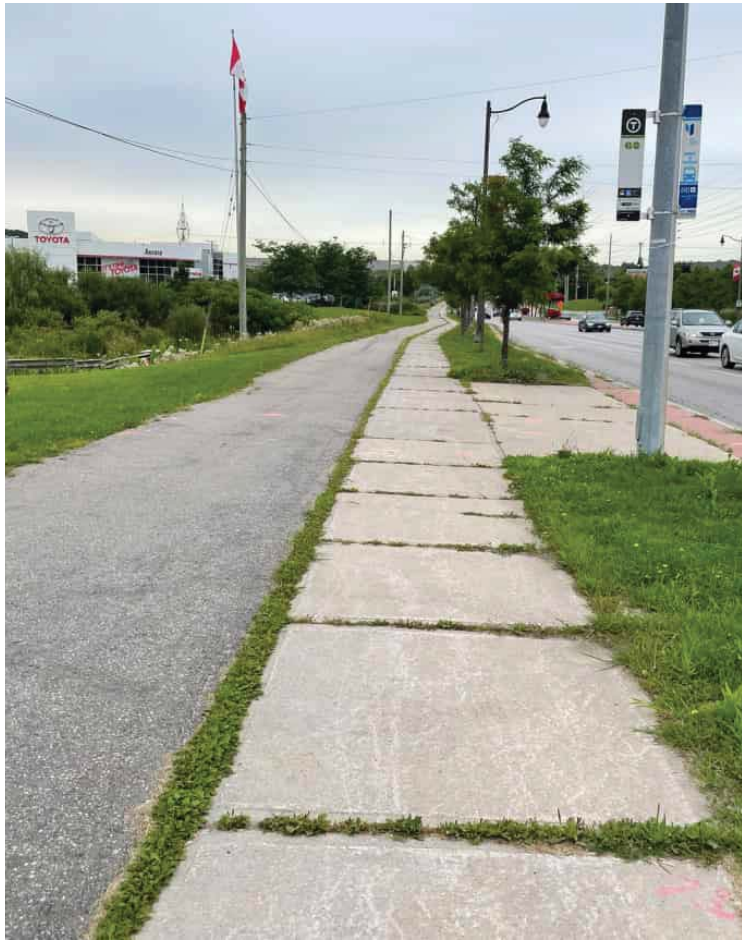
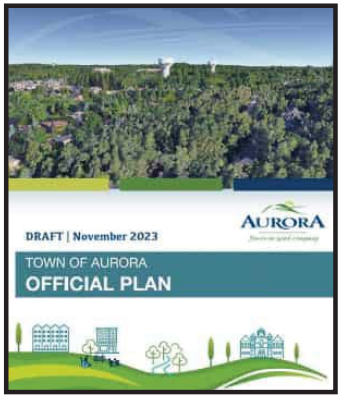


Table 2-1. Relevant Policies from Municipal Policy Documents

Official Plan



Relevant Fundamental Principles:

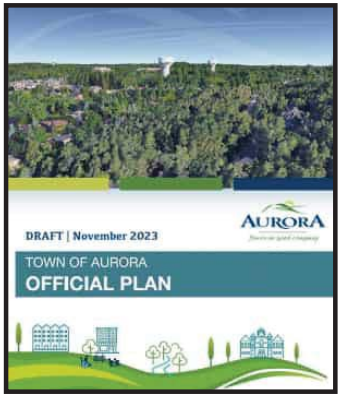
- Ensuring Design Excellence
- Building a Greener Community
- Establishing a Linked Greenlands System
- Providing Sustainable Infrastructure

Relevant AT Objectives:

- To encourage an active, healthy lifestyle for the citizens of Aurora.
- To create a multi-modal transportation system that has regard for the environmental, social and aesthetic character and amenities of the community.
- To develop a multi-modal transportation system that is compatible with existing and future land use patterns.
- To provide a multi-modal transportation system which encourages convenient movement within the community as well as providing linkages to external transportation systems outside the Town.
- To provide a highly interconnected, efficient and safe system of routes for pedestrians and cyclists that accommodates functional as well as recreational facilities and that includes features such as multi-use trails, wide sidewalks, benches, waste receptacles, bicycle racks, crosswalks, lighting and shade.
- To achieve a pattern and density of development.
- To improve accessibility to transit facilities for special user groups.
- To work with the Region to coordinate infrastructure within Regional rights-of-way for operating and capital components, including street lighting, sidewalks and cycling facilities.
- To provide sidewalks and street lighting on both sides of all streets with transit services.
- To require the provision of appropriate active transportation facilities through the development approvals process, such as covered bicycle storage, lockers, and shower facilities.
- To promote and facilitate active transportation programs, such as “bike-to-work”, walking to school programs, and active recreational community events.

Table 2-1. Relevant Policies from Municipal Policy Documents

Official Plan (continued)



Other Relevant Objectives:

- Promote active transportation and the use of alternate transportation modes such as transit, walking and bicycling cycling to reduce the dependence on the private motor vehicle.
- Ensure the development and maintenance of a safe, comfortable and enjoyable environment for pedestrians and cyclists, along roads and trails.
- Promote and facilitate a complete streets design approach to new and existing streets that balance the needs of multiple modes of travel, as well as individuals of varying ages and abilities.
- The Town shall support transportation infrastructure designs that facilitate the creation of healthy, walkable complete communities by promoting the use of active transportation, transit, and carpooling.
- Travel Demand Management measures shall be identified and developed as part of any major development or redevelopment in order to reduce the single-occupant vehicle usage and to promote other modes of transportation such as walking, cycling, and public transit.
- Regional Roads accommodate a wide range of transportation modes including walking, cycling, transit, automobile use and goods movement.
- The Town shall prepare an Active Transportation Master Plan that identifies opportunities to expand sidewalks, cycling facilities, transit facilities, and active transportation programs for all ages and abilities.

Table 2-1. Relevant Policies from Municipal Policy Documents

Strategic Plan

Relevant Vision:

- An innovative and sustainable community where neighbours care and businesses thrive.

Relevant Goals, Objectives, and Actions:

- Supporting an exceptional quality of life for all:

Objective 1: Improve transportation, mobility and connectivity:

- Expand east-west linkages to facilitate movement across the community for all modes of transportation.
- Examine traffic patterns and identify potential solutions to improve movement and safety at key intersections in the community.
- Explore partnership options to support the transportation needs of the Town's changing demographics.

Objective 2: Invest in Sustainable Infrastructure:

- Establish policies and programs that enhance the accessibility and safety of new and existing facilities and infrastructure.
- Develop policies to ensure that growth is phased and coordinated with existing and planned infrastructure.

Objective 4: Encouraging an active and healthy lifestyle:

- Develop a long-term needs assessment for recreation programs, services and operations to match the evolving needs of the growing and changing population.
- Continue to develop awareness programs that promote the benefits of recreation in supporting a healthy lifestyle.
- Continue to develop programs and policies that nurture and contribute to the development of youth.

Table 2-1. Relevant Policies from Municipal Policy Documents

Strategic Plan (continued)

Relevant Goals, Objectives, and Actions:

- Supporting environmental stewardship and sustainability:

  Objective 2: Promoting and advancing green initiatives:
  - Continue to support the expansion of the Town's trails system.
  - Continue to invest in green initiatives and infrastructure to promote environmentalism locally.

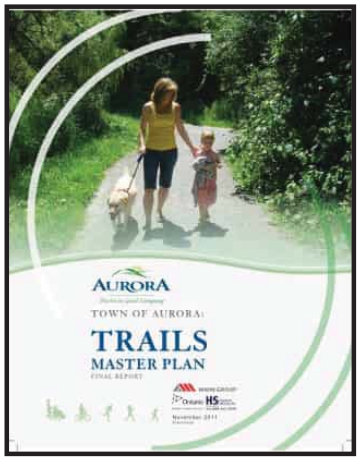
Master Transportation Study

Relevant Recommendations:

- Focus on managing the existing network while improving connectivity and safety particularly for pedestrians and cyclists. This includes focus on travel demand management, supporting and encouraging transit use, and active transportation improvements including completing the sidewalk network and implementing the recommendations of the 2011 Trails Master Plan.
- It is recommended that the Town of Aurora complete an Active Transportation Master Plan with consideration of the sidewalk and cycling facility recommendations outlined in this report.

Table 2-1. Relevant Policies from Municipal Policy Documents

Trails Master Plan



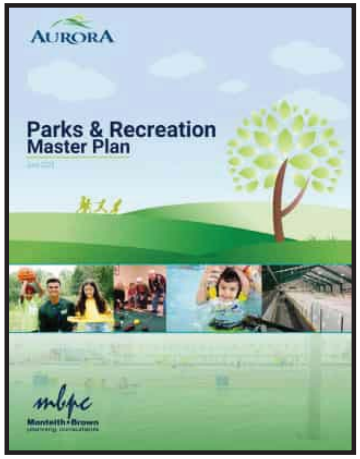
Relevant Vision:

- To develop a connected off-road, multi-purpose and barrier-free trail network that is accessible and pedestrian-oriented.

Relevant Recommendations:

- That in 2011 / 2012, Town Council complete a review of the mandate of the Trails Sub-Committee with the goal of broadening their role to include Active Transportation.
  - That the Trails Sub-Committee be renamed to reflect the additional mandate for Active Transportation.
- Relative to on-road cycling and the integration of that mode of active transportation into the off-road oriented trails network, the Town of Aurora should:
  - Prepare a Transportation Master Plan, and that it be integrated with the Town's Trails Master Plan and the Region of York's Pedestrian and Cycling Master Plan.
  - Establish a set of cycling facility design guidelines as part of such a Cycling Master Plan.

Parks and Recreation Services Master Plan



Relevant Considerations:

- Maintaining a high degree of walkability and connectivity among parks through active transportation infrastructure and key linkages.

Relevant Recommendations:

- Work with the land development industry to innovatively address the need for parks such as developing publicly accessible lands on private land. At a minimum, this may include providing enhanced pedestrian/cyclist infrastructure, encouraging condominium developments that contain rooftop gardens and courtyards, etc.
- Augment the system of trails and pathways through continued implementation of the Town of Aurora Trails Master Plan, explore barrier-free accessibility-related improvements, and prioritize resurfacing and other required remediation activities according to short, medium and long-term priorities.
- Continue to place a high priority on maintaining, improving, and expanding the system of trails and pathways through implementation of the Town's Trails Master Plan and Active Transportation Master Plan.

2.3 Current Socio-Economic Patterns and Transportation Trends

To ensure that the ATMP recommendations and strategies are specific to the Town's context and reflective of the existing and future residents who will be using the AT network, it is important to understand the local context, including demographic and transportation characteristics. A review of the socio-economic and transportation data was completed to build a foundation for an equity-based network review. This section includes a series of infographics to show current demographic and travel patterns based on spatial data from the following sources:

- 2021 Statistics Canada Census
- 2016 Transportation Tomorrow Survey
- Town of Aurora's latest data (e.g. Existing Cycling, Sidewalk and Trail Networks, Park Land, and Points of Interest)
- 2022 Land Information Ontario (e.g. Topographic Data, Road Network)

The spatial analysis work, which involved modelling and identifying location-specific patterns and opportunities for active transportation, was categorized into the following:

- Demographic Profile
- Travel Patterns
- Physical Environment
- Connectivity and Network Completeness
- Road Safety and Collisions Involving Pedestrians and Cyclists

Each of the above categories is explained in more detail within this section.

2.3.1 Demographic Profile

Understanding population and growth trends is an important consideration when assessing the existing conditions and the current and future active transportation potential for the Town of Aurora.

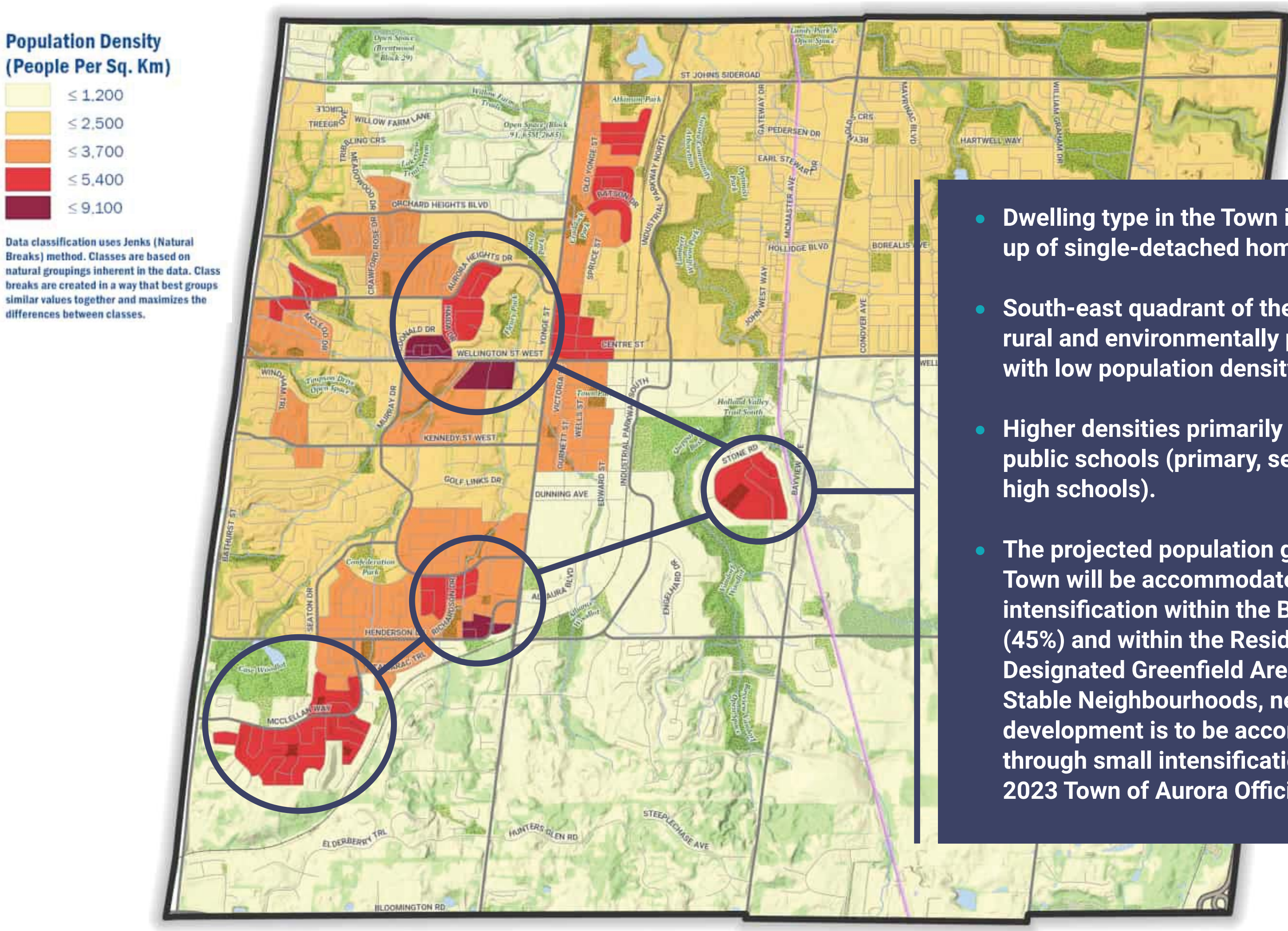
From the 2021 Census, the Town's population is just over 62,000 people, growing approximately 12% since 2016. By 2031, the Town's population is expected to grow to 71,900 people, according to the 2023 Town of Aurora Official Plan. **Table 2-2** shows the projected population and employment growth from 2021 to 2051 in 10-year increments, which were used for the Town's growth management strategy and corresponding policies in the 2023 Town of Aurora Official Plan.

Where Is This Data From?

- The data from this section was collected from Statistics Canada. Every five years, information on social, economic and environmental conditions is collected and published to help gain a better understanding of the population, resources, economy, environment, society and culture.

Table 2-2. Population and Employment Growth Forecasts in the Town of Aurora (Source: 2023 Town of Aurora Official Plan)

Year / Forecast	2021	2031	2041	2051
Population	64,000	71,900	79,600	85,800
Employment	29,600	34,100	38,300	41,600



- **Dwelling type in the Town is largely made up of single-detached homes.**
- **South-east quadrant of the Town has rural and environmentally protected lands with low population density.**
- **Higher densities primarily located around public schools (primary, secondary, and high schools).**
- **The projected population growth for the Town will be accommodated through intensification within the Built Boundary (45%) and within the Residential Designated Greenfield Area (55%). Within Stable Neighbourhoods, new residential development is to be accommodated through small intensification (Source: 2023 Town of Aurora Official Plan).**

Figure 2-1. Population Density

Population Distribution By Age

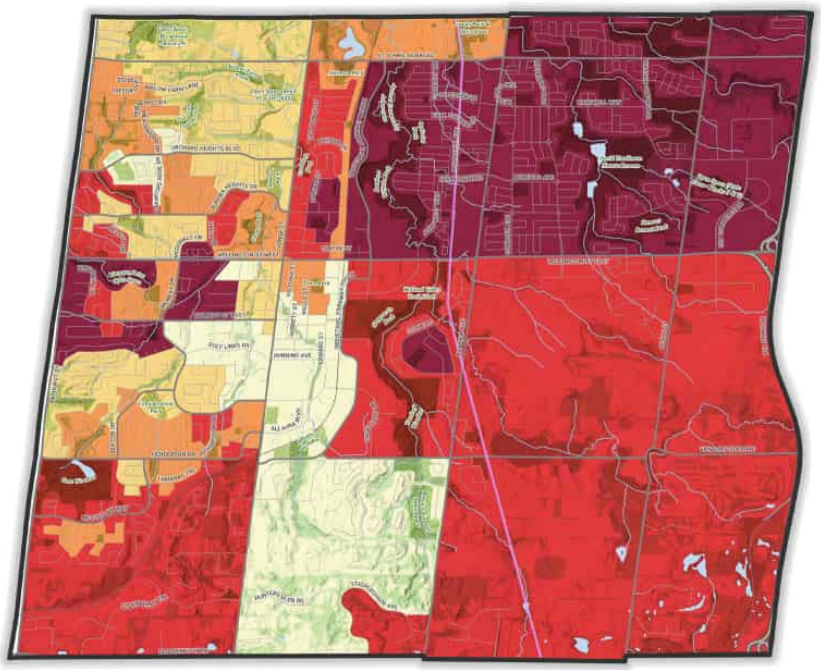


Figure 2-2. Population Distribution of Youths

The data indicates that the majority of families with youth between the ages of 0 and 14 are located around schools and new residential subdivisions.

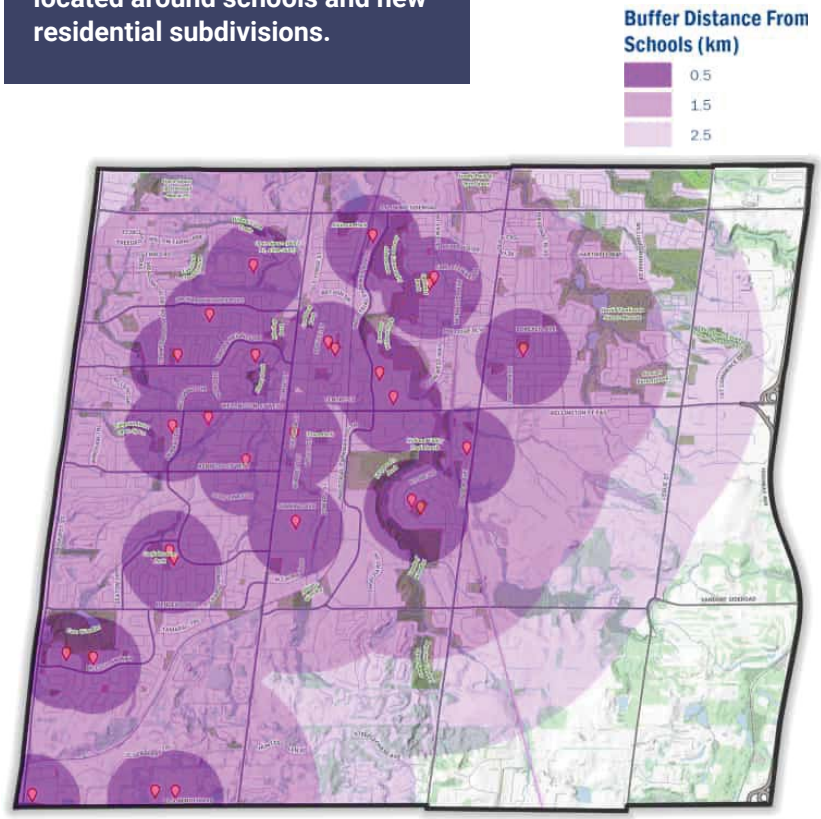
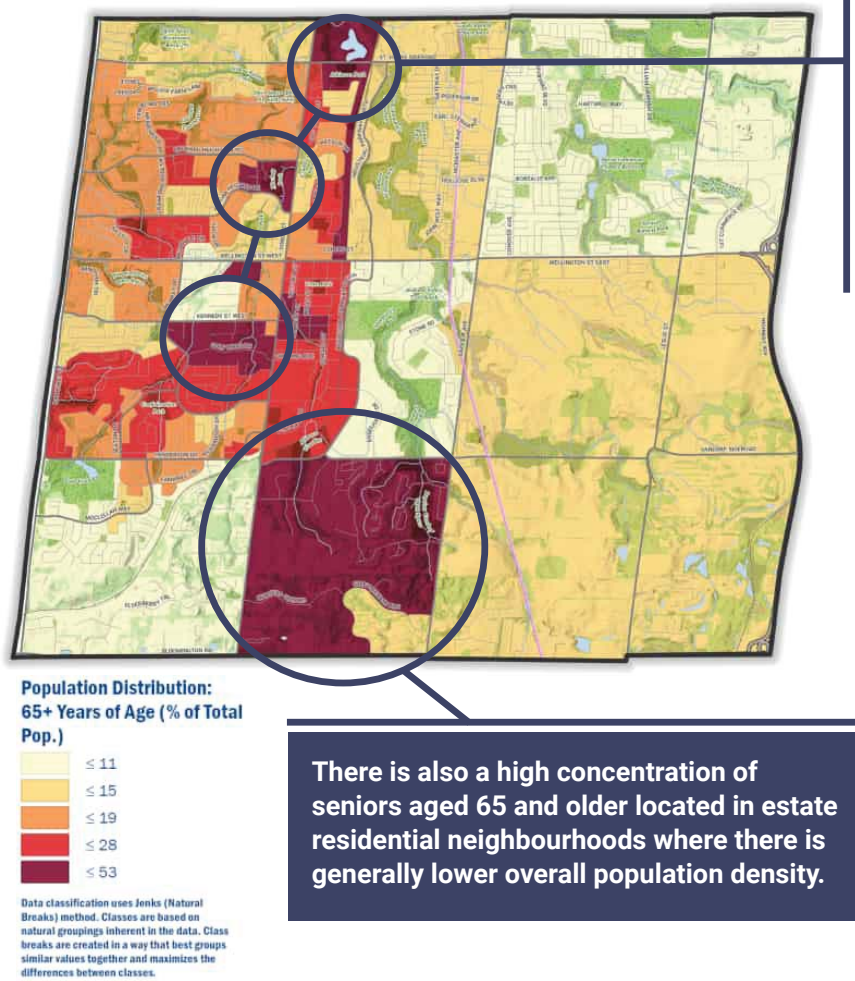


Figure 2-3: Access Range for Schools

The majority of the Town is within a 2.5km radius of a school.

Population Distribution By Age



There is a high distribution of seniors aged 65 and older along the Aurora Promenade / Downtown Aurora area, which consist of portions of the Yonge Street and Wellington Street corridors that are the focus for accommodating intensification and higher-density mixed uses in a more compact built form. These areas also include access to the Aurora Community Centre and various local parks.

There is also a high concentration of seniors aged 65 and older located in estate residential neighbourhoods where there is generally lower overall population density.

Figure 2-4. Population Distribution of Seniors

Population Distribution Key Takeaways:

- High density, multi-use areas can encourage active transportation due the ability to make shorter distance trips.
- Aurora's population density is primarily around school locations. Improving active transportation options in the areas immediately surrounding a school provides youth with viable and sustainable alternatives for getting to and from school.
- Seniors are also a key demographic as this group may use walking and cycling as a form of low impact exercise. They may also require assistive mobility devices, more space and accessibility considerations. Active transportation options should be explored between estate residential neighbourhoods to the Town's extensive park and trail system.

2.3.2 Travel Patterns

Understanding the transportation habits of residents, including commute times and modal splits, help build the foundation of what traveling within Aurora looks like today.

Prior to the stay-at-home orders due to the COVID-19 pandemic, the Census reported that approximately 60% of the population commuted to work. Among these commuters, 22% spend under 15 minutes commuting to work and 21% spend 15 to 29 minutes commuting. Despite these short travel times, the 2016 Transportation Tomorrow Survey mode split data summarized in **Figure 2-5** showed that the majority of Aurora residents drive as their main form of transportation during the week (87%). Transit, including the GO Rail, local transit and school buses, is the next most frequently used mode (7%). Active transportation (walking and cycling) makes up approximately 5% of the overall mode share.

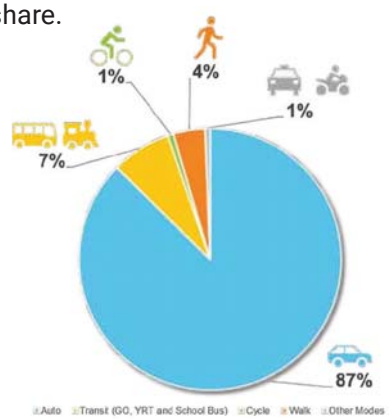


Figure 2-5. Current Modal Split in Aurora

Where Is This Data From?

- The data from this section was collected from the Transportation Tomorrow Survey (TTS), which is a cooperative effort by local and provincial government agencies to collect information about urban travel in southern Ontario. This survey is undertaken every five years to collect data to inform transportation decisions. Note that the 2022 TTS data has been collected but not published yet. The 2016 TTS data represents the most recent data available.
- Data from the 2016 Statistics Canada Census Data – Journey to Work was used to supplement this analysis.

Modal Split Takeaways:

- The statistics show that the majority of the Town's commuters spend a relatively low amount of time commuting (less than 30 minutes commuting to work), however they are still choosing to drive.
- There is an opportunity to convert the short trips to active modes and reduce the demand in parking.

Walking Trip Distribution

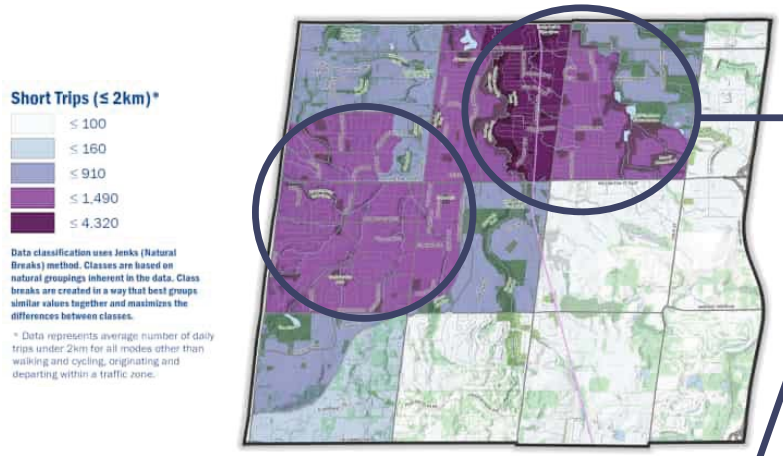


Figure 2-6. Distribution of Daily Average Trips Under 2km For All Modes Other Than Walking and Cycling

The locations for where the highest distribution of short trips taken by modes other than walking and cycling coincides with the distribution of where the highest number of walking trips are located.

In Aurora, these locations are the Bayview Wellington, Bayview Northeast, Aurora Village and Aurora Highlands neighbourhoods. These locations are generally made up of urban residential and mixed-use residential / commercial land uses.

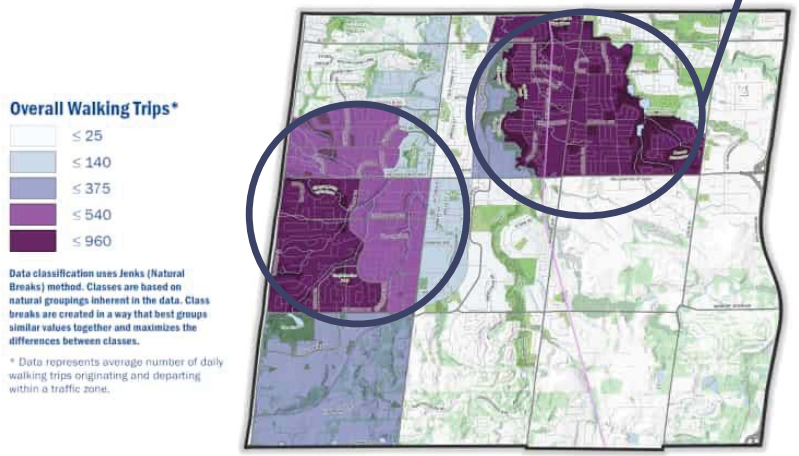


Figure 2-7. Distribution of All Average Daily Walking Trips

Walking Mode Split Takeaways:

- The presence of pedestrian infrastructure and comfortable roadway crossings can encourage commuters to travel on foot or connect with local and regional transit. A lack of infrastructure in some communities may be a deterrence to walking.
- The data shows that in locations where there is a high distribution of short 2km trips, there is also a high opportunity to enhance the pedestrian network to increase the modal split.

Cycling Trip Distribution

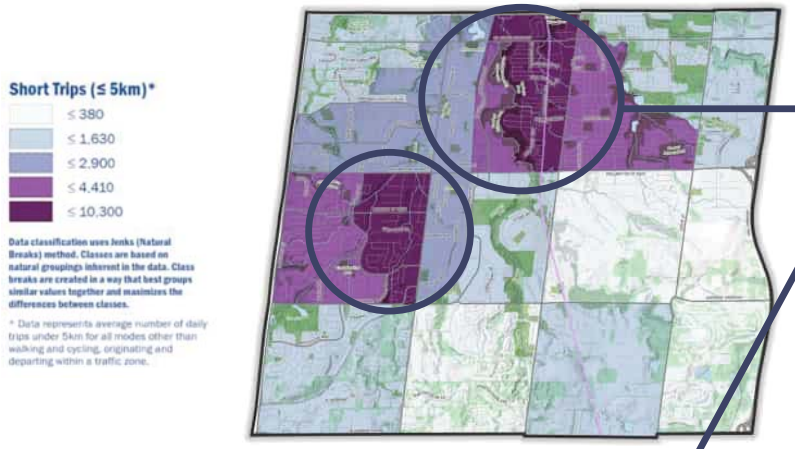


Figure 2-8. Distribution of Daily Average Trips Under 5km For All Modes Other Than Walking and Cycling

Similar to the walking analysis, the locations with the highest commuter population that bike coincide with locations where commuters taking short trips (less than 5km) are departing from.

Key neighbourhoods that should be focused on for evaluating the cycling facilities are the Bayview Wellington and Aurora Highlands neighbourhoods.

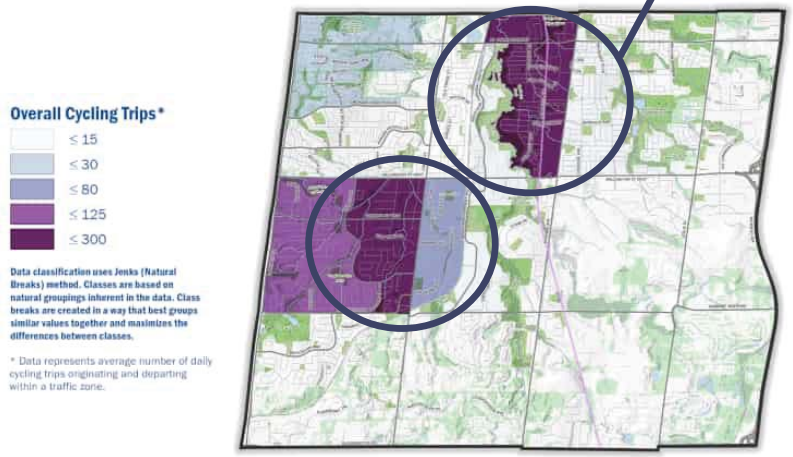


Figure 2-9. Distribution of All Average Daily Cycling Trips

Cycling Mode Split Takeaways:

- Cycling infrastructure help facilitate recreational, utilitarian and commuter transportation. Implementing appropriate infrastructure to invite commuters to bike instead of using their car can help manage traffic congestion and balance the modal split.
- There is an opportunity to enhance cycling routes and facilities within these neighbourhoods to encourage residents to cycle rather than drive for trips less than 5km.

Most Frequent Travel Patterns

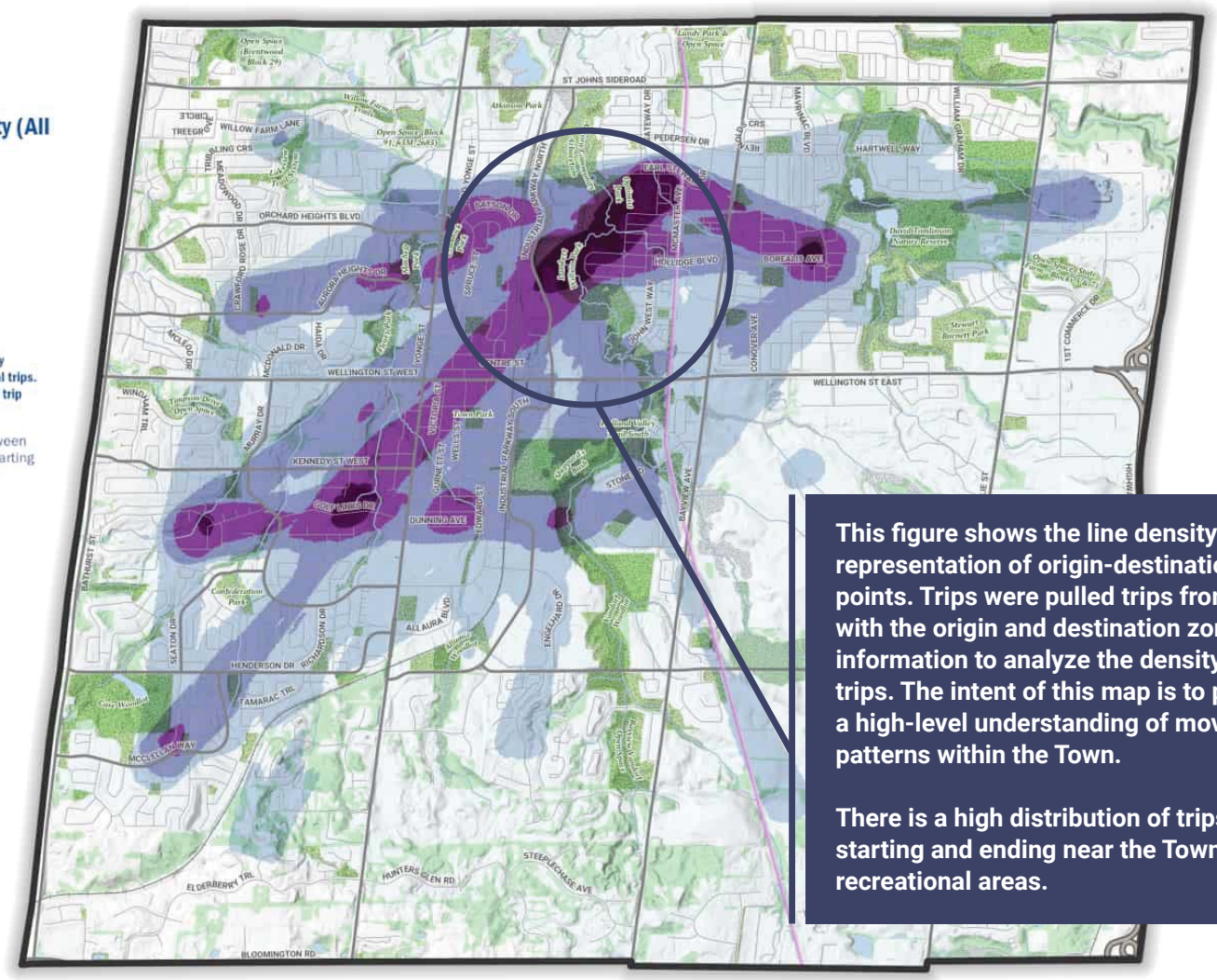
Town-Wide Trip Density (All Modes)*

Low

High

Data classification uses a line density analysis to aggregate total inter-zonal trips. Data is meant to be representative of trip density magnitude.

* Data represents total trips between traffic zones, originating and departing within Aurora.



This figure shows the line density representation of origin-destination points. Trips were pulled trips from TTS with the origin and destination zone information to analyze the density of trips. The intent of this map is to provide a high-level understanding of movement patterns within the Town.

There is a high distribution of trips starting and ending near the Town's recreational areas.

Figure 2-10. Most Frequent Town-Wide Travel Patterns (All Modes and Considers Origin and Destination Points)

2.3.3 Physical Environment

When reviewing opportunities for enhancing active transportation, consideration should be given to the surrounding land use and the built and natural environment. This may affect the appropriateness of different facility types or possible barriers to implementation.

The maps below indicate opportunities to provide active transportation connectivity given the existing and potential future demand. **Figure 2-11** conveys areas with a high density of points of interest, which present key opportunities to encourage people to access these points of interest using active travel modes (walking and cycling). **Figure 2-12** indicates proximity to parkland areas, highlighting parts of the Town that would benefit from the addition of active transportation facilities and connections to the broader active transportation network. This would provide residents and visitors with numerous recreation and placemaking opportunities and encourage communities to lead active and healthy lifestyles.

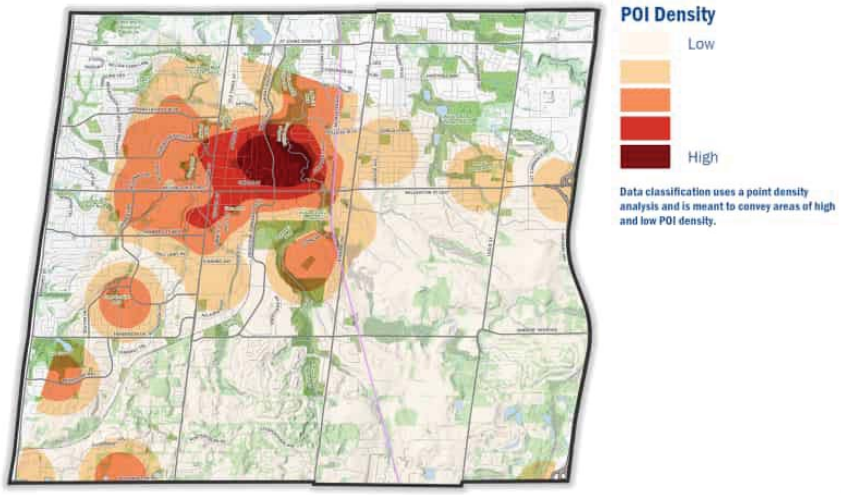


Figure 2-11. Spatial Analysis of the Physical Environment Regarding Points of Interest Density

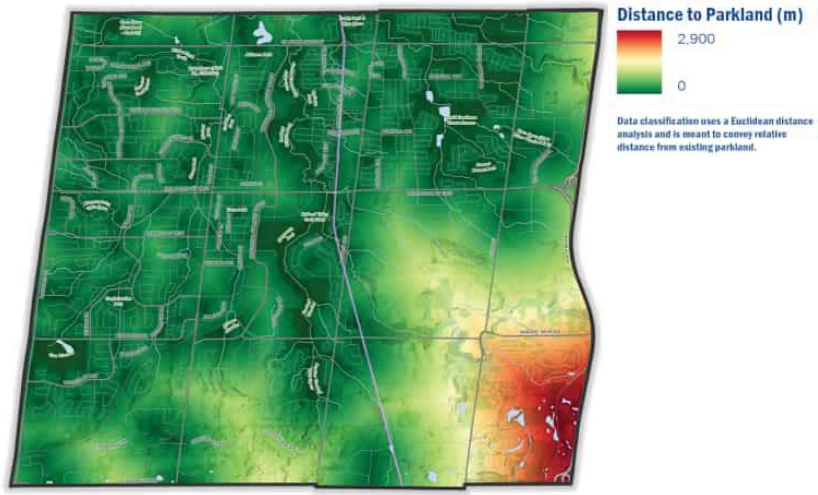


Figure 2-12. Spatial Analysis of the Physical Environment Regarding Proximity to Parkland Areas

The maps below indicate potential barriers to expanding the existing active transportation network with new facilities and improved connectivity throughout the Town. **Figure 2-13** indicates grades or slopes of the land formation throughout the Town, highlighting areas with steep grades which pose varying levels of difficulty for walking and cycling for people of different ages and abilities. **Figure 2-14** illustrates barriers in the Town's transportation network, including grade separated crossings of highways / expressways and rail corridors, which present challenges to implementing continuous active transportation facilities and can negatively impact the walking and cycling experience.

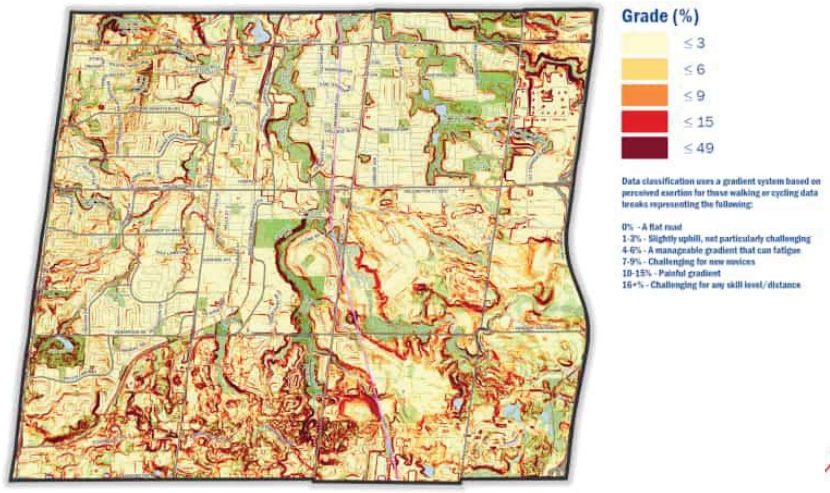


Figure 2-13. Spatial Analysis of the Physical Environment Regarding Grade in Land Formation

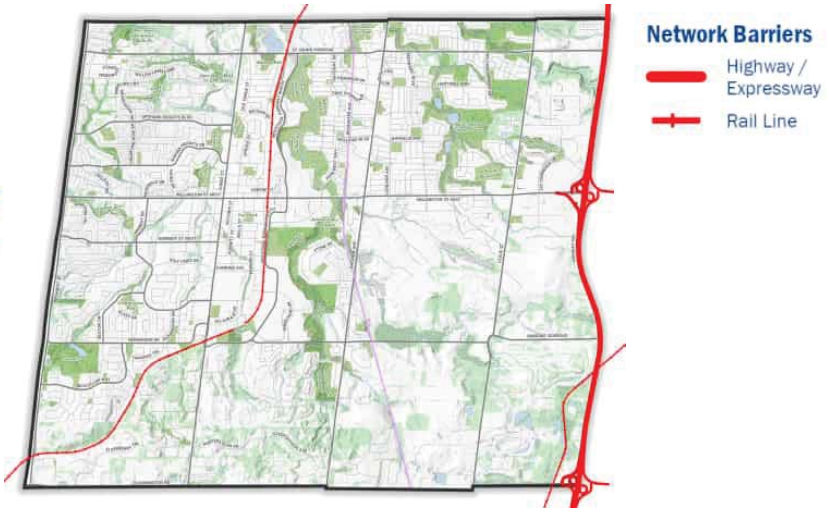


Figure 2-14. Spatial Analysis of the Physical Environment Regarding Transportation Network Barriers

2.3.4 Connectivity and Network Completeness

To review the active transportation potential in the Town, a walking and cycling duration of 15 minutes was chosen as a reasonable distance to assess the network completeness. This was based on an average of the range (10 minute and 20 minute walking / cycling distances) used by communities when assessing access to community destinations, as outlined in the US Federal Highway Administration's Guidebook for Developing Pedestrian & Bicycle Performance Measures. As shown in **Figure 2-15**, these 15-minute walking and cycling zones centre around Aurora GO as the central hub facilitating connections to commercial, residential, and employment lands and to Regional transit routes (GO Rail / Bus and YRT / Viva).

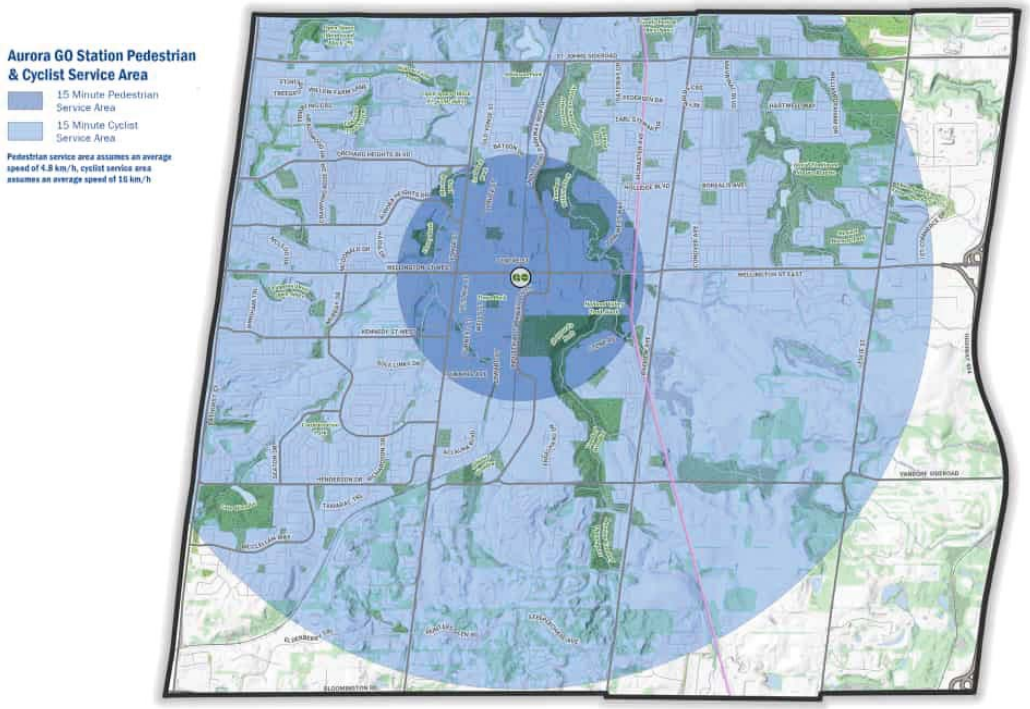


Figure 2-15. 15-Minute Walking and Cycling Service Areas around the GO Station

Connectivity Takeaways:

- The majority of the Town is covered by the 15-minute cycling zone using a straight 15-minute cycling distance as the radius ("as the crow flies").
- Areas within the 15-minute walking and cycling zones have a high active transportation potential and high support for creating integrated multi-modal connections to transit routes.
- There are approximately 8,500 residents in the 15-minute walking zone and over 54,000 residents in the 15-minute cycling zone. Within these service areas, the current modal split is approximately 90% auto drivers and passengers. This means that there is a potential to shift approximately 7,600 auto trips to walking or 49,000 trips to cycling within the Town.

Network Coverage

An analysis of network coverage was conducted to compare the density of the existing pedestrian and cycling network compared to the potential density, which is what the network could look like if the previously proposed routes are implemented. **Figure 2-16** generally shows the density of the pedestrian and cycling networks expected with the implementation of the Trails Master Plan (2011) and Master Transportation Study (2020). There is a high potential to increase the coverage area through the refinement of previously proposed routes as part of this ATMP.

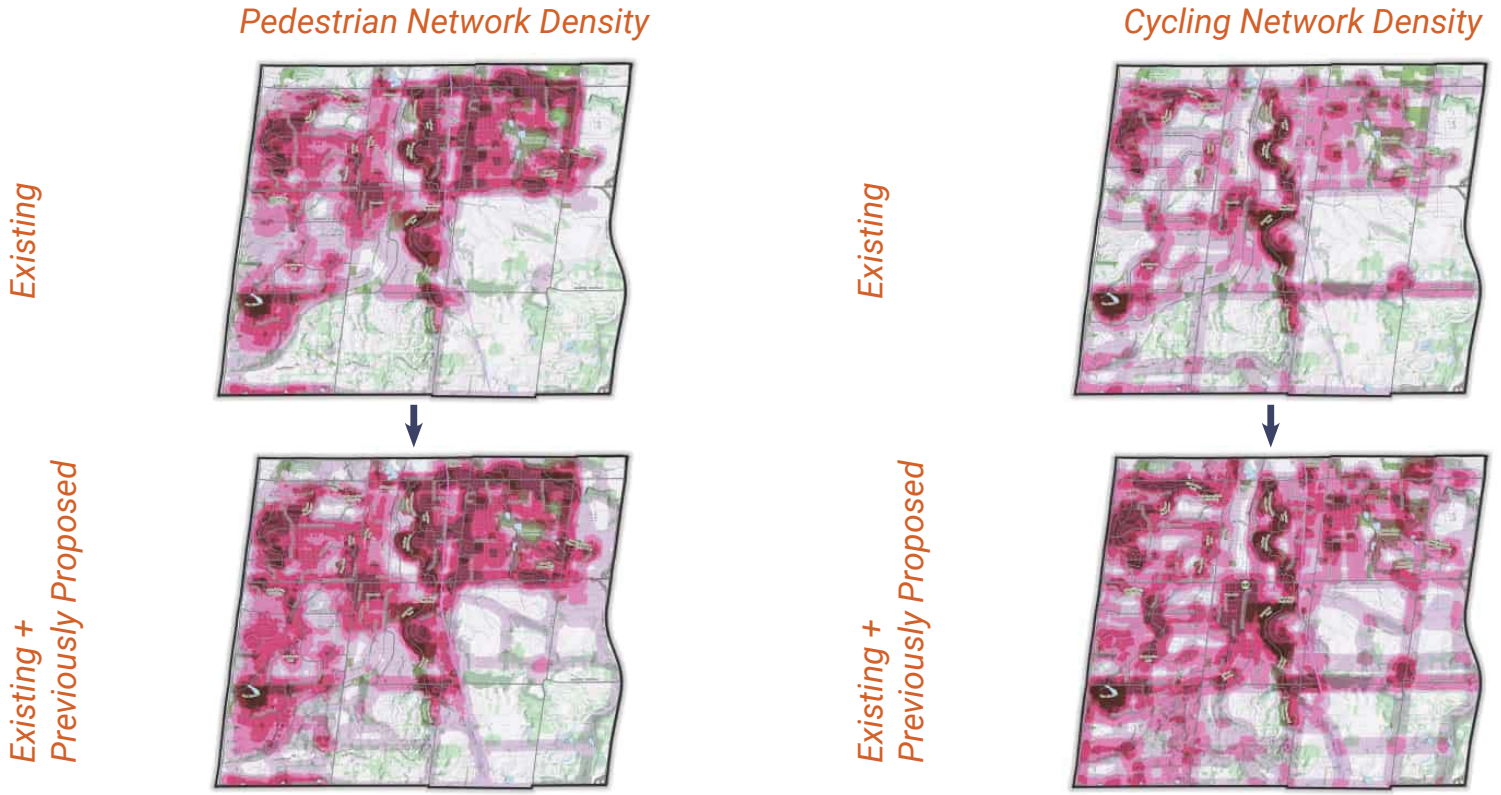


Figure 2-16. Pedestrian and Cycling Network Coverage Analysis

York Region released their Annual Traffic Safety Report in 2022 to summarize traveler experience on Regional roads using collision statistics and other traffic data collected from 2017 to 2021. This section summarizes the key findings as it relates to pedestrian and cyclist safety. Detailed findings can be found in the York Region 2022 Traveler Safety Report.

Pedestrians

The pedestrian collision rate in 2021 is 37% lower than the previous four-year average despite the increase in the number of walking trips, as shown in **Figure 2-17**. This trend may be a result of the traffic reduction seen during the COVID-19 pandemic.

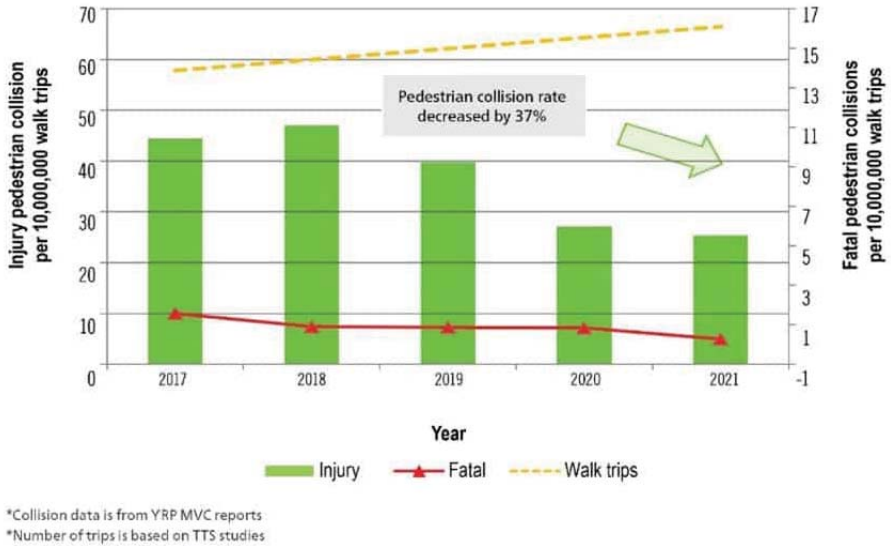


Figure 2-17. Pedestrian Collision Rates, 2017-2021 (Source: York Region 2022 Traveler Safety Report)

Pedestrians

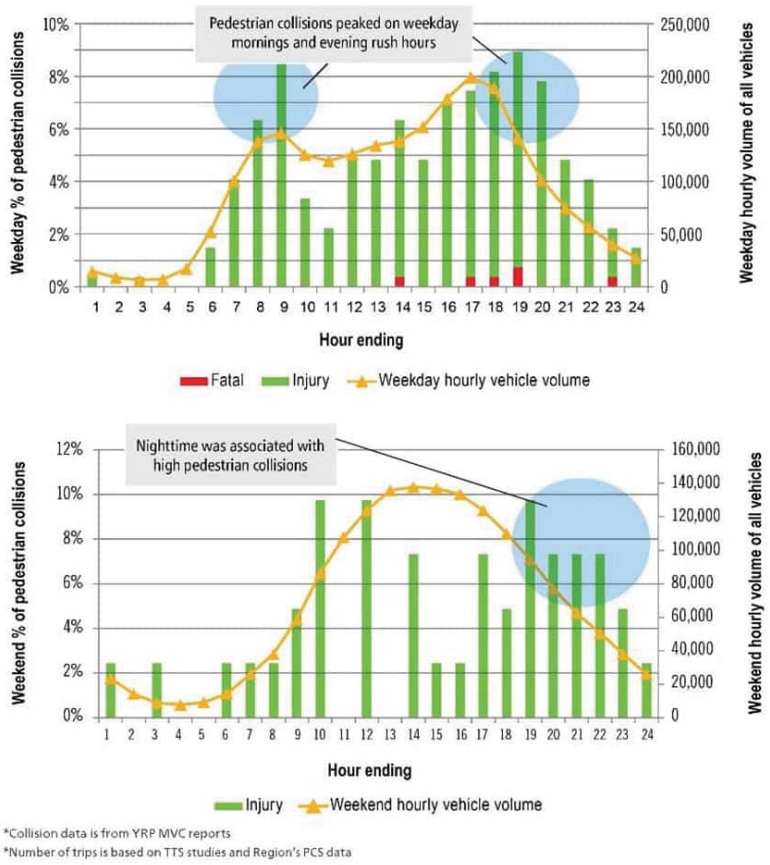


Figure 2-18. Pedestrian Collisions by Time-of-Day, Three-Year Average, 2019-2021 (Source: York Region 2022 Traveler Safety Report)

A review of when pedestrian collisions occur, presented in **Figure 2-18**, showed that the majority of the collisions occurred between 7 a.m. and 9 a.m. and 5 p.m. and 7 p.m. on weekdays, coinciding with the weekday peak travel times. On weekends, pedestrian collisions were more likely to occur between 6 p.m. and 7 p.m. and 9 p.m. and 10 p.m.

An analysis of the months in which pedestrian collisions are more likely, presented in **Figure 2-19**, showed that there is a higher distribution of collisions during the fall and winter months (October to January), likely due to the reduction in daylight hours.

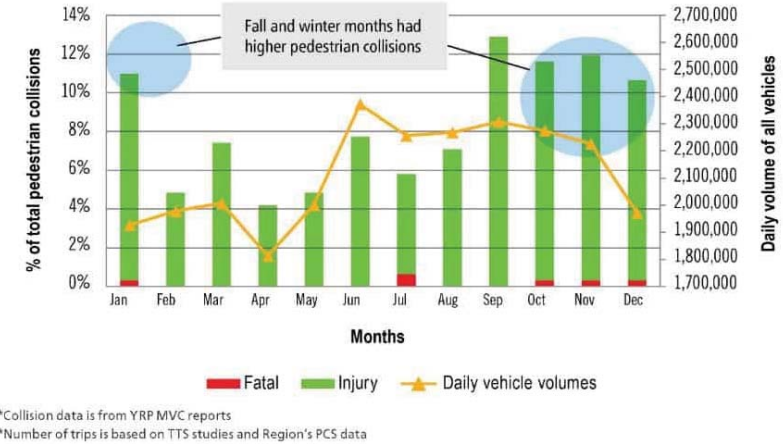


Figure 2-19. Pedestrian Collisions by Month, Three-Year Average, 2019-2021 (Source: York Region 2022 Traveler Safety Report)

Pedestrians

Young pedestrians, aged 15 to 19 years old, were found to be most likely to be injured in collisions and senior pedestrians over 75 years old were most likely to be fatally injured as compared to other age groups, as shown in **Figure 2-20**.

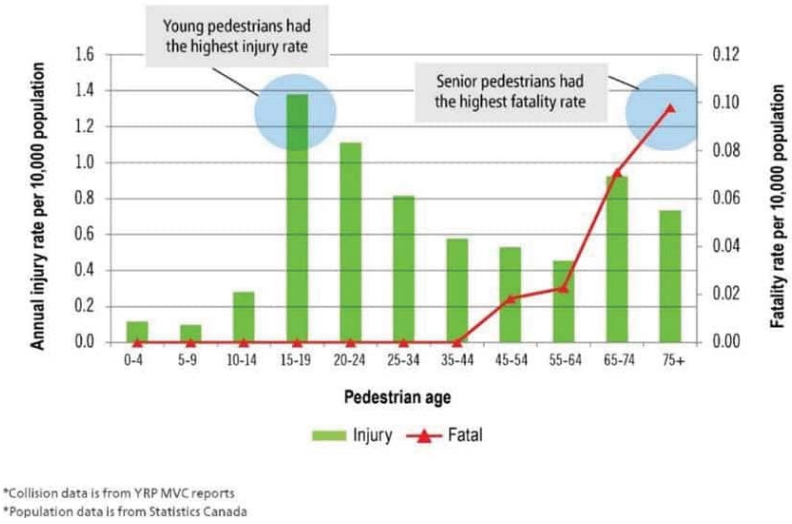


Figure 2-20. Injured or Fatally Injured Pedestrian Age Distribution 2019-2021 (Source: York Region 2022 Traveler Safety Report)

The intersection of Wellington Street and Yonge Street, illustrated in **Figure 2-21**, was identified as one of the top 10 highest pedestrian collision intersections from 2012 to 2021. This intersection had a total of 14 pedestrian collisions over the 10-year period, 13 of which resulted in an injury.

Figure 2-21. Intersection of Wellington Street and Yonge Street (Source: Google Earth 2023)

Cyclists

Similar to the trends seen in pedestrian collisions, cyclist collisions rates have decreased by 16% while the overall number of cycling trips has increased, as shown in **Figure 2-22**.

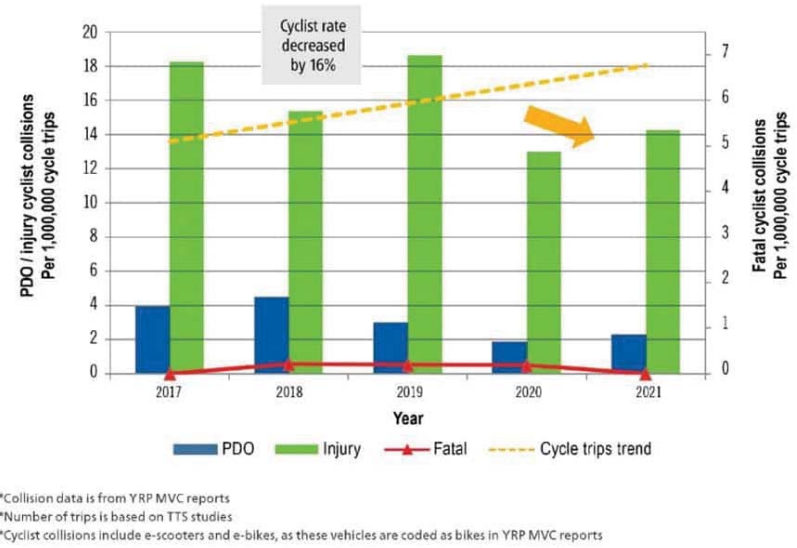


Figure 2-22. Cyclist Collision Rates, 2017-2021 (Source: York Region 2022 Traveler Safety Report)

Cycling collisions were generally the highest during hours of peak traffic volumes similar to pedestrian collision trends. Peak cyclist collisions generally occurred in the morning and evening peak hours on weekdays and mid-day on weekends, as shown in **Figure 2-23**.

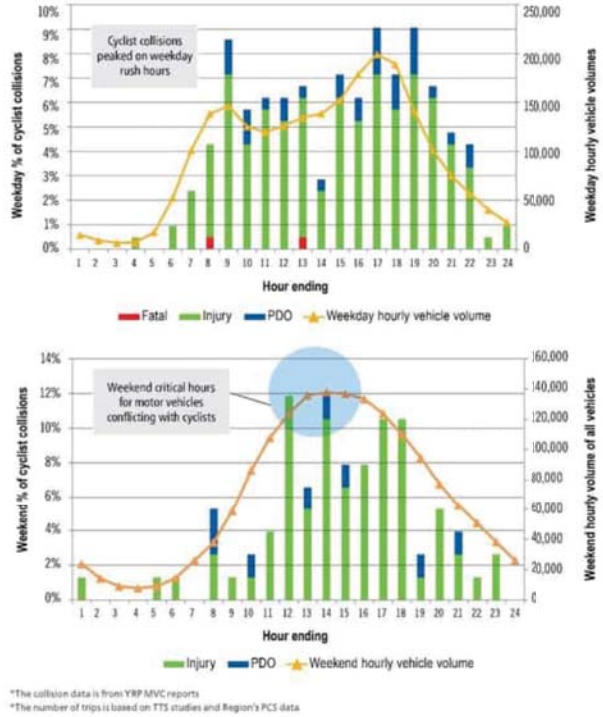


Figure 2-23. Cyclist Collisions by Time-of-Day, Three-Year Average, 2019-2021 (Source: York Region 2022 Traveler Safety Report)

Cyclists

The majority of cyclist collisions occurred in the summer months (June to September), which is generally when there is the highest number of cycling trips, as shown in **Figure 2-24**.

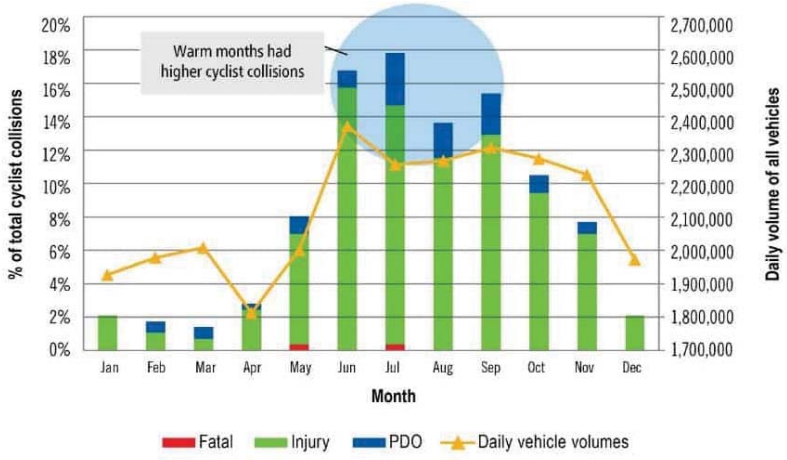


Figure 2-24. Cyclist Collisions by Month, Three-Year Average, 2019-2021 (Source: York Region 2022 Traveler Safety Report)

Young cyclists, aged 15 to 19 years old, were found to be most likely to be injured, as shown in **Figure 2-25**.

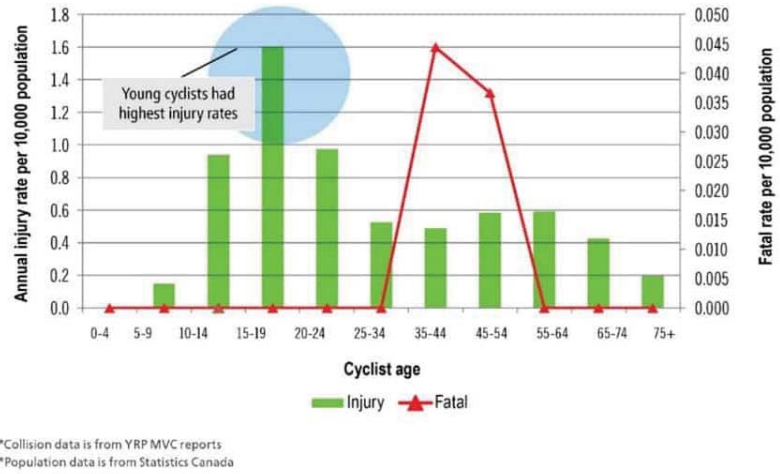


Figure 2-25. Injured or Fatally Injured Cyclists Age Distribution, 2019-2021 (Source: York Region 2022 Traveler Safety Report)

The next section of the report examines best practices related to active transportation from other jurisdictions, which were considered in conjunction with the policy review for the Town of Aurora and fed into the recommendations outlined in the ATMP.

Chapter 3

Best Practices and Their Impact

3.1 Comparable Municipalities and Recent Planning Documents

Communities across North America are taking steps towards becoming better places to walk, cycle and roll. The first step is often the development of a Master Plan document such as an ATMP. When developing the ATMP for Aurora, it is beneficial to consider how comparable municipalities have developed their own Master Plans and what lessons can be learned from those plans to be adapted for Aurora.

In identifying Case Study communities, the Project Team looked for municipalities that:

- Have a similar, four-seasons climate with cold winters;
- Are of a similar scale in terms of population and geography; and
- Function as a Local hub for commercial activities.

Based on these criteria, the Project Team identified and reviewed recent transportation planning documents from the Town of Newmarket in Ontario, Municipality of Central Saanich in British Columbia, and the City of Cambridge in Massachusetts as an international example. This chapter provides a summary of the key findings.

3.1.1 Newmarket, Ontario

The Town of Newmarket is located just north of Aurora in York Region. With a population of approximately 91,000 people and over 41,000 local jobs, Newmarket has been identified as a Provincial Urban Growth Centre. In an effort to create a more comfortable environment for residents to walk, cycle and roll, the Town developed a comprehensive network implementation plan that builds upon work completed by York Region. Newmarket has an extensive trail system, including the Tom Taylor Trail and East-West Bikeway which form key active transportation corridors across the Town.

The Town of Newmarket's 2018 Active Transportation Implementation Plan (ATIP) is a follow-up study to the 2014 Active Transportation Study.

The Plan's Objectives included:

- Obtain feedback from the public to identify challenges and opportunities;
- Identify a proposed network of connected routes that builds upon the approved network from the Town of Newmarket Official Plan Amendment 11 (OPA11);
- Identify facility types that accommodate a wide range of users of varying skill levels, abilities and age, and develop a network hierarchy to identify priority corridors within the network;
- Provide design guidance to Newmarket on the implementation of on-road and trail active transportation facilities;
- Recommend a wayfinding system that is consistent within Newmarket and the Region to ensure users are able to effectively choose their preferred routes and navigate to key destinations;
- Identify a realistic implementation strategy that can be achieved in short, medium, long-term and future phases; and
- Develop preliminary 10-year cost estimates of the proposed active transportation network.

Why Newmarket was Chosen for a Best Practice Review:

- As a neighbouring municipality to Aurora, the Town of Newmarket has very similar geographic, economic, and political contexts;
- As a municipality within York Region, they share a similar reliance on Regional roads, have transit connections between the municipalities, and have a central north-south trail connection stretching through the heart of both communities;
- The Town of Newmarket has a larger population of over 87,000 residents compared to Aurora's over 62,000 population, however both municipalities have highly dense and urban communities situated around key Regional road corridors, including Yonge Street, Leslie Street, and Highway 404.

To get a sense of different approaches for network development, the Project Team reviewed the ATIP's phased approach. The proposed network was developed through a 4-phase approach, including:

1. Trail Inventory and Field Investigation;
2. Network Development;
3. Preliminary Design and Wayfinding; and
4. Implementation Plan and Cost Estimates.

3.1.2 Central Saanich, British Columbia

Central Saanich is a rural community located in the Greater Victoria Area (GVA) of British Columbia. The 4608-hectare municipality is composed of mix of agricultural lands, urban villages, and provincial parks. The 16,814 residents are largely focused in the areas surrounding the two urban villages of Brentwood Bay and Saanichton and the Keating Business District. Existing mobility infrastructure within the community consists of rural roads, a regional multi-lane highway, and a regional multi-use trail network.

In 2019, Central Saanich developed their Active Transportation Plan (ATP), which involved a robust community engagement process to identify existing challenges and barriers for active transit within the region.

The four goals used to guide the Active Transportation Plan were:

- **More Walking + Cycling:** Create a community and local culture that supports walking and cycling as preferred travel modes.
- **Improved Transit:** Pursue improved public transit services and infrastructure that support both local and regional transit trips.
- **Safer Streets:** Improve road safety and minimize conflicts for all road users, with a focus on improvements that enhance conditions for active travel modes.
- **Local Character, Celebrated:** Celebrate Central Saanich's history and local character through complementary transportation facilities and enhanced access to natural and cultural amenities.

Vision Statement for the ATP

"The Central Saanich Active Transportation Plan will enable people of all ages and abilities to walk and cycle throughout the community, while respecting our unique character and heritage."

Why Central Saanich was Chosen for a Best Practice Review:

- Central Saanich recently developed their Active Transportation Plan with an all ages and abilities approach;
- Both municipalities have valuable trail systems that act as recreation corridors across the regions, and there is room for improvement regarding trail connections and supportive infrastructure;
- They have a similar land use mix with highly dense urban centres and employment areas that are divided by vast rural lands; and
- Although the population and regional area of Central Saanich is smaller, the lessons learned from studying the best practices of the Central Saanich ATP can still be applied to Aurora.

Given the small size of Central Saanich, one of the key pieces in developing the Active Transportation Plan was for residents to identify priority projects to them during the engagement activities. These priority projects were then categorized into one of the four mobility categories: Walking + Rolling, Cycling, Transit, and Streets + Traffic Safety. “Big Ideas” suggested from residents were featured throughout the ATP report, highlighting the importance of the consultation and engagement process as well as providing direct context behind the issues and improvements identified.

The Central Saanich ATP also emphasizes the importance of regional tourism. As a municipality between two larger urban centres within the Greater Vancouver Area, it has become a popular destination for bicycle touring. The ATP outlines actions to further establish itself as an active transportation tourism destination.

3.1.3 Cambridge, Massachusetts United States

Cambridge Massachusetts is the 6th largest city in the Boston Metropolitan area and is adjacent to the City of Boston. The primarily urban municipality is 1838-hectares in size and has a population of 116,632 residents. The population density is evenly distributed across the City, however several major residential and employment hubs exist centering around Harvard University and the Massachusetts Institute of Technology.

Why Cambridge, Massachusetts was Chosen for a Best Practice Review:

- Cambridge was chosen as a case study due to its innovative approach to developing and presenting an active transportation plan, particularly its focus on centering the community at its core.

In 2015 the City of Cambridge Development Department released the Cambridge Bicycle Plan: Toward a Bikeable Future to create a bicycle network and to aid in the adoption of a bicycling culture throughout the city. In 2020 the City began revising the plan to address several changes in conditions to the municipal cycling context including the City's adoption of a Complete Streets and Visions Zero policies, the creation of a public bike share system, and the adoption of the Cycling Safety Ordinance that required the creation of enhanced cycling facilities. The Plan revision allowed the municipality to further engage with the community and monitor the success of the rollout of the 2015 plan. The 2015 Bicycle outlined a vision where cycling and active transportation modes played a larger mobility role within the community, and the 2020 Update outlines the steps for achieving this vision.

The City of Cambridge's Bicycle Network vision was developed with the explicit interest of developing a system that was truly representative of everyone.

To ensure this, the City emphasized engaging people of different ages, physical abilities, genders, economic situations, race, cultural backgrounds / identities, languages and cycling experience levels. Each of these groups were all factored into who is being consulted, whose feedback is valued, and whose experiences the proposed network enhances.

The Cambridge Community Survey asked respondents to rank how comfortable they felt riding on commercial street corridors while using certain types of cycling facilities.

The questions that were asked looked at:

1. How comfortable do you feel riding along the bicycle facilities on a busy commercial street?
2. How comfortable do you feel about your children riding on these bicycle facilities on commercial streets, along with an adult?
3. How comfortable do you feel about your children riding on these bicycle facilities on commercial streets, without an adult with an adult?

The emphasis on surveying parents about their comfort levels of allowing children to use cycling facilities with or without them resulted in a compelling dataset that aids in communicating why cycling infrastructure needs to be built for all ages and abilities (**Figure 3-1**).

Virtually no respondents said they would feel somewhat comfortable having their children ride a bicycle on a street with no designated facility and a shared lane marking whereas over 50% of parents said they would feel either somewhat or very comfortable allowing their children to ride alone on a busy commercial street with a raised cycle track.

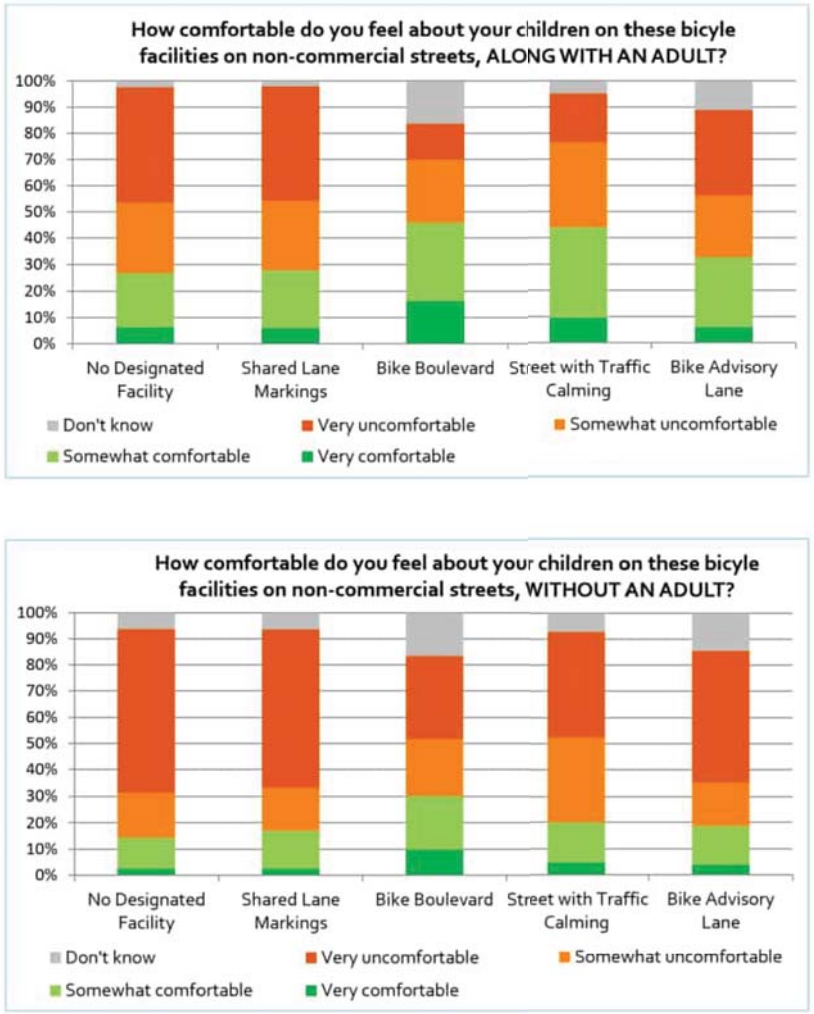


Figure 3-1. Bicycle Comfort Level Survey Results (Source: Cambridge Bicycle Plan, 2015)

The City also used this survey to generate a comprehensive list of barriers and opportunities, shown in **Figure 3-2**.

If you would like to bike more, what prevents you from biking as much as you would like to?

Rank	Code	Number of Responses
1	Lack of safe spaces / separation for bikes	152
2	Lack of a connected bike network	45
3T	Dangerous intersections	18
3T	Bad weather / winter	18
5T	Bad / aggressive drivers	16
5T	Not safe for kids	16
7	Vehicle speeds	14
8T	Vehicles in bike lanes	13
8T	Poor road surface conditions	13
10	Lack of secure storage / theft	11

If you would like to bike more, what could the City of Cambridge do to help you?

Rank	Code	Number of Responses
1	More protected / separated bike lanes and paths	121
2T	More connected network / more consistency	28
2T	More bike lanes	28
4	Enforcement for drivers	24
5	Enforcement and accountability for cyclists	13
6T	More bike signals	12
6T	More bike parking	12
8	Driver education	11
9T	Better road and bike lane surfaces	10
9T	Better wayfinding and signage	10

Figure 3-2. Coded and ranked results from the two open-ended survey questions asked (Source: Cambridge Bicycle Plan, 2015)

The City of Cambridge used a Bicycle Level of Comfort (BLC) Matrix to quantify the level of comfort a person cycling is likely to perceive their trip while riding on any street or pathways. The matrix is based on the premise that comfort increases as separation from motor vehicle traffic increases and comfort levels lower as physical separation and motor vehicle speeds increase.

The City outlined the categories for the types of cyclists that each BLC category represents and correlates each user group to a facility type that they would likely be most comfortable using, as shown in **Figure 3-3**.

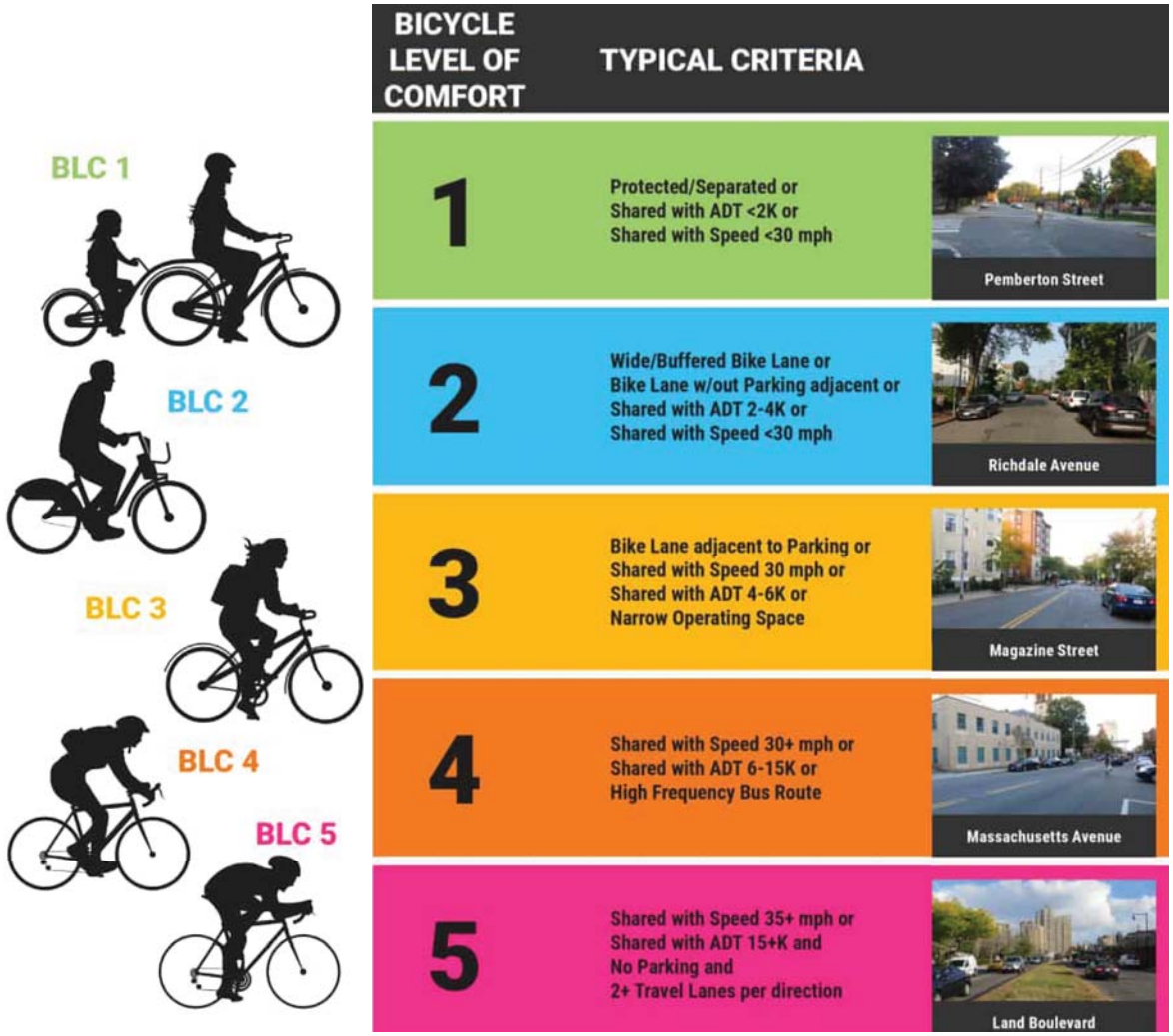


Figure 3-3. Bicycle level of comfort user types, criteria, and existing road condition samples (Source: Cambridge Bicycle Plan, 2015)

Since 2004 the City of Cambridge has actively tracked bicycle crash data. Although the data set still largely involves crashes that are severe or involve a motor vehicle collision, the City has used this data to identify where priority cycling measures should quickly be implemented to further reduce the impact of vehicle-cycling collisions.

The City of Cambridge also used collision data to monitor and see the positive impact separated cycling facilities has had on the community, for example, between 2005 and 2020 the City saw a substantial increase in cycling activity, whereas collision data decreased by more than 36% within the 15-year time span. Explicitly monitoring cycling crash data and integrating new approaches to accounting for it can play a useful role in monitoring the impact of active transportation infrastructure as it is integrated overtime.

3.1.4 Key Takeaways from Comparable Municipalities

Key Takeaways	Newmarket	Central Saanich	Cambridge
Recognize what groups are not being accounted for during the survey and public engagement process.			●
Be aware of where biases and over-representation is occurring within the engagement process. Ensure that new and historically disadvantaged voices are being meaningfully engaged.			●
Conduct community mapping to identify community priorities for active transportation improvements and where network gaps exist. Conduct these mapping activities in-person via an open house, informally at pop-up activities, and online to improve the catchment of input		●	●
Conduct a road network inventory using a Bicycle Level Comfort matrix to help identify emerging cycling corridors, where gaps exist, and what facilities currently exist.			●
Ensure that the report is concise and legible by using plain language, simple report design, call out boxes and bullet points.		●	●
Include direct quotes from community members to establish empathy and understanding behind the report. Use community feedback to tell the story of why enhancing active transportation facilities is essential.			●

Key Takeaways	Newmarket	Central Saanich	Cambridge
Ensure that maps are simple and easy to read, ensure they articulate the necessity for where improvements are required.	●	●	●
Develop the report by publishing each chapter as an individual discussion paper through the study process. Allow users, city staff, and policy makers to be able to reference each chapter as its own report.		●	●
Within the discussion papers, retain the thorough network development process and implementation / costing table to build public trust and accountability.	●		
Convey priority projects and rollout phasing using maps in conjunction with tables identifying project specifications.	●	●	
Account for and accommodate active transportation tourism and adopt signage and wayfinding strategies to encourage it, making Aurora a touring destination within the Greater Toronto Area (GTA).		●	
Include technical design guidelines and engagement summary as appendices to help make the reports more concise.		●	●
Allow thorough field inventory and analysis of existing amenities and infrastructure. This is not only useful for developing a proposed active transportation network, but the dataset created from the activity can be invaluable for future projects.	●		

3.2 Best Practices and Emerging Technologies

Transportation planning is dynamic and needs to be flexible and adaptable to future trends. This section provides an overview of some of these key considerations for the Town.

3.2.1 Complete Streets Approach

Interconnected streets are the key to building a network that allows physical movement and connects people to different areas and destinations within the Town. Streets are important public spaces that provide various social and recreational uses while shaping the urban fabric.

The concept of Complete Streets puts the emphasis on the needs of the road users, including people who cycle, walk, take transit and drive on the street. This shifts the priority away from solely focusing on motor traffic and creates a safe and welcoming environment for all ages, abilities, and mode of travel. The Complete Streets concept is closely related to the Safe Systems and Vision Zero approaches on road safety. More details on Vision Zero will be provided under **Section 3.2.4**. It aims to design a transportation system that anticipates human error and accommodates human injury tolerance with the ultimate goal of eliminating death or serious injury on roadways.

The following considerations will guide the Aurora ATMP design approach to incorporate complete streets to new and existing streets.

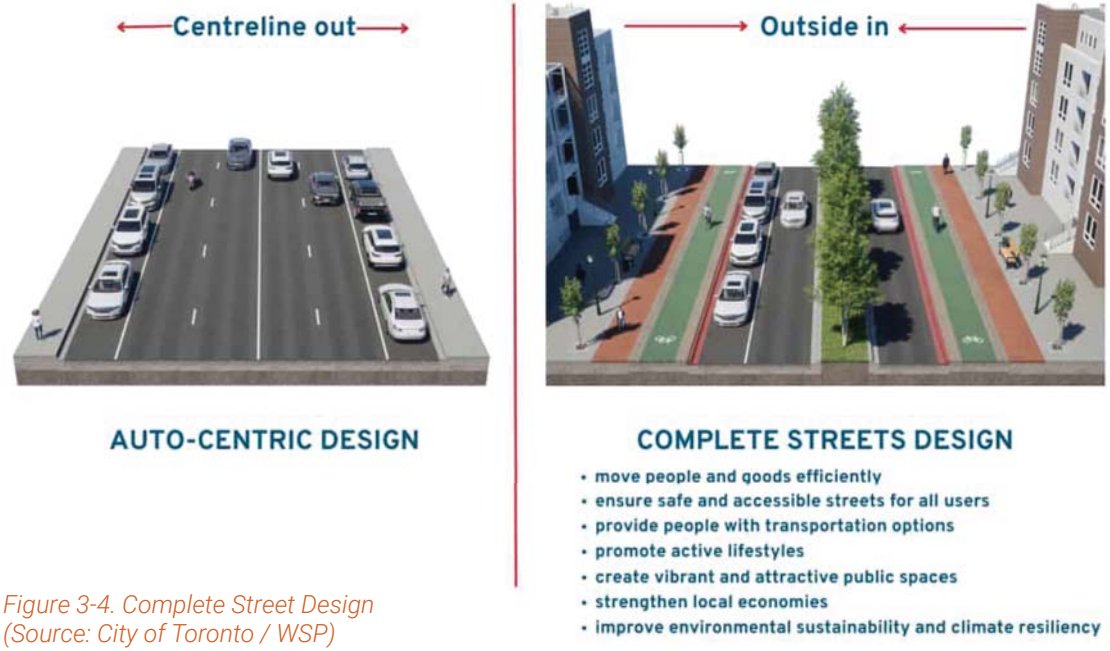


Figure 3-4. Complete Street Design (Source: City of Toronto / WSP)

Consider the Street Context

Every street is designed differently to align with its land-use context, function, and environment. A residential local road has different design features compared to a rural collector. The Town should consider where the street is located, who the main users are and if the street is designated for access or movement.

Provide Safe and Accessible Options

Complete Streets aims to improve safety and accessibility for transit users, pedestrians, and cyclists, so they may feel as an equal part of the roadway design. A sense of safety and ease of access increase the desire to walk leisurely along the street.

Prioritize Transit and Active Transportation

A street with high mobility is directly linked to the provision and convenient access to transit and active transportation infrastructure. Enhancing the walking and cycling experience with comfortable, safe, and accessible routes and facilities will discourage the use of private vehicles.

Create Attractive, Vibrant Places

Attractive and vibrant streets that support pedestrian access create a strong sense of place and identity. Designing the streets with appealing streetscaping and multiple functions encourage pedestrian movement and future visits.

Prioritize Connectivity

New streets should not be isolated from the rest of the road network. The Town's roads must be cohesive and well-connected to other roads to encourage new active transportation users. It is important to provide active transportation infrastructure and facilities along streets with many connections to retail, community spaces, and green space.

Consider Cost Effectiveness

The environmental, social, and economic benefits and costs should be considered in designing a Complete Street. Consider the direct and indirect costs of construction, operation, and maintenance. Designing the street with long-term use can reduce the number of retrofit projects needed in the future.

3.2.2 Typologies

When discussing Complete Streets, the term “Typology” refers to a set of streets that have a similar function and set of objectives. Some streets will prioritize mobility, creating more separation between different road users, limiting access to the roadway and focusing on moving people from A to B efficiently. Other roadways prioritize placemaking, putting an emphasis on the pedestrian realm, providing space for amenities such as patios, seating areas or parklets to create an attractive public space that draws people to it. Regardless of the typology, it is important to have a clear set of objectives for the function of the street so that trade-offs can be evaluated in a consistent and measurable fashion. Below are a set of seven common typologies that could be considered for Aurora, all of which can be evaluated and adapted to fit the local context and community interest.

Urban Avenues
Urban avenues are vibrant pedestrian-oriented streets that provide a high amount of people-movement capacity, located in urban areas of the City.

Major Arterials
Major arterials are mobility-oriented streets that extend across urban areas of the Town. They are high-traffic streets and often important goods movement corridors.

Main Streets
Main streets are placemaking-oriented streets, and include historic main streets found in urban parts of the Town. They are pedestrian-oriented with slow motor vehicle speeds and small–or medium-scale mixed-use buildings.

Residential Connectors

Residential connectors serve to link neighbourhood streets with Urban Avenues and Transitioning Avenues. They accommodate moderate volumes of vehicle traffic in a lower speed environment.

Industrial Streets

Industrial streets provide direct land access to industrial and commercial employment areas. They are found in industrial areas of the Town and may accommodate significant truck traffic.

Neighbourhood Streets

Neighbourhood streets provide direct access to residential dwellings. They are low-volume and low-speed streets that are not intended to serve a through traffic function for motor vehicle traffic.

Rural Roads

Rural roads are mobility-oriented streets within agricultural, natural, or industrial areas of the Town. They provide a high motor vehicle capacity and may be important goods movement corridors.

3.2.3 Complete Streets Audit Tool

A Complete Streets Audit Tool evaluates how the existing or proposed street segment achieves, exceeds, or fails to provide Complete Street elements. It is an interactive tool used throughout the design process to select appropriate typology, assess current or proposed street conditions, and evaluate complete street elements based on the desired conditions. It provides an important decision-making tool and accountability tool to demonstrate how Complete Streets principles are being integrated into the Town's transportation projects.

The following is an example of the four-step process for evaluating existing and proposed streets, developed for the Hamilton Complete Streets Design Manual:

Step 1: Input Data
Provide information about the street being reviewed to inform the selection of typology. This includes the name, location, classification, rural or urban context, right-of-way width, traffic volume and if it is on a transit route.

Step 2: Select Typology
Select the preferred Complete Streets typology based on the information in Step 1.

Step 3: Assess Current / Proposed Street Conditions
Quantitatively and qualitatively assess various street elements. A scale of 1 to 5 could be used to evaluate the following elements: the quality of the pedestrian realm, availability of cycling facilities, availability of transit facilities, through traffic movement, if there is on-street parking and if there is green infrastructure.

Step 4: Review Results
Review the results of Step 3 against an evaluation matrix, such as the example shown in **Figure 3-5**. Priorities are balanced if all the street elements are marked within the shaded area. The desired condition is auto populated once the typology is selected in Step 2. If some street conditions exceed priorities, consider reallocating street space to improve conditions that do not meet the priorities. Return to Step 3 and adjust.

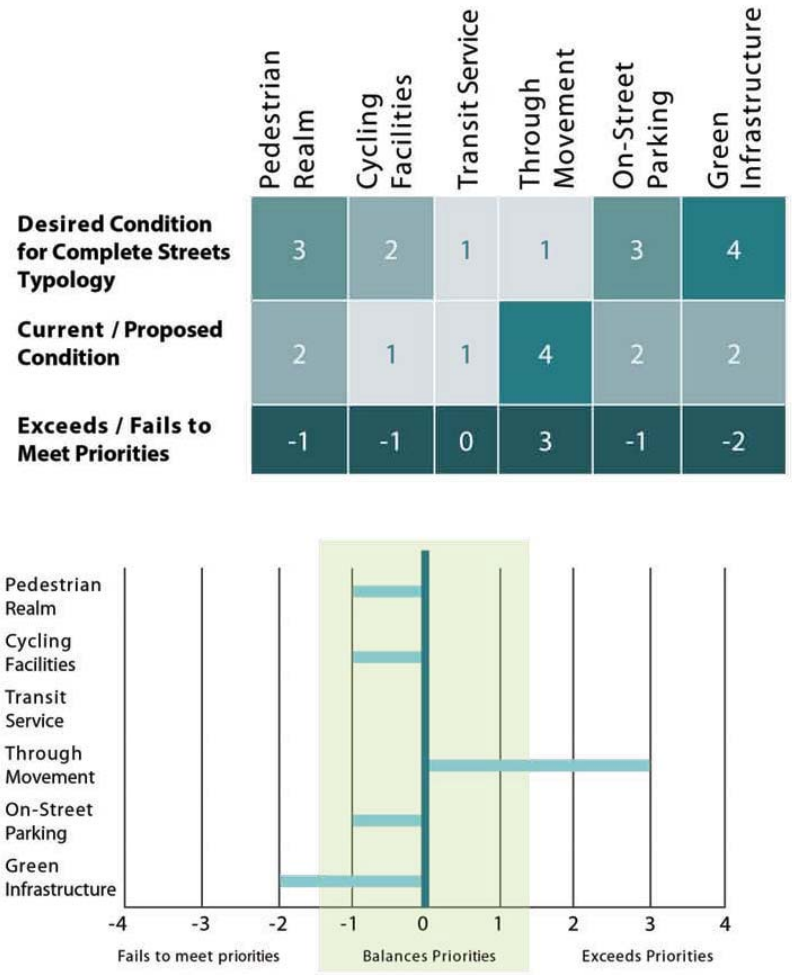


Figure 3-5. Example of the Complete Street Audit Tool Results from the Hamilton Complete Streets Design Manual

This is an example of the Complete Street Audit Tool from the Hamilton Complete Streets Design Manual that allows the user to evaluate the current state and infrastructure of a street. This tool can identify the missing gaps of each element, revealing areas of improvement to make the street more accessible based on the specific needs of road users and the intended purpose of the road.

3.2.4 Vision Zero

The Vision Zero program was initiated by the Swedish government in 1997 to eliminate death and serious road injuries. It has a simple and clear goal to have zero fatalities or serious injuries on roadways, creating the conditions where no loss of life is seen as an acceptable trade-off for mobility. This concept is a departure from traditional thinking about road safety which has focused on perfecting human behaviour. Vision Zero assumes that human error is a natural part of the road safety equation, shifting the burden of responsibility from individual road users to those who design and build the road systems. Although drivers and humans make mistakes, this approach recognizes that road deaths and injuries can be prevented through education, enforcement, engineering, evaluation, and engagement. York Region is in the process of preparing a multi-year Traveler Safety Plan, drawing inspiration from the Vision Zero initiative. A summary of the shift in thinking is provided in **Table 3-1**.

Table 3-1: Summary of Vision Zero Approach and Differences to Traditional Approach

	Traditional Approach 	**Vision Zero Approach** 
Issue	• Preventing all crashes	• Preventing fatalities and serious injuries
Premise and Assumptions	• Fatalities are inevitable • Safety initiatives are costly • Human error is identified as the cause of collisions	• Fatalities are preventable • Safety initiatives reduce societal costs • Flaws in the transportation system identified as the cause of collisions
Focus	• Focus on overall collision rates • Perfecting human behaviour on an imperfect road system	• Focus on fatalities and serious injuries • Designing a road system that accounts for human error
Responsibility	• Individual road users are responsible	• Road users and system designers have shared responsibility

System designers are responsible for the design, operation and use of the road transport system. Therefore, they are responsible for the level of safety within the entire system. Road users are responsible for following the rules for using the road transport system set by the system designers. Shared responsibility ties the two together so that if the road users fail to obey the rules due to lack of knowledge, acceptance or ability, or if injuries do occur, the system designers are required to take the necessary steps to mitigate future deaths or serious injuries.

When instituting a Vision Zero approach, close collaboration between system designers and government decision-makers are required since this approach requires a foundational shift in the understanding of road safety. Vision Zero is a continuous process to create safe roads through engineering changes, new policies, interim safety treatments and educational strategies. Monitoring and evaluation of performance is also essential to assess the conditions of the applied treatments or improved designs.

Vision Zero uses a data-driven and targeted approach to focus on locations that need geometric improvements.

This approach recognizes the disproportionate harm caused by our current transportation system to vulnerable users of the road, such as pedestrians, cyclists, children, older adults, and persons with disabilities and takes deliberate action to improve their safety. Streets with enhanced safety that are designed to be pedestrian- or bicycle-friendly will support active transportation and increased mobility while also improving safety for all road users, including drivers. As roads begin to feel safer for these vulnerable users, more people feel comfortable using them for transportation and recreation, creating more vibrant public spaces and further reducing the burden placed on these groups.

3.2.5 Transportation Equity

Traditionally, the transportation system has not been designed in a value-neutral way, leading to the oversight of underprivileged and marginalized communities due to implicit and explicit biases in the transportation planning process. Both Federal and Regional policies reviewed in Chapter 2 highlight the importance of consider equity within transportation planning. Transportation inequities can apply to many groups of the population and some examples are included in the **Table 3-2**.

Transportation equity considerations should be applied to future planning projects.

Table 3-2: Examples of Population Groups that Face Transportation Inequities

Women	Many women report being afraid of being harassed in public spaces. Women who are caregivers walk and take public transit more often.
Indigenous People and People of Colour	These groups are more likely to be stopped across Canada by the police as they navigate through public space and are disproportionately impacted by traffic violence.
Low-Income Households	These households have less financial ability to purchase and maintain a vehicle and may even have difficulty covering the cost of public transit.
Older Adults	May struggle with walking up hills and across long intersection crossings, and may also find themselves with reduced mobility choice as they age and are unable to continue to drive.
Persons with Disabilities	They are disproportionately impacted by transportation amenities that are solely designed for able-bodied persons, such as sidewalks without curb cuts, a bus stop without accessible boarding or trails that are not maintained in the winter.
Language Challenged Populations	English may not be their first language, and this could create a language barrier to obtain and understand travel information.
People Walking and Cycling	Pedestrians and cyclists are disproportionately impacted by traffic fatalities and collisions.

3.2.6 Micromobility

On January 1, 2020, Ontario passed a legislation to allow municipalities to participate in a five-year e-scooter ride pilot program. With introduction of e-scooters, micromobility trips have rapidly increased over the last couple of years. Although, the Town is not participating in the pilot program.

Micromobility devices are small, human- or electric-powered vehicles, such as bikes, e-bikes, and e-scooters. They could be personally owned vehicles or could be rented through a mobile app or kiosk for short trips. These electric devices can substitute walking as well as other means of transport and reduce congestion and carbon footprint. However, there are increased safety and space concerns in mixing micromobility devices with pedestrians and persons with disabilities.

Additionally, street conditions may not provide enough comfort and safety for e-scooters and cyclists in shared roadway spaces with motor vehicles. Providing designated facilities and infrastructure for cyclists and e-scooters is crucial for those who wants to participate in micromobility. E-scooter users and cyclists will have an improved sense of safety with protected bike lanes, smoother pavements, wider bike lanes, and designated e-scooter / bike parking. The Town can support and manage regulations for the use of micromobility to prevent and mitigate injuries by the following best practices.

Should the Town decided to proceed, a micromobility strategy should be developed, including the creation of a framework to identify infrastructure and outline guidelines, policies and any regulation / by-law changes that may be needed to support these devices.

Roadway Usage

- Provide in-street bike facilities that are separated from traffic.
- If there are no existing separated infrastructure for e-scooters, sidewalk riding can be allowed with a maximum speed limit of 10 km/h.
- Introduce riding prohibitions in specific areas, sidewalks, or public property with regulatory signs.
- Establish appropriate maximum operating speeds for e-scooters, such as 20 km/h in cycling facilities and 10 km/h in multi-use pathways or residential areas with vulnerable populations.
- Implement a ban on night-time riding from 30 minutes after sunset to 30 minutes before sunrise.
- Provide parking regulations for bikes and e-scooters.

User Behaviour

- Wear helmet and reflective gear.
- E-scooters should be fitted with all-weather tires, front and rear lights, bell, and braking mechanisms.
- Riders should follow speed limits and road restrictions. If the user fails to comply with the regulations, enforcement penalties can be applied with fines from $25 to $250 or community service.

Regulations for Sharing Businesses

- E-scooters should have standardized built-in features, size, weight, and speed limits, such as including a bell, front and rear lights, and front and rear brakes.
- Set maintenance requirements for deployed devices. Each licensee shall keep records of maintenance, including repairs and replacing the damaged elements.

The next section of the ATMP focuses on the Town of Aurora's existing active transportation network.

Chapter 4

Aurora's Active Transportation Network

4.1 Existing Conditions

The existing conditions of Aurora's current active transportation network have been reviewed and investigated in the field to inform mapping and confirm where infrastructure is present, and to identify potential missing links in the Town. Data regarding current community trends have also been assessed to understand where people are traveling to, how people are getting around and which areas would benefit the most from active transportation investment. By understanding the Town's travel patterns and existing conditions, and by applying route selection criteria, a number of candidate routes and facility types have been selected to develop a preferred active transportation network. This chapter summarizes the existing conditions of the Town's active transportation network.

Digital spatial data gathered from the Town of Aurora, York Region and Land Information Ontario was used to develop a database of existing and previously proposed routes as part of approved planning documents. These included the Town's Trails Master Plan (2011) and Master Transportation Study (2020) and the Region's Transportation Master Plan (2022). The database has been updated throughout the project duration to reflect current conditions and refine proposed facilities as the network development work progressed.

4.1.1 Pedestrian Network

Building a pedestrian network that is comfortable and safe for all ages and abilities is key to a multi-modal transportation network. Most trips start and end with a walk, whether its to a transit stop or to a car. Pedestrians are one of the most vulnerable road users and walking is considered a more accessible mode of transportation as no vehicle or bike is required and there is no age requirement. According to Ontario Traffic Manual Book 15: Pedestrian Crossing Facilities, a pedestrian includes:

- A person who is not in or upon a vehicle, motorized or otherwise propelled;
- A person in a non-motorized wheelchair;
- A person in a motorized wheelchair that cannot travel at over 10 kilometres per hour; and/or
- A person pushing a bicycle, motorized or non-motorized wheelchair.

> *"In recognition of the health and environmental benefits associated with active transportation, it is a priority of this Plan to facilitate an active and integrated multi-modal transportation system that is safe, efficient, economical, convenient and comfortable while respecting the heritage features and character of the community."*
>
> *- Town of Aurora Official Plan, 2023*

Pedestrian Facility Typology

The following illustrates the typical pedestrian facility types in Aurora:

Multi-Use Path
A shared pathway runs along the roadway, but it is separated from motor travel by a curb or other physical barrier. They are intended to be used for pedestrians and cyclists.

Multi-Use Trails
A recreational trail in an area that is outside of the roadway and usually passes through parks and other green spaces. Similar to Multi-Use Paths, they are intended to be used for pedestrians and cyclists.

Sidewalk
Sidewalks are intended exclusively for pedestrian use, which is typically aligned parallel to the roadway.

Existing Pedestrian Facility Inventory

An inventory and review of the existing pedestrian routes and facilities was conducted using a desktop approach, with a review of digital spatial data, reviews of approved planning documents, reviews with Town Staff, and select field visits.

Table 4-1 summarizes the existing pedestrian network lengths within the Town of Aurora and the existing sidewalk network is illustrated in **Figure 4-1** and the existing trails and multi-use path network is illustrated in **Figure 4-2**. Note that existing off-road multi-use trails also include trails that have been designed, funded, and scheduled to be implemented in 2024.

Table 4-1. Existing Facility Types: Pedestrian Network

Facility Type	Existing Length (km)
Multi-Use Path[1]	18.3
Multi-Use Trail	61.0
Sidewalk	201.2
Total	**280.5**

Note:
1. This includes Multi-Use Paths on Regional Roads which are operated and maintained by the Town.

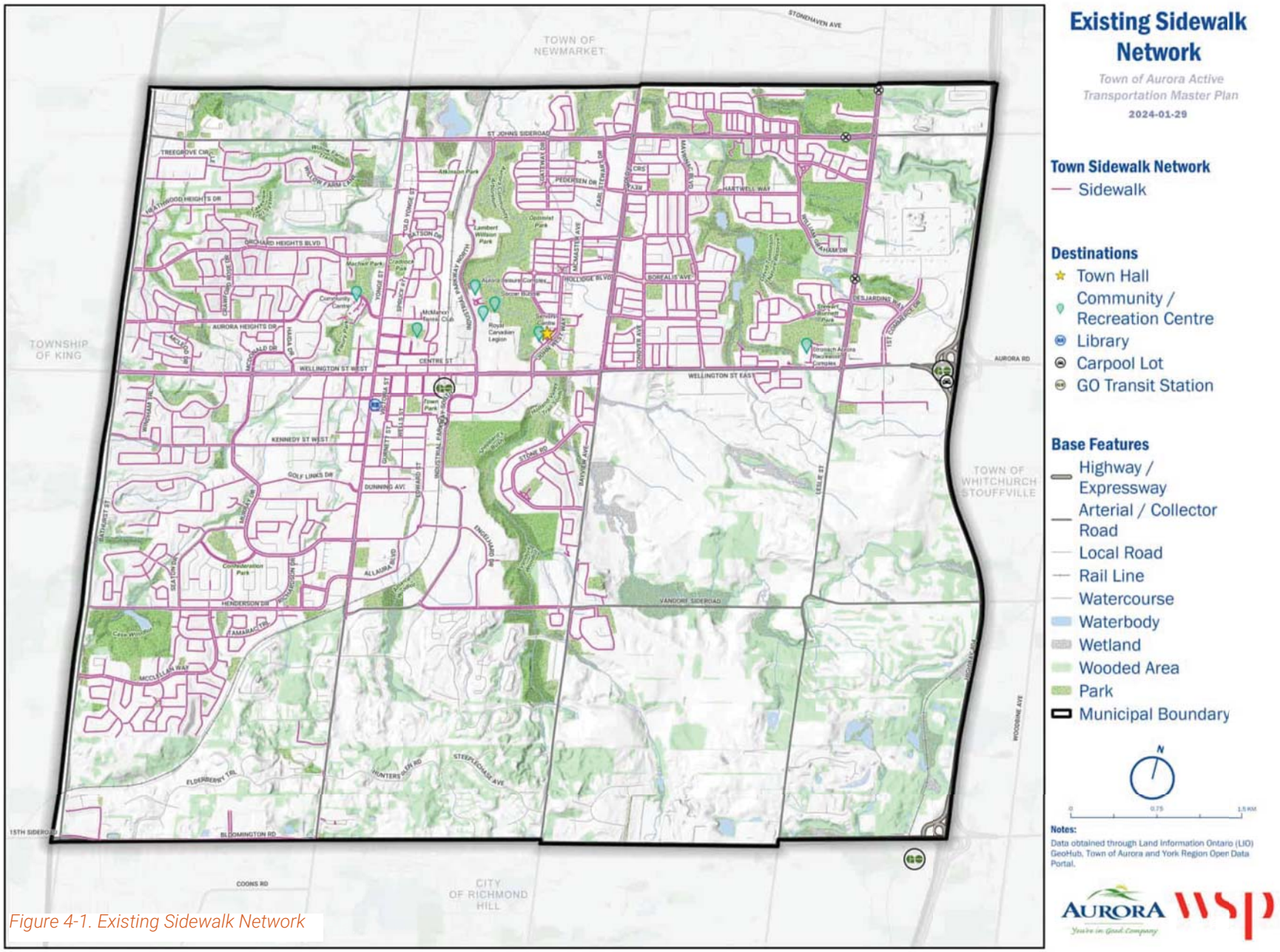


Figure 4-1. Existing Sidewalk Network

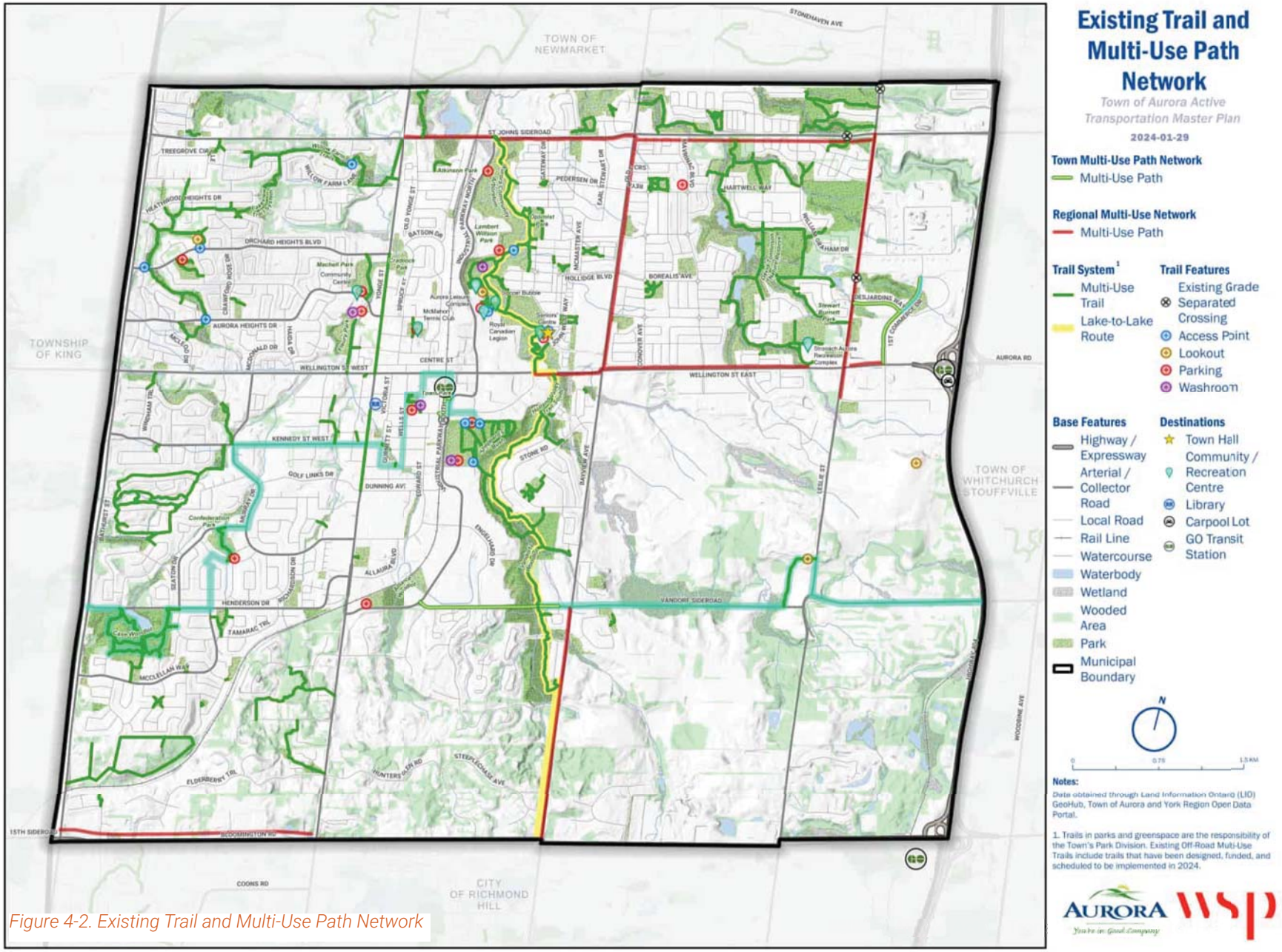


Figure 4-2. Existing Trail and Multi-Use Path Network

4.1.2 Cycling Network

The cycling network will include both on and off-road routes. People who cycle are often categorized by transportation professionals based on the factors that influence an individual's inclination to cycle. These categories include "interested but concerned", "somewhat confident" or "highly confident" based on their skill and preferred facility type. The largest category is considered the "interested but concerned" group who are described as being open to the idea of cycling but are uncomfortable sharing the street with motor vehicles except on very low-volume, low-speed W streets. These users typically consider cycling for short to moderate trip lengths and may be deterred by inconsistent cycling facilities, rough topographic conditions and high traffic volumes.

Given the size of the "interested but concerned" group, they should be considered the "design cyclists", meaning that they are the user group that the AT network should seek to accommodate.

DESIGN CYCLIST			
	Interested but Concerned	**Somewhat Confident**	**Highly Confident**
	• Strong preference for separated cycling facilities or very low-volume and low-speed streets • Cycling frequency depends heavily on having a network of low-stress facilities • Can generally negotiate simple low-speed interactions with motor vehicles at intersections	• Comfortable cycling on-street and interacting with moderate-speed traffic • Preference for separated cycling facilities or low-volume and low-speed streets • Cycling frequency increases as network of low-stress facilities expands	• Comfortable cycling on-street and interacting with higher-speed traffic • Preference for cycling facilities that allow for easy overtaking and efficient movement • Cycling frequency not necessarily affected by network
			
% of population	• 51–56%	• 5–9%	• 4–7%
Stress tolerance	• Low	• Moderate	• High
Skill level	• Experience varies • Ability to anticipate and mitigate basic hazards	• Comparatively experienced • Ability to anticipate and mitigate common hazards	• Highly experienced • Well-developed ability to anticipate and mitigate most hazards
Typical demographic profiles	• Age: All* • Gender: any • Ability: includes individuals who may have a disability or are new to cycling	• Age: 18–65+ • Gender: women are under-represented • Ability: individuals with a disability are under-represented	• Age: 18–65+ • Gender: women are under-represented • Ability: individuals with a disability are under-represented
Typical travel speed	• 10–25 km/h	• 15–25 km/h	• 20–35 km/h

* Children under 12 are an essential cycling demographic but their abilities vary significantly and they may not yet have the cognitive ability to detect risks, negotiate conflicts or ride a bike independently. Many municipalities have by-laws allowing children to cycle on sidewalks for this reason.

Figure 4-3. Types of Cyclists (OTM Book 18, 2021)

Cycling Facility Typology

The following are the typical cycling and multi-use facility types that exist in the Town of Aurora:

Multi-Use Path
A shared pathway runs along the roadway, but it is separated from motor travel by a curb or other physical barrier. They are intended to be used for pedestrians and cyclists.

Bike Lanes
Bike lanes are located on a portion of the roadway with designated space that is to be used exclusively by cyclists. They are typically marked by a bicycle symbol and pavement markings.

Paved Shoulder
A paved shoulder is a portion of a roadway which is contiguous with the travelled way and provides lateral support for the pavement structure. It provides cyclists an area that is separated from motor travel with a pavement marking. Typically, paved shoulders are located on rural roads.

Signed Route
Designated shared roadways are typically low-speed and low-volume neighbourhood roads where motorists and cyclists are expected to operate. A signed route is a shared roadway that has supportive signs and/or pavement marking treatments for wayfinding and to promote safer interactions between cyclists and motorists.

Multi-Use Trail
A recreational trail in an area that is outside of the roadway and usually passes through parks and other green spaces.

Existing Cycling and Multi-use Network Facility Inventory

An inventory and review of the existing cycling and multi-use routes and facilities was conducted using a desktop approach, with a review of digital spatial data, reviews of approved planning documents, reviews with Town Staff, and select field visits.

Similar to the pedestrian inventory review, a desktop approach with select field visits was taken to confirm the existing conditions of the cycling and multi-use network. The findings from the inventory are summarized in **Table 4-2** and map of the existing cycling and multi-use network is shown in **Figure 4-4.** Note that existing Multi-Use Trails include trails that have been designed, funded, and scheduled to be implemented in 2024.

Table 4-2. Existing Facility Types: Cycling and Multi-use Network

Facility Type	Existing Length (km)
Bike Lane	3.6
Signed Route	6.4
Paved Shoulder	2.6
Multi-Use Path[1]	18.3
Multi-Use Trail	61.0
Regional On-Road Cycling Facility	5.1
Total	**97.0**

Note:
1. This includes Multi-Use Paths on Regional Roads which are operated and maintained by the Town.

The next section of the report summarizes the public and stakeholder engagement activities undertaken during the development of the ATMP and their outcomes.

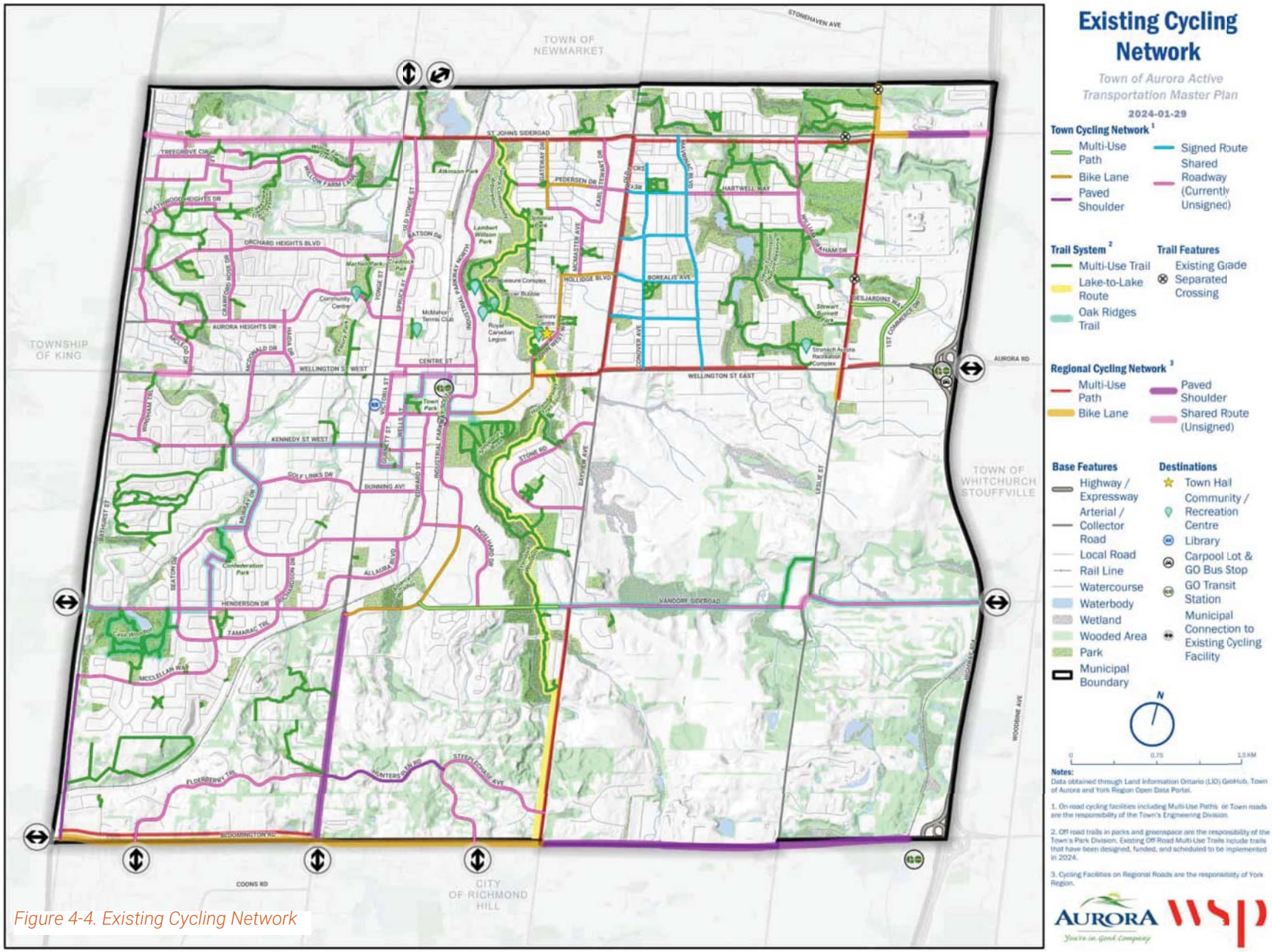
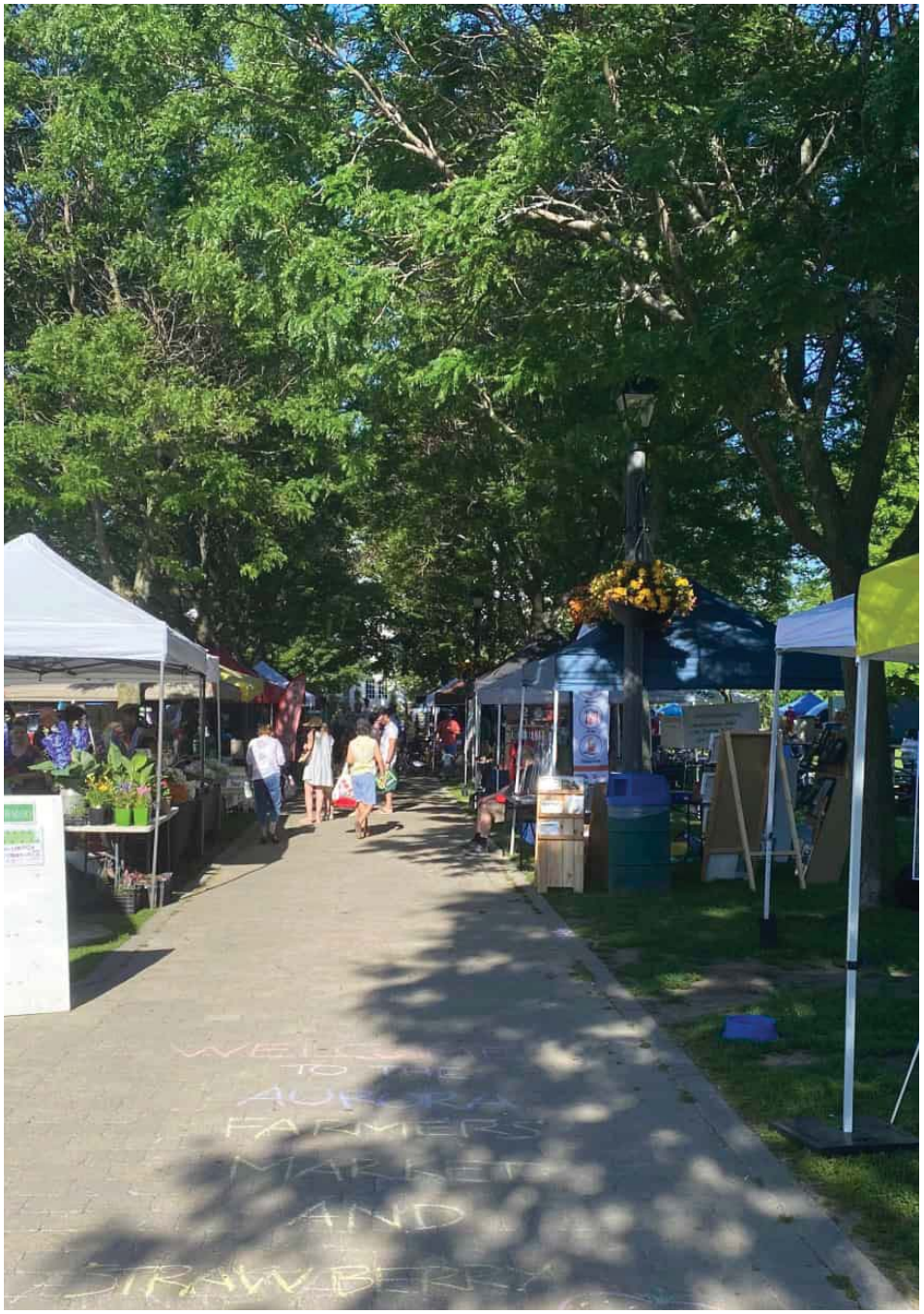


Figure 4-4. Existing Cycling Network

Chapter 5

Study Consultation and Engagement



5.1 Engaging with Aurora

During the preparation of this ATMP, the Project Team conducted both in-person and virtual consultation activities to identify the needs and concerns of Town residents and stakeholders. Information collected from these consultations was used to inform the development of the proposed network as well as other recommendations that formed this ATMP.

The series of consultation activities that were undertaken during the preparation of this ATMP included:

- Public consultation at the Aurora Farmers Market
- Collecting public feedback through the Engage Aurora online web page (mapping and survey)
- Four meetings conducted with the Active Transportation and Traffic Safety Advisory Committee (ATTSAC)

This chapter first summarizes the key feedback collected via each of the consultation activities listed above ("What Was Said"), followed by an outline of the main themes identified from the consultations ("What We Heard"), and finishes with how the public and stakeholder input was incorporated into the ATMP.

5.2 What Was Said

Farmers Market

On June 25, 2022 members from the Project Team and Town Staff attended the Aurora Farmers Market to promote the ATMP and engage with residents, as shown in **Figure 5-1**. From 8:00 a.m. to 12:00 p.m., over 100 residents stopped by the booth setup for the ATMP study. The existing conditions maps of the cycling and pedestrian network were printed for users to write on to identify challenges, gaps and opportunities across the Town.

User comments made on the maps predominantly identified places where safety concerns persist when using active transportation modes. Common feedback heard from the in-person mapping exercise included requests for:

- Dedicated bike lanes and enhancing connections to the trail system along the southern portion of Bayview Avenue
- Sidewalks on the section of Yonge Street north of St. John's Sideroad
- Safety improvements at the Bayview Avenue and St. John's Sideroad intersection

Figure 5-1. Project booth promoting the ATMP study

Engage Aurora Online Web Page

In addition to the in-person engagement activities, an online engagement platform was developed as the primary tool to keep the public informed about the ATMP, as shown in **Figure 5-2**. Several engagement tools were used on the platform to obtain feedback from residents on their comfort and safety when walking and cycling around Town and where gaps are within the existing active transportation network. Engagement results were received through a mapping tool, a community survey, and direct emails from residents and stakeholders.

Since the platform launched on Engage Aurora, the website had over 550 visitors, 197 of which engaged with materials on the web page, including the project newsfeed, discussion papers and the FAQ section. 100 of the visitors to the page used the engagement tools. The feedback received through the mapping tool, as outlined on the following page, helped inform the development of the preliminary active transportation network during this ATMP.

Figure 5-2. Promoting the online web page for the ATMP

Mapping Activity

The public was able to contribute to the mapping tool on the Engage Aurora web page as well as provide feedback during the Aurora Farmers Market, as shown in **Figure 5-3**, to identify specific locations of missing connections, desired facilities, and unsafe areas within the existing cycling and pedestrian networks. Feedback received included:

- Adding a pedestrian crossover (PXO) across Wellington Street East between Berczy Street and Ross Street that would connect pedestrians directly to the Aurora GO station
- Adding a PXO across Wellington Street East that connects the north sidewalk to the Tim Jones Trailhead
- Adding bike parking at Town Park Aurora
- Adding a raised PXO across Aurora Heights Drive that connects Machell Park to the Aurora Community Centre
- A request to build a sidewalk from the end of Willow Farm Lane to Yonge Street to accommodate additional foot traffic from St Anne's School to Yonge Street

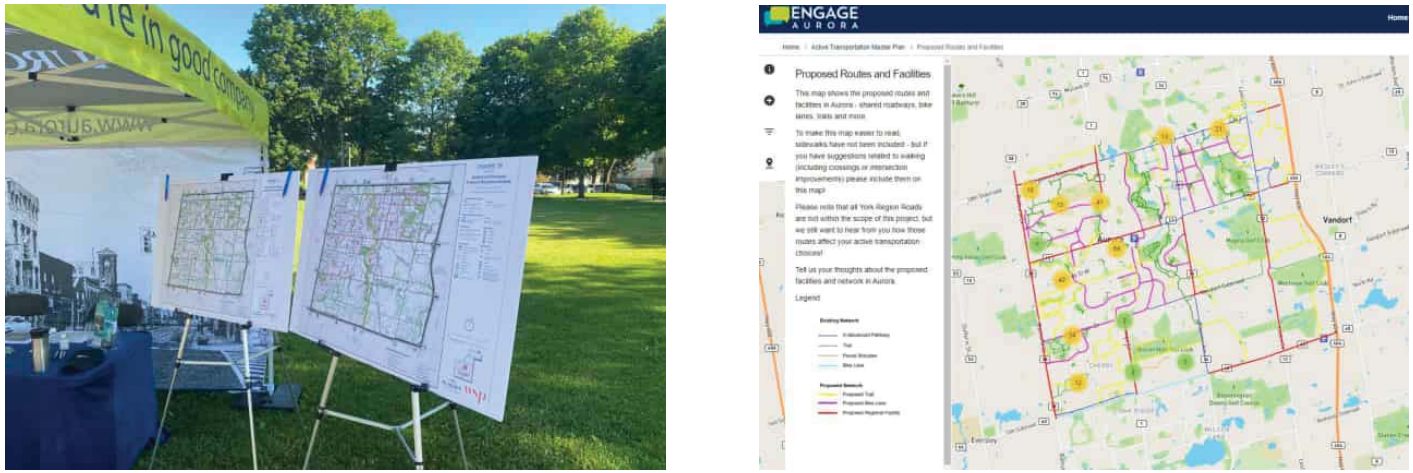


Figure 5-3. Mapping activities during consultation

Survey

Nearly 100 residents participated in the Engage Aurora survey between its launch in late June and closing during September 2022. The largest group of respondents were those over the age of 55 accounting for 40.4% of responses received. Youth participation in the survey was low, accounting for only 3% of respondents. Key findings from the survey included:

Travel Modes

- 80% of the respondents depend on Single Occupancy Vehicles as their primary mode of transportation.
- 34% of respondents chose walking as the alternative mode of transportation that they would take and 31% of respondents chose cycling.

Walking/Rolling Uptake

- Walking and using a mobility device were the most common forms of active transportation used within in the community, especially for leisure, exercise, and socializing purposes.
- 67% of residents walk daily or four to six days a week in the spring, summer, and fall. This drops to 53% in the winter.
- The majority of respondents were willing to walk 10 to 20 minutes to access services such as transit, shops, community services, and work/school.

Cycling Uptake

- 66% of respondents who are bike owners use either a mountain or hybrid bike and 2% use e-bikes.
- 22% of respondents bike four days a week or more and 30% bike one to three days a week in the spring, summer, or fall. 74% of respondents indicated that they never cycle during the winter.

Survey

Barriers to Walking and Cycling in Aurora

- The top three barriers to walking within Aurora, as shown in **Figure 5-4**, were identified as:
  - Lack of sidewalks/trails
  - High speed and noise of vehicle traffic
  - Poor conditions of existing sidewalks and trails
- When asked about cycling safety within Aurora, 38% of residents felt somewhat safe when cycling on-roads and 38% indicated not feeling safe. 13% of residents felt very safe and the remaining 11% responded with no opinion.
- The top barriers to cycling frequently in Aurora, as shown as shown in **Figure 5-5**, were identified as:
  - Significant gaps in the AT network
  - Lack of connectivity between the trail network and services destinations

Priorities for Improving the Active Transportation Network

- The most desired cycling improvement selected were the addition of more off-road trails / in-boulevard paths, bicycle parking, and connections to other amenities across the network.
- Residents indicated that building new sidewalks to fill in gaps and increasing maintenance for sidewalks were the two key factors to increasing the number of pedestrians.

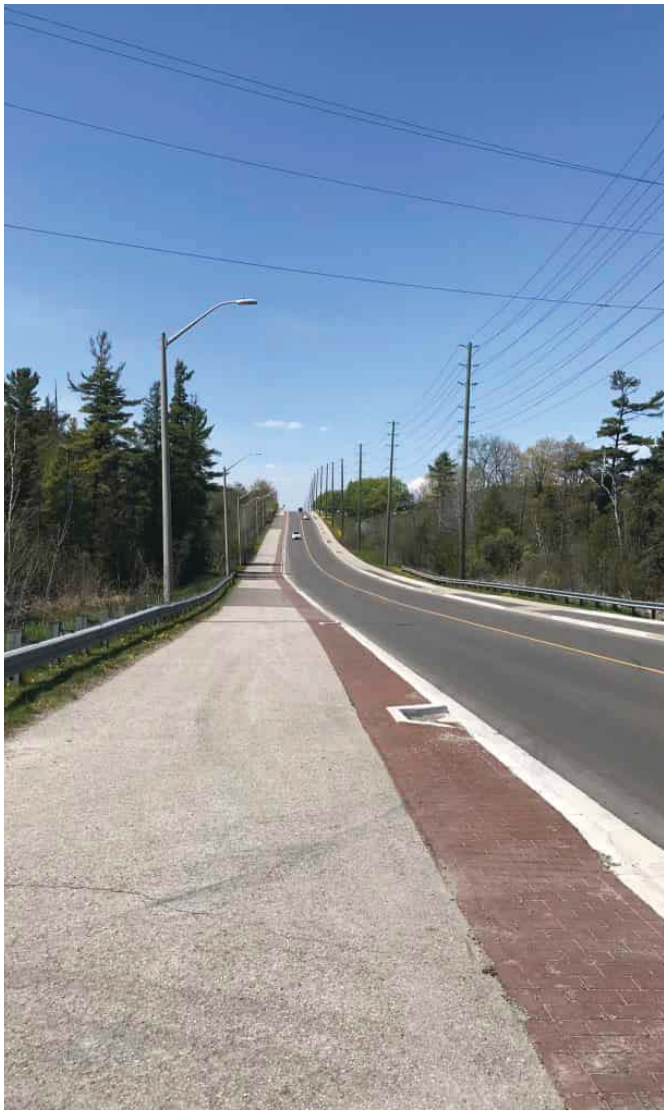


Figure 5-4. Responses to the Question: "What are the main barriers for walking or using a mobility device more often than you currently do in Aurora?"

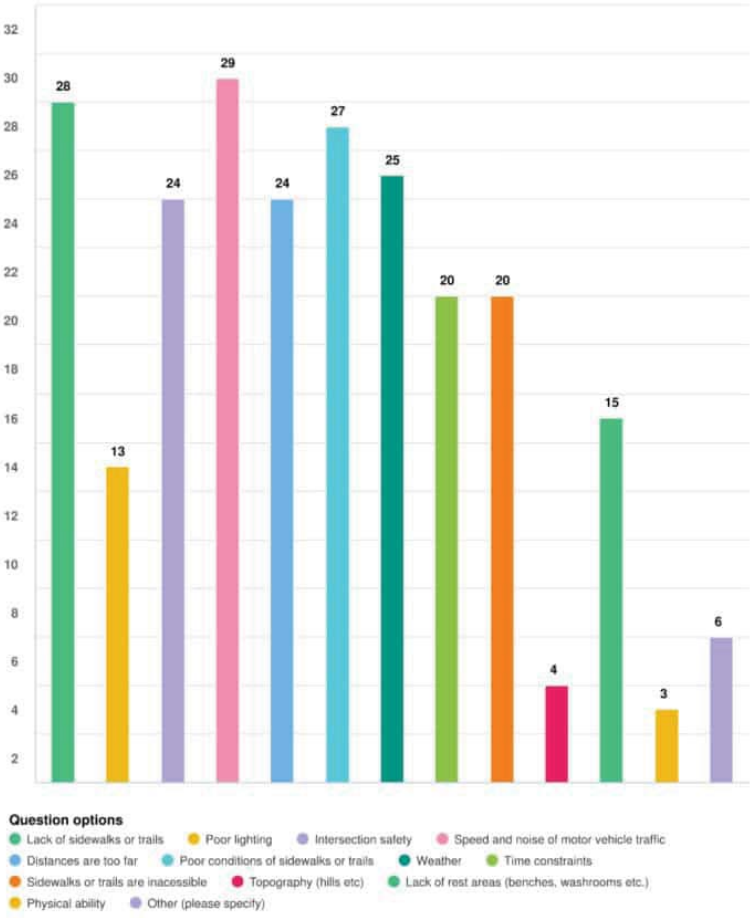
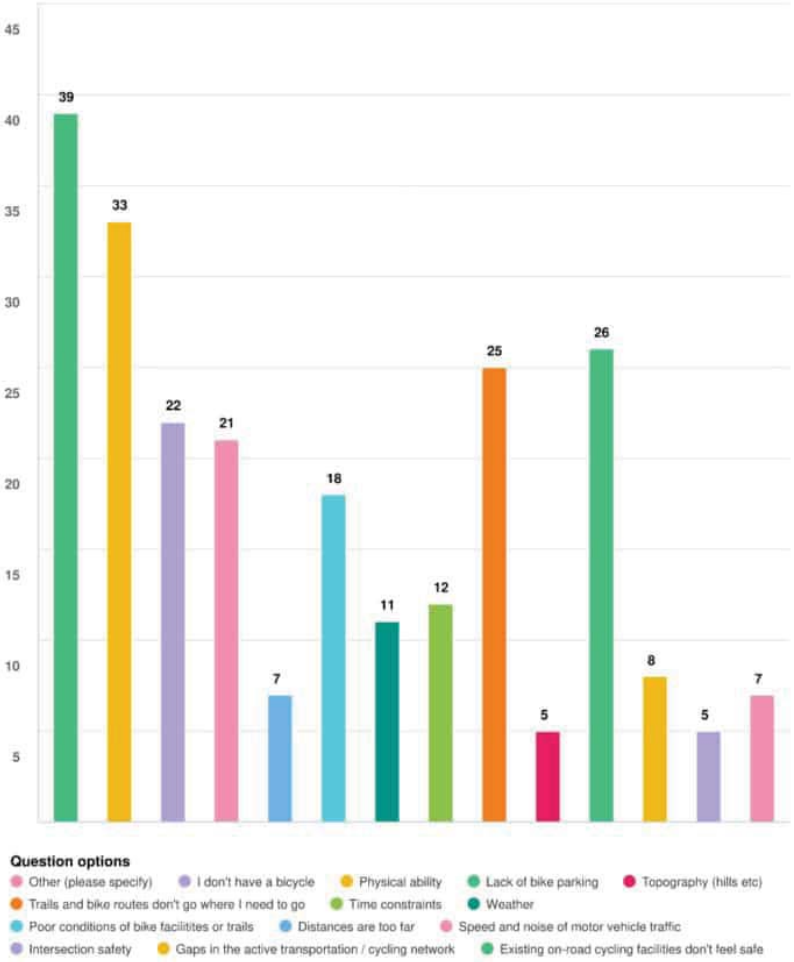


Figure 5-5. Responses to the Question: "What are the main barriers preventing you from cycling more often than you currently do?"

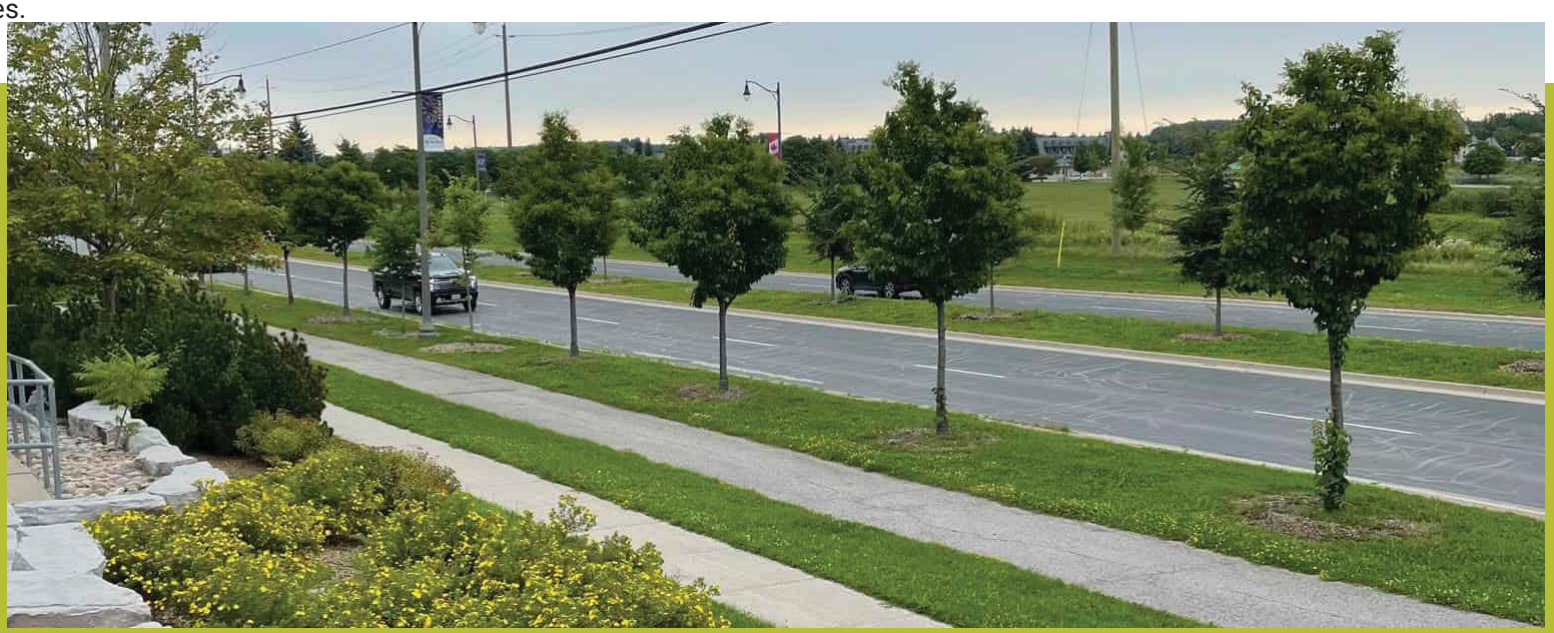


Active Transportation and Traffic Safety Advisory Committee (ATTSAC) Meetings

Throughout the project, the Project Team hosted four meetings with ATTSAC to inform key stakeholder groups about the development of the project, its vision, the proposed network, and the design principles guiding its development. ATTSAC meetings were held in for each respective project phase. The meetings included:

- Meeting #1 – Project Background and Progress Update, April 26, 2023
- Meeting #2 – Network Development Process and Facility Selection, June 28, 2023
- Meeting #3 – Town and Agency Stakeholder Workshop, November 9, 2023
- Meeting #4 – ATMP Overview, January 24, 2024

Each meeting allowed participants to ask questions about the progress of the project, and it also allowed residents to provide input on the development of the network and its chosen facilities. Key themes from the first three ATTSAC meetings are outlined in the following pages.



Meeting #1 – Project Background and Progress Update

The engagement activity involved the Project Team sharing a progress update on the scope of the ATMP's development including providing a summary of Discussion Paper's 1, 2 and 3. The Project Team also provided a summary of what was heard from the community from the online survey, mapping tool, and during the in-person event at the Aurora Farmers Market. Attendees included Town Staff and ATTSAC members. The Project Team invited participants to email feedback on the preliminary proposed candidate cycling and pedestrian network following the meeting. In total, three emails were received by the Project Team that included a list of location specific design considerations and support for enhancing the multi-use trail network. Additional themes identified in these emails included:

- Accessibility for Ontarians with Disabilities Act (AODA) Compliance:
  - A respondent suggested that all trails should be AODA compliant by ensuring that they can accommodate mobility assistance devices.

- Waste Management:
  - Comments were received about adding waste / recycling containers along all multi-use paths to reduce littering along the trails.
  - Respondent suggested adding warning signs including "no dumping" and "poop and scoop" to suggest to dog owners to clean up after their pet.

- Trail Safety:
  - Respondents suggested that the multi-use path and trail network should include lighting that is active until 10pm, allowing for use after dusk.
  - Comments were made regarding adding "no loitering" or "no loud music" signs along the trail.
  - Adding chain link fences on top of all headwalls with lockable grates that outfall to the stream / creek to protect children and or animals.

Meeting #2 – Network Development Process and Facility Selection

Participants from the first meeting were invited to receive an update on the project and learn about the principles guiding the projects development. The Project Team also provided insight into the process of selecting types of walking and cycling facilities for proposed routes. Attendees were provided with Ontario Traffic Manual Book 18 (2021) to help understand the active transportation facility selection process and to build familiarity with high quality active transportation facilities among Town Staff and ATTSAC members. Attendees were supportive of the facility selection process and the chosen facilities for the active transportation network.

Meeting #3 – Town and Agency Stakeholder Workshop

The intent of the workshop was for Town Staff and ATTSAC members to review and provide comments on the proposed draft for the active transportation network map by facility type. The Project Team particularly focused on the application of multi-use trails and cycling facilities proposed across the network. Participants were provided with the ability to review and provide comments on the implementation phasing and priority projects for delivering the final active transportation network. Participants identified the following priorities for the ATMP:

- Desire Lines (multi-use trail routes that are currently under private ownership):
  - An attendee noted the absence of desire lines (multi-use trail routes that are currently under private ownership and were included in previous plans for long term implementation) from the approved Trails Master Plan on the network map. Despite removal due to current private property constraints, there was consensus among team members that these lines should be added to the map.
  - Another member stated that displaying desire lines could facilitate future collaboration with landowners for securing connections when or if lands become available from development, creating more connectivity down the road.
- Additional Active Transportation Connections:
  - Discussed the need for an active transportation connection along Wellington Street from Mary Street to the GO Station and extending to Bathurst Street.
  - Adding a multi-use path on both sides of Yonge Street, from Industrial Parkway to Bloomington Road, which has been proposed by the Region.
  - Adding a policy that requires mid-block trail crossings to be grade separated when a road is reconstructed to improve connectivity and safety.
- Implementation Plan and Phasing Considerations:
  - Add pedestrian and cycling facilities along Wellington Street from Mary Street west to Bathurst Street, with the ATMP proposing collaboration for implementation.
  - Residents expressed a desire to expedite the phasing of several facilities, including shifting the proposed bike lanes to Murray Drive from a long-term project to a short-term project.
  - Prioritizing the multi-use path along St. John's Sideroad from Yonge Street to Bathurst Street should be prioritized to improve connectivity to a local school.

5.3 What We Heard

The following summarizes the main themes identified from the input received by the Project Team during the series of consultation activities outlined in the preceding sections.

Walking and Cycling Barriers

Residents indicated that the existing network presented too many challenges to support the frequent use of active transportation as a mode choice. Concerns for those choosing to walk or roll included the lack of a connected cycling and trail network, the high speed and noise of vehicle traffic, and the poor conditions of some existing sidewalks and trails. Barriers to cycling frequently included significant gaps in the cycling network and a lack of connectivity between the trail network and services or destinations. This demonstrated a strong level of support from the community for improving active transportation conditions for both the cycling and pedestrian network.

Support for the ATMP

Both local residents and technical advisors expressed support for the development of the ATMP and its proposed network. Although there were suggestions for improving connections, adding additional facilities, and prioritizing what should be built in the short-term, stakeholders in Aurora were strongly supportive of the ATMP's vision.

Improving Accessibility

Accessibility concerns were raised throughout all engagement activities. This ranged from ensuring that the sidewalk network throughout the Town is improved and that all facilities are AODA compliant. Improving access to mid-block crossings was also highlighted as a necessity to ensure that there are safe connections throughout the pedestrian network.

5.4 How Public and Stakeholder Input Was Incorporated

Based on feedback from the consultation activities, the Project Team made several adjustments to the proposed network, facility types, and phasing. This included:

Enhancing the On-Road Cycling and Off-Road Trail Network

Stakeholders recommended expanding the multi-use path network and connections to the existing trail network throughout Aurora. The Project Team added additional multi-use pathway facilities to the proposed network and added additional all ages and abilities bicycle paths to improve the comfort of those using active travel to access recreation opportunities.

Future Active Transportation Expansion

The Project Team made several commitments based on feedback from stakeholders that would expand future active transportation connections beyond the proposed network. This included a commitment to adding the desire lines on the trail network onto the network map and ensuring consistency between existing and proposed trail locations, alignments, and the desire lines. The Project Team also added a multi-use path along Yonge Street onto the network map for implementation in the long-term to reflect stakeholder desires to improve safe north-south connections along the corridor.

The next section of the report outlines recommended policies to support the ATMP and its vision.

Chapter 6

Policies Supporting the Active Transportation Master Plan

6.1 Proposed Policies

Supporting the ATMP will require the Town of Aurora to encourage residents to take up active transportation through both physical and social infrastructure. To start this process, the Town needs to effectively implement the proposed pedestrian and cycling networks identified in the ATMP. This requires a creative and collaborative approach between the municipality and the Region. As infrastructure projects are developed to make cycling, walking, and rolling easier, the Town should also implement initiatives that motivate and inform new and existing active transportation users. This will enhance the value of the larger and more costly investments.

Many strategic plans and documents, while often ambitious, can sometimes lack specificity and do not to address the practical aspects of implementation. Building off the policy review from Chapter 2, this chapter aims to increase the success rate by proposing policy considerations that can effectively support the implementation of the ATMP and match the needs of the Town of Aurora. These policies directly reflect the vision statement and objectives of the ATMP and are aligned with the existing policy framework of the Town. These recommendations aim to enhance and align with the existing design guidelines, ensuring a cohesive and comprehensive approach.

Recommendations

1. Adopt the 20 year cycling and pedestrian network implementation plan as identified in the ATMP and include it as a schedule in the Town's Official Plan when updated and in future updates to the Master Transportation Study. A Master Plan should be reviewed every five years to determine the need for a detailed formal review and / or updating.

2. The ATMP should be reviewed and given consideration when municipal roads, trails, and other capital infrastructure projects are identified and scheduled during the development application process. Coordinating implementation with other capital infrastructure projects will be essential to efficiently implementing the proposed cycling and pedestrian networks.

3. Work to encourage active transportation friendly streetscaping, urban design, and active transportation-oriented land development in collaboration with local area municipalities through planning and design studies and development reviews.

4. Explore land use planning initiatives and policy development such as mixed land use, higher density urban areas, and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and liveability within the communities of the Town of Aurora.

5. Recognize that implementation of the ATMP requires coordination and consistent funding from the Town and York Region. The Town of Aurora should leverage existing partnerships between different jurisdictions and other levels of government to build cost sharing commitments for certain sections of the network.

6. The Town should identify and support local champions and cycling advocates to help grow a culture of active transportation throughout the community. Supporting local champions should be catered towards educating and encouraging school-aged children, seniors, and workers to use active transportation for short trips, commutes, and recreation.

Recommendations

7	Focus greater priority on the implementation of cycling facilities between high density areas, transit stations, and schools to improve connectivity and to increase the number of people using cycling facilities. The prioritization of active transportation routes and facilities in dense areas is intended to enhance the viability for residents to engage in daily travel by bike to increase the cycling mode share in the Town of Aurora.
8	When the Town next updates their Master Transportation Study as it relates to the integration of pedestrian and cycling facilities, it should be in alignment with Ontario Traffic Manual Book 18 (2021) guidelines.
9	The implementation of cycling and pedestrian infrastructure, including on and off-road routes, should be included as part of development proposals and the park development process for new development areas.
10	Work with business improvement areas, York Region Transit, and Metrolinx to provide safe and secure bicycle parking at key destinations and transportation hubs.
11	Prioritize safe cycling and walking connections between existing GO Transit stations to improve first- / last-mile connections between Regional transportation and local residential and commercial areas.
12	Produce an annual staff report to Council that identifies progress in implementing the ATMP, including projects completed, projects planned and budgeted for the next year or two, and highlight a few key performance indicators (KPI) such as number of kilometres of new trails, multi-use paths, on-road cycling facilities, and sidewalks relative to the total distance proposed in the ATMP for each facility type.

The next section of the ATMP focuses the Town's future active transportation network. This includes the network development approach and the recommended network.

Chapter 7

Proposed Active Transportation Network

Having a well-connected and accessible active transportation network is essential to encourage people to participate in an active lifestyle. As the network was developed, it was designed with an equitable lens to ensure that underserved communities will have optimal access to the network. Along with equity and connectivity considerations, the proposed network is intended to be universally accessible to people of all ages and abilities.

By understanding the Town's travel patterns and existing conditions outlined in Chapter 4, and by applying route selection criteria, a number of candidate routes and facility types have been selected to develop a preferred active transportation network. With nearly 300 km of existing pedestrian, cycling and multi-use routes, the preferred network is intended to expand on these existing routes and enhance the facilities for increased safety, connectivity, convenience, and accessibility. The process to develop the AT network is aligned with the most updated provincial planning and design standards and follows best practices. To ensure that the preferred network captures the Town's needs, interests and priorities, the network has being developed and refined through on-going consultation with Town Staff, stakeholders, and residents.

7.1 Network Development Process

The network development process is a combination of technical assessments and consultation with stakeholders, Town Staff, and public members. The process in developing the Town's active transportation network is consistent with the new Ontario Traffic Manual Book 18: Cycling Facilities (2021). The overview of the process and outcomes from each step is summarized in **Table 7-1**.

Table 7-1. Network Development Process and Outcomes

	Step	Outcome
1	Identify existing conditions and routes that have been proposed in the past planning documents.	• **Section 2.1** Policy Background • **Section 4.2** Existing Conditions • **Figure 4-1** Existing Sidewalk Network • **Figure 4-2** Existing Trail and Multi-Use Path Network • **Figure 4-4** Existing Cycling Network
2	Identify a list of route selection criteria to help select, assess and refine candidate routes and prioritize future investments.	• **Section 7.2.1** Route Selection Criteria
3	Identify candidate routes to be included in the Town's active transportation network	• **Section 7.2.2** Candidate Routes • **Figure 7-1** Candidate Cycling Routes Trail Network

Table 7-1. Network Development Process and Outcomes

4	Conduct desktop and field work to verify the candidate routes' existing conditions and facilities. Local surroundings and key destinations are also captured in proximity to the candidate routes.	• **Section 7.2.3** Desktop and Field Investigations
5	Verify candidate routes with Town Staff, stakeholders and the public.	• **Chapter 5** Study Consultation and Engagement
6	Confirm the Town's preferred active transportation network including the proposed facility types.	• **Section 7.3** Network Recommendations • **Figure 7-6** Proposed Sidewalkl Network • **Figure 7-7** Proposed Trail and Multi-Use Path Network • **Figure 7-8** Proposed Cycling Network
7	Propose Network Phasing	• **Section 9.1** Phasing • **Figure 9-1**. Proposed Trail and Multi-Use Path Network Phasing • **Figure 9-2** Proposed Cycling Network Phasing
8	Cost phased network based on unit pricing by facility type	• **Section 9.2** Costing Estimates

7.2 Active Transportation Potential

7.2.1 Route Selection Criteria

Based on the Vision and Objectives of the ATMP outlined in Chapter 1, and informed by the Town's existing Policy documents, the Route Selection Criteria were refined as part of the network development process. These criteria are used to both identify candidate routes and to prioritize future investments into active transportation projects. By evaluating potential routes through these criteria, the ATMP recommends investments that will support active transportation and advance the Town's strategic goals.

The criteria that are presented below are based on established best practices, while respecting the context and existing policies of the Town of Aurora. While these criteria form the foundation of the candidate route evaluation, they should not preclude projects that have a high level of public demand, nor those that have been identified in previous planning processes, from moving forward.

> *"To provide a highly interconnected, efficient and safe system of routes for pedestrians and cyclists that accommodates functional as well as recreational facilities and that includes features such as multi-use trails, wide sidewalks, benches, waste receptacles, bicycle racks, crosswalks, lighting and shade."*
>
> *- Town of Aurora Official Plan, 2023*

7.2.1 Route Selection Criteria

Safety and Accessibility

Active transportation routes should be designed to improve safety and enhance accessibility. Active transportation routes are prioritized based on their degree of safety improvement compared with current conditions.

Connected and Continuous

Active transportation routes should provide a consistent user experience, providing comfortable, continuous routes throughout the Town of Aurora. Routes that close gaps in existing routes or provide an opportunity for a consistent active transportation corridor should be prioritized

Feasibility

Projects will be evaluated based on the level of capital investment required, their alignment with existing capital works projects, and property ownership constraints to ensure that proposed routes have a high degree of constructability during the lifespan of this ATMP.

Support Multi-Modal Needs

Routes that support the development of a multi-modal transportation system by providing connections to transit facilities and other key destinations should be prioritized. First and last mile connectivity to transit service will improve accessibility and convenience for all users.

Connect and Expand upon Existing Trails

The Town's existing trail system should be expanded, with on-road and in-boulevard facilities providing a comparable level of safety, comfort, and accessibility to the existing off-road trails. Routes that connect to the Town's existing trails should be prioritized.

Connection to Green Spaces

Active transportation facilities should provide connections to parks and green spaces and enhance opportunities for residents to engage with natural areas on a regular basis. Connections and improvements to the Tim Jones Trail (Nokiidaa Trail), Oak Ridges Moraine Trails, Fleury and Machell Park, Sheppard's Bush Conservation Area, and other surrounding natural areas should be prioritized.

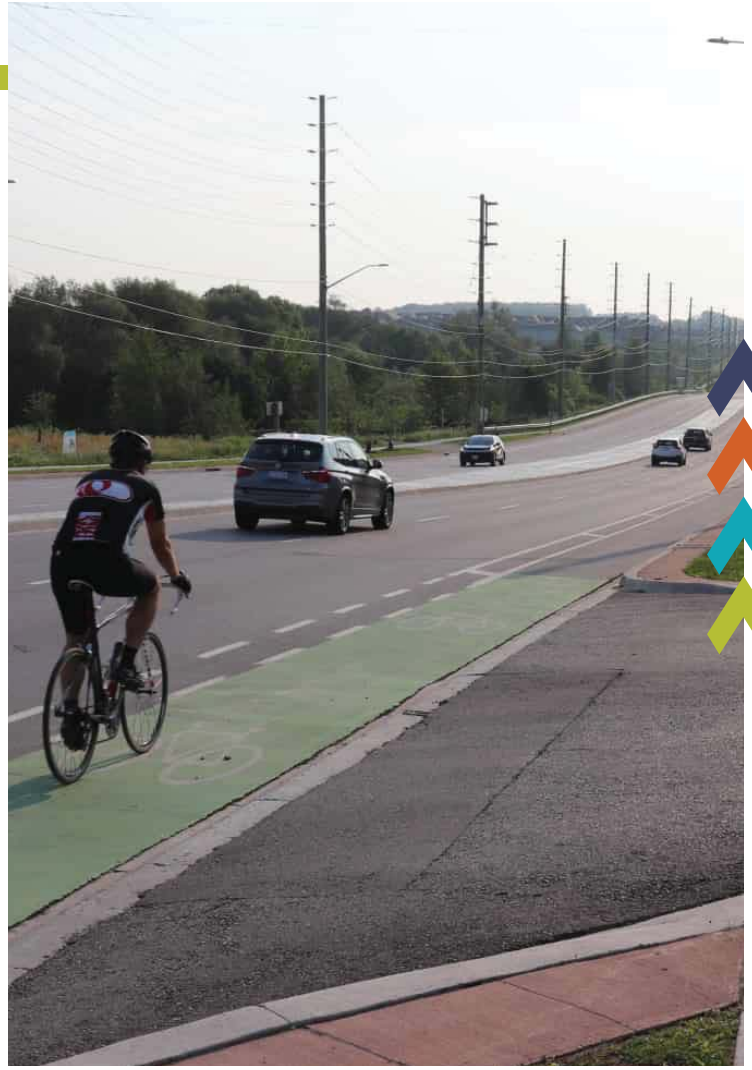
7.2.2 Candidate Routes

With the goals and objectives outlined in the route selection criteria, the next step was to apply those criteria to a list of candidate routes for improvement. The criteria prioritized which routes should be selected in developing an interconnected active transportation network in Aurora.

Building off the previously proposed routes, the network was reviewed for additional missing links or opportunities for enhancement. These routes were presented to Town Staff, stakeholders and the public to refine and confirm the routes at a high level prior to determining the specific facility type.

Figure 7-1 shows the locations proposed as potential new routes to add to the active transportation network. Potential new routes for consideration are shown in the following candidate network map as red dashed lines:

Candidates for sidewalk additions are identified in the Sidewalk Gap Map included in **Appendix B** and is based on the 2020 Master Transportation Study and updated information provided by Town Staff as of January 2024.



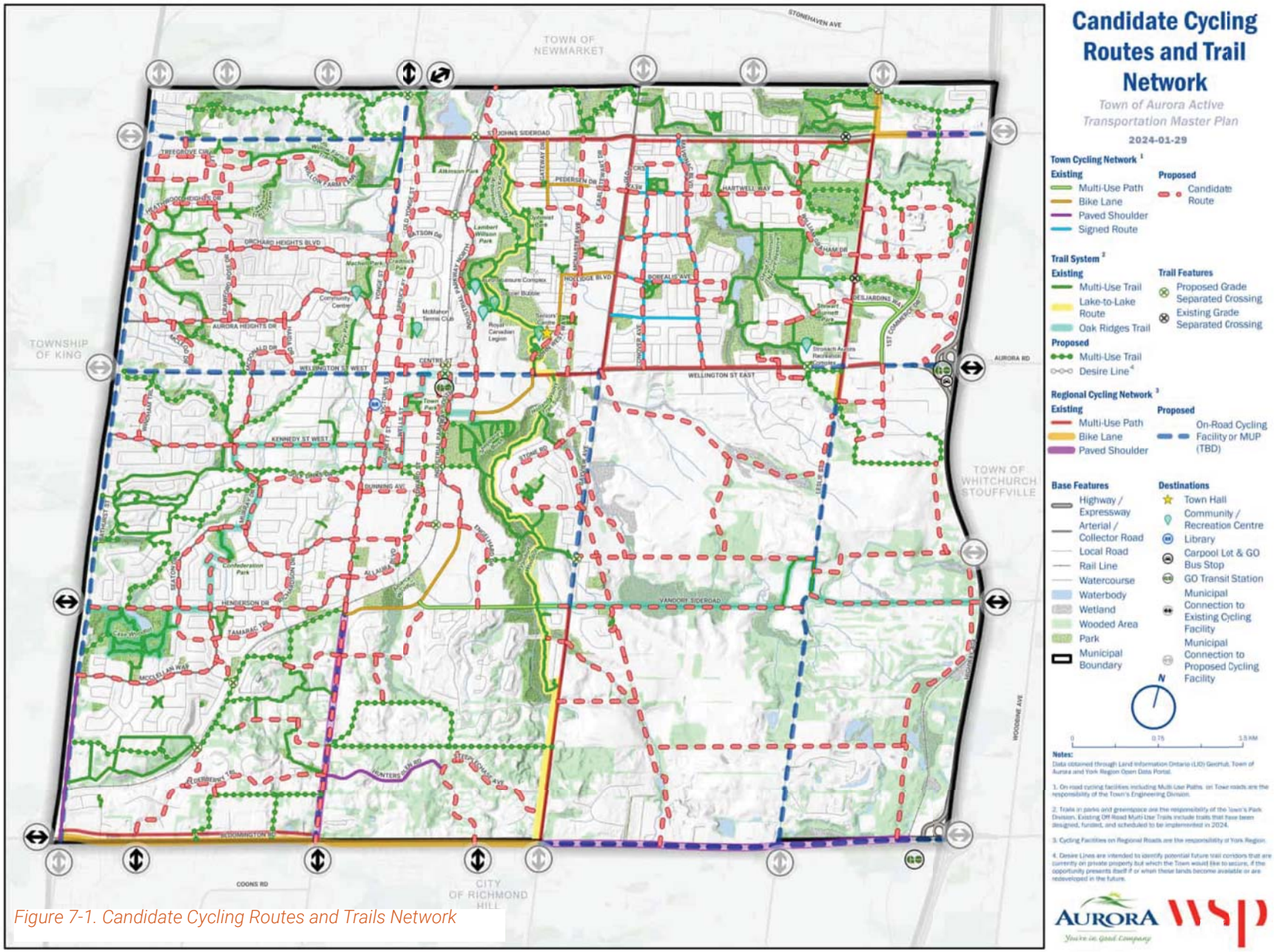


Figure 7-1. Candidate Cycling Routes and Trails Network

7.2.3 Desktop and Field Investigations

After reviewing existing conditions and identifying candidate routes, a desktop analysis of the selected candidate network was performed. Route conditions were assessed, including but not limited to, existing curb-to-curb road width, road platform and right-of-way, on-street parking, existing utilities, and other physical constraints. The existing surroundings, connections to key destinations, and existing trails were also investigated in proximity to the candidate routes. Along with the desktop analysis, select locations were chosen for field investigation to verify the existing mapping and potential routes.

Key aspects reviewed during the site visit included curb-to-curb road widths, slope gradings, surrounding land uses, road and / or trail surfacing, provision of supporting amenities (e.g. directional signage, trail heads, lighting), existing facility types, and desire lines.

7.3 Network Recommendations

7.3.1 Network Development Approach

After establishing a high-level candidate route network, the next step was to identify the most suitable facility type based on best practices. The Ontario Traffic Manual (OTM) Book 18: Cycling Facilities (2021) provides a facility selection tool that can be used for this purpose. The tool consists of three steps, which are illustrated in **Figure 7-2.**

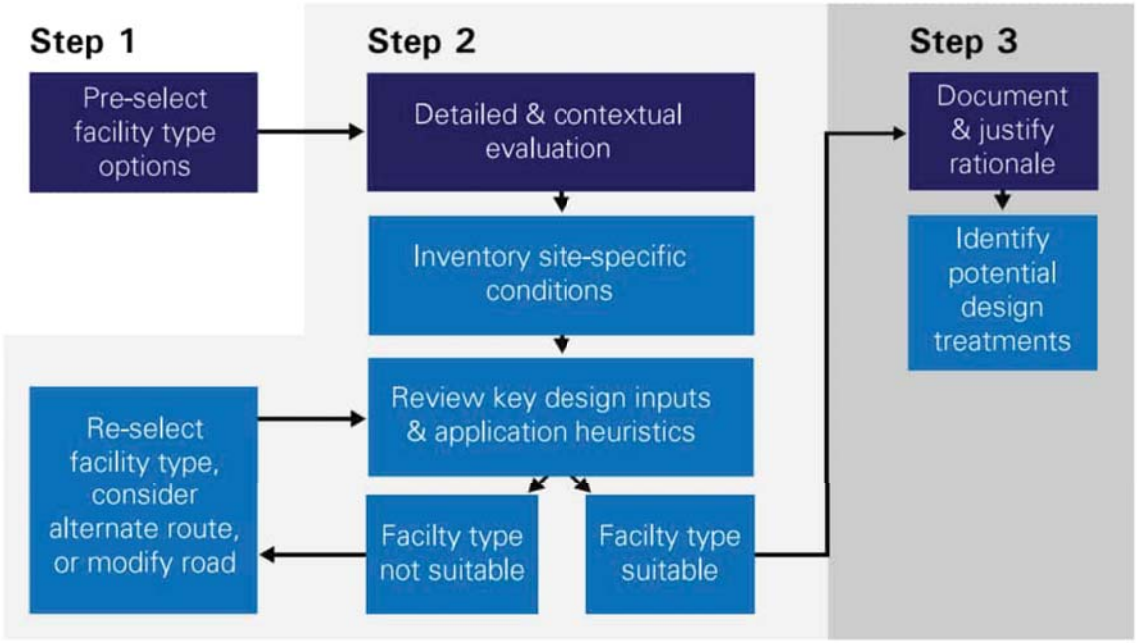


Figure 7-2. Three-Step Facility Selection Tool (Source: OTM Book 18, 2021)

Following the above approach, the nomographs for urban and rural contexts were reviewed to select a preliminary facility based on the Average Daily Traffic Volume and posted speed limit. The nomographs are provided in **Figure 7-3** and **Figure 7-4.**

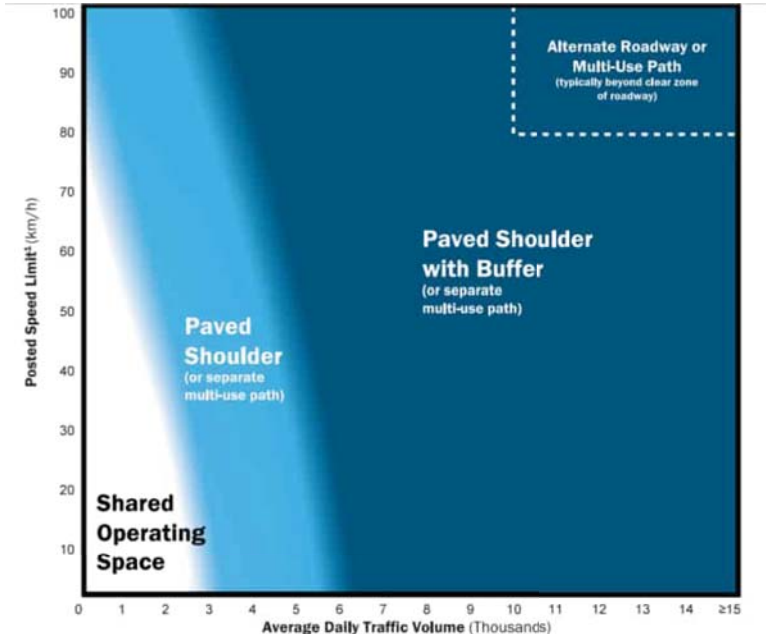


Figure 7-3. Rural Facility Selection Nomograph (Source: OTM Book 18, 2021)

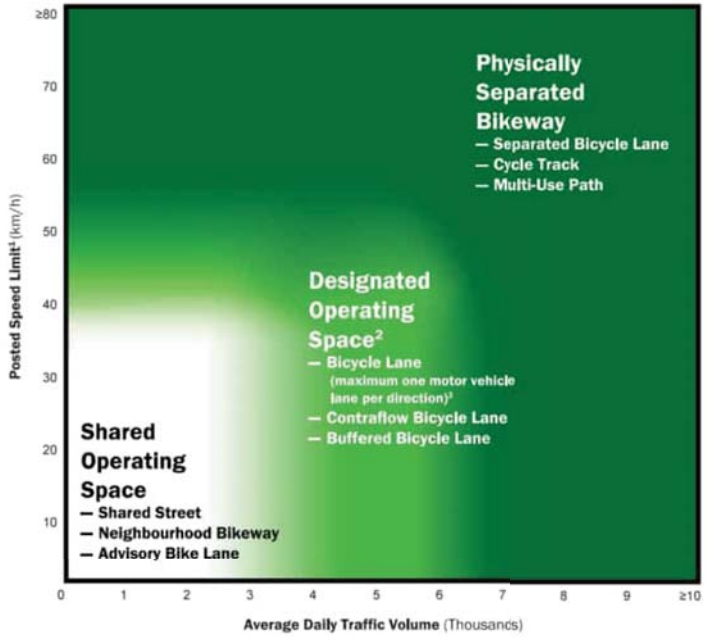


Figure 7-4. Urban Facility Selection Nomograph (Source: OTM Book 18, 2021)

To further refine the preliminary assessment and identify the most appropriate facility type within the shared, separated, and designated category based on the context of the street, a list of criteria were used, as shown in **Figure 7-5**. The table was used to refine the proposed facility types for each candidate route following the use of the OTM Book 18 nomographs.

It is worth noting that desire lines were carried forward as a "facility type" to identify routes that the Town should protect for as the required property comes up for redevelopment in the future.

Following the selection of preliminary facility types based on the best practices outlined in OTM Book 18, the facility types were further refined based on additional desktop and field investigations, input from Town Staff, Regional Staff, stakeholders and residents, and a review of the Town's plans such as the Downtown Yonge Street Streetscape Plan (from Church Street to Wellington Street).

	Shared Roadway	Neighbourhood Bikeway	Rural Paved Shoulder	Advisory Bicycle Lane	Bicycle Lane	Buffered Bicycle Lane	Separated Bicycle Lane	Cycle Track	Multi-Use Path
Motor vehicle speed									
30 km/h or less	✓	✓	?	?					
40 km/h	?	?	?	✓	✓	✓	✓	✓	✓
50 km/h			?	✓	✓	✓	✓	✓	✓
60 km/h			?			?	✓	✓	✓
70 to 90 km/h			?					✓	✓
Over 90 km/h								✓	✓
Motor vehicle volumes									
<1,500 vehicles/day	✓	✓	?	?	?	?			
1,500 to 3,000 vpd	?	?	?	✓	✓	✓	✓	✓	✓
3,000 to 6,000 vpd			?	?	?	?	✓	✓	✓
6,000 to 10,000 vpd			?				✓	✓	✓
>10,000 vpd							?	✓	✓
Function of street/road/highway									
Access roads (local streets)	✓	✓	✓	?	?	?			
Both mobility and access roads (minor collectors)			?	?	✓	✓	✓	✓	✓
Mobility roads (major collectors and arterials)			?		?	?	✓	✓	✓
Vehicle mix									
More than 30 trucks/buses per hour in curb lane			?			?	✓	✓	✓
Bus stops located along route			?		?	?	✓	✓	✓
Pedestrian activity									
Low pedestrian volumes	✓	✓	✓	✓	✓	✓	✓	✓	✓
High pedestrian volumes	✓	✓		✓	✓	✓	✓	✓	?
On-street parking									
Parallel parking; low turnover	?	?		?	?	?	✓	✓	✓
Parallel parking; high turnover							✓	✓	✓
Perpendicular or angle parking							✓	✓	✓
Frequency of intersections and crossings									
Limited intersections and driveway crossings	?	?	✓	✓	✓	✓	✓	✓	✓
Low-volume driveways or unsignalized intersections	✓	✓	✓	✓	✓	✓	✓	✓	✓
Frequent high-volume driveways or unsignalized intersections					?	?	✓	✓	?
Signalized intersections with high-volume turning conflicts						?	✓	✓	?

✓	Typically appropriate for the context
?	Requires further context specific evaluation

Figure 7-5. Application Heuristics for Determining Facility Type (Source: OTM Book 18, 2021)

7.3.2 Proposed Network

In total, the Town of Aurora's recommended active transportation and trails network is made up of almost 490 km of routes. Approximately 300 km is existing and this ATMP proposes about 190 km of new routes. A summary of the network by facility type is provided in **Table 7-2.**

The Town's 2020 Master Transportation Study (MTS) included a Sidewalk Priority Plan that identified and prioritized the construction of new sidewalks in the Town. The Project Team reviewed the methodology and approach used in MTS and confirmed that the Town has been updating the Sidewalk Gap Analysis based on the priorities agreed upon in the MTS. The table from the 2020 Sidewalk Gap Evaluation and the latest 2024 Sidewalk Gap map are included in **Appendix B** of this report.

This network is intended to be a blueprint for implementation of facilities and for decision making as it regards to active transportation and trails. The recommendations should be reviewed at the time of implementation to determine if the proposed facility type or alignment is appropriate. There should be flexibility in the plan to accommodate additional routes and revisions as the network and Town evolves. The proposed sidewalk network is illustrated in **Figure 7-6**. **Figure 7-7** and **Figure 7-8** show the ultimate recommended trail and multi-use path and trail and cycling networks, respectively.

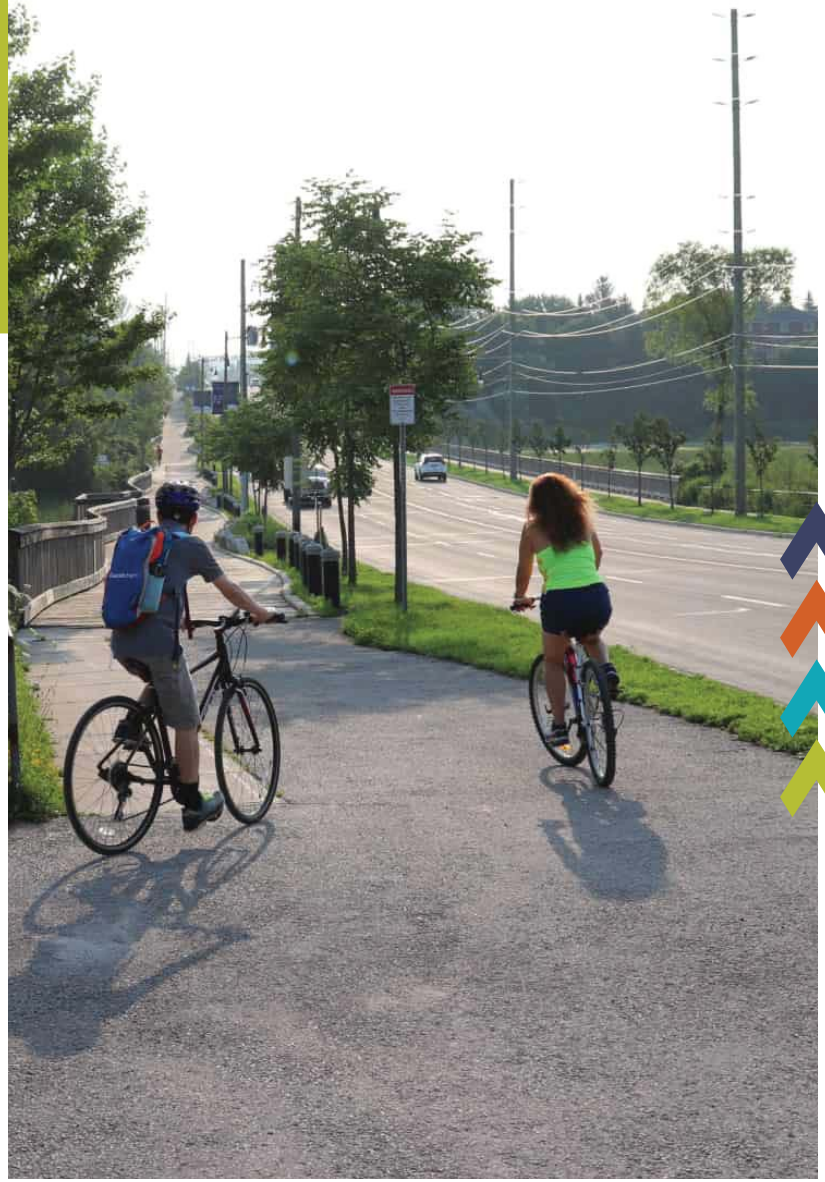


Table 7-2. Summary of Recommended Active Transportation and Trails Network

Facility Type	Existing Length (km)	Proposed Length (km)	Total Length (km)
Bike Lane[1]	3.6	29.4	33
Signed Route	6.4	31.5	37.9
Paved Shoulder	2.6	3.6	6.2
Multi-Use Path[2]	18.3	9.7	28.0
Separated Bike Lane[3]	0	7.5	7.5
Multi-Use Trail	61	35.5	96.5
Desire Line[4]	0	24.6	24.6
Sidewalk	201.2	33.1	234.3
Regional On-Road Cycling Facility or MUP	5.1	15.8	20.9
Total	**298.2**	**190.7**	**488.9**

Notes:

1. Bike lanes may be implemented in the interim as urban shoulders forming part of a signed cycling route.
2. This includes existing multi-use paths on regional roads which are operated and maintained by the Town.
3. The Town may select as an interim solution to implement buffered bike lanes but the ultimate facility type is recommended to be physically separated in the long term.
4. Desire lines are intended to identify potential future trail corridors that are currently on private property but which the Town would like to secure, if the opportunity presents itself if or when these lands become available or are redeveloped in the future. As such, distances identified are approximate and subject to changes. The actual location and distances will be determined from the development reviewing process.

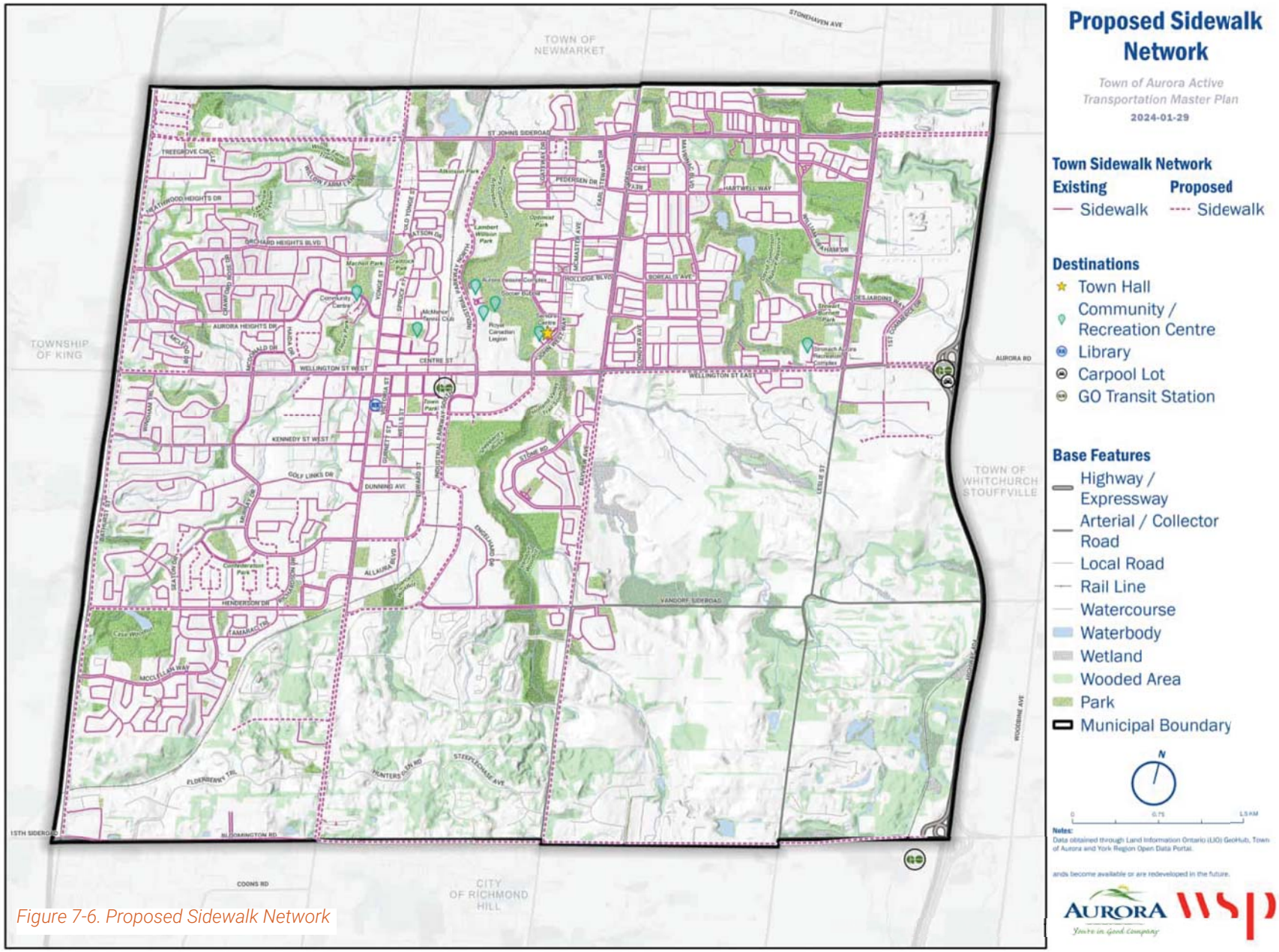


Figure 7-6. Proposed Sidewalk Network

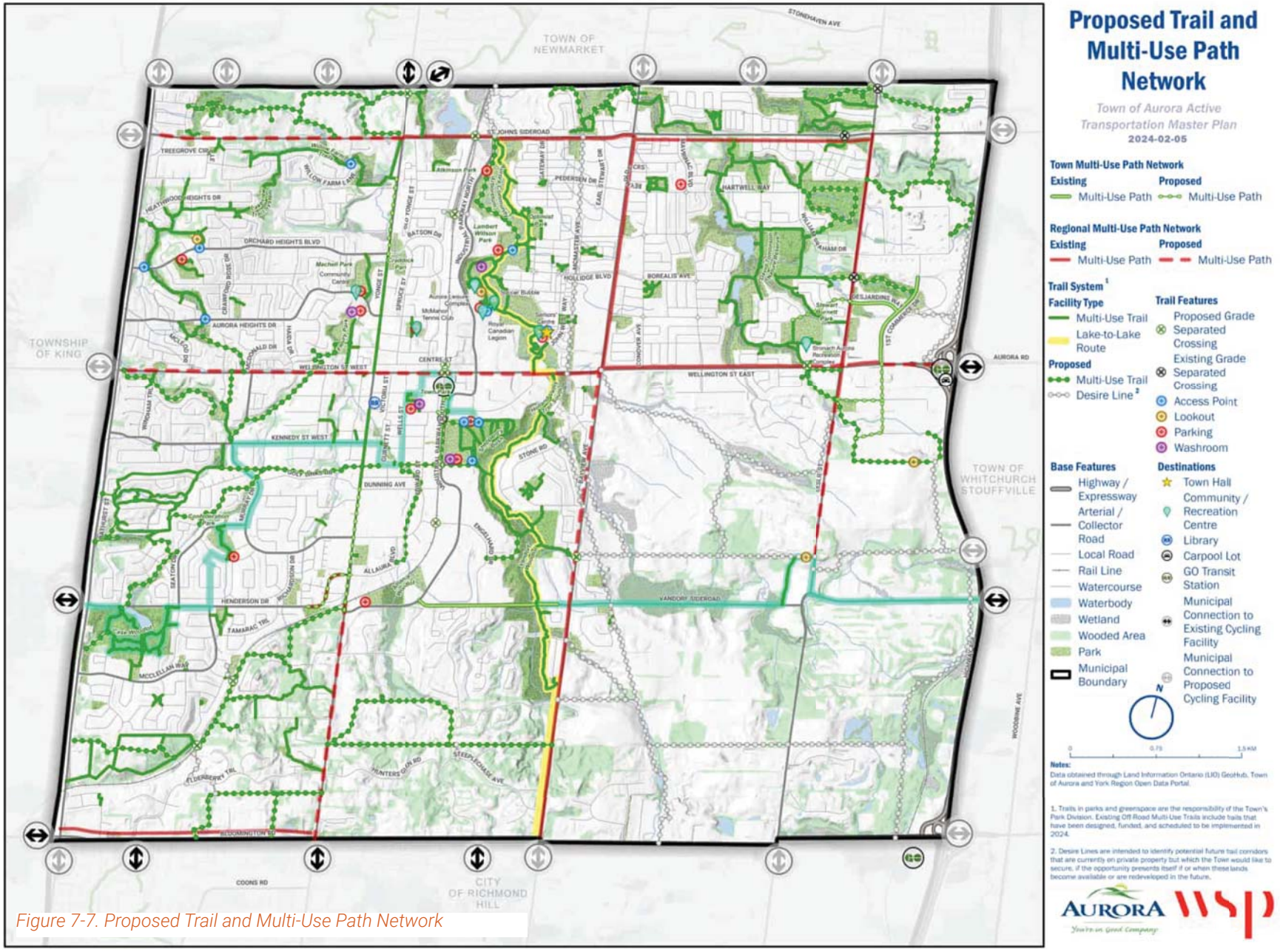


Figure 7-7. Proposed Trail and Multi-Use Path Network

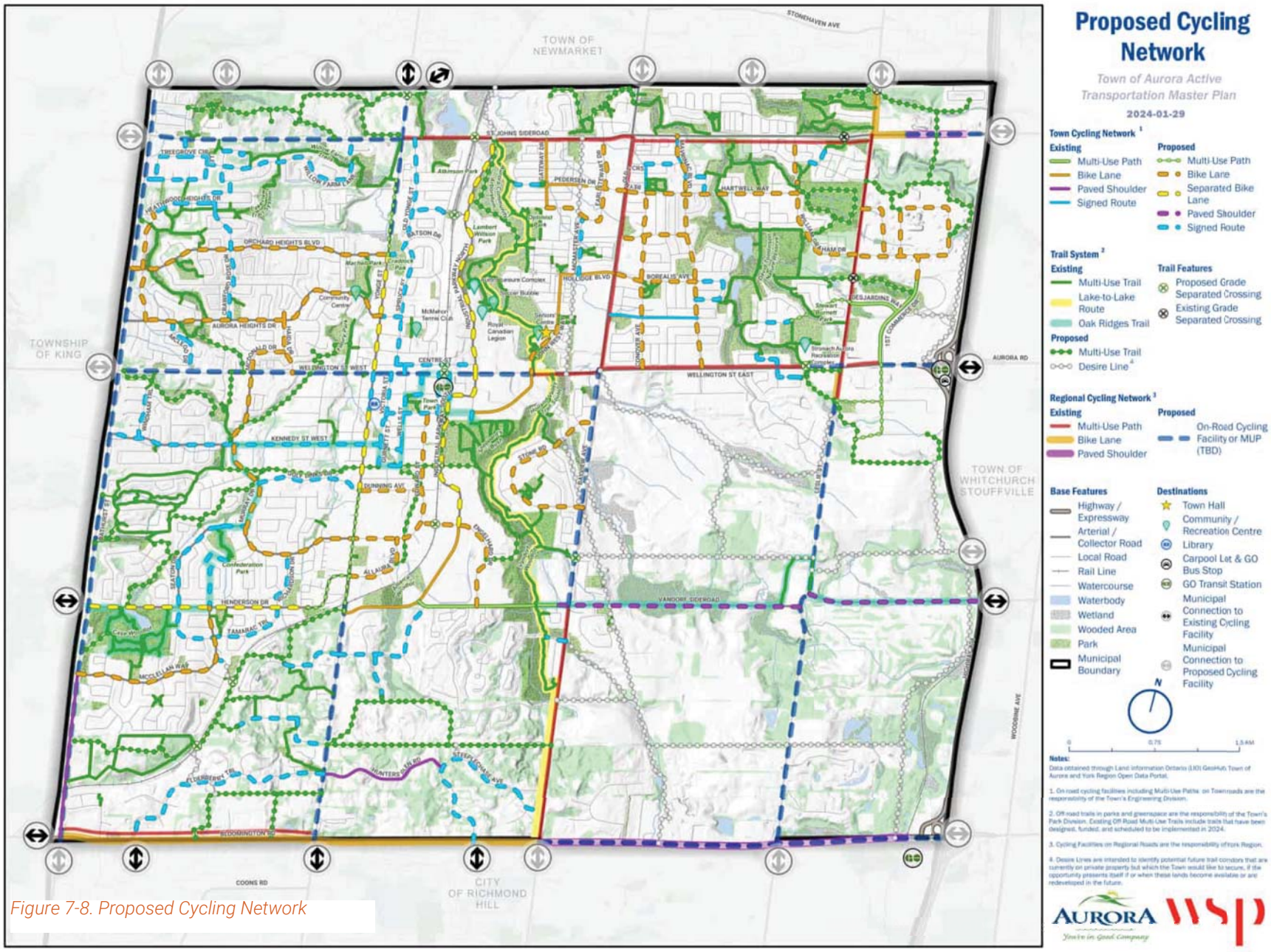


Figure 7-8. Proposed Cycling Network

The following illustrates the proposed active transportation facility types for Aurora's active transportation network along with key design considerations for each facility type. The design considerations are informed by guidance from OTM Book 18 (2021).

Bike Lane

A conventional bicycle lane is a portion of a roadway which has been designated by pavement markings and signage for preferential or exclusive use by people riding bikes. This facility type is best suited for two-lane roadways with motor vehicle speeds of 50 km/h or less and low-to-moderate volumes of motor vehicle traffic. Conventional bicycle lanes are suitable for one-way bicycle travel only. A typical configuration on a two-way roadway includes a conventional bicycle lane on each side as shown in **Figure 7-10.**

Where cycling facilities operate on a roadway with on-street parking, the opening of vehicle doors pose a significant threat to the safety of people riding bikes, and as such, appropriate design measures are required. The facility design should guide people riding bikes to travel outside of the door zone. One option to achieve this is by providing a buffer treatment between the parking lane and the bicycle lane. For example, a 2.4 m parking lane should be complemented with a 1.0 m wide painted buffer. At a minimum, it is strongly recommended that a painted buffer of 0.6 m be provided. A buffer between the parking lane and the bicycle lane is preferred over a wider bicycle lane since buffers have been shown to influence the lateral position of cyclists away from the parking lane. **Table 7-3** summarizes the suggested design widths for bicycle lanes.

Figure 7-9. Bike Lane

The Town may also elect as an interim solution to implement bike lanes as urban shoulders forming part of a signed cycling route. This may be implemented in conjunction with restrictions to on-street parking during peak weekday school commuting hours. Town Staff should assess the feasibility of restricting on-street parking on some or all of these roads to formalize bike lanes through the Town's planned Town-Wide Parking Study, which is anticipated to be initiated in 2024 / 2025.

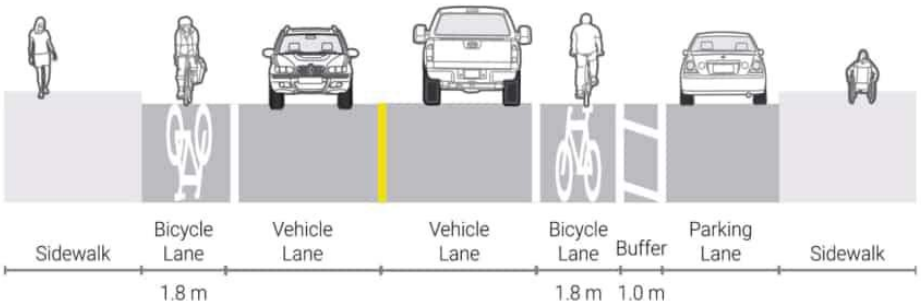


Figure 7-10. Cross-Section of a Roadway with Bicycle Lanes (Source: OTM Book 18, 2021)

Table 7-3 Desired and Suggested Minimum Widths for Bicycle Lanes (Source: OTM Book 18, 2021)

Facility Type	Desired Width	Suggested Minimum
Conventional Bicycle Lane	1.8 m	1.5 m
Conventional Bicycle Lane Splitting two travel lanes	2.0 m	1.8 m
Conventional Bicycle Lane adjacent to on street parking	1.5 m lane + 1.0 m parking buffer	1.5 m lane + 0.6 m parking buffer

Urban shoulders are marked with a white edge line along an urban roadway, as seen in **Figure 7-11.** Although they are not formal cycling facilities, cyclists and motorists may interpret this space as a bicycle lane even though no bicycle pavement markings are applied to this area. Urban shoulders implemented on an interim basis may be used to build local support for a dedicated cycling facility. Where and when sufficient support exists, a bicycle lane is preferred. Urban shoulders should be no narrower than 1.2 m, which provides the minimum operating width for a cyclist.

Figure 7-11. Urban Shoulder with White Edge Line Along Roadway

Signed Route

Signed routes are marked with signs to designate specific roads for cycling. For this facility, cyclists share the road with motor vehicles, as there is no physical separation between them. Bicycle signage such as M511 Bicycle Route Marker Signs, as shown on the pole in the right side of **Figure 7-12**, help cyclists identify and follow the designated route, enhancing safety and navigation for both cyclists and other road users.

Signed routes are appropriate along roads where traffic volumes and / or vehicle operating speeds are low. Typical of quieter residential streets (low volume and low speed), core urban areas (higher volume and low speed), and lower order rural roads (low volume and moderate speed). Lane widths are a key design element in encouraging low speed travel for motorists along signed routes. Wider travel lanes may degrade the quality of the cycling environment by encouraging higher vehicle speeds and heavy vehicles to use the lane. In fact, signed routes are recommended on narrow travel lanes along with traffic calming treatments to slow down motor vehicles to allow for safe and comfortable mixing of modes along the road. An example is shown in **Figure 7-13.**

Figure 7-12. Signed Route

Figure 7-13. Example of Traffic Calming on an Aurora Street

Paved Shoulder

A paved shoulder is a portion of a roadway which is contiguous with the travelled way and provides lateral support for the pavement structure. Typically implemented on rural roadways, paved shoulders accommodate stopped and emergency motor vehicles, pedestrians and people riding bikes. It is often used by cyclists for travel since it provides them with an area for riding that is adjacent to but separate from the motor travel portion of the roadway. Cyclists must travel in the same direction as the motor vehicle traffic. An example cross section of a roadway with a paved shoulder is shown in **Figure 7-15.**

Figure 7-14. Paved Shoulder

Paved shoulders are typically found on rural roads, but can also be implemented on urban and suburban roadways in the form of urban shoulders. Paved shoulders are considered a shared facility because they permit other uses within the same space. In urban and suburban environments, providing dedicated space for cycling is preferred over an urban shoulder. The desired widths and suggested minimum widths of paved shoulders are shown in **Table 7-4.**

Table 7-4 Desired and Suggested Minimum Widths for Paved Shoulders (Source: OTM Book 18, 2021)

Facility Type	Desired Width	Suggested Minimum
Rural Paved Shoulder	1.5 - 2.0 m	1.5 m
Rural Paved Shoulder with Marked Buffer	1.5 - 2.0 m operating space	1.8 m
Urban Paved Shoulder (Edge Line)	≥ 1.5 m	1.2 m

Figure 7-15. Roadway with Paved Shoulders (Source: OTM Book 18, 2021)

Multi-Use Path

An in-boulevard multi-use path is a two-way path that is horizontally and vertically separated from the travelled portion of the roadway by a curb and buffer. This facility type provides two-way travel, is shared between people riding bikes and people walking, and is suitable for roadways with moderate to high traffic volumes and speeds. **Figure 7-16** shows a typical cross section of a roadway with an in-boulevard multi-use path.

When there are many path users, pedestrians and cyclists sharing the same space can lead to conflicts, creating uncomfortable and potentially hazardous conditions. This is more likely to occur in areas with high pedestrian traffic, such as near transit stops and stations, shopping areas, or scenic routes. **Table 7-5** summarizes the desired and minimum facility widths based on expected user volumes.

Figure 7-16. Cross-Section of In-Boulevard Multi-Use Path (Source: OTM Book 18, 2021)

Figure 7-17. Example of an In-Boulevard Multi-Use Path

Table 7-5: Desired and Suggested Minimum Widths for In-Boulevard Multi-Use Paths (Source: OTM Book 18, 2021)

Facility Type	Desired Width (m)	Suggested Minimum
Low-to-moderate volume path (< 100 users/hour)	3.5 m	3.0 m
High-volume path (> 100 users/hour)	≥ 4.0 m	3.0 m

Separated Bike Lane

Separated bike lanes are bike lanes that are separated from adjacent motor vehicle lanes by a horizontal buffer and separation elements that restrict encroachment of traffic. This may be in the form of a painted buffer or with physical separation elements such as pre-cast concrete curbs or planters. **Figure 7-19** shows a typical cross section of a roadway with a physically separated bike lane.

The Town's Master Transportation Study included a recommendation that the Town explore a road diet along Yonge Street from south of Orchard Heights Boulevard / Batson Drive to Golf Links Drive / Dunning Avenue. The road diet should be implemented following the implementation of the Downtown Yonge Street Streetscape Plan (from Church Street to Wellington Street) and separated bike lanes should be considered along the segments of Yonge that are within the road diet scope.

Figure 7-18 Separated Bike Lane

Table 7-6. Desired and Suggested Minimum Widths for Physically Separated Bike Lanes (Source: OTM Book 18, 2021)

Facility Type	Desired Width (m)	Suggested Minimum
One-way Physically Separated Bicycle Lane	1.8 m lane + 1.0 m buffer	1.5 m lane + 0.3 m buffer

Figure 7-19. Cross Section of a One-Way Physically Separated Bike Lane (Source: OTM Book 18, 2021)

Cycle tracks are another form of separated bike lane where the facility is in-boulevard and is horizontally and vertically separated from the travelled portion of the roadway by a curb plus a horizontal buffer. Cycle tracks often travel parallel to the sidewalk but are designated exclusively for use by people riding bikes. They may be at the same level as the sidewalk, or at an intermediate level between the roadway and sidewalk. Cycle tracks may be placed in the boulevard adjacent to or setback from the curb.

Cycle tracks can be used to accommodate a wide range of bicycle types and users. They are typically suitable for roadways with moderate to high motor vehicle speeds and volumes. Cycle tracks can carry one-way or two-way bicycle traffic as shown in **Figure 7-21** and **Figure 7-22.**

Table 7-7 summarizes the desired width for one-way and two-way cycle tracks according to OTM Book 18.

Figure 7-20. Cycle Track

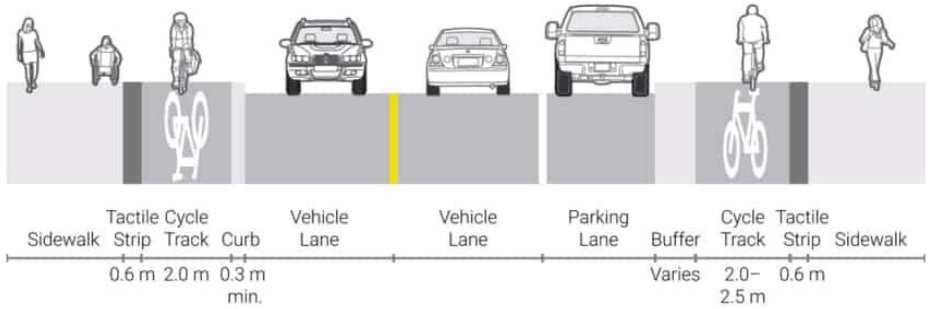


Figure 7-21. Cross-Section of One-Way Cycle Tracks (Source: OTM Book 18, 2021)

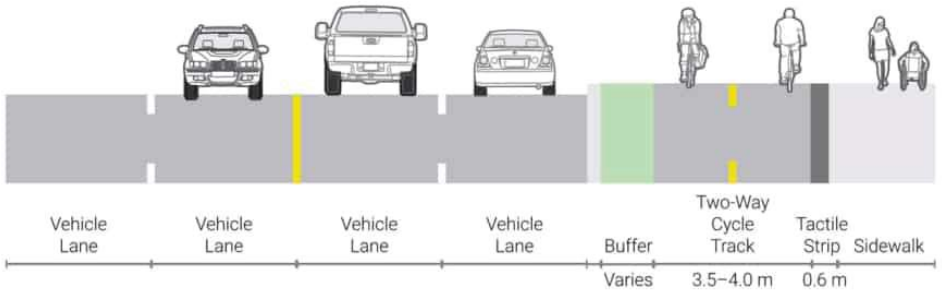


Figure 7-22. Cross-Section of Two-Way Cycle Tracks (Source: OTM Book 18, 2021)

Table 7-7. Desired and Suggested Minimum Widths for Cycle Tracks (Source: OTM Book 18, 2021)

Facility Type	Desired Width (m)	Suggested Minimum
One-way Cycle Track	2.0 – 2.5 m	1.5 m
Two-way Cycle Track	3.5 – 4.0 m	3.0 m

Multi-Use Trail

Off-road multi-use trails are specific paths or routes that are isolated from standard roadways and are intended for various forms of non-motorized transportation. These trails are generally designed to accommodate a broad spectrum of users, including pedestrians, cyclists, inline skaters, skateboarders, and individuals using mobility devices. These off-road multi-use trails are frequently situated in natural environments, parks, disused railway lines, or utility/hydro corridors, providing a secure and pleasant setting for active transportation and outdoor activities.

It might be beneficial to have physically distinct trails within the same corridor to cater to both high-speed users (like cyclists) and low-speed users (such as pedestrians). When this design approach is suitable, the two facilities can be separated by distance, elevation, or planted buffers. Signs indicating the allowed uses for each trail should be employed to convey the purpose and maintain the integrity of the separated system.

Typically, multi-use trails should have a minimum width of 3.0 m and an ideal width of 3.5 – 4.0 m to allow for two-way traffic. The trail's width may be increased to handle a larger number of users.

Figure 7-23. Off-Road Multi-Use Trail

Desire Lines

Desire Lines are multi-use trail routes that are currently under private ownership and may be considered in the long term. Desire Lines are intended to identify potential future trail corridors that are currently on private property but which the Town would like to potentially secure, if the opportunity presents itself if or when these lands become available or are redeveloped in the future.

7.4 Supporting Features

7.4.1 Amenities Plan

The implementation of supportive amenities at key locations along an active transportation network is an integral component of demonstrating the Town's commitment to provide active transportation infrastructure that is safe, accessible, and comfortable for all users across Aurora. Common amenities to consider are outlined below. These elements should be considered for implementation at key points along on-road active transportation facilities as well as key destinations, such as the Aurora GO Station.

4.5.1.1 Bike Parking

Adequate bicycle parking should be provided at key locations throughout the Town where cyclists are expected. The Association of Pedestrian and Bicycle Parking Professionals (APBP) Bicycle Parking Guidelines 2nd Edition (2010) provides the following key elements for deciding on the type and location of bicycle parking facilities.

Bike Parking Decision Elements (Source: APBP Bicycle Parking Guidelines 2nd Edition, 2010)

Cost

- A long-term facility is typically more expensive compared to a short-term facility, as it offers added security. Consider cost per bicycle.

Security

- The facility should enable a cyclist to secure an average size U-lock around the frame and one wheel to the locking area. In addition, the facility should be securely constructed and anchored to the ground and resist cutting, rusting, and bending or deformation

Materials and Maintenance

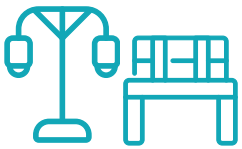
- Choose durable materials (i.e. resistant to scratches and vandalism) with minimal moving parts to improve security and ease maintenance.

Safety & Accessibility

- The facility should contain ground-mounted elements or devices to allow people who are visually impaired to be aware of its presence.

Space efficiency, usability, & capacity

- Consider how many bicycles can be accommodated within a given space and how much to extend the facility footprint to provide desirable features such as weather protection.
- The facility should support the bicycle frame upright in at least two places along a horizontal plane, enable the bicycle frame and at least one wheel to be locked, prevent the wheel of the bicycle from tipping over, and allow front-in and back-in parking. Also, intuitive facility design can help to prevent incorrect use that may reduce security or capacity by obstructing other parking spaces.



Aesthetics

- There is increasing demand to have bicycle parking serve as appealing street furniture or functional pieces of public art. The aesthetic design of the facility should not interfere with basic functions or create accessibility hazards for pedestrians.

Short-term Bicycle Parking

Short-term bicycle parking is used by people who visit residences, businesses, or institutions for a brief period, typically under two hours. These users require a high degree of convenience with regards to ease of use and proximity to the destination, so the facilities should be located as close to destination entrances as possible without inhibiting pedestrian flow. The "Inverted U" (**Figure 7-24**) and "Post and Ring" (**Figure 7-25**) are strongly recommended for short-term bicycle parking given the following features:

- Low to medium cost
- Maintenance for anchors and finish but no moving parts
- Options available for finishes, design, and alternate shapes
- Can easily lock bike with proper support
- Square tubing less vulnerable to cutting; for Post and Ring, cast metal rings vulnerable to prying
- Easily detectable without posing tripping hazard
- Within bicycle footprint and can support two bicycles per inverted U or post and ring, if correctly parked

Figure 7-24. Inverted-U Bike Rack in Ottawa (Source: Alta Planning + Design)

Figure 7-25. Post and Ring Bike Rack in Toronto

Long-term Bicycle Parking

Long-term bicycle parking is typically used for longer time periods by people with more predictable travel patterns, such as employees, residents, and transit users during weekday peak hours. The most important features of these facilities are weather protection and a high degree of security. They often include bicycle racks in an enclosed and secure area with controlled access or outdoor bicycle lockers, typically located at apartment and condominium complexes, places of employment, schools, and transit hubs.

The Aurora GO Station is a priority location for providing long-term bicycle parking to support commuter cyclists through a coordinated effort between the Town of Aurora and Metrolinx. As outlined in the GO Rail Station Access (February 2023), cycling accounts for 1% of the existing mode share for this station, with a target bike mode share of 5% by 2041. This station currently provides a total of 32 bike parking spaces along the east station entrance (24 covered and 8 uncovered), some of which are illustrated in **Figure 7-26.**

By 2041, Metrolinx plans to expand this station's bike parking supply with 32 new covered spaces and 32 new secured spaces through future station works or redevelopment projects at the end of the bike path connecting to the east station site and along the west station entrance. In addition, future station improvements would focus on converting uncovered spaces to covered bike parking.

Figure 7-26. Covered Bike Parking Along East Station Entrance to Aurora GO

There are several additional amenities, emerging technologies, and innovations that can be incorporated into the design of proposed on-road active transportation facilities that can enhance the user experience and widen inclusivity of the network. When evaluating potential technology options to implement, it is important to consider the demands for operations and maintenance. Examples of how technology can be integrated into the proposed active transportation network include:

- Bicycle Repair Stands: These should be provided along the active transportation network at popular cycling routes and in other high volume cycling locations. They commonly include tools for conducting basic maintenance and minor repairs, such as fixing a flat tire.
- Charging stations: These stations could either be solar or hardwire powered, offering USB ports (for phones, tablets) and e-bike rapid charge ports. They can be installed as standalone towers or be integrated with multi-function site furnishing (**Figure 7-27**).
- Wi-Fi: Wi-Fi can draw users to the active transportation network and enable accessibility aid devices. Small cellular broadcast devices require little power and can be standalone units or integrated with furnishings.
- Digital mapping: This can include Google Streetview for trails and 360-degree imagery, which will allow users to preview the journey ahead when they are planning their trip within the Town.
- User count displays: User count displays, such as that shown in **Figure 7-28**, provide data that will inform operational management while promoting the success of the active transportation network.

Figure 7-27.Outdoor Charging Station

Figure 7-28. Bicycle Counter Display in Waterloo

The next section of the report summarizes education and encouragement programs that can strengthen the recommended policies to build a strong active transportation system in Aurora.

Chapter 8

Education and Encouragement

8.1 Approach and Plan Foundations

Studies show that social factors influence travel behaviour. Physical infrastructure such as trails, bike lanes, and bicycle parking are essential to support cycling, but people also need to feel that their community approves, encourages, and supports their choices. To build a culture of active transportation within the Town of Aurora, the Town should support the uptake of social infrastructure programs in three areas: connecting with children and educators, making cycling visible, and supporting champions.

To create a more supportive culture for cycling, the Town and its partners should cooperate to shape the social environment for change. By identifying and strengthening partnerships with key stakeholders and providing them with resources to increase their capacity, they can enable the design and delivery of programs that address the specific needs of their communities and networks. As partners take ownership of the new programs, they will be more committed to the ATMP and provide the necessary support for its implementation.

8.2 Programming Partners

The programming partners identified and their roles and responsibilities are identified below.

Accessibility Advisory Committee	The Accessibility Advisory Committee can identify, develop, and prioritize solutions to remove barriers in using trails and active transportation facilities.
Parks and Recreation Advisory Committee	The Parks and Recreation Advisory committee will help identify where trail enhancements can be made to improve accessibility and year-round use of the trail network. The group will also help identify priorities for trail maintenance and enhancement.
York District School Board & York Region Catholic District School Board	The School Boards are committed supporters of active transportation in York Region. Several municipalities within York Region have been participating in the Active School Travel Program and this program should be extended to schools in Aurora as well. This program will support educational initiatives, events, and workshops to encourage active forms of travel.
Aurora Cycling Clubs – B1 EVO Cycling Club & BikeSports Cycling Club	Club members possess a strong understanding of the local context. They will be able to share their knowledge on the existing conditions and main routes of the active transportation infrastructure. They will be able to identify the main attractions and popular routes for recreational and commuting use. There are opportunities for the club members to advise the Town on the implementation of new infrastructure. The club is capable in planning and delivering events and they will be important partners in organizing and delivering future events to build a stronger culture of active transportation.

York Regional Police – Road Safety Bureau	The Road Safety Bureau comprises of four units: Major Collision Investigation Unit; Commercial Motor Vehicle Safety Unit; Road Safety Programs; Traffic Enforcement Unit. Members of the Bureau host various programs that operate seasonally and annually. The police officers are important partners in promoting safe road use for all users. Aside from their usual programs, the police officers can deliver educational and public awareness messaging, help with Bike Rodeos, and facilitate cycling education at schools. They can also share their recorded information and data on collisions with Town Staff to better inform decisions related to active transportation.
Downtown Aurora Business Improvement Association (BIA)	Downtown Aurora is an important destination within the Town, and the businesses that make up the BIA will be important partners in delivering new programs to encourage people to walk, bike or wheel to the area. Promoting active travel to the downtown core complements and benefits the overall mission of the Downtown Aurora BIA. They want to run main events in the downtown core area, support existing businesses, attract new businesses that will further enrich the experience and make beautification efforts to improve the streetscape.
Local Businesses	These businesses are not represented by the BIA, but they still have an interest in promoting active transportation within their community.
Active Transportation and Traffic Safety Advisory Committee	The committee was formed to support and advise Town Staff on issues related to active transportation and traffic safety, specifically related to the development and implementation of the Town's Master Transportation Study and ATMP.

8.3 Programming Recommendations

This section provides a list of initiatives that can be undertaken over the next several years. The recommendations are organized into three phases, which provide some guidance for the Town with regards to prioritizing their investments. Based on existing capacity, an understanding of the desires of the community, and research about best practices relating to active transportation programming, this Plan outlines an implementation plan that scales up the level of effort and investment as the active transportation community continues to grow in Aurora, providing programs that will reach new audiences and grow active transportation for years to come. The three phases of programming are displayed in **Table 8-1**.

Table 8-1. Phased Programming Recommendations

Phase 1: Foundation	Phase 2: Basic Programming	Phase 3: Advanced Programming
Likely to generate the greatest participation that ought to be adopted first to establish a foundation upon which further involvement within active transportation can grow.	Maintain the momentum of increasing active transportation involvement and begin the process of facilitating a deeper cultural shift.	Tailor to a wider range of potential active transportation audiences and help establish a more mature culture of active transportation.

While there is no preferred order, it is highly recommended that the phases to be implemented in order. For example, the preference should be given to funding the programs in the “Phase 1: Foundations” category before moving on to the programs in the “Phase 2: Basic Programming” category.

With that said, however, it is important to acknowledge that circumstances may change, so these assumptions and recommendations should be revisited regularly to ensure that they remain relevant. All of the programs outlined in this section will have a positive impact

on the Town's active transportation culture, so should funding become available to pursue a program that is beyond the tier that the Town is actively working on, the Town and its partners should still pursue that funding.

Phase 1: Foundation

The first phase of programs includes initiatives with broad appeal that are likely to generate the greatest involvement and establish a stronger culture of active transportation within Aurora. These programs build upon existing initiatives already underway within the Town and focus largely on learning lessons from comparable municipalities in Ontario and beyond.

While the Town and its partners have proven that there is the capacity to run programs to support active transportation through leveraging existing staff resources or relying on volunteers, the programs presented here would represent a significant increase in the level of effort required to deliver them.

As the number of new programs and the number of new partnerships begins to grow, it will be difficult to maintain that growth when work and responsibilities are dispersed across multiple departments and committees. For that reason, it is strongly recommended that the Town establish an Active Transportation Coordinator position to be "scaled up" over time.

Eventually, the AT Coordinator will scale up to a full-time position once the active transportation portfolio is at a more mature stage.

Program #1: Routine Community Slow Roll Events

Host regular community walks or bike rides to provide residents with the opportunity to participate in an enjoyable, social activity while also exposing them to the available parks, trails, and active transportation network in the Town. Key components of a successful community ride or walk program include:

- **Regularity:** walks or rides should be hosted on a regular basis that will allow casual drop ins and outs
- **Visibility:** walks and rides should be distinctively branded, to improve their awareness within the community
- **Accessibility:** walks and rides should be delivered at a slow pace for inexperienced participants and socialization
- **Socialization:** walks or rides should encourage community building, allowing participants to become acquainted with each other and the sites and businesses that make up the local area

Recommended Partners	• B1 EVO Cycling Club • BikeSports Cycling Club • Parks and Recreation Advisory Committee
Inspiration	• Windsor-Tecumseh Slow Ride (Click Here) • City of Markham – Annual Cycling Day (Click Here)

City of Markham
Annual Cycling Day

Program #2: Initiate an Active School Travel Program

Parents and students are relying on vehicles to commute to school and fewer students are using active modes of transportation. Young people are missing the opportunity for physical activity, fresh air, and social interaction with their friends and caregivers. Implementing an Active School Travel Program shifts car dependence towards active travel, which can improve the surrounding air quality and physical and mental health of the students. With reduced vehicle traffic, streets are safer for the students to walk and cycle to school.

Green Communities Canada funded a program called the Ontario Active School Travel (OAST). The Active School Travel program aims to create a culture of active lifestyle for the students to participate in. The program requires cooperation from the school, community stakeholders and residents to address transportation issues that hinder active commute. The OAST Fund offers grants to school boards, municipalities, and student transportation consortia.

Other programs that fall under the Active School Travel program include School Streets, Bike to School Week, International Walk to School Month, Winter Walk Day, etc.

Recommended Partners	• York Region District School Board • York Region Catholic District School Board • Police Officers
Inspiration	• City of Markham – Active School Travel Pilot Program (Click Here) • Town of Newmarket – Active School Travel Pilot Program (Click Here) • Ontario Active School Travel (Click Here)

Phase 2: Basic Programming

The second phase of initiatives builds upon the foundations of building a stronger culture of active transportation within Aurora. The second phase expands the foundational programming to make active transportation use more visible and empowering and leveraging existing champions throughout the community. This phase will continue building upon the active travel school programming initiative and will introduce an active travel to work program.

City of Toronto
Bike Month

Program #1: Bike-to-Work Day

Upon establishing the foundations for active transportation in the Town, staff will dedicate resources towards hosting and promoting a Bike-To-Work Day in the Town of Aurora. The day will encourage residents to commute via bicycle. Whether it is cycling all the way to work or biking and connecting to other modes of sustainable transportation, the Town should work to promote safe routes to cycle. The goal of the Bike-To-Work Day is to make cycling more visible by increasing the presence of cyclists on roadways.

The AT Coordinator should work with the Region, business improvement areas, school boards, and advocacy organizations to promote the event. Celebration and community stations should be setup along safe cycling routes to help promote and provide incentives to those participating in the events. These stations can offer Aurora cycling information, basic tune-ups, and resources to make rides safer and more enjoyable for those partaking.

Recommended Partners	• Business Improvement Areas and Bike Friendly Businesses • York Region • School Boards
Inspiration	• City of Toronto – Bike Month (Click Here) • City of Brampton– Bike to Work Day (Click Here) • HUB Cycling – Go by Bike Week (Click Here)

Phase 3: Advanced Programming

As the AT Coordinator further establishes a culture of active transportation in Aurora and physical infrastructure is created, they will have more leverage to support ongoing active transportation initiatives to further increase the development of infrastructure. That does not negate the role of the AT Coordinator, in fact it should continue and expand as supporting a culture of active transportation needs to be done across the Town. It is necessary to ensure that partnerships are continuously being built, strengthened, and maintained both within the Town of Aurora's corporate structure and with external partners. To continue building meaningful connections with internal stakeholders and the community, it is recommended that there be additional staffing supports within the Town's corporate structure whose role explicitly includes the delivery of projects and programs outlined within the ATMP.

The Town of Aurora has access to various funding streams, including the Planning Stream of the Federal Active Transportation Fund. This presents an opportunity for the Town to enhance its support for cycling by leveraging these funds to hire additional staff. Establishing a dedicated personnel position, specifically focused on advancing cycling and other active transportation initiatives is a common and effective practice in jurisdictions making strides in cycling infrastructure across Ontario. This staff member would play a central role in not only improving cycling initiatives but also in facilitating access to additional funding from higher levels of government, forging partnerships with local municipalities and external collaborators, and cultivating strong relationships with local service delivery agencies to bolster the Town's social infrastructure offerings. Acting as the central 'hub' for all cycling-related matters in Aurora, this staff member would streamline resources, minimize duplication of efforts, and raise awareness of emerging best practices. This approach is essential to seeing the full implementation of the ATMP in Aurora and will help the Town fulfill future goals established in future ATMP updates.

City of Toronto
Bike Share

Program #1: Bike Share Program

Providing a bike share program across the Town can aid in providing safe, secure, and affordable first-last-mile connections to residents. The AT Coordinator will assist in exploring and implementing a dedicated bike share system within the Town to help improve the access to cycling. This initiative aims to enhance first-last-mile connections within the Town of Aurora, offering residents and visitors a safe, affordable, and efficient transportation option. The program's inclusivity is further improved by the provision of e-bikes within the system, promoting accessibility for a wider range of users. To ensure the sustainability and long-term success of an Aurora Bike Share Program, the AT Coordinator and supporting staff are tasked with advocating for the program to key stakeholders such as York Region, Metrolinx, and other potential funding partners. Their role in championing the initiative will be instrumental in securing the necessary support and resources for the continued growth and success of the bike share program in Aurora.

It is recommended that the Town develop a Bike Share Feasibility Study to outline how a bike share program could operate within Aurora. Through a detailed evaluation of potential bike share station locations, a list of optimum locations could be identified based on best practices in the siting of bike share facilities. This study should also outline an implementation plan with a preferred business model, estimated costs, and potential funding strategies to support the Town in establishing a viable, sustainable bike share program to provide additional mobility choices to residents and visitors today and into the future.

Recommended Partners	• York Region • Metrolinx
Inspiration	• City of Toronto – BikeShareTO • City of Hamilton – Hamilton BikeShare

The next section of the report outlines an implementation plan that builds off the recommendations in the previous sections to provide phasing and costing of the ATMP recommendations.

Chapter 9

Implementation Plan

9.1 Phasing

The Project Team took a comprehensive approach to selecting the phasing strategy, which included reviewing the 10-year road reconstruction plan from the MTS, analyzing York Region's Transportation Master Plan, gathering public input, soliciting input from Town Staff and the ATTSAC, and reviewing best practices from OTM Book 18 as discussed in Chapter 7. With these inputs, the Project Team developed a phasing strategy summarized in **Table 9-1** that balances the input received and explores quick wins. The phasing strategy is designed to ensure that the active transportation network is implemented in a way that is efficient, effective, and responsive to the needs of the community.

Table 9-1. Phasing Strategy

Short-Term 0 to 10 Years	Long-Term 11 to 20 Years and Beyond
• Low investment "quick wins" such as road diets, adding signed bike routes, conventional or buffered bike lanes, or physically separated facilities along roadways • Complete key gaps in the trails and on-road networks to support network connectivity and continuity • Sidewalks that were identified as medium and high priority in the Master Transportation Study Sidewalk Gap Analysis • Segments that form part of previously proposed capital/road resurfacing projects by the Town, Region, or Metrolinx	• Routes that require additional investigation such as an environmental assessment or design feasibility studies before they can be implemented • Segments that are recommended to be implemented as part of a longer-term Town, Region, or Metrolinx/Provincial capital project • Sidewalks that were identified as low priority in the Master Transportation Study Sidewalk Gap Analysis • Segments that should be implemented when a roadway undergoes full reconstruction in the future (i.e., not anticipated within the next 10 years)

Table 9-2 summarizes the existing and proposed lengths of the different facility types. The proposed phasing is illustrated in **Figure 9-1** for the proposed trail and multi-use path network and in **Figure 9-2** for the proposed cycling network. Phasing for sidewalks are based on the prioritization for sidewalks gaps outlined in the Town's MTS, sidewalk gaps identified as medium or high priority were included in the short-term phase whereas low priority sidewalk gaps are included in the long-term phase. The table from the MTS Sidewalk Gap Evaluation with prioritization and the latest 2024 Sidewalk Gap map are included in **Appendix B** of this report.

Table 9-2. Summary of Existing and Proposed Active Transportation and Trails Network by Facility Type

Facility Type	Existing Length (km)	Proposed Length (km)	Total Length (km)
Bike Lane[1]	3.6	29.4	33
Signed Route	6.4	31.5	37.9
Paved Shoulder	2.6	3.6	6.2
Multi-Use Path[2]	18.3	9.7	28.0
Separated Bike Lane[3]	0	7.5	7.5
Multi-Use Trail	61	35.5	96.5
Desire Line[4]	0	24.6	24.6
Sidewalk	201.2	33.1	234.3
Regional On-Road Cycling Facility or MUP	5.1	15.8	20.9
Total	**298.2**	**190.7**	**488.9**

Notes:

1. Bike lanes may be implemented in the interim as urban shoulders forming part of a signed cycling route.
2. This includes existing multi-use paths on regional roads which are operated and maintained by the Town.
3. The Town may select as an interim solution to implement buffered bike lanes but the ultimate facility type is recommended to be physically separated in the long term.
4. Desire lines are intended to identify potential future trail corridors that are currently on private property but which the Town would like to secure, if the opportunity presents itself if or when these lands become available or are redeveloped in the future. As such, distances identified are approximate and subject to changes. The actual location and distances will be determined from the development reviewing process.

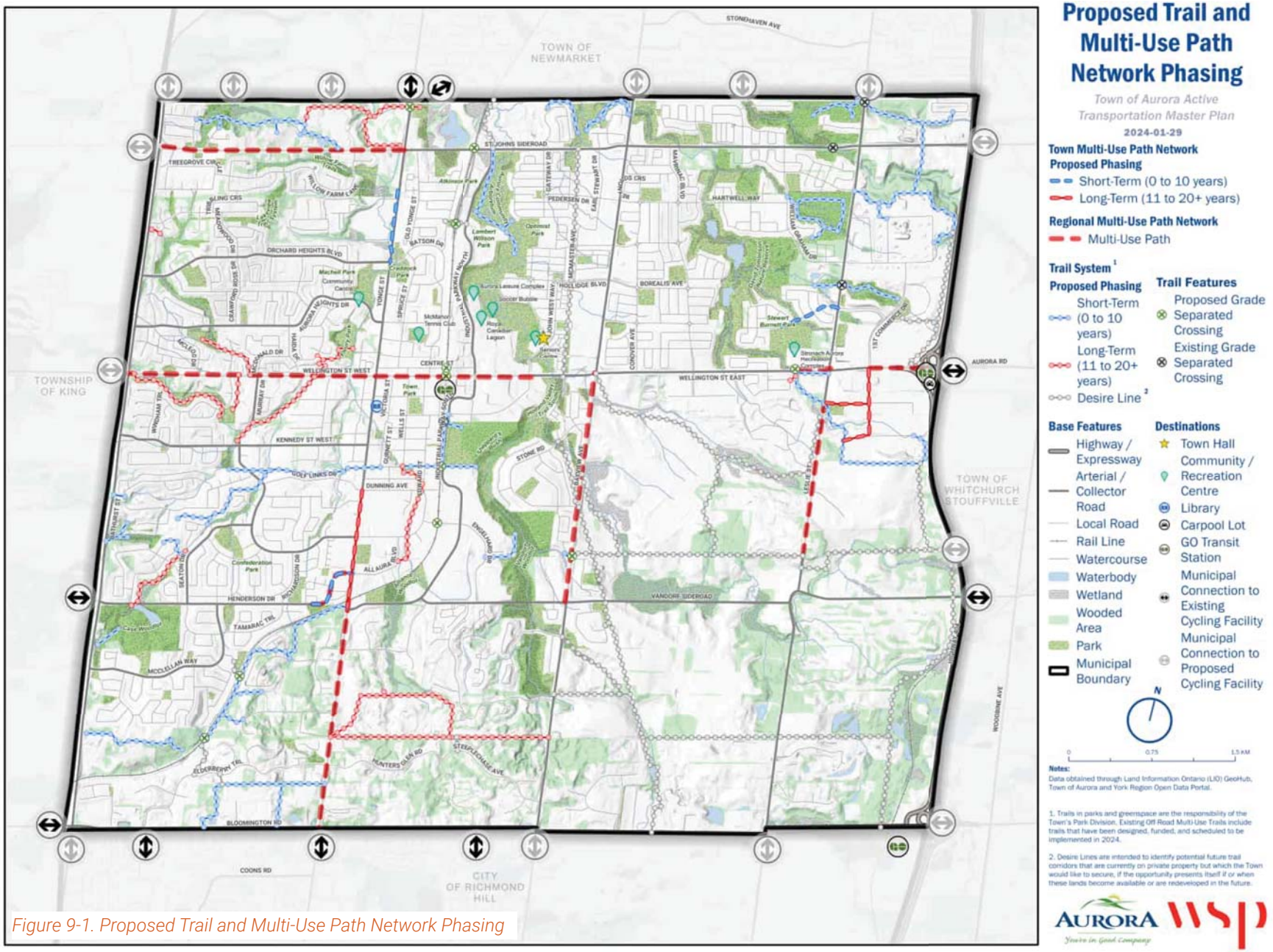


Figure 9-1. Proposed Trail and Multi-Use Path Network Phasing

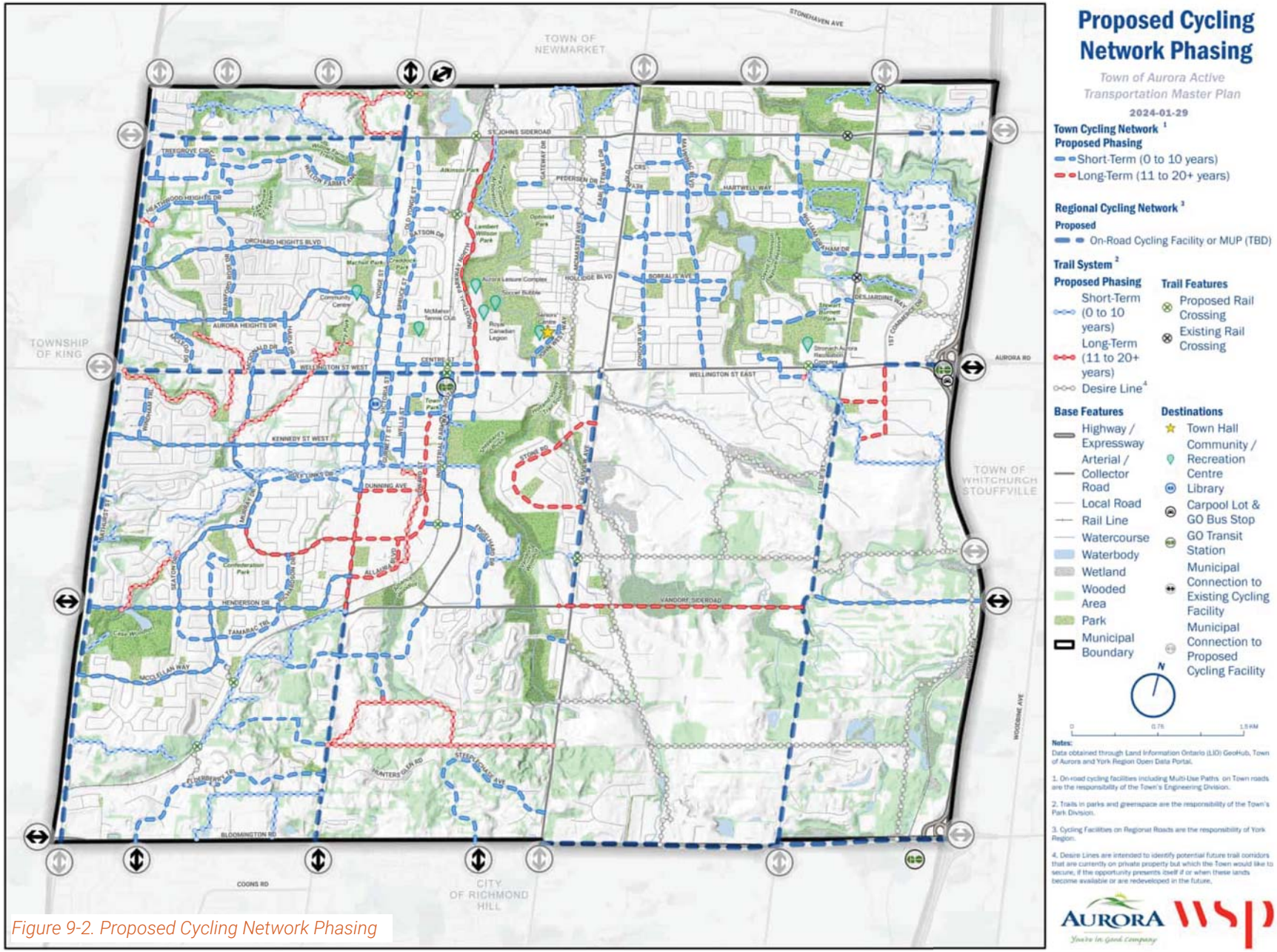
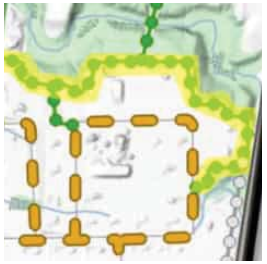


Figure 9-2. Proposed Cycling Network Phasing

Priority Projects

Seven priority projects identified in the short-term phasing plan have been identified with input from Town staff as top priority projects. It is recommended that detailed planning and design for top priority projects proceed on an expedited basis, with implementation occurring within the first half of the 10-year period over which the short-term projects are to be implemented. The top priority projects recommended as part of this plan are summarized in the following illustrations.

Off-Road Trails



Addison Hall Trail
1.56 km

Shining Hill Development Trails
1.26 km

Sidewalks and Multi-Use Paths*

Yonge Street Multi-Use Path
2.03 km

Edward Street Sidewalk
0.50 km

* Projects included in the 2024 capital budget.

On-Road Cycling Facilities

Earl Stewart Drive Bike Lanes
1.22 km

Edward Street Bike Lanes
1.86 km

Murray Drive Bike Lanes
1.68 km

9.2 What is the Investment?

A high-level cost to implement the updated active transportation and trails network was developed to help inform future capital budgets and decision making.

The costs for the improvements are based on 2023 typical infrastructure unit prices and include the following assumptions:

- Unit prices used are in 2023 dollars and intended to be used for pre-design budgeting purposes and do not include taxes
- Costs include a 30% contingency and 15% design and approvals cost
- Costs reflect the construction costs of the route and do not include property acquisitions, signal modifications, underground utility relocations, major roadway draining works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and stairways, unless otherwise noted
- Costs assume typical environmental conditions and topography
- Further detailed studies will need to be completed in coordination with relevant agencies where required

Unit costs used are based on best practices and recent tenders and projects of similar scope in Ontario and are not intended to be prescriptive. Desire lines are not costed as part of this study as feasibility, facility type, and phasing would need to be assessed in the future should the lands become available.

It should also be recognized that the level of effort to implement an active transportation facility will vary on a project-by-project basis. It is recommended the Town review the estimated costs as part of their capital planning process to reassess the conditions at the time of implementation. **Table 9-3** provides the summary of costs by facility type and phase. On-road cycling facilities, off-road trails, and Regional cycling facilities are split in the costing table to clearly divide responsibilities between the Town's Engineering Division, Park Division, and York Region respectively. Details on the unit pricing and a breakdown of the cost per route are provided in **Appendix A**.

Overall, the estimated cost to implement the proposed active transportation and trails network is approximately $56 million over the next 20+ years. Proposed grade separations have not been costed as further study is required to confirm feasibility and cost and this has been recommended as a future study by the Town and its partners (e.g. York Region and Metrolinx).

Table 9-3. Cost Summary of Proposed On-Road and Off-Road Cycling and Trails Network by Facility Type and Phase (Includes Contingency and Design)

	Short Term (0 to 10 Years)		Long Term (11 to 20 + Years)		Total	
Facility Type	**Length (km)**	**Cost**	**Length (km)**	**Cost**	**Length (km)**	**Cost**
Local On-Road Cycling Facility						
Bike Lane	23.7	$996,065	5.7	$238,143	29.4	$1,234,208
Signed Route	31.5	$54,821	0.0	$0	31.5	$54,821
Paved Shoulder[1]	1.5	$429,576	2.1	$616,225	3.6	$1,045,801
Multi-Use Path	7.4	$4,041,205	2.3	$1,246,673	9.7	$5,287,877
Separated Bike Lane[2]	5.3	$3,821,417	2.2	$1,583,735	7.5	$5,405,152
Subtotal	**69.4**	**$9,343,085**	**12.3**	**$3,684,776**	**81.6**	**$13,027,861**
Sidewalks						
Sidewalk (see **Appendix B** for locations of sidewalk gaps)	9.1	$6,583,065	24.1	$17,442,420	33.1	$24,025,485
Subtotal	**9.1**	**$6,583,065**	**24.1**	**$17,442,420**	**33.1**	**$24,025,485**
Local Off-Road Trail Network						
Multi-Use Trail	24.4	$13,281,659	11.1	$6,031,133	35.5	$19,312,792
Desire Lines					24.6	
Subtotal	**24.4**	**$13,281,659**	**11.1**	**$6,031,133**	**60.1**	**$19,312,792**
Town Subtotal	**102.9**	**$29,207,809**	**47.4**	**$27,158,329**	**174.9**	**$56,366,138**
York Region[3]						
On-Road Cycling Facility or MUP	N/A	N/A	N/A	N/A	15.7	N/A
Town + Region Total	**102.9**	**$29,207,809**	**47.4**	**$27,158,329**	**190.7**	**$56,366,138**

Notes:

1. Paved shoulder unit costs assume that the roadway is already being widened. Costs for widening the roadway platform are not included.
2. Per km unit costs for separated bike lanes can range from $165,000 - $500,000 depending if road widening is required. For this exercise, $500,000 per km is assumed. Detailed design will confirm or modify the proposed facility type (e.g. separated bike lane could become a multi-use path or cycle track instead).
3. Funding responsibility for cycling facilities on York Region roads are the responsibility of York Region, cost of multi-use paths (MUPs) will be a local cost or cost-shared with the Region. For this exercise, 5.7 km of MUPs on regional roads (Yonge St. from Bloomington Rd. to the CN rail corridor and Wellington St. from Bathurst St. to John West Way) are included in the local on-road short-term costing.
4. The cost of grade separations identified are not included and require a more detailed feasibility study /class EA to identify cost estimates.
5. Maintenance costs are dependent on the type and timing of infrastructure implementation and would be in addition to the costs in this table.

Supporting Elements

Beyond the cost of implementing the recommended active transportation and multi-use trail network, the following summarizes additional cost considerations to support the development of an active transportation system for the Town.

Education and Encouragement

$10,000 / Year

Amenities (e.g. Bike Racks)

$10,000 / Year

Class EA/Preliminary Design and Feasibility Studies for the Select Grade Separations

$500,000-750,000*

**Cost will depend on how many grade separation locations are included in the study and whether the project is a Class EA or design feasibility study only.*

Roles and Responsibilities

Cycling facilities recommended for implementation as part of the ATMP will be owned, operated, and maintained either by the Town of Aurora or York Region.

York Region

- Facilities located on the roadway of a Regional Road—such as cycle tracks and bike lanes—will be owned and operated by the Region.

Town of Aurora

- In-boulevard multi-use paths on Regional Roads will be operated and maintained by the Town.
- All facilities situated in the right-of-way of a local roads will be owned and operated by the Town.
- On-road local cycling facilities will be constructed by the Town's Engineering and Capital Delivery Division whereas off-road trails in parks and greenspace are the responsibility of the Town's Parks Division.

Master Plan Cost Estimate

Table 9-4 combines the costs of the proposed network and supporting elements to provide a high-level cost estimate for the overall Active Transportation Master Plan.

Table 9-4. Active Transportation Master Plan Cost Estimate

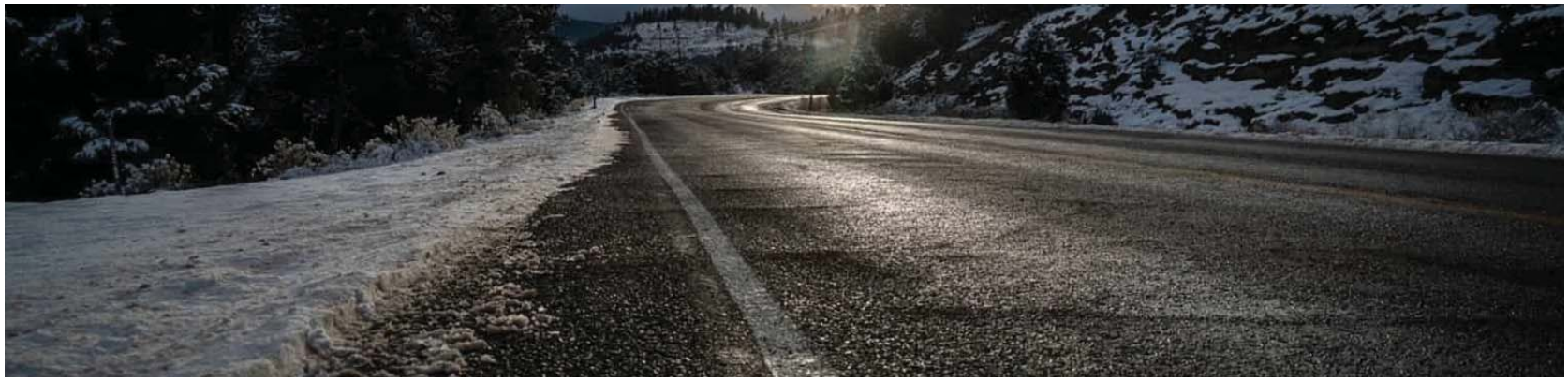
	Short Term (0 to 10 Years)	Long Term (11 to 20 + Years)	Total
Active Transportation Network	$29,207,809	$27,158,329	**$56,366,138**
Supporting Elements	$950,000	$200,000	**$1,150,000**
Total	**$30,157,809**	**$27,358,329**	**$57,516,138**

9.3 ATMP Maintenance Recommendations

In order to enhance maintenance of the existing and proposed active transportation network, recommendations have been established to help guide the Town in maintaining and operating active transportation infrastructure within Aurora.

Recommendations	
1	Additional equipment and resources may be needed to accommodate additional active transportation infrastructure and will need to be considered and planned.
2	The Town should review its annual maintenance budgets to accommodate the addition of new active transportation infrastructure.
3	The Town should review and consider developing a standardized method of reporting, documenting, and addressing concerns related to active transportation maintenance and operation. The Town should utilize existing online and manual reporting mechanisms for active transportation maintenance requests.

The next section of the report concludes the ATMP, summarizing the key active transportation recommendations for the Town of Aurora.

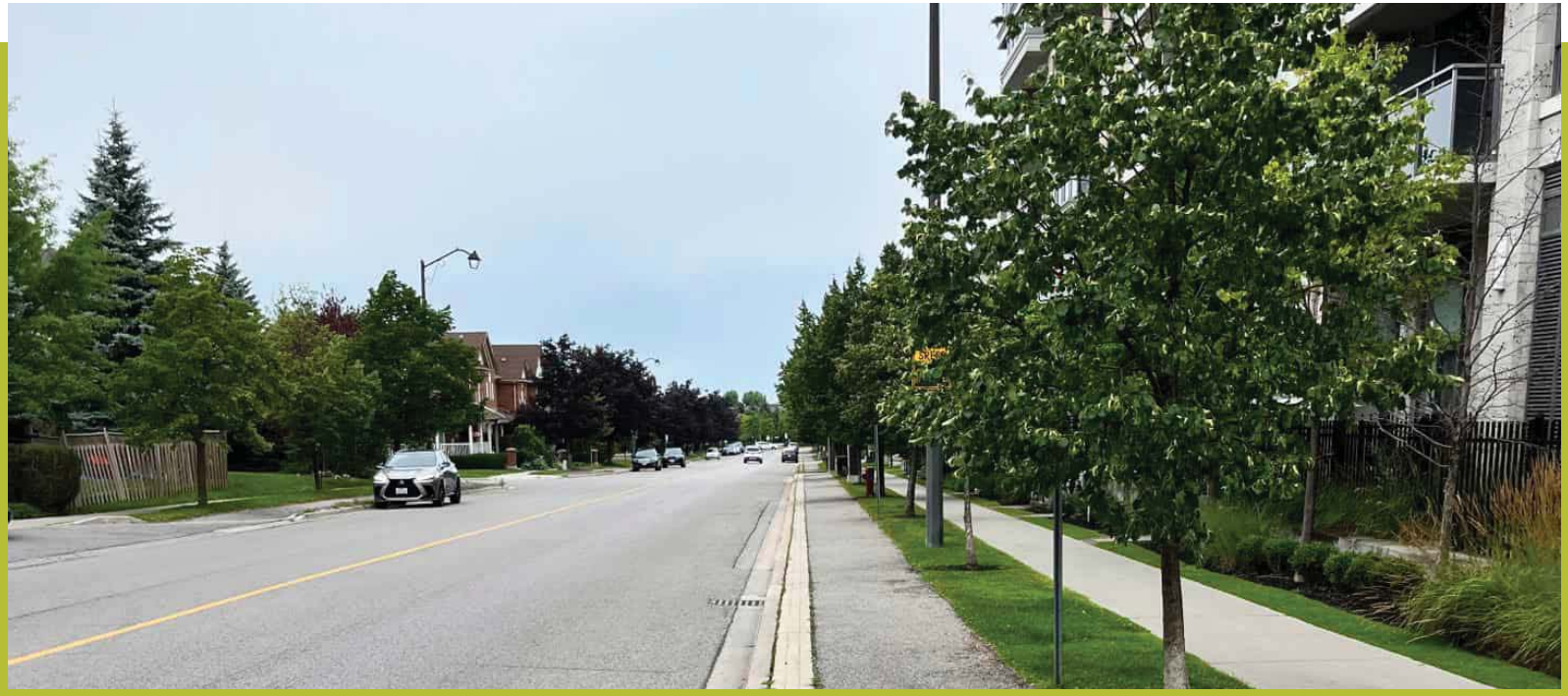


Chapter 10

Summary and Recommendations

10.1 Summary of Recommendations

The Aurora ATMP is a non-prescriptive roadmap that provides guidance and tools for the Town and its partners to make active transportation more accessible, comfortable, and convenient for people of all ages and abilities. To help move this ATMP from a vision to reality, a series of core implementation recommendations have been developed to guide Town leadership in partnership with internal and external stakeholders. These recommendations, which are summarized below, include implementing the various policies, programs, and procedures that contribute to the development of physical and social infrastructure to support active transportation in the Town of Aurora.



Policy Recommendations (Chapter 6)

1	Adopt the 20 year cycling and pedestrian network implementation plan as identified in the ATMP and include it as a schedule in the Town's Official Plan when updated and in future updates to the Master Transportation Study. A Master Plan should be reviewed every five years to determine the need for a detailed formal review and / or updating.
2	The ATMP should be reviewed and given consideration when municipal roads, trails, and other capital infrastructure projects are identified and scheduled during the development application process. Coordinating implementation with other capital infrastructure projects will be essential to efficiently implementing the proposed cycling and pedestrian networks.
3	Work to encourage active transportation friendly streetscaping, urban design, and active transportation-oriented land development in collaboration with local area municipalities through planning and design studies and development reviews.
4	Explore land use planning initiatives and policy development such as mixed land use, higher density urban areas, and pedestrian and cyclist friendly streetscapes to promote / facilitate an increased quality of life and liveability within the communities of the Town of Aurora.
5	Recognize that implementation of the ATMP requires coordination and consistent funding from the Town and York Region. The Town of Aurora should leverage existing partnerships between different jurisdictions and other levels of government to build cost sharing commitments for certain sections of the network.
6	The Town should identify and support local champions and cycling advocates to help grow a culture of active transportation throughout the community. Supporting local champions should be catered towards educating and encouraging school-aged children, seniors, and workers to use active transportation for short trips, commutes, and recreation.

Policy Recommendations (Chapter 6)

7	Focus greater priority on the implementation of cycling facilities between high density areas, transit stations, and schools to improve connectivity and to increase the number of people using cycling facilities. The prioritization of active transportation routes and facilities in dense areas is intended to enhance the viability for residents to engage in daily travel by bike to increase the cycling mode share in the Town of Aurora.
8	When the Town next updates their Master Transportation Study as it relates to the integration of pedestrian and cycling facilities, it should be in alignment with Ontario Traffic Manual Book 18 (2021) guidelines.
9	The implementation of cycling and pedestrian infrastructure, including on and off-road routes, should be included as part of development proposals and the park development process for new development areas.
10	Work with business improvement areas, York Region Transit, and Metrolinx to provide safe and secure bicycle parking at key destinations and transportation hubs.
11	Prioritize safe cycling and walking connections between existing GO Transit stations to improve first-/last-mile connections between Regional transportation and local residential and commercial areas.
12	Produce an annual staff report to Council that identifies progress in implementing the ATMP, including projects completed, projects planned and budgeted for the next year or two, and highlight a few key performance indicators (KPI) such as number of kilometres of new trails, multi-use paths, on-road cycling facilities, and sidewalks relative to the total distance proposed in the ATMP for each facility type.

Education and Encouragement Recommendations (Chapter 8)

1

To build a culture of active transportation within the Town of Aurora, the Town should support the uptake of social infrastructure programs in three areas:

- Connecting with Children and Educators
- Making Cycling Visible
- Supporting Champions

2

The following programming partners were identified with respective roles and responsibilities for the Town to strengthen partnerships with to enable the design and delivery of programs that address specific community needs:

- Accessibility Advisory Committee
- Parks and Recreation Advisory Committee
- York District School Board & York Region Catholic District School Board
- Aurora Cycling Clubs – B1 EVO Cycling Club & BikeSports Cycling Club
- York Region Police – Road Safety Bureau
- Downtown Aurora Business Improvement Association (BIA)
- Local Businesses
- Active Transportation and Traffic Safety Advisory Committee

3

Programming is recommended to be implemented with the following phasing to help prioritize investments and scale up effort as the active transportation community continues to grow in the Town of Aurora:

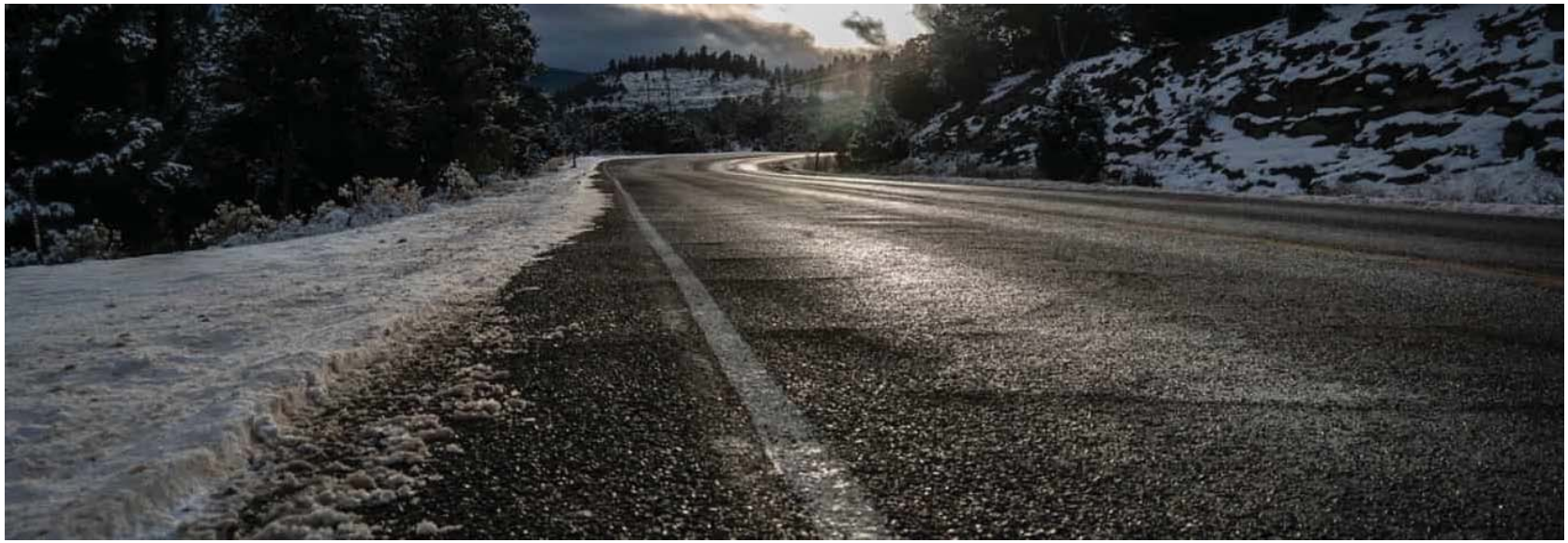
- **Phase 1: Foundation** is likely to generate the greatest participation that ought to be adopted first to establish a foundation upon which further involvement within active transportation can grow. Recommended programming include “Routine Community Slow Roll Events” and “Initiate an Active School Travel Program” for schools in the Town of Aurora. Also, it is strongly recommended that the Town establish an Active Transportation Coordinator position to be scaled up over time.
- **Phase 2: Basic Programming** maintains the momentum of foundational programming and increasing active transportation involvement and begins the process of facilitating a deeper cultural shift. Recommended programming includes “Bike-to-Work Day”.
- **Phase 3: Advanced Programming** tailors to a wider range of potential active transportation audiences and help establish a more mature culture of active transportation. Recommended programming includes “Bike Share Program”.

Phasing and Costing Recommendations (Chapter 9)

1	The Town should implement the AT network based on the recommended phasing strategy in two time frames: • **Short-Term (0 to 10 years)**: This includes low investment "quick wins", completing key gaps in the network, and segments that form part of previously proposed capital/road resurfacing projects. Top priority projects were identified to be expedited within the first half of the short-term time frame. • **Long-Term (11 to 20 years and beyond)**: This includes routes that require additional investigation, segments that are recommended to be implemented as part of a longer-term capital project, and segments that should be implemented when a roadway undergoes full reconstruction.
2	The Town should undertake a Town-Wide Pedestrian Crossing Treatment Study in partnership with York Region to improve to the frequency of pedestrian crossing of major barriers, including consideration of mid-block pedestrian crossings to improve access to trail access points and to improve overall walkability in the Town for all ages. The study should include an update to the Sidewalk Gap Analysis from the MTS.
3	The Town should consider and budget for supporting elements of an active transportation system, which include education and encouragement and amenities.
4	Should the Town want to further investigate grade separations proposed in the Trails Master Plan and the ATMP, it is recommended that a feasibility study be undertaken as a first step. Further studies may be needed depending on the outcome.

Maintenance Recommendations (Chapter 9)

1	Additional equipment and resources may be needed to accommodate additional active transportation infrastructure and will need to be considered and planned.
2	The Town should review its annual maintenance budgets to accommodate the addition of new active transportation infrastructure.
3	The Town should review and consider developing a standardized method of reporting, documenting, and addressing concerns related to active transportation maintenance and operation. The Town should utilize existing online and manual reporting mechanisms for active transportation maintenance requests.



The Aurora ATMP provides an achievable path for the Town and its partners to move towards a complete network of walking and cycling facilities in urban areas, all while building upon the strong partnerships that already exist to support the culture of active transportation within the Town. Moving forward, the Town is encouraged to work in close partnership with key stakeholders to both implement new programs, policies, and infrastructure, as well as to promote all that the Town of Aurora has to offer, well beyond its borders.

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Appendix A

Unit Pricing and Cost Summary

ortation Unit Costs

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
1.0 GENERAL ACTIVE TRANSPORTATION FACILITIES				
Shared Lanes / Paved Shoulders				
Route in Urban or Rural Area	linear KM	$1,000 to $1,200	$1,200	Price for both sides of the road, assumes one sign a minimum of every 500 metres in the directi assumes that signs will be mounted on an existing post. Price includes: - $300 per sign x 4 signs (2 signs on each side of the road)
Route with Sharrow Lane Markings *supplement a signed bike route in tions. Not intended to be a stand-alone*	linear KM	$11,600		Price for both sides of the road, includes route signs every 500 metres and sharrow stencils eve OTM Book 18 guidelines. Price includes: - $300 per sign x 4 signs (2 signs on each side of the road) - $400 per stencil marking x 26 (13 stencils on each side of the road)
e with Edgeline	linear KM	$12,200		Price for both sides of the road, includes signs and painted edgeline (100mm solid white line). P - $300 per sign x 4 signs (2 signs on each side of the road) - $5.5 per metre for painted solid white line
Route with Paved Shoulder in with existing road reconstruction /	linear KM	$115,000 to $215,000		1.5 metre paved shoulder on both sides of the road. Assumes cycling project pays for additional asphalt and painted line. Price may vary from $115,000 to $215,000 depending on work needed Price includes: - $300 per sign x 4 signs (2 signs on each side of the road) - $5.5 per metre for painted solid white line (both sides of the road) Price may be higher if road platform needs to be widened.
Route with Buffered Paved Shoulder in with existing road reconstruction / roject	linear KM	$275,000 to $340,000		1.5 metre paved shoulder + 0.5-1.0 metre paved buffer on both sides of the road. Assumes cycli additional granular base, asphalt, painted edge lines and signs (buffer zone framed by white edg vary from $275,000 to $340,000. Price includes: - $300 per sign x 4 signs (2 signs on each side of the road) - $5.5 per metre for painted solid white line (both sides of the road)
Rumble Strip to Existing Buffered Paved ral)	linear KM	$12,000		Price for both sides. Buffer $6 / m.
oulder Sealing	linear KM	$18,000		Both sides spray emulsion applied to harden the granular shoulder. This will reduce gravel on th the shoulder and significantly reduce shoulder maintenance. Use $9 / m.
anular Surface Back Road to Chip Seal	linear KM	$56,000		Price includes pulverizing existing surface with double treatment ($6 / m²) or tar and chip ($2 /m²
Conventional and Separated Bike Lanes				
l 1.5m-1.8m Bicycle Lanes by Adding arkings and Signs	linear KM	$29,000	$29,000	Price for both sides of the road, includes signs, stencils and edge line. The price assumes: - $11,000 for painted lane line ($5.5 per metre multiply 2 for both sides of the road) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used.

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
Conventional and Separated Bike Lanes - CONT'D				
l 1.5m-1.8m Bicycle Lanes through rsion from 4 lanes to 3 lanes	linear KM	$53,000		Price for both sides. Includes grinding of existing pavement, markings, signs, painted markings. be surfacing. The price assumes: - $11,000 for painted lane line ($5.5 per metre multiply 2 for both sides of the road) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used. - $6 to $8 per linear metre for lane line removal (soda blasting). Price varies on markings to be r lane roadway. Remove soda-blasting cost component if the road is being resurfaced. The cost f part of resurfacing project.
l 1.5m-1.8m Bicycle Lanes in with a New Road, or Road on / Widening Project	linear KM	$390,000		Price for 1.5m bike lanes on both sides of the roadway (1.5m x 2 sides = 3.0m). The price assum - $14,000 for catch basins and leads ($350 per lead x 40 catch basins per linear km) - $360,000 for asphalt and sub-base ($55/m2 = 120 x 1.5m BL x 1000 x 2) - $16,000 for signs, stencils and edge line The roadway project funds all other improvements.
l 1.5m-1.8m Bicycle Lanes that require ing /reconstruction	linear KM	$700,000		Price for both sides of the road, includes the cost for excavation, adjust catch basins, lead exten curbs/driveway ramps, asphalt and sub-base, painted markings and signs. All costs associated reconstructing the road for the purposes of adding bike facilities is born by the bike project i.e. n of adding a bike facility in conjunction with a planned roadway project.
ycle Lane with Hatched Pavement lo Road Construction / Widening or quired	linear KM	$49,000		Price for 1.5m bike lanes with 1m hatched buffer. The price assumes: - $30,000 for painted lines ($6 x 5000 metres of line paint) - $1,000 for hatching paint (1000 metres) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
ycle Lane with Hatched Pavement lo Road Construction / Widening or quired -cast curbs and flexible bollards in the	linear km	$165,000	$165,000	Price for 1.5m bike lanes with 1m hatched buffer (includes pre-cast curbs and flexible bollards in assumes: - $30,000 for painted lines ($6 x 5000 metres of line paint) - $1,000 for hatching paint (1000 metres) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used - $95,000 for pre-cast concrete curbs on both sides - Assume 70% of roadway to include physical delineation (700 metres per 1 linear km): 700 metres / 1.83m curb length = 382.5 pre-cast concrete curbs - 382.5 x $250 = $95,000 - Assume $125 each 1.83m long curb x 2 = $250 per linear metre of roadway (both sides) - $21,000 for flexible bollards - Assume 700m spacing as per pre-cast curb placement above x 2 (both sides of the road). - 700m x 2 (both sides of the road) = $1,400 - $1,400 x $150 (price per bollard) = $21,000

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
Conventional and Separated Bike Lanes - CONT'D				
ycle Lane with Hatched Pavement h Road Diet	linear KM	$65,000		Price for 1.5m bike lanes with 1m hatched buffer. The price assumes: - $30,000 for painted lines ($6 x 5000 metres of line paint) - $1,000 for hatching paint ($1000 metres) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used. - $6 to $8 per linear metre for lane line removal (soda blasting). Price varies on markings to be r lane roadway.
ycle Lane with Hatched Pavement ssumes a Road Diet from a 4 Lane n to a 2 Lane Cross-section with a two- urn lane. -cast curbs and flexible bollards in the	linear km	$194,620		Price for 1.5m bike lanes with 1m hatched buffer (includes pre-cast curbs and flexible bollards in assumes: - $48,000 for painted lines ($6 x 8000 metres of line paint) - $1,000 for hatching paint (1000 metres) - $10,400 for painted bike symbols (assumes $400 per symbol, 13 symbols per linear km multipl the road) - $2,500 for bike lane signs (assumes $350 per sign and tab, 5 signs per linear km - spaced eve multiply by 2 for both sides of the road) - $3,900 for 'No Parking' signs (assumes $150 per sign, 13 signs per linear km multiply by 2). Si existing and new posts. Price depends on number of stencils and signs used - $95,000 for pre-cast concrete curbs on both sides - Assume 70% of roadway to include physical delineation (700 metres per 1 linear km): 700 metres / 1.83m curb length = 382.5 pre-cast concrete curbs - 382.5 x $250 = $95,000 - Assume $125 each 1.83m long curb x 2 = $250 per linear metre of roadway (both sides) - $21,000 for flexible bollards - Assume 700m spacing as per pre-cast curb placement above x 2 (both sides of the road). - 700m x 2 (both sides of the road) = $1,400 - $1,400 x $150 (price per bollard) = $21,000 - $6 to $8 per linear metre for lane line removal (soda blasting). Price varies on markings to be r lane roadway. Assume 1,660 metres of lane line removal for a 4 lane road: - 1000m of yellow line (centre line) per km (assume continuous line, no break at intersecti - 1 continuous dashed white line that separates 2 vehicles lanes (x2 for both sides of the r - dashed white line: 3-3 skip pavement marking (3m long with 3m spacing) = 330m length road = 660m
ycle Lane with Hatched Pavement ssumes New Road or Road on/Widening already Planned	linear KM	$393,000		Price for 1.5m bike lanes + 0.5m hatched buffers on both sides of the roadway (1.5m x 2 sides = assumes: - $14,000 for catch basin leads ($350 per lead x 40 catch basins per linear km) - $360,000 for asphalt and sub-base ($55/m2 = 120 x 1.5m BL x 1000 x 2) - $19,000 for signs, stencils and edge line The roadway project funds all other improvements.
ycle Lane with Hatched Pavement etrofit / No new road reconstruction or viously planned	linear KM	$533,000	$500,000	Price for 1.5m bike lanes + 0.5m hatched buffers on both sides of the roadway (1.5m x 2 sides = assumes: - $14,000 for catch basin leads ($350 per lead x 40 catch basins per linear km) - $360,000 for asphalt and sub-base ($55/m2 = 120 x 1.5m BL x 1000 x 2) - $19,000 for signs, stencils and edge line - $140,000 for removal and replacement of curb (140 / linear metre) The roadway project funds all other improvements.

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
Conventional and Separated Bike Lanes - CONT'D				
ycle Lane with Flex Bollards - Assumes struction/Widening Already Planned	linear KM	$423,000		Price for 1.5m bike lanes + 0.5m hatched buffers + flexible bollards on both sides of the roadway 3.0m). The price assumes: - $14,000 for catch basin leads ($350 per lead x 40 catch basins per linear km) - $360,000 for asphalt and sub-base ($55/m2 = 120 x 1.5m BL x 1000 x 2) - $19,000 for signs, stencils and edge line - $30,000 for flexible bollards ($150 per bollard, spaced every 10m) The roadway project funds all other improvements.
ycle Lane with Pre-Cast Barrier - ew road or Road on/Widening Already Planned	linear KM	$483,000	$500,000	Price for 1.5m bike lanes + 0.5m hatched buffers + flexible bollards+ pre-cast and anchored curb price assumes: - $14,000 for catch basin leads ($350 per lead x 40 catch basins per linear km) - $360,000 for asphalt and sub-base ($55/m2 = 120 x 1.5m BL x 1000 x 2) - $19,000 for signs, stencils and edge line - $30,000 for flexible bollards ($150 per bollard, spaced every 10m) - $50,000 - $60,000 pre-cast curb delineators ($250 / pre-case unit 2m length + $7.5 / pins and a 2m long x 2 = 200-250 per km depending on intersections and driveways) The roadway project funds all other improvements.
nstall surface mounted flexible post	each	$100 to $150		Price depends on product, volume and supplier.
ecast concrete curb 178 mm high, 216 d 1.83 metre long	each	$250		Approximately $95,000 - $100,000 per 1 linear kilometre. Assumes 70% of roadway to include p (700 metres per 1 linear kilometre): - 700 metres / 1.83 metres = 382.5 pre-cast concrete curbs - 382.5 x $250 = $95,000 Assume $125 each 1.83m long curb x 2 = $250 per linear metre of roadway (both sides).
ecast concrete curb 457 mm high, 457 d 3.05 metre long	each	$1,380		Approximately $315,000 - $320,000 per 1 linear kilometre. Assumes 70% of roadway to include (700 metres per 1 linear kilometre): - 700 metres / 3.05 metres = 229.5 pre-cast concrete curbs - 229.5 x $1,380 = $317,000
ecast concrete bullnose 457 mm high, e and 1.22 metre long	each	$970		Approximately $550,000 - $560,000 per 1 linear kilometre. Assumes 70% of roadway to include (700 metres per 1 linear kilometre): - 700 metres / 1.22 metres = 573.8 pre-cast concrete curbs - 573.8 x $970 = $556,557
Cycle Tracks				
al Cycle Tracks: Raised and Curb In conjunction with existing road on / resurfacing project	linear KM	$500,000 - $750,000		Both sides. Assumes cycle track will be implemented as part of road construction. Could include pole relocations. Other components such as bike signals, bike boxes etc. are project specific an price.
al Cycle Tracks: Raised and Curb Retrofit Existing Roadway	linear KM	$750,000 - $1,500,000	$1,000,000	Both sides. Includes construction but excludes design and signal modifications. Form of cycle tr well as related components such as bike signals, upgrade/modification of signal controllers, utilit relocations, bike boxes etc. are project specific and will impact unit price
ycle Track - Retrofit Existing Roadway	linear KM	$750,000 - $1,000,000		One side. Includes construction but excludes design and signal modifications. Form of cycle tra well as related components such as bike signals, upgrade/modification of signal controllers, utilit relocations, bike boxes etc. are project specific and will impact unit price

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
Active Transportation Paths and Multi-Use Trails				
ctive Transportation Multi-use path ight-of-way	linear KM	$275,000 - $375,000	$375,000	3.0m wide hard surface pathway (asphalt) within road right of way (no utility relocations). Price d complexity of project and if existing sidewalk is being removed (i.e. crushing of existing sidewalk trail base).
lash Strip placed within road right-of- n Active Transportation Multi-Use Path y	m²	$150		Colour Stamped Concrete
ed Off-Road Multi-Use Trail Outside of of-Way in an Urban Setting (New)	linear KM	$315,000 - $630,000	$375,000	3.0m wide hard surface pathway (asphalt) within park setting (normal conditions) 90mm asphalt of scale / complexity of project.
ed Off-Road Multi-Use Trail Outside of of-Way in Urban Setting (Upgrade ular surface)	linear KM	$250,000 - $400,000		Includes some new base work (50% approx.), half of the material excavated is removed from sit scale / complexity of project.
rfaced Off-Road Multi-Use Trail oad Right-of-Way in Urban Setting	linear KM	$195,000 - $249,000		3.0m wide, compacted stone dust surface normal site conditions. Price depends of scale / comp
rfaced Off-Road Multi-Use Trail oad Right-of-Way in Rural Setting	linear KM	$195,000 - $249,000		3.0m wide, compacted stone dust surface in complex site conditions (includes cost of clearing a depends of scale / complexity of project.
sting granular surface trail to meet ompacted granular trail standard	linear KM	$188,000 - $215,000		Includes some new base work (50% approx.) and an average of 20 regulatory signs per kilometr scale and existing trail conditions e.g. width, slope, location of trail, etc.
lti-Use Trail Outside of Road Right-of- ndoned Rail Bed	linear KM	$80,000 - $125,000		3.0m wide, compacted stone dust surface, includes signage along trail and gates at road crossin is still in place. Price depends of scale / complexity of project.
rfaced Multi-use Trail in a Woodland	linear KM	$175,000		2.4m wide, compacted stone dust surface. Price depends of scale / complexity of project.
grading (for multi-use pathway)	m²	$8.00		Varies depending on a number of factors including site access, disposal location etc.
2.0 PEDESTRIAN FACILITIES				
	linear KM	$500,000	$500,000	Price for 1.5m concrete sidewalk. Include site prep., select utility relocation, minor drainage mod control. This assumes sidewalk on one side of the street.
3.0 STRUCTURES AND CROSSINGS				
er Crossing	each	$5,000 - $8,000		4 to 8m long
e (Short)	each	$8,000 - $15,000		Boardwalk style construction, straight beam span, up to 6m long
e (Medium)	each	$15,000 - $20,000		10 - 20m
d Metal Bridge (Short)	each	$20,000 - $50,000		Weathering Steel, Single span, box truss style, 10 to 20m long
d Metal Bridge (Medium)	each	$75,000 - $150,000		Weathering Steel, Single span, pony truss style, 20 to 30m long
d Metal Bridge (Long)	each	$200,000 - $350,000		Weathering Steel, Single span, box truss style, 30 to 50m long
ge (Small)	each	$1,000,000 - $3,000,000		Metal or Wood Structure, single span 10 to 50m long
ge (Medium)	each	$3,000,000 - $5,000,000		Metal or Wood Structure, single span 50 to 100m long
ge (Large)	each	$5,000,000 - $10,000,000		Metal or Wood Structure, single span 100 to 200m long
edestrian Signal	each	$150,000 - $180,000		Traffic control signal systems that are dedicated primarily to providing traffic gaps for pedestrian as pedestrian signals at mid-block pedestrian crossings.
Crossover 1	each	$25,000 - $35,000		Similar to Level 1 Type A PXO based on OTM Book 15. Assume two push buttons ($10,000), fla and civil engineering elements including tactile plates, concrete ramp, signage, stencils and cros
Crossover 2	each	$30,000 - $40,000		Similar to Level 2 Type B PXO based on OTM Book 15. Assume rapid flashing beacons ($20,00 ($3,500), concrete ramp ($3,000), signage ($2,800), shark teeth ($1,200) and pavement crossing
Crossover 3	each	$30,000 - $40,000		Level 2 Type C PXO based on OTM Book 15. Assume back to back signs, solid white lines, sha reflecting beacon.
Crossover 4	each	$10,000 - $15,000		Level 2 Type D PXO based on OTM Book 15. Assume back to back signs, tactile plates, solid w teeth.
gn		$4,000 - $6,000		Assume 8 signs, shark teeth and solid white line markings.
ossing		$2,500 - $3,500		Assume adjustment of existing curb cuts to accommodate 3.0m multi-use pathway, commercial 3,500 without green thermoplastic) and driveway with green thermoplastic ($4,000-5,000).

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
uge	each	$10,000 - $20,000		Average price for basic refuge with curbs, no pedestrian signals
g School Crossing	each	$10,000 - $25,000		Average price for removing existing school crossing and repainting in a new location
way crossing with gate	each	$60,000 - $100,000		Assume surface treatment, standard gate and signage
way crossing with automatic gate	each	$100,000 - $300,000		Assume surface treatment, flashing lights, with or without motion sensing switch and automatic g
railway crossing	each	$500,000 - $1,500,000		Assume 4m wide, unlit culvert style approx. 10m long for single elevated railway track
Signalization	each	$160,000 - $200,000		Assume full signalization of intersection with potential to add cycling facility and improvements.
Pedestrian / Bike Signal	each	$72,000 - $88,000		Assume average price for intersection pedestrian signal. Assume partial rebuild of intersection fo realignment of ducts and poles.
oway under 4 lane road	each	$1,000,000 - $1,200,000		Guideline price only for basic 3.3 m wide, lit.
all - Engineered	m²	$1,200		Face metre squared
all - Natural	m²	$1,200		Face metre squared
tches	linear KM	$4,500 - $5,500		
lverts	linear KM	$2,000 - $3,000		

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
4.0 BARRIERS AND ACCESS CONTROL FOR MULTI-USE TRAILS OUTSIDE OF THE ROAD RIGHT-OF-WAY				
te (2 per road crossing)	each	$4,000		Heavy duty gates (e.g. equestrian supported step over gate). Price for one side of road - 2 requi Typically only required in rural settings or city boundary areas
gates	each	$2,000		"P"-style park gate
Bollard	each	$500 - $750		Basic style (e.g. 75mm diameter galvanized), with footing. Increase budget for decorative style
lders at road crossing	each	$1,200		Price for one side of road (2 required per road crossing)
rking lot at staging area (15 car vel)	each	$45,000		Basic granular surfaced parking area (i.e. 300mm granular B sub-base with 150mm granular A s bumper curbs. Includes minor landscaping and site furnishings, such as garbage receptacles an
encing	linear M	$60		1.5m height with peeled wood posts
ncing	linear M	$90 - $110		Galvanized, 1.5m height
5.0 SIGNAGE				
nd caution Signage (off-road pathway) l post	each	$200-300		300mm x 300mm metal signboard c/w metal "u" channel post
or interpretive sign	each	$2,400		Does not include graphic design. Based on a 600mm x 900mm typical size and embedded poly 40% less for aluminum or aluminum composite panel
kiosk	each	$2,000 - $10,000		Wide range provided. Price depends on design and materials selected. Does not include design signboards
or staging area kiosk sign	each	$1,500 - $2,000		Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical polymer material). Up to 40% less for aluminum or aluminum composite panel
ectional sign	each	$350 - $500		Bollard / post (100mm x100mm marker), with graphics on all 4 sides
rker sign	each	$250		Bollard / post (100mm x100mm marker), graphics on one side only
rker sign	linear KM	$1,000		Price for both sides of the path, assumes one sign on average, per direction of travel every 0.5 k
	each	$300		Price for one side of road.
ead	each	$10,000 - $20,000		Assume large signage/map feature, control barrier, seating, bike parking, supply of materials, an
ead	each	$6,000 - $12,000		Assume small to medium signage, control barrier, bike parking, supply of materials, and installat
ead	each	$5,000		Assume a wayfinding/regulatory sign board, extended gravel shoulder or other informal parking cars, supply of materials, and installation.
6.0 BICYCLE PARKING INFRASTRUCTURE				
(Post and Ring style)	each	$150 - $250		Holds 2 bicycles , price varies depending on manufacturer (includes installation).
(U style)	each	$600		Holds 2 bicycles , price varies depending on manufacturer (includes installation).
	each	$1,800		Holds 6 bicycles, price varies depending on manufacturer (includes installation).
er	each	$3,000		Price varies depending on style and size. Does not include concrete mounting pad.
	each	$2,500		Price for installation including labour and equipment. Price also includes materials e.g. two chan cabinet, bike loop (wire and sealant), cable to traffic cabinet, handhole and conduit.
al (one parking space with bollards)	each	$1,500 - $2,900		Price may vary from $1,500 (galvanized finish with the mad shield corrosion warranty) to $2,900 the mad shield corrosion warranty) for one parking space.
7.0 LIGHTING AND UTILITIES				
nting	per 25 m	$5,000		Includes cabling, connection to power supply, transformers and fixtures.
f Light / Support Pole	each	$4,000		Adjustment of pole offset (distance between pole and roadway).
f Signal Pole / Utility Box	each	$8,000		Adjustment of pole offset (distance between pole and roadway).
8.0 PAVEMENT MARKINGS				
mbol	each	$400		Price for durable paint. Sharrow symbol with green pavement marking
	each	$400		Price depends on volume
g	linear M	$6		Price for durable paint.
Line Painting	linear M	$6		N/A
9.0 OTHER				
	each	$1,500		Price may vary depending on road cross-section (e.g. two lane roadway, four lane roadway, etc. installing a bike box on the approach of an intersection using a bike stencil and durable e.g. gree ($250 / each). Price also include estimate to move stop-bar back to provide space for bike box.

DESCRIPTION	UNIT	UNIT PRICE RANGE	PRICE USED	COMMENTS/ASSUMPTIONS
l Grubbing	m²	$15		
	each	$1,000 - $2,000		Price varies depending on style and size. Does not include footing/concrete mounting pad
gs / Rubrail	linear M	$300		1.4m height basic post and rail style
ter culvert	each (6 m)	$1,200		Price range applies to 400mm to 600mm diameter PVC or CSP culverts for drainage below trail
ards	each	$110		Should be placed at 10m intervals where required. Cost depends on product type used.
s	each	$4,000 - $6,000		Includes wood picnic table with metal frame and concrete pad. This cost includes the supply of m installation.
Recycling Receptacle	each	$500 - $5,000		Assume waste and recycle receptacles are in a range between steel drum and high end non-ele assumes 1 per minor and major entry points.
ergency Beacon Station	each	$5,000 - $10,000		Assume elements including cellular beacon station, cabling, connection to power supply and fixt
	each	$30,000 - $40,000		Assumes washroom structure with single toilet and sink and excludes water and sewer connecti
Toilet	each	$35,000 - $45,000		Assumes washroom structure with single toilet, subsurface chamber and sub-surface cleanout a
	each	$10,000 - $15,000		Concrete structure with pump out design

nctional design purposes only, include installation but exclude contingency, design and approvals costs (unless noted) and reflect 2023 dollars, based on projects in southern Ontario.
ude the cost of property acquisitions, signal modifications, utility relocations, major roadside drainage works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and sta
ronmental conditions and topography.
permit fees are additional.

ne Lane	$ 29,000.00	$ 8,700.00	$ 4,350.00	$ **42,050.00**
ned Route (Shared Roadway)	$ 1,200.00	$ 360.00	$ 180.00	$ **1,740.00**
ved Shoulder	$ 200,000.00	$ 60,000.00	$ 30,000.00	$ **290,000.00**
lti-Use Path (In-Boulevard)	$ 375,000.00	$ 112,500.00	$ 56,250.00	$ **543,750.00**
-Road Multi-Use Trail	$ 375,000.00	$ 112,500.00	$ 56,250.00	$ **543,750.00**
-road Separated Bike Lane	$ 500,000.00	$ 150,000.00	$ 75,000.00	$ **725,000.00**
ewalk	$ 500,000.00	$ 150,000.00	$ 75,000.00	$ **725,000.00**

ntigency Cost (Percentage)	30%
sign and Approvals Cost (Percentage)	15%

table Cells: Unit prices, Contingency Cost and sign and Approvals Cost percentages can be dified.

On-Road Separated Bike Lane Costs can range m $165,000 - $500,000 depending if road dening is required or if space between existing bs is being reallocated.

ing Facility or MUP (TBD)	5.13	15.75	**20.88**
otal	**298.19**	**190.67**	**488.94**

lemented in the interim as urban shoulders forming part of a signed cycling route.
ded to identify potential future trail corridors that are currently on private property but which the Town
ne opportunity presents itself if or when these lands become available or are redeveloped in the future. As
d are approximate and subject to changes. The actual location and distances will be determined from the
process.
ers and shared roadways on Regional roads where facility upgrades are recommended as part of the ATMP
of the Regional Cycling Network lengths in this table to avoid double counting facility lengths.
as an interim solution to implement buffered bike lanes but the ultimate facility type is recommended to
n the long term.

of Proposed On-Road and Off-Road Cycling and Trails Network by Facility Type and Phase (Includes Contingency and Design)

	Short-Term (0 to 10 years) ST		Long-Term (11 to 20+ years) LT		
	ST Length	**ST Cost**	**LT Length**	**LT Cost**	**Total Length**
Network					
Bike Lane	23.7	$996,065	5.7	$238,143	29.4
Signed Route (Shared Roadway)	31.5	$54,821	0.0	$0	31.5
Paved Shoulder	1.5	$429,576	2.1	$616,225	3.6
Multi-Use Path (In-Boulevard)	7.4	$4,041,205	2.3	$1,246,673	9.7
On-Road Separated Bike Lane	5.3	$3,821,417	2.2	$1,583,735	7.5
Subtotal	**69.4**	**$9,343,085**	**12.3**	**$3,684,776**	**81.6**
Sidewalk	9.1	$6,583,065	24.1	$17,442,420	33.1
Subtotal	**9.1**	**$ 6,583,065**	**24.1**	**$ 17,442,420**	**33.1**
twork					
Off-Road Multi-Use Trail	24.4	$13,281,659	11.1	$6,031,133	35.5
Desire Lines					24.6
Subtotal	**24.4**	**$13,281,659**	**11.1**	**$6,031,133**	**60.1**
Town of Aurora Subtotal	**102.9**	**$ 29,207,809**	**47.4**	**$ 27,158,329**	**174.9**
Road Cycling Facility or MUP (TBD)	N/A	N/A	N/A	N/A	15.7
Subtotal	N/A	N/A	N/A	N/A	**15.7**
Town + Region Total	**102.9**	**$29,207,809**	**47.4**	**$27,158,329**	**190.7**

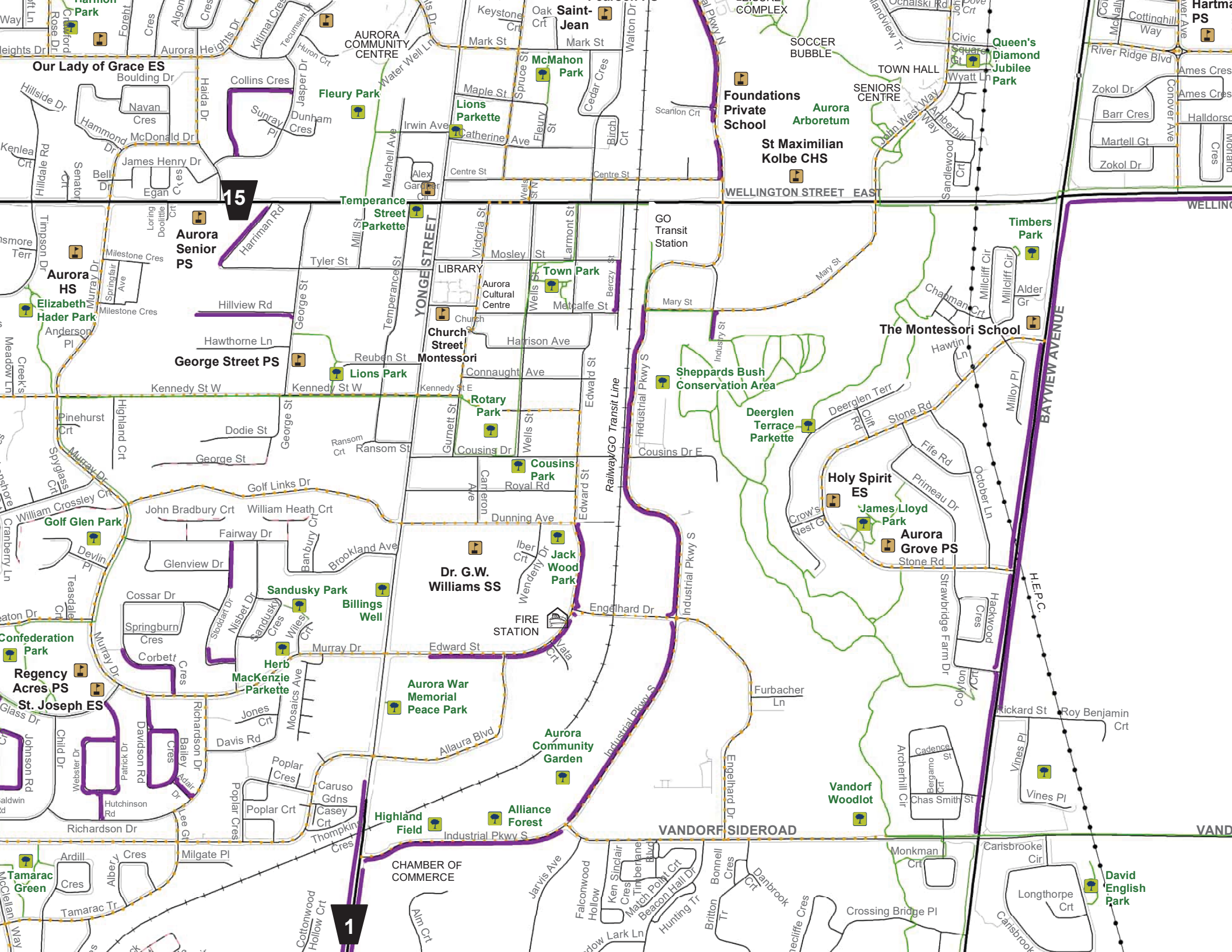
osts assume that the roadway is already being widened. Costs for widening the roadway platform are not included.
eparated bike lanes can range from $165,000 - $500,000 depending if road widening is required. For this exercise, $500,000 per km is assumed. Detailed design v
ility type (e.g. separated bike lane could become a multi-use path or cycle track instead).
for cycling facilities on York Region roads are the responsibility of York Region, cost of multi-use paths (MUPs) will be a local cost or cost-shared with the Region.
oads (Yonge St. from Bloomington Rd. to the CN rail corridor and Wellington St. from Bathurst St. to John West Way) are included in the local-on road short-term
rations identified are not included and require a more detailed feasibility study /class EA to identify cost estimates.
e dependent on the type and timing of infrastructure implementation and would be in addition to the costs in this table.

of Network and Programming Elements

	Short-Term (0 to 10 Years)	Long-Term (11 to 20+ years)	Total
	$ 29,207,809	$ 27,158,329	**$ 56,366,138**
	$ 950,000	$ 200,000	**$ 1,150,000**
	$ 30,157,809	**$ 27,358,329**	**$ 57,516,138**

Appendix B

Sidewalk Gap Evaluation


Our Lady of Grace ES
AURORA COMMUNITY CENTRE
Saint-Jean
McMahon Park
Fleury Park
Lions Parkette
Foundations Private School
SOCCER BUBBLE
TOWN HALL
SENIORS CENTRE
Aurora Arboretum
St Maximilian Kolbe CHS
Queen's Diamond Jubilee Park
WELLINGTON STREET EAST
15
Temperance Street Parkette
Aurora Senior PS
YONGE STREET
GO Transit Station
Timbers Park
Aurora HS
Elizabeth Hader Park
LIBRARY
Aurora Cultural Centre
Town Park
The Montessori School
BAYVIEW AVENUE
Hillview Rd
George Street PS
Church Street Montessori
Lions Park
Sheppards Bush Conservation Area
Kennedy St W
Rotary Park
Deerglen Terrace Parkette
Cousins Park
Holy Spirit ES
James Lloyd Park
Aurora Grove PS
Golf Glen Park
Dr. G.W. Williams SS
Jack Wood Park
Sandusky Park
Billings Well
FIRE STATION
Confederation Park
Regency Acres PS
St. Joseph ES
Herb MacKenzie Parkette
Aurora War Memorial Peace Park
Aurora Community Garden
Vandorf Woodlot
Highland Field
Alliance Forest
VANDORF SIDEROAD
CHAMBER OF COMMERCE
Tamarac Green
David English Park
1
Railway/GO Transit Line
Industrial Pkwy S
H.E.P.C.

Evaluation

	PROPOSED YEAR OF CONSTRUCTION	SIDEWALK GAP LENGTH (in metres)	From	To	Side	Walk Score	Transit Score	Connection to Neighbour-hood	Proximity
	2020	80.33	Davidson Road/Bailey Crescent	Richardson Drive	North/East	51	45		
	2020	231.81	Davidson Road	Adair Drive	West/South	45	45		
	2020	83.93	Child Drive	Holman Crescent	West	21	36		
	n/a	6294.82	North Town Limit	Bloomington Road West	East	8	26	No	-
	n/a	2294.39	Benville Crescent	Stone Road (north leg)	West	29	35	Yes	School / Trail
	n/a	1771.83	Vandorf Sideroad	Wellington Street East	East				
	n/a	391.36	St. John's Sideroad	North Town Limit	East				
	n/a	160.08	Metcalfe Street	Mosley Street	West	65	51	No	GO Transit Station / Park
	n/a	1921.78	Yonge Street	Bayview Avenue	North				
	n/a	3175.05	Bayview Avenue	East Town Limit	North				
	n/a	404.86	Jasper Drive	Jasper Drive	East/South	56	50	Yes	2 Schools / Community Centre
	n/a	264.84	Springburn Crescent	Murray Drive	West/South	56	44	Yes	2 Schools / Park
	2020	344.34	Murray Drive	Adair Drive	East/North	47	44		
ent	n/a	619.00	Woodland Hills Blvd	Woodland Hills Blvd	North/South/West	2	12	No	-
	2019	704.98	Yonge Street	Dunning Avenue	East/South	70	51		
	2020	235.78	Wellington Street West	Tyler Street	West	63	51		
	2019	678.79	Bathurst Street	Watts Meadow	South	25	38		
	n/a	309.52	George Street	West Terminus	South	62	50	No	School / Park
	2020	390.96	Glass Drive	Baldwin Road	East/North	27	35		
	n/a	89.60	Webster Drive / Patrick Drive	Richardson Drive	East	31	41	Yes	2 Schools / Park
rth	2020	1810.55	Centre Street [Wellington St E]*	St John's Sideroad	West	32	48		
uth	2019	2163.06	Vandorf Sideroad	Industry Street	West	41	48		
		1232.84	Yonge Street	Vandorf Sideroad	Both sides				
	2023	88.13	Mary Street	South Terminus	East	56	51		
	2020	361.29	Holman Crescent	Baldwin Road	North/South/West	21	38		
	2019	306.47	Tecumseth Drive	Tecumseth Drive	West/North	63	49	Yes	School / Community Centre / Pa
	n/a	520.57	Seaton Drive	Seaton Drive	South/East	15	32	Yes	2 Schools / Park / Retirement C
	n/a	253.39	Don Hillock Drive	Wellington Street East	East				
	n/a	1029.62	Wellington Street East	State Farm Way	Both sides				
	n/a	3642.81	State Farm Way	North Town Limit	Both sides				
	n/a	343.77	Gateway Drive	Kirkvalley Crescent	East/West/North	53	35	Yes	School / Business Plaza
	n/a	226.64	Seaton Drive	Simmons Crescent	West	17	29	Yes	2 Schools / Park / Retirement C
	n/a	342.35	Glass Drive	Hutchinson Road	East/South	47	44	Yes	2 Schools / Park / Retirement C
est	n/a	4170.75	Yonge Street	Bathurst Street	Both Sides	35	43	No	-
ast	n/a	5955.43	Bayview Avenue	East Town Limit	Both sides				
	n/a	255.73	Fairway Drive	Nisbet Drive	East	63	46	Yes	2 schools / park / Retireme Business Plaza
	n/a	267.00	Bayview Avenue	300 metres east of Bayview Avenue	North				
	n/a	95.04	Monkman Court	Bayview Avenue	South				
	n/a	318.97	Patrick Drive	Hutchinson Road	North/South/West	41	42	Yes	2 Schools / Park / Retirement C
t	n/a	603.95	Bathurst Street	McLeod Drive	North	45	45	No	-
	n/a	400.43	First Commerce Drive	Aurora Carpool Lot	North				
	n/a	2767.14	Bayview Avenue	Aurora Carpool Lot	South				
ard	2026	561.96	Bathurst Street	St John's Sideroad	North/East	3	10		
	n/a	3908.82	Bloomington Road	GO Transit rail bridge	Both sides	84	52	No	Grocery/ Business Plaza

	PROPOSED YEAR OF CONSTRUCTION	SIDEWALK GAP LENGTH (in metres)	From	To	Side	Walk Score	Transit Score	Connection to Neighbour-hood	Proximity
	n/a	170.95	GO Transit rail bridge	Henderson Drive	West	84	52	No	Grocery/ Business Plaza
	n/a	791.97	185 metres north of Batson Drive	St. John's Sideroad	East	84	52	No	St Andrew's College / Business
	n/a	166.82	Batson Drive	185 metres north of Batson Drive	East	84	52	No	St Andrew's College / Business
	n/a	219.76	170 metres north of St. John's Sideroad	North Town Limit	East	84	52	No	St Andrew's College / Business
	n/a	352.11	St. John's Sideroad	North Town Limit	West	84	52	No	St Andrew's College / Business
K GAP TOTAL:		***53.78 km***							

** Source of information in square brackets: Town of Aurora's Ten Year Road Reconstruction Map*