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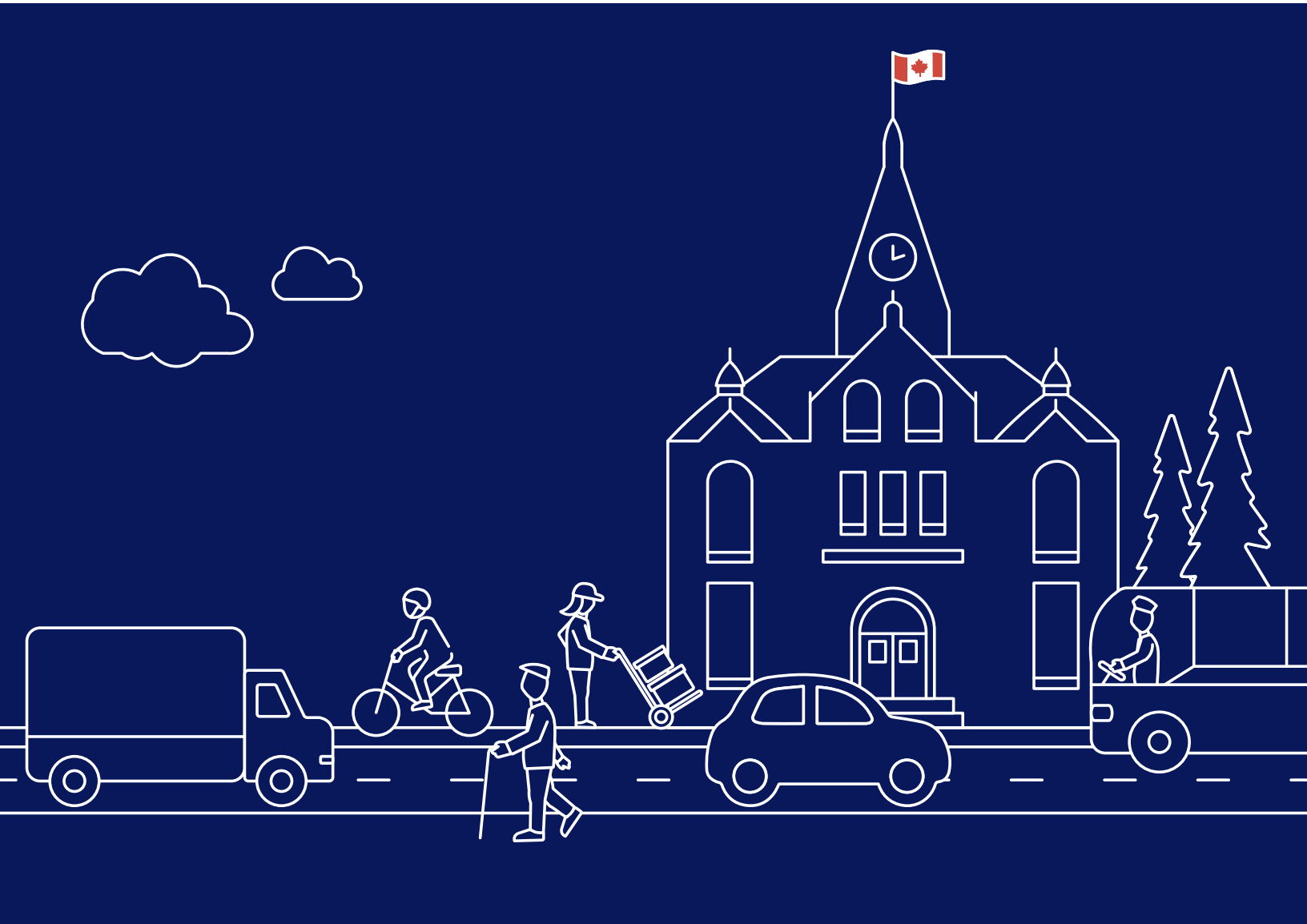
City of Stratford
Transportation Master Plan

Final Report
September 2023



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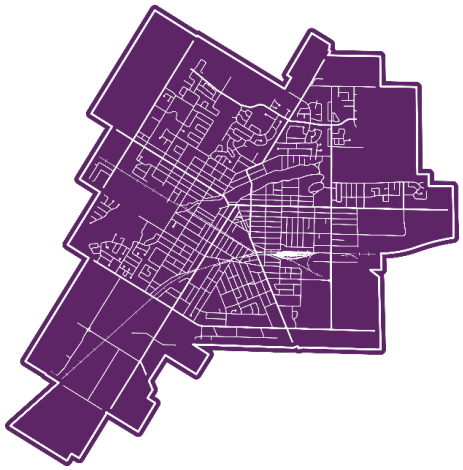
Part 1
STUDY FOUNDATION

Part 1 outlines the foundation upon which the Transportation Master Plan is built. This section provides important study context, summarizes the consultation activities conducted throughout the study, outlines the strategic framework, and summarizes the transportation needs and opportunities that the City of Stratford Transportation Master Plan responds to.

1 Introduction

The City of Stratford Transportation Master Plan (TMP) is a long-term strategy that guides the planning, expansion, renewal and management of the City's multi-modal transportation system through 2041. The TMP supports Stratford's vision for the future and responds to projected needs with a focus on safety, complete streets, active transportation and the environment.



Updating the Transportation Master Plan

The City of Stratford has seen much change since the 2010 Master Transportation Plan (which itself was an update of the City's 1992 Transportation Plan). This Plan serves as an update to not only the previous Transportation Master Plan, but also the 2014 Bike and Pedestrian Master Plan.

The need for a new TMP is driven by several factors, including:

- **A changing planning and policy landscape** that includes increased emphasis on environmental sustainability and climate change, new mobility technologies and transportation electrification, equity and accessibility.
- The annexation of adjacent lands from the bordering municipalities of Perth East and Perth South to support **economic and population growth**.
- Evolving best practices in urban planning and transportation planning including greater emphasis on the **Vision Zero approach**, safer street design, and all ages and abilities cycling facilities.

It is an exciting time to update the TMP to ensure that current needs and evolving travel conditions are responded to, and the changing demographics and priorities of the City and its residents are reflected. Over the past decade, **Stratford has grown to a population of over 33,000** (as of 2021) and is expecting more new

major housing developments, as well as new and growing industrial and commercial development, largely at the city's periphery.

The **Downtown is also seeing major changes**. The new Tom Patterson Theatre is the latest addition to the built legacy of Stratford and represents the crown jewel of the Stratford Festival, North America's largest classical repertory theatre company and the City's most important tourist draw. The Grand Trunk Community Hub will also help usher in major change, transforming a seven-hectare site into a large-scale mixed-use development hosting a new University of Waterloo Stratford Campus building, living quarters, a new community hub and YMCA facility within the adapted historic Grand Trunk Building, and a municipal surface parking lot. Ensuring that multi-modal connections and desired outcomes are supported is key to developing a healthy, safe and complete community for Stratford residents and visitors alike.

The COVID-19 pandemic response may result in long-lasting changes to transportation in Stratford. **Shifting settlement and mobility patterns** as a result of increased opportunities to work from home even beyond the pandemic add some uncertainty to the future. The renewed value of the home, the appeal of smaller community living, and housing affordability are additional factors that may impact the City of Stratford and the operation of its transportation system.

Within Stratford there has been a push in recent years to **apply a climate lens** to all City initiatives and the TMP is no different. Transportation, as a sector, accounts for nearly 39% of community greenhouse gas emissions according to the Stratford Emission Profile Baseline Year of 2017. By implementing a stark shift towards walking and cycling, frequent use of transit, and carpooling (and away from single passenger vehicles), the TMP has the potential to significantly reduce these emissions over time.

Technologies are also changing – electric vehicles are becoming ever more ubiquitous, local and regional transit connections are improving, and the ever-increasing market share of online shopping are shaping the way people and goods move. These changes, combined with the City's progress made towards its multi-modal transportation system, contribute to the need for a new TMP.

For this TMP to be successful, the City will need to **work with both public and private sector partners**. In the established parts of the City, the TMP will be used as a guide to work with residents, businesses and institutions on transportation improvements to enhance mobility choices and to support quality of life in Stratford. For new developments and growth areas, the TMP will be used to inform

land use and transportation choices to reduce future travel demand and encourage more sustainable travel choices.

This new comprehensive plan recommends infrastructure improvements, actions, and strategies for the City to undertake, developed to meet the City's vision and objectives.

Planning Horizon and Phases

The Stratford Transportation Master Plan has been developed with an ultimate planning horizon of 2041. Two interim horizons were also identified to organize recommended transportation network improvements and strategies into phases based on need, funding capability, and other considerations.

Implementation would commence after Council's adoption of the TMP with major projects being integrated into capital program planning beginning with the 2024 budget.

The three phases are:

- **Short-Term – through 2026:** Considers priorities for the transportation network in the City of Stratford over the next few years.
- **Medium-Term – through 2031:** Projects or programs that are forecasted over the next 10 years.
- **Long-Term / Horizon Year – through 2041:** The ultimate time frame for TMP recommendations and includes long-term projects that will likely be re-evaluated in a future update to the TMP.

Integrating with the New Official Plan

The City of Stratford has begun a review of the Official Plan (OP) – the City's land use planning document that outlines the policies that direct how the community will develop, including where housing and employment should be built, and where community facilities should be available. As Stratford continues to change, updating the Official Plan will ensure that growth is supported and directed in a way that encourages economic prosperity, builds resiliency to climate change and helps protect the environment, and supports the development of complete communities.

The Official Plan also directs the City's transportation policies. While the Official Plan has legislative status, the Transportation Master Plan is more of a guiding document. The Official Plan and/or municipal by-laws act as the means of

implementation of many recommendations outlined in the Transportation Master Plan. As such, the TMP provides policy and strategy recommendations for consideration in the upcoming Official Plan review relating to transportation directly as well as relating to land use planning and the built form. The way land is used influences transportation decisions significantly, and as such, aligning the Official Plan and Transportation Master Plan can help ensure different City departments and functions are all advancing in the same direction toward a shared vision.

Municipal Class EA Process

The TMP study followed the Municipal Class Environmental Assessment (MCEA) planning process for Master Plans under the Environmental Assessment Act. The MCEA process provides a transparent approach to planning and building municipal infrastructure. The TMP followed the Master Planning Process Approach #1 and involved the completion of the first two phases of the MCEA planning process:

- MCEA Phase 1: Identify the problem or opportunity
- MCEA Phase 2: Identify and evaluate alternative solutions to address the problem and establish a preferred solution

About This Document

This report summarizes the development, outcomes and recommendations of the Stratford Transportation Master Plan. Further details on the development of the TMP are available in three background reports, provided as appendices. The three reports and this summary report collectively form the City of Stratford Transportation Master Plan:

- Phase 1: Needs and Opportunities
- Phase 2: Network and Strategy Development
- Engagement Summary
- Transportation Master Plan Summary Report

As the culmination of the background reports listed above, this document summarizes the projects, directions, strategies and actions recommended for the City of Stratford to implement and to direct transportation investments city-wide. The report is structured into three main parts:

Part 1 – Study Foundation

- **Chapter 1: Introduction** outlines the TMP, provides an overview of the study process, and summarizes the Municipal Class EA process.
- **Chapter 2: Setting the Context** provides a high-level overview of important study context, outlining the major factors calling for an update to the TMP.
- **Chapter 3: Consultation** outlines the engagement and consultation that was conducted with stakeholders and the public throughout the TMP study.
- **Chapter 4: Strategic Framework** outlines the identified planning values, the transportation vision, and the study's objectives and goals.
- **Chapter 5: Needs and Opportunities** provides a summary of the issues, opportunities, and needs identified, collectively representing the "Problem Statement", that act as the basis for the recommendations.

Part 2 – Recommendations

- **Chapter 6: Complete Streets** presents the complete streets policy directions which underscore the infrastructure recommendations presented throughout the TMP.

- **Chapter 7: Street Network** presents the recommended street network infrastructure projects.
- **Chapter 8: Cycling Network** presents the recommended cycling network projects.
- **Chapter 9: Pedestrian Network** presents the recommended pedestrian network projects.
- **Chapter 10: Transit** presents the recommended transit strategy.
- **Chapter 11: Supporting Strategies** presents additional strategies intended to support different components of the transportation system and maximizing the return on investment in transportation infrastructure. These include Street Safety and Vision Zero, Traffic Calming, Land Use Planning, New and Emerging Technologies, and Goods Movement, among others.

Part 3 – Implementation

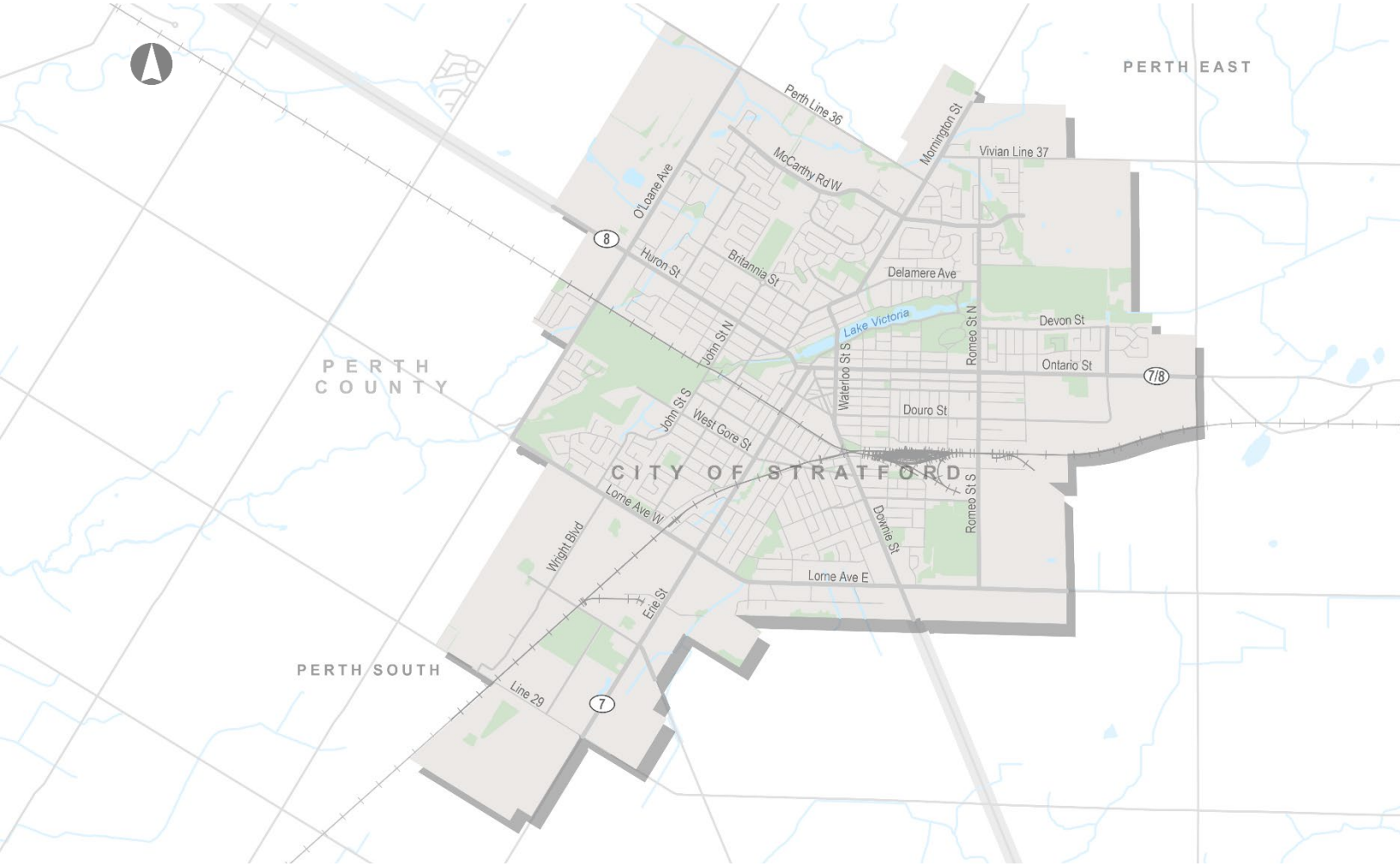
- **Chapter 12: Costs** details estimated costs and timing for the recommendations.
- **Chapter 13: Action Plan** summarizes the actions recommended throughout this document.
- **Chapter 14: Monitoring and Updates** presents a monitoring program and considerations for the next TMP update.

Finally, a **Glossary** of terms used in this report is provided for reference at the end of the document.

2 Setting the Context

Stratford is located in southwestern Ontario approximately 60 kilometres northeast of London and 35 kilometres west of Kitchener-Waterloo. Provincial Highways 7 and 7/8 serve as important regional connections between Stratford and other key economic and cultural centres in Ontario. The city has grown around the Avon River, a significant natural heritage feature that contributes to the character and identity of Stratford and supports recreation, tourism and community health. Stratford's celebrated Victorian-era city centre is situated south of Lake Victoria, an important destination offering recreational opportunities such as fishing, picnicking, paddle boarding, shinny, running and cycling.

A map of the City of Stratford is shown below.



Stratford is encompassed by the County of Perth, a largely rural and agricultural upper-tier municipality comprising of North Perth, Perth East, West Perth and Perth South. The Perth County seat of government is located in Stratford; however, the City is a single-tier municipality and is governed independently of the County.

The development of Stratford largely lies in its history as a railway centre, serving as an important catalyst for the city's economy and growth. The Grand Trunk Community Hub is Stratford's most notable asset of railway history, representing a significant development and placemaking opportunity for the City.

Stratford is a relatively compact city measuring about 30 km^2 and is almost entirely developed with urban land uses. Its compact geography provides an opportunity to strengthen the city as a "15-Minute City" where most daily activities can be accessed within a travel time of 10 to 15 minutes by walking or cycling. Achieving this through integrated land use and transportation planning can help the City achieve its goals towards becoming a healthy, vibrant, and safe community.

Stratford is Growing and its Demographics are Changing

Stratford is expected to grow to about 42,000 residents and host over 24,000 jobs by 2041, representing a 25% increase in population and 19% increase in jobs over two decades. This growth will contribute to increased travel demand and additional stress on the transportation system. By providing more mobility choices beyond driving, the City has an opportunity to absorb this new demand across all modes of travel and mitigate impacts to network efficiency and travel times for all, achieve economies of scale for transit, and improve safety and comfort for active transportation.

Population and employment growth forecasts for the city are outlined in the table below, along with the compounded annual growth rate between each period.

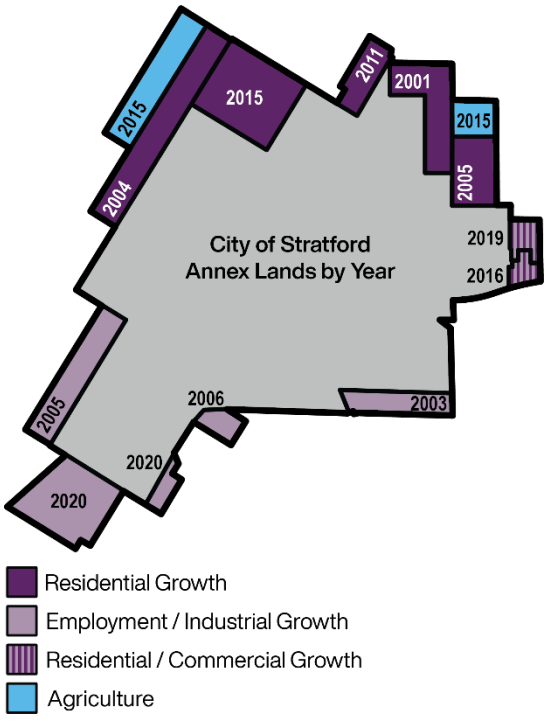
2016 to 2041 Population and Employment Forecasts

Year	Population	Annual Rate	Employment	Annual Rate
2016	32,360	-	19,495	-
2022	34,700	1.17%	20,508	0.85%
2032	38,420	1.02%	22,976	1.14%
2041	41,530	0.87%	24,328	0.64%

Source: Development Charges Background Study (February 2022), Watson & Associates Economists Ltd.

The makeup of Stratford's population is also changing. While a large cohort in Stratford is aging, similar to nation-wide population trends, the City is positioning itself to attract younger adults and families, capitalizing on the recent trend of accelerated migration from large cities to smaller and medium-sized municipalities. Ensuring the City can deliver an accessible, multi-modal transportation system will help meet the needs of both sides of the age spectrum. For residents without access to a car, for those too young to drive, and for those aging out of driving, the provision of convenient, safe, accessible and reliable active transportation and transit options are needed, contributing to a higher quality of life. Further, the impacts of street safety are most severe amongst the senior population. In Perth County Census Division, which contains Stratford, the proportion of those aged 65 or higher will is expected to grow from 20.8% in 2021 to 25.4% in 2041[1]. The issue of street safety is becoming increasingly important as the population ages.

Growth is Occurring at the Periphery



To accommodate growth and support a robust economy, the City has undertaken a series of annexations of surrounding lands from the bordering municipalities of Perth East and Perth South over the past two decades. These lands are expected to see major housing and employment growth, as shown on the map below.

While the City's Official plan dictates the aim to achieve at least 25% of growth within the existing built-up area, most development will be allocated to the annexed lands at the City's periphery, primarily across the West Secondary Plan Area, Northeast Secondary Plan Area and Stratford East Special Policy Area 19.

Overall, Stratford is expected to rely largely on low and medium density housing construction to about 2040 to accommodate population growth, as well as industrial uses to support employment growth. As the annexation lands undergo site planning and development, the TMP will serve as a roadmap for transportation policies and infrastructure needed to support a growing population and increased demand for travel.

[1] Sources: Statistics Canada for 2021 and Ontario Ministry of Finance projections (Summer 2022).

3 Consultation

Effective and open engagement throughout the study process is essential to developing a Transportation Master Plan that meaningfully responds to community needs and priorities and reflects residents' and stakeholders' collective vision for the future of their city.

A detailed account of the study's public and stakeholder engagement activities as well as the feedback, ideas and other input received is documented in the **Engagement Summary Report.**

The TMP was developed with extensive input from the public and stakeholders throughout the study. Concerns and priorities focused largely on improving safety of all road users with an emphasis on vulnerable road users, environmental protection, improved maintenance and road conditions, advancing active transportation infrastructure, optimizing road network efficiency and addressing congestion along selected corridors and throughout the Downtown, mitigating truck traffic in the Downtown, and improving transit equity, affordability and service, to name a few.

Engagement Activities

Numerous engagement activities were held throughout the TMP study, involving a wide range of stakeholders including members of the public, local municipal representatives as well as representatives from neighbouring municipalities, and technical stakeholders.

Consultation was conducted over two rounds of engagement throughout the TMP study, each corresponding to specific milestones in the development of the TMP.

Indigenous Outreach: Letters were sent to the following Indigenous Nations, identified by the Ministry of Environment, Conservation and Parks, formally inviting their participation in the study.

- Aamjiwnaang First Nation
- Bkejwanong (Walpole Island)
- Caldwell First Nation
- Chippewas of Kettle and Stony Point

- Chippewas of the Thames First Nation
- Oneida Nation of the Thames

Round 1 Engagement (April 2022) focused on developing an understanding of the community's transportation needs, issues and ideas and their collective vision for the future City of Stratford. Round 1 Engagement consisted of the following activities:

- **Public Open House 1** was hosted on the City's Engage Stratford engagement platform and featured project display boards, an online survey and interactive map to solicit feedback from members of the public. Participation included the submission of 177 surveys, 182 location-based comments on the interactive map, and several free-form comments.
- **Stakeholder Group Meeting 1** was hosted on Microsoft Teams and included participation from standing committees (Active Transportation Advisory, Accessibility Advisory, Energy and Environment), community groups (Cycle Stratford), business groups (Stratford and District Chamber of Commerce, Stratford City Centre Business Improvement Area, Stratford Economic Enterprise Development Corporation, Destination Stratford), neighbouring municipalities, school boards, transit operators, and the regional conservation authority.

Round 2 Engagement (November 2022) presented alternative approaches to address the needs and opportunities identified in the first phase of the study, and asked members of the public and stakeholders for comment on the draft recommendations arising from those alternatives. Round 2 Engagement consisted of the following engagement activities:

- **Public Open House 2** was hosted in the same online engagement space, and featured project display boards and an online survey asking participants to share their input about the draft recommendations.
- **Stakeholder Group Meeting 2** was hosted on Microsoft Teams and included participation from standing committees (Active Transportation Advisory, Energy and Environment), community groups (Cycle Stratford), business groups (Stratford and District Chamber of Commerce, Stratford Economic Enterprise Development Corporation, Destination Stratford), neighbouring municipalities, school boards, public health agencies and the regional conservation authority.

» A dedicated **Cycling Stakeholder Meeting** was held with members of Cycle Stratford. The meeting was hosted in-person in November 2022 to review and comment on the draft cycling network recommendations and help identify priority routes.

Due to the COVID-19 pandemic precautions, as well as to extend outreach to a broader demographic, most consultation events and meetings throughout the study process were hosted virtually.

Community Input

The public open houses and stakeholder meetings provided valuable opportunities to engage directly with residents, visitors, business owners, advocates, technical experts and more, learning about their experiences, concerns and priorities for the future of the City's transportation system. The two rounds of engagement provided members of the public and stakeholders the opportunity to give feedback on issues, priorities and recommendations at key milestones in the study, directly shaping the Transportation Master Plan.

General themes and priorities heard throughout the engagement program included the following feedback, which is reflected throughout the recommendations developed for the TMP:

» **Support for improved, safer and more comfortable active transportation connections:** Improving the active transportation network—including cycling facilities, multi-use trails, sidewalks and crossings—supports the daily recreation and transportation needs of residents and visitors. The provision of connected and safe cycling routes for people of all ages and abilities was a top priority among survey respondents during the first Public Open House, with emphasis on separating motorized and non-motorized modes. Prioritizing safe cyclist and pedestrian routes to key destinations like commercial areas and schools, is critical to the development of a healthy and complete community. Safer and more frequent opportunities for pedestrians to cross the street are also needed.

» **Support transit ridership through key improvements:** Improvements to Stratford Transit through network expansion, frequency, reliability, extended service hours, and responding to accessibility and equity needs of residents (i.e. shift workers, people aging out of driving).

- **Mitigate the negative impacts of trucks, especially throughout the Downtown:** Mitigating the negative impacts of truck traffic is important, including noise, conflicts with other road users and congestion. Heavy truck traffic should be diverted away from the Downtown and residential streets, and upgrades to Lorne Avenue would help to encourage commercial vehicle drivers to bypass the City.
- **Improve the street network to facilitate safe and efficient connections:** Improving the efficiency of the street network in Stratford that provides residents and visitors with reliable connections. Reducing congestion and improving traffic flow is especially needed throughout the Downtown. Safety concerns related to speeding and cut-through traffic, especially in and around school zones, were also noted. The implementation of traffic calming measures should be used to address safety concerns of vulnerable road users, especially in school zones.
- **Use the transportation system to support environmental goals:** Strengthen advancement toward climate and energy targets, and environmental sustainability and protection and prioritize infrastructure solutions that help meet the City's environmental goals. The provision of a multi-modal transportation system can support mobility choices that are sustainable, lessen the reliance on cars and help achieve a reduction in greenhouse gas (GHG) emissions.

Below are some of the ideas and input received from members of public throughout the TMP study.

CARS

North America's dependence on the private vehicle is not sustainable. Stratford is a compact city and has the opportunity to re-shape perceptions of mobility.

TOURISM

As Stratford attempts to redesign and re-grow from the very real financial effects of the loss of revenue from tourists, the future needs to be focused on those tourists and promoting walking and biking.

WALKING & CYCLING

It is wonderful to see the interest in expanding the network for bicycling and walking – the wave of the future. Stratford's signature is the ability to walk almost everywhere, and hopefully better biking opportunities will bring more cyclists.

COMPACT CITY

Fully support the concept of complete communities. Many cities especially in Europe already have successfully implemented similar solutions. Stratford has an exceptional opportunity because of its compact size and layout.

TRANSIT

Bus service needs to extend later in the evening. Even theatre patrons expect to catch a bus after evening performances.

TRUCKS

Can truck traffic be encouraged further to use alternate routes rather than rumble through Stratford? It would reduce traffic, road noise, wear and tear on roads, and be aligned to our tourism image.

TRAFFIC

We need to have access to more roads with all the new subdivisions. All the current main roads are clogged with traffic.

NEW MOBILITY

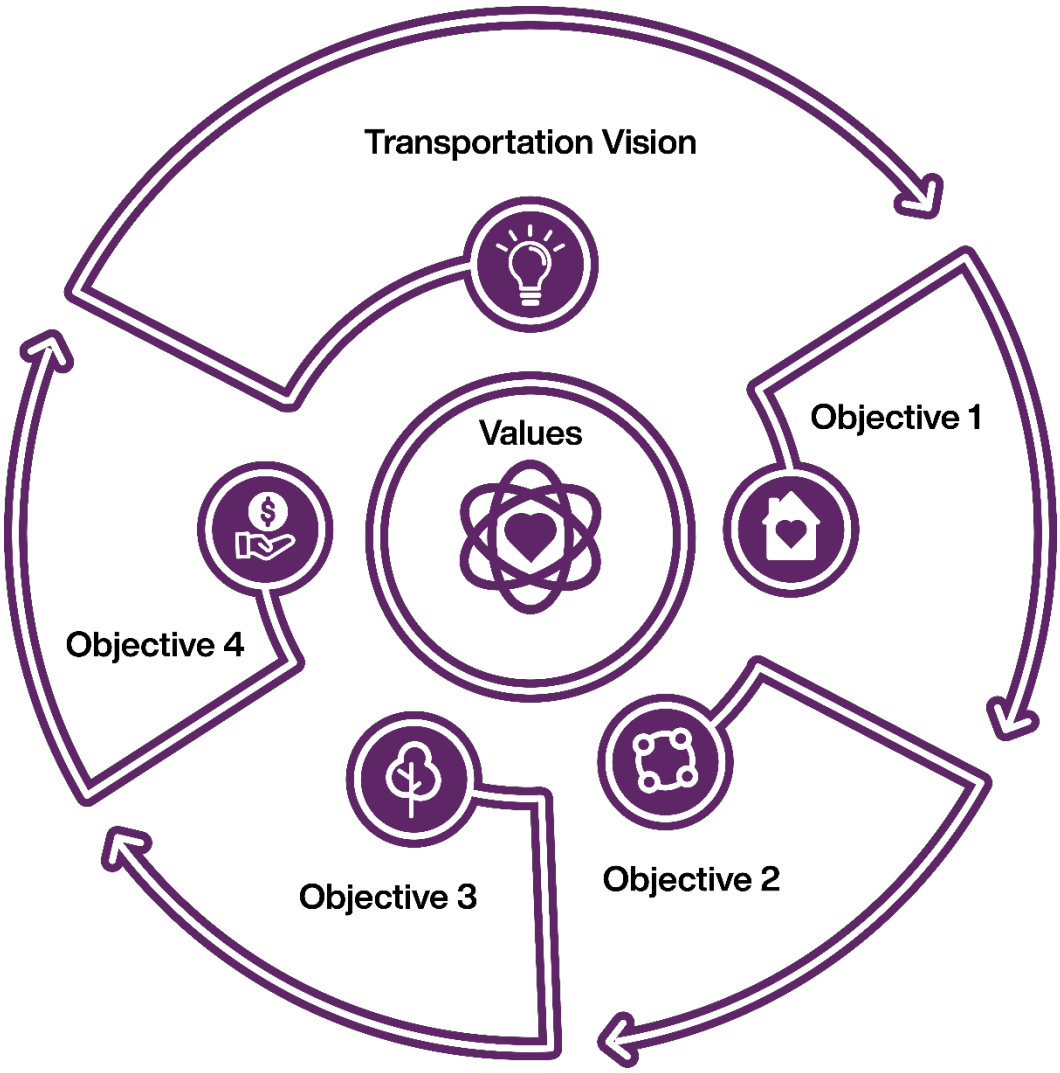
I would like to see a plan for EV charging stations throughout the city.

Note: Some comments have been lightly edited from their original submissions for clarity.

4 Strategic Framework

The Strategic Framework for the Transportation Master Plan is comprised of three important components— the transportation vision, objectives and goals, and planning values—each designed to guide the study and development of transportation solutions. The vision and objectives articulate the impact the TMP is designed to effect, while the planning values are intended to facilitate the development of the study itself.

The **Strategic Framework**, presented below, was built from existing City of Stratford priorities, as well as leading best practices in transportation master planning, and refined through the first round of public and stakeholder engagement.



Planning Values

The values are at the core of the Transportation Master Plan and influence how the study is being undertaken. They build on best practices in developing transportation master plans in Ontario and abroad, as well as policy and strategy directions identified in other recent Stratford planning documents – namely, the Official Plan (2016) and Strategic Priorities (2019). The values are as follows:

1. Enable safe movement for residents, visitors and goods.
2. Contribute to building healthy and complete communities.
3. Plan for an efficient, reliable and inter-connected multi-modal transportation network.
4. Plan for accessibility and equity and ensure that the transportation system meets the mobility needs of all residents and their travel modes.
5. Assess recommendations through a climate change lens, with an eye towards reducing greenhouse gas emissions.
6. Entrench the community's values and consider the public's best interest in all recommendations.
7. Consider innovative solutions and strategies to meet future needs.
8. Apply an integrated approach to transportation and land use planning, including annexed lands and the Grand Trunk site.
9. Enable meaningful public participation and stakeholder engagement throughout the planning process.
10. Optimize fiscal responsibility through responsible stewardship and planning integrity to deliver programs and services now and into the future.

Transportation Vision

The vision is an overarching statement that represents the aspirations of the TMP and indicates the desired future state of the City of Stratford as it relates to its transportation system. It shapes decision-making and helps direct the City to where it wants to be at the end of the TMP planning horizon. All TMP recommendations will work towards realizing the vision.

A draft version of the vision was presented to the public during the first round of consultation where it received overall support. The vision was updated based on the feedback received.

> **Stratford's transportation system will facilitate a safe, vibrant, prosperous and complete community while reflecting the principles of equity, accessibility, inclusivity and environmental sustainability.**

Objectives and Goals

The objectives stem from the vision and represent a set of desired outcomes of the TMP. It is important that the objectives align with what the residents and stakeholders in the City of Stratford want the transportation system to look like, as the objectives were used to evaluate possible infrastructure projects, contributing to the recommendations outlined in this report.

Four objectives were developed for the TMP, each supported by a number of more specific goals, as outlined below. The objectives and goals were presented in draft to the public during the first round of consultation, where they received overall support. They were updated based on the feedback received.

The transportation system in the City of Stratford will:

Support a healthy, safe and complete community

- Provide safe and inclusive transportation facilities that enable complete, vibrant communities.
- Improve safety for all road users to work toward Vision Zero.
- Develop a safe and connected active transportation network.
- Increase mode share for walking, cycling and transit.

Reduce environmental impacts

- Build resiliency to severe weather events and other impacts from climate change and mitigate impacts to the transportation system.
- Reduce greenhouse gas emissions and other factors contributing to climate change.
- Support climate mitigation and climate adaptation.
- Protect the City's natural environment, heritage and open space system.

Improve connectivity to support economic prosperity

- Increase access to opportunity for residents and businesses by ensuring efficient and accessible multi-modal transportation options.
- Protect and enhance Stratford's distinct character, charm, cultural heritage and tourist appeal.
- Enable the efficient and safe movement of goods.

Be an outcome of fiscal responsibility

- Ensure the continued maintenance and operation of existing infrastructure.
- Invest in new infrastructure and consider alternatives responsibly, with an eye toward full life-cycle costs as well as environmental costs.
- Enable transportation infrastructure that responds to changing demands and new technologies.

5 Needs and Opportunities

Transportation needs and opportunities in the City of Stratford were identified through technical analysis, stakeholder consultation and public input. Needs encompass the problems or issues that the TMP aims to solve and arise from a gap between what exists and what is desired. The TMP strategic framework represents the desired outcomes in responding to these needs. Opportunities represent elements that can be taken advantage of to help achieve the vision and objectives. The following provides a summary of the high-level needs and opportunities identified. More detailed needs and opportunities are detailed in the **Phase 1: Needs and Opportunities report**.

Collectively, these needs represent the **problem or opportunity statements** as required by Phase 1 of the Environmental Assessment master plan process.

The transportation needs and opportunities, including identification and analysis, are documented in detail in the **Phase 1: Needs and Opportunities** report.

Streets

Implement a complete streets approach to transportation planning to meet the needs of a growing city and destination.

Walking and Cycling

Expand active transportation connections to support Stratford as a complete community.

Transit

Improve transit service and operations to increase convenience, equity and accessibility, and sustainability.

Strategies

Develop policies and strategies to support Stratford's safe, connected and reliable transportation system.

Part 2
RECOMMENDATIONS

Part 2 outlines the recommended networks and transportation strategies for the City of Stratford. Recommendations and corresponding actions for streets, cycling, walking, and transit are summarized, as well as a collection of supporting strategies intended to leverage infrastructure investments and push further towards the Transportation Master Plan's vision and objectives.

Part 2 forms the overall direction the City will undertake to achieve the long-term vision of a safe, vibrant, prosperous and complete community supported by an accessible multi-modal transportation system.

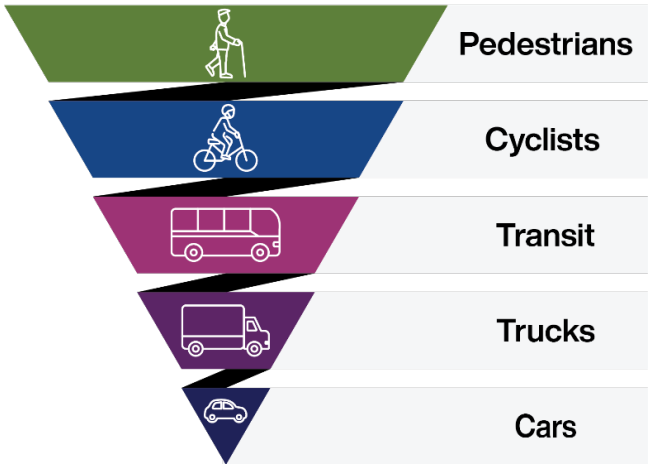
6 Complete Streets

Complete streets are streets built with the needs of all road users in mind – people who walk, use mobility aids, cycle, take transit, use a personal automobile, carry commercial goods or support essential services.

The concept of "complete streets" has become increasingly important as communities shift to a more multi-modal approach to transportation. Adopting a complete streets approach means that every street must be planned, designed and built with **explicit consideration for the needs of all road users** and modes—people walking, using mobility devices, cycling, riding transit, and driving, including emergency and service vehicles as well as trucks carrying goods.

This does not mean that every corridor will be able to accommodate all modes to the highest level of service. Rather, this approach represents an organizational shift, requiring buy-in and coordination from all relevant departments to explicitly consider the needs of vulnerable road users like pedestrians and cyclists early in the planning and design phases. It can also be thought of as designing "from the outside in" (e.g. sidewalk then boulevard/utility space, then cycling facilities, then curb lane, etc.) as opposed to "from the middle out" (e.g. vehicle lanes first).

Transportation Hierarchy



The formal adoption of the **transportation hierarchy** will help direct policy and prioritize future investment in the direction needed to reduce the City's impact on the environment and its response to climate change. The hierarchy serves as a framework to weigh the priorities of different modes, support safety, and help keep mobility efficient, including for drivers.

Adopting the complete streets approach can contribute to improved public health outcomes and promote active travel by improving the safety, comfort and accessibility of all road users. Travel modes are integrated into a multi-modal transportation system, providing people with feasible and attractive mobility options. Complete streets can also support placemaking opportunities and enhance public space, contributing to community vibrancy and economic prosperity.

The principles of equity, accessibility, inclusivity and environmental sustainability are integrated through the application of complete streets. Shifting the focus in Stratford more towards sustainable travel modes like walking, cycling and public transit will have the greatest impact on transportation-borne greenhouse gases, improve the safety of vulnerable road users, and provide residents with reliable mobility options. This requires identifying the priority of each mode, as well acknowledging that these modes are essential services.

The complete streets approach is reflected throughout the recommendations of this Transportation Master Plan in response to the vision and objectives.

Directions

A complete streets approach should be implemented throughout all stages of planning and design of new road projects, reconstruction projects or major rehabilitation projects, and opportunities to improve the multi-modal function of the street should be explored. Planners and decision makes should rely on the TMP to help guide the prioritization of specific modes and design elements.

This requires a contextual lens—not all streets will consist of the same roadway elements, and not all users will be equally accommodated along each street. Each corridor must be evaluated both based on its local function and context as well as its role in the broader transportation system. Where constraints exist, planners and decision makers should demonstrate that the proposed design afforded due consideration for all potential users and that the prevailing design serves the intended function of the street within the existing and planned community context. A strong component of public engagement with affected residents and institutions is also critical when working toward complete streets in the already built-up areas.

Actions

A1. Develop and adopt a formal complete streets policy that includes affirming the multi-modal hierarchy and other complete streets principles, and provides guidance for both new streets and existing streets.

A2. Consider holding internal workshops with all departments involved in the planning, design, operation and maintenance of the City's streets to ensure complete streets principles are understood and integrated at all stages.

7 Street Network

The street network serves as the base for most personal and commercial travel in Stratford, supporting drivers, cyclists, pedestrians, emergency services and goods movement. As such, it is the most important component of the City's transportation system and integral to its economy and quality of life. The street network must be planned through a multi-modal lens. Implementing a complete streets approach to street network planning will best meet the needs of a growing city and destination for both residents and visitors.

The development of the recommended street network, including considerations and analysis, is documented in Section 3.1 of the **Phase 2: Network and Strategy Development** report.

Directions

Intersection and corridor modifications are recommended to the street network to respond to the following needs:

- Optimize the existing street network to support current and future traffic growth.
- Address corridor and intersection capacity constraints.
- Respond to road user safety concerns and consider improved traffic control at identified intersections.
- Support all modes of travel along the road network in the development of a multi-modal transportation system and increase transit and active transportation mode share among residents and visitors.

Recommended road projects are shown in **Map 1**. Project numbers on the map correspond to **Table 1**, which details individual recommended street projects.

The recommendations represent good network planning principles and responsible spending, addressing the needs of all road users including pedestrians, cyclists, drivers, industry workers and commercial vehicles through focused modifications that support road network safety, efficiency and multi-modality.

Map 1: Recommended Street Network Projects

Table 1: Recommended Street Network Projects

ID	Location	Recommendation	Phase	Cost
1	West Secondary Plan Area	Undertake intersection modifications (to be determined by future study) at O'Loane Avenue at McCarthy Road and Huron Street to improve efficiency and capacity, subject to future traffic impact studies as development proceeds.	Long (to 2041)	$1,500,000 to $3,000,000
2	McCarthy Road and Romeo Street	Monitor the intersection as the City grows and consider further intersection upgrades (e.g. roundabout or traffic signals) as needed in the long-term. Install a pedestrian crossover in the short-term (see Chapter 9 for more information and crossover cost).	Long (to 2041)	$750,000 to $1,500,000
3	Lake Victoria – Veterans Drive	Close the street permanently to cars, opening access to the park and improving recreation and active transportation opportunities.	Short (to 2026)	$250,000
4	Lake Victoria – Lakeside Drive	Convert to one-way operation (direction to be determined through further study) and implement bi-directional designated bike lanes on the existing pavement.	Short (to 2026)	$800,000
5	Downtown Stratford	Continue with the implementation of the recommendations in the Downtown Traffic Study where not in conflict with the projects identified by the TMP, including intersection modifications and pedestrian improvements.	Medium (to 2031)	$3,000,000 to $4,000,000
6	Erie Street	Implement a lane reassignment that converts Erie Street to three-lanes (two vehicle travel lanes and shared centre turn lane) and install protected bike lanes as identified as a quick-start priority route in the cycling network plan.	Short (to 2026)	$1,050,000
7	Lorne Avenue and O'Loane Avenue	Undertake intersection improvements, to be finalized through detailed design work and/or Environmental Assessment studies, as required, separate to the TMP. Improvements could include the implementation of roundabouts, turning lanes or traffic control signals.	Medium (to 2031)	$750,000 to $1,500,000

Table 1: Recommended Street Network Projects (continued)

ID	Location	Recommendation	Timing	Cost
8	Lorne Avenue and Downie Street	Undertake intersection improvements, to be finalized through detailed design work and/or Environmental Assessment studies, as required, separate to the TMP. Improvements could include the implementation of roundabouts or additional turning lanes.	Medium (to 2031)	$750,000 to $1,500,000
9	Lorne Avenue and Romeo Street	Undertake intersection improvements, to be finalized through detailed design work and/or Environmental Assessment studies, as required, separate to the TMP. Improvements could include the implementation of roundabouts, turning lanes or traffic control signals.	Medium (to 2031)	$750,000 to $1,500,000

The timing of the projects above is based on relative need, the timing of planned growth and development, and feasibility of implementation. The following investment in the **street network** is recommended:

Phase	Total	Per Year
Short-Term – through 2026	$2.1 M	$0.7 M
Medium-Term – through 2031	$3.0 M to $5.0 M	$0.6 M to $1.0 M
Long-Term– through 2041	$4.5 M to $9.0 M	$0.5 M to $0.9 M
Total	**$9.6 M to $16.1 M**	-

Actions

A3. Integrate the recommended street infrastructure projects as outlined in **Table 1** into annual capital program planning.

8 Cycling Network

Active transportation (AT) refers to all forms of human-powered travel such as walking, cycling, skating or using a wheelchair. It also includes forms of power-assisted travel such as pedal-assist e-bikes, scooters and mobility devices.

The provision of a comprehensive cycling network supports important TMP objectives and city-building goals and helps progress a multi-modal transportation system that provides safe, convenient and accessible transportation options.

The development of the recommended cycling network, as well as active transportation strategies, is documented in Section 3.2 of the **Phase 2: Network and Strategy Development** report.

Directions

To expand the cycling network and help progress Stratford toward building more complete communities, where most daily activities can be safely reached through cycling, the following are recommended:

- A **Priority Cycling Network** serves as the core network, providing a complete, connected network of safe and comfortable cycling routes with accelerated implementation (within 10 years) and a focus on higher order cycling facilities.
- Five **Quick-Start Priority Routes** that represent marquee projects to help focus the City's efforts within five years. These projects respond to critical infrastructure gaps and will amplify the visibility of cycling infrastructure.
- An **Ultimate Cycling Network** that represents the longer-term vision for the cycling network in Stratford, guiding long-term decision making and filling connections beyond the Priority Cycling Network.

The Priority Cycling Network is shown in **Map 2**, with project numbers corresponding to quick-start priority routes, as detailed in **Table 2**. The Ultimate Cycling Network is shown in **Map 3**. Priority routes will be updated on an ongoing basis through future Transportation Master Plan updates.

The cycling networks respond to the following needs and opportunities:

- Progress the cycling network to reflect stronger policy and industry support for All Ages and Abilities (AAA) designs and needs of vulnerable road users and recognize the potential in attracting a large cohort of "interested but concerned" cyclists.
- Recognize potential of Stratford as a 15-minute city, where a compact geography and flat topography presents an opportunity to increase walking and cycling mode share for most trips.
- Understand and address challenges with the implementation of the Bike and Pedestrian Master Plan (2014) priority projects to inform network development and prioritization.

Table 2: Recommended Quick-Start Priority Routes

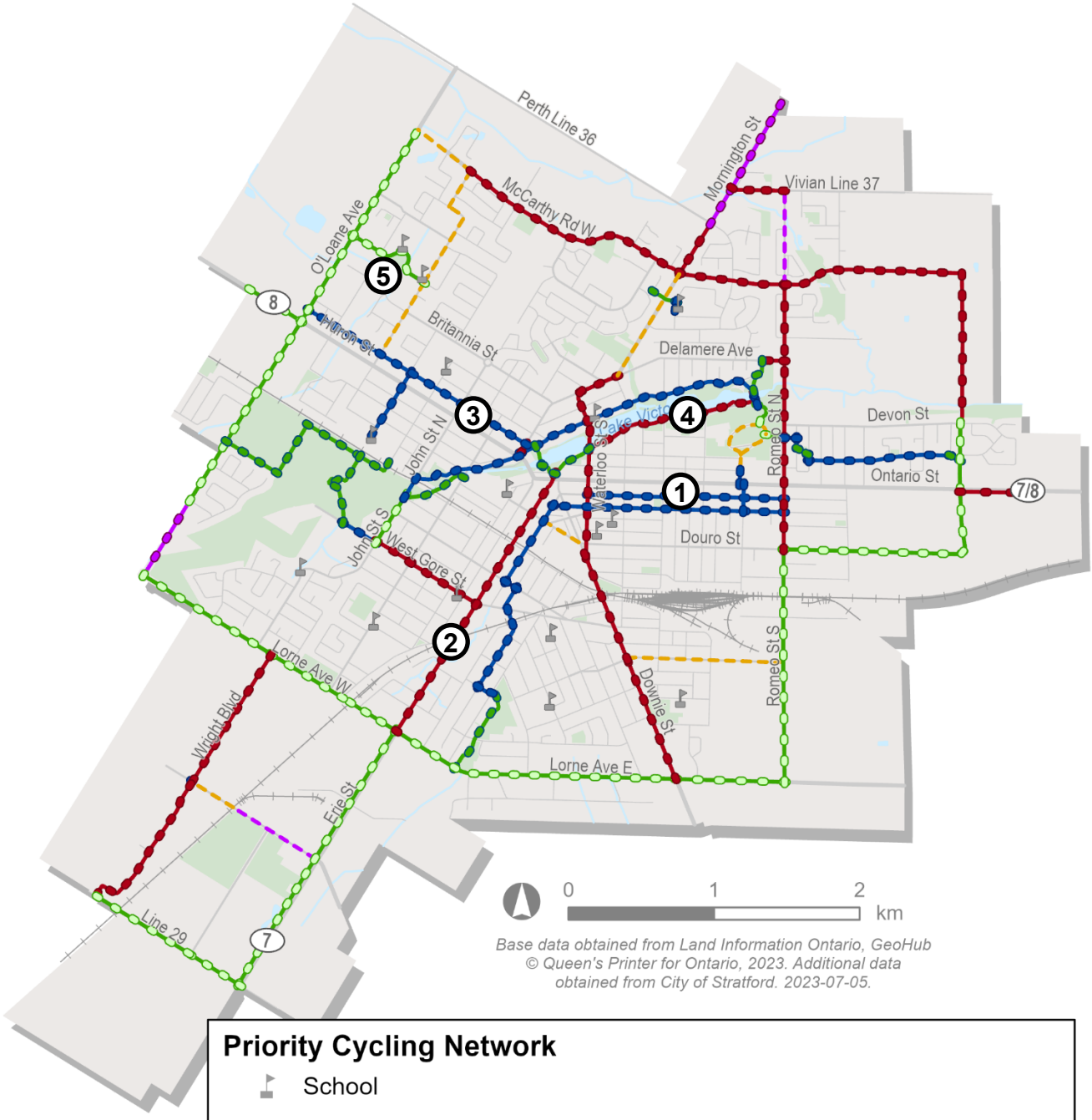
ID	Corridor and Limits	Facility Type	Timing	Cost
1	Albert Street from Waterloo Street to Romeo Street	Bicycle boulevard	Short	$105,000
2	Erie Street from Ontario Street to Lorne Avenue	Protected bike lanes	Short	n/a*
3	Hibernia Avenue from O'Loane Avenue to Mornington Street	Bicycle boulevard with contraflow bicycle lane	Short	$135,000
4	Lakeside Drive from Waterloo Street to Lakeside Drive North	Bi-directional cycle track (north side)	Short	n/a*
5	Oakdale Avenue from O'Loane Avenue to Forman Avenue	Multi-use pathway	Short	$450,000

* Projects #2 and #4 costs and implementation are integrated with Street Network projects #6 and #4, respectively.

Including the Quick Start routes highlighted above, the Priority Cycling Network and the Ultimate Cycling Network, the following investment in the **cycling network** is recommended:

Phase	Total	Per Year
Short-Term – through 2026	$4.9 M	$1.6 M
Medium-Term – through 2031	$9.3 M	$1.9 M
Long-Term– through 2041	$23.0 M	$2.3 M
Total	**$37.2 M**	-

Map 2: Recommended Priority Cycling Network and Quick-Start Priority Routes



Priority Cycling Network

School

Neighbourhood Bikeways

- Signed Route
- Bicycle Boulevard

Bike Lanes and Cycle Tracks

- Buffered Bike Lanes / Bike Lanes
- Protected Bike Lanes / Cycle Tracks

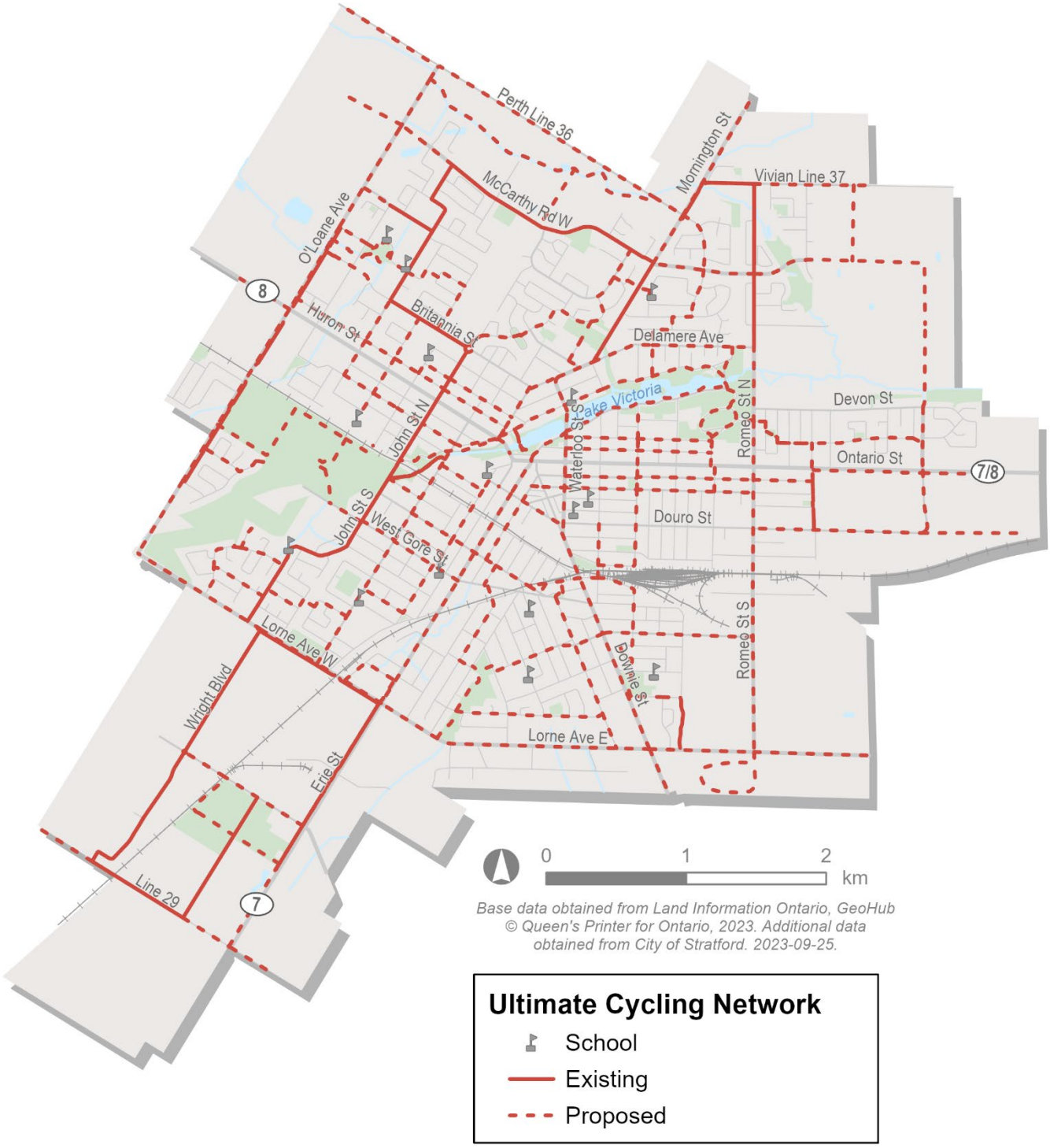
Multi-Use Paths and Trails

- Boulevard Multi-Use Path
- Off-Road Multi-Use Trail

Shoulder Bikeways

- Paved Shoulders
- Buffered Paved Shoulders

Map 3: Recommended Ultimate Cycling Network



Actions

A4. Advance the five key quick-start priority projects identified as part of the priority cycling network to be completed within the next 3 years.

A5. Build the rest of the priority cycling network in the short and medium term.

A6. Continue to advance the build out of the ultimate cycling network in the long-term.

A7. Identify opportunities to bundle cycling infrastructure with road capital projects and revisit cycling network considerations at the time of capital project planning.

9 Pedestrian Network

The pedestrian network is comprised of two major components: linear infrastructure like sidewalks and trails, and pedestrian crossings that safely link the linear infrastructure across often busy streets. Stratford's sidewalk network is largely built out (though some gaps persist), and policies for continuing to build new sidewalks are in place or recommended in other sections of this Transportation Master Plan (e.g. adopting the complete streets approach, new development recommendations, and the functional street classification framework).

Given the existing and ongoing work on the sidewalk network itself, the Transportation Master Plan infrastructure recommendations focus on the provision of pedestrian crossings.

The development of the recommended pedestrian network, including pedestrian-supportive strategies, is documented in Section 3.3 of the **Phase 2: Network and Strategy Development** report.

Directions

The City should continue to fill the gaps in the sidewalk network, allocating appropriate funding on an annual basis. To identify the highest impact sidewalk gaps, the City should develop an inventory of missing sidewalk segments and apply the prioritization framework for infilling sidewalk gaps that is presented in **Table 3**. Note that some major sidewalk gaps (e.g. Lorne Avenue and Douro Street) overlap with the Priority Cycling Network where multi-use paths are preferred.

The City currently budgets an average of $200,000 on sidewalk gaps. However, given the importance of a connected sidewalk network to addressing the TMP objectives as well as the principles of equity and accessibility, the City should consider increasing annual funding to accelerate the completion of the sidewalk network. A more precise estimate of the cost for completing the sidewalk network could be determined after the City develops an inventory of its sidewalk gaps. However, for the purposes of meeting the recommendations of the TMP, the City should budget $500,000 annually over the short- and medium-term to complete the infilling of major sidewalk gaps, with the possibility of reducing to $250,000 annually in the long-term to address lower priority infilling.

Table 3: Sidewalk Gap Prioritization Framework

Criteria	Description / Rationale	Scoring
Street Classification	As arterial and collector streets are more likely to be designed for higher traffic volumes and speeds, there is a higher need for sidewalks to maintain safe separation from vehicles and pedestrians.	Arterial = **20 pts** Collector = **10 pts** Local = **0 pts**
Schools	The provision of sidewalks near schools and along corridors in all directions deserve increased priority.	Within 500 m of a(n): Elementary school = **20 pts** High school = **10 pts**
Pedestrian Generators	Attention should be paid to land uses more likely to generate pedestrian trips and gaps nearby should be prioritized.	Within 500 m of a: Park, library, community centre, major trail, recreation facility, seniors housing, higher density housing = **5 pts each**
Transit Route	Walking is a component of all transit trips so continuous sidewalks are needed to bring passengers to and from bus stops.	On a transit route = **10 pts**
No Sidewalks on Either Side	Filling in sidewalk gaps on streets where sidewalks are not present on either side is more important than where one side is already provided.	No sidewalks on either side = **20 pts**
Desire Line	Paths worn by existing pedestrians show a demand for facilities not being met.	Along arterial street = **20 pts** Along collector street = **10 pts**

A second major component to the pedestrian network is the network of safe crossings provided. Several different types of controlled pedestrian crossings enhance safety for pedestrians, including traffic control signals, intersection pedestrian signals, mid-block pedestrian signals, pedestrian crossovers (PXOs), stop signs, yield signs and school crossings.

Building on recent efforts by the City, the TMP recommends the implementation of 16 new pedestrian crossings along arterial roadways. These locations were identified based on technical analysis and public input.

The recommended pedestrian crossings respond to the following opportunity:

» Recognize potential of Stratford as a 15-minute city, where a compact geography and flat topography presents an opportunity to increase walking and cycling mode share for most trips.

Locations of recommended pedestrian crossings are shown in **Map 4**. Identified project numbers on the map correspond to **Table 4**, which provides additional details and considerations for each crossing location.

The Transportation Master Plan assumes the pedestrian crossovers can be completed in the short- and medium-term horizons to 2031. This relates to roughly two pedestrian crossovers per year. The relative priority should be determined by the traffic volumes on the given corridor, pedestrian demand to cross, and ability to bundle with other design or construction work (e.g. Erie Street road diet, Lorne Avenue and O'Loane Avenue intersection work, etc.). Additionally, certain crossing locations on Lorne Avenue should be implemented in tandem with ongoing infill sidewalk construction, as noted in **Table 4** below.

The following investment is recommended across the three phases:

Phase	Sidewalk Gaps	Pedestrian Crossings	Total	Per Year
Short-Term – through 2026:	$1.50 M	$0.34 M	$1.84 M	$0.61 M
Medium-Term – through 2031:	$2.50 M	$0.57 M	$3.07 M	$0.61 M
Long-Term– through 2041:	$2.50 M	-	$2.50 M	$0.25 M
Total	**$6.50 M**	**$0.91 M**	**$7.41 M**	**-**

The need for additional pedestrian crossings, including school crossings, pedestrian crossovers, and crosswalks, will likely be identified as new issues emerge, as new developments are built, and as travel patterns change. While the TMP notes $0 crossing investment for beyond 2031, the City should proactively continue with the identification of pedestrian crossing needs and continue to integrate these needs into the capital planning program.

Individual cost estimates are provided in **Table 4** based on a preliminary assessment of the type of crossing that is likely to be warranted. Ultimately, however, the type of crossing to be installed will be guided by the **Ontario Traffic Manual (OTM) Book 15: Pedestrian Crossing Treatments** based on the latest traffic volume and speed data available.

Map 4: Recommended Pedestrian Crossing Locations

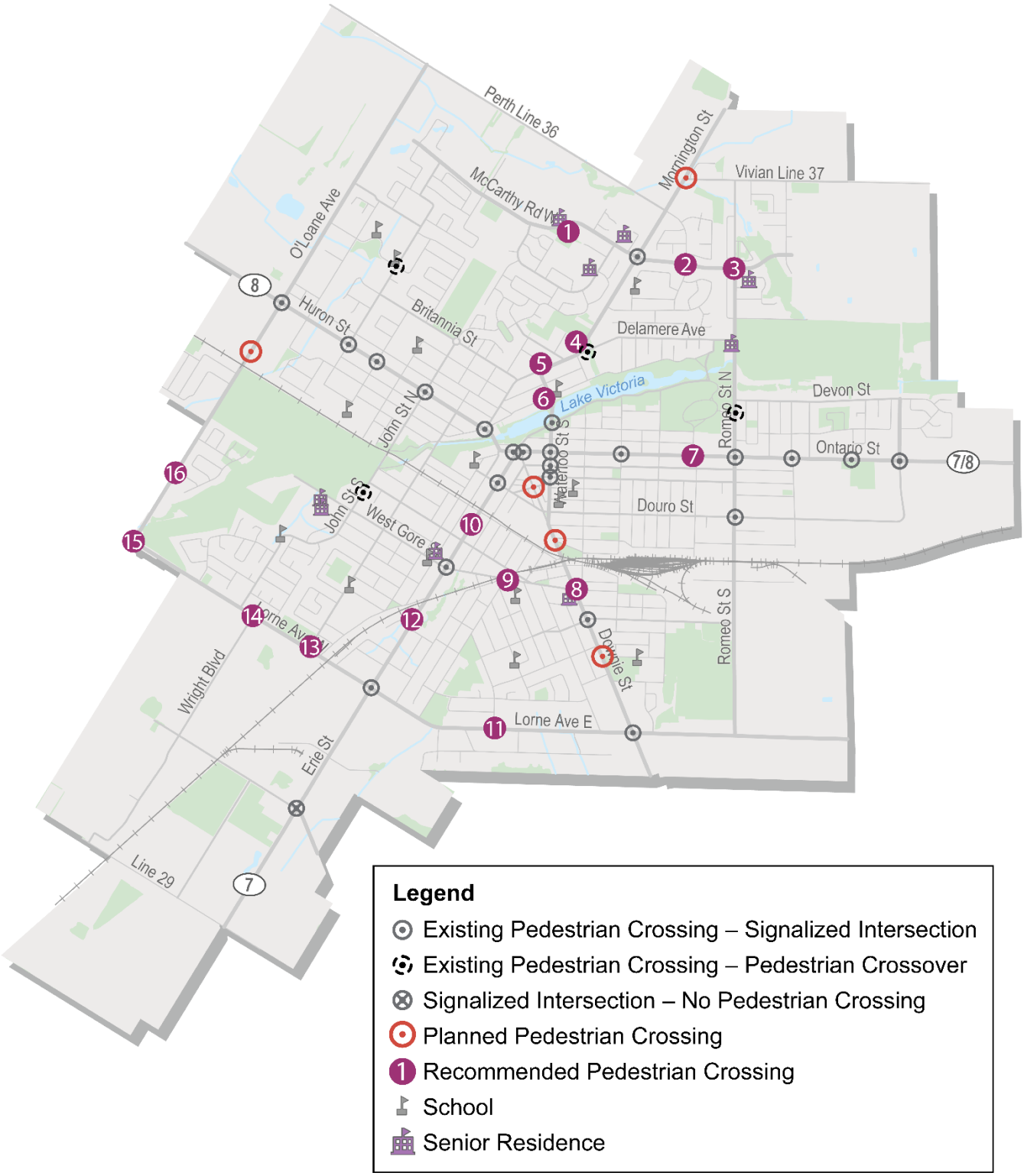


Table 4: Recommended Pedestrian Crossing Locations

ID	Location	Recommendation	Type	Cost
1	McCarthy Road at McCarthy Place Retirement Residence	A need for a crossing McCarthy Road is identified, however, a feasibility study is required to review sightlines and stopping distances given curves on street.	Type 2 Level B or C	$50,000
2	McCarthy Road at Graff Avenue	Upgrade of existing school crossing of McCarthy Road.	Type 2 Level B or C	$50,000
3	Romeo Street at McCarthy Road	Pedestrian crossover of Romeo Street as an interim measure before more significant intersection upgrades are needed.	Type 2 Level B	$75,000
4	Mornington Street at Delamere Avenue	Pedestrian crossover of Mornington Street. Refer to OTM Book 15 – Pedestrian Crossing Treatments to identify preferred installation.	Type 2 Level B	$75,000
5	Mornington Street at Waterloo Street	A crossing along the northwest quadrant of the intersection would include a crossover of westbound Mornington Street where it becomes a single lane, a new sidewalk along the existing median and a crosswalk at the existing stop sign for eastbound Mornington St to southbound Waterloo Street.	Type 2 Level C or D	$25,000
6	Waterloo Street at William Street	A need for a crossing of Waterloo Street is identified, however, a feasibility study is needed to review sightlines and stopping distances given curves on street.	Type 2 Level B	$75,000
7	Ontario Street at Parkview Drive / King Street	Pedestrian crossover of Ontario Street to be implemented in conjunction with planned cycling route requiring a crossing at this location.	Type 1 Level A or Type 2 Level B	$75,000
8	Downie Street at West Gore Street	Pedestrian crossover of Downie Street. Refer to OTM Book 15 – Pedestrian Crossing Treatments to identify preferred installation.	Type 2 Level B or C	$50,000

Table 4: Recommended Pedestrian Crossing Locations (continued)

ID	Location	Recommendation	Type	Cost
9	West Gore Street at Mowat Street	Pedestrian crossing of West Gore Street. Upgrade of existing school crossing. Additional analysis may be required due to potential queueing issues across the rail line.	Type 2 Level C or D	$25,000
10	Erie Street between St David Street and Cambria Street	Pedestrian crossover of Erie Street. To be implemented in conjunction with Erie Street lane reassignment project.	Type 2 Level B	$75,000
11	Lorne Avenue at Oak Street	Pedestrian crossover of Lorne Avenue. Installation should be triggered by sidewalk and/or multi-use path construction along Lorne Avenue.	Type 2 Level B	$75,000
12	Erie Street at Whyte Avenue	Pedestrian crossover of Erie Street. To be implemented in conjunction with Erie Street lane reassignment project.	Type 2 Level B	$75,000
13	Lorne Avenue at St Vincent Street	Pedestrian crossover of Lorne Avenue. Refer to OTM Book 15 – Pedestrian Crossing Treatments to identify preferred installation. Curb ramps already in place.	Type 2 Level B	$75,000
14	Lorne Avenue at Wright Boulevard	Pedestrian crossover of Lorne Avenue. Refer to OTM Book 15 – Pedestrian Crossing Treatments to identify preferred installation. Curb ramps already in place.	Type 2 Level B	$75,000
15	Lorne Avenue and O'Loane Avenue	Pedestrian crossover of Lorne Avenue. Overlaps with intersection modification as part of street network recommendations, accounting for pedestrian crossing needs.	n/a*	n/a*
16	O'Loane Avenue at Cody Drive	Pedestrian crossover of O'Loane Avenue. Installation should be triggered by implementation of paved shoulder cycling route along O'Loane Avenue.	Type 2 Level B or C	$50,000

* Project #15 cost and implementation integrated with Street Network Project #7.

Actions

A8. Implement recommended pedestrian crossings on the City's arterial and collector roadways, including noted feasibility studies.

A9. Continue to monitor the need for additional pedestrian crossings as Stratford continues to grow, including on local roads where traffic volumes may warrant additional controlled crossings at key destinations

A10. Develop an inventory of missing sidewalk segments and apply the prioritization framework to identify the sidewalk gaps that should be completed first. Consider increasing annual funding directed towards sidewalk construction to accelerate the completion of the sidewalk network.

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10 Transit

Public transit will be a critical component of a mobility strategy that works towards the City's goals for reducing greenhouse gases and responding to the impacts of climate change. The City of Stratford operates a network of public transit routes converging at the Downtown Transit Terminal, providing connections throughout the City. The City also operates a demand responsive (i.e. on-demand) transit service on weekends, as well as Parallel Transit, a door-to-door accessible transit service for persons with disabilities who are unable to access Stratford Transit.

Regionally, Perth County operates PC Connect bus routes with connections to St. Marys, London, Kitchener, Waterloo and communities within Perth County. PC Connect is operating through March 2025 as a pilot project. Another pilot project trialed GO Transit rail service operating between London and Toronto via Stratford. This service has been in place since 2021, however it has been announced that it will end in October 2023. Finally, VIA Rail also provides a once-daily service eastbound toward Toronto and westbound toward London.

An analysis of the transit network performance is documented in the **Phase 1: Needs and Opportunities** report, and the transit strategy is documented in the **Phase 2: Network and Strategy Development** report.

Improving public transit, making it more attractive to more residents and visitors can enable more car-free or car-light lifestyles, reducing the number of private vehicles on the road, and reducing the overall environmental impacts from the transportation system. Further, the transit system can more rapidly shift to zero-emission vehicles than the general population, and zero-emission buses can have a bigger impact on the environment than individual cars. Investments in the City's transit system are key to reducing greenhouse gases city-wide, reducing private vehicle trips, and addressing key equity and accessibility needs.

Directions

The TMP takes a strategic approach to long-term transit system growth, rather than a more detailed route-level review. In that context, the recommended transit strategy is based on the following needs and opportunities:

- Improve the convenience of Stratford's transit system.
- Accommodate current and future growth.
- Improve equity and accessibility.
- Recognize the opportunity of Stratford Transit in being a leader in the transition to more sustainable transportation and reduction of greenhouse gases.
- Advocate upper levels of government for improved regional connections.

In response to the identified needs and opportunities, the Transportation Master Plan presents the following directions to guide transit in Stratford into the future.

Convenience:

- As Stratford grows, more frequent services along major corridors should be prioritized to build ridership along direct routes, in contrast to the existing route network which optimizes for shortest walking distance to/from destinations and single-seat rides (few transfers) at the expense of frequency and travel time. While the latter better meets the needs of senior/retiree riders than other groups, a more direct, grid-like network can be more attractive to new riders as bus frequency and lower travel times can be prioritized.
- Though the City introduced an electronic fare option through a mobile application in August 2022, there remain opportunities to expand availability of fare media, through additional points-of-sale, expanded electronic options, and other digital payment options.

System Growth:

- Through continued service investment, Stratford experienced minimal pre-pandemic ridership loss, despite many agencies in North America trending downwards up to 15%. Continued investment and service improvements are critical to maintaining and growing Stratford transit as a reliable option for residents, as the system needs to win riders back as the economy recovers from the pandemic.

- Further opportunities for optimizing operational costs should be explored. The transition to on-demand transit during lower-ridership periods likely resulted in reduced overall operating costs due to fewer operators needed.
- Dedicated funding streams would help ease the burden on the City and allow for expanded services.

Equity and Accessibility:

- The affordable fare discount could be further increased to better meet industry best practices, including lowering eligibility criteria, and improving the discounts relative to adult fares.
- Fare capping, enabled by digital payment solutions, improves fare equity and fairness by removing high-cost barriers and potential overpayment.

Greenhouse Gas Reduction:

- There is an opportunity to leverage the transit system as a conduit towards lower greenhouse gas emissions. This can come from growing ridership of the transit system as it exists today, which generally provides lower GHG output per trip than single occupancy vehicles. It can also come from a shift to zero-emission buses, which the City is currently studying the feasibility of implementing.
- The shift to zero-emission buses can potentially impact greenhouse gas reduction in line with the City's 2030 and 2050 targets and federal mandates.

Regional Connections:

- As Stratford and southwestern Ontario continue to grow, the importance of reliable, convenient regional connections also grows. While PC Connect bus service currently provides connections within Perth County and to London and Kitchener, it is not known whether this service will exist beyond 2025. As this service provides critical connections outside of Stratford, it is crucial that it continues into the foreseeable future.
- More longer distance service is also needed. With VIA Rail only running one train per day per direction through Stratford and the GO Train service ending, there is a service gap that needs to be filled.

Actions

A11. Develop a ridership strategy to determine how to retain and expand ridership in the wake of COVID-19.

A12. Consider modifying the route network to improve travel times, maintaining reasonable walking distances to/from bus stops, to account for changing transit demand that evolves with City growth, and to better connect major trip generators with more frequent service.

A13. Review routes and operating hours to ensure the needs of vulnerable users such as night shift workers and students are being met.

A14. Explore expansion of on-demand transit to expand service span and service area.

A15. Continue to expand access to passes and tickets through electronic fare options, digital payment solutions, and additional points-of-sale.

A16. Strengthen policies related to affordable fares to improve the accessibility of the program to low-income riders.

A17. Implement the recommendations from the feasibility study examining how Stratford Transit can transition to zero-emission buses

A18. Explore partnership with Stratford Festival, Destination Stratford, and other organizations to reduce emissions and traffic congestion related to tourism.

A19. Explore opportunities to optimize service delivery to reduce costs.

A20. Advocate upper levels of government to provide stable funding for PC Connect or other regional transit.

A21. Advocate upper levels of government for expanded rail service to Stratford.

11 Supporting Strategies

This chapter presents a collection of supporting strategies, recommendations and actions that will help to direct transportation policy towards the study's objectives and the City's vision, while aiming to leverage the investment in infrastructure projects outlined in previous chapters. These strategies are intended to provide guidance for staff and policymakers as they move from Transportation Master Plan recommendations towards implementation of the following:

- Formal policies endorsed by Council
- Updated by-laws
- Input into other planning processes such as the Official Plan update

The development of supporting strategies, including considerations and analysis, is documented in the **Phase 2: Network and Strategy Development** report.

Street Safety and Vision Zero

Improving road user safety is a key objective of the Transportation Master Plan, and crucial to the City progressing toward Vision Zero.

Vision Zero is a road traffic safety philosophy adopted by many cities that is focused on eliminating traffic-related fatalities and serious injuries by recognizing how street design influences behaviour of all road users. The main tenet of Vision Zero is that the mistakes humans make should not cost anyone their lives and livelihoods, and that the outcomes of these mistakes can be improved or mitigated through improved engineering and design.

Ensuring all mobility options are safe is important to advancing the multi-modal transportation system, and streets in Stratford should be designed and maintained with consideration for the safety of all road users as a top priority. This includes people of all ages and abilities, and all modes of transportation, including walking, cycling, transit and motorized vehicles. This also includes a focus on vulnerable road users, including children and seniors, who are most at risk of severe injury in vehicle-pedestrian collisions.

A safety lens is embedded throughout all elements of the TMP and its recommendations, as reflected in the following topics:

- Complete Streets
- Functional Street Classification
- Traffic Calming Measures
- Commercial Vehicles
- Cycling Network Facilities

Directions

As the City of Stratford makes strides towards Vision Zero, the following considerations are important to assist the City with standardization of road design and improved road user safety:

- **Performing a safety audit along corridors of concern:** The City should continue to monitor and audit intersections where collisions are most common for safety deficiencies. Roundabouts, or other physical interventions, may be considered as potential replacements.
- **Considering a reduction in posted speed limits:** There is a significant improvement in the outcomes of collisions between vehicles and vulnerable road users when the travelled speed is lower. The risk of pedestrian fatality drops from 60% at 50 km/h to 25% at 40 km/h. A 40 km/h default speed limit on local streets, with appropriate updates to design standards, should be considered.
- **Designing streets for target speeds**: Previous street design practices encouraged design speeds that were 10 to 20 km/h over posted speeds to create a more forgiving road environment for drivers. More recently however, the Vision Zero approach to street safety demands that streets be designed so that the design speed matches the actual intended speed of travel for drivers based on the street's context. A well-designed street self-enforces its own maximum speed limit, resulting in significantly higher compliance by drivers, and safer streets for all users.
- **Focus on intersections:** As intersections are the most frequent locations for collisions, Stratford's intersections should prioritize safety, maintain visibility and predictability for all road users, serve multi-modal mobility, and accommodate all ages and abilities. A Leading Pedestrian Interval is also a

growing trend that provides pedestrians with an advanced walk signal, helping to increase their visibility and emphasize their right-of-way ahead of turning vehicles.

- **Improve intersections with roundabouts:** Inherent in the design of roundabouts is the elimination of the most dangerous conflicts – high speed head-on and side-impact collisions. While collisions are still possible in roundabouts, they tend to be lower speed side-swipe impacts, rarely resulting in serious injury.

As it will take significant investment and time to retrofit the Vision Zero safe streets approach in Stratford, the City must lean on education and enforcement as an interim measure to mitigate safety issues on its streets. As such, the City should consider the implementation of automated speed enforcement (e.g. speed cameras) at key locations in the City and/or the installation of speed information signs that help encourage slower travel speeds (see Traffic Calming section for more information).

Actions

A22. Consider adopting a formal Vision Zero policy and action plan that affirms the City's commitment to reducing and eliminating serious injuries and fatalities within its transportation system.

A23. Continue to collect and analyze collision data on an ongoing basis as an input to monitoring street safety across Stratford.

A24. Consider undertaking a safety audit along corridors and at intersections where concerns persist.

A25. Consider a reduction in default speed limits on local streets to 40 km/h.

Active Transportation

To help maximize the return on investment for the infrastructure recommendations outlined in the Priority Cycling Network, Ultimate Cycling Network and Pedestrian Network, complementary supporting strategies are needed.

Directions

The following programs, strategies and practices are recommended to support active transportation uptake in the City of Stratford:

- **Event Focused Transportation Demand Management (TDM) Program:** A focus on encouraging locals as well as tourists to leave their car at home or at their place of lodging and walking or biking to the theatre or other events can help reduce general congestion and greenhouse gas emissions related to travel, while increasing the vibrancy of street life in the City. A more detailed strategy, partnerships with major events, and coordination with Stratford Transit would be needed.
- **Cycling Tourism:** Cycling tourism is a growing form of recreation and touring in Southern Ontario. Developing and advertising cycling tourism routes, with Stratford identified as a hub, can help create awareness and encourage tourists to add Stratford to their route. The City should consider developing a comprehensive strategy to attract cycling tourists, in conjunction with Destination Stratford and other business groups.
- **Bicycle Parking:** Safe and secure cycling parking is needed across Stratford. This includes both parking provided by the City itself within its rights-of-way and City-owned land, as well as encouraging private properties to provide parking for cyclists. Existing private commercial properties can be encouraged to provide cycling parking through a City program that organizes the purchase and installation of consistent bicycle parking facilities, working towards achieving economies of scale. Cost sharing between the City and private properties could be considered. Meanwhile, new developments can be required to provide bicycle parking through the zoning by-laws and other site plan controls.
- **Micromobility Sharing Systems:** Bicycle-sharing systems offer bikes for shared use, usually for a fee. Conventional bikes, e-bikes and e-scooters are some of the systems that are providing people in cities across Canada with convenient, sustainable mobility options. Adopting a sharing system

could help divert single-occupancy vehicle trips, as well as support Stratford as a tourist destination by offering a fun way to explore, as well as provide last-mile solutions.

» **Progress Tracking:** Reporting back to Council through an Active Transportation or Cycling Yearbook can highlight the big moves and projects completed so residents and stakeholders can help understand how the network is progressing over the planning horizon of the TMP. Performance monitoring is a key component of any TMP (see Section 14), but a larger active transportation-specific annual reporting requirement could help to keep the TMP on track while ensuring Council and other stakeholders are informed.

Actions

A26. Consider developing an event focused TDM program to encourage and enable locals and visitors to adopt sustainable modes for major cultural events and during the tourist season.

A27. Consider developing a cycling tourism strategy.

A28. Continue to provide short- and long-term cycling parking on City land, aiming to increase the number of bicycle parking spaces on an annual basis at a consistent rate.

A29. Consider developing a program, working with private properties, to encourage the provision of secure, standardized bicycle parking.

A30. Review zoning by-laws and other policies to require new developments to provide both short- and long-term secure bicycle parking on-site; update by-laws and policies as required.

A31. Work with key municipal staff and relevant stakeholders, including Cycle Stratford and the Downtown Stratford Business Improvement Area, to discuss funding opportunities and the feasibility of a bicycle sharing system.

A32. Report back on pedestrian and cycling network progress to Council on an annual basis as a way of tracking action against the active transportation infrastructure recommendations as well as highlighting other programming initiatives.

Land Use Planning

The way in which a community plans its neighbourhoods may be the most important input into how people choose to get around. In order for the TMP recommendations to be most effective, the City's land use planning and zoning regimes must continue to evolve to reflect principles that support a healthy, safe and complete community.

Directions

Growth in Stratford presents an opportunity to build pedestrian-friendly communities. The following items should be considered when designing new neighbourhoods in Stratford, and enshrined in the new Official Plan:

- **Mixed uses:** Building complete communities with neighbourhood-level retail, schools, community facilities and other amenities mixed in with residential buildings typically means a higher proportion of trips can be made within shorter distances with a higher probability of walking trips.
- **Site planning:** Narrow frontages encourage more variety and increase the attractiveness of walking. Smaller lots also help to locate more people and services close to one another. Providing pedestrian-scale design and orienting buildings to the street improves the overall streetscape and street wall, while improving the pedestrian and cyclist experience.
- **Parking requirements:** A reduction or elimination of minimum parking requirements for new developments will allow for market-driven decisions on the supply of off-street parking. A more detailed review should be undertaken of peer cities of similar sizes and urban contexts, as well as a review of the latest industry best practices surrounding updated parking requirements.
- **Provision of active transportation facilities:** Sidewalks, trails and cycling facilities should be provided as per the typical characteristics outlined in the functional street classification framework. New neighbourhoods should seamlessly integrate cycling facilities into the existing and recommended networks. A Trails Master Plan should develop a comprehensive trails system and future off-road connections for pedestrians and cyclists, including through new developments. By-laws should be updated to require the provision of short- and long-term cycling parking in new residential, office and commercial developments.

- **Pedestrian walksheds:** Street networks should be designed to maximize pedestrian convenience. Traditionally, a fixed grid provides the most efficient layout for pedestrians. Where a full street grid is not desired, the pedestrian network should be designed to include a system of pedestrian walkways that provide a connected grid (or "fused grid") for pedestrians and other active modes.
- **Preventative traffic calming:** Streets should be designed originally to encourage slower traffic speeds, eliminating the need for retrofit traffic calming applications.

Actions

A33. Consider the relationship between land use planning and transportation outcomes when preparing the new Official Plan update, reflecting the principles outlined herein.

A34. Review zoning by-laws and land use designations to ensure complete communities principles are reflected (e.g. site planning is pedestrian-oriented, mixing complementary uses is allowed, etc.), and update as necessary.

A35. Review secondary plan and plan of subdivision requirements to ensure pedestrian permeability and walksheds are considered when new street layouts are being designed, through the requirement of grid patterns or regular pedestrian and cycling connections and update as necessary.

A36. Undertake a Trails Master Plan to support a comprehensive natural heritage trails system and future off-road connections for AT users.

A37. Review and update all relevant design guidelines, manuals, standard cross-sections, zoning by-laws and Official Plan policies to ensure guidelines reflect safe street principles, ensuring the design speed on urban streets matches the desired maximum speed of vehicular traffic.

A38. Undertake a review of peer cities and the latest best practices surrounding new development parking requirements. If supported by this study, a reduction of minimum parking requirements or enactment of maximum parking requirements is recommended.

Traffic Calming

Traffic calming is a means of altering driver behaviour through physical measures or programs to improve safety conditions for all road users, especially vulnerable road users such as pedestrians and cyclists, children and the elderly. Traffic calming intervention aims to achieve either or both of the following:

- Improve driver compliance with the posted speed limit, either through visual cues that improve awareness or through physical infrastructure changes that require slower speeds to navigate safely.
- Reduce cut-through traffic by making the route slower, and thus less attractive than streets better suited for through traffic.

Different traffic calming measures are best suited to specific contexts, and it is important to apply the most appropriate measure that responds to the circumstances of a specific location. A successful traffic calming program results in enhanced safety and improved quality of life for residents.

Directions

A standardized traffic calming process is recommended to allow the City to prioritize the streets with the greatest need based on traffic volume and speed data and help identify the best traffic calming elements to implement. The recommended process is shown on the next page.

The traffic calming process provides a transparent, traceable and data-driven response to calming requests. After a traffic calming request has been received, the first step is to assess the corridor against the **warrant criteria**, as follows:

Traffic Calming Warrant Criteria

Measure	Warrant
Traffic Volume	One of: » More than 500 vehicles per day on local road » More than 1500 vehicles per day on collector road
AND	
Traffic Speed	85th percentile speed is >10 km/h over the posted speed limit

The intention is to screen out lower volume corridors where overall risk is smaller. Higher risk areas are carried forward for further analysis. Volume and speed data

collected for this purpose should also be used to prioritize implementation of measures, with the higher speed and volume corridors being addressed first.

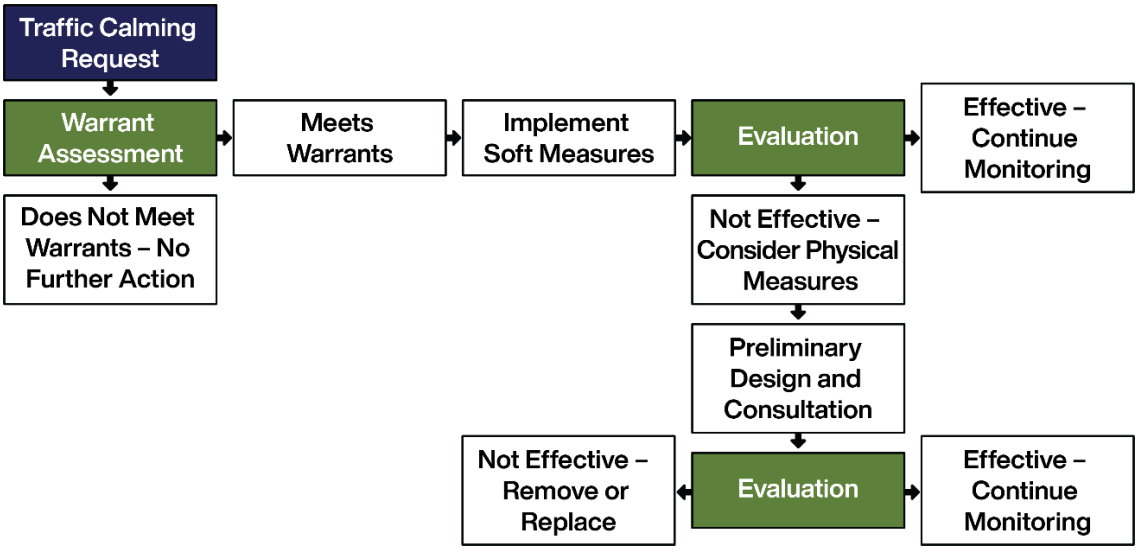
If these warrants are met, soft or passive traffic calming measures (e.g. enhanced signage, radar speed signs, pavement markings) should be implemented first. Starting with soft traffic calming measures allows for low-cost solutions to be tested prior to contemplating more expensive physical interventions.

Following implementation, the corridor should be evaluated to determine whether the measures applied have been successful in addressing the speeding and/or cut-through traffic issues. If they have been deemed successful, no further action needs to be taken, though periodic monitoring and evaluation should continue.

If the soft measures are deemed ineffective, physical measures should be considered. At this stage, an analysis should be undertaken to identify the preferred physical intervention and develop the preliminary design. Staff may consult with the public and stakeholders at this stage.

Following consultation, detailed design is completed, and the measures are implemented. Monitoring and evaluating the impacts of the intervention are critical. If the physical measures are deemed effective, the process is complete. If they are not effective, the City should consider removing the measures or replacing the measures with a new approach. Ongoing monitoring should continue in all cases.

Recommended Traffic Calming Process



Actions

A39. Formally adopt the recommended traffic calming process.

Functional Street Classification

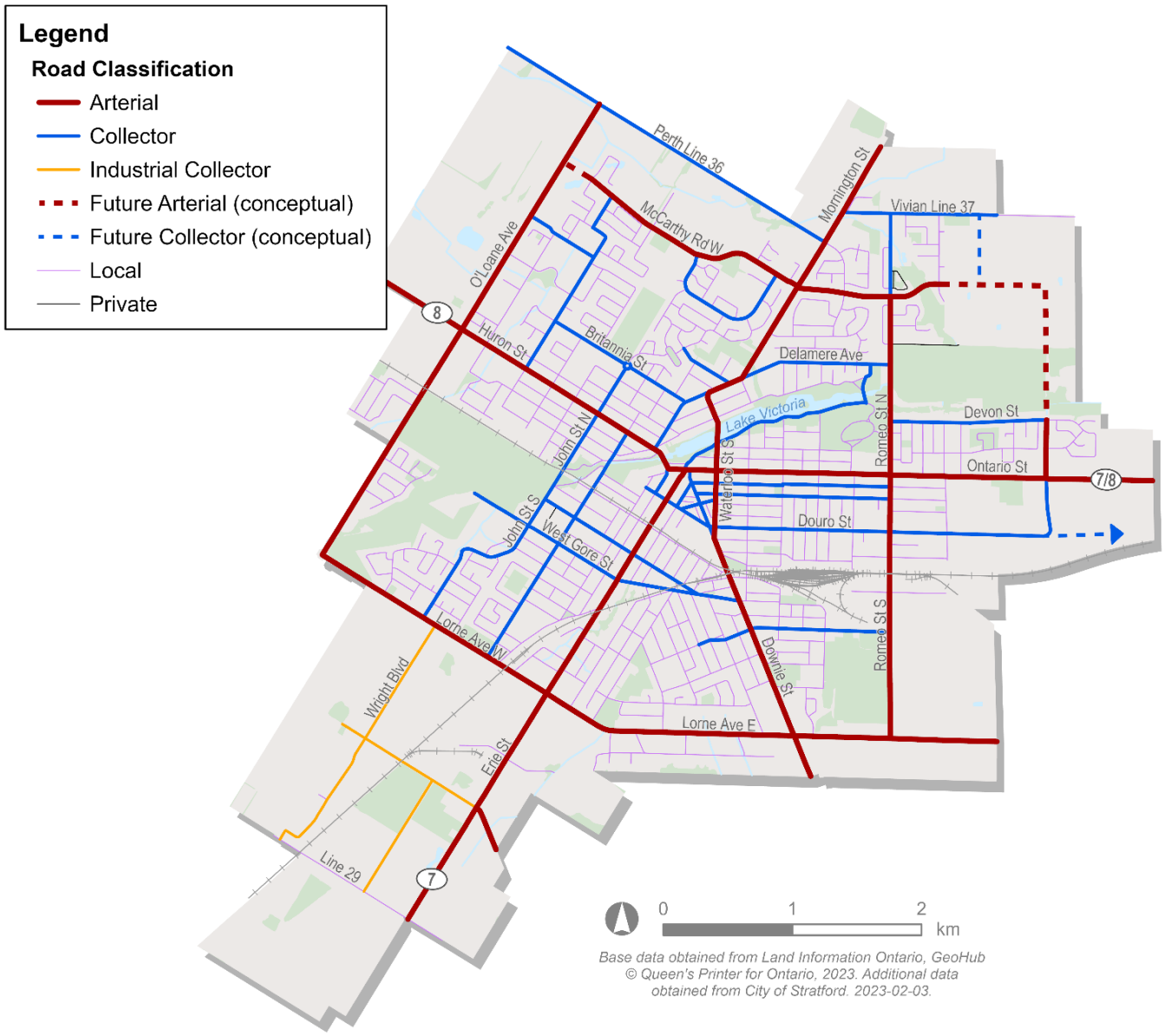
A functional street classification framework establishes a hierarchy of streets based on each segment's context and the degree to which the segment prioritizes serving mobility versus land access needs. A street's service function can range from arterials that give a high priority to traffic movement and therefore a lower priority on local property access, to collector and local streets that have a decreasing focus on traffic movement and an increasing priority on local property access. The functional street classification framework also integrates complete streets components, identifying typical characteristics for pedestrian and cycling facilities for a given class.

The five functional street classifications in Stratford are as follows:

- **Arterial:** The primary function of arterial streets is mobility, serving regional and local travel demand by carrying large volumes of all types of vehicular traffic. Arterials typically connect between provincial highways and other arterial or collector roads and serve as the primary connection between major activity centres.
- **Collector:** Collector streets serve as the connection between local streets and arterial streets, and generally give equal priority to land access and to mobility. They are designed to carry moderate volumes of traffic and provide connections within neighbourhoods.
- **Industrial Collector:** Industrial collector streets serve local travel demands by providing connections within industrial areas. These are like collector streets but provide access to employment and industrial uses, and therefore need to be designed to accommodate the physical requirements of heavier vehicles.
- **Local:** Local streets serve local travel demands by providing direct access from abutting properties to the road system. These streets exist primarily to provide access to adjacent residential land uses, and movement of traffic is a secondary consideration.
- **Industrial Local:** Serves local travel demands by providing direct access from abutting properties to the street network within industrial areas. These are like local streets but provide access to employment and industrial uses. Roadway widths are also wider to accommodate the physical requirements of heavier vehicles.

Map 5 shows the City of Stratford 2022 functional street classification. The existing classifications support the different land access and movement needs of the City's street network. This includes facilitating both city-wide and broader connections to the regional highway network by maintaining continuity along higher-order roads.

Map 5: City of Stratford Functional Street Classification (2022)



Directions

It is recommended that the City of Stratford carry forward its existing functional street classification designations, consistent with guidance outlined by the Transportation Association of Canada. Additionally, a comprehensive framework of typical roadway characteristics of each functional street class has been developed and is outlined in the Phase 2: Network and Strategy Development report. This will be an important reference tool in designing new streets built in the City's annexed lands, as well as to facilitate any future changes to street designations, as required. The framework summarizes the typical characteristics of each class of street and does not necessarily suggest that all existing streets need to be updated to reflect these characteristics. Any changes to the function and design of an existing street segment requires study, and modifications should strive to align with the desired characteristics outlined in the framework.

The applicability of the classifications to the existing street network was reviewed to accommodate the changing needs of Stratford and to align with strategic objectives such as improving connectivity and supporting goods movement. In conjunction with the City's upcoming Official Plan review, selected street segments are identified as potential candidates for consideration, as outlined in **Table 5**. These candidate roadway segments do not necessarily require structural or capacity upgrades, rather, a change in classification would better align with the streets' existing mobility and access function.

Table 5: Recommended Candidates for Street Classification Changes

Corridor	Existing	Recommended
Perth Line 36, from O'Loane Avenue to Mornington Street	Collector	Arterial
Vivian Line 37 from Mornington Street to Romeo Street	Collector	Arterial
Romeo Street from McCarthy Road to Vivian Line 37	Collector	Arterial
Graff Avenue from Mornington Street to Glendon Road	Local	Collector
Glendon Road from Mornington Street to Graff Avenue	Local	Collector
Lakeside Drive from Waterloo Street to William Street	Collector	Local
Veterans Drive from Cobourg Street to Waterloo Street	Collector	Local
Albert Street from Waterloo Street to Romeo Street	Collector	Local
Brunswick Street from Waterloo Street to Romeo Street	Collector	Local
Douro Street from Romeo Street to CH Meier Boulevard	Collector	Arterial

Table 5: Recommended Candidates for Street Classification Changes (continued)

Corridor	Existing	Recommended
CH Meier Boulevard from Douro Street to Ontario Street	Collector	Arterial
Oak Street from Dufferin Street to Lorne Avenue	Local	Collector
Brydges Street from Oak Street to Mowat Street	Local	Collector
Line 29	Local	Industrial Collector
Crane Avenue from	Local	Industrial Local
Griffith Road	Local	Industrial Local
Dunlop Place	Local	Industrial Local
Hanh Court	Local	Industrial Local
Boyd Street	Local	Industrial Local
Humber Street	Local	Industrial Local
Scott Street	Local	Industrial Local

Actions

A40. Adopt the Functional Street Classification Framework as part of the upcoming new Official Plan (outlined in the Phase 2: Network and Strategy Development report), carrying forward the five-level street classification system into the Official Plan update.

A41. Consider changes to the classification of selected streets listed in **Table 5** to better reflect their existing function and support anticipated growth.

Goods Movement

Supporting the continued efficient movement of goods throughout the City of Stratford is important. Commercial vehicles (i.e. medium and heavy trucks) are responsible for the movement of the goods shipped to, from, within and through Stratford. They also support essential services such as deliveries, construction, repair and maintenance, waste management, and emergency response. Stratford's industrial lands, in particular, will continue to require efficient connections to the provincial highway network to facilitate the movement of goods.

Directions

The recommended truck route network in Stratford, shown in **Map 6**, is based on a permissive system that provides several potential recommended routes to bypass the Downtown and its choke points. Though the use of the truck route network is strongly encouraged, all arterial streets, by virtue of their role as important regional and local connectors, are intended to accommodate truck traffic. It is also important to note that, as Connecting Links for the provincial highway network, Huron Street, Ontario Street and Erie Street are still expected to be used by commercial vehicles and will continue to be designed to accommodate them. However, the exclusion of these segments from the Municipal Truck Route network emphasizes the desire to route through traffic away from the Downtown. It also more accurately reflects the signs that are currently in place.

Recommended intersection improvements along Lorne Avenue, as outlined in Section 7, will also increase capacity and traffic operations along the corridor. These investments will help make this bypass route more attractive for vehicular traffic, especially heavy vehicles destined for Stratford's growing industrial district.

An Environmental Assessment has previously been undertaken for a possible Highway 7/8 bypass to the south of Stratford, connecting to Lorne Avenue from the east. As there has been no commitment or timeline confirmed by the Province, Council should continue to advocate for this bypass as an effective means of keeping through trucks away from the congested areas of Stratford.

While trucks are essential to the economic vitality of the City and perform important services for residents, their needs must be met while mitigating negative impacts to the community, such as noise and pollution. It is especially important to manage the risk of safety conflicts with other road users, including vulnerable road users.

Stratford's permissive truck route network should help facilitate decision-makers when determining which elements, facilities and modes are to be prioritized as part of a street project. For example, an increase of truck traffic along Lorne Avenue could be accompanied by sidewalks to help facilitate safe pedestrian connectivity.

Actions

A42. Support and encourage the use of the permissive truck route "ring road" network as an effective tool in managing through truck traffic through the Downtown.

A43. Adopt the updated Municipal Truck Route through the new Official Plan and/or as a standalone policy endorsed by Council.

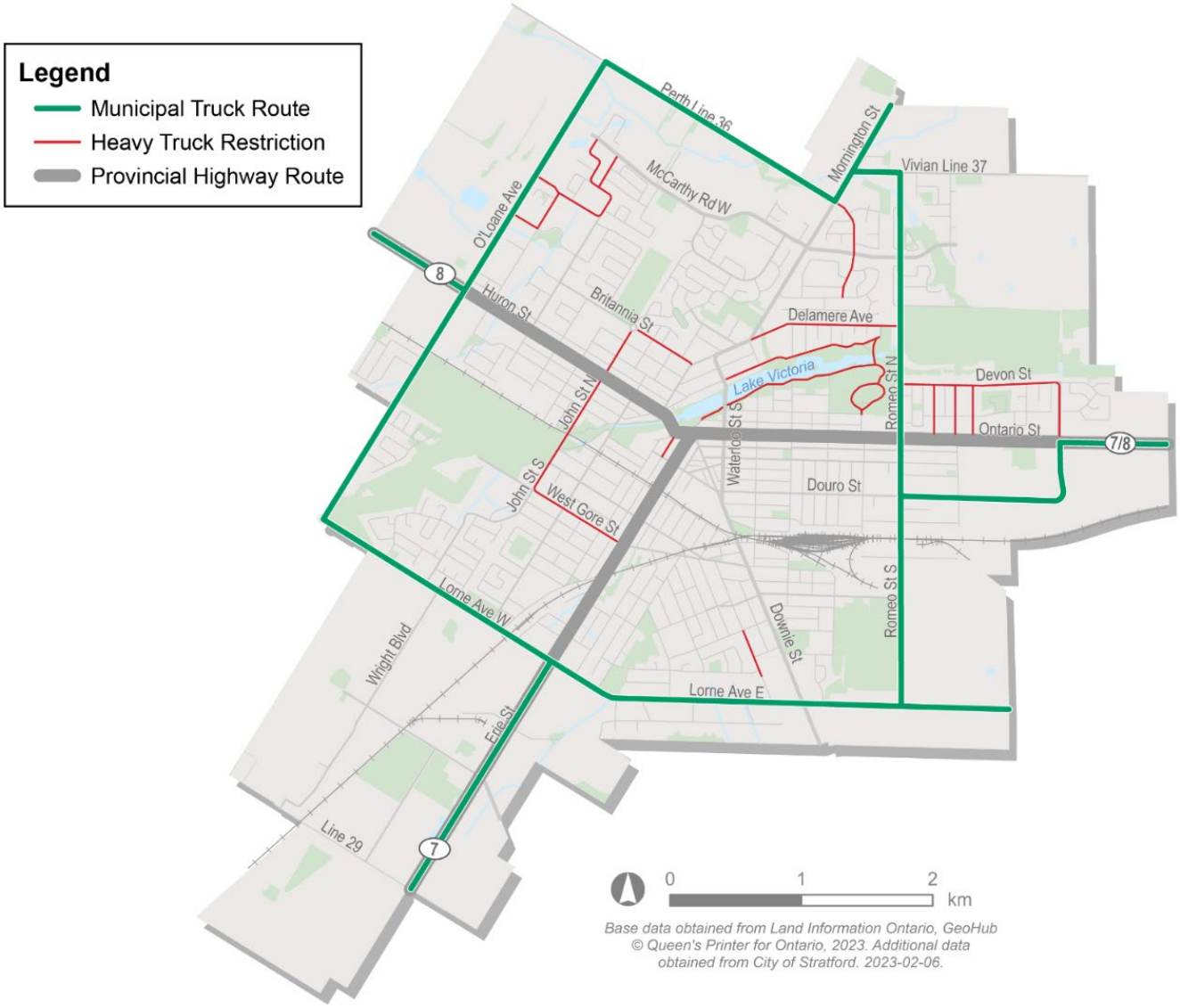
A44. Consider providing a truck route map that is easy to locate on the City of Stratford website.

A45. Advocate the Province for the construction of the Highway 7/8 bypass.

A46. Mitigate impacts of truck traffic through the City by implementing safe street design, including separated cycling facilities and expanded pedestrian connections.

A47. Continue to use heavy truck restrictions as a management tool along selected local streets where through traffic is a concern, as appropriate.

Map 6: City of Stratford Truck Route Network



New and Emerging Technologies

New and emerging transportation technologies could represent important opportunities in the development of a future-looking transportation network. Technological advancements that support low carbon options, such as electric, shared, automated and connected transportation options, are reshaping mobility and can help reduce greenhouse gas emissions, supporting the TMP study vision and objectives. By developing strategies that support the identification and adoption of technologies that work for the needs and context of Stratford, the City can take advantage of these new technologies as appropriate and contribute to citywide greenhouse gas reduction targets.

Directions

The City of Stratford has a proven record of implementing new mobility opportunities that work for its scale and context. In 2022, the City received funding through the Zero Emission Vehicle Infrastructure Program (ZEVIP) from Natural Resources Canada. Zero-emission vehicles (ZEVs), most notably electric vehicles (EVs), are a key contributor to achieving Canada's transportation sector greenhouse gas emissions reduction target by 2050. As a result of ZEVIP, the City of Stratford will install electric vehicle charging infrastructure, a total of 23 ports, at the following municipal parking locations by 2025:

- **Lower Erie Parking Lot:** Two dual output, Level 2 connector stations
- **Upper Erie Parking Lot:** Two dual output, Level 2 connector stations and one single output, Level 3 Fast Charging station
- **Kalbfleisch Lot:** Three dual output, Level 2 connector stations
- **York Lot:** Two dual output, Level 2 connector stations
- **Albert Lot:** Two dual output, Level 2 connector stations

Connected Vehicles (CV) and Autonomous Vehicles (AV) will also affect the City's transportation network. Stratford is among the first cities in North America to fully implement the installation of dedicated short-range communications technology equipment on all traffic lights that will enable the testing of and eventual full-time deployment of Connected and Autonomous Vehicle (CAV) technology.

While there may be many potential benefits to CAVs, including increased safety and efficiency of vehicular transportation, the City should continue to follow Provincial direction on this evolving space, as the technical and regulatory context around their integration remains uncertain.

The growing demand for CAVs may see increases to overall vehicle kilometres travelled if people are able to live further away from destinations because of the increased ease of driving and a higher tolerance for longer commutes. This may result in more congestion and increases the possibility of zero-occupancy trips. Energy use is also an important consideration and may increase as demand for new mobility systems grows. Municipal policies are key to shaping how CAVs are deployed and ensuring that their use supports city-building goals.

Actions

A48. Continue to investigate opportunities to install EV chargers throughout Stratford to support electrification efforts and uptake.

A49. As the MTO advances its own initiatives to facilitate two-way communication of traffic and road condition information between vehicles and infrastructure, the City should continue to prepare for future advancements in technology by monitoring developments in CAVs and following the direction of the Province.

A50. Promote emerging transportation technologies through outreach and marketing, ensuring that residents are educated about the benefits and potential impacts (including safety) of new mobility modes and services.

A51. Review and update existing by-laws and policies to include and provide considerations for e-scooters and other mobility devices.

A52. Identify supportive policies and infrastructure to be "ahead of the game" to ensure the continued rollout of CAVs and other emerging transportation technologies support city-building initiatives and align with provincial plans. Infrastructure to support CAV deployment, traffic control devices that consider both human drivers and automated driving systems, and traffic regulations should continue to be considered in anticipation of CAV growth.

Ongoing Maintenance

Ongoing maintenance has a significant cost given the typical conditions that Canadian street networks are exposed to. The freeze-thaw cycles over the winter cause cracks and potholes in the road surface that require ongoing attention. Frequent comments heard through the engagement process related to potholes and other ongoing maintenance concerns. In addition to surface maintenance, ongoing road maintenance covers items such as snow removal for vehicle lanes, sidewalks, and cycling facilities, and other day-to-day maintenance activities.

Directions

The day-to-day maintenance of the City's transportation is an integral part of managing transportation. It is a legislative requirement per Ontario Regulation 239/02 Minimum Maintenance Standards for Municipal Highways (O.Reg. 239/02) under the Municipal Act for the City to perform specific maintenance functions to a pre-defined standard. The latest update to O. Reg 239/02 (2018) includes updates to sidewalk and bike lane maintenance, in addition to the road surface.

The City's current maintenance program exceeds the minimum maintenance standards set out by the Province. To further improve maintenance would be a costly endeavor and is not recommended by the TMP. The City should continue its maintenance program, meeting provincial requirements. It should also be noted that anticipated extreme weather events due to climate change are expected to impact infrastructure to a higher degree than their original designs had allowed for. Hotter temperatures, heavier precipitation, flooding and more frequent ice storms may result in additional costs to maintain, repair or replace road infrastructure due to accelerated erosion, pothole formation, etc.

It is important when planning for the new infrastructure that accompanies growth, that ongoing maintenance be considered. Full-cost or life-cycle accounting should be undertaken when identifying infrastructure investments. Considering the longer-term costs of ongoing maintenance will ensure that infrastructure is not overbuilt, and maintenance costs can be lowered moving forward.

Actions

A53. Continue to comply with O. Reg. 239/02: Minimum Maintenance Standards for Municipal Highways on all streets in Stratford.

A54. Embed life-cycle cost analysis in the City's infrastructure planning to affirm the longer-term sustainability of infrastructure investments and their ongoing maintenance, rehabilitation, and ultimate replacement.

Part 3
IMPLEMENTATION

Part 3 outlines the implementation plan for the Transportation Master Plan. It includes an overview of the estimated costs to implement the recommended infrastructure projects. It also provides a summary of the recommended action plan.

Measures to monitor the progress of the TMP are also discussed, providing a framework to ensure that key indicators are continually reviewed to confirm they continue to align with the long-term goals of the TMP.

Finally, considerations for when the TMP should be updated are provided.

12 Costs

This Transportation Master Plan represents a significant shift in the way the transportation system is planned and constructed. It will require a significant shift in funding, with more money being spent on growing active transportation than on expanding the road network. This is a necessary shift for the City to achieve the vision and objectives articulated in this Plan including reducing greenhouse gas emissions, and creating a more multi-modal, vibrant city.

The cost estimates in this Plan were developed based on analysis of previous tenders and other sources. They represent a high-level estimate, however, and some variation is to be expected as recommended projects go through more detailed design and analysis. They are also likely to be less accurate the further into the future they are forecast. Costs should be refined and updated as more detailed analyses are completed.

Projects were grouped across the three planning horizons identified for the TMP: Short-term (through 2026), medium-term (through 2031), and the ultimate long-term horizon (through 2041). Costs are summarized in **Table 6**.

Table 6: Summary of Costs ($ in millions)

Phase	Streets*	Cycling	Walking	Total	Per Year
Short-Term – through 2026	$2.1	$4.9	$1.8	$8.8	$2.9
Medium-Term – through 2031	$5.0	$9.3	$3.1	$17.4	$3.5
Long-Term– through 2041	$9.0	$23.0	$2.5	$34.5	$3.5
Total	**$16.1**	**$37.2**	**$7.4**	**$60.7**	**$3.4**

* Represents the high end of the estimated range for Streets. See Chapter 7 for additional details.

Additional recommendations in this Transportation Master Plan may also incur capital costs. These have not been included in the cost estimates above. These may include undertaking larger studies such peer reviews, transit strategies, trails master plan or other continuing ongoing investments. However, most other items are assumed to be able to be undertaken as part of regular ongoing City operations.

Any individual initiatives arising from this TMP that have significant capital or operating cost impacts will need to be approved by City Council.

13 Action Plan

The actions outlined throughout this document represent the next steps to help the City of Stratford adopt the recommended transportation solutions. **Table 7** consolidates these actions and assigns them to the one or more of the following planning horizons:

- **Short-term:** 2024 to 2026
- **Medium-term:** 2027 to 2031
- **Long-term:** 2032 to 2041
- **Beyond:** Beyond 2041
- **Ongoing:** Actions to be taken on an ongoing basis

The Action Plan is heavily focused on shorter-term actions designed to kick start the improvements to policies and strategies in the near future. However, several actions are recommended for the medium- and long-terms, while a number of actions are intended to be perpetually ongoing items.

An update of this Action Plan should be undertaken as part of a future TMP Update.

Table 7: Action Plan Summary

ID	Action	Timing
A1	Develop and adopt a formal complete streets policy that includes affirming the multi-modal hierarchy and other complete streets principles, and provides guidance for both new streets and existing streets.	Short-term
A2	Consider holding internal workshops with all departments involved in the planning, design, operation and maintenance of the City's streets to ensure complete streets principles are understood and integrated at all stages.	Short-term
A3	Integrate the recommended street infrastructure projects as outlined in Table 1 into annual capital program planning.	Ongoing
A4	Advance the five key quick-start priority projects identified as part of the priority cycling network to be completed within the next 3 years.	Short-term

Table 7: Action Plan Summary (continued)

ID	Action	Timing
A5	Build the rest of the priority cycling network in the short and medium term.	Medium-term and long-term
A6	Continue to advance the build out of the ultimate cycling network in the long term.	Long-term and beyond
A7	Identify opportunities to bundle cycling infrastructure with road capital projects and revisit cycling network considerations at the time of capital project planning.	Ongoing
A8	Implement recommended pedestrian crossings on the City's arterial and collector roadways, including noted feasibility studies.	Short-term and medium-term
A9	Continue to monitor the need for additional pedestrian crossings as Stratford continues to grow, including on local roads where traffic volumes may warrant additional controlled crossings at key destinations	Ongoing
A10	Develop an inventory of missing sidewalk segments and apply the prioritization framework to identify the sidewalk gaps that should be completed first. Consider increasing annual funding directed towards sidewalk construction to accelerate the completion of the sidewalk network.	Short-term, ongoing
A11	Develop a ridership strategy to determine how to retain and expand ridership in the wake of COVID-19.	Short-term
A12	Consider modifying the route network to improve travel times, maintaining reasonable walking distances to/from bus stops, to account for changing transit demand that evolves with City growth, and to better connect major trip generators with more frequent service.	Medium-term
A13	Review routes and operating hours to ensure the needs of vulnerable users such as night shift workers and students are being met.	Short-term
A14	Explore expansion of on-demand transit to expand service span and service area.	Medium-term

Table 7: Action Plan Summary (continued)

ID	Action	Timing
A15	Continue to expand access to passes and tickets through electronic fare options, digital payment solutions, and additional points-of-sale.	Short-term
A16	Strengthen policies related to affordable fares to improve the accessibility of the program to low-income riders.	Short-term
A17	Implement the recommendations from the feasibility study examining how Stratford Transit can transition to zero-emission buses	Short-term and medium-term
A18	Explore partnership with Stratford Festival, Destination Stratford, and other organizations to reduce emissions and traffic congestion related to tourism.	Short-term
A19	Explore opportunities to optimize service delivery to reduce costs.	Ongoing
A20	Advocate upper levels of government to provide stable funding for PC Connect or other regional transit.	Ongoing
A21	Advocate upper levels of government for expanded rail service to Stratford.	Ongoing
A22	Consider adopting a formal Vision Zero policy and action plan that affirms the City's commitment to reducing and eliminating serious injuries and fatalities within its transportation system.	Short-term
A23	Continue to collect and analyze collision data on an ongoing basis as an input to monitoring street safety across Stratford.	Ongoing
A24	Consider undertaking a safety audit along corridors and at intersections where concerns persist.	Ongoing
A25	Consider a reduction in default speed limits on local streets to 40 km/h.	Short-term
A26	Consider developing an event focused TDM program to encourage and enable locals and visitors to adopt sustainable modes for major cultural events and during the tourist season.	Short-term

Table 7: Action Plan Summary (continued)

ID	Action	Timing
A27	Consider developing a cycling tourism strategy.	Short-term
A28	Continue to provide short- and long-term cycling parking on City land, aiming to increase the number of bicycle parking spaces on an annual basis at a consistent rate.	Ongoing
A29	Consider developing a program, working with private properties, to encourage the provision of secure, standardized bicycle parking.	Short-term
A30	Review zoning by-laws and other policies to require new developments to provide both short- and long-term secure bicycle parking on-site; update by-laws and policies as required.	Short-term
A31	Work with key municipal staff and relevant stakeholders, including Cycle Stratford and the Downtown Stratford Business Improvement Area, to discuss funding opportunities and the feasibility of a bicycle sharing system.	Short-term
A32	Report back on pedestrian and cycling network progress to Council on an annual basis as a way of tracking action against the active transportation infrastructure recommendations as well as highlighting other programming initiatives.	Ongoing
A33	Consider the relationship between land use planning and transportation outcomes when preparing the new Official Plan update, reflecting the principles outlined herein.	Short-term
A34	Review zoning by-laws and land use designations to ensure complete communities principles are reflected (e.g. site planning is pedestrian-oriented, mixing complementary uses is allowed, etc.), and update as necessary.	Short-term
A35	Review secondary plan and plan of subdivision requirements to ensure pedestrian permeability and walksheds are considered when new street layouts are being designed, through the requirement of grid patterns or regular pedestrian and cycling connections and update as necessary.	Short-term
A36	Undertake a Trails Master Plan to support a comprehensive natural heritage trails system and future off-road connections for AT users.	Medium-term

Table 7: Action Plan Summary (continued)

ID	Action	Timing
A37	Review and update all relevant design guidelines, manuals, standard cross-sections, zoning by-laws and Official Plan policies to ensure guidelines reflect safe street principles, ensuring the design speed on urban streets matches the desired maximum speed of vehicular traffic.	Short-term
A38	Undertake a review of peer cities and the latest best practices surrounding new development parking requirements. If supported by this study, a reduction of minimum parking requirements or enactment of maximum parking requirements is recommended.	Short-term
A39	Formally adopt the recommended traffic calming process.	Short-term
A40	Adopt the Functional Street Classification Framework as part of the upcoming new Official Plan (outlined in the Phase 2: Network and Strategy Development report), carrying forward the five-level street classification system into the Official Plan update.	Short-term
A41	Consider changes to the classification of selected streets listed in Table 5 to better reflect their existing function and support anticipated growth.	Short-term
A42	Support and encourage the use of the permissive truck route "ring road" network as an effective tool in managing through truck traffic through the Downtown.	Short-term
A43	Adopt the updated Municipal Truck Route through the new Official Plan and/or as a standalone policy endorsed by Council.	Short-term
A44	Consider providing a truck route map that is easy to locate on the City of Stratford website.	Short-term
A45	Advocate the Province for the construction of the Highway 7/8 bypass.	Ongoing
A46	Mitigate impacts of truck traffic through the City by implementing safe street design, including separated cycling facilities and expanded pedestrian connections.	Ongoing

Table 7: Action Plan Summary (continued)

ID	Action	Timing
A47	Continue to use heavy truck restrictions as a management tool along selected local streets where through traffic is a concern, as appropriate.	Ongoing
A48	Continue to investigate opportunities to install EV chargers throughout Stratford to support electrification efforts and uptake.	Ongoing
A49	As the MTO advances its own initiatives to facilitate two-way communication of traffic and road condition information between vehicles and infrastructure, the City should continue to prepare for future advancements in technology by monitoring developments in CAVs and following the direction of the Province.	Medium-term and long-term
A50	Promote emerging transportation technologies through outreach and marketing, ensuring that residents are educated about the benefits and potential impacts (including safety) of new mobility modes and services.	Ongoing
A51	Review and update existing by-laws and policies to include and provide considerations for e-scooters and other mobility devices	Short-term
A52	Identify supportive policies and infrastructure to be "ahead of the game" to ensure the continued rollout of CAVs and other emerging transportation technologies support city-building initiatives and align with provincial plans. Infrastructure to support CAV deployment, traffic control devices that consider both human drivers and automated driving systems, and traffic regulations should continue to be considered in anticipation of CAV growth.	Medium-term and long-term
A53	Continue to comply with O. Reg. 239/02: Minimum Maintenance Standards for Municipal Highways on all streets in Stratford.	Ongoing
A54	Embed life-cycle cost analysis in the City's infrastructure planning to affirm the longer-term sustainability of infrastructure investments and their ongoing maintenance, rehabilitation, and ultimate replacement.	Ongoing

14 Monitoring and Updates

Plan Monitoring

The most challenging work begins after the adoption of this Transportation Master Plan. City staff will need to begin working on implementing the Action Plan, integrating major capital works into the capital budgeting process, and initiating follow up studies and individual environmental assessments.

One additional key task for City staff is to undertake a regular TMP monitoring program. There are two components to a monitoring program:

- Measures of progress towards the implementation of the recommendations in this plan; and
- Measures of performance of the transportation system that assess the effectiveness of this plan in achieving the City's vision and goals

The recommended monitoring program is presented below as a series of worksheets. The first is to be completed annually (see Table 8), while the second is to be completed at 5-year intervals (see Table 9) coinciding with the release of Census of Canada transportation data.

Updates

As Stratford continues to change and grow, the underlying conditions understood when developing the Transportation Master Plan will also change. As such, it is important to review the TMP at regular intervals to assess whether the document continues to respond to the right issues, challenges and opportunities. During this review, the City should be considering the following questions:

- Has growth occurred in Stratford as expected?
- Have travel patterns shifted in a way that was not expected?
- Have technological advancements changed local mobility in a major way?

A review every five years is recommended for master plans developed under the Municipal Class Environmental Assessment process. This review will determine whether there is a need to undertake a formal TMP update at that time.

Table 8: Performance Monitoring Worksheet - Annual

Indicator	Data Source	Previous	New
Active Transportation			
Metres of infill sidewalks installed	Capital program		
Metres of cycling facilities installed	Capital program		
New pedestrian crossings installed	Capital program		
New bicycle parking racks installed	Capital program / partnerships		
Cycling network usage	Cordon counts		
Pedestrian volumes	Turing movement counts		
Transit			
Annual transit ridership	Stratford Transit / CUTA*		
Passengers per revenue-hour	Stratford Transit / CUTA*		
Total revenue-hours	Stratford Transit / CUTA*		
Average running speed	Stratford Transit / CUTA*		
Parallel transit ridership	Stratford Transit / CUTA*		
Roads			
New traffic calming installations	Capital program		
Reported collisions	Stratford Police Services		
Reported serious/fatal collisions	Stratford Police Services		
New EV chargers installed	Capital program / partnerships		
Share of electric vehicles in city	MTO vehicle registry data		

* CUTA – Canadian Urban Transit Association

Table 9: Performance Monitoring Worksheet – Every Five Years

Indicator	Data Source	Previous	New
All Transportation Modes			
Commuting mode share – walking	Census of Canada		
Commuting mode share – cycling	Census of Canada		
Commuting mode share – transit	Census of Canada		
Commuting mode share – driver	Census of Canada		
Commuting mode share – passenger	Census of Canada		
Commute time – percentage under 15 / 30 minutes	Census of Canada		

Glossary

15-Minute City: An urban planning concept in which most daily necessities and services, such as work, shopping, education, healthcare, and leisure can be easily reached by a 15-minute walk or bike ride from any point in the city.

Accessibility: The design of services and environments to be inclusive for people who experience disabilities.

Active Transportation: As defined by the *Provincial Policy Statement* (2020), active transportation, or active travel, refers to all forms of human-powered travel such as walking, cycling, skating or using a wheelchair. It also includes forms of power-assisted travel such as pedal-assist e-bikes, scooters and mobility devices.

All Ages and Abilities (AAA): Planning and designing the transportation system, including programming its uses, that enables use by people of all ages and with different physical abilities.

Arterial Roadway: A street classification designation characterized by high-capacity traffic whose primary function is vehicle movement. In Stratford, arterials typically connect between provincial highways and other arterial or collector roads and serve as the primary connection between major activity centres.

Bicycle Boulevard: Also known as a neighbourhood bikeway, bicycle boulevards use a variety of traffic calming and bicycle priority measures to promote cycling along corridors. There is no space distinct from motorists provided, however, car speed and volume control measures are used to support cyclist safety.

Bike Lanes: Designated space for cyclists provided through pavement markings. Similarly, **buffered bike lanes** use a painted and hatched buffer to increase the distance between cyclists from other vehicular traffic, and improve safety and comfort of cyclists.

Capital Program: A long-term financial budget that outlines funding for capital assets, including transit, roads and cycling facilities, and guides decisions on what City infrastructure will be built and repaired.

Climate Change Adaptation: The process of adjusting to current or expected effects of climate change. For cities, this means aiming to moderate or avoid harm, and exploit opportunities.

Climate Change Mitigation: Actions aiming to limit climate change by reducing emissions of greenhouse gases or removing those gases from the atmosphere.

Complete Communities: Places such as mixed-use neighbourhoods that offer and support opportunities for people of all ages and abilities to conveniently access most of the necessities for daily living. This includes a mix of jobs, local stores and services, housing, transportation options and public service facilities.

Complete Streets: Streets that are built with the needs of all road users in mind – people who walk, use mobility aids, cycle, take transit, use a personal automobile, and carry commercial goods or support essential services. Complete streets have become increasingly important as communities shift to a multi-modal approach to transportation. They promote public health and liveability by enhancing the safety, comfort and accessibility of all road users.

Connected and Automated Vehicles (CAVs): Connected vehicles (CV) refer to vehicles equipped with wireless communication technology that allows the vehicle to exchange information with other vehicles (V2V), roadside infrastructure (V2I) or the broader cloud of technologies (V2X). Automated Vehicles (AV) refers to passenger motor vehicles, commercial motor vehicles or streetcars equipped with driving technology that allow the vehicle to drive itself under certain circumstances.

Connecting Link: Municipal streets that connect two ends of a provincial highway. In Stratford, Huron Street is a connecting link for Highway 8., Ontario Street is a connecting link for Highway 7/8, and Erie Street is a connecting link for Highway 7. The Ministry of Transportation of Ontario provides dedicated provincial funding for street and bridge projects on designated connecting link highways.

Controlled Crossing: Crossings that require vehicles to stop or yield to traffic in the crossings, including pedestrians. Controlled crossings support pedestrian security and sense of safety, and include traffic control signals, intersection pedestrian signals, mid-block signals, pedestrian crossovers, stop signs, yield signs and school crossings.

Cycle Tracks: A type of cycling infrastructure that provides space designated for cyclist use behind the roadway curb. Cyclists are physically separated from vehicles through a curb in the boulevard.

Demand-Responsive Transit (On-Demand Transit): A technology-enabled shared transportation service that operates without a fixed route or timetabled journey, and instead has a flexible operating schedule and provides flexile routes and/or stops.

Equity: In transportation, the provision of policies, funding, infrastructure and services in ways that are fair and aim to ensure that users, irrespective of race, ability, sex, class or any other social identity, can safely access transportation options.

Fare Capping: In contrast to up front payments required for a typical daily / weekly / monthly transit pass, fare capping allows passengers to "pay as they go", but rewards frequent riders with free trips after they meet the equivalent fare value of a daily / weekly / monthly pass.

Fused Grid: A street network pattern that integrates suburban-style streets (e.g. crescents, cul-de-sacs) for motor vehicles with a traditional grid pattern for pedestrians and cyclists.

Goods Movement: The movement of products and raw materials to businesses, consumers and industries by plane, freight rail or truck. Trucks, or commercial vehicles, are the primary consideration for goods movement in the City of Stratford.

Greenhouse Gas Emissions: Emissions from human activities that strengthen the greenhouse effect, contributing to climate change. Carbon dioxide is a significant greenhouse gas, and the main one produced by vehicles.

Heavy Vehicles: A type of commercial motor vehicle with a weight of three tonnes or more when unloaded. Truck routes are used to best manage heavy truck movement, plan for appropriate road infrastructure, and help balance the needs of different road users.

Land Use Planning: The process of regulating the use of land by a central authority. In Stratford, land use planning policies are outlined in the Official Plan, and ensures that the City is planned and developed in a way that meets the existing and future goals of the community.

Micromobility: Micromobility refers to small, lightweight modes such as scooters, e-scooters, bikes, e-bikes and cargo bikes. Shared micromobility transport services (e.g. bike share systems) are becoming increasingly popular among active transportation users throughout Canada.

Mobility: The ability to travel and move from place to place conveniently and efficiently.

Mobility Choice: Also referred to as mode choice, mobility choice refers to the ability to choose between different forms of transportation that are safe, convenient and reliable based on personal needs or preferences, including walking, cycling, transit and driving.

Mode Share: The percentage of people using a particular mode of transportation.

Multi-Modal: Refers to a variety of transportation modes or methods and may include trips and facilities that incorporate more than one mode of transportation.

Multi-Use Path: As defined by the *Ontario Traffic Manual Book 18 – Cycling Facilities* (2021), a two-way path that is separated from the travelled portion of the roadway by a curb and buffer. In-boulevard multi-use paths are distinct from **multi-use trails**, which run in a dedicated corridor separate from the roadway. Both multi-use paths and trails are shared by cyclists and pedestrians.

Paved Shoulders: The outer portion of a rural roadway adjacent to the travelled way used to accommodate stopped motor vehicles, emergency uses, pedestrians and cyclists. Higher-speed and higher-volume roads may include **buffered paved shoulders** to provide greater separation between cars and people riding bikes.

Pedestrian Walkshed: The pedestrian walkshed is the amount of area a pedestrian can walk in a given time period from a certain point. This distance is often impacted by transportation and land use planning decisions such as the shape of the street network and presence of pedestrian paths.

Permissive Truck Route: As per *Ontario Traffic Manual Book 5 – Regulatory Signs* (2000), truck routing can be identified either by permissive signing indicating a continuous route preferred for heavy truck use, or by **prohibitive signing**. The City of Stratford uses permissive signing to indicate the preferred routing for through truck traffic, as well as prohibitive signing on selected streets where truck traffic has been identified as an issue.

Placemaking: An approach to the planning, design and management of public space that aims to create memorable, quality public spaces that improve vitality.

Planning Horizon: A planning horizon is the future point in time a strategic plan looks toward. The City of Stratford TMP considers the following planning horizon years: short-term (to 2026), medium-term (to 2031) and long-term (beyond 2041).

Protected Bike Lanes: Also known as physically separated cycling lanes or separated bike lanes, protected bike lanes are installed within the road pavement. They provide space designated for cyclist use and are physically separated from vehicles through the use of bollards, curbs, parked vehicles, rubber curbing, guide rail, etc.

Public Open House: An information meeting held for members of the public to inform them about a study or project. The City of Stratford TMP study comprised of two public information centres hosted online.

Right-of-Way: A segment of municipally-owned land, also called a municipal road allowance, that includes roadways, sidewalks and lands bordering roadways.

Roundabout: A method of intersection modification that could be considered for traffic control to improve safety. When compared to conventional intersections, roundabouts can lead to improved road user safety and fewer severe collisions, reduced long-term operation and maintenance costs, reduced emissions by lessening vehicle idling, and improved traffic flow.

Signed Cycling Route: Also known as mixed traffic operation, signed routes are a type of shared facility that features signage and optional pavement markings (sharrows) to remind road users that cyclists share the roadway with other vehicles.

Single-Tier Municipality: A municipality in Ontario that does not form part of an upper-tier municipality and assumes all its own municipal responsibilities. The City of Stratford is a single-tier municipality that operates independently of Perth County.

Strategic Framework: The three components designed to guide the development of the TMP study – the transportation vision, objectives and planning values.

Street Classification: A road management tool that establishes a hierarchy of roads based on each roadway's context and the degree to which the segment prioritizes serving mobility versus land access needs.

Sustainability: Generally, sustainability refers to meeting the needs of the present without compromising the needs of future generations. Sustainability in the context of this TMP is largely focused on the environment and considers the conservation of natural resources and the protection of environment, as well as supporting the health and wellbeing of people.

Traffic Calming: Physical measures or programs intended to reduce driver speed or through traffic, and improve safety conditions for all road users. **Soft or passive** traffic calming refers to the installation of visual cues (e.g. signage, line painting), while **hard traffic calming** refers to physical changes to the street (e.g. speed humps, median islands).

Transportation Demand Management (TDM): The use of strategies, policies and infrastructure to reduce the pressure placed on the street network by influencing travel behaviour by mode, time of day and frequency, leading to reduced congestion and reduced parking demand.

Transportation Hierarchy: A framework to weigh the priorities of different modes in planning the transportation system in Stratford. The hierarchy helps guide policy and investment and can influence travel behavior to reduce the City's impact on the environment.

Transportation Master Plan (TMP): A long-term strategic document that guides the planning, development, renewal and management of a multi-modal transportation system.

Transportation Network: All routes and modes of transportation through the City and how they are connected.

Transportation Solutions: The infrastructure improvements and strategies recommended to responded to the identified transportation needs and opportunities in Stratford.

Transportation System: A system consisting of transportation networks, infrastructure, facilities, strategies, programs and policies for the movement of people and goods.

Uncontrolled Crossing: Crossings that require pedestrians to wait for a safe gap in traffic prior to crossing the roadway, without the aid of traffic control measures seen in controlled crossings.

Vision Zero: A road traffic safety philosophy and strategy adopted by many cities that is focused on eliminating traffic-related fatalities and serious injuries by recognizing how street design influences behaviour of all road users.

Vulnerable Road Users: Pedestrians, cyclists and motorcyclists that are more vulnerable than those in a car, truck or bus to injury or death in the event of a collision. Pedestrians, especially children, older adults and people with disabilities, are at the top of the hierarchy of vulnerable users because they are unprotected if in conflict with faster-moving road users.

Zero-Emission Vehicles (ZEVs): A vehicle, such as an electric vehicle (EV) that does not emit tailpipe exhaust gas or other pollutants and could be a key contributor to achieving local and Federal transportation sector greenhouse gas emissions reduction targets.

Zoning By-Law: A by-law set out in an Official Plan that identifies general policies for future land use. A zoning by-law controls the use of land in a community and contains specific requirements that are legally enforceable.