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City of Stratford
Transportation Master Plan

Appendix 1
Phase 1: Needs and Opportunitities

Final Report
August 2022

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1 Introduction

The City of Stratford has commenced the process of updating its Transportation Master Plan (TMP), a long-term strategy that outlines transportation policy directions and identifies transportation infrastructure investment needed to help meet the City's community-building objectives and to support growth through 2041. The TMP is an opportunity to align transportation policy and investment directions to best meet the transportation needs of the City's residents, businesses and visitors while considering all modes of travel.

This report documents the first phase of a multi-phase study process, with the objective of identifying transportation needs and opportunities in the City of Stratford, with later phases of the study developing appropriate solutions, supporting strategies and policies to address them. This will allow the TMP to respond to contemporary and anticipated mobility needs, take advantage of key opportunities, and help focus priorities and actions where they are most needed.

1.1 Study Overview

1.1.1 What is the Stratford Transportation Master Plan?

A Transportation Master Plan is a forward-looking document developed to guide the planning, expansion, and management of a multi-modal transportation system—the infrastructure and services that move people and goods. The transportation system comprises roads, public transit services, goods movement systems, and cycling and walking networks. The TMP will replace the 2010 Master Transportation Plan and update the 2014 Bike and Pedestrian Master Plan with a new, comprehensive document that identifies recommended improvements for multi-modal transportation.

The City has seen much change since the 2010 Master Transportation Plan (which itself was an update of the City's 1992 Transportation Plan). The need for a new TMP is being driven by several factors; they are:

- The annexation of adjacent lands to support economic and population growth;

- A changing planning landscape that includes increased emphasis on environmental sustainability and climate change, new mobility technologies and transportation electrification, equity, accessibility, safety, and active transportation uses; and
- Evolving best practices in urban planning and transportation planning including safer, slower street design and a greater emphasis on all ages and abilities cycling facilities.

The TMP is a comprehensive document that will provide strategies and policies that align with the City of Stratford's growth and will support its vision for the future. Broadly, the TMP will:

- Develop a 20-year fully integrated multi-modal transportation system that integrates all aspects of vehicle, transit and active transportation modes;
- Set the direction toward a more safe, accessible, equitable and sustainable transportation network, supporting local and inter-regional connections for all travel modes while strengthening local economic and tourism opportunities;
- Identify and prepare a transportation improvement program to deal with projected population and employment growth for the next 5, 10 and 20-year horizons;
- Identify the cost of the proposed infrastructure improvements for the 5-year planning horizon; and
- Align with the City's growth management strategies, provide policy directions and inform long-range financial planning.

1.1.2 Study Process

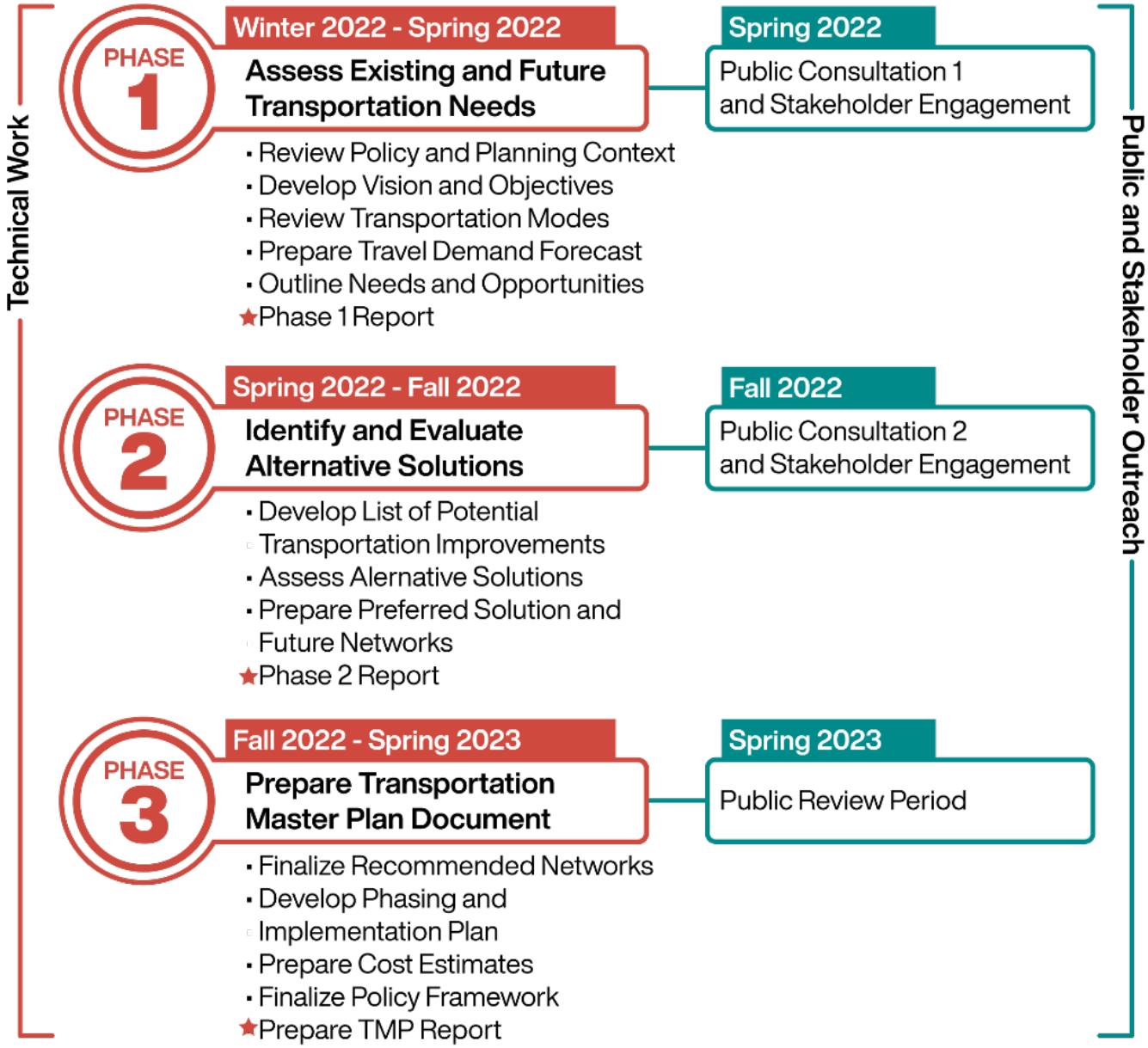
The TMP study commenced in December 2021 and is anticipated to conclude in early 2023. The study includes three phases, each with customized communication and engagement activities to allow for inputs and feedback from the public and stakeholders:

- Phase 1: Assess Existing and Future Transportation Needs;
- Phase 2: Identify and Evaluate Alternative Solutions; and

- Phase 3: Prepare Transportation Master Plan.

Exhibit 1.1 outlines the TMP study process, including key consultation opportunities for each Phase.

Exhibit 1.1: City of Stratford TMP Study Process



1.1.3 Municipal Class Environmental Assessment Process Compliance

The TMP follows the Municipal Class Environmental Assessment (MCEA) planning process for Master Plans under the Province of Ontario's Environmental Assessment Act. The MCEA planning process provides a transparent approach to planning and building municipal infrastructure. The MCEA process is summarized in Exhibit 1.2 for different classes of projects [1] together with consultation requirements for each phase of the project.

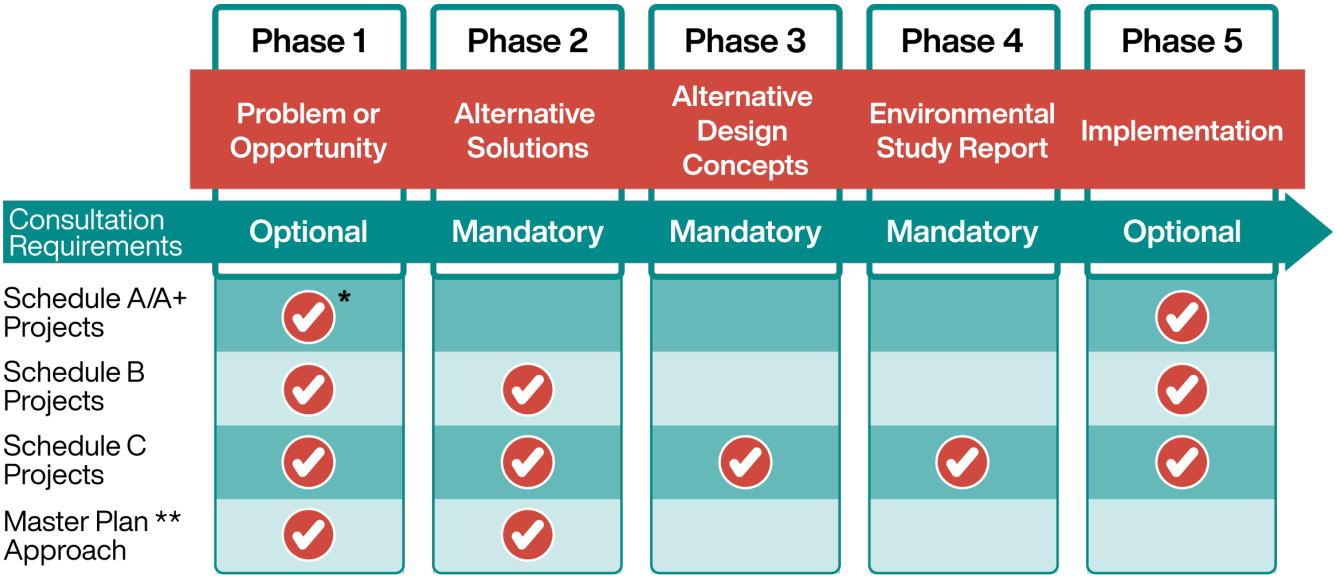
The TMP follows the Master Plan Approach, which requires fulfilling the requirements of the first two phases of the MCEA planning process:

- **MCEA Phase 1:** Identify the problem or opportunity statement (corresponding to Phase 1 of the TMP study); and
- **MCEA Phase 2:** Identify and evaluate alternative solutions to address the problem and establish a preferred solution (corresponding to the Phase 2 of the TMP study).

At the end of MCEA Phase 2, a TMP document can be prepared where the level of investigation, consultation and documentation can be used in support of future analysis for specific Schedule B and C projects identified within it.

[1] Transportation projects and activities are categorized into Schedules A, A+, B and C based on the magnitude of their anticipated environmental impact, with A/A+ having the lowest anticipated impact and C having the highest anticipated impact.

Exhibit 1.2: Municipal Class Environmental Assessment – Planning Process and Consultation Requirements



Actions required during relevant phase

* For Schedule A+ projects, public to be advised.

** Proponents can choose to complete Phase 3 and 4 as part of a master plan for recommended Schedule C projects, or to complete these phases as part of a project specific study.

Source: Adapted from Municipal Engineers Association Municipal Class Environmental Assessment (MCEA 2000, as amended to 2015)

1.1.4 TMP Planning Horizon Years

A planning horizon is the future point in time a strategic plan looks toward. For the City of Stratford TMP study, the following planning horizon years were identified to organized recommended transportation network improvements into phases based on need, funding capability and other considerations. Implementation would commence after Council's adoption of the TMP:

- **Short-Term – by 2026:** Considers priorities for the transportation network in the City of Stratford over the next few years;
- **Medium-Term – by 2031:** Projects or programs that are forecasted over the next 10 years; and
- **Long-Term / Horizon Year – by 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.

1.2 Report Purpose and Outline

The purpose of this Phase 1 report is to identify transportation issues, needs and constraints in the City of Stratford, which collectively represent the "problem statement" component of the MCEA master planning process. Additionally, this report identifies opportunities to consider that can point to potential solutions to explore in the later phases of the TMP study.

Following this introductory section, this report is structured as follows:

- Section 2 details the major inputs into the development of the TMP, namely: geographic context, socio-economic context, travel and mobility patterns, policy and planning context, future context, and public and stakeholder consultation;
- Section 3 presents the strategic framework for the TMP study, comprised of the vision, objectives and principles, and the alignment of the study with Council's Strategic Priorities;
- Section 4 provides an assessment of the existing transportation system, a review of performance, gaps, constraints, policies, and strategies, and identifies the needs and opportunities that the TMP will address;
- Section 5 summarizes transportation needs and opportunities and presents preliminary actions to address these needs; and
- Section 6 summarizes the report and outlines the next steps in the TMP study process.

2 Context

The City of Stratford is a single-tier municipality located in Southwestern Ontario and encompasses unique opportunities and challenges that arise from its strategic location, compact size and cultural heritage. Measuring approximately 30 square kilometres, Stratford is almost entirely urban, with residential and industrial land uses being the most prominent.

The City has a population of 33,232 (as of the 2021 Census) residing largely in single-detached houses. Known for the Stratford Festival, an internationally recognized theatre festival showcasing arts and cultural programming, tourism has become an important component of the City's economy, supported by a strong inventory of cultural heritage assets.

This chapter provides an overview of the following:

- Stratford's geographic and socio-economic profile;
- Existing travel and mobility patterns; and
- An overview of the existing transportation system.

2.1 Geographic and Socio-Economic Profile

2.1.1 Geography

Key Takeaway: Stratford is a compact city strategically located roughly midway between London and Kitchener. The City's urban structure is centred around its historic downtown, with older residential areas surrounding the core, industrial lands towards the periphery and new lands earmarked for growth near the City's boundaries. The City is home to significant cultural and natural heritage assets that need to be protected.

Strategic Location

The City of Stratford is situated in Southwestern Ontario approximately 60 kilometres northeast of London and approximately 16 kilometres west of the Regional Municipality of Waterloo (which coincides with the western expanse of the Province's Greater Golden Horseshoe settlement area). Provincial Highways 7 and 7/8 serve as important connections between Stratford and these two regions, respectively.

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

Railway Legacy

The development of Stratford largely lies in its history as a railway centre. The Grand Trunk Railway and the Buffalo and Lake Huron Line commenced operations in Stratford in the 1850s before they merged and were eventually assumed by the Canadian National Railway in 1923 [2]. The railways were a significant contributor of Stratford's economy and growth, and their legacy is evident today. The Grand Trunk Community Hub is Stratford's most notable asset of railway history. It represents a significant development and place-making opportunity for the City and is a key consideration for the TMP.

Natural Heritage

The city has grown around the Avon River, an important natural heritage feature that contributes to the character and identify of Stratford and supports placemaking opportunities. Stratford's historic Victorian-era city centre is situated just south of Lake Victoria, a notable geographic feature created by the Thomas Orr Dam on the Avon River. Lake Victoria adds to the charm, uniqueness and tranquility of Stratford, offering seasonal recreational opportunities (e.g. fishing, picnicking, paddle boarding and shinny). Transportation planning considerations for these natural assets are further described in Section 2.1.4.

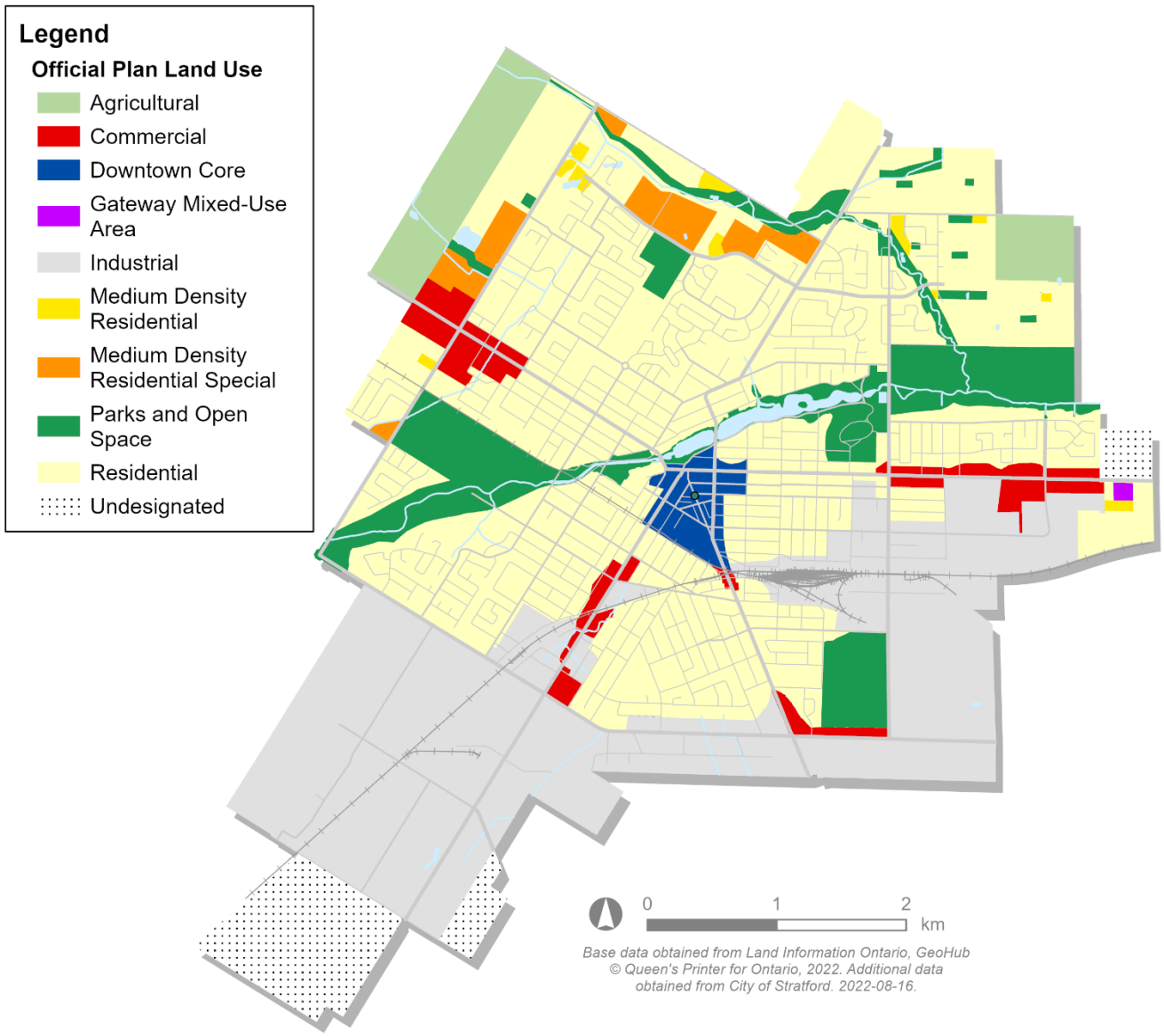
Land Use

Stratford is a relatively compact city measuring roughly thirty square kilometres and is almost entirely developed with urban land uses. Exhibit 2.1 shows the land use plan for the City of Stratford. Industrial land uses comprise the southern and eastern areas of the city and includes the Stratford City Landfill, a 44-hectare municipally managed dump.

[2] City of Stratford Internet Archives (2012). <https://web.archive.org/web/20121124062202/http://www.city.stratford.on.ca/site_ourcitylife/know_your_city_history.asp>

To accommodate population growth and support a robust economy, the City has undertaken a series of annexations of surrounding land from the bordering lower-tier municipalities of Perth East and Perth South (further described in Appendix A). Overall, Stratford is expected to rely largely on low density and medium density housing construction to about 2040 [3].

Exhibit 2.1: City of Stratford Official Plan Land Use Classes



Source: Adapted from City of Stratford Official Plan, Schedule A – General Land Use Plan (2016)

[3] City of Stratford Development Charges Growth Model (Watson & Associates Economists Ltd., 2021)

2.1.2 Population

Key Takeaway: The makeup of Stratford's population is changing. While a large cohort is aging, eventually to the point where driving will no longer be an option, the City is positioning itself to attract more and more young adults and young 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.

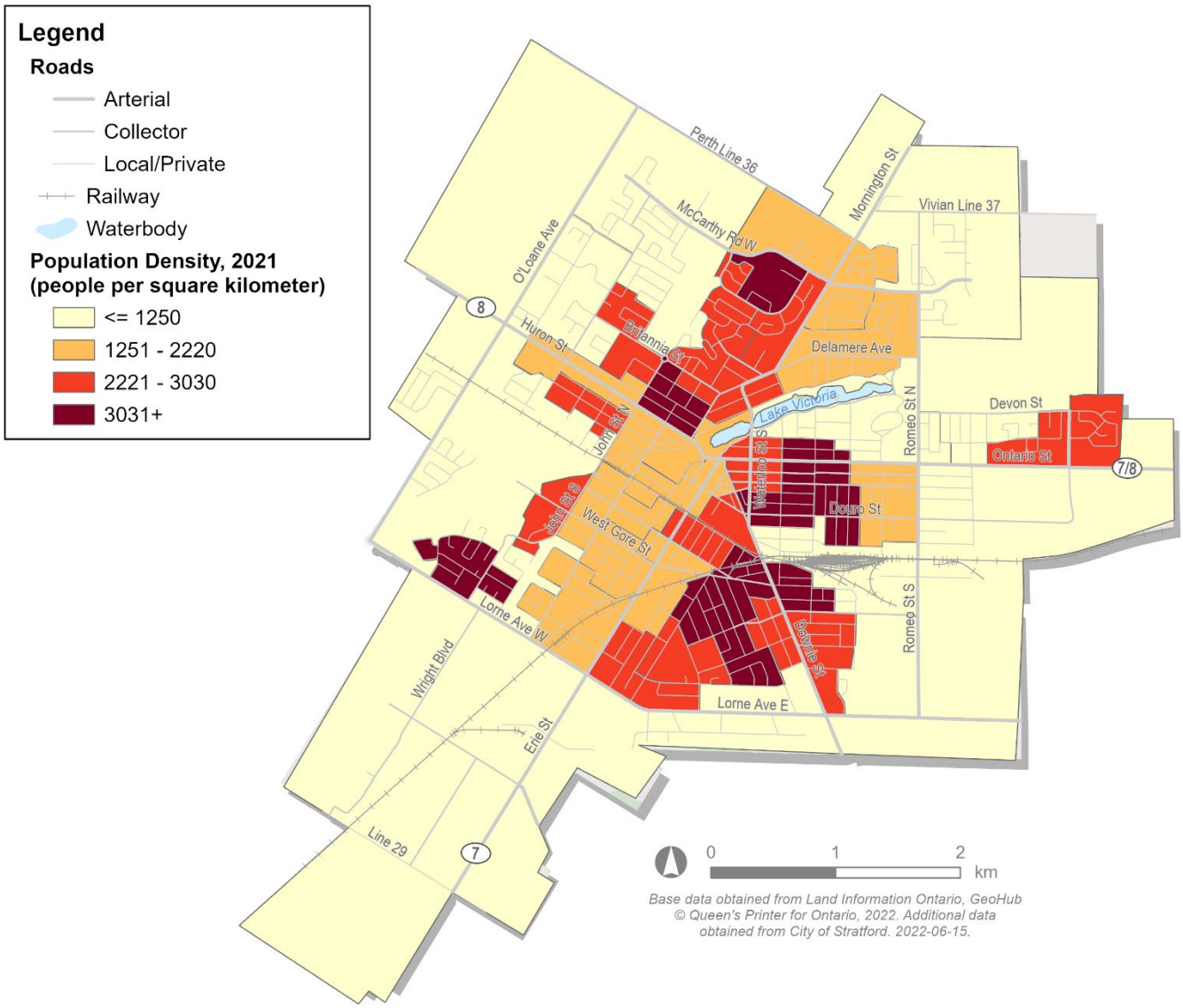
Distribution

Stratford is home to more than 33,200 people in 2021. Its population has increased by 6% over the past 15 years from 31,300 in 2006, with corresponding impacts on travel demand. Despite covering less than 2% of the area in the surrounding County of Perth, about 40% of the region live in Stratford. Of note, the population of Perth County grew by almost 10% between 2006 and 2021, outpacing growth in Stratford. This translates to increasing regional travel demand in and through Stratford.

Exhibit 2.2 shows the population density in Stratford in 2021. The centre of the city has higher densities than the outskirts, with the highest densities seen generally around Mornington Street, Downie Street and Highway 8. Having populations concentrated around these major thoroughfares can make the delivery of more sustainable transportation services such as transit and active transportation facilities more feasible.

Overall, Stratford's growing population will contribute to increased travel demand, however with the highest population densities already seen around key corridors in the city, opportunities to increase transit, walking and cycling are important in managing an efficient transportation network.

Exhibit 2.2: Population Density (people/km²) in Stratford, 2021



Changing Population

The development of a multi-modal transportation system is important for people of all ages, including older and younger age cohorts. For residents without access to a car, for those too young to drive, and for those aging out of driving, convenient, safe, and reliable alternate mobility options are required to travel outside of their immediate neighbourhood, contributing to a higher quality of life.

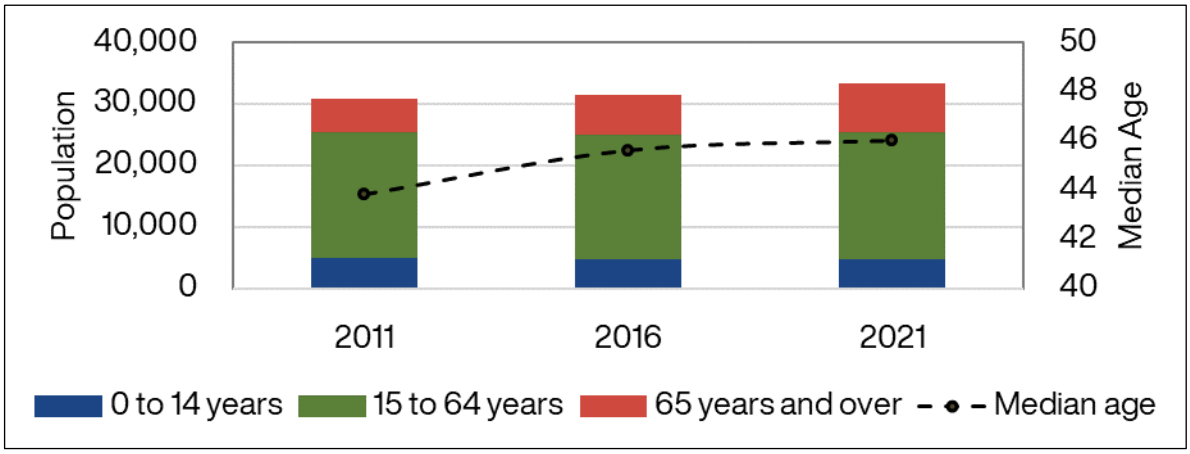
As young adults are increasingly trending towards adopting mobility-as-a-service models (e.g. using ride sharing apps, bike sharing, e-scooters, etc.), they are less

reliant on driving and are seeking transportation systems that are not as centred on car ownership. For this cohort, the convenience of safe and reliable active transportation and transit can help attract them to the City.

In light of the COVID-19 pandemic, unaffordable housing prices in many major cities across Canada, and increased flexibility with remote working, there has been an accelerated out-migration of young people towards small- and mid-sized municipalities. Statistics Canada estimates that the number of people leaving Toronto for other parts of Ontario increased 14% year over year in the 12-month period ending in mid-2021 [4]. Montreal saw an even more dramatic exodus with an increase in the number of people moving away growing by 60% year over year.

Meanwhile, like many communities across Canada, Stratford's population is aging. Exhibit 2.3 provides a summary of population aging trends in the City of Stratford. From 2011 to 2021, the median age in Stratford increased from 44 to 46, and the percentage of people aged 65+ increased by 41.4%. The significant population increase anticipated among older adults means that providing high quality accessible transit options, particularly in off-peak periods, and well-maintained and connected sidewalks and other safe active transportation facilities, will become increasingly important in Stratford.

Exhibit 2.3: City of Stratford Population Breakdown by Age, 2011-2021



Source: Statistics Canada (2011-2021)

[4] More people leaving Toronto, Montreal for smaller pastures as pandemic hastens urban exodus. CBC News. January 13, 2022. <https://www.cbc.ca/news/canada/urban-exodus-canada-toronto-montreal-covid-19-1.6313911>

2.1.3 Economy

Key Takeaway: Stratford's economy is diversified across many sectors, each with different transportation needs. Being a major tourist destination, efficient access to the City is needed along with safe internal connections. Meanwhile, the movement of goods and other commercial vehicles must be accommodated safely and efficiently while mitigating impacts on residents.

Stratford has a diverse economy with a total labour force of approximately 17,300 in 2016 according to the Canadian Census. The top five industries [5] in 2016 included:

- Sales and service occupations including tourism (23%);
- Trades, transport and equipment operators and related occupations (15%);
- Occupations in manufacturing and utilities (13%)
- Business, finance, and administration occupations (12%); and
- Occupations in education, law and social, community and government services (10%).

Some key considerations for the TMP relating to the transportation needs of Stratford's economy are described below.

Tourism

Stratford's thriving tourism industry, anchored by the annual Stratford Festival, is a vital component of the City's economy. The Stratford Festival is one of Canada's leading tourist attractions, attracting over half million patrons, generating $134 million in economic activity, $65 million in taxes, $5 million in municipal taxes and creating 3,000 direct and indirect jobs [6]. Beyond the festival, Stratford is home to top-ranking dining and accommodations which attract visitors all year.

With such an increase in the daytime population in the summer, it has been a challenge for the City to cope with increased congestion and high demand for parking, particularly within and near the downtown core. Trying to meet this

[5] This categorization used the National Occupational Classification 2016.
[6] investStratford. <https://www.investstratford.com/industries#:~:text=The%20world%20famous%20Stratford%20Festival,3%2C000%20direct%20and%20indirect%20jobs>

demand in the summer results in a surplus of both road space and parking spaces in other seasons, which can have negative impacts on the urban makeup of the City. Improving transit connections from outside of the City and integrating with the local transit and active transportation opportunities can provide visitors with new options and reduce the reliance on driving that most tourists face today.

Opportunities for visitors to travel to, from and within Stratford easily with a variety of options are a key consideration for this TMP.

Technology

Stratford's economy is supported by its location within Ontario's largest information technology cluster along with nearby Waterloo Region, and one of North America's largest automotive clusters. Efficient regional travel for the movement of both people and goods within these clusters is important to the sustained development of Stratford's economy.

The City has also invested in a citywide high-speed fibre optic network that provides fibre to homes and businesses and wireless connectivity to every mobile device. This has made Stratford attractive for projects requiring this infrastructure. Notably, Stratford was designated by the Province of Ontario as an official Demonstration Zone for Autonomous Vehicle Testing as part of the Autonomous Vehicle Innovation Network, making Stratford a site where connected and automated vehicle technologies can be tested and showcased in real traffic conditions [7]. One major outcome of this program was the installation of dedicated short-range communications equipment on all traffic lights in the City [8]. Stratford is among the first cities in North America to fully implement this technology that will enable the testing of and eventual full-time deployment of Connected and Autonomous Vehicle technology. New and emerging technologies are further described in Section 2.4.3.

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[7] "What is the AVIN Technology Demonstration Zone?" in *OCI* (2021). <https://oce.zendesk.com/hc/en-us/articles/360004583791-What-is-the-AVIN-Technology-Demonstration-Zone-#:~:text=The%20AVIN%20Technology%20Demonstration%20Zone%2C%20located%20in%20Stratford%2C%20Ontario%2C,automotive%20suppliers%20manufacturers%20and%20original>

[8] Stratford completes installation of smart intersections for autonomous-vehicle testing. The Stratford Beacon Herald. July 31, 2020. <https://www.stratfordbeaconherald.com/news/local-news/stratford-completes-installation-of-smart-intersections-for-autonomous-vehicle-testing>

Industrial and Manufacturing

Stratford's location within Southwestern Ontario, which has the largest concentration of manufacturing industries in Canada, positions it well for a successful manufacturing sector, particularly in automotive parts manufacturing and metal fabrication.

While the labour force in this sector declined slightly between 2006 and 2016 [9], expansions and additions of industrial lands in recent years indicate this sector has begun growing [10] and remains an important part of the economy (e.g. the expansion of the Wright Business Park and the addition of the Crane West Business Park in 2020) [11]. The industrial lands in Stratford are located primarily in the south and east, and adjacent to the CN rail corridor and yards, as shown in Exhibit 2.1.

Stratford's industrial lands will continue to require good connections to the provincial highway network to facilitate the movement of goods in addition to requiring good travel options for people to access jobs in these locations. An important consideration in supporting efficient goods movement is also mitigating impacts to residents (notably safety and noise).

2.1.4 Environmental Features

Key Takeaway: Stratford's urban area is bisected by Lake Victoria and the Avon River, providing opportunities for recreation and leisure activities, including walking and cycling. Ensuring safe access to these by foot or by bike is vital. It is also important that these natural features are thoughtfully considered and protected from adverse impacts of any recommendations.

While Stratford is highly urbanized, there are key natural heritage features in the city to consider. Exhibit 2.4 shows the natural heritage typologies in the city including wetlands, anthropogenic woodlands/park space, natural and naturalized woodlands and natural heritage system plantings, as well as natural hazard typologies including flood hazards, erosion hazards and wetland hazards.

[9] Conference Board of Canada, investStratford's Business Investment Attraction Successes – An Economic Impact Analysis (2018)

[10] https://www.investstratford.com/industries

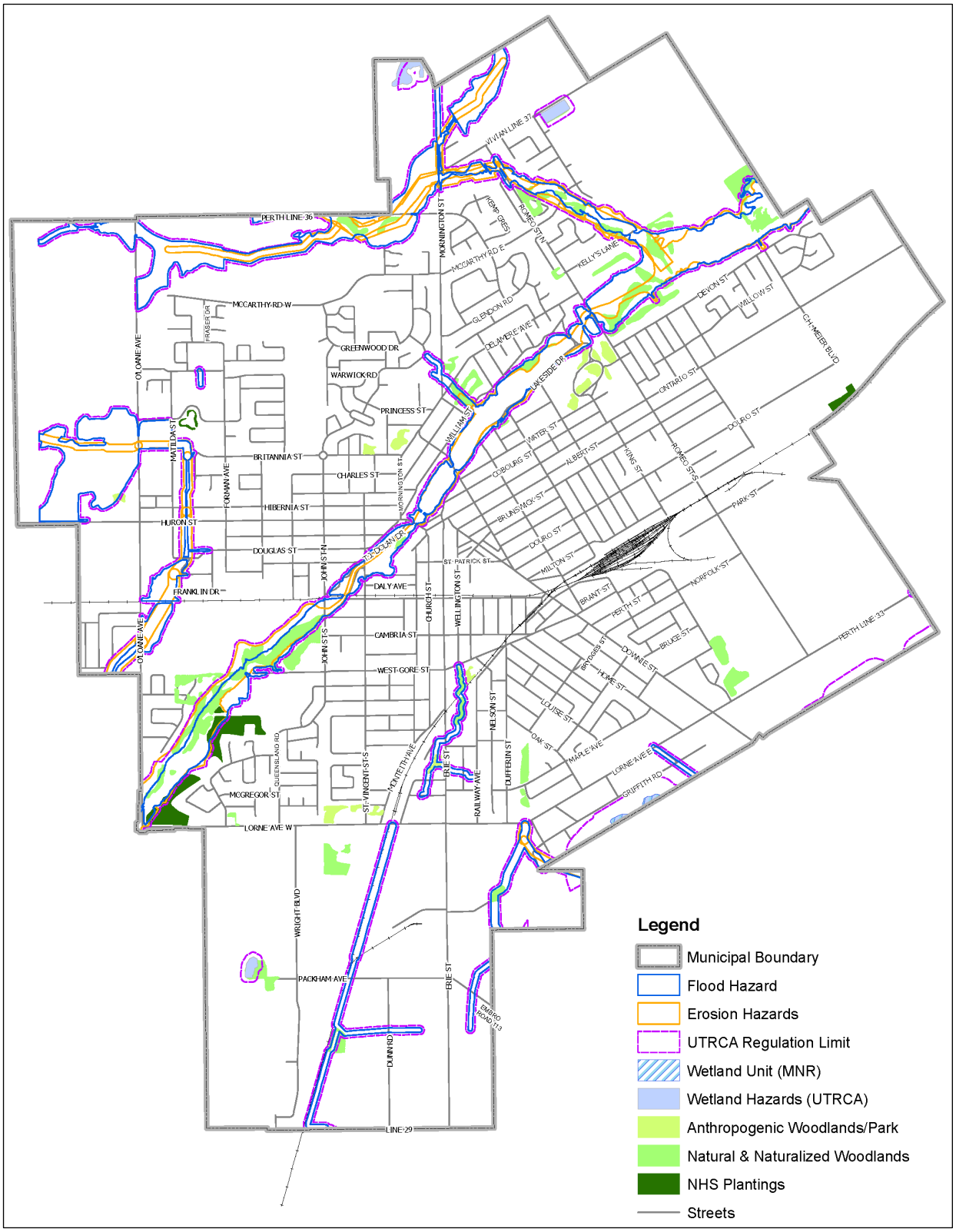
[11] 2020 investStratford Annual Report

Stratford is centred around the Avon River, an important waterway that supports natural heritage, recreational and leisure opportunities, and parkland uses throughout the City before continuing west to empty into the North Thames River. The Avon River and the other natural heritage features in the City are rich natural assets.

These natural features could also represent key challenges to transportation planning. They present a barrier effect and necessitate the building and maintenance of bridges and culverts to accommodate road and active transportation infrastructure.

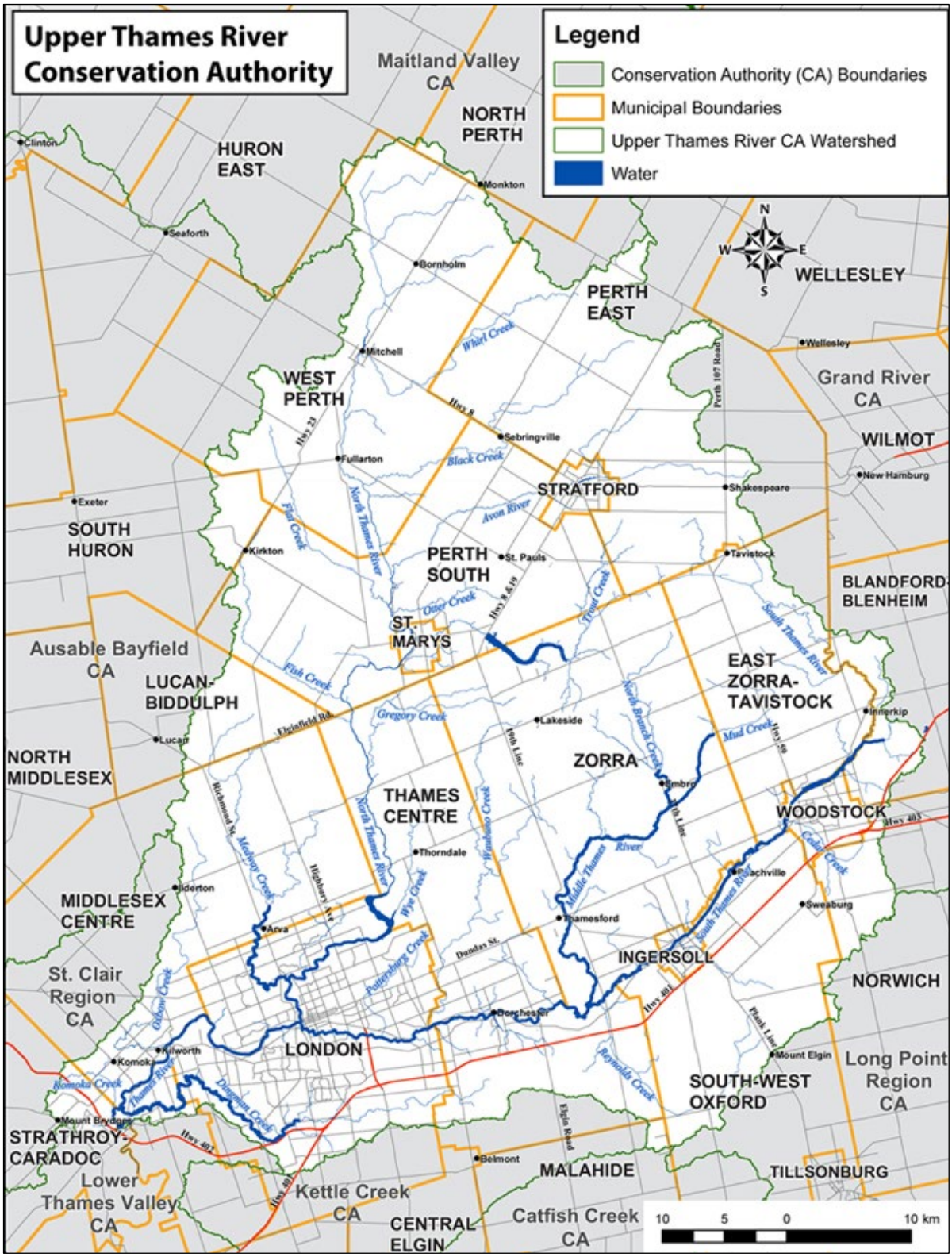
Stratford lies within the Upper Thames River Conservation Authority (UTRCA) watershed area, as shown in Exhibit 2.5. Certain natural features in Stratford, like the Avon River, are regulated by the conservation authority, as shown in Exhibit 2.4. The Thames River is one of the most biologically diverse rivers in Canada – its tributaries, including the Avon River, are designated a Canadian Heritage River based on its cultural heritage and recreation opportunities (UTRCA).

Exhibit 2.4: City of Stratford Official Plan Natural Heritage and Natural Hazards



Source: City of Stratford Official Plan, Schedule B - Natural Heritage and Natural Hazards (2016)

Exhibit 2.5: Upper Thames River Conservation Authority Watershed



Source: Upper Thames River Conservation Authority

2.2 Travel and Mobility Patterns

Understanding the travel patterns of people in Stratford is important to help identify needs and opportunities in the transportation network. Census Journey to Work data (2016) is the most useful dataset available, however, it has its limitations. Specifically, it only covers work trips, which is only one subset of the overall transportation picture in Stratford. The long-term fallout of the COVID-19 pandemic and its impact on work location also adds complication to this analysis, perhaps decreasing the relative importance of work-based trips as a function of all trip purposes. However, the data available still provides some useful insights on previous travel patterns in the City of Stratford, and will be used to answer the following questions:

- Where are people commuting?
- What mode of transportation are people using to commute?
- How long are people's commutes?

2.2.1 Where are People Commuting?

Key Takeaway: Most residents of Stratford remain within the City for employment. This implies shorter commute trips that could be served effectively by active transportation or transit if these modes were made more attractive, comfortable and safe.

Exhibit 2.6 shows the commuting patterns within, to and from Stratford. The analysis indicates that of the nearly 14,000 employed residents of Stratford with a fixed place of work [12]:

- 79% (nearly 11,000) work within Stratford;
- 8% (1,050) work in Perth County;
- 6% (nearly 900) work in the Region of Waterloo;
- 1.5% (210) work in London; and
- 5.5% (750) work elsewhere in Ontario.

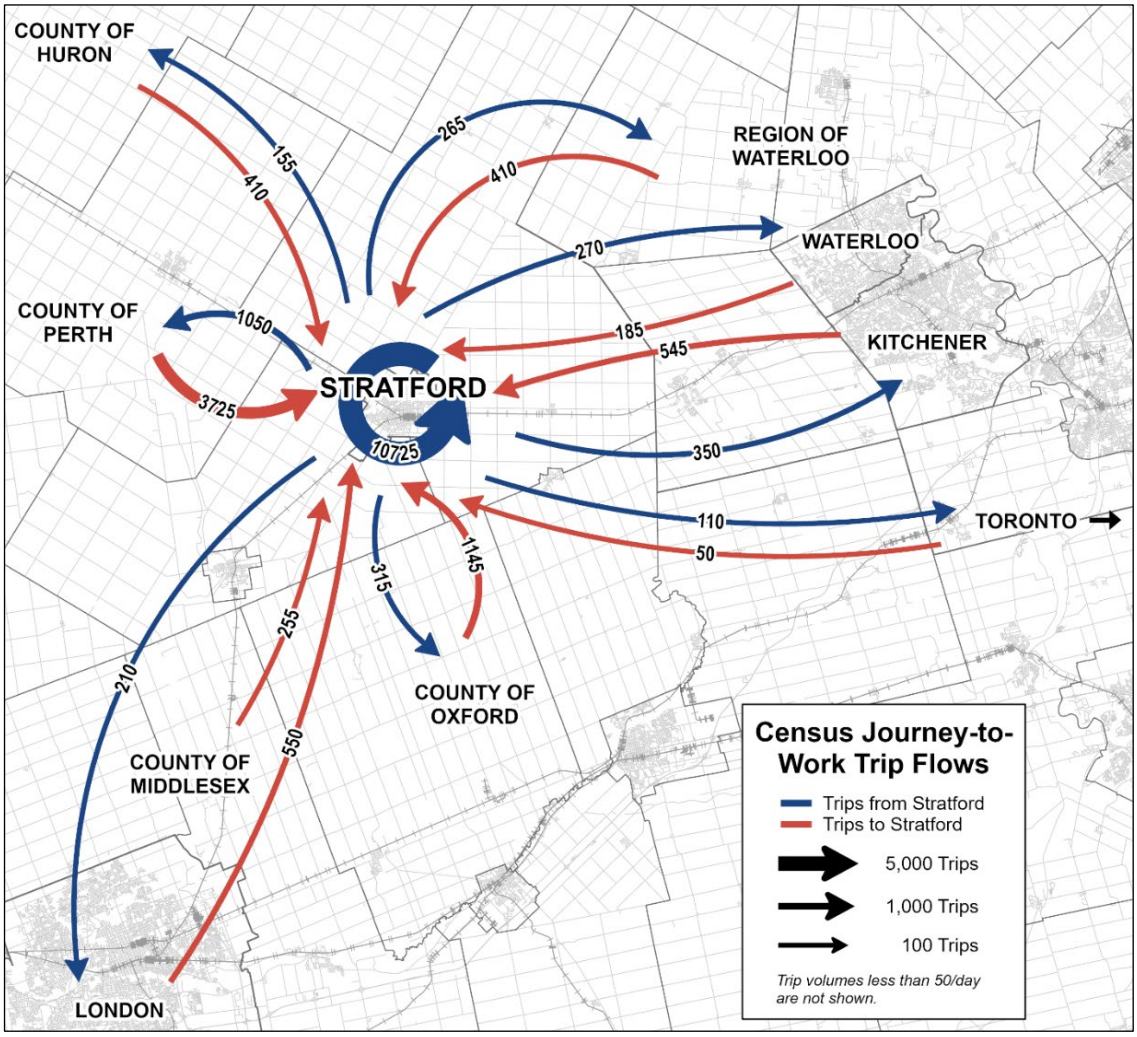
Overall, Stratford has a high level of self-containment with nearly 80% of employed residents staying within Stratford for work. Considering Stratford's compact

[12] This Census dataset excludes those who work at home or have no fixed place of work.

footprint, this implies that a large portion of commuter trips are short distances, meaning there is a higher probability that some of these trips could be replaced by active modes of travel or transit. This is further described in Section 2.2.3.

Stratford is also the fixed workplace of approximately 7,500 people from outside of Stratford, meaning the city is a net importer of jobs. Specifically, only 3,000 residents leave Stratford for work, while 7,500 people who live elsewhere come to Stratford for work. This includes nearly 4,000 residents from Perth County, 1,100 from Waterloo Region, 1,100 from Oxford County and 550 from London. This underscores the importance of not only efficient internal transportation connections, but also those to neighbouring communities. A collaborative approach with surrounding municipalities is needed.

Exhibit 2.6: Commuting Travel Flows



Source: Census Journey to Work Data (2016)

2.2.2 What Mode of Transportation are People Using to Commute?

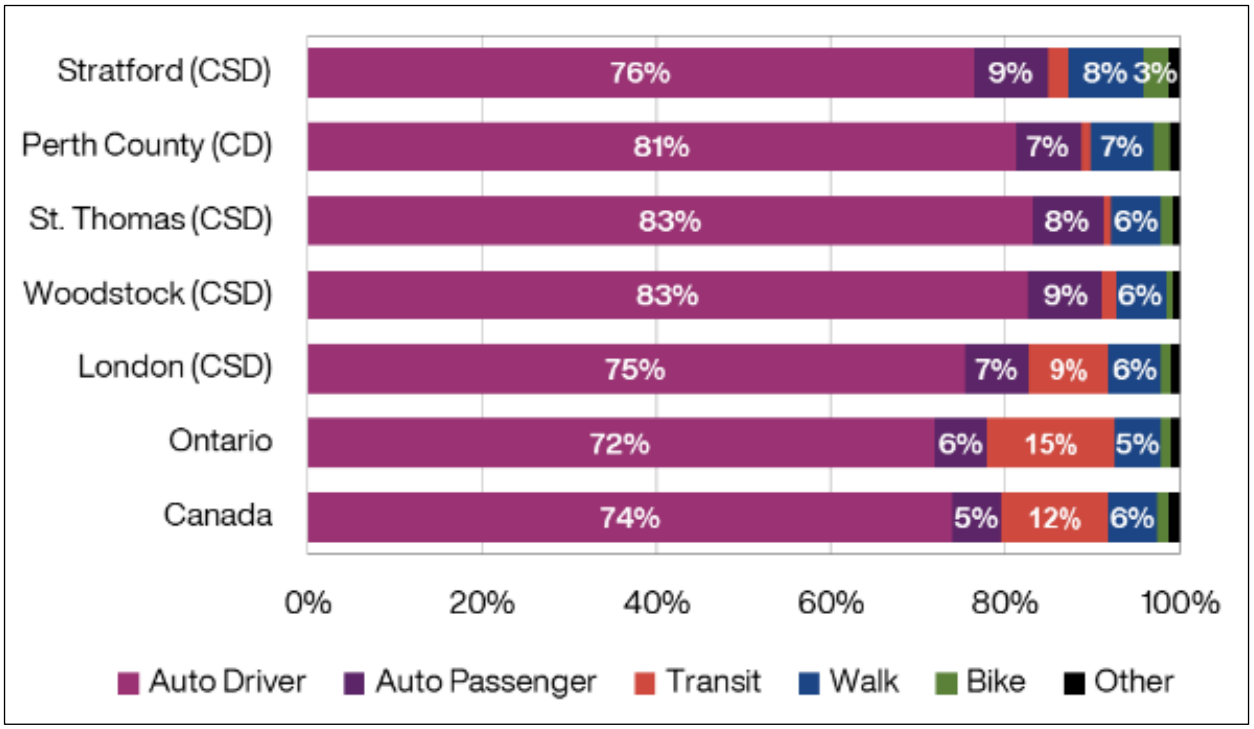
Key Takeaway: Stratford has a high share of people community by foot, by bike or by transit (13%) relative to neighbouring and peer communities owing to its compact urban structure.

The primary mode of transportation used by commuting Stratford residents is personal automobiles, with 85% of people driving to work as either the driver (76%) or as a passenger (9%) in 2016. More sustainable modes of transportation, including active transportation and transit, were used by 13% for journey to work trips (11% and 2%, respectively).

To understand Stratford's mode share in comparison to peer municipalities, the Census Journey to Work mode share data was reviewed for Perth County, St. Thomas, Woodstock, London, Ontario and Canada. This range of peers enables comparison against similar-sized cities, nearby urban locations and larger geographies providing broader context on how Stratford is performing. The commuting mode share of these peers is shown in Exhibit 2.7. Key findings include:

- Stratford's automobile use is lower than peers with similar population sizes (St. Thomas and Woodstock), and is similar to London, a larger city with a wider range of travel options available.
- Stratford's active transportation rate is higher than all reviewed peers.
- While slightly higher than peers with similar populations, Stratford's transit use is significantly lower than London, which has a very established transit system, and the Ontario and Canadian average.

Exhibit 2.7: Commuting Mode Share Compared with Peers



Source: IBI Group analysis of 2016 Census Journey-to-Work data
Note: CSD is Census Subdivision, CD is Census Division; Values under 2% are not shown.

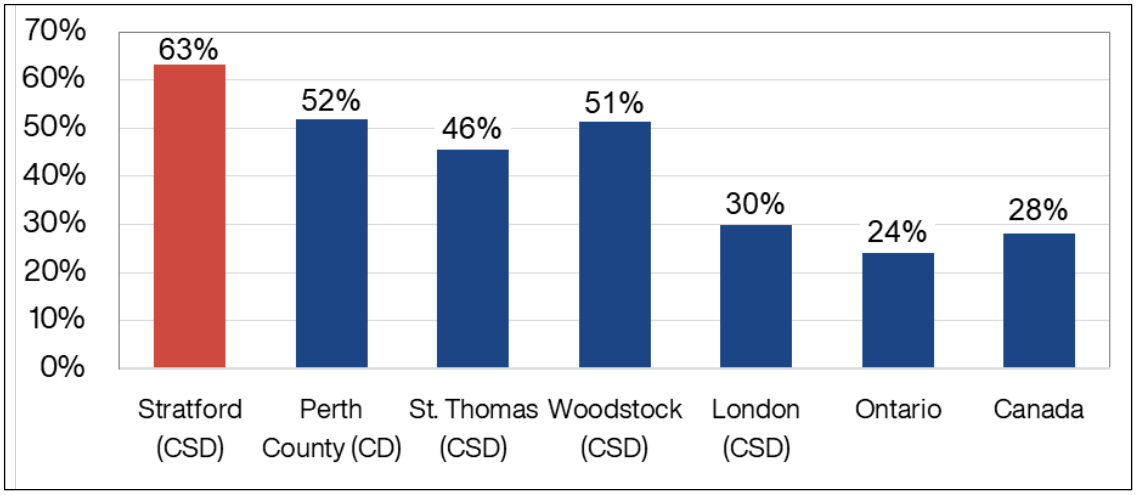
2.2.3 How Long are People's Commutes?

Key Takeaway: Nearly two-thirds of Stratford residents' commutes are 15 minutes or less, a higher proportion than neighbouring or selected peer communities. Short commutes can contribute to a higher quality of life. An efficient transportation system can aim to maintain these short commutes even as the City grows.

Commute duration information gathered from the Census Journey to Work data can provide a general indication on the distance of commuting trips. An analysis of the commute duration in Stratford compared to the peers listed above was conducted and is shown in Exhibit 2.8. Residents of Stratford have a commute of 15 minutes or under at a rate much higher than the reviewed peers at 63%, likely because 80% of residents also work within Stratford's boundaries. This could indicate that some portion of short-distanced trips could be converted to active transportation or transit, provided the right incentives and infrastructure are developed. For active transportation, this means safe, comfortable, and connected

cycling and walking facilities, and for transit, this means convenient, affordable, accessible and reliable options.

Exhibit 2.8: Proportion of Commutes that are Under 15 Minutes



Source: 2016 Census
Note: CSD is Census Subdivision, CD is Census Division

2.3 Planning and Policy Context

It is important that the City of Stratford Transportation Master Plan aligns with the relevant superseding existing municipal and provincial policies. The TMP should also be influenced and informed by other municipal policy and planning direction, as well as be coordinated with the plans and policies of its adjacent municipalities.

This section provides a summary of the most important policies and plans that are guiding the development of the TMP at the provincial and municipal levels. Additional policies influencing the TMP and further detail on those presented below are included in Appendix A (provincial policies) and Appendix B (municipal policies).

2.3.1 Provincial Policies and Initiatives

Key Takeaway: Provincial policies and planning initiatives support the development of safe, multi-modal transportation systems and transitioning into a Complete Streets approach, with more emphasis on active transportation and transit.

The Province of Ontario provides strategic direction regarding transportation planning and has developed policy that encourages the provision of multi-modal transportation options and sustainable land use development patterns through a variety of instruments. The most important is the Provincial Policy Statement, last updated in 2020, to which all municipal plans and policies must be consistent. The Province has also undertaken a regional-level planning initiative intended to improve connectivity in Southwestern Ontario. The Stratford TMP must build upon this by providing the next level of detail needed at the municipal level, support the identified connections and be consistent with the policy direction developed.

Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) was issued under the Provincial *Planning Act* and serves as the core regional growth management policies that inform the TMP. The PPS provides policy direction to municipalities related to land use planning and development. It includes policies for managing growth, managing natural resources, environmental protection, infrastructure and public health and safety.

All municipal plans, including the City of Stratford TMP, must conform to the policy directions outlined in the PPS. Transportation planning and policy directions from the PPS that are particularly important to the development of the TMP can be summarized as follows:

- Infrastructure and transportation systems should be planned through a coordinated, integrated, and comprehensive approach between neighbouring or overlapping jurisdictions and higher levels of government.
- Healthy, active communities should be promoted through the planning of public streets, spaces and facilities to facilitate safe active transportation, community connectivity, and foster social interaction.
- Transportation systems should be safe, energy efficient and facilitate the movement of people and goods.
- Travel demand management strategies should be implemented, where feasible, to improve the efficiency and use of existing and planned infrastructure.

- Connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.
- A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation.
- Major goods movement facilities and corridors shall be protected for the long term.
- The preservation and reuse of abandoned corridors for purposes that maintain the corridor's integrity and continuous linear characteristics should be encouraged, wherever feasible.
- Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns which promote the use of active transportation and transit.

Connecting the Southwest: A Draft Transportation Plan for Southwestern Ontario (2020)

In January 2020, the Ministry of Transportation of Ontario (MTO) released Connecting the Southwest, a draft transportation plan that outlines a vision for Southwestern Ontario, supported by goals to improve transportation in the region.

The draft Plan also notes ongoing or near-term actions under each goal, including the following that may impact the transportation network in Stratford:

- Action 1 - Improve intercommunity bus service;
- Action 2 - Connecting communities with the Community Transportation Grant program;
- Action 7 - Increase passenger rail service to southwestern Ontario;
- Action 12 - Support active transportation connections; and
- Action 34 - Identify priority actions to integrate different modes.

Southwestern Ontario Transportation Planning Study (Ongoing)

The Southwestern Ontario Transportation Planning Study is currently in development and will work toward helping the Province achieve the goals and actions set out in Connecting the Southwest (2020) to build a safer and more reliable transportation system in Southwest Ontario to a 2051 horizon year. The study will review and refine policy directions, identify, and evaluate issues and recommended solutions, and progress toward implementing transportation improvements for the region.

The TMP study will monitor the progress of the Southwestern Ontario Transportation Planning Study to ensure alignment with provincial goals as well as to identify, optimize or coordinate potential transportation improvements for Stratford.

2.3.2 City Policies and Initiatives

Key Takeaway: The TMP study is being undertaken to support and enhance the City's Official Plan and Council's Strategic Priorities. Both documents support the development of Complete Streets, improved mobility, increased opportunities for active transportation and better safety and health outcomes on the City's streets and in its communities.

The key City of Stratford policy and planning documents that guide the development of the TMP include the Official Plan (2016), Council's Strategic Priorities (2019), and the Greenhouse Gas Reduction Plan (2021). These documents form the latest policy and strategy directions, representing the collective vision and objectives for how Stratford will grow and change in the coming decades. The TMP will also reference the Master Transportation Plan (2010) and the Bike and Pedestrian Master Plan (2014), which are both being updated and integrated into the new Transportation Master Plan.

City of Stratford Official Plan (2016)

The Official Plan provides the growth management planning and policy direction to facilitate the development of the City. The Official Plan, through its guiding principles and policies, is supporting of the development of Complete Streets, encouraging more active transportation, improving safety within the transportation system, and building complete, healthy communities. The TMP will be consistent with the policies in the Official Plan and support the City in

achieving the directions set out it its OP. The TMP also provides an opportunity to review the Official Plan policies and directions and provide input into the upcoming Official Plan Update.

City of Stratford Strategic Priorities, 2018 to 2022 (2019)

The City of Stratford Strategic Priorities are intended to guide Council's initiatives, serving as a framework to align municipal goals and strategies throughout the 2018 and 2022 term. The Strategic Priorities report includes a mission, vision, values and priorities, and are recommended to be adopted beyond the 2022 term.

The City of Stratford's Strategic Priorities are as follows:

- Mobility, Accessibility and Design Excellence
- Strengthening our Plans, Strategies and Partnerships
- Developing our Resources
- Widening our Economic Opportunities

The Strategic Priorities will inform the TMP in developing the transportation values, vision, objectives and ultimately, recommendations. It is important that recommendations and strategies put forward by the TMP align with the Strategic Priorities and work toward realizing Council's vision for the City.

Master Transportation Plan (2010)

The Master Transportation Plan (MTP) was released in 2010 to support the City's Official Plan update the same year and replaced the 1992 Transportation Plan. The MTP included a comprehensive plan to direct the transportation system over a 20-year horizon. The TMP will replace the 2010 MTP and the 2014 Bike and Pedestrian Master Plan (discussed subsequently) with a new, comprehensive document that identifies potential improvements for multi-modal transportation.

Bike and Pedestrian Master Plan (2014)

The focus of the City of Stratford's Pedestrian and Bike Master Plan is to improve active transportation opportunities throughout the City. The TMP study will review and update the Bike and Pedestrian Master Plan and develop an integrated active transportation plan that responds to existing needs and issues and reflects the contemporary priorities of Stratford residents.

Creating a Healthy Environment - Greenhouse Gas Reduction Plan (2021)

The Greenhouse Reduction Plan represents a partnership between the municipalities of Perth County, North Perth, Perth East, Perth South, West Perth, Stratford, and St. Marys to address the impacts of climate change. The Plan's transportation goals are to support to use of sustainable and low carbon travel options and to reduce the risk of transportation interruptions caused by severe weather events. To achieve these, the Plan supports the improvement of pedestrian and cycling facilities, promotes public transit, and supports the adoption of electric or low-emissions vehicles through the provision of charging stations.

Grand Trunk Community Hub Master Plan (2018)

The Grand Trunk Community Hub site (formerly known as the Cooper Block) is a 7-hectare site in downtown Stratford comprising of the University of Waterloo Stratford Campus Building, the Stratford-Perth YMCA, the historic and vacant Grand Trunk Building, and municipal surface parking. The Grand Trunk Master Plan provides a vision and framework for how the site will be developed moving forward. Given the scale of the development envisioned on this site, its impact on travel demand, and its integration with the downtown transit hub, it is an important consideration for the TMP in ensuring appropriate connections and desired outcomes are supported.

2.4 Future Context

2.4.1 Long-Term Travel Impacts from the COVID-19 Pandemic

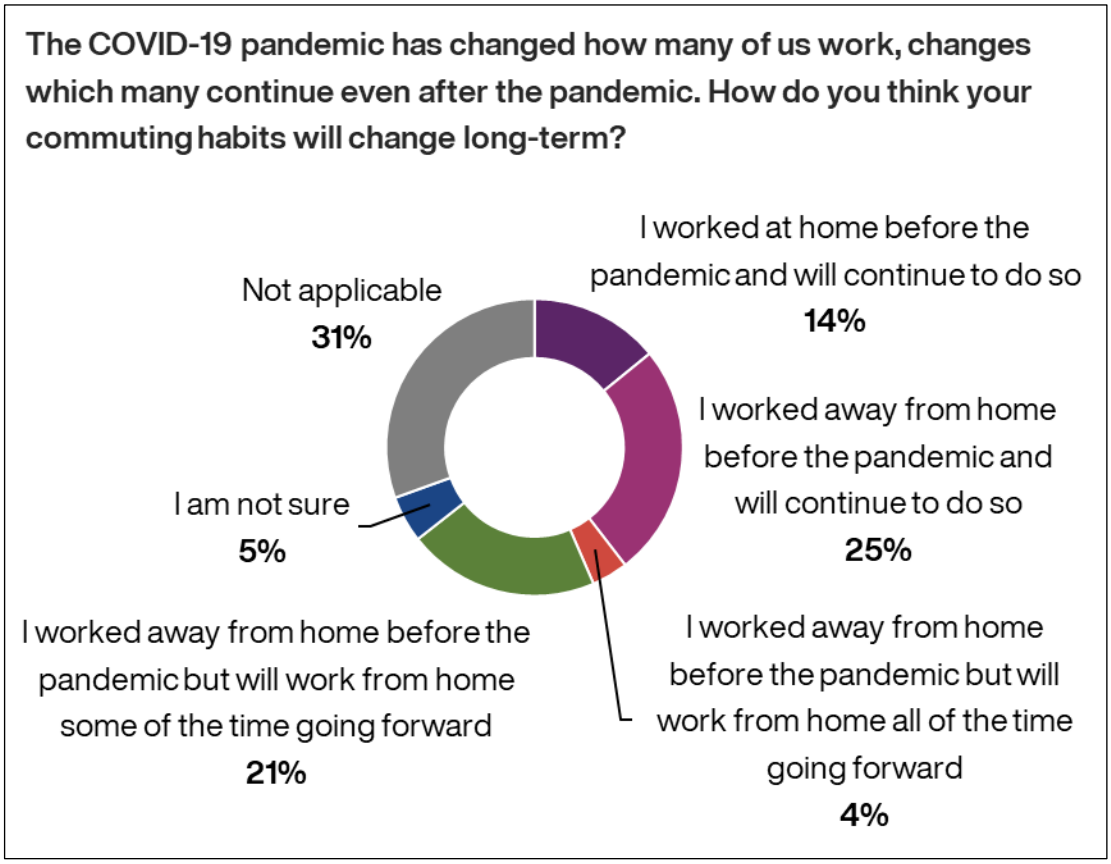
Key Takeaway: Possible long-term structural changes to settlement patterns and commuting behaviour impose additional uncertainty in what the future will look like and will impact the way transportation systems need to be planned. Increased opportunities to work remotely allowing workers greater choice in where they live has accelerated a trend towards "quality of life" factors being a major determinant on where to settle, with smaller cities like Stratford poised to benefit from this new dynamic.

The COVID-19 pandemic 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 additional uncertainty to the future. In addition to telecommuting, 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 the transportation system.

Increasing remote work rates may position travel demand away from traditional peak periods, necessitating a shift away from a traditional peak-oriented transportation system. As part of the first round of public engagement (see Section 2.5), survey respondents were asked about the possibility of long-term changes to their commuting habits as a result of the COVID-19 pandemic or any other reason. As detailed in Exhibit 2.9 , 25% of respondents stated they usually worked away from home, but planned to work from home part-time or full-time after the pandemic.

Exhibit 2.9: Survey Response to Changing Commuting Habits



2.4.2 Population and Employment Growth

Key Takeaway: Stratford is expected to continue to grow at an accelerated rate through to 2041 due to its strong job market, the increasing desirability of small and mid-sized cities, and Stratford's central location in Southwestern Ontario, ideal for fully or part-time remote workers with jobs based in London, Kitchener, Waterloo or beyond. Given the City's existing compact urban area, most new residential and employment growth is expected to occur on the periphery of the City, changing travel patterns and mobility demands in the City.

The City of Stratford is expected to grow steadily through the 2041 planning horizon. As part of the City's February 2022 Development Charges Background Study population and employment forecasts were prepared to 2041. These are the most appropriate figures to apply to the TMP for the purposes of determining future travel demand and its impact on the road network (see Section 4.2.2). They are summarized in Exhibit 2.10.

Exhibit 2.10: 2016-2041 Population and Employment Assumptions

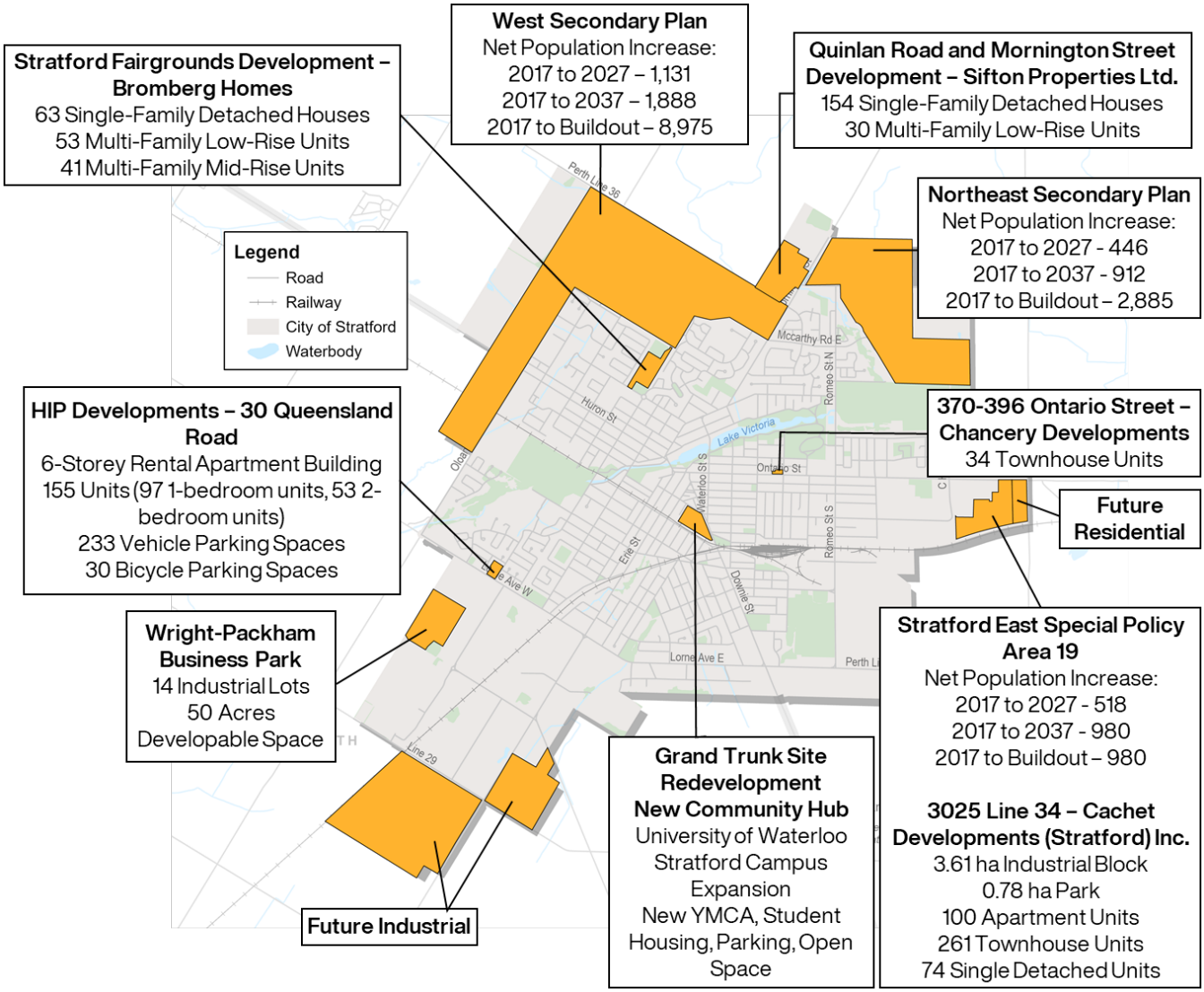
Year	Population (incl. Census Undercount)	Avg. Annual Growth	Employment	Avg. Annual Growth
2016	32,360		19,495	
2022	34,700	1.17%	20,508	0.85%
2032	38,420	1.02%	22,976	1.14%
2041	41,530	0.87%	24,328	0.64%

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

Growth will not be distributed evenly. Though the 2016 Official Plan targeted 25% growth within the existing built up area, the 2022 Development Charges Background Study identifies a net decrease in population within the central area. The report allocates growth between three secondary plan areas (Northeast Area, West Area and Stratford East) as well as "other", representing the rest of Stratford. These areas are presented in Exhibit 2.11 alongside other existing development applications at various stages of the planning process. Most of the growth is expected to occur in the lands annexed since 2001, located on the periphery of Stratford. These lands comprise more than 470 hectares and 150 hectares of employment lands. These lands are shown in Exhibit 2.12.

The distribution of the growth within Stratford will impact how the corresponding growth in travel demand is allocated to the various transportation corridors (i.e. roads, trails, cycling facilities, transit routes), discussed further in Section 4.1.2 below.

Exhibit 2.11: Ongoing Development Proposals and Secondary Plan Areas



Source: City of Stratford

Exhibit 2.12: Annexed Lands by Year

Source: Adapted from Proposed Boundary Adjustment – Planning Justification Report (Harrington McAvan, 2020)

2.4.3 New and Emerging Technologies

Key Takeaway: Ongoing innovation in the transportation field is changing how residents and visitors will travel to, from and within Stratford. The types of infrastructure residents and visitors are expecting the City to provide is also changing. This includes potential investment in electric vehicle charging stations and shared bicycle or e-scooter systems. Accommodating these new technologies can be a major component of a strategy to reduce greenhouse gases from local transportation. Meanwhile, connected and autonomous vehicles, when fully developed, may represent significant safety improvements for all street users.

New and emerging transportation technologies are an important consideration in the development of a future-looking transportation network. Technological advancements that support electric, shared, automated and connected transportation options are reshaping mobility and can help support important local and national environmental targets.

Zero-Emission Vehicles

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 2030 [13]. Between 2014 and 2019, the number of electric vehicles (EVs) in Canada grew from 10,000 to 136,000 [14], and in 2021, ZEVs comprised 5.2% of all new motor vehicles registered [15]. Additionally, in June 2021, the Government of Canada announced a mandatory target for all light-duty vehicles sold in Canada to be zero-emission (i.e. EVs, hydrogen fuel cell) by 2035 [16].

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[13] "Zero Emission Vehicle Awareness Initiative" in *Government of Canada, Electric and Alternative Fuell Infrastructure*. < https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/electric-and-alternative-fuel-infrastructure/zero-emission-vehicle-awareness-initiative/22209>

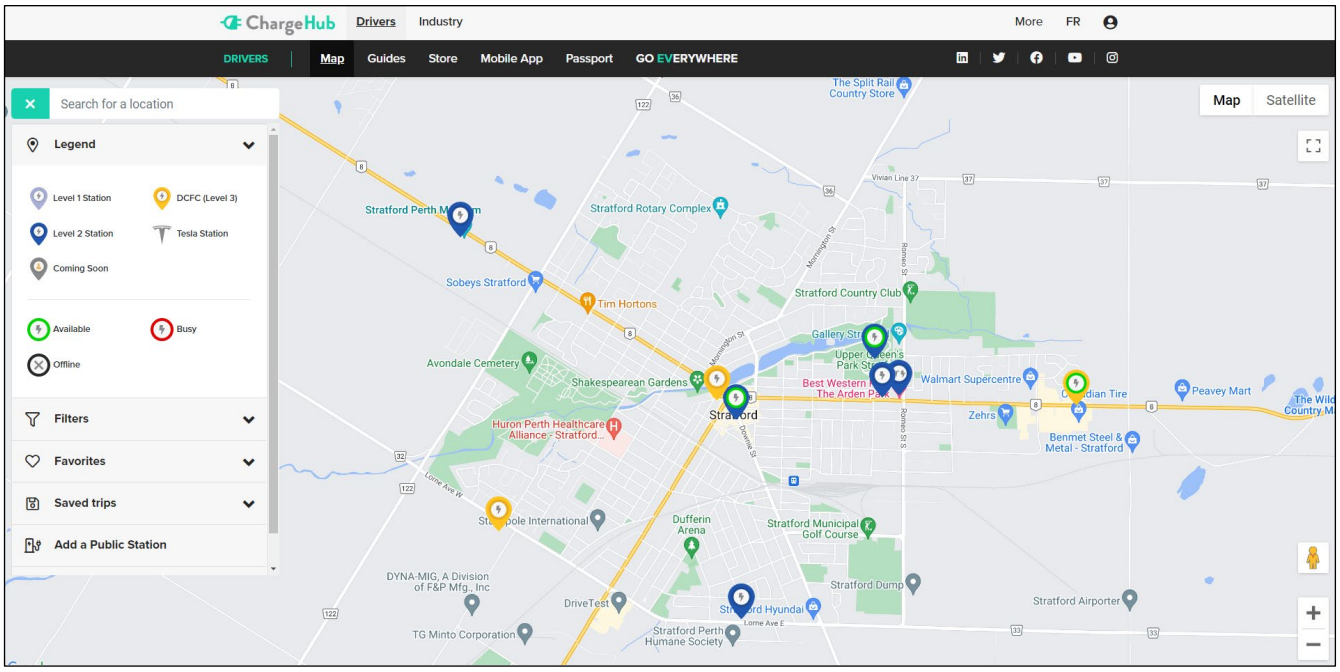
[14] "We'll likely see a few electric vehicles on every street by the end of this decade" in *The Globe and Mail* by J. Tchir. (2020, January 1). <https://www.theglobeandmail.com/drive/mobility/article-well-likely-see-a-few-electric-vehicles-on-every-street-by-the-end-of/>

[15] "Automotive Statistics" in *Statistics Canada*. <https://www.statcan.gc.ca/en/topics-start/automotive>

[16] "Building a green economy: Government of Canada to require 100% of car and passenger truck salves be zero-emission by 2035 in Canada" in *Transport Canada News* (2021, June 29). <https://www.canada.ca/en/transport-canada/news/2021/06/building-a-green-economy-government-of-canada-to-require-100-of-car-and-passenger-truck-sales-be-zero-emission-by-2035-in-canada.html>.

Exhibit 2.13 shows public EV charging stations currently available in and around the City of Stratford. The map displays the different levels of EV charging – Level 1, Level 2 and Level 3 – where a higher level of charging equates to a faster charging process.

Exhibit 2.13: Locations of Electric Vehicle Charging Stations in Stratford



Source: ChargeHub (2021)

Connected and Autonomous Vehicles

Stratford has a recent history of embracing emerging autonomous technologies. Several years ago, the Province of Ontario launched the Ontario Innovation Network, an initiative that positions the province at the forefront of evolving automotive mobility technologies and solutions. As part of the initiative, the City of Stratford was designated a demonstration zone where vehicles and related autonomous technology and infrastructure could be tested in a live, on-street environment [17]. The designation has helped Stratford develop a reputation in the autonomous vehicle world, and so policies and strategies that help build on this success are important to consider.

[17] "How the City of Stratford became a world leader for autonomous vehicle pilots" in *Electric Autonomy Canada* (2019)

Connected Vehicles (CV) and Autonomous Vehicles (AV) will also affect the City's transportation network and can lead toward the safe and efficient operation of both cars and trucks. For reference, these two technologies are defined as the following:

- AV refers to vehicles equipped with driving technology that allows the vehicle to drive itself under certain circumstances. The universal classification system developed by the Society of Automotive Engineers (SAE) categorizes different levels of automation for motor vehicles (levels 0 through 5), and is provided in Exhibit 2.14.
- CV refers 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).

Exhibit 2.14: Universal Classification System of Automation Levels for Motor Vehicles

Automation Level	Name	Description
Driver Support		
Level 0	No Automation	No automated features (warning features only).
Level 1	*Driver Assistance*	Intelligent features add layer of safety and comfort. A human driver is required for all critical functions.
Level 2	*Partial Automation*	At least two automated tasks are managed by the vehicle, but the driver must remain engaged with the driving task.
Automated Driving		
Level 3	*Conditional Automation*	The vehicle becomes a co-pilot. The vehicle manages most safety-critical driving functions, but the driver must always be ready to take control of the vehicle.
Level 4	*High Automation*	The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.
Level 5	*Full Automation*	Vehicle is capable of being completely driverless. Full-time automated driving in all conditions without need for a human driver.

Source: MTO, adopted from Society of Automotive Engineers (2021)

In 2019, the Province of Ontario announced that vehicles equipped with higher levels of automation (SAE Level 3 technology) will be permitted on Ontario roads once they are eligible for purchase in Canada [18]. The Province will also allow pilot participants to test driverless automated vehicles and connected truck platoons. Truck platooning is the linking of two or more trucks in convoy using connectivity

[18] "Ontario Government Supports Innovation and Growth in Automated Vehicle Industry" in *Ontario Transportation Newsroom* (2019, January 22). <https://news.ontario.ca/en/release/51006/ontario-government-supports-innovation-and-growth-in-automated-vehicle-industry>

technology and automated driving support systems, with the benefits of safer, cleaner, and more efficient goods movement [19].

Supporting policies and strategies regarding emerging technologies, and their relevancy to the City of Stratford, are further discussed in Section 4.4.

Micromobility Sharing Systems

Shared micromobility transport services are becoming increasingly popular among active transportation users throughout cities in Canada – Kitchener, Kingston, Kelowna, and Victoria are some of the smaller municipalities who have launched bicycle-sharing systems over the past decade. Bicycle-sharing systems, or bike share programs, offer bicycles for shared use, usually for a fee. Sharing systems typically provide short-term rental services in the form of single-use trips, as well as monthly or annual memberships for frequent users.

Conventional bikes, e-bikes and e-scooters are some of the active transportation sharing systems that are providing residents and visitors across numerous jurisdictions healthy and green mobility options. Either automated stations or dockless technologies can be used to facilitate a shared transport service, with the former consisting of docking stations for bikes or scooters to be obtained and returned to, and the latter comprising a free-floating model that does not require docking stations to hire a bike or scooter. GPS technology have enabled the use of apps to be used to hire vehicles among both models.

Due to its compact size and strong tourist base, the City of Stratford may benefit from adopting a micromobility system. A bicycle-sharing system, for example, could help divert single-occupancy vehicle trips among residents, as well as support Stratford as a competitive tourist destination by offering a fun way to explore the City and help address last-mile solutions. Some tourists may choose to arrive by train or bus, rather than by car, if a bicycle-sharing system was available, providing visitors an alternate option to get between theatres, restaurants, and other destinations. A micromobility system would also support Stratford as a 15-Minute City, a concept further described in Section 4.2.2.

[19] "What is Truck Platooning?" in *European Automobile Manufacturers Association* (2017). <https://www.acea.auto/files/Platooning_roadmap.pdf>

2.5 Public and Stakeholder Consultation

In addition to technical work described in this document, engagement activities conducted during Phase 1 of the TMP study were necessary to understanding transportation-related issues, needs, and opportunities in the City of Stratford, as well as to solicit input on the study's draft vision and objectives.

This section provides an overview of activities undertaken and the key findings of the first round of public and stakeholder engagement. A second round of public and stakeholder consultation is anticipated for Phase 2 of the TMP study.

The Engagement Summary Report, under separate cover, provides additional details regarding the engagement process, objectives, conduct of engagement activities, and a comprehensive summary of findings.

2.5.1 Engagement Activities

As part of the first round of engagement, the following virtual events and activities were hosted:

- A TMP study webpage, hosted as part of the Engage Stratford platform, was launched as a virtual online platform throughout the study (www.engagestratford.ca/transportation-master-plan);
- Public Open House 1 (which solicited input via a survey, interactive map, and comment box); and
- Stakeholder Group Meeting 1.

Meaningful engagement helps ensure that the recommendations and solutions developed and assessed in later phases of the study respond to the identified needs and take advantage of available opportunities.

Public Open House 1

The first round of public consultation was held virtually on the City of Stratford community engagement platform, Engage Stratford, on the project webpage.

Public Open House (POH) 1 commenced April 14th, 2022 and the formal comment period concluded May 5, 2022. The goal was to introduce members of the public to the TMP study, solicit input on the study's vision and objectives, and help identify needs, issues, and other priorities for the TMP to address.

Participants were invited to view (accessible) display boards describing the TMP and the municipal transportation system. A pre-recorded presentation of the display boards was also provided to help reach a broader audience (https://www.youtube.com/watch?v=74kGjeWbCzM).

Event participants were encouraged to share their ideas, issues and concerns and submit input through the completion of the online survey (177 submissions), the use of an interactive map (182 submissions), or by submitting a comment directly to the project team (12 submissions).

Stakeholder Group Meeting 1

The first stakeholder meeting was conducted on April 20, 2022 via Microsoft Teams. The purpose and objectives of Stakeholder Group Meeting 1 mirrored those of the parallel POH 1.

The Stakeholder Group consisted of representatives from various agencies, organizations, municipalities and governments either with an interest in the TMP or that could be of benefit to the study process.

2.5.2 Summary of Consultation Findings

Key Takeaway: The first round of consultation was successful in producing important feedback on the City's transportation needs and opportunities. Respondents frequently cited, among other topics, concern for environmental impacts, street safety and traffic calming, transit equity and affordability, and improving street maintenance conditions.

The first round of engagement for the TMP study involved numerous engagement opportunities across different groups that resulted in rich feedback and insights to inform the TMP study.

Below is a summary of the key themes that were identified as part of the first round of engagement.

Some of the most expressed concerns were about the following:

- Overall emphasis on the environment and environmental impacts is needed throughout the TMP study;
- Safety of pedestrians and cyclists, especially because of inadequate infrastructure and separation from vehicles;

- Concerns about transit equity and affordability, as well as overall equity concerns and the needs to support an aging population.
- There is a need for improved maintenance and road conditions, (including winter road maintenance), for drivers and cyclists.
- Concerns relating to driver behaviour, speed and safety, especially impacts in residential areas and school zones.
- Through truck movement throughout the City and the potential safety conflicts with other road users.

The following were the most common opportunities or potential actions noted:

- Improve the pedestrian and cycling experience in the City through infrastructure improvements (e.g. sidewalk infilling and expansion, pedestrian crosswalks, cycling network connections and dedicated facilities, improved bike parking in the Downtown and in commercial districts).
- Traffic calming measures represent important opportunities, especially on local roads and in school zones.
- Improve intersection operations through the introduction or improvement of traffic control measures (e.g. stop signs, advanced green lights, roundabouts).
- Improve overall transit service times, routing, reliability, and frequency to accommodate the needs of residents (e.g. shift workers, people aging out of driving, theatre patrons), and improve inter-regional transit connections.

Additional network-specific input is presented in subsequent sections, as follows:

- Road network feedback, including overall road concerns, safety issues and operational input, is presented in Section 4.1.3;
- Active transportation feedback, including safety concerns and network expansion opportunities, is presented in Section 4.2.3;
- Transit feedback, including overall priorities and connectivity opportunities, is presented in Section 4.3.3; and

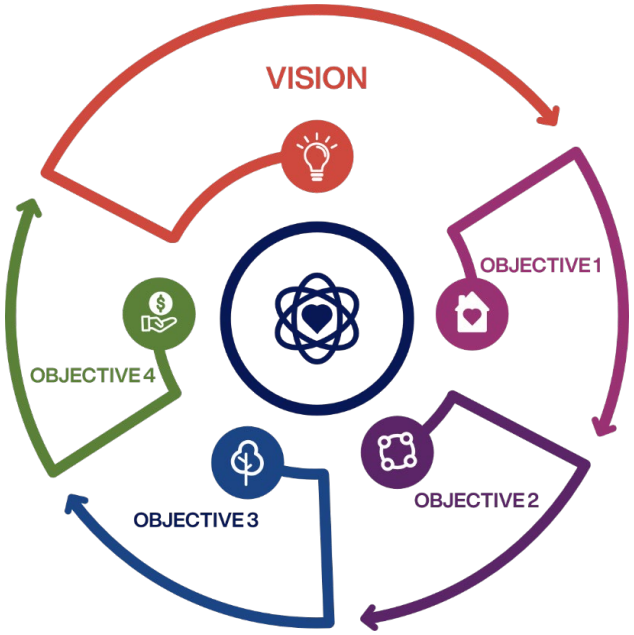
- Other various feedback, including input regarding emerging technologies, traffic calming and commercial vehicles, is presented throughout Section 4.4.

3 Strategic Framework

The TMP study is guided by the strategic framework comprising of three policy components: **values**, **vision**, and **objectives**, as depicted in Exhibit 3.1. The strategic framework was built from existing City of Stratford priorities, as well as leading best practices in transportation master planning.

The values are at the core of the TMP and help guide the study process, while the vision and objectives indicate desired TMP outcomes. These components inform the development of supporting strategies and recommendations throughout the TMP study.

Exhibit 3.1 TMP Strategic Framework



The vision and objectives were presented in draft form to the public and stakeholders as part of the first round of engagement (described in Section 2.5) and received high levels of support. Some refinements to the objectives were made in response to feedback received.

3.1 Values

The values are at the core of the TMP and influence how the study is being undertaken. They build on best practices in developing transportation master plans in Ontario, as well as policy and strategic directions identified in other recent Stratford 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 hold 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.

3.2 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.

The vision statement is as follows:

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

3.3 Objectives

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 will be used to evaluate possible infrastructure projects further into the study. Four objectives were developed for the TMP, each supported by a number of more specific goals, as outlined below.

The transportation system in the City of Stratford will:

1. Support 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.

2. 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.

3. 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.
- Protect the City's natural environment, heritage and open space system.

4. 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.

3.4 Alignment with City Council's Strategic Priorities

The strategic framework and by extension the Transportation Master Plan align with and support other City of Stratford policies and strategies (outlined briefly in Section 2.3.2, and described in detail in Appendix B). More specifically, the TMP aligns with Council's Strategic Priorities as follows:

- Mobility, Accessibility and Design Excellence
  - Improving ways to get around, to and from Stratford by public transit, active transportation, and private vehicle.
- Strengthening our Plans, Strategies and Partnerships
  - Partnering with the community to make plans for our collective priorities in arts, culture, heritage and more.
  - Communicating clearly with the public around our plans and activities.
- Developing our Resources
  - Optimizing Stratford's physical assets and digital resources. Planning a sustainable future for Stratford's resources and environment.

.

4 Transportation Needs Assessment

The primary focus of Phase 1 of the TMP study is to identify the transportation needs and opportunities in the City of Stratford, providing a foundation for later phases to develop and assess potential solutions, supporting strategies and policies.

The street network is the most important component of the transportation system in the City of Stratford and forms the basis for movement throughout the City, whether by foot, bicycle, bus, car, or truck. The street network is also increasingly expected to participate in broader community-building objectives by fulfilling a placemaking role – supporting vibrant streetscapes within rights-of-way, hosting sidewalk cafés, converting parking spaces into patio seating and parklets, and accommodating flexible uses such as car-free days.

Traditionally, an analysis of the street network would be performed with a focus on the throughput of motor vehicles. However, in recognition of the changing functions and roles of City streets, analysis of the street network now encompasses much more. This means taking a Complete Streets approach that assesses the needs of all street users within the prevailing or planned context of the specific area.

For simplicity, this section organizes needs assessment based on specific modes: driving, active transportation, transit, as well as supporting policies and strategies. However, it is acknowledged that there is significant overlap between the categories, and where constraints are identified, trade-offs need to be considered. This is explored further as part of Phase 2 of the TMP study.

4.1 Driving

4.1.1 Context

Existing Street Network

The street network in the City of Stratford serves all motorized vehicle modes, including public transit buses and commercial vehicles, as well as accommodating cycling and other forms of rolling within travel lanes and walking along sidewalks and trails within the street right-of-way. All streets within the municipal boundaries

are under the jurisdiction of the City of Stratford. A map of the municipal street network is shown in Exhibit 4.2.

The municipal streets of Ontario Street, Erie Street and Huron Street qualify for provincial support through the Province's Connecting Links Program. The MTO provides dedicated provincial funding for street and bridge projects on designated connecting link highways, which are municipal streets that connect two ends of a provincial highway. Huron Street and Ontario Street connect Highway 7/8, a provincial arterial highway that provides connections northwest to Goderich in Huron County and east into the Region of Waterloo. Erie Street connects to Highway 7, a provincial arterial highway that provides connections southwest towards London.

A reconstruction of Huron Street supported by the Connecting Links Program is underway and is will result in the reduction of the curb-to-curb width to a three-lane cross-section with expanded boulevard space and new sidewalks.

Street Classification

A functional street classification system is a tool that designates roads into different classes based on the type of service the street provides, i.e. the degree to which the roadways function is to facilitate movement of people vs. the degree to which the roadway facilitates access to nearby land uses.

The City of Stratford Official Plan categorizes the municipal street network into five functional classes: Arterial, Collector, Local, Industrial Collector and Industrial Local. The characteristics corresponding to the five functional street classes are outlined in Exhibit 4.1 with the existing classifications shown in Exhibit 4.2.

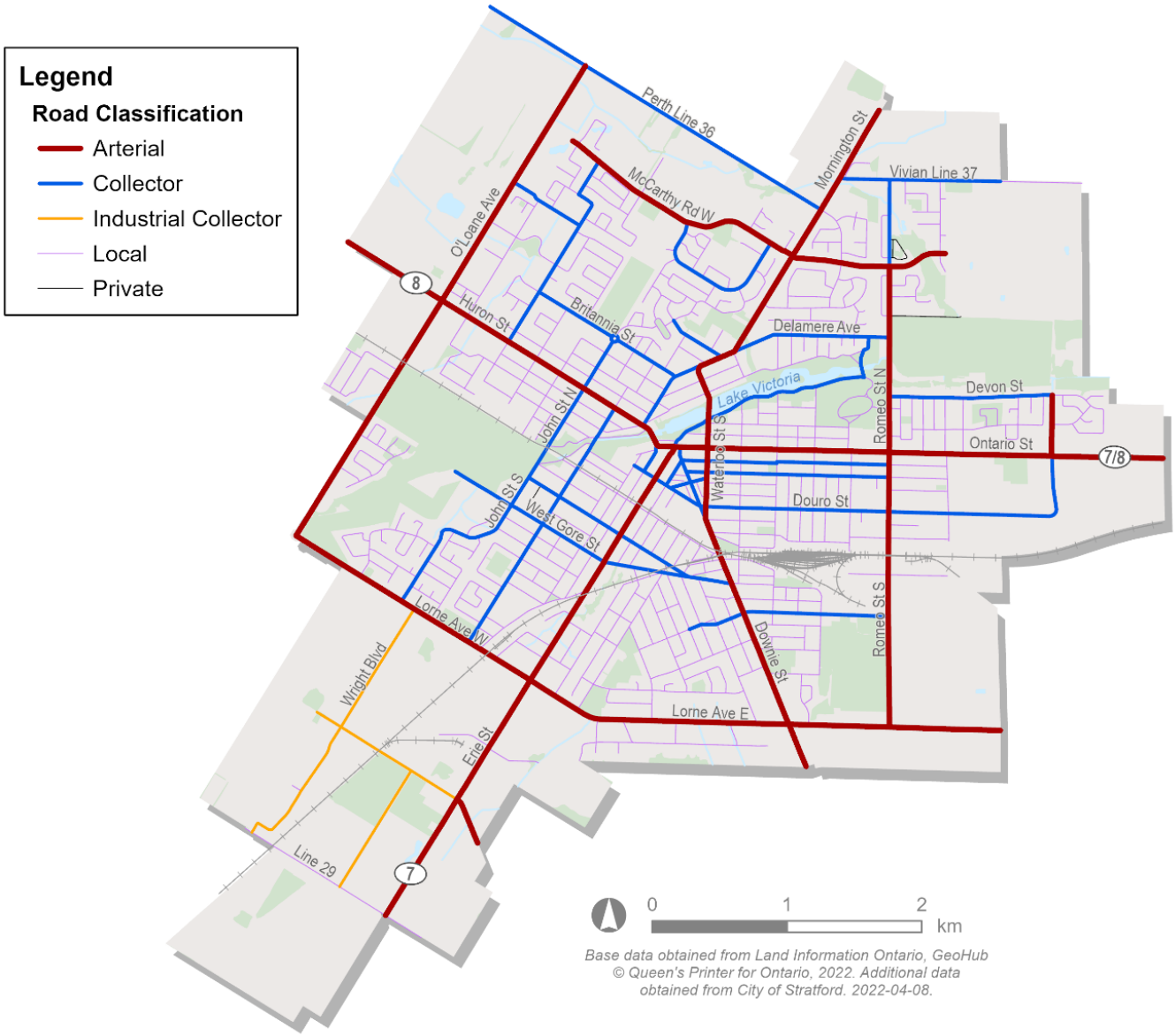
The functional street classifications as currently identified largely meet the needs of the community. However, an update is needed to integrate Complete Streets framing into the classification system. This would help identify which facilities for transit, walking and cycling are most appropriate for a given road class.

Exhibit 4.1: City of Stratford Functional Street Classification System

Classification	Service Function	Right-of-Way
Arterial	Serves regional and local travel demand by carrying large volumes of all types of vehicular traffic. Direct access from abutting properties may be restricted.	30 metres
Collector	Serves local travel demand and provides connections within neighbourhoods.	23 metres
Local	Serves local travel demand by providing direct access from abutting properties to the road system.	20 metres
Industrial Collector	Serves local travel demand by providing connections within industrial areas.	26 metres
Industrial Local	Serves local travel demand by providing direct access from abutting properties to the road system within industrial areas.	23 metres

Source: Adapted from City of Stratford Official Plan (2016)

Exhibit 4.2: City of Stratford Street Classifications



Source: Adapted from City of Stratford Official Plan (2016)

4.1.2 Analysis

Existing Road Network Operations

Key Takeaway: Lorne Avenue, Douro Street and Ontario Street can become congested during peak periods. Strategies to mitigate congestion and improve the flow of traffic are needed. The remainder of Stratford is generally operating under capacity at the busiest times on a typical day.

Available traffic data from the past six years was analyzed to identify existing constraints. The busiest one-way traffic volumes as a function of capacity are presented in Exhibit 4.3.

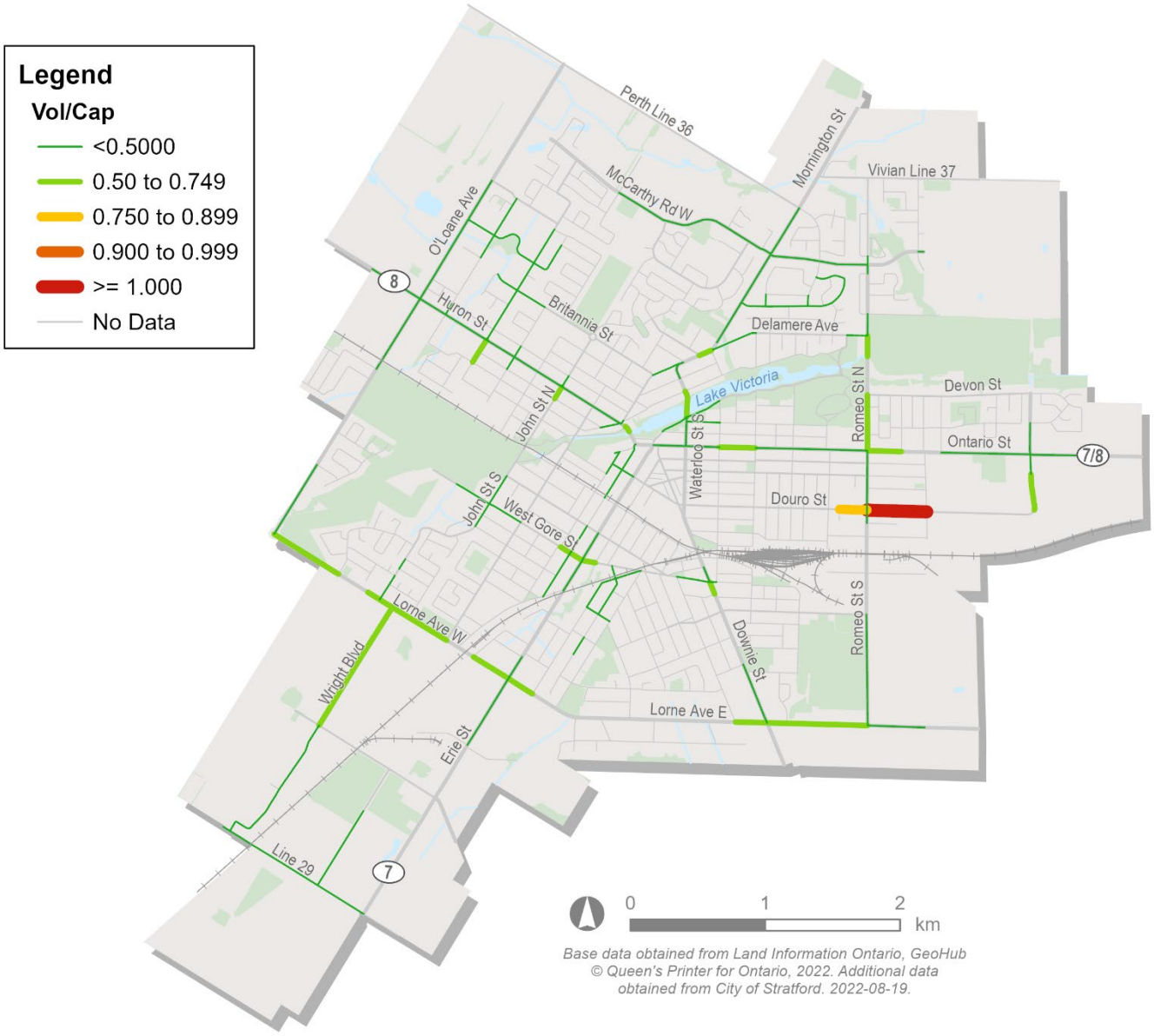
Based on this data, Douro Street, east of Romeo Street, is noted as having traffic counts that exceed the capacity of the road today during peak hour. Douro Street has a 3-lane cross-section with one travel lane in each direction and a centre two-way left turn lane. It provides access to many high traffic-generating uses including commercial (e.g. Zehrs, Food Basics, the Festival Marketplace Shopping Centre and several other large format retail outlets) and major industrial uses.

Based on the data available, the rest of the City's road network typically has enough capacity to meet travel demand. However, locations were also identified through consultation with City staff, stakeholders, and the public as congestion / traffic hot spots at certain points in the day. These are shown in Exhibit 4.4 and include:

- **Lorne Avenue (Erie Street to Romeo Street**): Traffic surges following shift changes at local industrial facilities create significant traffic problems.
- **Lorne Avenue / Downie Street intersection:** As the intersection is configured without turning lanes, left hand turns, particularly during peak hours, can create significant delay. Widening to include turning lanes or conversion to a roundabout can improve traffic flow and turning movements.
- **Lorne Avenue / O'Loane Avenue intersection:** This intersection is approaching the volumes needed for enhanced traffic control, such as a 4-way stop. The feasibility of a roundabout should be explored at this intersection.
- **Ontario Street (Erie Street to Waterloo Street):** Ontario Street is a major route through downtown Stratford, and handles traffic converging from all directions, while also acting as the City's main street and a major destination. Traffic congestion is common during peak periods, especially during the summer tourism season. This issue was analyzed in part through the Downtown Traffic Study (2021) which concluded that widening is not feasible that and localized intersection improvements (i.e. signal timing adjustments) is the preferred approach

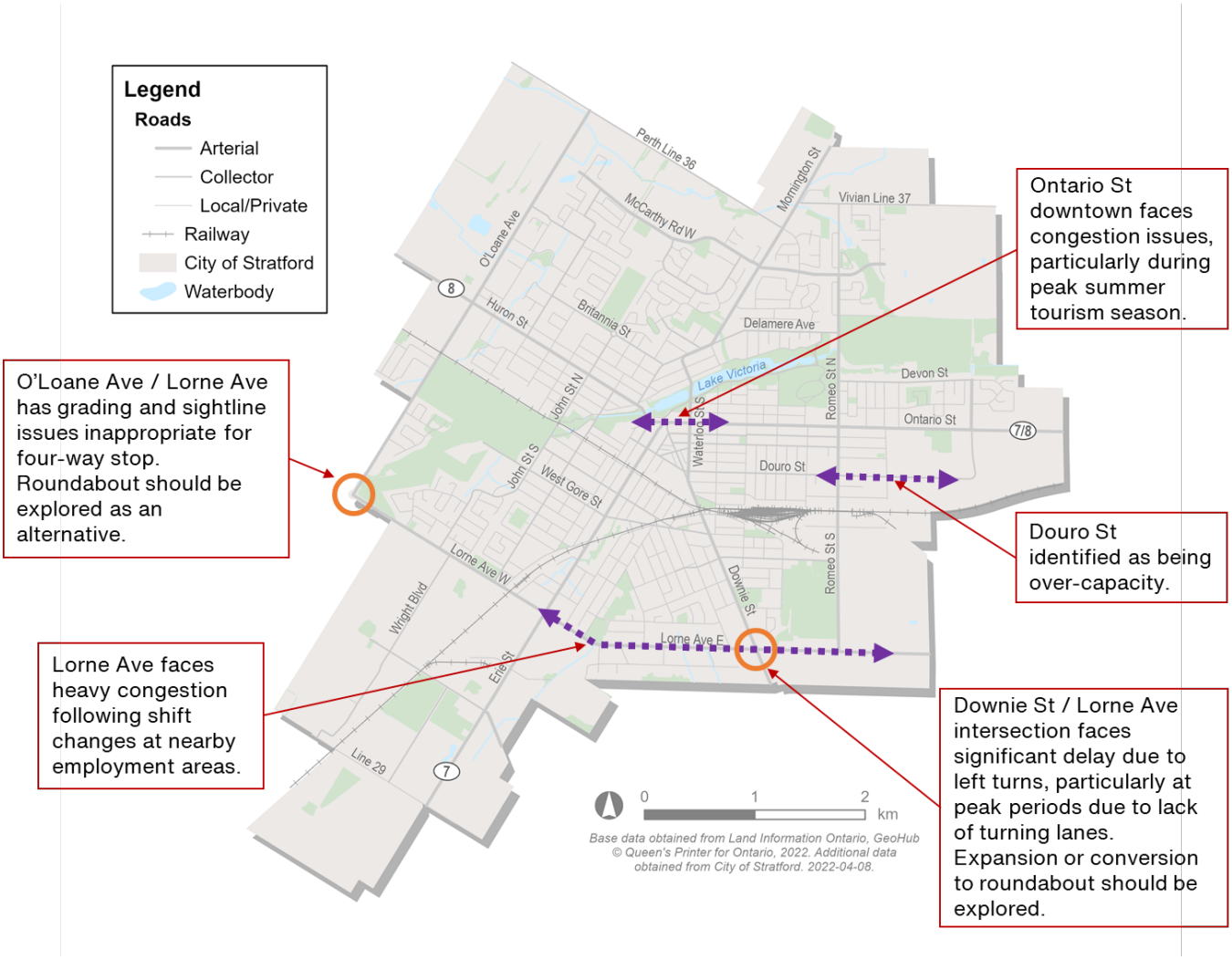
in optimizing performance. These recommendations should continue to be implemented.

Exhibit 4.3: Volume-Capacity Ratio, Available Data - Existing (2016 to 2022)



Source: City of Stratford Traffic Counts (2016-2022)

Exhibit 4.4: Existing Capacity and Operational Constraints



Growth-Related Travel Demand and Constraints

Key Takeaway: With the City expected to grow significantly to 2041, demand for travel will increase proportionally. However, with most of the growth taking place on the periphery of the City, certain streets will be impacted more than others relative to their capacity. The most impacted include O'Loane Ave, McCarthy Rd, Huron St, Ontario St, Mornington St, Waterloo St, and Romeo St. These corridors should be monitored to determine if demand is nearing capacity as the City grows.

As the City of Stratford grows towards 41,500 residents and 24,300 jobs in 2041, the demand for travel will rise accordingly. However, Stratford's compact urban nature means that the growing demand for travel can be largely absorbed both by

the existing road network's excess capacity, as well as by an increase in use of alternative travel modes such as walking, cycling and transit. Therefore, it is important to note that travel demand impacts represented below include all modes.

As established in Section 2.4.2, growth in Stratford is largely expected to take place around the periphery. The Development Charges Background Study (February 2022) allocates the City's population growth between 2021 and 2041 as follows:

- 61% of expected growth (+4,318 net residents) will occur in the West Secondary Plan Area;
- 25% of expected growth (+1,780 net residents) will occur in the Northeast Secondary Plan Area; and
- 14% of expected growth (+1,036 net residents) will occur in the Stratford East Special Policy Area.

The remainder of Stratford's residential areas are expected to remain stable or decrease, largely due to decreasing household size and limited intensification opportunities with the already built-up areas.

There are also commercial and industrial growth areas that will add additional demand to the City's transportation networks. These are located with the Stratford East Special Policy Area as well as the southern parts of Stratford.

Exhibit 4.5 highlights these key areas of growth in relation to the existing street network. Travel demand impacts are largely going to be directed to the existing collector and arterial road network. These corridors are listed in Exhibit 4.6.

It should also be noted that while the existing neighbourhoods are relatively stable, a general growth in travel demand across the City is expected due to the growth on the periphery, including on the streets not identified below. As shown above in Exhibit 4.3, most streets in the City have excess capacity and can be expected to absorb new travel demands. Noting that the majority of streets fitting this description are local residential streets, negative impacts from additional travel demand may still be experienced. These can be addressed through traffic calming measures (see Section 4.4.2) or other safety-focused improvements.

Exhibit 4.5: Growth-Related Travel Demand Impacts

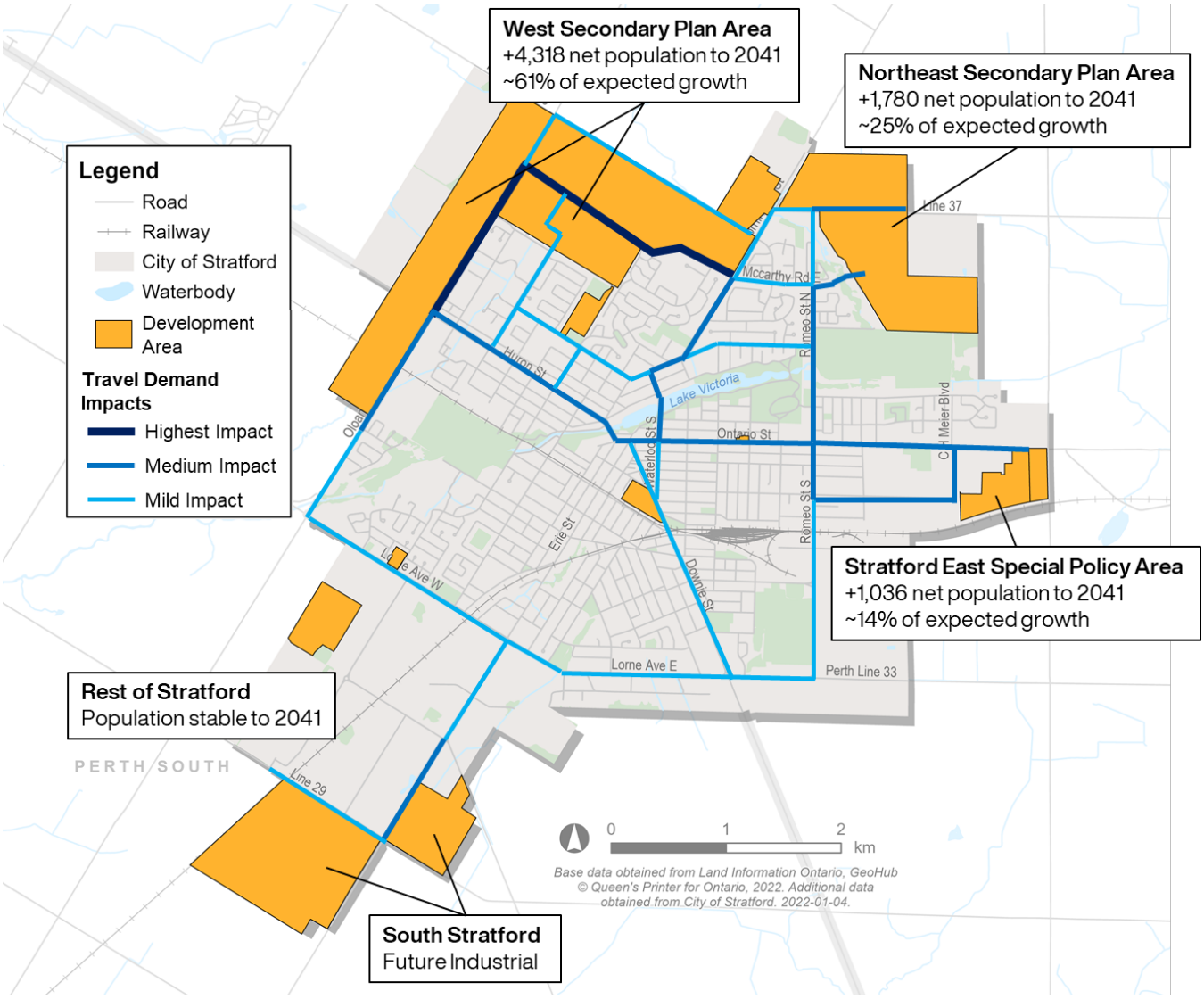


Exhibit 4.6: Growth-Related Travel Demand Impacts

Corridor	Limits	Impacts
O'Loane Ave	Huron St to McCarthy Rd	Highest
O'Loane Ave	Dannecker Rd to Huron St	Medium
O'Loane Ave	Lorne Ave to Dannecker Rd	Mild
O'Loane Ave	McCarthy Rd to Quinland Rd	Mild
McCarthy Rd	O'Loane Ave to Mornington St	Highest

Corridor	Limits	Impacts
McCarthy Rd	Romeo St to Northeast Secondary Plan Area	Medium
McCarthy Rd	Mornington St to Romeo St	Mild
Huron St	O'Loane Ave to Church St	Medium
Ontario St	Church St to Stratford East Special Policy Area	Medium
Mornington St	Waterloo St to McCarthy Rd	Medium
Mornington St	Britannia St to Waterloo St	Mild
Mornington St	McCarthy St to Vivian Line 37	Mild
Waterloo St	Ontario St to Mornington St	Medium
Waterloo St	Downie St to Ontario St	Mild
Romeo St	Douro St to McCarthy Rd	Medium
Romeo St	McCarthy St to Vivian Line 37	Mild
Romeo St	Lorne Ave to Douro St	Mild
Douro St	Romeo St to CH Meier Blvd	Medium
CH Meier Blvd	Romeo St to Ontario St	Medium
Erie St	Line 29 to Packham Rd	Medium
Erie St	Packham Rd to Lorne Ave	Mild
Vivian Line 37	Romeo St to Northeast Secondary Plan Area	Medium
Vivian Line 37	Mornington St to Romeo St	Mild
Britannia St	Foreman Ave to Mornington St	Mild
Delamere Ave	Mornington St to Romeo St	Mild
Downie St	Lorne Ave to Ontario St	Mild
Foreman Ave	Huron St to Fraser Dr	Mild
Fraser Dr	Fraser Dr to McCarthy St	Mild
John St	Huron St to Britannia St	Mild
Line 29	Wright Blvd to Erie St	Mild
Lorne Ave	O'Loane Ave to Romeo St	Mild
Quinlan Rd	O'Loane Ave to Mornington St	Mild

Potential responses to these may include street widening, other operational improvements for drivers, and/or improvements for other modes of travel, to meet the demand on specific corridors. These corridors should be monitored in the future as development proceeds in order to further evaluate the travel demand impacts and assess the need for additional mitigating measures.

Intersection Safety

Key Takeaway: As the City of Stratford moves towards Vision Zero, changes to the street network will be needed. Intersections where collisions are most common should be audited for safety deficiencies, roundabouts should be considered as potential replacements.

Though streets in Stratford prove to be performing relatively well, policy direction and increasing public attention on traffic safety indicates a desire to move towards Vision Zero – the elimination of all traffic fatalities. A dataset of collisions within the City of Stratford and the County of Perth indicate a total of eight traffic fatalities were recorded within the City's boundaries from 2014 through 2021. With the City averaging one fatality per year, achieving Vision Zero is a realistic objective.

Understanding the types of collisions and identifying intersections and road segments with high levels of reported traffic collisions in Stratford is necessary to develop appropriate actions that improve traffic safety.

There were a total 4,977 reported traffic collisions throughout the City of Stratford and County of Perth from 2014 through 2021, with 15% resulting in serious injury or fatality. Of those, two-thirds occurred at intersections either within the City of Stratford or the surrounding County of Perth. The breakdown of collision location is presented in Exhibit 4.7

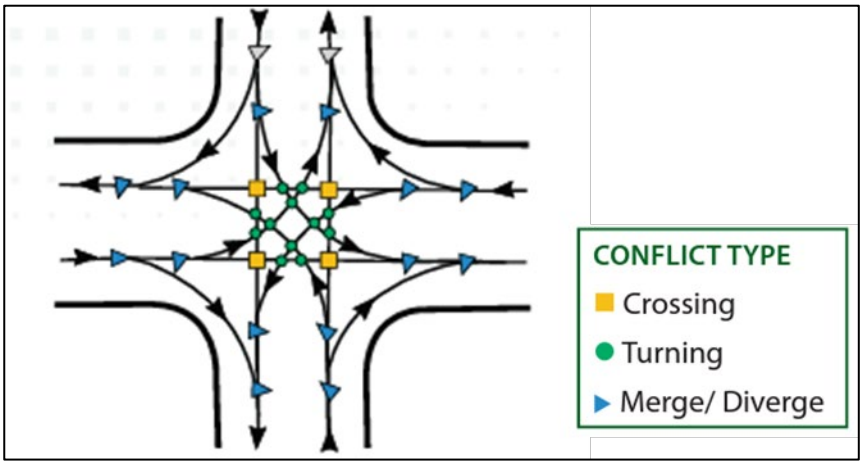
Exhibit 4.7: Collisions with Injury Locations, City of Stratford and County of Perth, 2014-2021

Location	Count	Percent
At Intersection	246	35%
Intersection related	234	33%
Non-Intersection	145	21%
At or near private drive	70	10%
Off Highway Other	7	1%

Source*: City of Stratford*

It is common for intersections to be the most frequent setting for traffic collisions as they present the highest number of potential conflicts. A typical intersection of two two-lane roadways has 32 conflict points, as show in Exhibit 4.8. The higher the number of conflict points, the greater the risk of collision. Additionally, there are four total "crossing" type conflicts, which are the most hazardous. One solution that can lead to safer intersections is the implementation of roundabouts, which have only eight total conflict points, zero of which are crossing movements. As a result, collisions in roundabouts tend to be less serious and are less likely to result in injury or death for motorists. Slower speeds entering and existing roundabouts also lead to better outcomes for pedestrians and cyclists if they are struck by motorists. Potential locations for roundabouts are discussed in the next section.

Exhibit 4.8: Typical Intersection Conflict Points and Types



Source: Adapted from MnDOT Minnesota's Best Practices and Policies for safety strategies on Highways and Local Roads (2011)

Given the propensity of serious collisions to occur at intersections, it is important to note where they are most common. The intersections associated with collisions that resulted in the highest frequency of fatal or non-fatal injuries are listed below [20]. It is noted that this list does not control for traffic volumes, which can be a major factor in the frequency of collisions. Nevertheless, identifying these intersections can help identify candidate locations for further analysis to improve road user safety.

- Ontario Street and CH Meier Boulevard: 31
- Huron Street and Forman Avenue: 22
- Erie Street and Lorne Avenue: 20
- Erie Street and Packham Avenue: 17
- Ontario Street and Waterloo Street: 17
- Erie Street and St Patrick Street: 15
- Huron Street and John Street: 13
- Erie Street and West Gore Street: 12
- Ontario Street and Front Street: 11
- Lorne Avenue and Downie Street: 10
- Douro Street and Romeo Street: 10

It is also noted that these intersections are all signalized. The absence of unsignalized intersections on this list is likely due to lower traffic volumes typically found at unsignalized intersections. Since 2014, the unsignalized intersection with the highest rate of collisions (including those without serious injury or fatality) is Huron Street and Matilda Street, the intersection of a 4-lane arterial road and a 2-lane local road. Of the 35 collisions recorded here, 4 involved serious injury.

[20] IBI Group analysis of collisions on City of Stratford roads (2014-2021).

Roundabouts

Key Takeaway: Roundabouts have grown in popularity in North America in recent years, including across Ontario and should be considered at identified intersections, where feasible, as a suitable traffic management tool and to improve the safety of Stratford's roads.

The TMP will consider opportunities to improve overall road user safety, targeting priority locations based on technical analysis and City input. Roundabouts are a method of intersection modification that could be considered for traffic control to improve safety. As noted above, roundabouts feature fewer conflict points and none of the most hazardous types of conflicts.

When implemented at appropriate locations in suitable contexts, roundabouts include various benefits, as follows:

- Enhanced road user safety;
- Reduced collisions when compared to conventional intersections with more standard traffic control devices, as roundabouts have fewer potential collision points, and vehicular speeds are lower as cars travel through intersections;
- Decreased severity of collisions when compared to conventional intersections, meaning fatalities and serious injuries are less likely to occur;
- Reduced long-term operation and maintenance costs compared to intersections with traffic control signals and equipment to maintain; and
- Reduced emissions by lessening vehicle idling and stopping when compared to conventional intersections.

Roundabouts should be considered for traffic control at the following intersections, as identified by input from City staff, stakeholders, and members of the public:

- Lorne Avenue and O'Loane Avenue;
- Lorne Avenue and Downie Street;
- Lorne Avenue and Romeo Street; and
- Huron Street and Mornington Street.

While implementing roundabouts at these intersections represent important opportunities that can improve the road network in Stratford, understanding the challenges to implementation is also an important consideration. Modifications to Lorne Avenue at O'Loane Avenue, Downie Street and Romeo Street would support the arterial road function of this important bypass route around the City, and heavy truck traffic is an important consideration for designing appropriate and functional intersections. More specifically, steep grading at Lorne Avenue and O'Loane Avenue could present a challenge to implementation. The intersection of Huron Street and Mornington Street is complex, and while the implementation of a roundabout could help manage traffic, a lack of adequate right-of-way could present a challenge to implementation.

The intersection of Waterloo Street and Downie Street was also identified by members of the public as a location in need of improved safety and traffic management. As outlined by the City of Stratford Downtown Traffic Study (2021), a roundabout is not a feasible option at this location due to limited right-of-way, and alternative solutions were developed to address related safety and operational concerns [21].

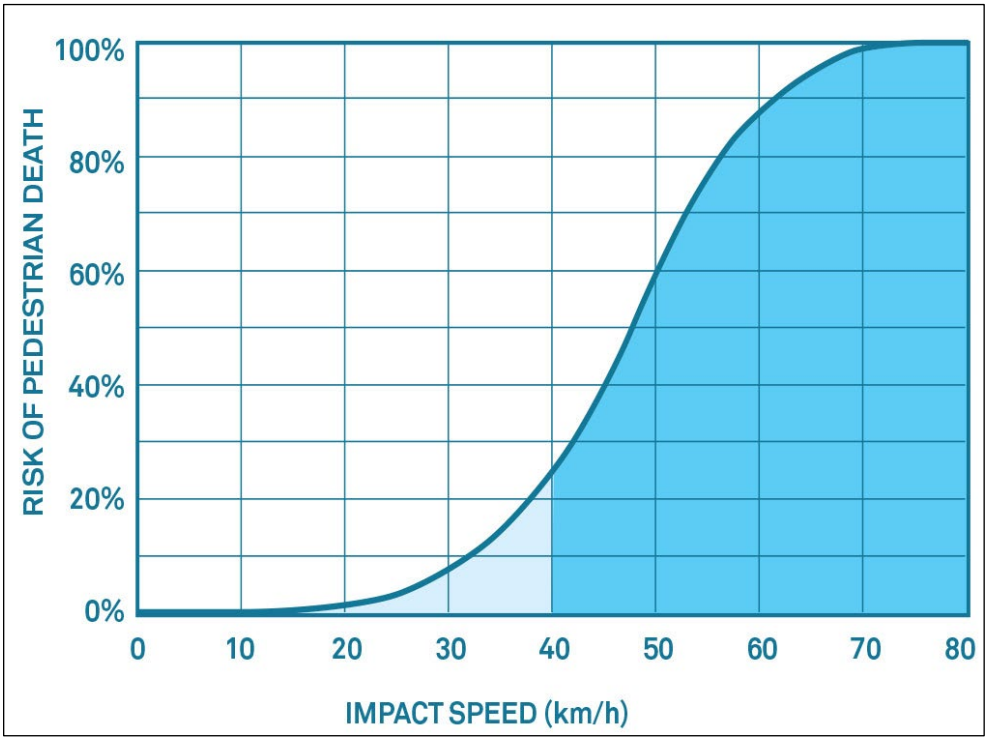
Speeds

Key Takeaway: A 40 km/h default speed limit on local streets, with appropriate updates to design standards, should be considered, while a traffic calming policy should be implemented allowing for the installation of traffic calming elements where issues are identified.

Another important consideration for road safety is the speed of motor vehicle traffic. There is a significant improvement in the outcomes of collisions between vehicles and vulnerable road users (e.g. pedestrians, cyclists) when the vehicle is travelling at 40 km/h compared to travelling at 50 km/h. The relationship between speed and risk of pedestrian death in vehicle-pedestrian collisions is presented in Exhibit 4.9 and illustrates this phenomenon. The risk drops from 60% at 50 km/h to 25% at 40 km/h.

[21] The City of Stratford Downtown Traffic Study (2021) developed three design concepts for the intersection of Downie Street between Douro Street and Waterloo Street. The preferred design approach is *Concept #6C – offset intersection with left-turn lanes and* intends to reduce the operational and sightline issues related to the skewed alignment of Downie Street.

Exhibit 4.9: Relationship between Impact Speed and Risk of Pedestrian Death

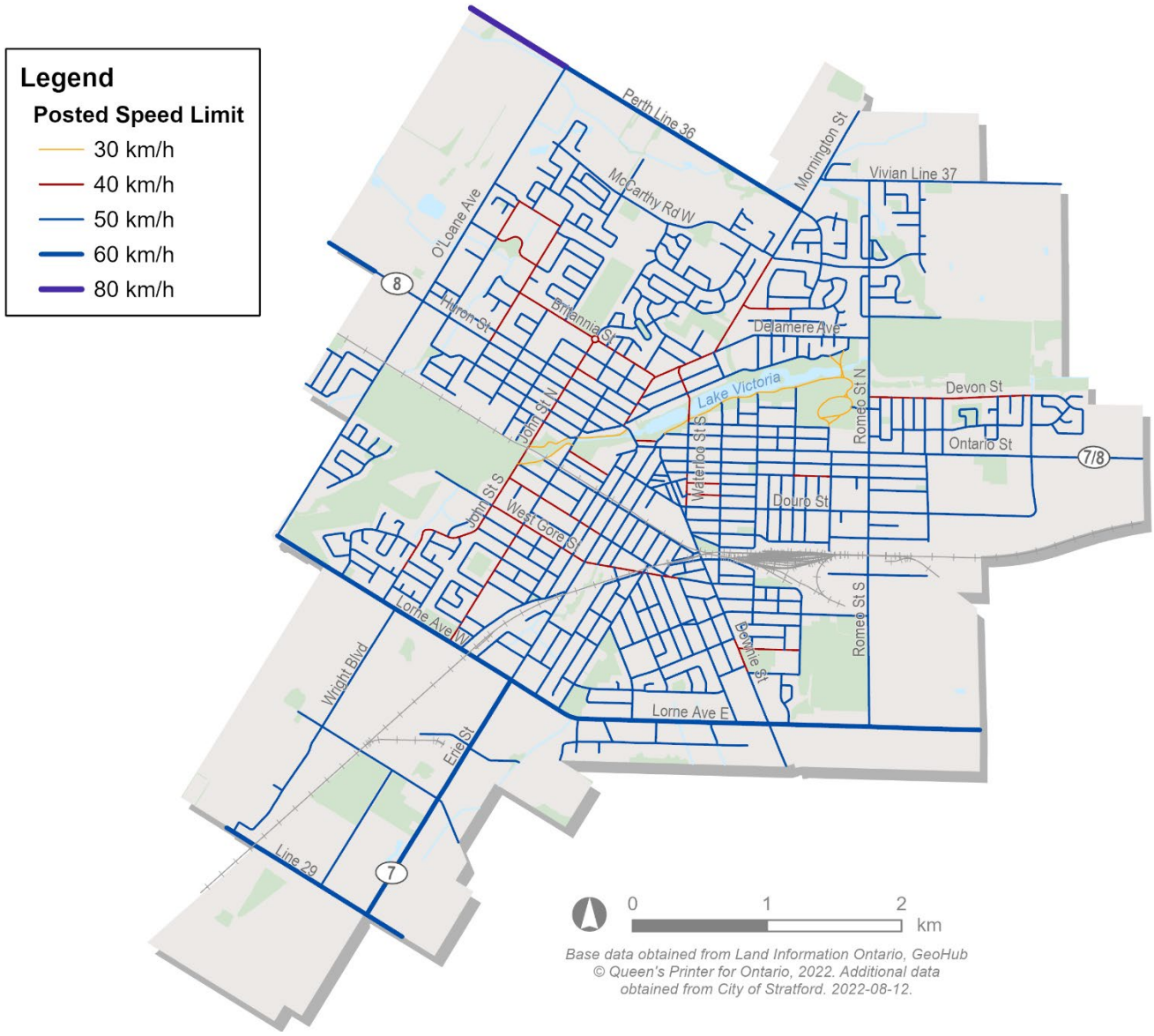


Source: Global Street Design Guide (NACTO, Global Designing Cities Initiative, 2013)

There has been a movement in communities across Ontario and Canada in the last decade to decrease the default speed limit in urban areas from 50 km/h to 40 km/h, including similarly sized communities such as Orangeville as well as larger cities such as Hamilton. Though the City has reduced the speed limit to 40 km/h along some streets, most local roads in Stratford remain 50 km/h. For reference, posted speed limits on City roadways are shown in Exhibit 4.10.

It is important to note that in tandem with lowering speed limits, design changes are often needed to improve driver compliance. Improved road design standards can be implemented for new streets while traffic calming measures can be implemented on existing roadways, where appropriate. Traffic calming is further discussed in Section 4.4.2.

Exhibit 4.10: Speed Limits on City of Stratford Streets



4.1.3 Engagement Input Received

Stakeholders and members of the public provided input through various Round 1 Engagement activities on municipal roads, specifically on traffic operations concerns, for consideration during the TMP study.

Input from stakeholders, as solicited through Stakeholder Group Meeting 1, are summarized below:

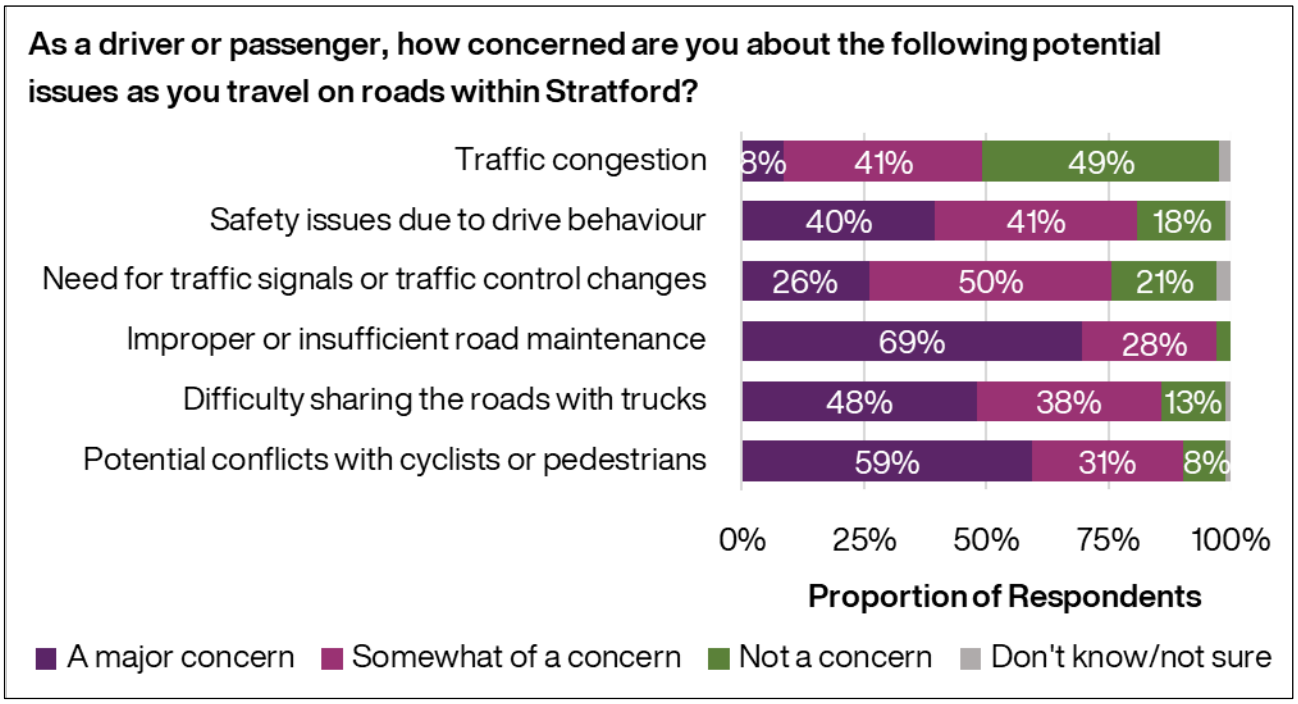
- Implement traffic calming measures to address safety concerns of vulnerable road users, especially in school zones;

- Address heavy through truck traffic and speeds (e.g. Ontario Street, Romeo Street and west of Mornington Street);
- Consider the implementation of more roundabouts (e.g. Romeo Street and Lorne Avenue); and
- Support the implementation of Level 3 electric vehicle charging stations, with special attention to locations of chargers.

Input received from members of the public demonstrated overall safety concerns related to driver behaviour, the need to address through-traffic and speeding vehicles throughout the city, and opportunities for improved traffic operations.

Participants of the online survey, conducted as part of POH 1, were asked about their concern regarding road-related topics. Results are summarized in Exhibit 4.11, showing that *improper or insufficient road maintenance* (69%), *potential conflicts with cyclists or pedestrians* (59%), and *difficulty sharing the road with trucks* (48%) were the most selected factor among survey respondents.

Exhibit 4.11: Public Survey Responses to Road Network Concerns

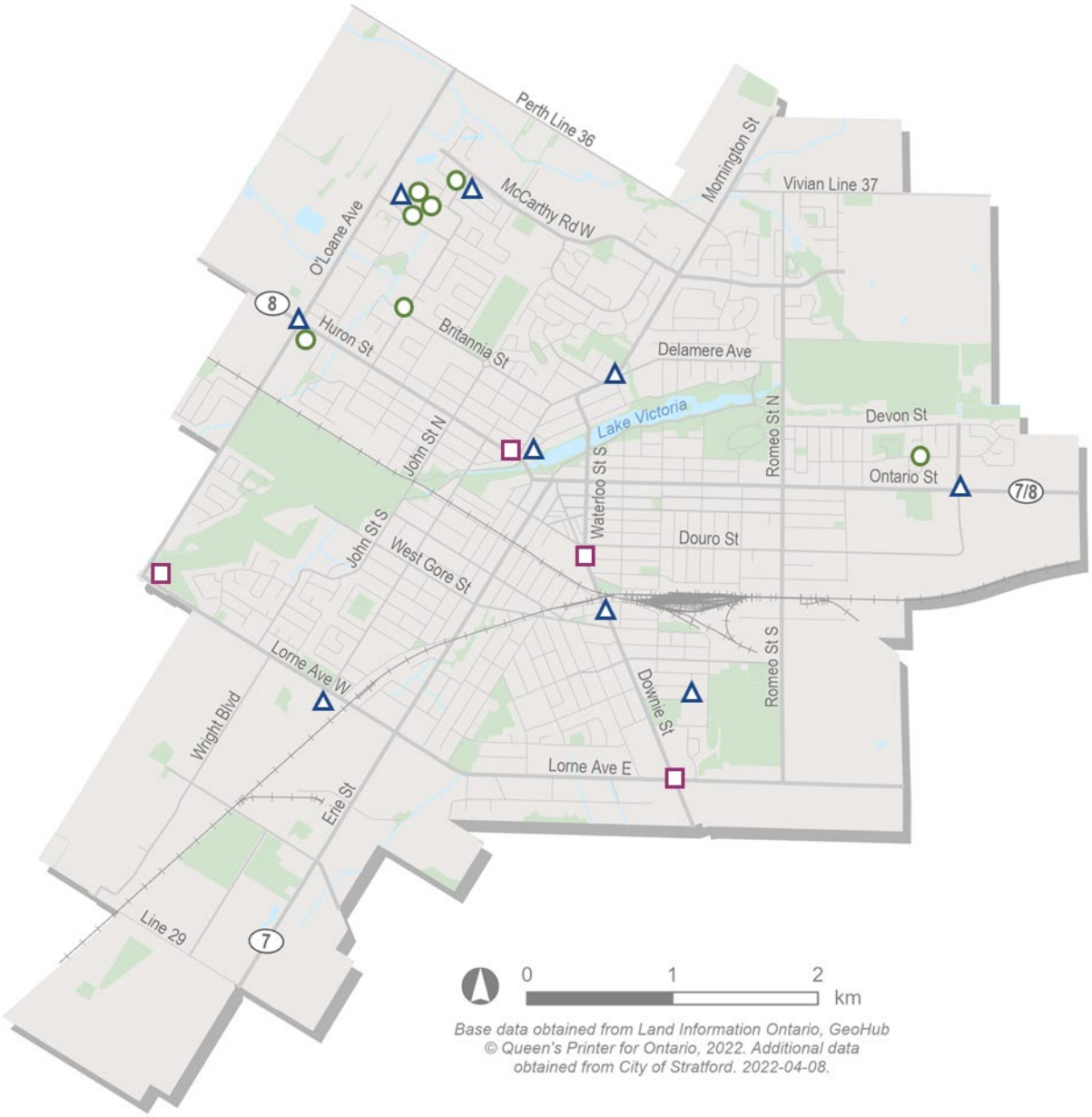


Below are selected safety and operational interests as noted by members of the public through the online survey.

- A focus on road repair and maintenance was a noted issue among survey participants, including the impacts of potholes and other road surface conditions to both cyclists and drivers.
- Diverting heavy through trucks away from the Downtown or keeping trucks on bypass route was an important concern for the TMP to address.
- Speeding vehicles are a concern, and enforcement / traffic calming / reduced speed limits are needed, especially in school zones.
- Traffic congestion did not rate as a major concern for most respondents.

The interactive map, also conducted as an engagement tool as part of POH 1, provided important location-based input, and is summarized in Exhibit 4.12.

Exhibit 4.12: Location-Based Input Received from Interactive Map Tool



Legend

- Suggested Locations for Traffic Calming Measures
- Locations of Safety Concerns due to Driver Behaviour
- Suggested Locations for Roundabout

4.2 Active Transportation

4.2.1 Context

Active Transportation (AT) is a term that refers to all forms of human-powered or power-assisted travel. Most commonly, this means walking and cycling, but can also refer to any travel with the use of mobility aids, and any other form of rolling such as e-scooters, e-bicycles, skateboards, rollerblades, etc. At this stage, higher-level needs and opportunities are identified. A more detailed network planning exercise is planned for Phase 2 of the TMP study.

Existing Active Transportation Network

The existing cycling and trail network in the City of Stratford, as shown in Exhibit 4.13, consists of signed routes, bike lanes and multi-use trails. Most City streets have sidewalks on at least one side. There are additional paths throughout parks and recreational areas that are not shown on the map. While these serve an important purpose, the TMP focuses on facilities for active travel rather than recreation.

Recent efforts by the City have expanded the cycling network since the adoption of the Bike and Pedestrian Master Plan in 2014. Stratford can build on this progress and success by continuing to expand its cycling network, accommodating active transportation users of all ages and abilities ("AAA" cycling) throughout the city.

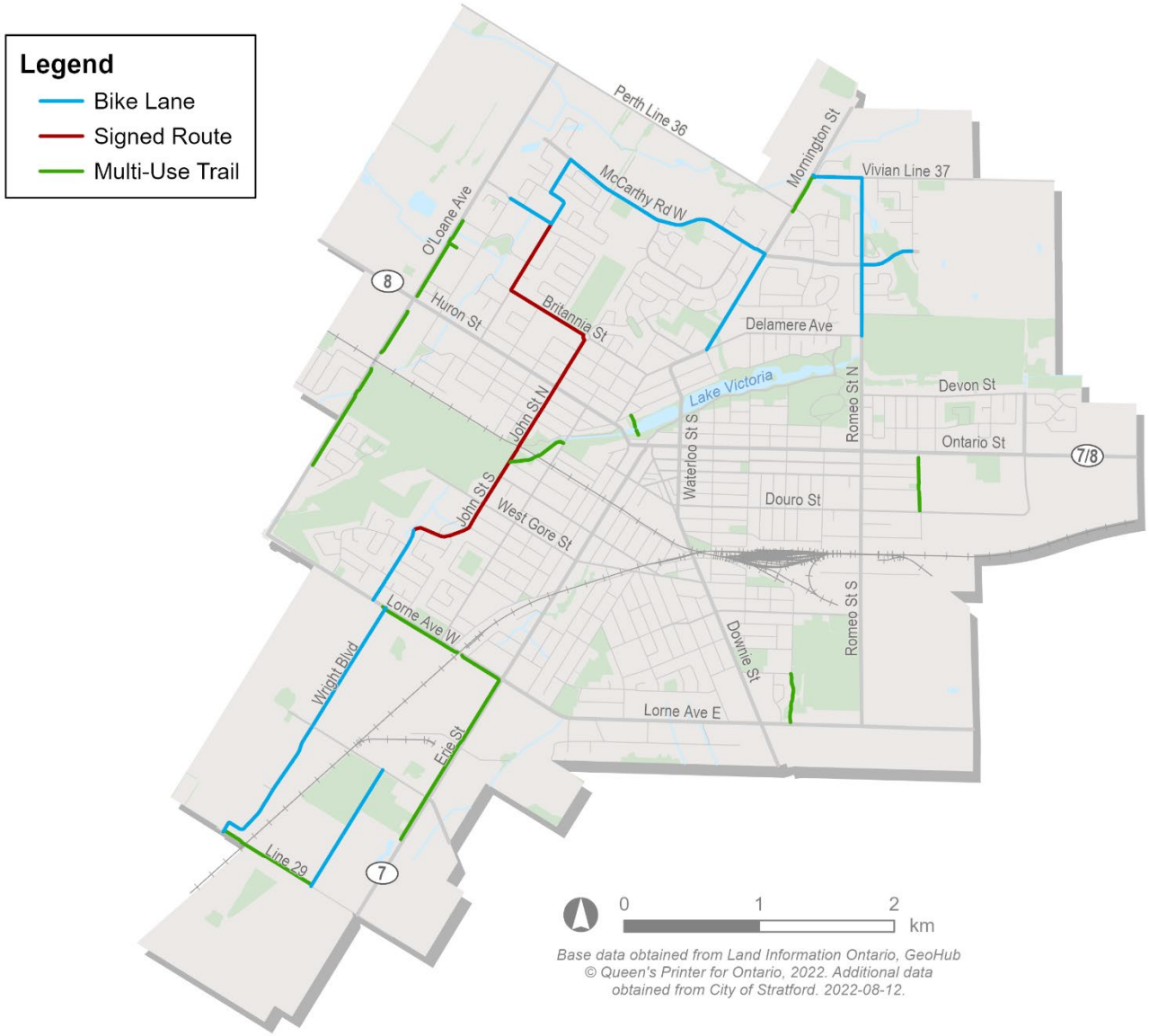
Efforts to expand the cycling network were recently recognized when the City of Stratford received an honourable mention by the Share the Road Cycling Coalition in 2021 as part of their Bicycle Friendly Communities award program. The program honours Canadian communities who have taken actions to support cycling based achievements in engineering, education, encouragement, and planning.

As part of the Bike and Pedestrian Master Plan, the City of Stratford created the Active Transportation Advisory Committee (ATAC) to address the need for active transportation facilities for residents, businesses and visitors. Actions spearheaded by the ATAC have included advocacy for the expansion of bicycle supportive infrastructure and bicycle safety, awareness and education.

Additionally, recent efforts to improve the safety of pedestrians throughout the city have resulted in plans to implement pedestrian crossings at the following intersections:

- Downie Street between George Street and Brunswick Street;
- John Street between Cambria Street and West Gore Street;
- Mornington Street at Vivian Line;
- O'Loane Avenue at the Sobey's entrance; and
- Romeo Street at Verona Park.

Exhibit 4.13: City of Stratford Cycling Network



4.2.2 Analysis

Previous Network Planning

Key Takeaway: The 2014 Bike and Pedestrian Master Plan laid a strong foundation for the City of Stratford, but difficulties with implementation were encountered. Additional attention will need to be paid to feasibility, affordability, and implementation techniques when updating the active transportation network as part of this plan.

The City of Stratford Bike and Pedestrian Master Plan (2014) provides a foundation of spine and secondary routes to consider in the development of a cycling network. As shown in Exhibit 4.14, the former cycling network proposed a robust network of bike lanes, signed routes, sharrows and multi-use trails. These routes are carried forward and will be analyzed in further detail on a corridor-by-corridor basis in the next phase of the TMP study, with an emphasis on feasibility of implementation.

Projects identified by the 2014 Bike and Pedestrian Master Plan were reviewed to assess progress and provide context for further assessment, as outlined in Exhibit 4.15. The formerly proposed plan organized priority projects into three categories, as follows:

- Signage projects;
- Intersection improvement studies; and
- Construction projects.

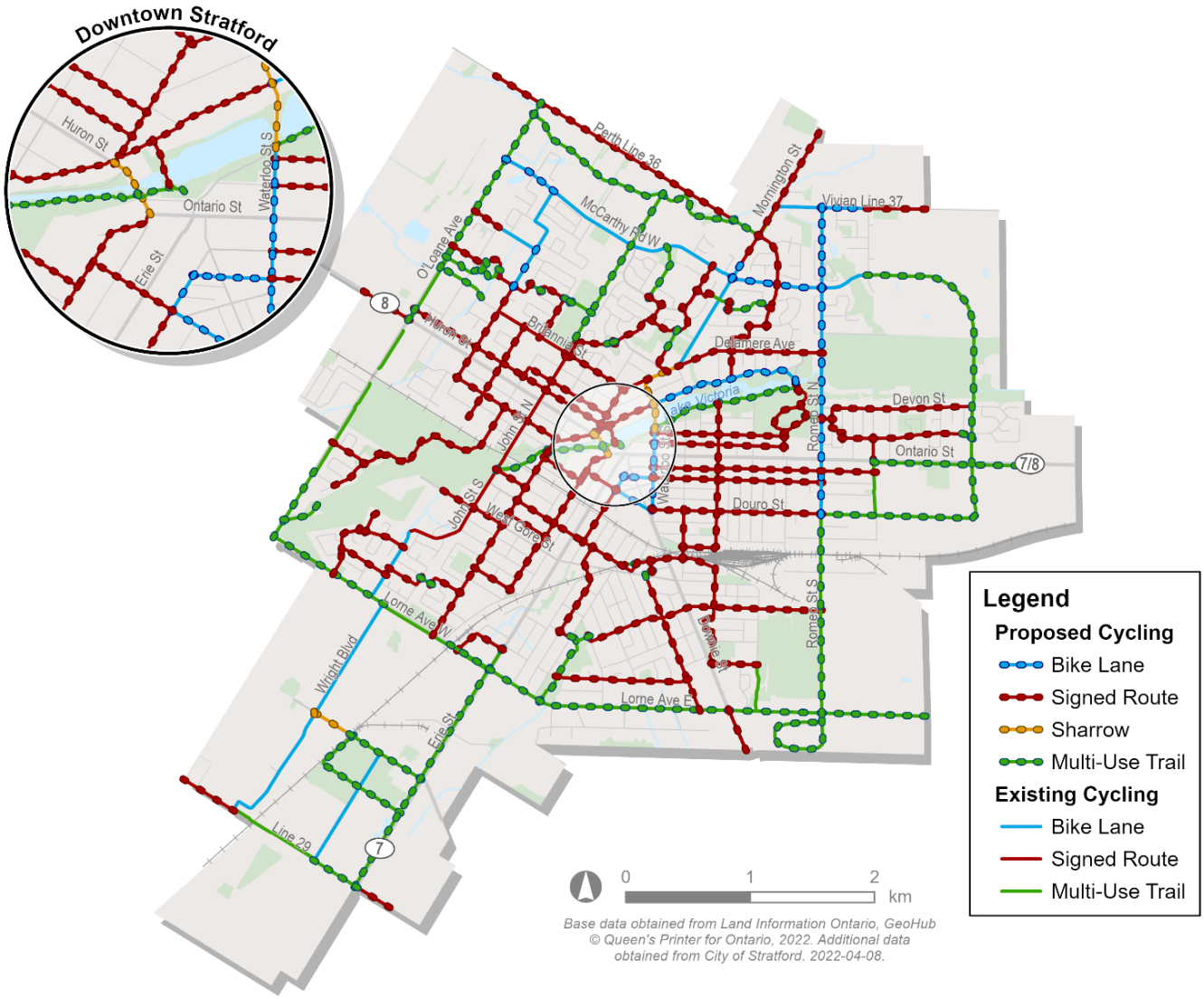
Supplementary information regarding status of selected projects has been included based on input from City staff.

Additionally, at the March 28, 2022 City of Stratford Council meeting, Council adopted the following resolutions to apply for active transportation through Infrastructure Canada's Active Transportation Fund:

- Apply to receive up to 60% of the eligible project costs for the Multi-Use Trail Rehabilitation project along Erie Street from Lorne Avenue to City Limits;
- Apply to receive up to 60% of the eligible project costs for the Bike Lane and Sidewalk Extension project along McCarthy Road from Mornington Street to Romeo Street; and

- Apply to receive up to 60% of the eligible project costs for the Multi-Use Trail project along Douro Street and C.H. Meier Boulevard from Romeo Street to Devon Street.

Exhibit 4.14: 2014 Bike and Pedestrian Master Plan Cycling Network



Source: Adapted from the City of Stratford Bike and Pedestrian Master Plan (2014)

Exhibit 4.15: City of Stratford Proposed Priority Projects as identified by the 2014 Bike and Pedestrian Master Plan

ID	Project Location	Facility Type	Timeline	Status
Signage Projects				
S1	Front St, Shakespeare St, Nile St, Guelph St, Taylor St, Simcoe St / Proposed MUT	MUT, Signed Route	2014-2019	MUT complete; Signed route incomplete
S2	Proposed MUT from McCarthy Rd to Britannia St / John St from Britannia St to Queensland Rd / Queensland Rd from John St to Lorne Ave	MUT, Signed Route, Bike Lane	2014-2024	Bike lane and signed route complete; MUT incomplete
S3	Britannia St from Forman Ave to Mornington St	Signed Route	2014-2024	Complete
S4	Albert St from Waterloo St to Romeo St / Brunswick St from Waterloo St to Burritt St	Signed Route	2014-2019	Incomplete
S5	Centre St from John St to St. Vincent St / Cambria St from St Vincent St to Victoria St / Kent Ln from Victoria St to Nile St	Signed Route	2014-2019	Incomplete
Intersection Improvement Projects				
I1	Market Square	Intersection Improvements	2020-2024	Complete with the reconstruction of Market Square
I2	Kent Ln and Downie St	Intersection Improvements	2014-2019	Incomplete

ID	Project Location	Facility Type	Timeline	Status
I3	Waterloo St and Douro St	Intersection Improvements	2020-2024	Incomplete – Downtown Traffic Study recommendations for intersection require further consultation and design and will be implemented in conjunction with the Grand Trunk Community Hub site
I4	Delamere Ave and Romeo St	Intersection Improvements	2014-2019	Incomplete – new pedestrian crossing at Romeo St. and Verona Park included in the 2022 Capital Budget
I5	William St and Douglas St	Intersection Improvements	2020-2024	Incomplete – bike lanes implemented across Huron Street Bridge, and improvements to intersection will be implemented as part of the Huron Street Reconstruction
Construction Projects				
C1	Wright Blvd from Lorne Ave to Durkin St / Durkin St from Wright Blvd to Line 29	Bike Lanes	2014-2019	Complete
C2	McCarthy Rd from Greenwood Dr to Romeo St	Bike Lanes	2014-2019	Funding submitted by City
C3	TJ Dolan Trail	Multi-Use Trail	2014-2019	Incomplete
C4	Waterloo St from Douro St to Mornington St	Bike Lanes	2020-2024	Incomplete; existing parking and limited roadway width challenge to implementation

ID	Project Location	Facility Type	Timeline	Status
C5	Lakeside Dr from Waterloo St to Lakeside D. N	Multi-Use Trail	2025-2034	Incomplete; roadway represents an important priority among City staff, Council and the public
C6	Romeo St from McCarthy Rd to Douro St	Bike Lanes	2014-2024	Incomplete; bike lanes have been installed between Vivian Line 37 to Delamere Avenue
C7	Ontario St from Burritt St to Marketplace driveway east of C.H. Meier Blvd	Multi-Use Trail	2020-2024	Incomplete

Attracting New Cyclists

Key Takeaway: Over 40% of survey respondents in Stratford identify as someone who is "interested but concerned" about cycling. There is an opportunity to encourage this cohort to cycle more by providing safer, more comfortable facilities, suitable for people of all ages and abilities.

Owing to its small geographic size, compact built-form and flat topography, Stratford has an opportunity to tap into a market of underserved cyclists, given they are provided with the right infrastructure to support them to cycle.

Results from the online survey conducted as part of Public Open House 1 indicated that 41% of respondents identified as the *interested but concerned cyclist* (i.e. those uncomfortable sharing the road with cars without dedicated cycling facilities) when asked what level of cycling best defines them. There is a key opportunity to increase cycling uptake among this cohort with improvements to cycling infrastructure.

The *Ontario Traffic Manual Book 18 – Cycling Facilities* (OTM Book 18) [22] is an important resource and reference document that provides guidance, best

[22] *Ontario Traffic Manual Book 18 – Cycling Facilities* was developed in association with the Ontario Traffic Council and provides guidance to Ontario municipalities on the uniformity and treatment of cycling design facilities, and is consistent with the Highway Traffic Act regarding municipal roads and infrastructure. A 2021 update provides up-to-date guidance for the City of Stratford in developing its cycling network and determining appropriate facility types and design for each route.

practices, and design standards in selecting appropriate and safe cycling facilities for the City's cycling network. The updated OTM Book 18 document supports the installation of high-quality separated cycling facilities, with an increased emphasis on safety of all road users above motor vehicle throughout.

There are a wide range of cyclists in terms of interest and ability, and OTM Book 18 defines different design cycling user groups to help inform practitioners in the planning and designing of cycling facilities, as follows:

- *Interested but concerned*, representing 51-56% of the population;
- *Somewhat confident*, represent 5-9% of the population;
- *Highly confident*, representing 4-7% of the population; and
- *No way no how*, represent the remaining population who are not interested in cycling.

The *interested but concerned* user group is to be considered the **design cyclist**, the user category that practitioners should seek to accommodate. This strategy considers the needs of the most vulnerable cycling population and develops solutions that are inclusive to and benefits cyclists of all ages and abilities.

Safety and Vision Zero

Key Takeaway: To move towards the elimination of street fatalities and serious injuries, a Vision Zero approach to street safety is needed. This is a "safe systems" approach that recognizes that humans make mistakes and that streets should be designed to be forgiving of these mistakes.

Safety is an important consideration in the development of improved pedestrian and cycling networks and progressing toward Vision Zero is an important goal of the TMP. **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. Vision Zero acknowledges that humans will naturally make mistakes through the course of their day, including while using the transportation system. The main tenet of Vision Zero, however, is that these mistakes 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.

There is increasing desire to provide safe and supportive infrastructure that reflects the Vision Zero principles. This means providing separation between vulnerable road users and vehicles (e.g. through cycle tracks, protected bike lanes, protected intersections, mid-block crossings, trails, etc.) and designing streets to reduce driver speed so collisions between drivers and other drivers or drivers and pedestrians or cyclists do not end in tragedy.

Improving safety is a critical ingredient in attracting the "interested but concerned" cycling cohort identified above. Targeted safety improvements, primarily through dedicated cycling infrastructure, is an important factor in active transportation uptake as identified by survey respondents to the online survey conducted as part of Public Open House 1. More broadly, safety improvements are needed to support the TMP's objective of supporting Stratford as a healthy, safe and complete community.

15-Minute City

Key Takeaway: Stratford's existing geography lends itself well to embody a true 15-Minute City. Improvements in active transportation facilities and connections are needed to realize this future.

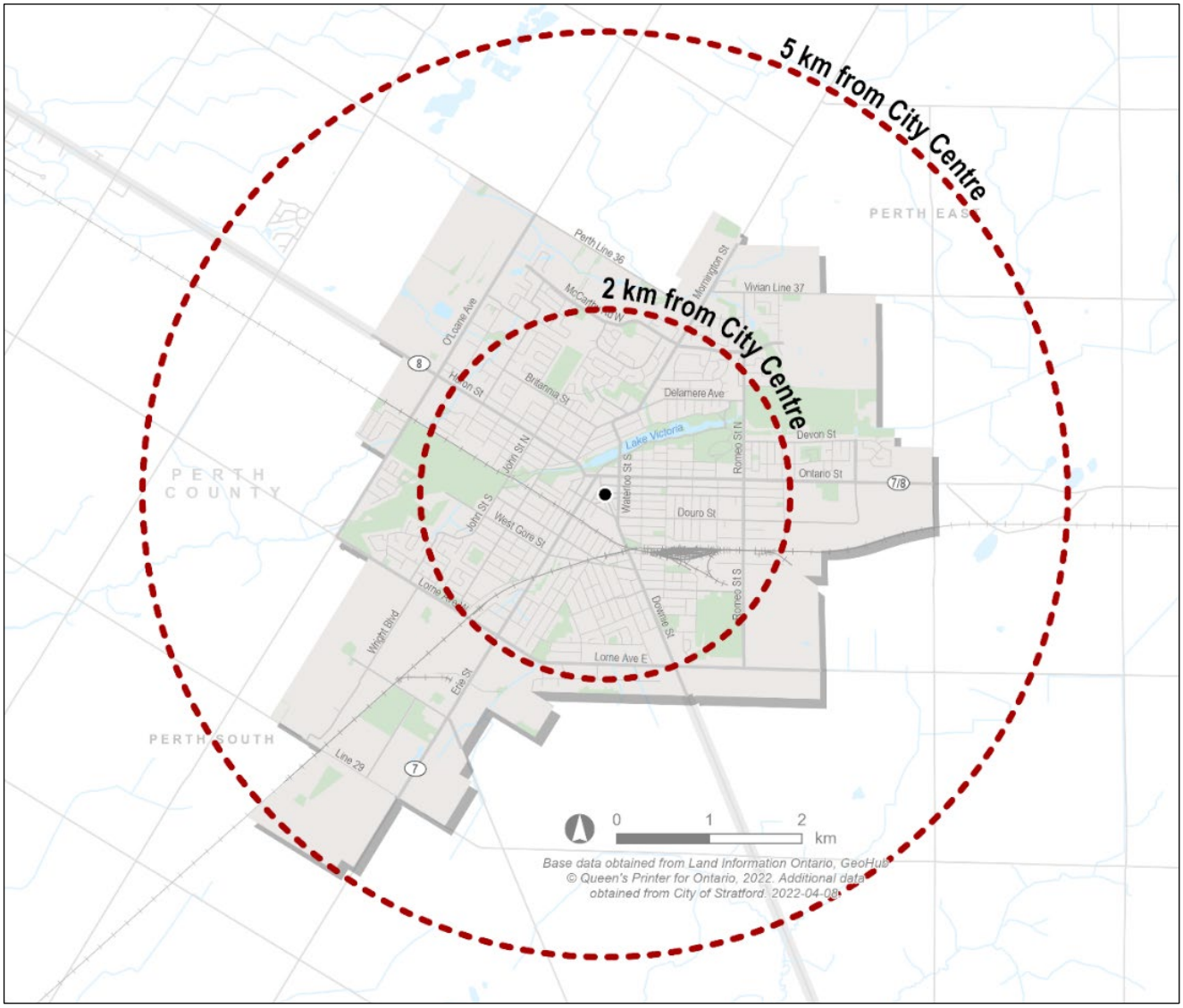
The 15-Minute City is a recent trend in urban and transportation planning and an important consideration for the City of Stratford. Essentially, the 15-Minute City describes an urban geography where most daily activities are located within a travel time of 15-minutes.

Stratford already largely functions as a 15-Minute City for drivers – targeted improvements to cyclist and pedestrian infrastructure can help progress the City to embody a true 15-Minute City for all. Safe and meaningful connections throughout the City are important – this includes connections from the Downtown to the City's periphery, as well as connections to important employers and destinations such as Festival Marketplace Shopping Centre, Walmart and Stratford General Hospital. Additionally, schools are an important consideration, and ensuring safe and connected options to travel would encourage active transportation as a viable option for students.

In supporting the development of healthy, safe and complete communities, the 15-minute city serves as a useful planning concept that enables access to essential urban services within a 15-minute walk or bike ride. Exhibit 4.16 illustrates a 2- and 5-kilometre radius from the city centre (Stratford City Hall), where the former

represents a typical walkable distance and the latter represents a typical cyclable distance.

Exhibit 4.16: Active Transportation Buffers from Stratford City Centre



In assessing where active transportation facilities and improved connectivity are needed, focus areas and major destinations were identified, as follows:

- Stratford General Hospital;
- Lake Victoria (including Tom Patterson Theatre, William Allman Memorial Arena, Upper Queen's Park, North Shore Park and Shakespearean Gardens);
- Downtown Stratford;

- Walmart Supercentre;
- Festival Marketplace Shopping Centre;
- Post-secondary institutions:
  - Conestoga College – Stratford Campus; and
  - University of Waterloo Stratford School of Interaction Design and Business.

In understanding the various roadblocks to the expansion of active transportation facilities, the following challenges were identified:

- Majority of new development occurring at the periphery of the City, and so commuting distances likely to increase over time;
- Constrained right-of-way likely on many historical streets (e.g. Heritage Conservation District);
- Key barriers include the rail line, Lake Victoria, major arterials (e.g. Erie Street, Huron Street, Ontario Street); and
- Radial street pattern connecting to Downtown, with lack of grid pattern north of Lake Victoria.

4.2.3 Engagement Input Received

Feedback from stakeholders and the public regarding active transportation were received through various Round 1 Engagement activities.

Input from stakeholders, as solicited through Stakeholder Group Meeting 1, are summarized below:

- Prioritize pedestrian and cyclist safety (with emphasis on safety in school zones), and accommodate all road users along arterial roads;
- Prioritize filling gaps in the sidewalk network, especially in school zones, and target safety of pedestrians through more pedestrian crossovers;
- Retrofit roads to maximize cyclist safety and expand the cycling network, specifically to commercial streets and districts of the city (e.g. connect employees, products, and customers via a cycling network);

- Coordinate cycling connections with Perth County, identify hubs and spokes and ensure wayfinding opportunities are identified, especially to maximize connections from outside Stratford;
- Consider bike parking facilities outside of the Downtown (e.g. the mall); and
- Review the existing bike lane along Romeo Street, as it does not continue over the bridge, rendering the cycling route impractical;

Input received from members of the public demonstrated strong support for new, improved and connected active transportation infrastructure that encourages the safe and comfortable movement of cyclists and pedestrians.

Participants of the online survey, conducted as part of POH 1, were asked about factors that could encourage cycling more often. Results are summarized in Exhibit 4.17, showing that *increased separation between cyclists and other road users* (72%) was the most selected factor among survey respondents. Participants were also asked about factors that could encourage walking more often. Results are summarized in Exhibit 4.18, showing that *safer pedestrian crossings / more pedestrian crossings* (58%) was the most selected factor among survey respondents.

Exhibit 4.17: Public Survey Response to Factors that Encourage Cycling

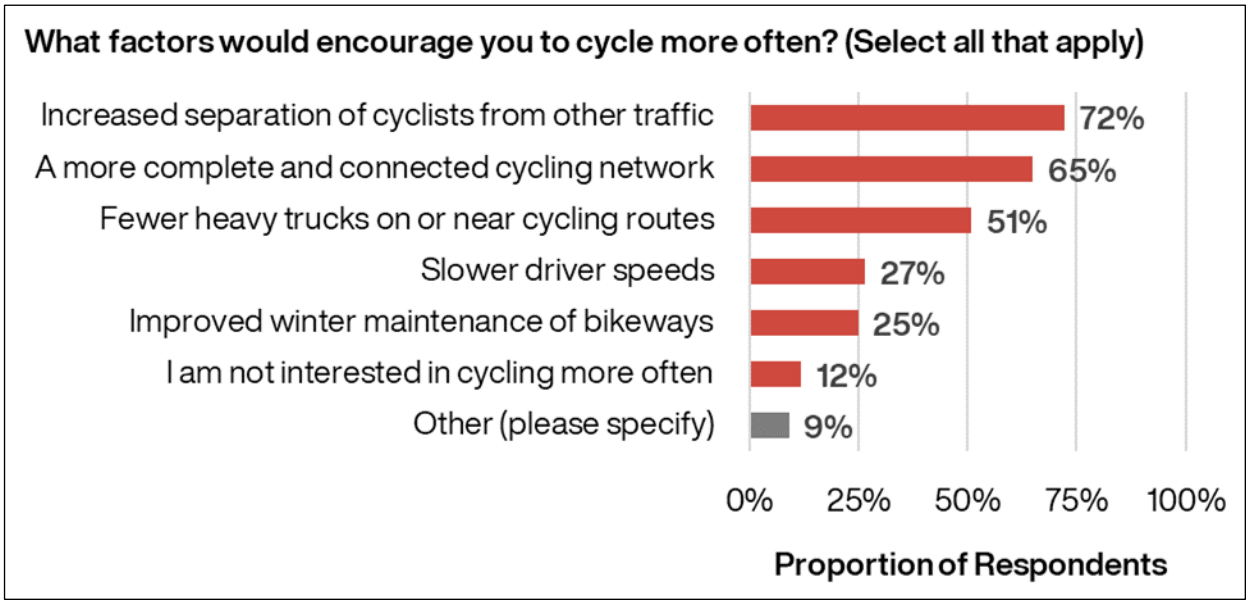
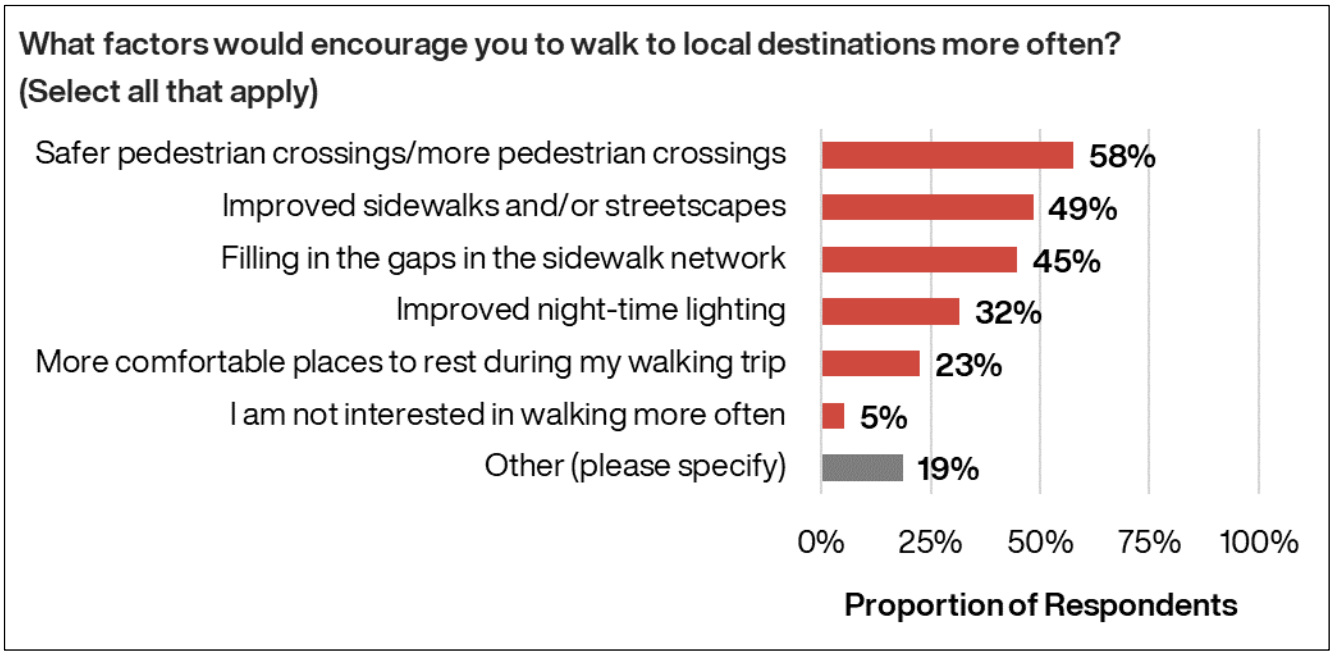


Exhibit 4.18: Public Survey Response to Factors that Encourage Walking

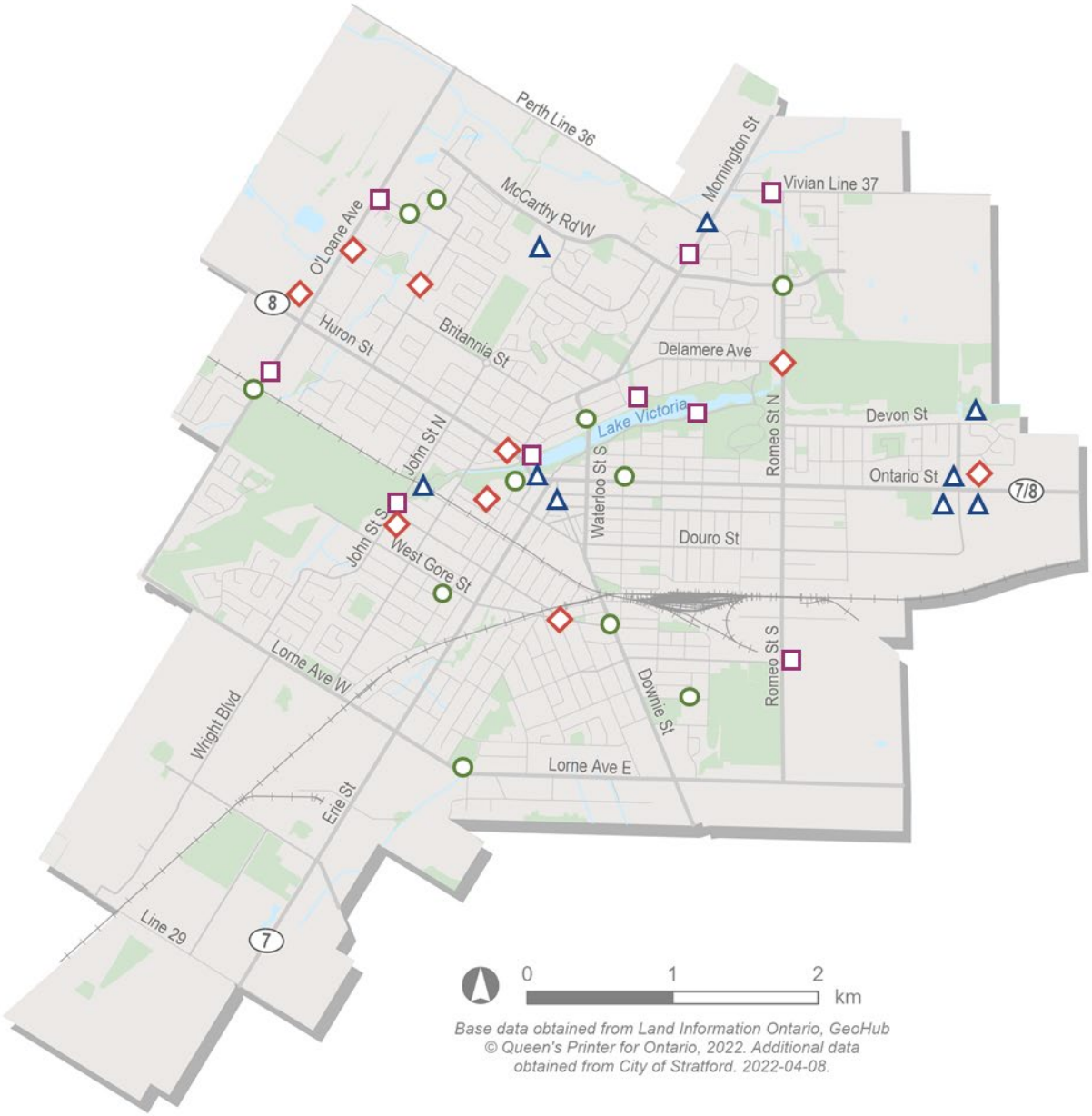


Other important findings and themes identified can be summarized as follows:

- Concern for the safety of vulnerable road users was clear as *potential conflicts with cyclists or pedestrians* was among the top major concern among survey participants regarding potential issues the road network, selected by 59% of respondents. Additionally, improved cycling facilities was the most selected priority for the TMP to address, selected by 71% of respondents.
- The safety and comfort of active transportation users is important and can be addressed through providing increased separation of motorized modes, noting that proximity to cars and trucks is a major factor to active transportation uptake. This can be achieved through expanding and connecting bike lanes, identifying and addressing sidewalk gaps, and installing more pedestrian crossings,
- Walking and cycling are important modes for both residents and visitors – supporting related infrastructure is an important action that can respond to safety concerns, improve connectivity, encourage uptake, support tourism and help the environment.

The interactive map, also conducted as an engagement tool as part of POH 1, provided important location-based input, and is summarized in Exhibit 4.19.

Exhibit 4.19: Location-Based Input Received from Interactive Map Tool



Legend

- Suggested Locations for Pedestrian Crossings
- Suggested Locations for Bike Parking
- Suggested Cycling Network Expansion Opportunities
- Suggested Locations for Sidewalk Infilling

4.3 Transit

4.3.1 Context

Existing Transit Network

Several transit providers operate service to, from and within the City of Stratford. Existing transit service in Stratford is shown in Exhibit 4.20.

Stratford Transit is a municipality-run transit system that operates seven routes within Stratford. In addition, three routes have modified alignments for transporting students to and from elementary and high schools. All routes depart from the new Downtown Transit Terminal and operate on a fixed schedule Monday through Saturday.

In July 2020, the City initiated an on-demand transit service. The demand responsive service allows passengers to request a ride between any two transit stops in the fixed-route service area, from 6:00 a.m. to 8:00 p.m. on Saturdays and 10:00 a.m. to 5:30 p.m. on Sundays. Trips can be scheduled in advance or booked for immediate pick-up.

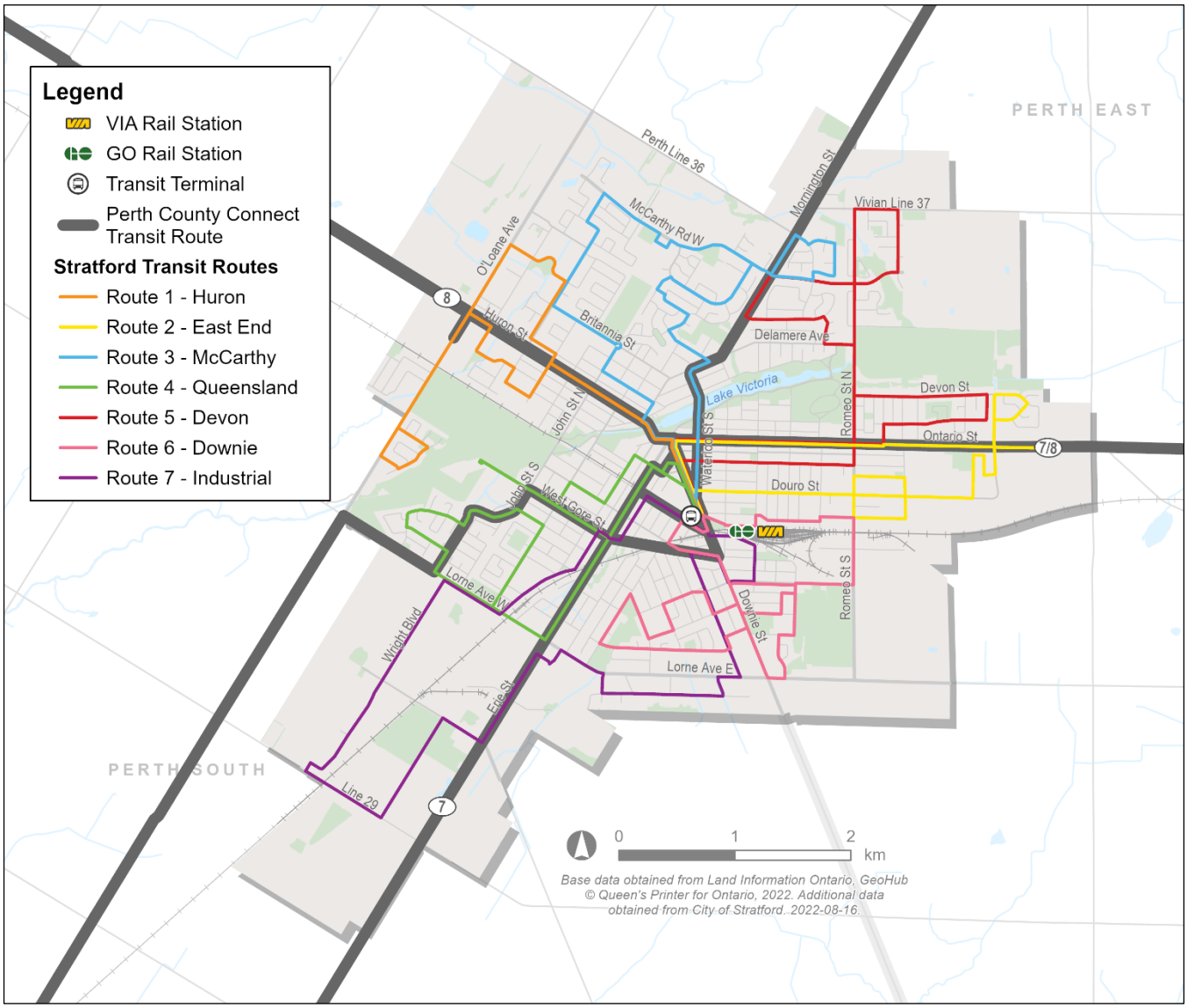
The City also operates Parallel Transit, a door-to-door accessible transit service for persons with disabilities who are unable to access Stratford Transit.

Additional passenger transit options that operate to outside jurisdictions with services directly within the City of Stratford include the following:

- **PC Connect:** As part of the regional Southwest Community Transit Association, Perth County operates several regional bus routes providing connections between Stratford and Perth County, Kitchener, Waterloo, St. Marys and London.
- **GO Transit:** GO Transit is a public transit system and division of Metrolinx, a provincial Crown agency, and is the primary regional transit operator responsible for bus and rail service between major transit hubs in the Greater Golden Horseshoe. On October 18, 2021, GO Transit launched its GO Train pilot service between Toronto and London, with a stop in Stratford at the VIA Rail train station. The weekday service extends service on the Kitchener GO line and provides connections between Toronto, Brampton, Georgetown, Guelph, Kitchener, Stratford, St. Marys and London.

- **VIA Rail:** VIA Rail is a Crown Corporation responsible for the operation of passenger rail services across Canada. The rail carrier operates direct service from Stratford to Toronto and connections east, as well as direct service from Stratford to London with connections west.

Exhibit 4.20: Existing Transit Services in the City of Stratford



4.3.2 Analysis

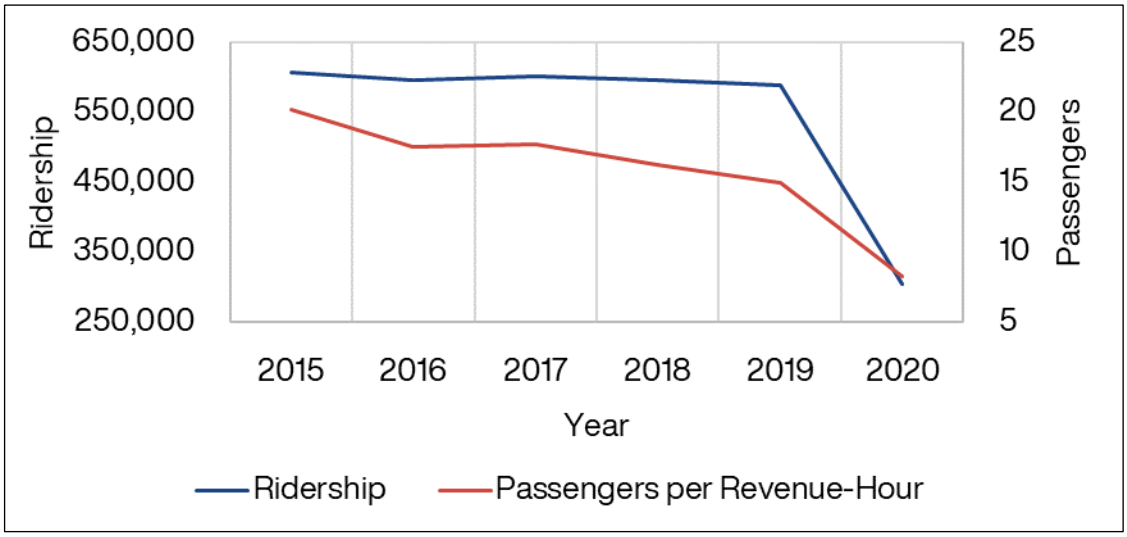
Operations

Key Takeaway: 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.

Stratford Transit's operational characteristics were analyzed, using five years of pre-pandemic operating data (2015-2019), and one year of pandemic data (2020), sourced from the CUTA Fact Books.

As seen in Exhibit 4.21 below, the system ridership has decreased slightly pre-pandemic (3%), in line with a downward trend observed by many North American transit systems. This is speculated to be caused by relatively affordable fuel prices and emergence of ride-hailing services (Uber, Lyft). However, with some agencies seeing cumulative ridership reductions of up to 15%, Stratford Transit's ridership has remained resilient in comparison. The effect of COVID-19 caused a 48% decrease in ridership, again in line with global ridership trends.

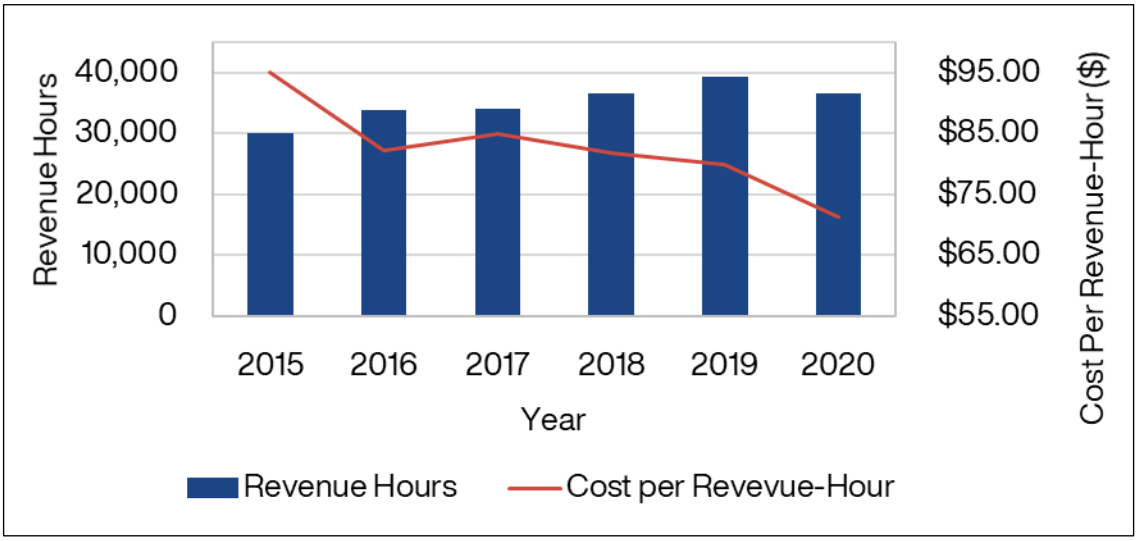
Exhibit 4.21: Transit System Ridership and Passengers Per Revenue-Hour



However, the steeper curve of the passengers per revenue-hour metric shows ridership has dropped or remained steady despite notable service increases.

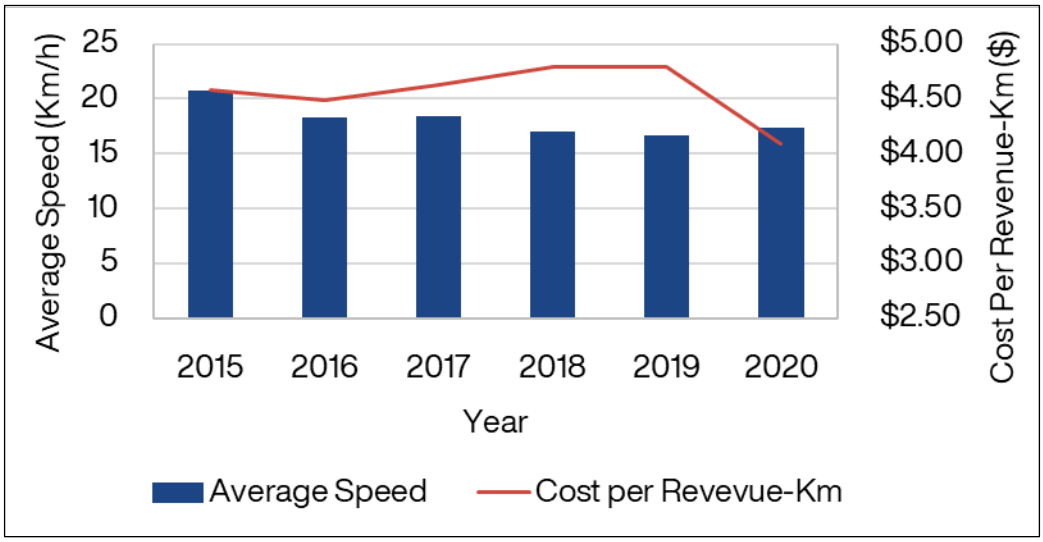
Next, revenue service hours were examined to explore how the amount of transit service has changed over the analysis period. Exhibit 4.22 shows a steady increase in revenue hours, from a low of 30,017 in 2015, to a peak of 39,444 in 2019. Even during the pandemic, revenue hours remained higher than most years prior. Cost of operating service per revenue-hour has declined as service has increased, which indicates that Stratford Transit has been successful at controlling operating costs.

Exhibit 4.22: Transit System Revenue Hours and Associated Costs



The average speed of the transit system was explored in Exhibit 4.23, which shows a gradual decline in average speed, totalling 20% from 2015-2019, and a slight uptick in 2020 during the pandemic (caused by the effect of the lockdown on traffic volumes). This points potentially to increasing delay due to traffic as the population and number of commuters grows. A slight upward trend on operating cost per revenue-kilometre is observed, corresponding to slower travel speeds causing an increase in revenue hours required to service the same number of revenue kilometres. The operating cost per revenue-kilometre decreased considerably during the pandemic due to reduced road congestion.

Exhibit 4.23: Transit System Average Speed and Cost Per Revenue-Km



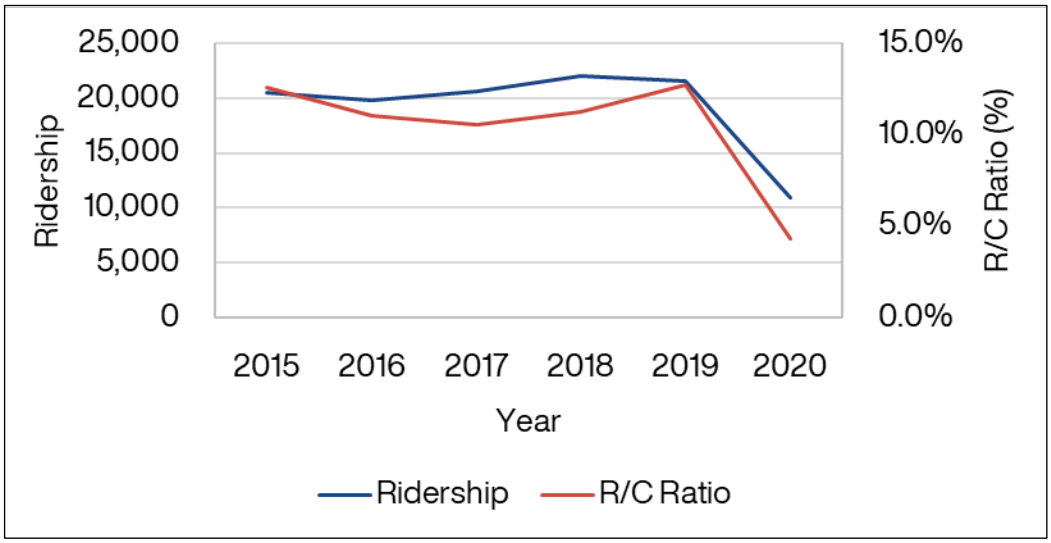
Finally, the Parallel Transit accessible transit system's performance was explored in Exhibit 4.24 below. The system provided 21,291 rides in 2019, with a total of 8,850 revenue-hours. The average distance per trip was 5.10km, and each vehicle serviced an average of 2.44 passengers per hour.

Exhibit 4.24: Parallel Transit Performance Metrics

Metric	Value (2019)
Ridership	21,291
Revenue Hours	8,850
Revenue Kilometres	108,555
Passengers Per Hour	2.44
Average Trip Distance (km)	5.10
Cost Per Trip	$18.79
Cost Per Revenue-Hour	$45.91
Fleet Size	5

In 2019, the revenue/cost (R/C) ratio peaked at 12.8%, while ridership peaked in 2018 at 22,001 passengers, seen below in Exhibit 4.25. The pandemic dealt significant impacts to ridership and R/C ratio, with decreases of roughly one-half and two-thirds respectively, as riders of the Parallel Transit service overlapped with those who most limited their travel due to health vulnerabilities.

Exhibit 4.25: Parallel Transit Ridership and R/C Ratio



Financial

Key Takeaway: The transition to on-demand transit during lower-ridership periods likely resulted in reduced overall operating costs due to fewer operators needed. Further opportunities for optimizing operational costs should be explored.

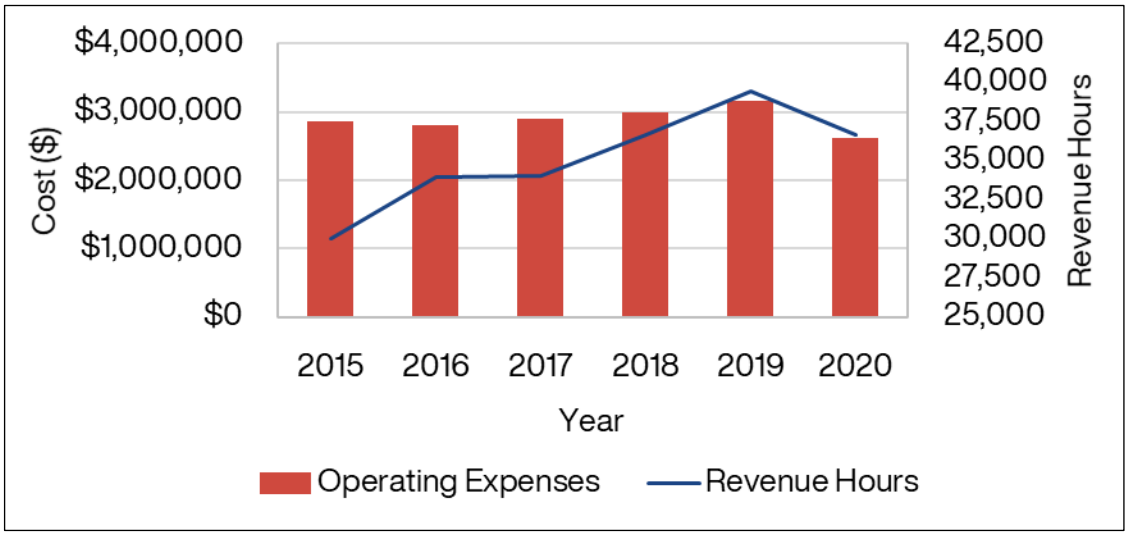
Stratford Transit's revenue-cost (R/C) ratio, seen in Exhibit 4.26 experienced a sharper decline than ridership during pre-pandemic years, from a peak of 31.3% in 2016 to a low of 25.9% in 2019. The pandemic further exacerbated revenue loss, with a R/C ratio of 21% in 2020.

Exhibit 4.26: Transit System Revenue-Cost Ratios

Year	2015	2016	2017	2018	2019	2020
R/C Ratio	29.5%	31.3%	28.5%	28.4%	25.9%	17.4%

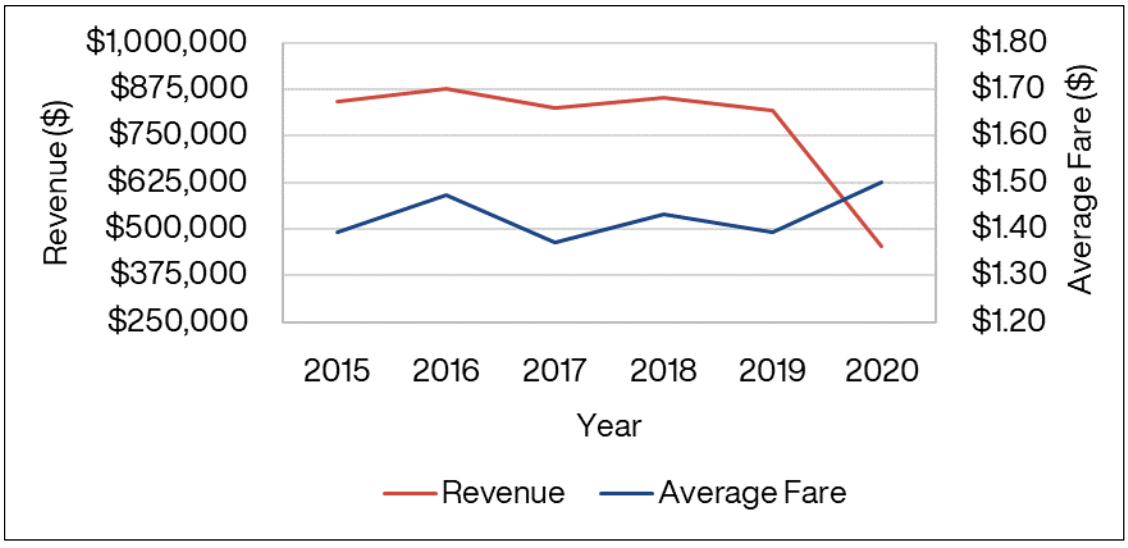
The annual operating expenses associated with Stratford Transit have trended slightly upwards, in line with service increases, as seen in Exhibit 4.27. However, operating costs were lowest in 2020, while operating hours remained higher than all years except 2019. One explanation for this may be the implementation of on-demand transit service which replaced Sunday service (and expanded to Saturday service in 2021), utilizing fewer service hours to cover the same service area.

Exhibit 4.27: Transit System Operating Expenses



Annual revenues were analyzed, along with average fare, in Exhibit 4.28. As ridership held relatively steady from 2015-2019, the annual revenues are a function of the average fare paid by riders. However, this trend did not hold during the pandemic, where fares remained the same while the ridership plummeted, causing a 44% decrease in fare revenues due to COVID-19.

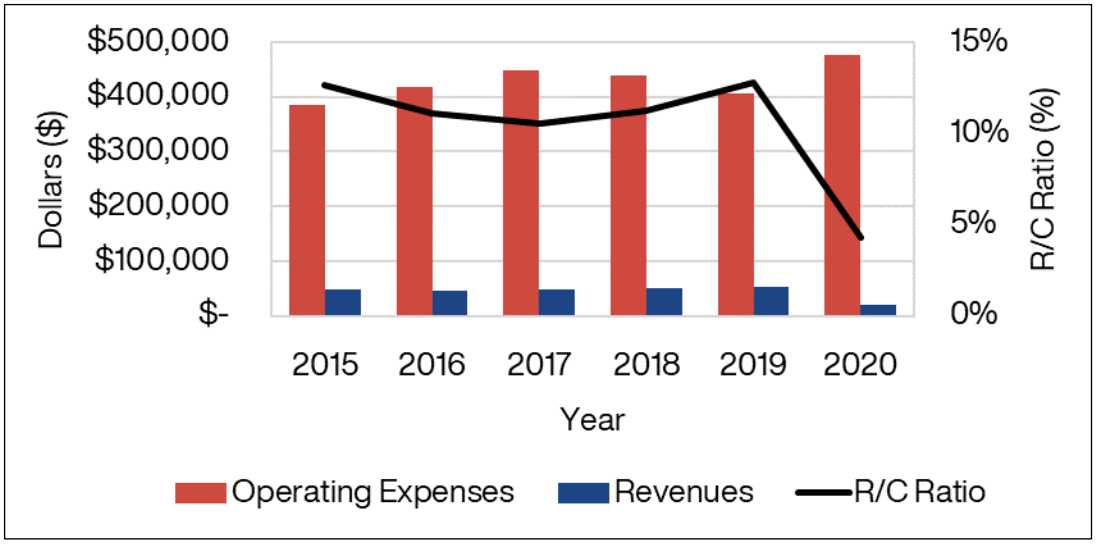
Exhibit 4.28: Transit System Revenues and Average Fare



Lastly, Parallel Transit's financial performance was assessed over the analysis period in Exhibit 4.29. Prior to the pandemic, operating costs were controlled effectively, and ridership, and thus revenues, trended upwards. However, the pandemic brought about decreased revenues, while operating costs increased

substantially to $475,780, the highest amount in the analysis period. Likewise, the R/C ratio plummeted to 4.3% in 2020 from 12.8% in 2019.

Exhibit 4.29: Parallel Transit Financial Performance



Peer Review

Key Takeaway: Despite having the second-lowest per capita ridership, Stratford had the second-highest investment in service hours in the pre-pandemic era. This implies existing service may need to be adjusted to better serve popular destinations and provide faster, more direct service.

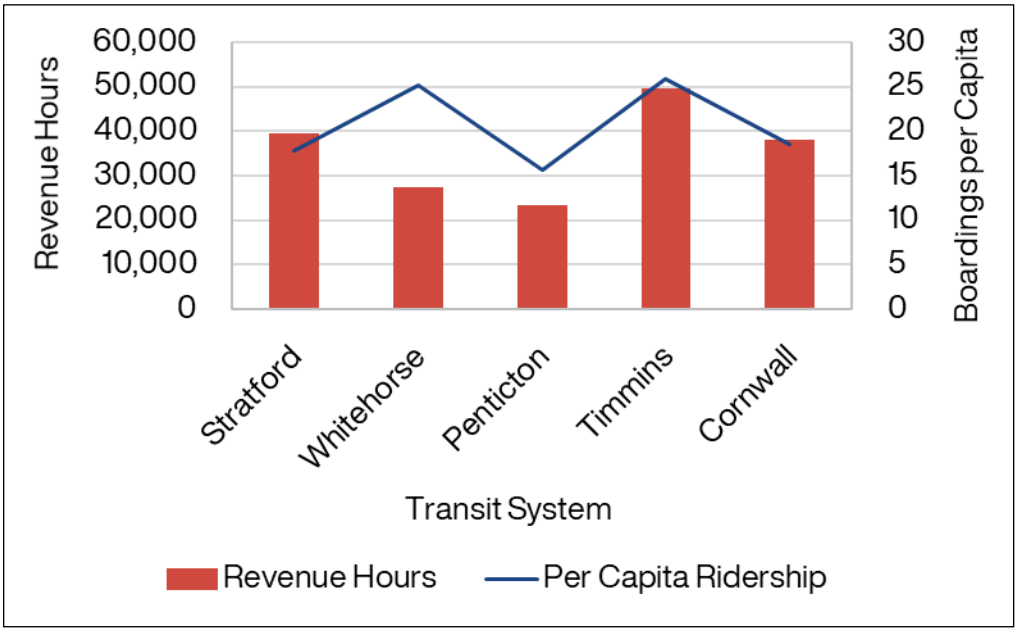
Stratford Transit was compared to four peer transit systems to determine how its performance ranks for similarly sized agencies. The peer transit systems are described below in Exhibit 4.30. Note: 2019 CUTA data was used to compare pre-pandemic performance unless otherwise stated.

Exhibit 4.30: Peer Transit Systems

City	Service Area Population	Service Area Size	Ridership	Fleet Size
Stratford, ON	33,000	28 km^2	587,400	13 buses
Whitehorse, YT	27,800	46 km^2	702,700	15 buses
Penticton, BC	31,500	42 km^2	491,700	9 buses
Timmins, ON	38,600	24 km^2	1,002,700	19 buses
Cornwall, ON	46,600	62 km^2	861,100	14 buses

The number of revenue hours of each transit system was compared to the per-capita ridership in Exhibit 4.31, to determine the relationship between investment in service and ridership. As seen below, Stratford has the second-lowest per capita ridership despite having the second-highest investment in service hours. This implies that the existing service may need to be adjusted to better meet the needs of the population, such as re-designing routes to better serve popular destinations and provide faster, more direct service. Timmins Transit has both the highest number of revenue hours and per capita ridership.

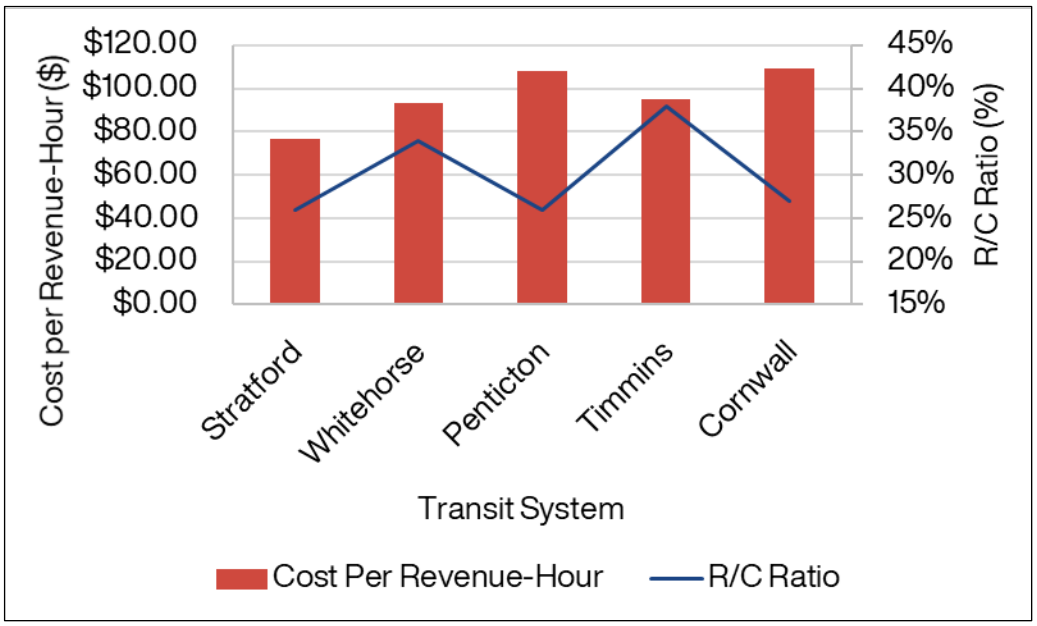
Exhibit 4.31: Comparison Of Peer Agency Revenue Hours and Per-Capita Ridership



It should be noted that fleet size may also be a limiting factor in providing service. However, Cornwall and Whitehorse both have a lower amount of revenue hours and a higher per capita ridership than Stratford, while running more buses. This supports the finding that Stratford's service may be less attractive to riders than peer agencies, due to potential factors such as route design, fare affordability, and reliability (which will be explored in further sub-sections below).

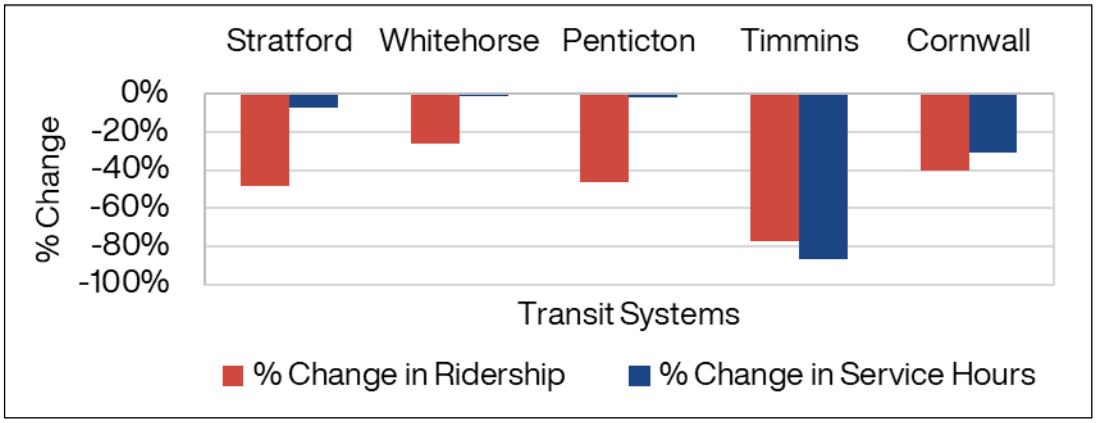
The financial performance of the peer agencies is explored in Exhibit 4.32. Stratford has the lowest operating cost per revenue-hour of the peer agencies but is tied for lowest R/C ratio. This would most likely be caused by lower ridership, and therefore, lower revenue, than peer agencies. Cornwall has the highest cost per revenue-hour, at $109.17/hour, while Timmins has the highest R/C ratio, at 38%.

Exhibit 4.32: Comparison of Peer Agency Operating Cost Per Revenue-Hour and R/C Ratio



Lastly, the impact of COVID-19 was compared across each peer transit system in Exhibit 4.33 below, by calculating the percentage change of ridership and revenue service hours between 2019 and 2020. Stratford maintained most service, with a 7% reduction in revenue hours. Agencies in more remote locations (Whitehorse, Penticton), which may have been insulated from the effects of the pandemic, held service steady, while peer Ontario agencies cut service more than Stratford (Timmins, Cornwall). All agencies experienced ridership drops disproportionate to the amount of service cut, as riders avoided transit where possible to minimize spread of COVID-19.

Exhibit 4.33: Comparison of COVID-19 Related Impacts



Fixed Route Network

Key Takeaway: The existing route network optimizes for walking distance to/from destinations and single-seat rides (few transfers) at the expense of frequency and travel time, which better meets the needs of senior/retiree riders than other groups. As the city grows, more frequent services along major corridors should be prioritized to build ridership along direct routes.

Stratford Transit operates seven fixed routes, shown previously as Exhibit 4.20. Each route operates on a 30-minute loop, terminating at the downtown Cooper Terminal on Downie Street. Three routes also deviate during weekday mornings and afternoons to provide more convenient service to local schools. On weekends, service switches to an on-demand system accessed by smartphone app or phone call, with two core fixed-routes still operating on Saturdays to meet demand.

A high-level look at the route network shows that Stratford Transit operates a traditional "coverage-focused" network, where directness and frequency of transit routes is sacrificed to maximize the number of potential riders within short walking distance of a bus stop. Each route services its own part of the City, with some overlap along busy roads (Ontario Street) and at popular destinations (Stratford District Secondary School). However, beyond these exceptions, most areas of the city receive equal levels of transit service regardless of demand or trip generators.

One caveat to the extensive transit coverage shown on the route map is much of the routes operate on one-way loops, meaning that if a rider wishes to reach a destination 'behind' their bus stop on the route, they must ride around the entire loop to reach their destination. In this way, the current route network prioritizes shorter walking distances to bus stops over shorter travel times onboard the bus.

With all routes terminating downtown, riders have easy access on foot to the many amenities and trip generators nearby, such as:

- City Hall;
- Stratford Public Library;
- University of Waterloo, Stratford Campus;
- Stratford Intermediate School; and
- Stratford VIA Rail Station.

Moving forward, Stratford Transit may wish to prioritize more service to key trip generators which currently only see baseline service levels, including the following:

- Stratford General Hospital (Cambria Street/St Vincent Street S);
- Festival Marketplace Shopping Centre, Walmart, and neighbouring commercial areas (Ontario Street/C H Meier Boulevard);
- Stratford Square Shopping Centre (Huron Street/O'Loane Avenue);
- Rotary Recreation Complex & Farmer's Market (McCarthy Road / Greenwood Drive); and
- Lorne East Business Park (Lorne Avenue E).

The system operates as a pulse-style network, where all routes converge at the Cooper Terminal at the same time to allow riders to make convenient transfers. Passengers are able to transfer elsewhere on the network, but the schedule is not set up to conveniently facilitate them without significant wait times.

Stratford Transit's current system best meets the needs of the senior population, who may have accessibility needs and less sensitivity to longer travel times. However, for many other riders, such as students, workers, and tourists, the 30-minute frequencies and one-way loops create barriers to convenient travel.

To improve the flexibility of the service, along with improve convenience to riders, Stratford Transit should consider more linear, direct routes, prioritizing the connectivity of major trip generators. Reducing each route's overall length has a corresponding effect on round trip travel times, allowing buses to operate more frequently without any additional investment in service hours or fleet.

In addition, circumferential routes along major streets could be considered which bypass downtown all together, greatly reducing travel times for riders wishing to make crosstown trips. This is especially important as the city grows in outlying areas and travel along corridors such as Lorne Avenue, Mornington Street, O'Loane Avenue, McCarthy Road, and Perth Line 36 (Quinlan Road) becomes more important.

On-Demand Transit

Key Takeaway: On-demand service can be explored to expand service span and service area initially, before determining if/where fixed route service may be needed to meet demand.

The on-demand system successfully provides more trips to riders with fewer vehicles when demand is low. Stratford Transit may consider phasing in extended service, such as night service or service to new neighbourhoods, with on-demand service first, and then assessing where fixed routes may be later required to satisfy demand. This approach was taken successfully in Belleville, Ontario to accommodate students and night shift workers.

Fares and Transfers

Key Takeaway: To improve accessibility and equity, 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. Additionally, fare capping, enabled by digital payment solutions, improves fare equity and fairness by removing high cost barriers and potential overpayment.

Stratford Transit has a comprehensive fare table (Exhibit 4.34), with categories for Adults, Children, Seniors, Students, and Affordable (low-income) riders. In addition, day passes, and family passes are available. The discount for each fare relative to the adult cash fare is shown next to the cost.

Exhibit 4.34: Stratford Transit Fare Table

Type	Details	Cash	Tickets	Monthly Pass
Adult	Age 19-64	$3.00 (0%)	$2.75 (-8%)	$67.00 (-44%)
Children	Age 0-5	Free	Free	N/A
Senior	Age 65+	$2.75 (-8%)	$2.50 (-17%)	$57.00 (-53%)
Student/ Affordable	6-18 and/or ODSP/OW clients	$2.50 (-17%)	$2.25 (-25%)	$57.00 (-53%)
Day Pass	One rider	$7.00 (-22%)	$7.00 (-22%)	N/A
Family Day Pass	Four riders, at least one adult	$15.00 (-32%)	$15.00 (-32%)	N/A

Note: A trip multiplier of 40 trips was assumed for the monthly pass, 3 trips per rider for the day pass, and 2 trips per family (two adults, two students) for the family pass.

One growing area of concern for agencies is providing affordable transit to those who cannot afford the full fares. While Stratford offers an Affordable fare, the discount is equivalent to the senior fare, a 15-17% discount from the adult fare

depending on the fare media. Many agencies have gone further to improve affordability for low-income riders. Typical measures include:

- A 50% discount on monthly passes (equivalent to $33.50 at current Stratford Transit fare prices); and
- Expanded eligibility criteria to include riders under the Low-Income Cut Off (LICO), a Statistics Canada measure of poverty which is $22,784 for a one-person household and $42,338 for a family of four (before tax) [23].

Three types of fare media are offered: cash, tickets, and monthly passes. Tickets and passes are available for purchase at several physical locations around the City. Stratford Transit is in the process of exploring a digital payment solution, using the same platform implemented for public parking payments. In the meantime, the limited number of locations for purchase of tickets and passes may limit the ease and accessibility of purchasing fare media.

The use of digital fare payment solutions also allows for the practice of fare capping, which caps the total fares paid by a rider over a daily/monthly period to the cost of the pass. Fare capping is seen as positive step towards a more equitable fare system, as it eliminates the barrier of high upfront monthly pass costs for low-income riders. Fare capping also prevents riders from overpaying for passes, as they only pay for the trips that they take. It also allows agencies to eliminate physical daily/monthly passes and associated administrative costs.

Stratford Transit has a transfer policy which allows for unlimited travel within one hour of boarding. Given that route frequency is 30 minutes across all routes, and one-way loops, likely a maximum of one transfer could be attempted before the transfer expires. Other municipalities have extended the transfer window to two hours, to allow for a return trip on one fare. While this may seem at first glance to reduce an agency's revenue, it lowers the cost of essential trips such as grocery shopping, daycare drop offs, inducing riders to choose transit more often and building a culture of ridership.

[23] Statistics Canada (2022). <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110024101>

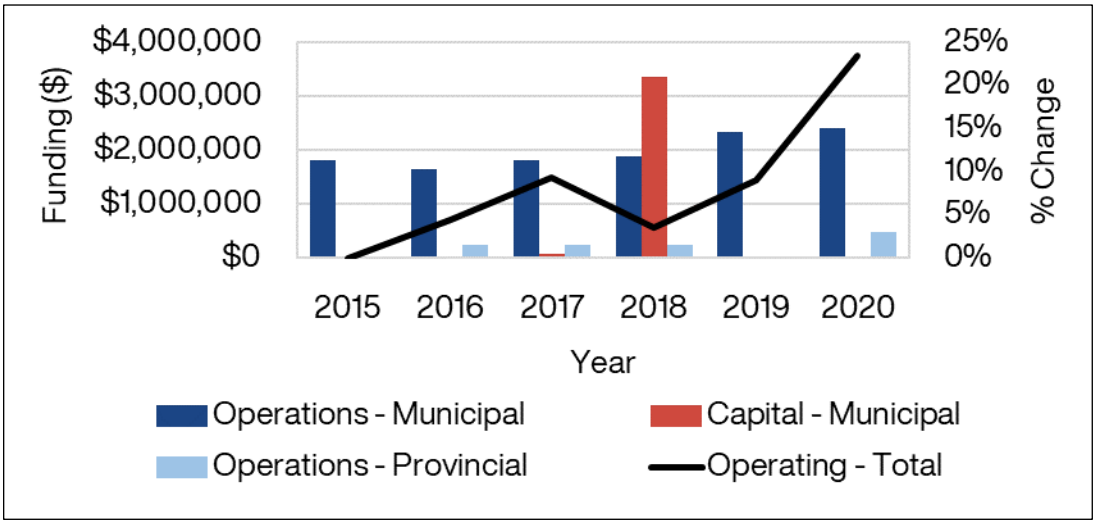
Funding Sources

Key Takeaway: Most of the operational and capital funding comes directly from the City of Stratford with inconsistent inputs from the Province. Additional dedicated funding streams would help ease the burden on the City and allow for expanded services.

Five years of pre-pandemic funding data shows that the majority of funding comes from the municipal budget, as shown in Exhibit 4.35. Provincial operating subsidies of $250,000 were granted in 2016-2018. Additionally, $487,861 of provincial COVID-19 emergency operational funding for transit was granted in 2020.

For capital expenses, Stratford reported only municipal expenditures over the analysis period, notably of $3,350,000 in 2018. This is related to the construction of Cooper Terminal and fleet replacement. While CUTA data reported funding as fully municipal, both projects received federal funding contributions through the Public Transit Infrastructure Fund (PTIF) program.

Exhibit 4.35: Stratford Transit Funding Sources



Total operating funding contributions increased between 5-10% annually pre-pandemic, with a significant increase in 2020 extend continuity of transit services during a period of significant revenue loss.

4.3.3 Engagement Input Received

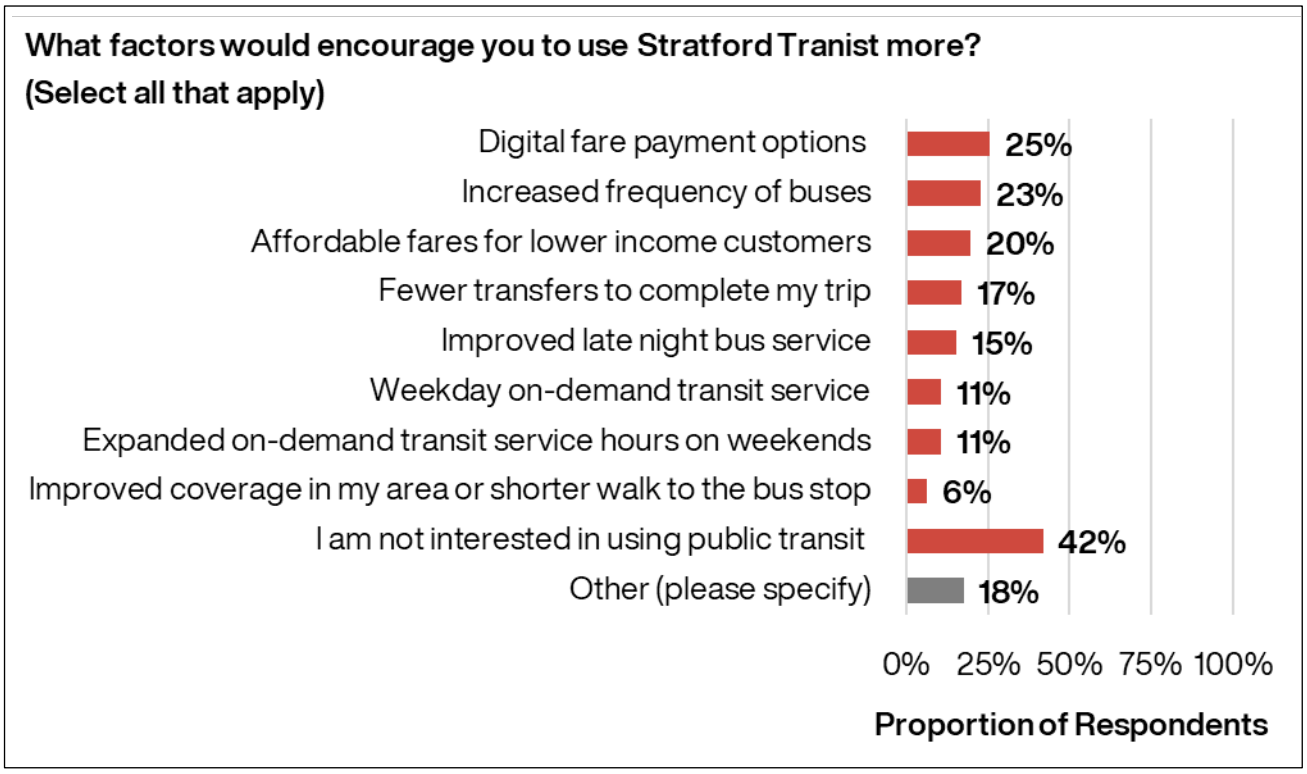
Stakeholders and members of the public provided transit-focused input through various Round 1 Engagement activities.

Input from stakeholders, as solicited through Stakeholder Group Meeting 1, are summarized below:

- Increase bus frequencies;
- Encourage transit uptake by implementing free fares; and
- Encourage the federal government to improve VIA Rail service.

Participants of the online survey, conducted as part of POH 1, were asked about which factors would most encourage their use of Stratford Transit. Results are summarized in Exhibit 4.36, showing that *digital fare payment options* (24%), *increased frequency of buses* (23%), *and affordable fares for lower income customers* (20%) were the most selected factor among survey respondents. It should be noted as well, that though 42% of respondents indicated they were not interested in using public transit, that leaves 58% who may be persuaded to use transit for certain trips if the right improvements are made.

Exhibit 4.36: Public Survey Responses to Factors that Encourage Transit Use



Transit-related feedback noted by members of the public through the online survey includes:

- Improve transit frequency, convenience, routing, hours, and service (e.g. to underserviced areas like big box retailers, to support people aging out of driving, to accommodate shift workers, to accommodate evening theatre patrons).
- Improve inter-regional transit (e.g. to Waterloo Region, Toronto, London, and Woodstock) and consider both early morning commuters and shift workers.
- Consider the provision of free or affordable public transit.

4.4 Policies and Strategies

4.4.1 Context

Policies and strategies are a complementary component of any transportation planning endeavour. The right suite of policies and supporting strategies help get the most out of costly infrastructure investment. For the purposes of this stage of the TMP, the City's existing policy framework was reviewed for policy and strategy gaps as well as areas where updates are needed to keep up with the latest industry best practices.

4.4.2 Analysis

Complete Streets

Key Takeaway: Stratford should formally adopt the Complete Streets approach first introduced in the 2010 Master Transportation Plan to ensure the needs of all street users are considered in the planning, design, and operation of the street network. The Street Classification framework currently used by the City should be updated to reflect the Complete Streets approach.

"Complete Streets" is a transportation policy and planning approach that enables the safe and comfortable travel of all users regardless of age, ability, or travel mode. This approach ensures the needs of different road users and uses are considered in the planning, design, and construction of transportation infrastructure – this includes pedestrians, cyclists, public transit users, drivers, agricultural equipment, and goods movements.

Complete Streets also represent important public realm opportunities for Stratford, integrating principles of transportation, placemaking, adaptability and environment to create dynamic and accessible corridors that accommodate the needs of all road users and uses. AAA cycling facilities, safe and accessible pedestrian crossovers, street furniture, flexible parking / patio space, planting strips and green spaces, transit corridors, and dedicated truck loading zones are some of the elements that can be integrated into existing roadways designed primarily for cars.

The following Complete Streets policies were proposed as part of the 2010 Master Transportation Plan:

- **Principle of Complete Streets:** The City will incorporate the principle of complete streets into all transportation projects, except where it can be demonstrated to the satisfaction of Council that there is a lack of need.
- **Street Planning:** The planning and design of City-wide street networks, secondary plans and plans of subdivision shall implement a Complete Streets approach, as will road improvement projects across the City.
- **Guidelines and Standards:** The City shall revise its street design policies, guidelines, and standards to incorporate Complete Streets design elements.
- **Complete Streets Implementation:** As a means of improving multi-modal capacity on corridors identified as cycling routes (to be updated as part of this study), the City should take advantage of regular rehabilitation or reconstruction projects to include the provision of paved.

The TMP will continue to plan through a Complete Streets lens, guiding street network planning and design decisions throughout the study process. The development of a Complete Streets policy will also ensure that decision-makers and practitioners have the appropriate framework to help guide the planning, design, and construction of transportation infrastructure to serve a multi-modal transportation system.

Emerging Technologies

Key Takeaway: Policies and strategies are needed that help position the City of Stratford to be able to take advantage of emerging technologies and allow new technologies to be implemented on the City's terms for the benefit of all residents.

Technological advancements that support electric, shared, automated, and connected transportation options are reshaping mobility. Emerging transportation technologies could result in transformative changes to society, altering how people and goods are connected. Reduced environmental impacts as a result of lower greenhouse gas emissions is also an important consideration in supporting the rise of new technologies such as zero-emission vehicles.

By identifying infrastructure and policies that support the adoption of technologies where appropriate for the needs and context of existing residents, businesses and visitors, the City of Stratford can take better advantage of new technologies, as well as enhance its competitiveness in attracting new residents, businesses and visitors.

As the MTO advances its own initiatives to facilitate two-way communication of traffic and road condition information between vehicles and infrastructure, the City may also prepare for future advancements in technology. Drivers exiting the provincial highway network, for example, would expect seamless connectivity to continue onto municipal roads with real-time and predictive information like road condition warnings in winter and alternative route suggestions to avoid congestion.

The TMP will identify anticipated trends and potential considerations for the City. For example, new mobility services can help people to live car free, or with fewer vehicles per household, and improve the multi-modality of the residents by increasing the demand for active transportation and transit. Additionally, improved road user safety due the elimination of driver error is an expected benefit of automated vehicles, and roadway capacity improvements for arterial roads could result from both automated vehicles and connected vehicles [24]. Recognizing that emerging technologies support existing modes, the TMP will consider

[24] "Fully Autonomous Vehicles: Analyzing Transportation Network Performance and Operating Scenarios in the Greater Toronto Area, Canada" in *Canadian Transportation Research Forum* (2017). <https://uttri.utoronto.ca/files/2017/02/CTRF2017-Kloostra-Final.pdf>

transportation technology policies as part of the comprehensive multi-modal transportation network.

Ultimately, the City needs policies and strategies that embrace opportunities for new ways to move throughout the city, innovative goods movement, and alternatives to fossil-fuel vehicles through new and emerging technologies such as zero-emission vehicles, electric vehicle charging stations, autonomous and connected vehicle technology, and bicycle-sharing systems.

Traffic Calming

Key Takeaway: A traffic calming policy and formal process is needed to address resident concerns and to respond to streets where safety deficiencies are identified.

Traffic calming is a means of altering driver behaviour through physical measures or programs to improve safety conditions for all road users, including vulnerable road users such as pedestrians and cyclists. A successful traffic calming program results in reduced driver speed, decreased through traffic volumes, improved driver awareness and caution, enhanced safety, improved quality of life for residents, limited impact to emergency response providers, and effective implementation and operational costs.

Solutions to achieve the intended results of traffic calming include both soft traffic calming (passive measures) and hard traffic calming (physical intervention measures), as follows:

- Installation of visual cues **(soft measures)**, such as enhanced signage, radar speed signs, pavement markings, reduced lane widths, changes to roadway colour or texture, and roadside trees; and
- Changes to the horizonal or vertical alignment of the roadway **(hard measures)**, such as speed humps, bump outs, median islands and roundabouts.

The 2010 Master Transportation Plan recommended the City develop policies and guidelines to implement traffic calming measures in residential areas, however, a formal policy has not yet been developed.

Previous efforts by the City of Stratford to implement a traffic calming pilot study in the City's west end to determine if these methods could ultimately be used city-wide demonstrate the need for a functioning traffic calming process to assist the

City in identifying and responding to safety concerns related to speed [25]. Likewise, input receive from members of the public and stakeholders demonstrate a need to respond to concerns related to through-traffic and driver speeds, especially along local roads and in school zones.

There is an opportunity for the TMP to respond to resident concerns regarding driver behaviour and improve road safety to work toward Vision Zero. A robust policy is needed to help guide the municipal process for identifying, responding to, and ultimately addressing road safety concerns through a formal traffic calming policy.

Travel Demand Management

Key Takeaway: As the City of Stratford grows, increasing demand for scarce street space may lead to congestion during peak hours. One approach to address this is through a robust Travel Demand Management program that seeks to make more efficient use of the City's transportation assets.

Travel Demand Management (TDM) is the use of strategies, policies, infrastructure and technologies to optimize the transportation network by influencing and directing travel behaviour toward reduced single-occupancy vehicle use. TDM can work to reduce the demand placed on the City's transportation network, leading to reduced congestion.

TDM initiatives can also replace or delay more expensive capital projects such as corridor widenings by optimizing the existing transportation network. Meeting existing and future travel needs in Stratford through targeted policies, rather than building new roadways and retrofitting existing ones to increase capacity for single-occupancy vehicles, is also important in reducing the City's impact on the environment. As Stratford continues to grow, targeted TDM strategies may become increasingly important.

Successful TDM programming improves the awareness of mobility options and seeks to remove barriers residents face when considering alternative modes of

[25] "Stratford Councillors Pump the Brakes on 40 km/h Pilot Study" in *The Beacon Herald* (2020, February 24). <https://www.stratfordbeaconherald.com/news/local-news/stratford-councillors-pump-the-brakes-on-40-km-h-pilot-study>

travel. Examples of TDM initiatives or strategies, as outlined in the 2010 Master Transportation Plan, include the following:

- **Market-based measures:** Solutions that seek to modify an individual's choice for a mode of travel by changing the cost of that trip. Techniques include peak hour road pricing, toll roads, increased vehicle costs and increased parking costs.
- **Behaviour-based measures:** Solutions that seek to modify an individual's demand for travel by providing incentives and disincentives for shifting travel demand to off-peak hours or different travel modes. Techniques include encouraging major employers to alter their hours of work in order to shift peak travel hours, work from home, intelligent transportation system to relay real-time traffic conditions to road users, use of high occupancy vehicle lanes, and ridesharing.
- **Land-based measures:** Solutions that focus on altering the physical make-up of the urban fabric, including strategies such as increased residential densities to optimize traffic movement, as well as mixed-use developments to accommodate residents in close proximity to employment to encourage active modes of travel.

While traffic reduction and management strategies can help optimize the existing road network in Stratford, they do not replace the need to identify and respond to existing and forecasted needs – examples includes improvements to traffic operations, safety concerns among drivers and traffic control interventions such as roundabouts. The TMP study will identify TDM strategies that are appropriate for the scale and context of Stratford in an effort to manage existing and anticipated demand.

The 2010 Master Transportation Plan recommended the several TDM policies in which will be considered as part of the current TMP study:

- Variable work hours;
- Increased densities and mixed-use development;
- Telecommuting;
- Ridesharing / carpooling; and
- Marketing and promotion.

Commercial Vehicles

Key Takeaway: Trucks and other commercial vehicles are essential to the economic vitality of the City and perform other important services for residents. Their needs must be met while mitigating negative impacts on the community and residents.

Commercial vehicles (e.g. medium and heavy trucks) are responsible for the movement of most of the goods shipped to, from, within and through the City of Stratford each day. Trucks support the economic vitality of local businesses and deliver consumer goods, transporting construction materials and equipment, groceries and so on, as well as facilitating services such as waste removal.

Southwestern Ontario has the largest concentration of manufacturing industries in Canada, and Stratford is surrounded by one of the most agriculturally productive regions in Ontario [26]. As such, Stratford is strategically located along an important regional goods movement network. Though a focus of the TMP is on improving multi-modality, improving safety of vulnerable road users, and implementing more Complete Streets, the needs of commercial vehicles now and in the future must be considered in this framework.

Huron Street, Erie Street and Ontario Street (connecting links for provincial Highways 7, 8 and 7/8, respectively) form the backbone of this regional network. Arterial roads, by virtue of their role as important regional and local connectors, are also key routes for commercial vehicles as they near their ultimate pick-up and drop-off locations.

Exhibit 4.37 shows the existing truck route network plan as defined by the 2010 Master Transportation Plan. A future truck route network was also developed as part of the former TMP (and presented in Appendix B.4), which planned for a truck route bypass to align with the province's proposed Highway 7/8 bypass. The MTO Highway 7&8 Transportation Corridor Class Environmental Assessment is discussed further in Appendix A.6.

While the MTO's Class EA for the highway bypass is still underway and no commitment or timeline have been confirmed, public input received as part of the

[26] investStratford. <https://www.investstratford.com/industries#:~:text=Southwestern%20Ontario%20has%20the%20largest,small%2C%20medium%20and%20large%20businesses>

first round of consultation noted the concern about heavy truck traffic in Stratford and the need for a truck bypass. A total of 45% of respondents to the online survey selected *reduced heavy truck traffic on specific roads* as a TMP priority. The TMP will recommend ways to support the efficient and reliable movement of goods to, from and within Stratford, while ensuring they can co-exist safely with other road users and reducing other impacts.

Exhibit 4.37: City of Stratford Existing Truck Route Network as Defined by the Master Transportation Plan (2010)

Source: Adapted from the City of Stratford Master Transportation Plan, Figure 4.12 (2010)

5 Needs & Opportunities

The focus of Phase 1 of the TMP study is to identify the transportation needs and opportunities in the City of Stratford, providing the groundwork for later phases to identify and develop recommendations, supporting strategies and policies.

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.

This section collectively represents the **Problem or Opportunity Statement** as required by the Municipal Class Environmental Assessment Master Plan process. It is organized into four themes that outline the needs and opportunities of the City's transportation system at a high level, as identified through technical analysis documented in this report and public and stakeholder consultation.

For the purposes of this study, the Problem or Opportunity Statement can be summarized by the four major directions below:

- Implement a Complete Streets Approach to Meet the Needs of a Growing City and Destination;
- Expand Active Transportation Connections to Support Stratford as a Complete Community;
- Improve Transit Service and Operations to Increase Convenience, Equity and Accessibility and Sustainability; and
- Develop Policies and Strategies to Support Stratford's Safe, Connected and Reliable Transportation System.

These problem statements are further developed with specific needs and opportunities alongside potential actions. The actions noted at this stage serve as the launch pad for developing strategies, policies and infrastructure recommendations in detail in the next phase of the TMP study. Alignment of the needs, opportunities and corresponding actions with the TMP objectives and goals are noted.

Implement a Complete Streets Approach to Meet the Needs of a Growing City and Destination

Need or Opportunity	Potential Action	Goal Alignment
• Optimize the existing street network to support current and future traffic growth. • Improve existing roads, with a focus on road surface maintenance.	• Implement Downtown Traffic Study recommendations • Review existing functional classifications to support the function and efficiency of the municipal street network and integrate a Complete Streets approach to intended role of each category. • Revise new development guidelines to ensure a Complete Streets approach is applied. • Identify Travel Demand Management strategies that are appropriate for the scale and context of Stratford. • Embed life-cycle cost analysis into infrastructure planning.	• Provide efficient connections within, to and from Stratford. • 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.

Need or Opportunity	Potential Action	Goal Alignment
• Respond to road user safety concerns and consider improved traffic control at identified intersections. • Work towards the elimination of serious injuries and fatalities within the transportation system.	• Recommend the use of roundabouts as an effective and safe method of traffic control where suitable. • Recommend the development of a roundabout screening tool. • Adopt a Vision Zero and "safe systems" approach by recognizing the role of street design in influencing behaviour and in mitigating the severity of mistakes made by street users.	• Improve safety for all road users to work toward Vision Zero.
• Respond to driver behaviour concerns (e.g. cut-through traffic, speeding), especially on local roads and in school zones.	• Develop and implement a new traffic calming policy to help guide the municipal process for identifying, responding to, and addressing road safety concerns. • Identify appropriate traffic calming measures under various contexts.	• Improve safety for all road users to work toward Vision Zero.

Need or Opportunity	Potential Action	Goal Alignment
• 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. • Support placemaking opportunities and recognize the value of the transportation system in improving the public realm. • Plan for complete communities with densities to support transit and active transportation.	• Adopt a Complete Streets approach to inform recommended solutions and support accessible and convenient mobility options. • Develop a Complete Streets policy to guide decision-makers and practitioners in the planning, design, and construction of multi-modal transportation infrastructure. • Include the Complete Streets policy and principles in the next Official Plan Update. • Ensure the next Official Plan Update encodes the planning framework to provide transit-supportive and AT-supportive land uses. • Ensure the next Official Plan Update enables the implementation of the TMP through the inclusion of appropriate road design specifications (e.g. sufficient width to support active transportation and other Complete Streets elements.	• Provide safe and inclusive transportation facilities that enable complete, vibrant communities. • Increase mode share for walking, cycling and transit. • Protect and enhance Stratford's distinct character, charm, cultural heritage, and tourist appeal. • Protect the City's natural environment, heritage, and open space system. • Build resiliency to severe weather events and other impacts from climate change and mitigate impacts to the transportation system.

Need or Opportunity	Potential Action	Goal Alignment
• Address corridor and intersection capacity constraints.	• Recommend mitigating measures to operational capacity constraints.	• Provide efficient connections within, to and from Stratford. • Invest in new infrastructure and consider alternatives responsibly, with an eye toward full life-cycle costs as well as environmental costs.
• Manage the safe and efficient movement of commercial vehicles.	• Support the MTO Highway 7&8 Transportation Corridor. • Consider alternative to O'Loane Avenue and Lorne Avenue truck route to avoid challenging terrain. • Develop strategies to mitigate negative impacts on residents and communities.	• Enable the efficient and safe movement of goods. • Improve safety for all road users to work toward Vision Zero.

Expand Active Transportation Connections to Support Stratford as a Complete Community

Need or Opportunity	Potential Action	Goal Alignment
• 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. • Improve the safety of all vulnerable road users, including pedestrians and cyclists.	• Develop safer and more comfortable dedicated cycling connections throughout Stratford, with an emphasis on increased separation of cyclists from cars and trucks. • Follow best practices and use Ontario Traffic Manual Book 18 guidelines to identify suitable cycling facilities. • Implement Ontario Traffic Manual Book 18 guidelines into all road design guidelines. • Ensure cycling routes and roads are maintained and cleared of snow in winter. • Identify and prioritize infilling sidewalk gaps. • Identify and implement priority locations for pedestrian crossovers to improve the safety of pedestrians.	• Develop a safe and connected active transportation network. • Provide safe and inclusive transportation facilities that enable complete, vibrant communities. • Reduce greenhouse gas emissions and other factors contributing to climate change.

Need or Opportunity	Potential Action	Goal Alignment
• 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. • Connect existing and planned developments and sub-divisions at the periphery of the City to major destinations via safe and direct active transportation routes, with an emphasis on a complete sidewalk network to support walking trips.	• Integrate 15-minute city principles into land use planning through the Official Plan update. • Expand walking and cycling connections to support everyday trips, with an emphasis on infilling gaps in the sidewalk network. • Develop strategies to expand bicycle parking in existing built-up areas and especially in commercial districts. • Coordinate with Perth County to ensure inter-municipal network connectivity.	• Provide safe and inclusive transportation facilities that enable complete, vibrant communities. • Increase mode share for walking, cycling and transit.
• Take advantage of placemaking opportunities that support the character and protect the natural heritage of Stratford and recognize the value of cycling and walking tourism potential.	• Develop potential solutions to integrate permanent active transportation along Lakeside Drive, as well as connections to Lake Victoria. • Consider a seasonal bike-share system for residents and visitors, with the potential to divert single-occupancy vehicle trips, as well as to support Stratford as a competitive tourist destination. • Develop cycling supportive strategies aimed at promoting the cycling network.	• Increase access to opportunity for residents and businesses. • Protect and enhance Stratford's distinct character, charm, cultural heritage, and tourist appeal. • Protect the City's natural environment, heritage, and open space system.

Need or Opportunity	Potential Action	Goal Alignment
• Consider Stratford-specific cycling design strategies to mitigate potential constraints in historic districts and along narrow roadways where the removal of vehicular lanes or on-street parking is a challenge. • Understand and address challenges with implementation of 2014 priority projects to inform network development and prioritization.	• Identify proposed routes with implementation and feasibility as an important consideration. • Work with City staff to identify suitable routes and leverage provincial or federal funding to support the provision of active transportation facilities. • Bundle cycling network improvements together with other 10-Year Capital Plan road improvements to reduce implementation costs where feasible.	• Invest in new infrastructure and consider alternatives responsibly, with an eye toward full life-cycle costs as well as environmental costs.

Improve Transit Service and Operations to Increase Convenience, Equity and Accessibility and Sustainability

Need or Opportunity	Potential Action	Goal Alignment
• Improve the convenience of Stratford's transit system. • Accommodate current and future growth.	• Monitor how transit demand evolves as the City grows. • Consider modifying the route network to improve travel times, maintaining reasonable walking distances to/from bus stops. • Connect major trip generators with frequent service. • Open fare payment options to allow for digital solutions. • Explore expansion of on-demand transit to expand service span and service area. • Explore opportunities to optimize service delivery to reduce costs.	• Increase mode share for walking, cycling and transit. • Reduce greenhouse gas emissions and other factors contributing to climate change.

Need or Opportunity	Potential Action	Goal Alignment
• Improve equity and accessibility	• Strengthen policies related to affordable fares to improve the accessibility of the program to low-income riders. • Increase access to passes and tickets with using digital payment solutions and additional points-of-sale. • Review routes and operating hours to ensure the needs of vulnerable users such as night shift workers and students are being met.	• Provide safe and inclusive transportation facilities that enable complete, vibrant communities.
• Recognize the opportunity of Stratford Transit in being a leader in the transition to more sustainable transportation and reduction of greenhouse gases.	• Explore how Stratford Transit can transition to zero-emission buses • Develop a ridership strategy to determine how to retain and expand ridership in the wake of COVID-19. • Explore partnership with Stratford Festival to reduce emissions and traffic congestion related to tourism.	• Reduce greenhouse gas emissions and other factors contributing to climate change.

Develop Policies and Strategies to Support Stratford's Safe, Connected and Reliable Transportation System

Need or Opportunity	Potential Action	Goal Alignment
• Integrate the planning of the street network to ensure the needs of all street users are considered.	• Update Guidelines and Standards to ensure Complete Streets elements are incorporated.	• Provide safe and inclusive transportation facilities that enable complete, vibrant communities.

Need or Opportunity	Potential Action	Goal Alignment
• Position Stratford to be able to take advantage of new and emerging transportation technologies. • Ensure new innovations provide positive benefits to residents.	• Develop strategies to improve Stratford's agility and adaptability as new technologies emerge. • Be proactive in addressing new travel trends and technologies to ensure implementation can be on the City's terms. • Investigate opportunities to install EV chargers in municipal parking lots	• Invest in new infrastructure and consider alternatives responsibly, with an eye toward full life-cycle costs as well as environmental costs.
• Standardize traffic calming process to allow for transparent responses to traffic calming requests.	• Update traffic calming policy and procedure. • Identify potential implementation measures where safety issues are identified.	• Improve safety for all road users to work toward Vision Zero.
• Managing congestion and operational constraints through alternatives to road widening.	• Develop Travel Demand Management approaches to mitigate peak period congestion and optimize the use of existing transportation assets.	• Provide efficient connections within, to and from Stratford. • Ensure the continued maintenance and operation of existing infrastructure.
• Facilitate efficient and safe commercial vehicle movements.	• Optimize the truck route network and associated policy to ensure efficient delivery of goods. • Develop strategies to mitigate negative impacts on residents and communities.	• Enable the efficient and safe movement of goods.

Need or Opportunity	Potential Action	Goal Alignment
• Prepare for new and emerging vehicle technologies.	• Monitor the advancement of connected and automated vehicles and support their implementation in-line with provincial initiatives. • Support the expansion of electric vehicle charging stations.	• Enable dynamic infrastructure that respond to changing demands and new technologies.

6 Summary and Next Steps

6.1 Phase 1 Summary

The first phase of the City of Stratford Transportation Master Plan consisted of the following:

- A thorough review of the existing and future conditions, including analysis of Stratford's geographic context, socio-economic context, travel and mobility patterns, planning and policy context, forecasted population and employment growth, and the state of emerging transportation technologies;
- An overview of engagement activities completed to date, including key takeaways;
- The development of the TMP's strategic framework, comprising of the Values, Vision, Objectives, and Goals that will shape the outcomes of the study;
- An assessment of the various components of the transportation system (e.g. streets, active transportation facilities, transit) and supporting policies and strategies; and
- The identification of the study's problem or opportunity statements, specific needs and opportunities and potential actions, identified through the culmination of the work conducted in the preceding chapters.

The City of Stratford is poised to grow steadily through the TMP's study horizon of 2041. Owing to its compact, urbanized nature, it is in a strong position to leverage new growth and transition to a more multi-modal transportation system, planning through a Complete Streets lens. The Transportation Master Plan will identify the key infrastructure projects and actions that will help the City to meet its goals relating to economic development, environmental protection, greenhouse gas emission reduction and other city-building objectives.

To get there, the City needs to:

- Implement a Complete Streets approach to meet the needs of a growing city and destination;

- Expand active transportation connections to support Stratford as a complete community;
- Improve transit service and operations to increase convenience, equity and accessibility and sustainability; and
- Develop policies and strategies to support Stratford's safe, connected and reliable transportation system.

6.2 Next Steps

The next stage in the Transportation Master Plan study, Phase 2, continues to build on the needs and opportunities identified within this report and the potential actions identified. To transform the issues identified herein to actionable recommendations and, ultimately, the Transportation Master Plan, the following steps will be taken:

- Develop a list of potential transportation improvements;
- Assess potential improvements against alternative ways to solve the issues;
- Determine the preferred solutions;
- Prepare draft 2041 transportation networks;
- Finalize draft infrastructure recommendations, policies, and strategies and present to the public and stakeholders are part of the second round of consultation;
- Prepare the Phase 2 Report and ultimately, the Transportation Master Plan Report.

Appendix A: Detailed Review of Provincial Policies and Initiatives

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A. Provincial Policies and Initiatives

The Province of Ontario provides strategic direction regarding transportation planning and has developed policy that encourages the provision of multi-modal transportation options and sustainable land use development patterns. A review of provincial plans and initiatives is described subsequently.

A.1 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) was issued under the Provincial *Planning Act* and serves as the core regional growth management policies that inform the TMP. The PPS provides policy direction to municipalities related to land use planning and development. It includes policies for managing growth, managing natural resources, environmental protection, and public health and safety.

All municipal plans, including the City of Stratford TMP, must conform to the policy directions outlined in the PPS. Transportation planning and policy directions from the PPS that are particularly important to the development of the TMP include the following:

- Coordination:

  > 1.2.1 A coordinated, integrated and comprehensive approach should be used when dealing with planning matters within municipalities, across lower, single and/or upper-tier municipal boundaries, and with other orders of government, agencies and boards including: [...]
  > d) infrastructure, multimodal transportation systems, public service facilities and waste management systems [...].

- Public Spaces, Recreation, Parks, Trails and Open Space

  > 1.5.1 Healthy, active communities should be promoted by:
  > a) planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity [...].

- Transportation Systems:

  1.6.7.1 Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.

  1.6.7.2 Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.

  1.6.7.3 As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.

  1.6.7.4 A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation.

- Transportation Corridors:

  1.6.8.2 Major goods movement facilities and corridors shall be protected for the long term.

  1.6.8.4 The preservation and reuse of abandoned corridors for purposes that maintain the corridor's integrity and continuous linear characteristics should be encouraged, wherever feasible.

- Energy Conservation, Air Quality and Climate Change:

  1.8.1 Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns which:
  a) promote compact form and a structure of nodes and corridors;
  b) promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas [...].

A.2 Connecting the Southwest: A Draft Transportation Plan for Southwestern Ontario (2020)

In January 2020, the Ministry of Transportation of Ontario (MTO) released *Connecting the Southwest*, a draft transportation plan that outlines a vision and five goals to improve transportation in the region:

- Getting people moving and connecting communities,
- Supporting a competitive open for business environment;
- Improving safety;
- Providing more choice and convenience; and
- Preparing for the future.

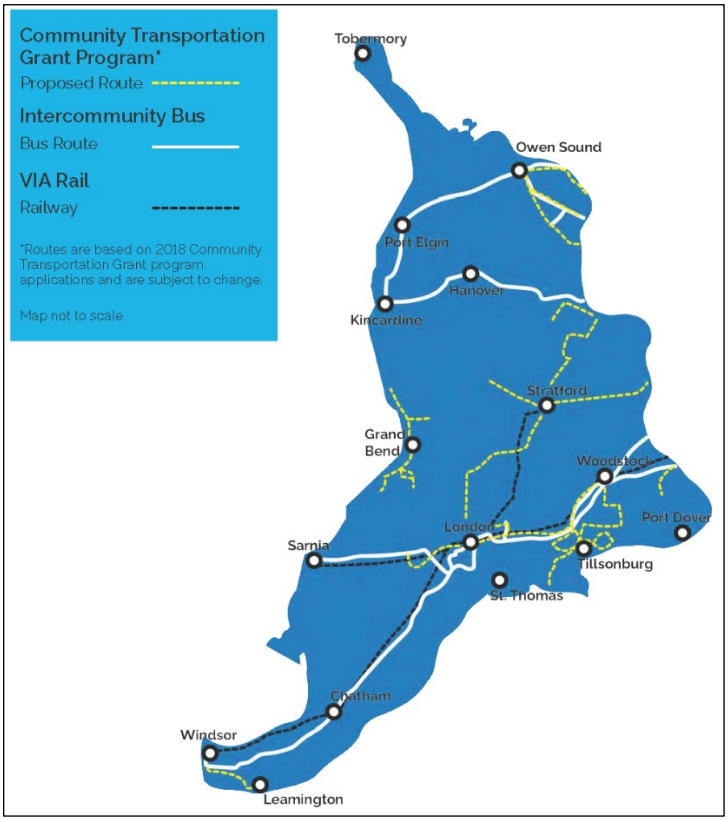
The draft plan also notes ongoing or near-term actions under each goal, including the following that may impact the transportation network in Stratford:

- **Action 1 - Improve intercommunity bus service:** The Province is reviewing intercommunity bus connections and ways to better deliver services to make travel easier.
- **Action 2 - Connecting communities with the Community Transportation Grant program:** The government is supporting community transportation in municipalities that are underserved by passenger bus services. Stratford is a recipient of the 2018-2019 Community Transportation Grant program. A map of proposed bus connections is included in Exhibit A.1.
- **Action 7 - Increase passenger rail service to southwestern Ontario:** Work with freight partners on track access and with VIA Rail on the potential for integrated service offerings with GO Transit.
- **Action 9 - Establish a task force:** Develop a committee with representation from southwestern Ontario mayors and Indigenous chiefs to discuss transportation service needs and opportunities to better integrate and access transportation services in the region.
- **Action 12 - Support active transportation connections:** Work with municipal and federal partners to support cycling paths and trails within

and between southwestern Ontario communities and connections to transit system.

- **Action 34 - Identify priority actions to integrate different modes**: Integrate rail, intercommunity bus, public transit, ridesharing, scooters and bikes to make it easier for people to travel.

Exhibit A.1: MTO Community Transportation Grant Program Proposed Routes



Source: Connecting the Southwest: A draft transportation plan for southwestern Ontario (MTO, 2020)

A.3 Southwestern Ontario Transportation Planning Study (Ongoing)

The Southwestern Ontario Transportation Planning Study is currently in development and will work toward helping the Province achieve the goals and actions set out in the Plan to build a safer and more reliable transportation system in the Southwest to a 2051 horizon year. The study will review and refine policy

directions, identify and evaluate issues and recommended solutions, and progress toward implementing transportation improvements for the region.

The TMP study will monitor the progress of the Southwestern Ontario Transportation Planning Study to ensure alignment with provincial goals as well as to identify, optimize or coordinate potential transportation improvements for Stratford.

A.4 Province-Wide Cycling Network Study (2018)

The Province-Wide Cycling Network Study builds on #CycleON (2013), Ontario's 20-year strategy to help promote cycling as a viable transportation method for people of all ages and abilities.

As part of #CycleON Action Plan 1.0 (2018), a province-wide cycling network and implementation plan was developed. However, the provincial cycling network does not traverse through the City of Stratford.

A.5 Provincial Highway Network Plans

The Province is planning the following highway projects in close proximity of the City of Stratford, as shown in Exhibit A.2:

- Resurfacing of Highway 7/8 from 0.4 kilometres west of Waterloo Regional Road 1 to 0.5 kilometres of east Waterloo Regional Road 4;
- Signage improvements along Highway 7/8 in the Region of Waterloo; and
- Widening of Highway 7 between Kitchener and Guelph from two to four lanes. (The Highway 7 Kitchener to Guelph environmental assessment was approved on March 21, 2007.)

Exhibit A.2: Ontario Highways Program Map, Expansion and Rehabilitation Projects

Source: MTO, Ontario Highway Programs Interactive Map <https://www.ontario.ca/page/ontarios-highway-programs#section-1>. Retrieved November 2021.

A.6 Highway 7&8 Transportation Corridor Planning and Class Environmental Assessment Study

The Ministry of Transportation (MTO) has initiated a Highway 7&8 Transportation Corridor Planning and Class Environmental Assessment (Class EA) Study. The study extends from Greater Stratford to the New Hamburg area, and seeks to address capacity, operation and safety needs along the highway corridor with a focus on the urban areas of Stratford, Shakespeare and New Hamburg.

In 2013, the Province released its preferred route alternative for a new alignment, as shown in Exhibit A.3, effectively creating a bypass route around Shakespeare and Stratford. The new alignment extends southwest from Road 106 to Road 110, and then utilizes existing roads to complete the alignment around the City of

Stratford. The detailed design of the corridor will follow the completion of the Transportation Environmental Study Report.

Exhibit A.3: MTO Highway 7&8 Transportation Corridor Class EA Study Preferred Route Alternative

Source: MTO Report J: Milestone Report – Selection of Preliminary Design Alternatives for Provincial Roadways (Aecom, 2013)

A new alignment will have significant impacts on local roads in Stratford, affording the City with placemaking opportunities as a result of diverted truck and motor vehicle traffic along Ontario Street, Huron Street and Erie Street. Opportunities to better accommodate alternate modes of travel including transit and cycling, as well as an increased pedestrian realm, should be considered.

Appendix B: Detailed Review of City of Stratford Policies and Initiatives

B. City of Stratford Policies and Initiatives

The City of Stratford has taken a strategic effort in adopting policies and initiatives that will improve the transportation network. These policy documents will support the study process, guide the network development and ensure the TMP aligns with the priorities of the City. A review of municipal plans and initiatives is described subsequently.

B.1 City of Stratford Official Plan (2016)

The Official Plan (OP) provides the growth management planning and policy direction to facilitate the development of the City. The Official Plan is, in part, directed by a vision statement and guiding principles, intended to serve as the basis of policy development in the Plan.

The Vision Statement of the Official Plan is as follows:

To be the best place to live, work and play.

The guiding principles of the Official Plan are as follows:

- **Community Excellence**: Strive for excellence in all areas – economic, technological, environmental, cultural and social – while maintaining the community's heritage and charm.
- **Complete Community:** Minimize conflict between land uses, while encouraging the development of a complete community which meets resident's needs for daily living throughout an entire lifetime.
- **Economic Development:** Maintain a strong and diverse economy based on the most advanced available infrastructure, as well as a strong system of community services including education.
- **Environmental Protection**: Protect and enhance the City's natural environment including the natural heritage features and areas and the open space system, air quality and water quality and quantity, as well as providing protection from natural hazards.

- **Sustainable Development:** Work to ensure that development is socially, environmentally and economically sustainable with the resilience to respond to climate change.
- **Intensification:** Encourage appropriate intensification and infill, including mixed use development, which reflects the existing context of the City with respect to factors such as height and design.
- **Heritage Conservation:** Protect areas, landmarks and features which provide a physical link to the early development of Stratford and which contribute to its distinct character and sense of place.
- **Community Improvement:** Upgrade physical, economic and social conditions where such conditions have been identified as being below accepted standards or where necessary to achieve the City's goals for economic development.
- **Transportation System for All Users:** A coordinated approach to planning and transportation that creates a transportation system for all users be they pedestrians, drivers, cyclists, or transit riders, regardless of physical ability or age.
- **Infrastructure and Community Services**: To provide public infrastructure and community services in an orderly and coordinated manner, including encouraging the use of innovative or alternative techniques of service provision.
- **Public Participation:** Provide ample, effective and meaningful opportunities to increase public awareness and participation in the planning process using an approach which is responsive and flexible.
- **Preservation of Agriculture**: Encourage the continuation of agriculture and associated uses and discourage these areas from premature redevelopment.

The TMP will conform to the Official Plan, which includes the following transportation policy topics:

- Complete Streets and Active Transportation
- Road Classification
- Road Planning

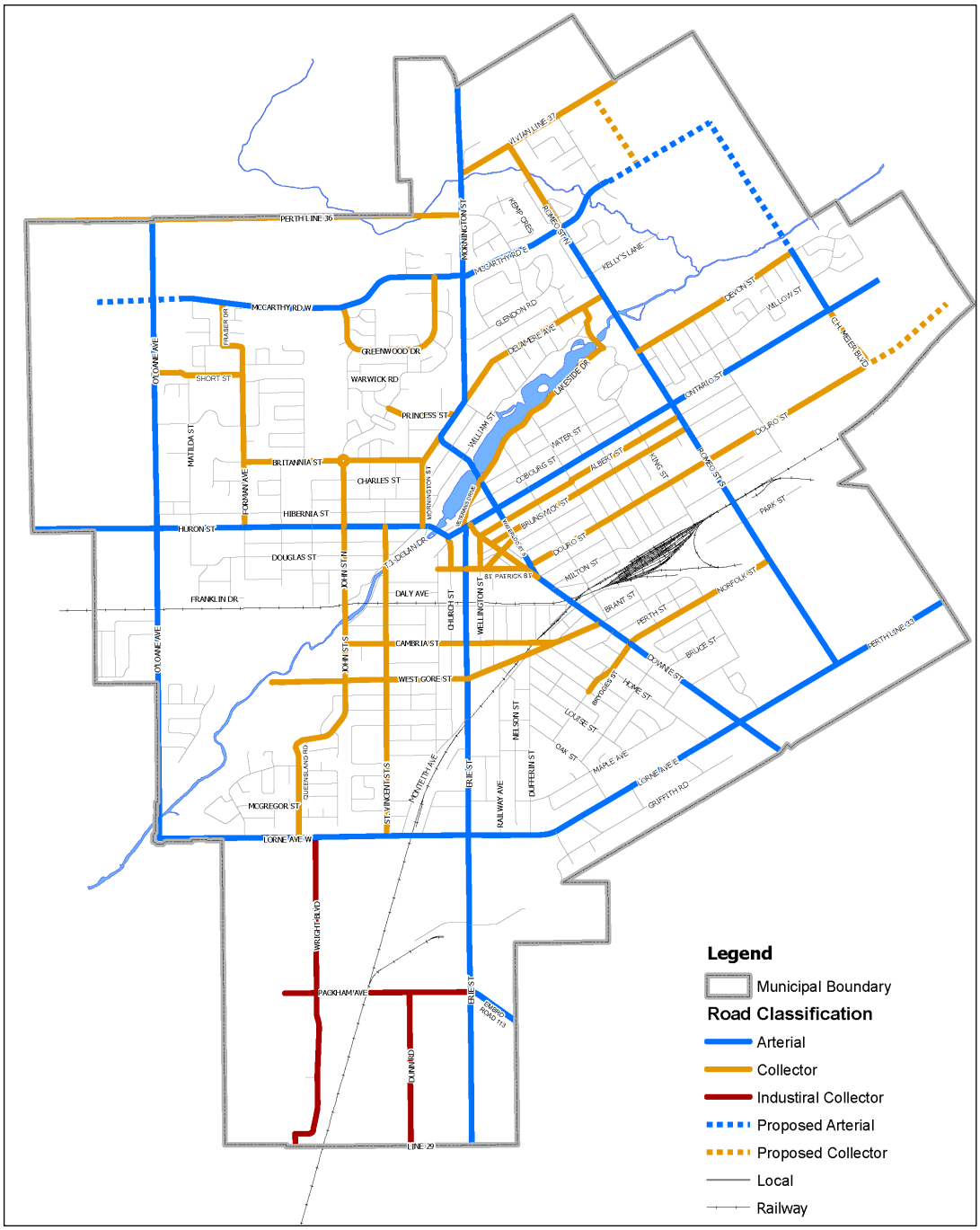
- Transit
- Pedestrian/Cyclist/Accessibility Facilities
- Rail Service and Safety
- Parking
- Travel Demand Management

More specifically, the following select exerts will support the development of the TMP, as well as inform the TMP study principles, vision and goals:

- **Section 7.2.1 Road Classification:** City streets shall be planned and developed as multi-modal transportation corridors that are generally designed within an urban cross section to safely accommodate pedestrian, bicycle, transit and vehicular movement, including traffic calming measures as appropriate, as well as complying with the City's streetscaping and accessibility / visibility design policies in Section 6.
- **Section 7.2.2 Road Planning:** The City shall work co-operatively with the County and the Province and adjacent municipalities to integrate the planning of the municipal road network with the road system under other jurisdictions. The City shall also work with the railways to maintain existing rights-of-way over the railway.
- **Section 7.2.3 Transit:** The City shall continue to promote and maintain its public transit system, and will enhance and extend the service as appropriate.
- **Section 7.2.4 Pedestrian/Cyclist/Accessibility Facilities:** The City's objective is the established of a transportation system throughout the community that will allow residents to safely, conveniently and easily travel using active transportation modes and which is designed to be accessible.
- **Section 7.2.8 Travel Demand Management:** The City recognizes the role that travel demand management can play in promotion the more efficient use of transportation infrastructure, making the use of private vehicles more sustainable and encouraging increase use of transit and active transportation modes.

Additionally, *Schedule D – Road Network Plan* of the Official Plan maps the functional road classification for all municipal roads, and also shows proposed new road segments in the City. The Road Network Plan of the OP is shown in Exhibit B.1.

Exhibit B.1: City of Stratford Official Plan Schedule D - Road Network Plan



Source: City of Stratford Official Plan, Schedule D (2017, consolidated 2019)

The TMP will be consistent with OP policies and support the City in achieving the directions set-out it its OP. Additional transportation policies may be reviewed in further detail throughout the TMP study to inform network analysis and the development of supporting strategies.

B.2 Secondary Plans

The purpose of secondary plans is to enable the City in planning effectively for long-term future land use in advance of specific development proposals or public work projects. Secondary plans are important considerations for the TMP study as they help inform and guide the project team's understanding of land growth and development. The following plans were used in conjunction with other supporting documents to provide direction to the project team throughout the TMP study.

B.2.1 City of Stratford Northeast Secondary Plan (2004)

The Northeast Secondary Plan outlines a recommended land use plan and servicing strategy for the City of Stratford, and outlines a clear direction for the City to address the following issues:

- Protection and enhancement of sensitive environmental features (e.g. Avon river and Court Drain), and other natural heritage features (e.g. woodlots);
- A set major road system, including arterial roads (e.g. C.H. Meier Boulevard and McCarthy Road) and a new collector road (north-south), a resolution for existing traffic problems in the built areas of the City (e.g. Devon Street), and provisions for public transit;
- Distribution strategies for residential land uses (both low and medium density forms) and community facilities, including parkland and schools;
- A stormwater, sanitary and water services strategy to support future land uses; and
- Guiding principles for consideration to improve the quality of life for current and future residents.

Exhibit B.2.1 shows the study area for the Northeast Secondary Plan.

Exhibit B.2.1: Northeast Secondary Plan Study Area

Source: City of Stratford Northeast Secondary Plan, Figure 1 (2004)

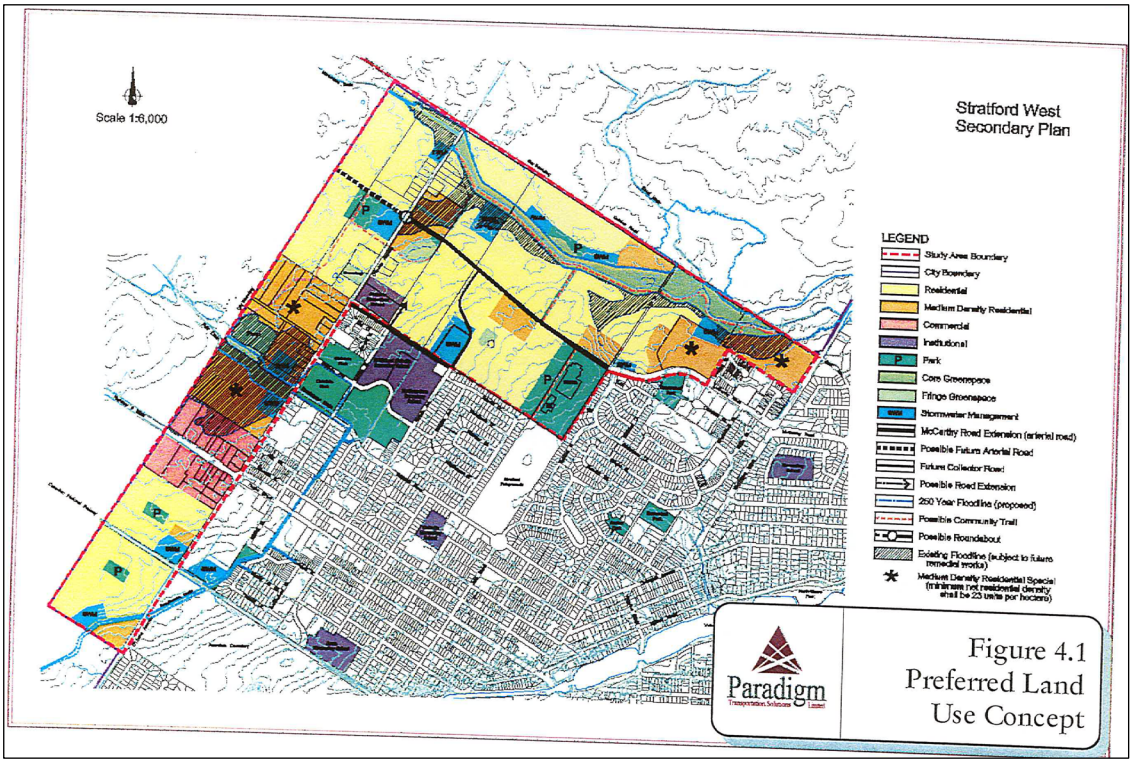
B.2.2 City of Stratford West Secondary Plan (2008)

The City of Stratford West Secondary Plan outlines specific recommendations and principles for future land-use planning projects to consider:

- Values to be considered with the development of urban growth in the western community of Stratford;
- Distribution, expansion and protection strategies for green space and parklands (e.g additional green space along McNamara Drain);
- Development of a comprehensive transportation network, including suggested noise mitigation strategies, road widening, lengthening and signalization projects (e.g. O'Loane Avenue to be widened to four lanes, signalization to be provided at McCarthy Road intersections ect.); and
- Refinement of land use and proposed residential neighbourhood developments (e.g. implementation of municipal services: sanitary, sewer, stormwater) to promote a high quality of life for residents.

The City of Stratford West Secondary Plan study area is shown in Exhibit B.2.2.

Exhibit B.2.2: City of Stratford West Secondary Plan Study Area



Source: City of Stratford West Secondary Plan, Figure 4.1 (Paradigm, 2008)

B.3 City of Stratford Strategic Priorities, 2018 to 2022 (2019)

The City of Stratford Strategic Priorities are intended to guide Council's initiatives, serving as a framework to align municipal goals and strategies throughout the 2018 and 2022 term. The Strategic Priorities report includes a mission, vision and values, and are recommended to be adopted beyond the 2022 term.

The mission statement for the City of Stratford is as follows:
To provide services to support a sustainable, caring community with exceptional quality of life.

The vision statement for the City of Stratford is as follows:

A vibrant city, leading the way in community-driven excellence.

The five values for the City of Stratford are as follows:

- **Integrity:** To be fair, transparent, and hold the public's best interests in all decision making.
- **Respect:** To recognize and consider all perspectives and recognize the value of all input.
- **Caring:** To show genuine interest in the well-being of everyone in the community and to demonstrate compassion in our work.
- **Progress:** To be innovative and proactive by thinking and acting beyond our current state and embracing new ideas.
- **Collaboration:** To seek community partnership and work together toward a common goal.

Finally, the Strategies Priorities for the City of Stratford are outlined in Exhibit B.4, along with other content that could support the TMP study.

Exhibit B.4: City of Stratford Strategic Priorities, 2018-2022 (2019)

Strategic Priority	Description	Supporting Strategies
Mobility, Accessibility and Design Excellence	Improving mobility to and from Stratford, including by public transit and active transportation, and adopting accessible options.	• Improvement Pavement Management Index • More sufficient year-round parking • A sustainable inter and intra-city transit program • A safe, connected active transportation network
Strengthening our Plans, Strategies and Partnerships	Developing community partnerships to develop plans that are important. Communicating clearly with the public regarding plans.	• Further activating Market Square • More fulsome communication, including targeted community outreach • A sports tourism strategy • Building community well-being through partnerships
Developing our Resources	Optimizing Stratford's physical assets and digital resources. Planning a sustainable future for Stratford's environment and resources.	• Progress towards zero waste • Increasing affordable housing • Starting the Grand Trunk Community Hub
Widening our Economic Opportunities	Strengthening the economy by developing, attracting and retaining a diversity of businesses and talent.	• Brining new industrial land to market • Increasing residential development at all level of affordability • Balancing supply and demand of the available labour force

Source: Adapted from City of Stratford Strategic Priorities for the 2018 to 2022 term of Stratford Council (2019)

B.4 Master Transportation Plan (2010)

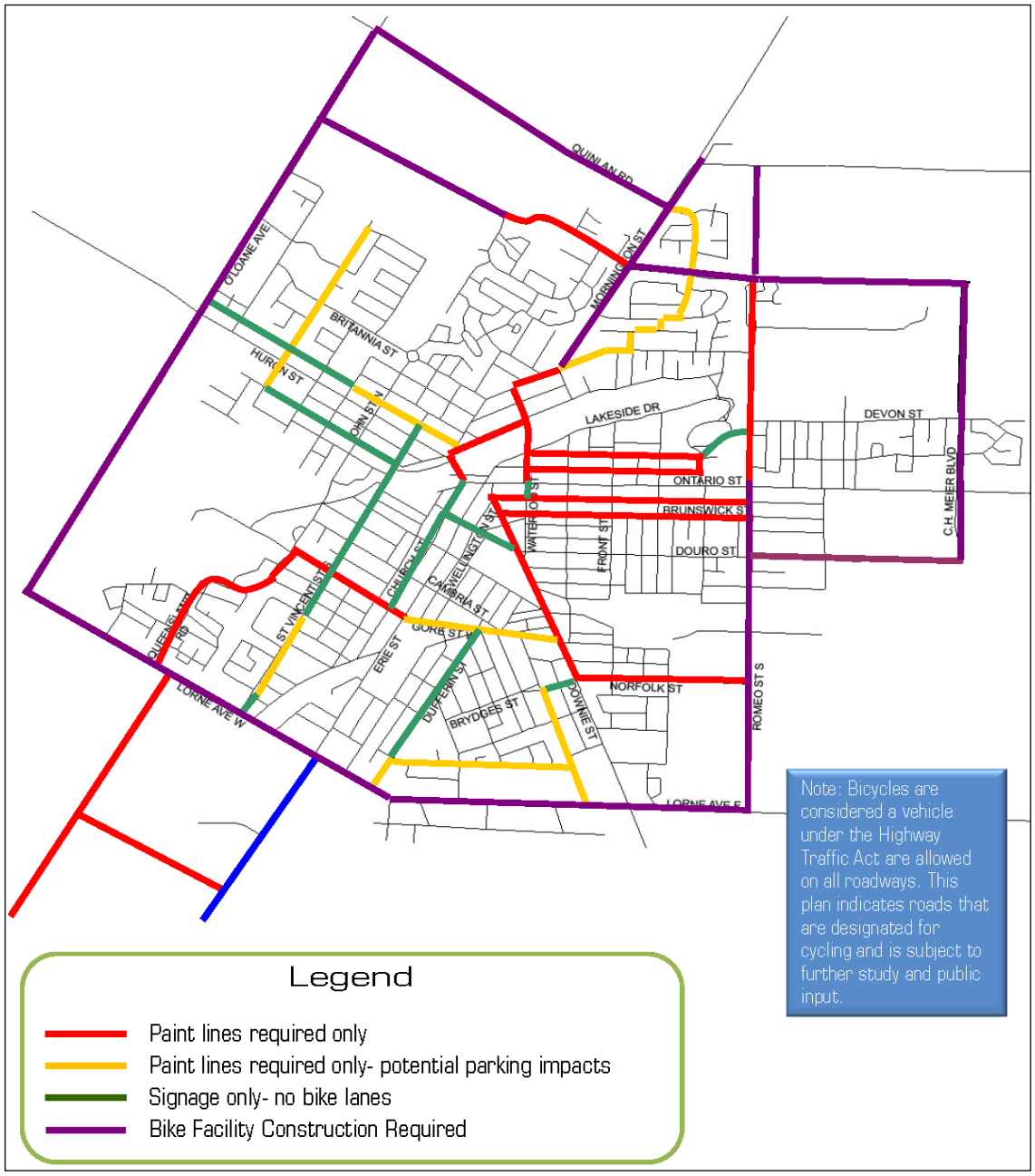
The Master Transportation Plan (MTP) was released in 2010 to support the City's Official Plan update the same year, and replaced the 1992 Transportation Plan. The MTP included a comprehensive plan to direct the transportation system over a 20-year horizon.

The primary goal of the MTP was as follows:

To provide increased focus on accommodating active transportation to encourage walking and cycling.

Informative to the current TMP, the 2010 MTP included a cycling plan, as well as a truck route network plan (i.e. existing and future routes), shown in Exhibit B.5 and Exhibit B.6, respectively.

Exhibit B.5: City of Stratford Master Transportation Plan (2010) Cycling Plan



Source: City of Stratford Master Transportation Plan, Figure 5.2 (2010)

Exhibit B.6: City of Stratford Master Transportation Plan (2010) Existing and Future Truck Routes

Source: City of Stratford Master Transportation Plan, Figure 4.12 (2010)

B.5 Pedestrian and Bike Master Plan (2014)

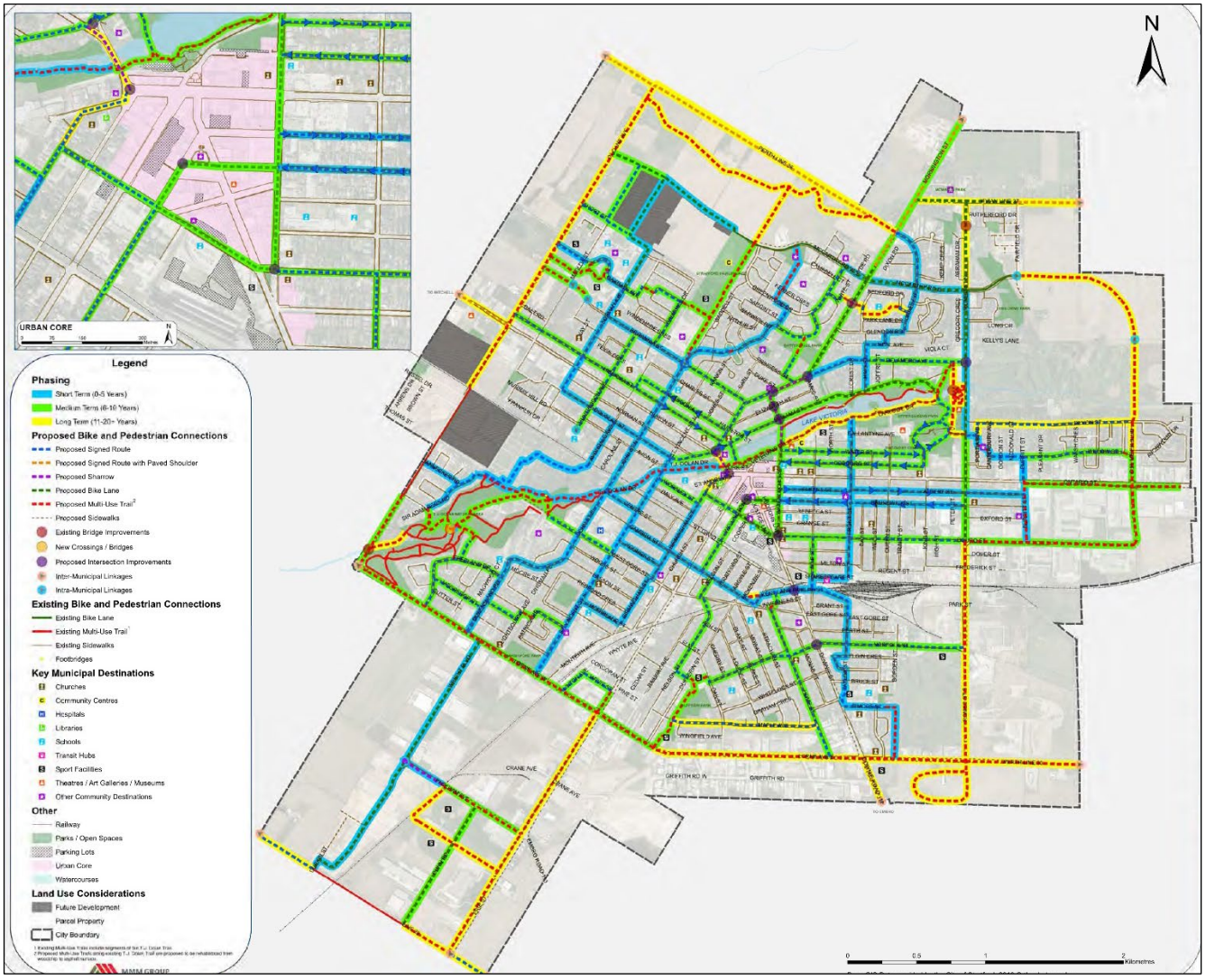
The focus of the City of Stratford's Pedestrian and Bike Master Plan is to improve active transportation opportunities throughout the City. A key component of the Plan is the development of the Bike and Pedestrian Network, supported by the study goal, as follows:

To develop a long term (20 year) strategic bicycle and pedestrian master plan and implementation strategy for the City of Stratford that will guide the development of a more balanced, better connected and integrated transportation system that will best serve the City's residents and visitors by accommodating all modes of travel including active transportation (walking and cycling).

The recommended bike network proposes about 105 kilometres of new cycling infrastructure, including about 13 kilometres of bicycle lanes and 36 kilometres of multi-use trails. The recommended bike network and phasing is shown in Exhibit B.7.

The TMP study will review and update the Bike and Pedestrian Master Plan and develop an integrated active transportation plan that responds to existing needs and issues and reflects the contemporary priorities of the Stratford residents.

Exhibit B.7: City of Stratford Bike and Pedestrian Plan Recommended Cycling Network and Phasing



Source: City of Stratford Bike and Pedestrian Plan, Figure 5.3 (MMM Group, 2014)

B.6 Climate Emergency Declaration (2020)

In February 2020, Stratford City Council adopted Stratford City Council adopted the Climate Emergency Declaration, with the intention of strengthening the City's commitment to the environment and understanding and protecting the City from climate change.

B.7 Creating a Healthy Environment - Greenhouse Gas Reduction Plan (2021)

The Greenhouse Reduction Plan represents a partnership between the municipalities of Perth County, North Perth, Perth East, Perth South, West Perth, Stratford and St. Marys to address the impacts of climate change. The Plan identifies actions and strategies to reduce greenhouse has emissions in the region, and includes a vision statement, as follows:

We will mitigate climate change risks by ambitiously reducing local greenhouse gas emissions, and will ensure a more resilient and healthy future for our communities.

The Greenhouse Reduction Plan also includes goals and actions for different categories, including the following related to transportation:

- Support the use of sustainable and low-carbon transportation options;
- Reduce the risk of transportation interruptions caused by severe weather events;
- Implement a transportation Master Plan;
- Develop better interconnectivity by improving walkability of neighbourhoods;
- Support the interest and purchasing of electric/low-emission vehicles through installation of charging stations;
- Promote and support the use of public transportation; and
- Work collaboratively on active transportation strategies.

The TMP can help steer the City toward the reduction of greenhouse gasses, and help meet objectives outlined in the Greenhouse Has Reduction Plan, through strategies that reduce reliance on single-occupancy vehicle trips get.

B.8 One Planet Living Principles

In 2021, the City of Stratford Council adopted the One Planet Living Principles, a reflection of the City's ongoing commitment to responding to climate change. *One Planet Living* is a framework to achieve a more sustainable future, developed by the charitable organization Bioregional.

The ten One Planet Living principles are as follows:

- **Health and happiness:** Encouraging active, social, meaningful lives to promote good health and wellbeing;
- **Equity and local economy:** Creating safe, equitable places to live and work which support local prosperity and international fair trade;
- **Culture and community**: Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living;
- **Land and nature:** Protecting and restoring land for the benefit of people and wildlife;
- **Sustainable water:** Using water efficiently, protecting local water resources and reducing flooding and drought;
- **Local and sustainable food:** Promoting sustainable, humane farming and healthy diets high in local, seasonal organic food and vegetable protein;
- **Travel and transport:** Reducing the need to travel, encouraging walking, cycling and low carbon transport;
- **Materials and products:** Using materials from sustainable sources and promoting products that help people reduce consumption;
- **Zero waste:** Reducing consumption, reusing and recycling to achieve zero waste and zero pollution; and
- **Zero carbon energy:** Making buildings and manufacturing energy-efficient and supplying all energy with renewables.

These principles will help inform the strategic framework to guide the TMP study, ensuring that an environmental lens is appropriately used in decision making.

B.9 International Charter for Walking (2010)

In 2010, the City of Stratford signed the International Charter for Walking, an initiative committed to encouraging walking in urban areas and the promotion of heathy, efficient and sustainable communities.

B.10 Transit Service and Downtown Terminal Needs Review (2015)

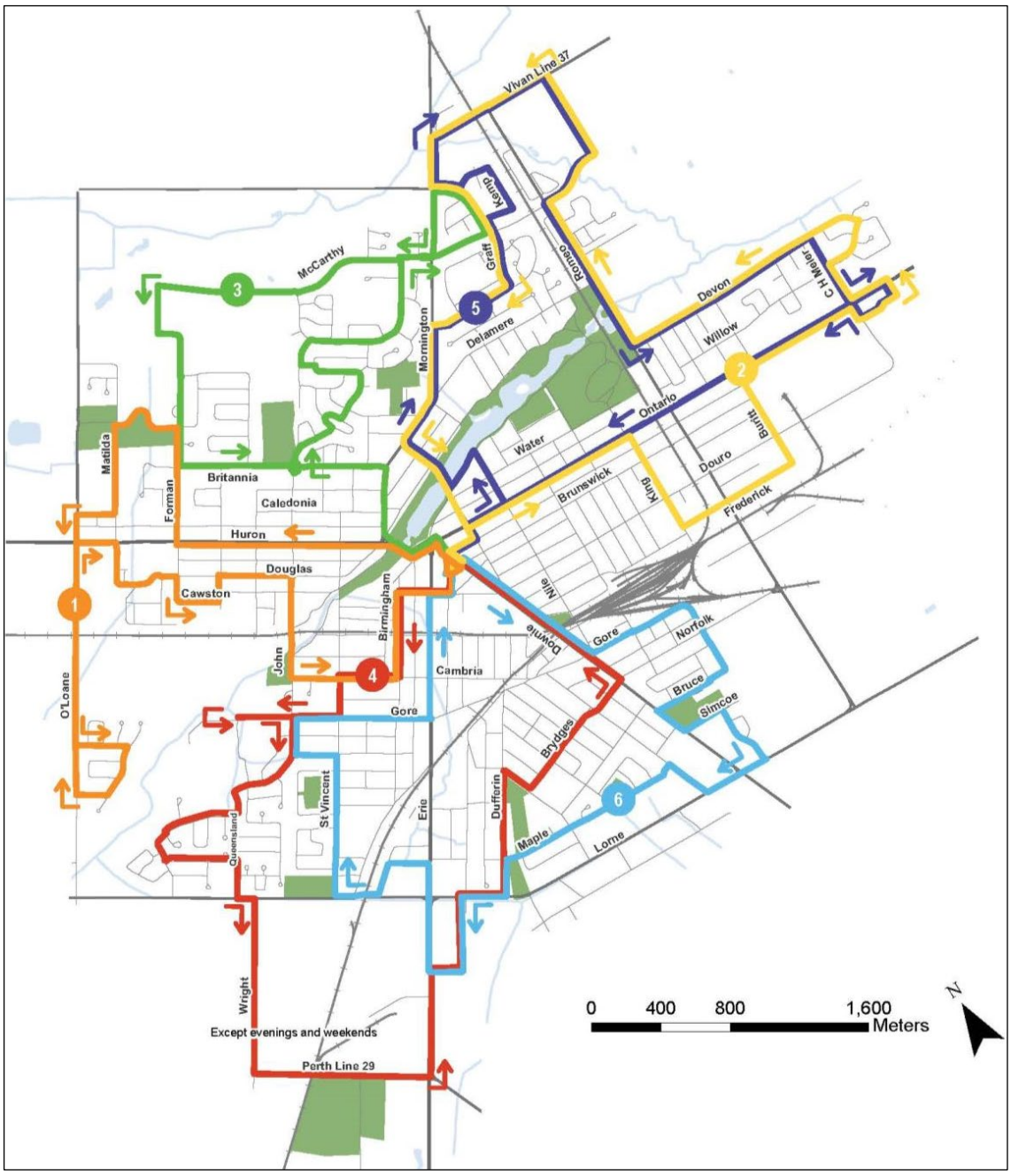
The City of Stratford Transit Service and Downtown Terminal Needs Review was developed to:

- Review the identified conventional transit service issues in the City;
- Review the transit route network and identify recommended rout network changes; and
- Review site options for relocating the downtown transit terminal location options.

Key recommendations identified in the report included the following:

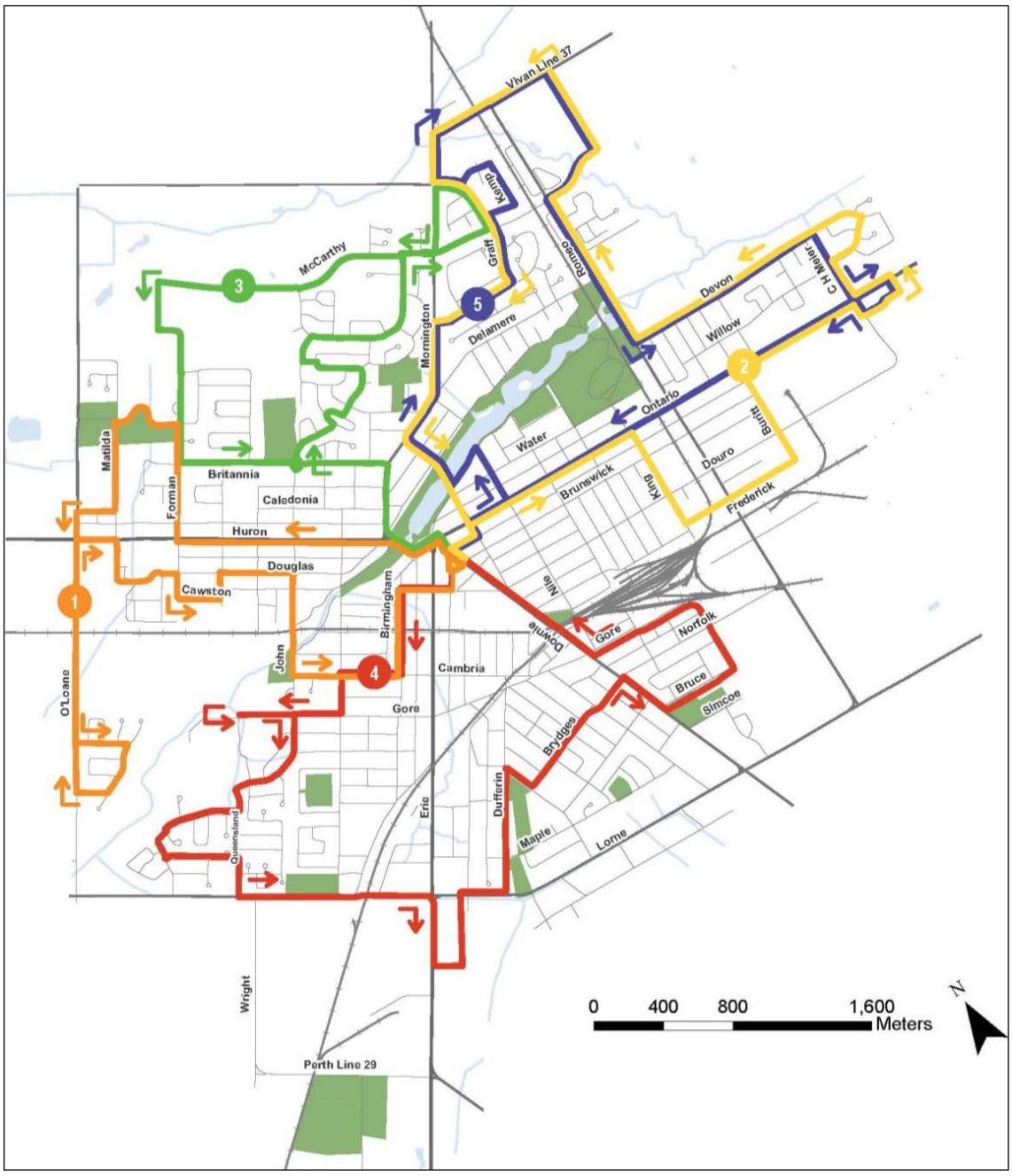
- Adopt route network alternative 3 and 3A, as shown in Exhibit B.8 and Exhibit B.9;
- Introduce Sunday transit service; and
- Relocate the downtown transit terminal to St. Patrick Street (a new Downtown Transit Station was constructed at Downie and Milton Street and opened for operation in 2019).

Exhibit B.8: Transit Service and Downtown Terminal Needs Review (2015) Recommended Route Network (Weekday Service)



Source: City of Stratford Transit Service and Downtown Terminal Needs Review, Exhibit 4 (IBI Group, 2015)

Exhibit B.9: Transit Service and Downtown Terminal Needs Review (2015) Recommended Route Network (Weekend Service)



Source: City of Stratford Transit Service and Downtown Terminal Needs Review, Exhibit 5 (IBI Group, 2015)

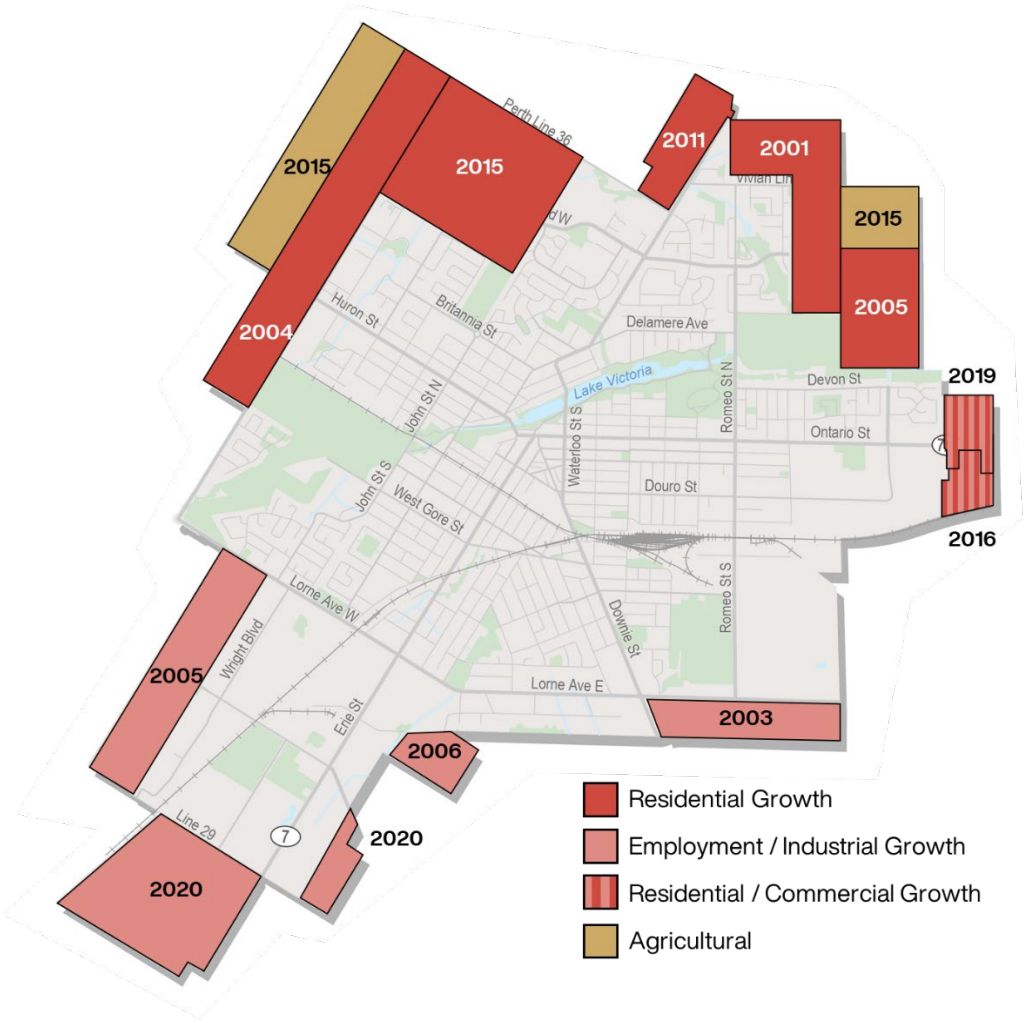
B.11 Municipal Boundary Adjustment (2020)

The City of Stratford is geographically encompassed by the County of Perth. A growing population and economy have been, in part, supported by a growing land base. A series of annexations have occurred since 2001, as shown in Exhibit B.10.

In February 2020, the City of Stratford, Township of Perth South and the County of Perth approved the proposed adjustments of their municipal boundaries. The annexation saw the appropriation of lands to the City of Stratford for the purpose of industrial land development. The 2020 annexation lands are also shown in Exhibit B.10. In July 2020, the Province approved a Minister's Zoning Order (MZO) to facilitate the development of a glass manufacturing plant on the newly annexed lands. In July 2021, the MZO was revoked at the request of Stratford City Council.

Other annexed lands are currently under design and development to meet housing needs. These developments are important to the TMP study, and considerations include a growing population, increased travel demand and traffic, and an expanded road network and accompanied opportunities for active transportation.

Exhibit B.10: City of Stratford Annexation Lands, 2001-2020



Source: Adapted from City of Stratford Planning Justification Report (Harrington McAvan Ltd, 2020)

B.12 City of Stratford Asset Management Plan (2021)

The City of Stratford Asset Management Plan (AMP) outlines existing asset management planning in the City, identifies practices and strategies to manage public infrastructure, and identifies the resources need to achieve a define level of service. Regarding municipal transportation infrastructure, the AMP includes the road network (including roadways, sidewalks, traffic systems, and streetlights), as well as bridges and culverts owned by the City. The City is responsible for 1,573 kilometres of paved roads, 229 kilometres of sidewalks, 4,201 streetlights , 2,939 traffic signals, boxes and signs, 32 bridges, 10 retaining walls and 17 culverts..

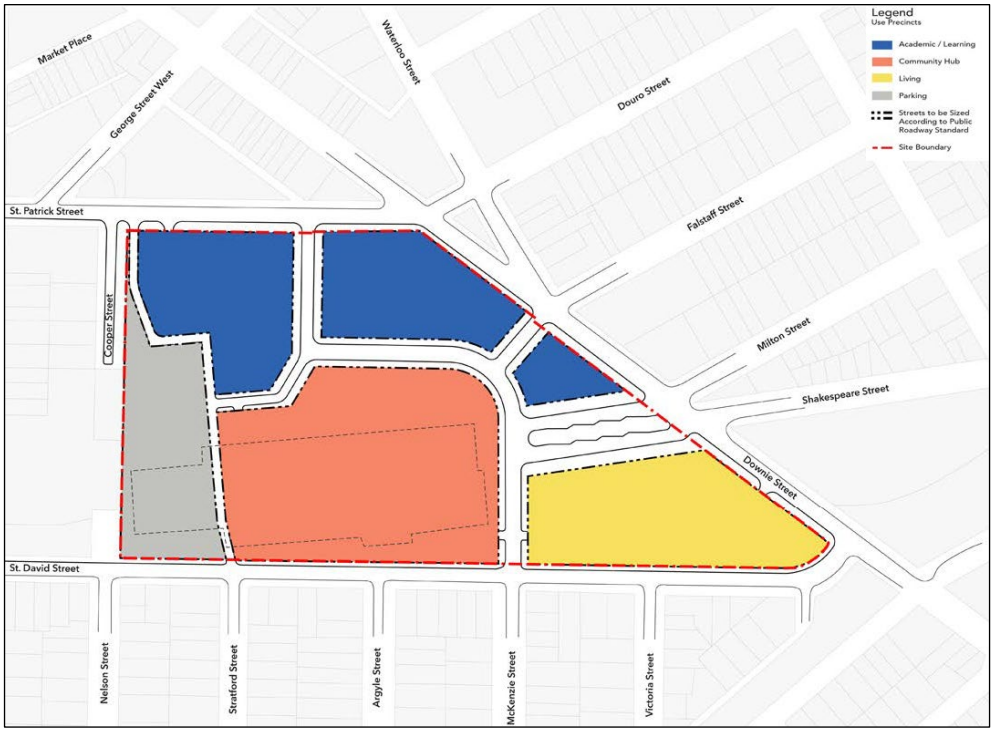
The AMP will help inform the TMP network development and prioritization and implementation strategy.

B.13 Grand Trunk Community Hub Master Plan (2018)

The Grand Trunk Community Hub site (formerly known as the Cooper Block) is a 7-hectare site in downtown Stratford comprising of the University of Waterloo Stratford Campus Building, the Stratford-Perth YMCA, the historic and vacant Grand Trunk Building, and municipal surface parking. The Grand Trunk Master Plan provides a framework for how the site could be developed moving forward. The Master Plan identifies various land use precincts for the site, including academic/learning, community hub, living and parking, as shown in Exhibit B.11. It also identifies the mobility plan for the site, as shown in Exhibit B.12.

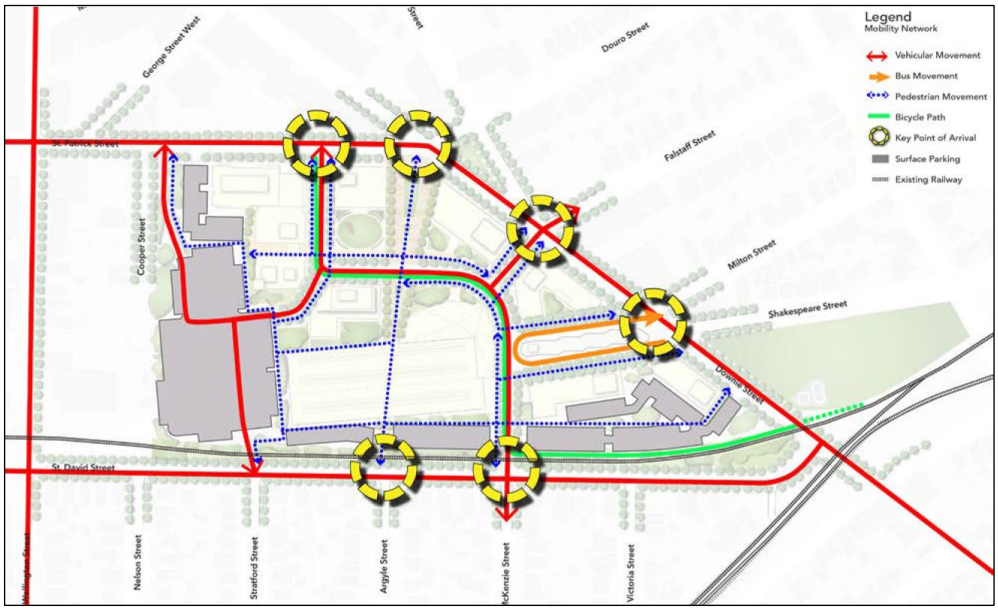
The future development of the Grand Trunk site is an important consideration for the TMP in ensuring appropriate connections and desired outcomes are supported.

Exhibit B.11: Grand Trunk Master Plan Land Use Precincts



Source: City of Stratford Grand Trunk Master Plan, Figure 32 (Urban Strategies, 2018)

Exhibit B.12: Grand Trunk Master Plan Mobility Plan



Source: City of Stratford Grand Trunk Master Plan, Figure 36 (Urban Strategies, 2018)

B.14 Infrastructure Projects and Environmental Assessments

Infrastructure projects as well as ongoing, completed or upcoming Municipal Class Environmental Assessments (EA) are of key consideration during the TMP study.

B.2.3 Huron Street Reconstruction

As part of the Huron Street Reconstruction project, the City of Stratford is updating the municipal storm, sanitary and water services along a 1.6 kilometre segment of Huron Street from the Huron Street Bridge to Matilda Street, as well as undertaking other roadway improvements including intersections and sidewalks. Huron Street is a part of the Province's Connecting Links program, which provides support to municipalities to repair designated municipal roadways and bridges that connect two ends of a provincial highway through a community.

A project will see a road diet configuration along Huron Street road, converting the 4-lane road to a 3-lane road consisting of two through lanes and a centre turn lane. The project will be undertaken in two phases, as follows:

- Phase 1: Design and approvals for Huron Street, and construction from Huron Street Bridge to John Street is expected to commence in Spring 2022.
- Phase 2: Construction from John Street to Matilda Street (dependant on future funding).

B.15 City of Stratford Downtown Traffic Study (2021)

A downtown traffic study was conducted to assess intersection operations and pedestrian crossing safety in the downtown of the City of Stratford. Key findings from the study include the following:

- Existing and future 2030 intersection operational concerns are concentrated to the Ontario Street corridor, specifically at the Erie Street and Downie Street intersections;
- Road widening along Ontario Street is not feasible, and localized intersection improvements (i.e. signal timing adjustments) is the preferred approach in optimizing intersection performance;
- The Ontario Street corridor is not a desirable candidate for signal coordination;
- The introduction of new auxiliary left-turn lanes on Ontario Street is not recommended; and
- Converting Lakeside Drive to one-way eastbound operation will result in traffic capacity constraints to the Waterloo Street at Ontario Street intersection, and is not expected to maintain an acceptable level of service due to existing intersection geometry.

Proposed improvement options to the identified issues include the following:

- Signal timing adjustments at the signalized intersections of Downie Street and Ontario Street, Erie Street and Ontario Street, and Erie Street and St. Patrick Street;
- Geometric improvements at the following intersections:
  - Ontario Street and Church Street;
  - Ontario Street and Downie Street and Ontario Street and Erie Street;

  - Ontario Street and Waterloo Street;
  - George Street and Downie Street;
  - Downie Street intersections with St. Patrick Street, Douro Street, and Waterloo Street;
- Installation of a Level 2 Type D pedestrian crossover facility at George Street and Downie Street;
- Installation of a signalized intersection at Downie Street and Milton Street; and
- Installation of a cul-de-sac on Shakespeare Street.

Finally, due to projected capacity constraints along Erie Street, a reduction in through lanes to one lane per direction within the study area is not recommended.

B.16 Other Traffic Impact Studies

Various traffic impact studies have been completed and could be informative to the TMP, including the following:

- Stratford Fairgrounds Transportation Impact Study (2020);
- Quinlan / Mornington Transportation Impact Study (2021);
- Quinlan Road / McCarthy Road West Residential Subdivision Transportation Impact Study (2020);
- Stratford East Traffic Study (2017); and
- Stratford Manufacturing Facility Traffic Impact Study (2019).

B.17 Southwest Community Transit Association

The Southwest Community Transit Association (SCT) is a voluntary association that proposes to coordinate inter-community bus transportation in Southwest Ontario, as well as develop best practices, identify economies of scale and provide a common platform to support long-term sustainable transit funding.

The SCT would function as an advisory board, lending direction, information and recommendations for integrating inter-community bus transportation. The City of

Stratford is one of the several municipalities that has formed to operate or support the SCT.

The level of public transportation service provided by each Municipal Member varies and is decided by each Member. The mandate of the SCT is as follows:

- Provide a seamless and integrated customer experience for passengers using each of the Member inter-community public transportation services;
- Promote inter-community connections between the Member public transportation services;
- Identify and share best practices, operating and ridership data and Key Performance Indicators (KPIs) to be used in the planning and delivery of inter-community public transportation services;
- Identify potential operating efficiencies and capital savings that may arise from Members pooling their resources or purchasing as a single entity; and
- Present a unified voice to the Province of Ontario and other key stakeholders with regards to matters that deal with the long-term sustainability of inter-community public transportation service in Southwestern Ontario.

The analysis conducted as part of the TMP may include identifying gaps in the public transit system and recommending strategies that align with the City's needs. The SCT may inform the project team's analysis of needs and opportunities of inter-community bus transportation in Stratford and surrounding areas.