middlesex centre
in the centre of it all

Middlesex Centre

TRANSPORTATION MASTER PLAN

March 2024
Final Summary Report

ARCADIS

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Part 1
FOUNDATION

Part 1 outlines the foundation upon which the Transportation Master Plan (TMP) is built. It provides an overview of the existing context and future outlook of Middlesex Centre, summarizes the consultation activities conducted throughout the study, and outlines the Strategic Framework from which the TMP recommendations are built.

1 Introduction

The Middlesex Centre Transportation Master Plan (TMP) is a long-range strategic plan to guide transportation policies, services and infrastructure initiatives for the Municipality's multi-modal transportation system through 2046. The TMP supports the Municipality's vision for its future, leading Middlesex Centre toward a more safe, accessible and sustainable transportation network.

1.1 Middlesex Centre's First Standalone Transportation Master Plan

Transportation includes the movement of people and goods by all travel modes: car and truck, rail, public transit, cycling, walking and more.

This is the first standalone Transportation Master Plan for the Municipality of Middlesex Centre ("the Municipality" or "Middlesex Centre"). Middlesex Centre is a growing municipality, and the TMP will help ensure that both current needs and evolving travel conditions are responded to, and the changing demographics and priorities of the Municipality and its residents are reflected. While Middlesex Centre has traditionally been, and still is, largely an agricultural community, today the municipality also boasts vibrant and growing urban centres, as well as a resilient farming community and an attractive rural landscape.

Transportation connectivity is vital to making Middlesex Centre an accessible and vibrant place to live, work and visit, to enjoy its rural flavour and access its urban amenities. The transportation system in Middlesex Centre includes a network of roads, highways, railways, passenger transit services, sidewalks, cycling infrastructure, trails and more that are owned, operated and/or regulated by different levels of government: the Federal government, the Province of Ontario, the County of Middlesex and the Municipality of Middlesex Centre. The focus of the TMP is to advance the multi-modal transportation system under the jurisdiction of the Municipality of Middlesex Centre. However, given the interconnectedness of these transportation networks, the TMP also includes actions to advocate for and

coordinate on changes to County and Provincial infrastructure and policies that are most important to residents.

Overall, the TMP:

- Guides decision-making related to transportation through to 2046;
- Supports the Municipality's vision for its future transportation system, which includes considerations for quality of life, the environment, and fiscal responsibility;
- Aligns with and support the Municipality's Official Plan and other strategic plans and policies;
- Supports local travel and longer-distance connections for all travel modes, supporting community livability and strengthening local economic opportunities; and
- Informs long-range financial planning.

1.2 About This Document

This report summarizes the development and recommendations of the Middlesex Centre Transportation Master Plan. Further information related to study development, analysis and outcomes are available in several background reports. These reports, together with this document, collectively form the Middlesex Centre Transportation Master Plan.

- Phase 1: Needs and Opportunities
- Phase 2: Transportation Network Development
- Phase 1 Public Opinion Survey Summary
- Engagement Summary
- Transportation Master Plan Summary

As the culmination of the background reports listed above, this TMP summary document summarizes the first two study phases and also provides an implementation plan for recommended transportation actions.

The report is structured into three main parts:

Part 1 – Foundation

- **Chapter 1: Introduction** provides an overview of Transportation Master Plan, summarizes the study process, and outlines the Municipal Class EA process.
- **Chapter 2: Context and Future Outlook** provides a high-level overview of important study context, outlining the major factors calling for a standalone TMP for Middlesex Centre.
- **Chapter 3: Consultation** outlines the consultation that was conducted with stakeholders and the public throughout the TMP study.
- **Chapter 4: Toward Achieving the Vision** outlines the transportation Vision and Goals and how they inform and direct the recommended actions.

Part 2 – Actions

- **Chapters 5 through 7** summarize the three overarching goals, outlining how each has informed the recommendation actions.
- **Chapter 8: Safe and Efficient Connectivity** presents the recommended actions related to inter-community travel within, to, from and through Middlesex Centre.
- **Chapter 9: Healthy Local Mobility** presents the recommended actions related to cycling and pedestrian infrastructure to support safe, accessible and convenient mobility options.
- **Chapter 10: Strong Local Industry** presents the recommended actions related to the transportation needs of goods movement, local businesses, as well as agriculture and local and industry.

Part 3 – Implementation

- **Chapter 11: Action Plan** summarizes the actions recommended throughout this document.
- **Chapter 12: Cost Summary** outlines the high-level cost estimates for major planned capital investments.
- **Chapter 13: Monitoring and Updates** presents the monitoring program and considerations for the next TMP update.

1.3 Planning Horizon and Phases

A planning horizon is the future point in time a strategic plan looks toward. The Municipality of Middlesex Centre TMP study has been developed with an ultimate planning horizon of 2046. Two interim horizons were also identified to direct the implementation of transportation network improvements and strategies based on need, funding capability, and other considerations.

The TMP study uses the following planning horizons, using 2023 as a base year:

- **Short-Term – by 2026:** Considers priorities for the transportation network in Middlesex Centre over the next few years.
- **Medium-Term – by 2031:** Projects or programs that are forecasted over the next 10 years.
- **Long-Term – by 2046:** 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.

After Council's adoption of the TMP, actions and projects will be integrated into capital program planning beginning with the next capital and operating budgets.

1.4 Municipal Class EA Process

The TMP development process adheres to the Municipal Class Environmental Assessment (MCEA) planning process for Master Plans under the Province of Ontario's Environmental Assessment Act, 1990.

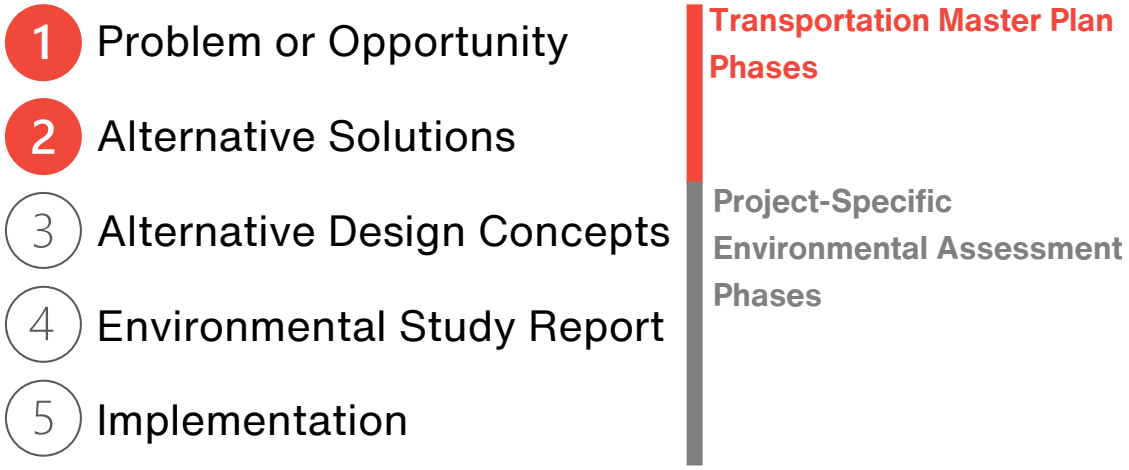
The MCEA planning process provides a transparent approach to planning and building municipal infrastructure. The TMP followed the Master Planning Process Approach #1 and involved the completion of the first two phases of the MCEA planning process:

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

Master plans meet the level of investigation, consultation and documentation sufficient to fulfil the requirements for EA-exempt projects within the plan. The TMP can also be used as support for subsequent Schedule B and C project specific studies (where additional study will be required for recommended projects with higher impacts before they proceed to design and construction).

The Municipal Class EA Process is summarized in Exhibit 1.1 below.

Exhibit 1.1: Municipal Class Environmental Assessment Process



2 Context and Future Outlook

Desirably located in the centre of southwestern Ontario and immediately adjacent to the City of London, Middlesex Centre covers a large geographic area of approximately 588 square kilometres—an area approximately 40% bigger than London but with a population that is just 4% of London's. The largely rural municipality is defined by its pleasant agricultural landscapes, natural heritage features and thriving urban centres.

2.1 A Municipal Transportation Network Interconnected with Broader Transportation Networks

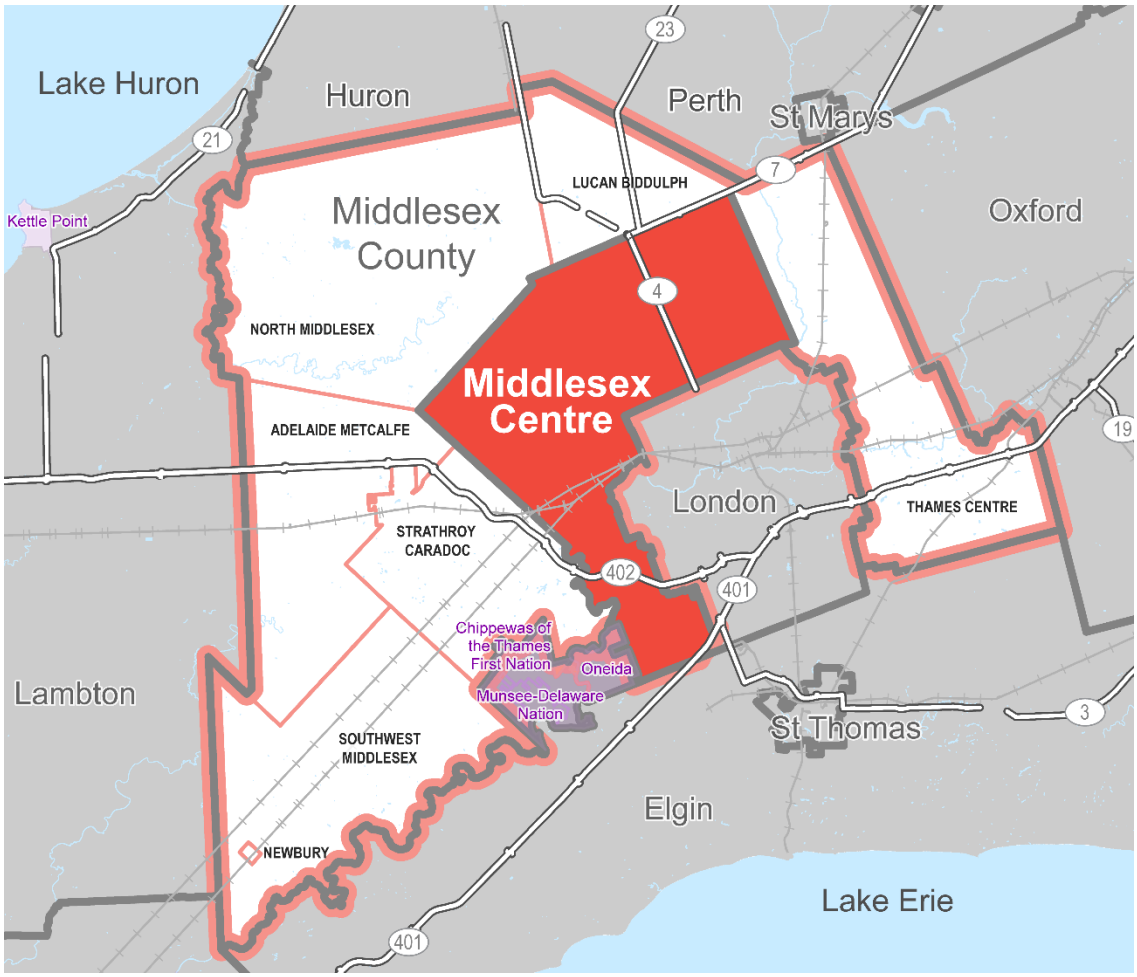
Transportation in Middlesex Centre is integrated with and influenced by the broader transportation system. The Municipality of Middlesex Centre is one of eight local municipalities within the County of Middlesex, as shown in Exhibit 2.1. The County's responsibilities as an upper-tier municipality include setting a framework for planning and coordination among its local municipalities, and is responsible for a network of roads that connect settlement areas within the County and that serve a broader connectivity function. Local municipalities are responsible for their own transportation networks that serve primarily a local function.

The Middlesex Centre TMP recommends actions and strategies focused on elements of the transportation system that are the responsibility of the Municipality. However, the TMP also includes actions to advocate for and coordinate on changes to Middlesex County and Provincial infrastructure and policies that are most important to residents. Achieving this through integrated land use and transportation planning can help the Municipality achieve its goals towards becoming a healthy, vibrant and safe community.

Transportation connections between Middlesex Centre's many communities and with its neighbouring communities, especially with London and St. Thomas as important economic centres, are essential to developing a meaningful TMP that is responsive to the priorities of

residents and supports the quality of life in Middlesex Centre. The Municipality is located immediately north and west of London, with nearly 50 kilometres of total shared boundary. With a population of over 422,000 and employment approaching 190,000 jobs as of 2021, London is an important regional centre for employment, education, shopping, services and more. London serves as a key employment centre for many residents not only of Middlesex Centre, but also of other nearby municipalities that travel through Middlesex Centre to go to and from London.

Exhibit 2.1: Map of Middlesex Centre within Middlesex County



2.2 Policy and Planning Alignment

It is important that the TMP align with other policies and plans of the Municipality, as well as those of the County, the Province and of adjacent municipalities. The following lists some of plans, policies and initiatives that

were reviewed as part of the TMP study – an overview of these is provided in the Phase 1 report:

- Province of Ontario
  - Provincial Policy Statement (2020)
  - Connecting the Southwest (2020)
  - Province-Wide Cycling Network
  - Relevant Conservation Authorities
- County of Middlesex
  - Official Plan (2023)
  - Rural Transit Needs Assessment Study (2023)
  - Cycling Strategy (2018)
  - Glendon Drive Environmental Study Report (2018)
- Municipality of Middlesex Centre
  - Strategic Plan (2021)
  - Official Plan (2023)
  - Trails Master Plan (2014)
  - Vision Zero
  - Servicing Master Plan (ongoing)

2.3 Middlesex Centre's Changing Demographics

Middlesex Centre is attracting young families, business owners and retirees alike, and a large majority of Middlesex Centre residents live in the eleven population centres spread across the municipality, particularly in the three largest settlement areas of Ilderton, Komoka-Kilworth and Delaware. New residents, many of whom are from bigger cities like London and Toronto, seek the small-town charm as well as the urban amenities and service that Middlesex Centre affords, and so improving multi-modal transportation opportunities and mobility options is a key objective of the TMP.

Growth in Middlesex Centre has been strong, climbing from 17,262 residents in 2016 to 18,928 residents in 2021 – 9.7% growth in just 5

years! In line with the County and the Municipality's Official Plans, it is anticipated that Middlesex Centre population will grow to 35,600 residents and employment to 11,700 jobs by 2046. As much of both current population and population growth is within these settlement areas, providing connectivity within and to/from settlement areas will be an important focus of the TMP, while also addressing rural transportation needs.

Like much of Canada, the population distribution of Middlesex Centre is getting older. The median age of Middlesex Centre residents in 2021 was 43.6, up from 41.2 in 2006, and higher than the provincial average in 2021 of 41.6. Middlesex Centre has a higher proportion of adults aged 40 to 79, and also of youth up to age 19, than both the City of London and the Ontario average. Middlesex Centre's rural and small-town atmosphere makes it attractive for smaller families. Middlesex Centre has a lower proportion of adults aged 80 and over. Among other reasons to move to urban areas, older seniors may no longer be able to drive, and transportation alternatives to driving are limited in Middlesex Centre.

Improving walkability through a complete network of connected sidewalks and safe crossings, as well as ensuring accessible transit opportunities, can help residents support their ability to age in place, and provides convenient, safe and reliable alternate options for those without access to a car, too young, or aging out of driving.

2.4 Growth Focused in Settlement Areas

Projected growth in Middlesex Centre, shown in Exhibit 2.2, is spread unevenly across 11 settlement areas throughout the municipality, with a large majority of this growth expected to occur in the Urban Settlement Areas of Komoka-Kilworth (63%) and Ilderton (20%). Community Settlement Areas are expected to accommodate 14% of the municipality's growth allocation—Delaware represents the bulk of this growth, driven by its proximity to London and supported by an Employment Area Settlement Area Boundary Expansion. Population growth throughout the municipality's remaining rural areas over the next several decades is expected to be slow due to limited servicing available.

Exhibit 2.2: Middlesex Centre Population Growth Forecast, 2016 to 2046

Settlement	2016 Population	2021 Population	2046 Population	2016-2046 Share of Growth	Annual Growth Rate
Ilderton	3,500	3,900	7,100	20%	2.4%
Komoka-Kilworth	4,600	5,700	15,900	63%	4.2%
Arva	500	600	1,000	3%	2.3%
Delaware	1,600	1,800	3,600	11%	2.7%
Hamlets/Other Rural	7,600	7,700	8,000	2%	0.2%
Total	**17,800**	**19,700**	**35,600**	**100%**	**2.3%**

Note: Populations include approximate Census undercount and are higher than Census figures.

Data sources: Watson & Associates Economists Ltd. (2022), Official Plan Review – Growth Management Strategy Technical Report, Figure 6-2 – High Scenario, noted to include 3.5% Census undercount adjustment; 2021 figures are interpolated based on anticipated rate of growth between 2016 and 2046, and are approximately comparable to Statistics Canada population with an estimated 3.5% Census undercount adjustment applied.

2.5 A Strong and Expanding Economy

Middlesex Centre is a largely agricultural community that provides residents and visitors both rural charm and urban amenities. The municipality benefits from being an integral part of an economically competitive region, with trickle-down effects from wealth generated by the regional economy and export-based sectors (agriculture, manufacturing, research and development, etc.) stimulating population-related employment that serve community-based economies such as retail, food, accommodation and other services.

Middlesex Centre's proximity to London—the largest municipality and major economic and regional service centre in southwestern Ontario—expands access to goods, services, employment and education opportunities for residents, affording them the opportunities and benefits of the big city while maintaining the rural charm of smaller town living. As London also continues to grow and expand its regional role and commuter shed in southwestern Ontario, Middlesex Centre will continue to be an attractive location for workers to live and conduct business.

Middlesex Centre benefits from close proximity to major employment markets, and has access to skilled labour, post-secondary institutions, health care, and finance. Its strategic location along Provincial Highways 401 and 402 and access to Canadian National (CN) and Canadian Pacific Kansas City (CPKC) rail mainlines, as well as its proximity to three border crossings to the United States—Sarnia-Port Huron, Windsor-Detroit and Fort Erie-Buffalo—make Middlesex Centre an attractive location for new industry. Other important regional economic generators near Middlesex Centre include the recently opened Amazon Fulfillment Centre in Elgin County (which may cause spillover commercial vehicle traffic and commuting traffic along the local network in Middlesex Centre) and the St. Thomas Electric-Vehicle Battery Manufacturing Plant (which is expected to employ thousands of workers once complete in 2027). Supporting mobility connections to these, and other important economic generators, is an important consideration of this TMP.

Vibrant main streets in the Municipality's population centres also support commercial activity and will continue to generate tourist activity. These areas are called "Village Centres" and will continue to play an important role in Middlesex Centre.

Exhibit 2.3 shows the estimated distribution and forecasted growth in employment in Middlesex Centre. Total employment in Middlesex Centre is anticipated to nearly double from approximately 6,560 jobs in 2021 to 11,650 jobs by 2046. A large planned industrial complex southeast of Delaware—about 135 developable hectares—is anticipated to host two-thirds of this growth. The new employment area will help support economic growth and will also increase commercial vehicle traffic picking up and dropping off goods, as well as workers accessing the new business park.

Exhibit 2.3: Middlesex Centre Employment Growth Forecast, 2016 to 2046

Settlement	2016 Jobs	2021 Jobs	2046 Jobs	2016-2046 Share of Growth	2016-2046 Growth Rate
Ilderton	1,510	1,680	2,150	9%	28%
Komoka-Kilworth	540	1,020	1,600	11%	57%
Arva	450	450	560	2%	24%
Delaware	1,660	1,740	5,170	67%	197%
Hamlets/Other Rural	1,640	1,670	2,170	10%	30%
Total	**5,800**	**6,560**	**11,650**	**100%**	**89%**

Data sources: 2016 Total Employment: Statistics Canada Journey-to-Work data and work status - includes employees with no fixed place of work, including building and landscape contractors, travelling salespersons and independent truck drivers.
2016 Employment distribution – Total employment distributed based on work trip destinations in the 2016 London Household Travel Survey.
2016-2021 Growth, 2021-2046 Growth: Watson & Associates Economists Ltd. (2022). *Official Plan Review – Growth Management Strategy Technical Report* (2022), Table D-3D
Remaining figures are calculated based on the above.

3 Consultation

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

Input from the public and stakeholders throughout the TMP study was used to inform the technical analysis that led to the development of recommendations. Concerns and priorities focused largely on managing transportation issues related to population growth, improving mobility options for those unable or choose not to drive, improving safety of all road users with an emphasis on vulnerable road users, protecting the environment, improving road conditions especially in rural areas, improving cycling and pedestrian facilities within and between settlement areas, and considerations for farm equipment, to name a few.

A detailed account of the public and stakeholder input received as part of two rounds of engagement are documented in the **Engagement Summary report.**

3.1 Engagement Activities

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

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

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

- Aamjiwnaang First Nation
- Bkejwanong (Walpole Island)

- Caldwell First Nation
- Chippewas of Kettle and Stony Point First Nation
- Chippewas of the Thames First Nation
- Eelūnaapèewii Lahkèewiit (Delaware Nation or Moravian of the Thames)
- Munsee-Delaware Nation
- Oneida Nation of the Thames

Targeted Indigenous outreach was undertaken at key milestones throughout the study process, including inviting feedback on study needs and opportunities and on the draft TMP Summary report. Input specific to the TMP study was not provided by representatives of the identified Indigenous Nations in response to this outreach (though representatives may have participated in the study's public information centres).

- **Round 1 Engagement (January and February 2023)** focused on developing an understanding of the community's transportation needs, issues and priorities and their collective vision for the future of Middlesex Centre. Round 1 Engagement consisted of the following activities:
- **Public Information Centre 1** was an online joint information session/presentation conducted together with the Servicing Master Plan Study. To allow for asynchronous participation, the study web page (www.middlesexcentre.ca/tmp) also featured project display boards, a **Public Opinion Survey** and **interactive map** activity to solicit feedback from members of the public. Participation included the submission of surveys from 266 respondents, as well as more than thirty location-based comments on the interactive map.
- **The Technical Advisory Committee** stakeholder meeting was hosted on Microsoft Teams and included participation from internal municipal representatives, neighbouring municipalities, school boards, transit operators, regional conservation authorities and provincial agencies.

Round 2 Engagement (October 2023) presented the transportation network development actions to address the needs and opportunities identified in the first phase of the study, and asked members of the public

for comment on the draft recommendations. Round 2 Engagement consisted of the following activities:

- **Public Information Centre 2** was hosted in-person at the Komoka Community Centre in conjunction with the Servicing Master Plan public information centre. To broaden opportunities for members of the public to engage with the study, a virtual version of the display boards was posted online. In addition to the input received from the in-person event, a Public Opinion Survey was the primary means of soliciting information from the public. Dozens of members of the public attended the Public Information Centre.

3.2 Community Input

The Public Information Centres and Technical Advisory Committee meeting provided valuable opportunities to engage directly with residents, visitors, business owners, advocates, agencies, technical experts and more, learning about their experiences, concerns and priorities for the future of the transportation system in Middlesex Centre. The two rounds of engagement provided members of the public and stakeholders the opportunity to give feedback on issues, priorities and recommendations at key milestones in the study, directly shaping the Transportation Master Plan.

General themes and priorities heard throughout the engagement program are summarized below, and are reflected throughout the recommendations developed for the TMP.

- **Manage transportation issues and operations related to population growth:** The impact of population growth is top of mind as a key driver of transportation changes in Middlesex Centre, especially the increasing traffic and congestion that can result. In the Phase 1 Public Opinion Survey, the top transportation issue most frequently selected for the TMP to address was the need for improved road operations and safety (48% of respondents, where respondents could choose up to three issues), and this is especially a concern along County roads. Along with the various intersection operation issues noted in both urban and rural areas, congestion concerns were noted in the largest urban areas, especially along Glendon Drive.

- **Support more and safer routes for pedestrians and cyclists:** Improving the active transportation network—including cycling facilities, multi-use trails, sidewalks and pedestrian crossings—helps to expand local travel options among residents and visitors and supports their daily recreation and transportation needs. Providing a safe and connected pedestrian network (including safe crossing opportunities at key locations) and safer cycling routes for people of all ages and abilities were among the top priorities among survey respondents during the Public Opinion Survey (each was selected 41% of the time). The need to increase separation of motorized vehicles from cyclists was the top road network concerns (especially in urban areas), as was inadequate separation from pedestrians. Improving safe active travel routes to key destinations like commercial areas and schools is critical to facilitating healthy and complete communities, and a priority among Middlesex Centre residents.
- **Improve transit service opportunities:** Public transit is seen by some Middlesex Centre residents as something that one might be interested in when older, but not necessary when one is still able to drive. It was noted as a top issue by 30% of Public Opinion Survey respondents. Passenger transit services are an important means of addressing not only the transportation needs of aging population but also of those who are not physically or financially able to drive. Interest in transit longer-distance travel (e.g. London's airport and passenger rail station), as well as access to shopping, entertainment, recreation and healthcare or related services was noted.
- **Address driver behaviour concerns:** Driver behaviour, especially related to speeding, is a key concern in Middlesex Centre. Safety issues for vulnerable road users were especially pronounced along Longwoods Road (County Road 2) through Delaware and Glendon Drive (County Road 14) through Komoka-Kilworth. Both these County roads connect directly to Highway 402 interchanges, so drivers accustomed to the 110 km/h speed limit on Highway 402 may especially have difficulty slowing down to urban arterial road speeds. Speeding concerns were also noted for local municipal roads. Increased enforcement or other measures are desired to mitigate these issues.

- **Support local industry while managing goods movement:** Continuing to support local business by maintaining convenient and efficient access to businesses in Middlesex Centre will help sustain a vibrant local economy. Local businesses can also be supported through a continued supply of parking and improved road design of key routes. The ability for the agricultural sector and other businesses to operate and move equipment and goods is a municipal priority, and should be balanced with the need for managing the potential negative impacts on other road users.

4 Toward Achieving the Vision

The TMP **Strategic Framework** consists of the transportation vision and six goals. The vision and goals form the foundation of a step-by-step **Network Development Process** to develop the TMP recommendations.

NETWORK DEVELOPMENT PROCESS

The transportation network process involved organizing the transportation needs and opportunities identified in Phase 1 of the study under the most applicable goals, also subcategorized by travel mode. The next step in the process was to identify actions that respond to identified needs or opportunities while also moving the Municipality closer to achieving its transportation vision and goals. Selected actions involving additional analysis or detail as part of the TMP study are termed focus areas or supporting strategies.

4.1 A Vision for Transportation

The vision states the desired future state of Middlesex Centre as it relates to its transportation system. It shapes decision-making and helps direct the Municipality to where it wants to be at the end of the TMP planning horizon. All TMP recommendations work towards realizing the vision. The transportation vision for Middlesex Centre is shown on the next page.

4.2 Transportation Goals

Two categories of goals were developed to direct TMP recommendations:

- The **Overarching Goals** are intended to apply to all aspects of the TMP. They do not themselves lead to specific actions, but are integral and supportive to all actions that arise from the TMP study:
- The **Mobility Goals** direct the development of actions to respond to the identified transportation needs and opportunities in Middlesex Centre. Infrastructure projects, policy directions and other supporting strategies were identified based on their alignment with the Mobility Goals.

Vision: Transportation networks and services will provide the connectivity needed to move people and goods within, to and from our community safely, reliably and efficiently, while supporting a strong quality of life for Middlesex Centre residents, reducing negative environmental impacts, and exercising Municipal fiscal responsibility.

THREE OVERARCHING GOALS: CROSS-CUTTING TO ALL TMP ACTIONS

SENSITIVE TO LOCAL CHARACTER AND QUALITY OF LIFE

Provides transportation solutions that reduce the negative impacts of transportation on local rural communities and urban centres, settlements, and hamlets.

PROTECTS THE NATURAL ENVIRONMENT

Minimizes disruption of local natural habitats, waterways, agricultural land and natural heritage features, and reduces non-renewable energy use for and pollutants arising from transportation.

EXERCISES FISCAL RESPONSIBILITY

Represents cost-effective Municipal spending on infrastructure and operations and takes advantage of partnership opportunities and external grants.

MOBILITY GOALS: ACHIEVABLE THROUGH MODE-SPECIFIC ACTIONS

PROVIDES SAFE AND EFFICIENT CONNECTIVITY

Support safe, efficient and dependable personal (passenger) travel between, to and from Middlesex Centre communities and activities.

Actions shown in Chapter 8.

PROMOTES HEALTHY LOCAL MOBILITY

Provides safe, accessible and convenient mobility options to connect between daily activities within local communities.

Actions shown in Chapter 9.

SUPPORTS LOCAL INDUSTRY

Supports prosperity by meeting the transportation needs of agriculture and other local industries, such as efficiently moving goods to and from markets.

Actions shown in Chapter 10.

4.1 Needs and Opportunities

Transportation needs and opportunities—identified through technical and qualitative analysis as well as engagement findings—are summarized under the most applicable mobility goal in Sections 8 through 10.

Transportation "needs" can be understood to represent what would cause a gap between the forecasted future without any adjustments to the current course of action, compared to and the envisioned future. Meanwhile, "opportunities" represent outside circumstances or potential actions that can be leveraged toward achieving the vision and goals.

Transportation needs and opportunities are documented in detail by travel mode in the **Phase 1: Needs and Opportunities report.**

4.2 Actions

The recommended actions respond to the needs and opportunities and were identified to help bring Middlesex Centre closer to its vision.

Actions vary in scope and include the following:

- New or expanded infrastructure, where needed, as this is a key part of strategic long-term transportation planning.
- Updated policies, strategies, guidelines and decision-making frameworks. These have a significant impact on how transportation networks are used, improving the use of existing transportation infrastructure for a range of travel modes.
- Collaborating with, seeking partnerships with, and advocating to the County, the Province and adjacent municipalities on key transportation topics that are important to Middlesex Centre residents.

Selected actions where additional detail or analysis are provided as part of the TMP process are termed focus areas or supporting strategies.

The rationale for and evaluation of recommended actions against all six transportation goals is documented in detail in the **Phase 2: Transportation Network Development report.** The Phase 2 report also outlines **focus areas** and **supporting strategies**.

Part 2
ACTIONS

Part 2 is organized by the TMP's three overarching goals and three mobility goals, and outlines the corresponding recommended actions for the Municipality of Middlesex Centre to undertake toward achieving its long-term transportation vision. Actions include strategies, policies, infrastructure projects, and potential for partnerships or collaboration.

5 Sensitive to Local Character and Quality of Life

Provides transportation solutions that reduce the negative impacts of transportation on local rural communities and urban centres, settlements and hamlets.

This overarching goal recognizes that Middlesex Centre's rural and small-town setting is much appreciated by its residents and local businesses and that the approach to transportation planning should be sensitive to this context. It also recognizes that, given its proximity to London, significant volumes of traffic to, from and through the municipality can negatively impact quality of life for residents and local businesses.

The following outlines some of the ways in which the recommended actions outlined in Chapters 8 through 10 have considered the goal of preserving local character and improving quality of life:

- Given the importance of inter-regional connectivity to London and high through traffic volumes, interregional and heavy vehicle traffic are encouraged to use appropriate routes, e.g. the TMP provides increased clarity on the role and function of each road in the network toward appropriate design, and continuing to work with the County to ensure County roads are appropriately expanded where needed.
- The TMP actions work toward a better balance of County vs. Municipal priorities on County roads through settlement areas.
- Infrastructure will continue to be sensitive to rural/small town character, where appropriate, e.g. dark-sky streetlights, and appropriate sidewalk and road drainage designs.

6 Protects the Natural Environment

Minimizes disruption of local natural habitats, waterways, agricultural land and natural heritage features, and reduces non-renewable energy use for and pollutants arising from transportation.

This overarching goal recognizes that protecting the natural environment is a key concern for Middlesex Centre residents, and is a top priority for many. Greenhouse gas emissions reduction targets are also in place at different levels of government in light of climate change concerns. Reducing anthropogenic pollutants, improving safety for wildlife near transportation corridors, and maintaining as much of the rural or natural landscape as possible are also prime priorities.

The following outlines some of the ways in which the recommended actions outlined in Chapters 8 through 10 have considered the goal of protecting the natural environment:

- The disruption of agricultural lands, waterways, habitats and natural heritage features is reduced by optimizing the use of existing infrastructure rather than new infrastructure, where feasible.
- Safety for wildlife is increased through exploring and implementing ways to reduce wildlife collisions.
- Non-renewable energy use and the production of anthropogenic pollutants is reduced by supporting cycling, walking and transit use, as well as by supporting the provision of electric vehicle charging infrastructure.

7 Exercises Fiscal Responsibility

Represents cost-effective Municipal spending on infrastructure and operations and takes advantage of partnership opportunities and external grants.

This overarching goal recognizes that as a relatively small municipality, Middlesex Centre must use local taxpayer dollars wisely and effectively, optimizing the return on Municipal spending for local residents and businesses.

The following outlines some of the ways in which the TMP draft actions outlined in Chapters 8 through 10 have considered the goal of exercising fiscal responsibility:

- Municipal resources are used cost-effectively, focusing spending on actions with tangible impact.
- Transportation spending is kept within Municipal budget limitations.
- Municipal funds are leveraged through partnerships and access to federal and provincial grants where possible.

8 Safe and Efficient Connectivity

Support safe, efficient and dependable personal (passenger) travel between, to and from Middlesex Centre communities and activities.

This goal focuses on inter-community travel within, to, from and through Middlesex Centre, such as to the neighbouring city of London. These are the types of trips that are done by motorized means such as by car or transit (or potentially by cycling), as they are often too far for most people to walk, and depend on a well-connected, well-designed and well-maintained road network. Safety, noise and other external impacts of traffic need to be minimized and managed.

8.1 Road Design and Classification

Needs and Opportunities

- Respond to anticipated capacity constraints along County roads.
- Clarify the role and function of individual Middlesex Centre roads to facilitate decision-making and design.
- Create a better balance of County vs. Middlesex Centre priorities for County roads in settlement areas.

Actions

Road Capacity Improvements

A1. Support and collaborate with Middlesex County on the implementation of Glendon Drive corridor capacity and operational improvements.

Many of the transportation concerns in Middlesex Centre have to do with County roads, given the high levels of traffic they carry and the fact that settlement areas are typically centred on County Roads as a main street or focus road for the community. The County's improvement plan for Glendon

Drive (County Road 14), summarized in Exhibit 8.1, will address several operational and safety concerns identified during TMP study engagement activities. The Municipality's responsibility in implementation includes constructing the multi-use path alongside Glendon Drive for cycling, walking and wheeling.

Meanwhile, no Municipality roads are anticipated to require capacity expansions over the TMP planning horizon.

Municipality Road Classification

A2. Adopt a new road classification framework and map including designations for urban and rural roads via an Official Plan amendment or update.

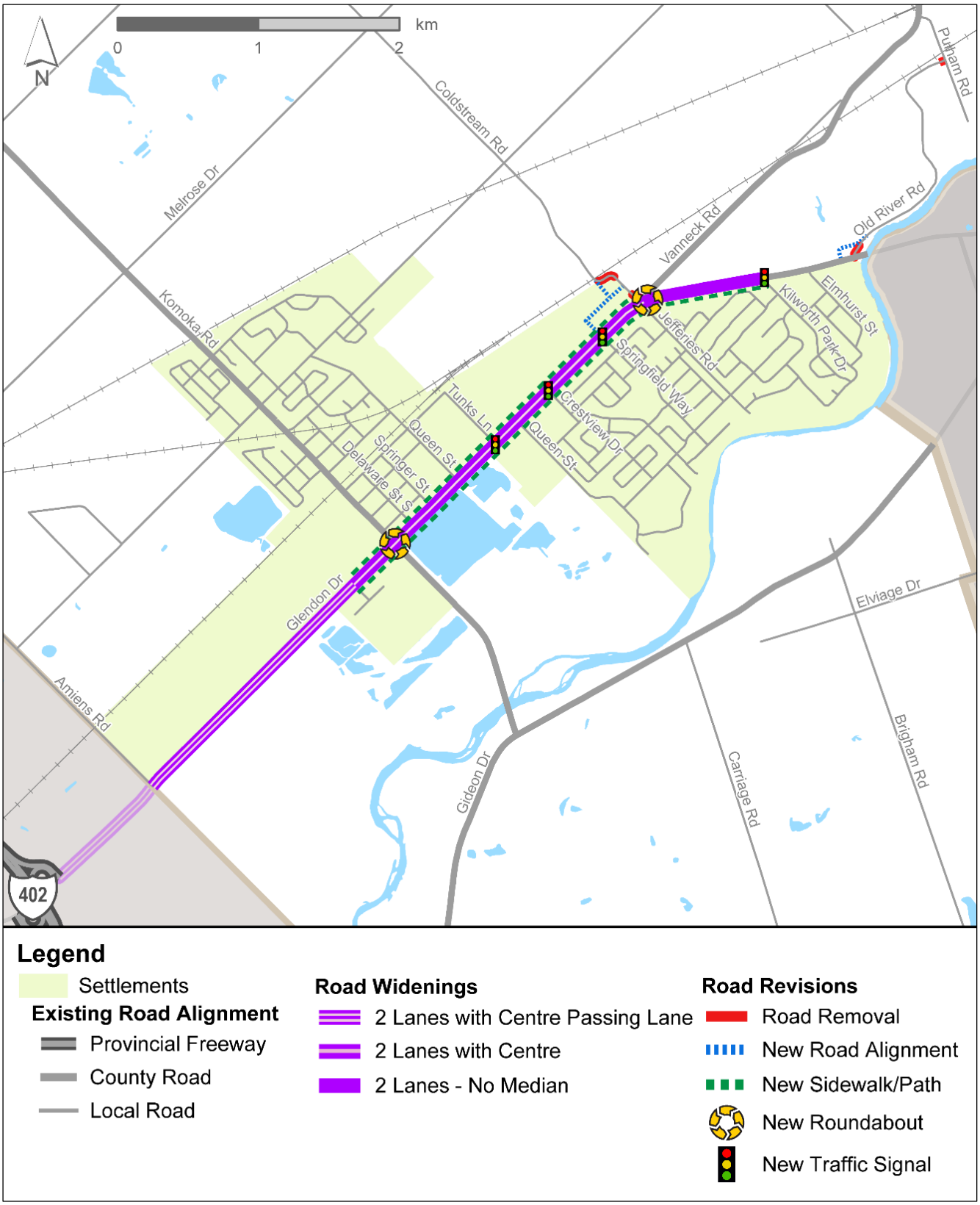
A functional road classification framework establishes a hierarchy of roads based on each road segment's context and the degree to which the segment prioritizes serving mobility vs. land access needs. Developing and applying a road classification framework that incorporates road context (urban vs. rural) and that more clearly stratifies the travel vs. local access function for Middlesex Centre roads provides clarity, direction and consistency for the Municipality in a range of decision-making.

Average annual daily traffic (AADT) is one important consideration in defining a functional road class network for Middlesex Centre. Exhibit 8.2 summarizes the AADT counts for roads under Middlesex Centre and County jurisdiction. The highest traffic volumes in Middlesex Centre are on County Roads that connect directly to London.

The recommended road classification network, shown in Exhibit 8.3, appropriately defines a road network hierarchy for the Municipality as well as formalizes a road hierarchy integrated with County roads and Provincial highways. A functional road classification framework is also recommended, which outlines typical characteristics for each road class, and presented in the Phase 2 report.

A functional road classification framework, outlining typical characteristics for each road class, is also recommended and presented in the Phase 2 report. The framework emphasizes safety while meeting the needs of all road users, for example by including guidance for sidewalks and cycling facility types along different roadway classes.

Exhibit 8.1: Overview of Middlesex County's Glendon Drive Improvement Plan



Note: Map developed by Arcadis based on Glendon Drive ESR (Stantec, 2018)

Exhibit 8.2: Average Annual Daily Traffic – Municipal and County Road Network, 2021

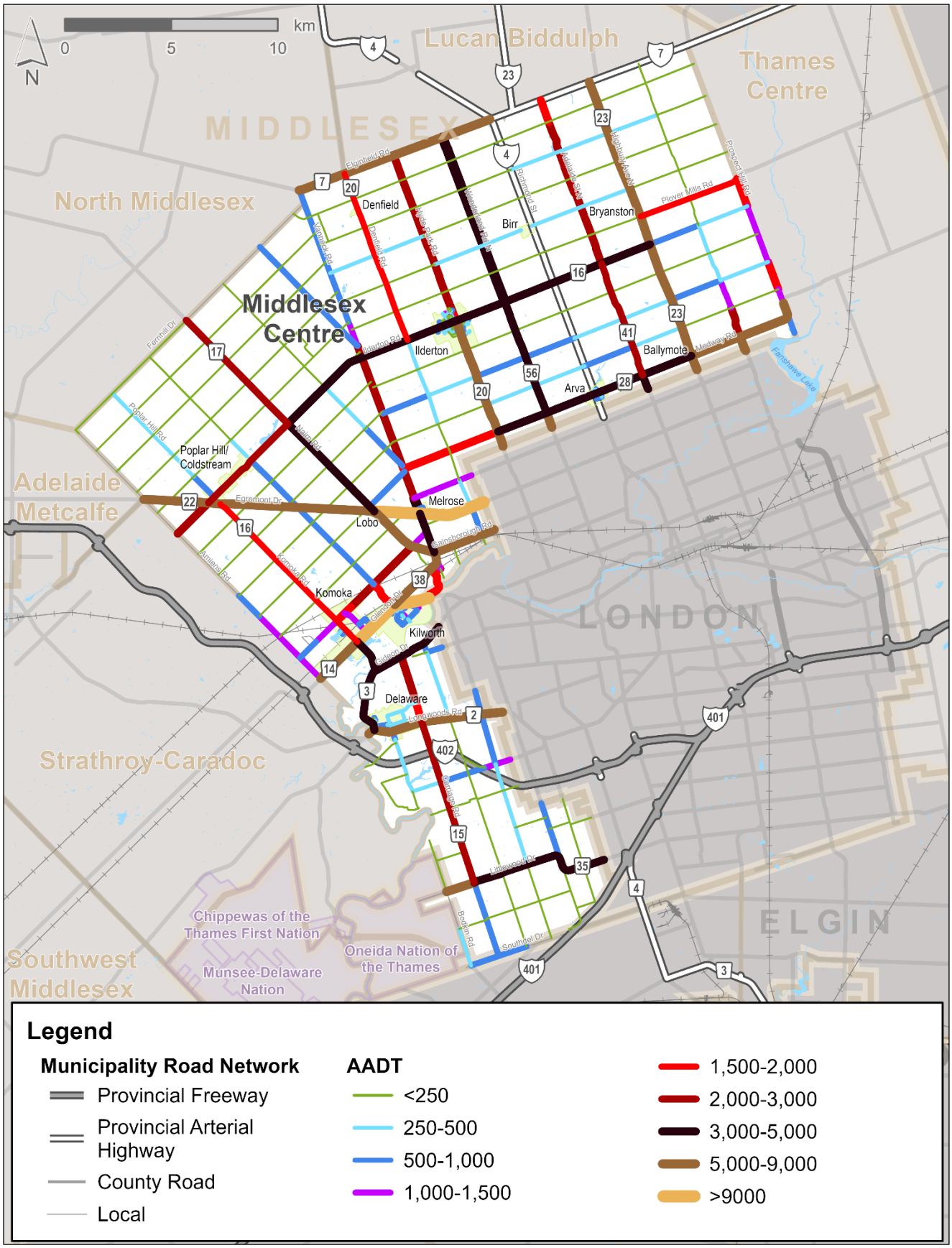
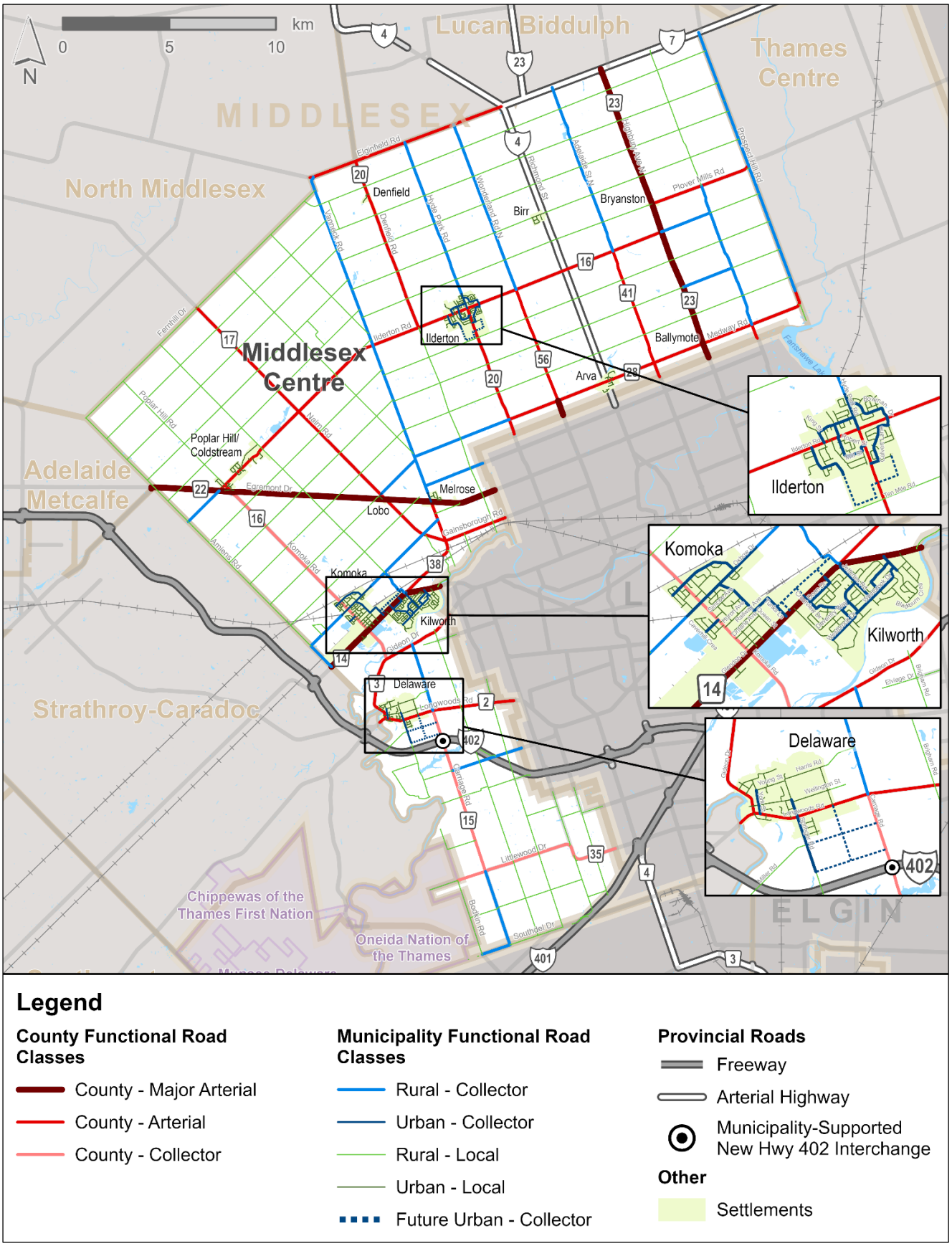


Exhibit 8.3: Recommended Functional Road Classification of Municipality Roads



A3. Note: County road classifications are shown per the Middlesex County Official Plan (2023). Where feasible and in conjunction with other capital works or as other needs arise, implement upgrades to existing roads identified as collector roads to better align with the typical characteristics outlined in the framework.

Applying the recommended road classification framework results in the identification of collector roads under the Municipality's jurisdiction that were previously considered local roads, as shown previously in Exhibit 8.2.

While the road classification should be recognized as soon as adopted by Council, it will take time and investment to bring each of these collector road corridors up to the standard outlined in the road classification framework. Further, the degree to which a road can feasibly be retrofitted to align with typical characteristics of its road classification must be determined on a case-by-case basis.

Upgrading of collector roads should be undertaken over time, in conjunction with other scheduled capital works based on the life cycle of the existing assets to help manage costs.

County Road – Urban Context Considerations

A4. Encourage the County to update County functional road classification and associated design standards for greater recognition of municipal priorities within urban contexts, in collaboration with its local area municipalities.

The County's Official Plan gives some consideration to the urban vs. rural context of its roads in its Official Plan, e.g. providing allowances within urban areas for differing right-of-way widths and set-back requirements, and being constructed to an urban standard (curbs, gutters, underground stormwater collection system). However, additional allowances for County roads within urban contexts would provide greater balance toward Municipality vs. County priorities, such as reduced operating speeds, more frequent allowances for safer pedestrian crossings at pedestrian crossovers or at signalized intersections, and the potential for on-road cycling facilities.

8.2 Road Safety

Needs and Opportunities

- Address driver behaviour concerns such as speeding, to increase safety.
- Address infrastructure factors that may affect traffic collisions.
- Ensure at-grade rail crossing safety in view of updated guidelines.

Actions

Addressing Driver Behaviour Concerns

A5. Continue the Municipality's Vision Zero campaign and related initiatives.

Middlesex Centre's ongoing Vision Zero Road Safety campaign includes speed reduction campaigns, community safety zones and traffic calming initiatives, tools appropriate to continue to help address ongoing road user safety concerns among local residents. The Municipality should continue to implement this campaign and monitor its effectiveness.

A6. Continue to collaborate with the County regarding safety improvements and efforts to reduce speeding along County roads, especially through urban areas.

Safety concerns due to driver behaviour such as speeding is one of the top concerns of Middlesex Centre residents, on both County roads and Municipality roads. Addressing speeding on County roads is further challenged by direct connectivity of selected County roads to Highway 402, which has a speed limit of 110 km/h. Drivers can have difficulty transitioning from freeway speeds to speeds appropriate for the nearby urban settlements of Komoka-Kilworth and Delaware.

Reduced speeds and improved safety can be achieved through reduced posted speeds or targeted enforcement. Strategic measures in settlement areas (e.g. radar speed signs) could help reduce the negative impacts of

motor vehicle use, alter driver behaviour and improve conditions for other road users.

Collision Review and Mitigations

A7. Implement infrastructure changes toward improving safety at top collision locations.

The TMP study included analysis of 5 years of collision data along County and Municipality roads within Middlesex Centre. This included identifying the ten locations with the highest number of vehicle collisions, for which mitigating measures were put forward for consideration. Measures include additional or enhanced signage and new or enhanced pavement markings, geometric improvements, wider shoulders, and improved pavement conditions. The analysis and measures for consideration are detailed in the Phase 1 report.

A8. Apply measures to reduce risk of wildlife collisions.

Collisions with wildlife made up 40% of the 117 collisions reported on average per year in Middlesex Centre. These types of collisions pose a risk to both road users and the wildlife population. Measures to decrease the risk of these types of collisions can include the provision of wildlife fencing along high-risk corridors, signage reminding of the presence of wildlife in the area, or other measures.

At-Grade Rail Crossing Review

A9. Maintain safety at all at-grade railway crossings through review of signal warrants and placement of warning signals when road conditions change, e.g. in tandem with addition of paved shoulders on Oxbow Drive.

Middlesex Centre has several at-grade rail crossings in Komoka-Kilworth and area. All at-grade rail crossings are subject to Transport Canada's technical standards to assess the types of warning systems required (e.g. warning systems with or without gates) and their implementation specifications.

Although these standards have been updated, typically at-grade road-rail crossings currently in place are considered to be compliant with these

standards unless specific safety issues are identified and assessed. However, when a new road-rail crossing is implemented or if traffic or roadway conditions change significantly at existing crossings, a technical study to review the crossings warning systems and implementation specifications will be required. Situations where further studies could be triggered include when paved shoulders are added (either for cycling or safety), and warning lights need to be moved. This would trigger a detailed study to determine whether other changes are needed as well. One example of this is Oxbow Drive, where traffic is growing and adding paved shoulders for cycling is recommended.

A10. Identify and remove excess vegetation within municipal rights-of-way at existing at-grade crossings to improve sightlines and potentially increase safety.

To support rail crossing safety at all crossings, the Municipality can maintain or increase sightlines at at-grade road crossings and allow better visibility of oncoming trains by removing vegetation in the vicinity of the at-grade crossings where feasible, working with adjacent landowners and railway owners/operators as appropriate.

8.3 Passenger Transit Services

Needs and Opportunities

- Address the transportation needs of those who are unable to or choose not to drive.
- Continue to cooperate with and support the Middlesex County Connect transit service.
- Leverage established municipal transit systems operating near or through Middlesex Centre as additional partnership opportunities.
- Leverage population growth in urban settlement areas that will increasingly support transit operations.
- Provide transit services appropriate to demand levels.

Actions

Middlesex County Connect

A11. Support and promote Middlesex County Connect transit services for Middlesex Centre residents and visitors. Provide barrier-free access to stops, as well as amenities at stops (e.g. benches and shelter).

Public transportation provides an important alternative to personal automobile travel to meet daily travel needs for those who are unable or would prefer not to drive. Providing transit services in Middlesex Centre is challenging due to its lower population density and significant travel distances between settlement areas and to/from neighbouring communities such as London, and requires creative service solutions. However, with an anticipated population growth in Komoka-Kilworth and Ilderton, ridership and financial sustainability of passenger transit services within and to/from these settlement areas will continue to improve.

A map showing the routing of current public transportation services in, through and near Middlesex Centre is shown as Exhibit 8.4.

The continued provision of transit services by Middlesex County represents important mobility options for Middlesex Centre residents. The Municipality will continue to work with and support the County in its current and planned transit service provision, ensuring universal access to transit stops. This could also include considerations for first and last mile connections[1] (outlined in the Phase 2 report).

Other Area Passenger Transit Services

A12. Seek to partner with London Transit to extend routes to nearby settlements of Komoka-Kilworth, Arva, Delaware and Ilderton as they continue to grow.

[1] The first and last mile connection refers to bridging the distance between transit services and the potential transit rider's ultimate trip origin or destination using various modes of transportation (e.g. walking, cycling, ridesharing services).

Middlesex Centre, with support from the County of Middlesex, should initiate discussions with London Transit Commission about the possibility of extending routes to nearby Urban Settlement Area of Komoka-Kilworth. Connections to Delaware, Ilderton and Arva can also be explored into the future as these settlements continue to grow. Expanded LTC service could provide connectivity of nearby Middlesex Centre residents and visitors to a wide range of employment, as well education, shopping, medical and other opportunities within the City of London.

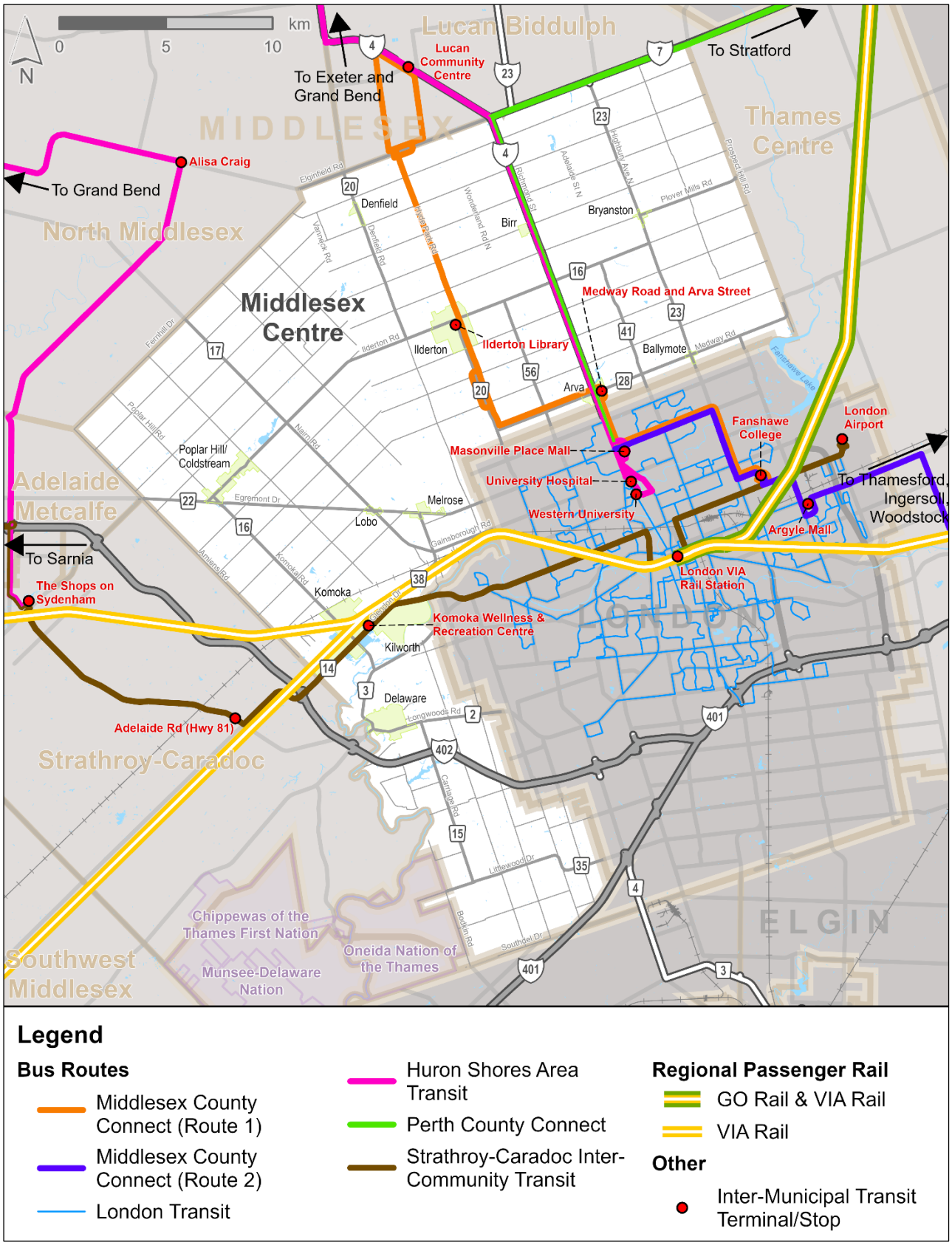
A13. Seek to partner with Perth County Connect and Huron Shores Area Transit to add stops along existing routes that pass through Arva and Birr.

With support from the County of Middlesex, it is recommended that Middlesex Centre forge new partnerships with these neighbouring transit service providers to build on and expand existing services into Middlesex Centre. This can be a cost-effective solution for the Municipality to adopt, and can benefit partnering services through additional transit ridership. The Municipality should Initiate discussions with Perth County Connect and Huron Shores Area Transit: Adding stops along existing routes that currently pass through Middlesex Centre (i.e. in Arva and Birr) represent relatively simple opportunities that can help respond to transit needs for local residents.

A14. Collaborate with and promote future passenger transit service connections into the broader region with a focus on service to employment centres (e.g. new Amazon distribution centre in Elgin County and future electric vehicle battery plant in St. Thomas).

As new and planned major employment centres take off in the region (e.g. Delaware industrial complex, Amazon Fulfilment Centre in Southwold, St. Thomas Electric-Vehicle Battery Manufacturing Plant), supporting transit connections will provide great value for workers. The Municipality should identify appropriate transit service providers for possible connections into the broader region with a focus on connections to these major employment centres.

Exhibit 8.4: Passenger Transportation Services in Middlesex Centre and Vicinity



Note: Routing current as of July 2023.

Consolidated Passenger Transit Information

A15. Develop and maintain an up-to-date one-stop source for transit information in and around Middlesex Centre to improve ease and convenience of the transit systems serving residents.

Given the variety of services available within, to, from, through and near Middlesex Centre, residents and visitors of Middlesex Centre may not be aware of the passenger service options available to them. Consolidating this information in one location would be of great value to current and potential transit riders.

8.4 Resiliency

Needs and Opportunities

- Review standards for bridges and culvert design.
- Review and address concerns regarding gravel roads.
- Address the lack of electric vehicle charging infrastructure in Middlesex Centre.
- Consider transportation demand management (TDM) strategies.

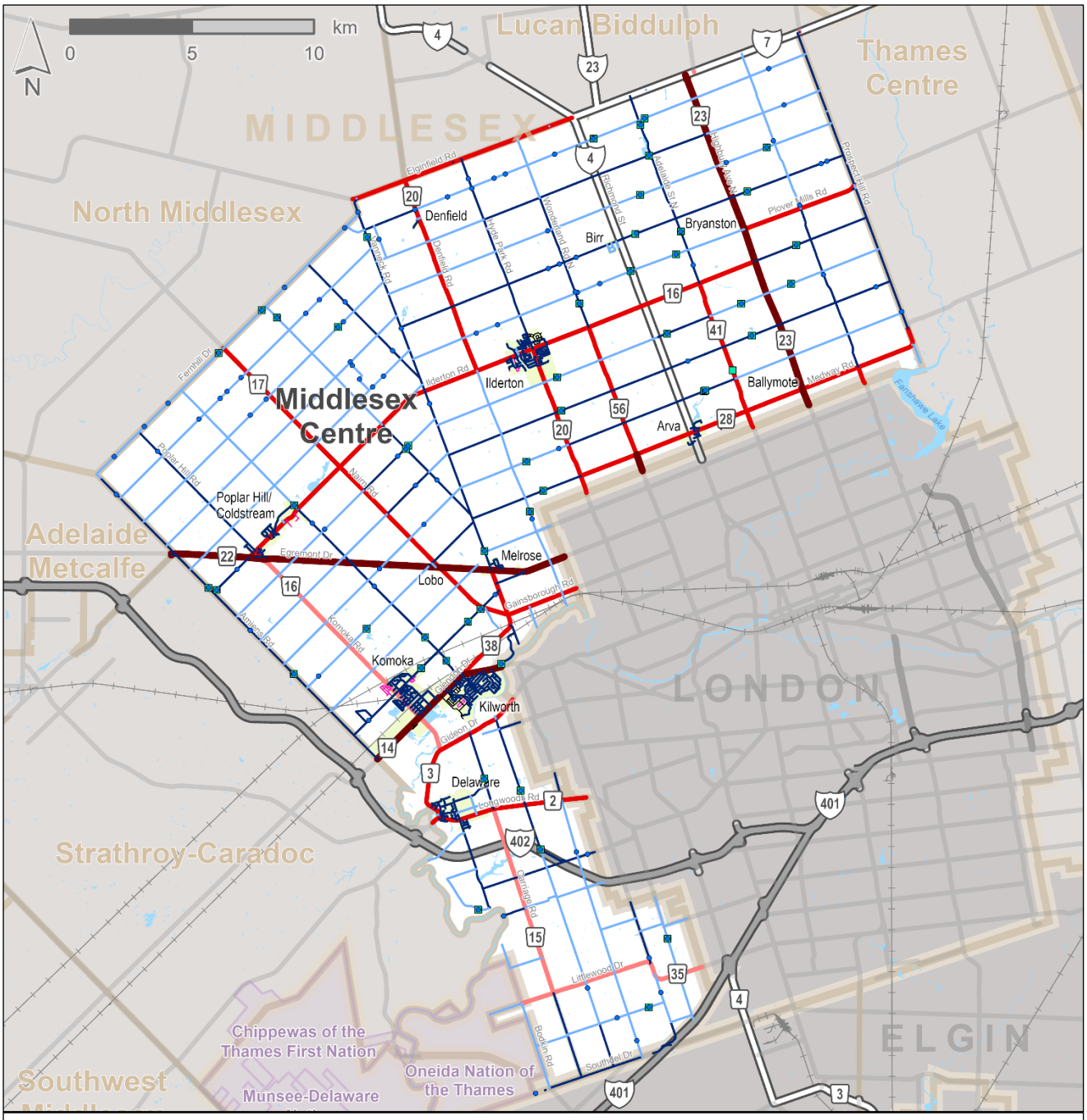
Actions

Stormwater Management

A16. Update standards for bridges and culverts to account for increased frequency and magnitude of extreme weather, and implement the updated stormwater management strategy.

Middlesex Centre includes numerous waterways of varying sizes associated with five watersheds. As a result, the Municipality is responsible for 51 bridges with a span of 3 metres or more, and 99 culverts, 27 of which have a total span between 2 and 3 metres. The locations of these are shown in Exhibit 8.5, which also indicates the road surface type for Middlesex Centre roads.

Exhibit 8.5: Local Municipal Road Surface Type



A review of Middlesex Centre's Infrastructure Design Guidelines regarding the Stormwater Collection system identified some additions and modifications to bring the guidelines closer in line to current best practices. These include applying an additional 25% to the peak flow for the minor design storm and include an additional 20% to the rainfall amount for the 100-year, 24-hour storm event (equally distributed over the 24-hour period) to account for the range of possible climate change outcomes. More detail, including a list of additional updates to infrastructure design standards, is included in the Phase 2 report.

Road Surface Conversion Policy

A17. Continue to apply road surface conversion policy as first outlined in the 2023 *Road Needs Study*.

The Municipality maintains 272 kilometres of soft-surfaced roadways (i.e. granular—gravel, stone, and other loose aggregate), about 45% of the total length of all Municipal roadways. The surface types of Middlesex Centre roads were shown previously in Exhibit 8.5.

In March 2023, a Road Needs Study for Middlesex Centre was prepared that applied criteria and identified a list of over 40 segments that are recommended for upgraded surfaces. The report also prioritized these segments based on relative need and benefit, with traffic volume thresholds being a key factor, together with other considerations. The identified segments are reflected in the Municipality's capital budget planning for roads.

Electric Vehicle Charging Infrastructure

A18. Develop and implement a strategy for electric vehicle charging stations.

In light of the growing market share of electric vehicles and hybrid electric vehicles, as well as the Government of Canada's mandatory target for new light-duty cars and passenger truck sales be "Zero-Emission Vehicles (ZEVs)" by 2035, increased provision of public electric vehicle charging infrastructure would support the use of electric vehicles. Increased provision also aligns with the County of Middlesex Official Plan's (2023)

general transportation policies to encourage greater electric vehicle usage through the provision of charging infrastructure (policy 2.3.4).

Locations to assess for the feasibility and effectiveness of adding EV charging infrastructure include the Municipality-owned off-street parking lots in Ilderton and Arva, on-street parking spots along York Street in Delaware, parking lots at municipal facilities (arenas, community centres, municipal office, parks, etc.), and potential new municipal parking supply.

Travel Demand Management

A19. Develop and implement a travel demand management strategy to reduce demand for vehicular road capacity.

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 personal vehicle use. While TDM is often associated with larger municipalities and urban areas, it can help reduce the demand placed on the Municipality's transportation network, and can also replace or delay more expensive capital projects such as corridor widening or rehabilitation.

It is recommended that a TDM strategy be developed that specifies target mode shares—the proportion of trips made by different travel modes such as auto passenger, auto driver, transit, cycling, walking, and other—with the aim of shifting the distribution of travel away from single-occupancy vehicles and towards more sustainable alternatives.

The main elements of the Municipality's TDM strategy would be to provide feasible transportation alternatives to personal vehicle use via:

- Effective passenger transit services;
- Safe and attractive cycling and pedestrian routes;
- Support for carpooling; and
- Support for remote work where feasible.

Progress towards these targets can be measured through data collection, surveys and monitoring of transportation patterns.

9 Healthy Local Mobility

Provides safe, accessible and convenient mobility options to connect between daily activities within local communities.

Walkable communities can decrease reliance on vehicles for accessing local businesses and community offerings. It creates a community feel when residents and visitors of all ages and abilities can move about safely on sidewalks and designated pedestrian trails. Similarly, increased provision of appropriate cycling infrastructure can allow residents an alternative way to travel between activities, and can attract more cycling tourists and visitors to take in the rural and small-town atmosphere.

9.1 Cycling

Needs and Opportunities

- Increase separation between vehicles and cyclists, where appropriate and feasible, to improve safety for both cyclists and motorists.
- Continue to support the County in the implementation of its planned cycling network.
- Review the County's cycling network for routes along Middlesex Centre roads.
- Leverage increasing interest in cycling for recreation, while expanding cycling for utilitarian purposes.
- Continue to leverage broader (inter-community and inter-municipal) cycling network connectivity opportunities.
- Improve the alignment between the Trails Master Plan and the County's cycling network.
- Continue to build upon, update and implement the Trails Master Plan network.

Actions

Cycling Facility (Route) Type Guidance

A20. Update the Municipality's design guidance for cycling facility (route) selection (e.g. bike lane, paved shoulder, multi-use path, etc.) to reflect latest guidance provided by the Ontario Traffic Council (Ontario Traffic Manual – Book 18 – Cycling Facilities, 2021).

In 2021, the Province provided updated cycling facility guidelines in the *Ontario Traffic Manual Book 18 – Cycling Facilities*. Compared to the previous version, the updated OTM Book 18 provides strengthened warrants for facility types—shared, designated or separated facilities—recommending a lower threshold for traffic volume and speed for the implementation of higher-order facilities such as protected bike lanes and cycle tracks. This updated guidance is recommended to serve as the primary resource for selection of appropriate cycling facility types and design along all potential routes within Middlesex Centre.

The Phase 2 report provides an overview of the updated guidelines.

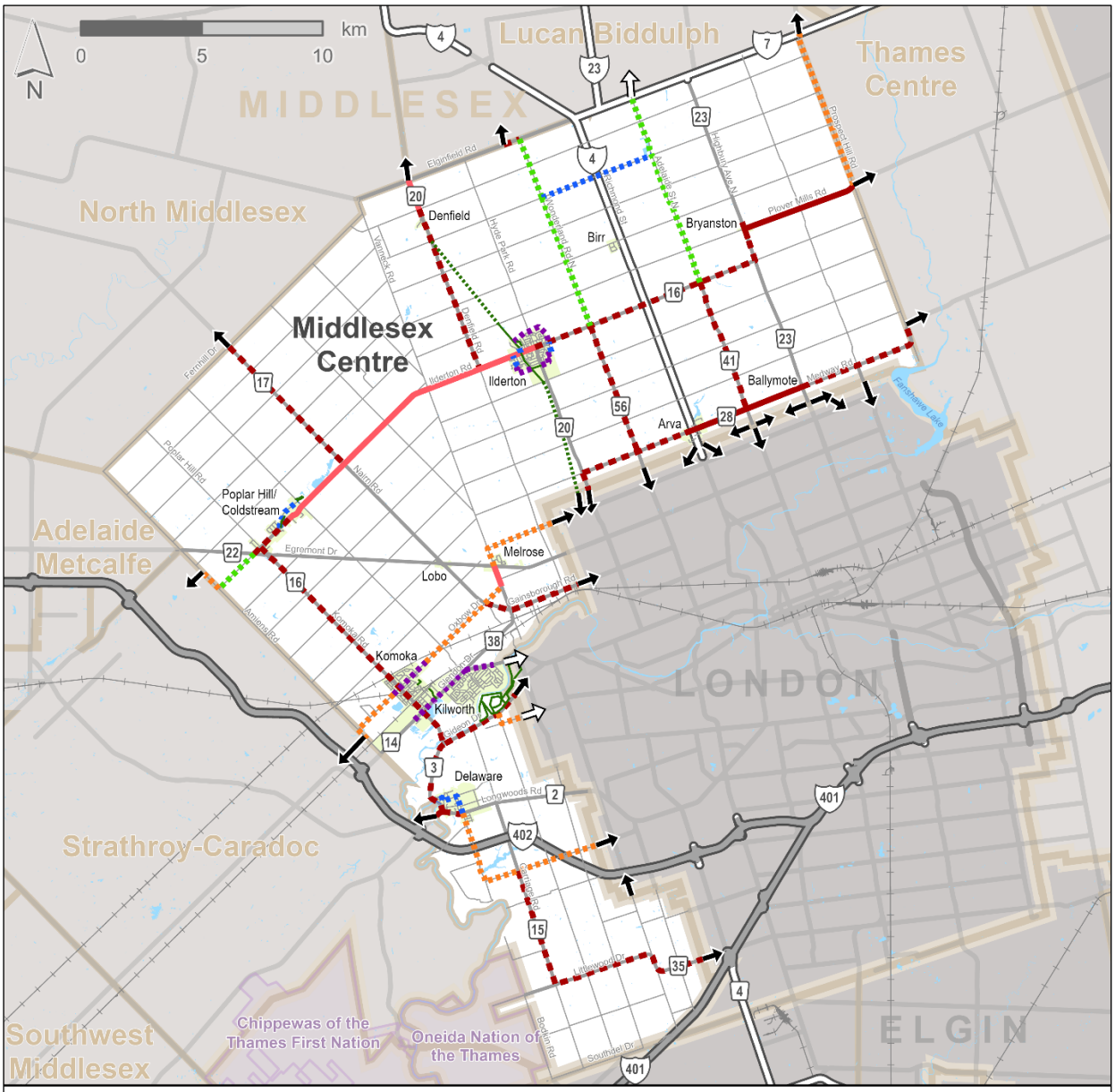
County Cycling Plan: Review of Routes under Municipality Jurisdiction

A21. Adopt the recommended updates to the County Cycling Network Plan based on preliminary facility type review and in consideration of additional inter-municipal connectivity, and encourage the County of Middlesex to adopt the same changes in their Cycling Network Plan.

Middlesex County's first comprehensive Cycling Strategy was developed in 2018, proposing a network of cycling infrastructure along selected County roads as well as local municipal roadways.

A review of the County Cycling Network was conducted for routes under Municipality of Middlesex Centre jurisdiction based on updated OTM Book 18 guidance, and in light of existing and planned cycling connections with adjacent municipalities. The recommended Cycling Network Plan for Middlesex Centre is shown in Exhibit 9.1.

Exhibit 9.1: Recommended Middlesex Centre Cycling Network Plan



Note: Planned bikeway means any roadway or path provided for bicycle travel along urban streets, either for the exclusive use of bicycles or shared with other transportation modes.

To better align with Provincial guidelines, some of the more significant changes in cycling facility types under Municipality jurisdiction compared to the original County Plan include the following:

- **Oxbow Drive between Amiens Road and Vanneck Road (County Road 38):** Upgrade to paved shoulders in the rural area and to a designated or separated facility along the urban roadway;
- **Adelaide Street between County Road 16 and Highway 7:** Upgrade to buffered paved shoulders, given high traffic volumes and speeds—compared to the County plan, this route is extended north to Highway 7, with a desire for a cycling connection beyond in Lucan Biddulph; and
- **Wonderland Road between County Road 16 and Fifteen Mile Road:** Upgrade to buffered paved shoulders, given high traffic volumes and speeds.

A22. Continue to support implementation of the County Cycling Network Plan on County Roads, encouraging the County to take into consideration updated Provincial guidance on cycling facility type selection, as well as the impacts of the Municipality's population and employment growth on traffic conditions on planned cycling routes.

As the County cycling network serve local residents and visitors as they travel within and between communities, continued implementation of improved cycling infrastructure along County road routes continues to be encouraged.

Exhibit 9.1 indicates only the current status of the cycling network on County roads: existing, short-term planned (i.e. currently in the County's 5-year capital plan), and other planned. While cycling route types were not specified in this exhibit for County Roads, the vast majority of the County's existing and planned cycling routes are paved shoulders.

The impacts of future development in Middlesex Centre also need to be considered. With 135 gross hectares of planned employment area in Delaware, commercial goods traffic and other motor vehicle traffic is expected to increase on Carriage Road (County Road 15). This is especially true were the proposed future interchange to be constructed at Highway 402 and Carriage Road (Action A34). The planned cycling route

along Carriage Road will likely require a higher cycling facility class than what is currently recommended, or an alternative route.

A23. Provide safe crossings at intersections and at locations where trails cross roadways.

It is important not just to provide trails for transportation and recreational purposes, but to ensure there is a safe way across the busy streets where they intersect[2]. Applications can include ensuring good visibility at crossings, installing variations of pedestrian crossovers or other signalized or stop-control intersections, and/or improved signage and warnings for both motorists and trail users. Crossing locations should be inventoried and analyzed as part of a future Trails Master Plan update, which is further discussed as part of Action A27 below.

Prioritization of Area Cycling Connections

A24. Encourage the County to prioritize implementation of its planned cycling network along Ilderton Road (County Road 16) between the Ilderton settlement area and Oxbow Public School. This would allow for safer cycling/walking to Oxbow Public School.

A high-priority cycling (or walking) linkage for community health is on Ilderton Road (County Road 15) between the settlement area of Ilderton and Oxbow Public School. Adherence to provincial design guidance is strongly recommended given the anticipated use of this segment by school-aged children, as well as high travel speeds (the posted speed limit on Ilderton Road in front of the school is 90 km/h). Buffered paved shoulders may be appropriate, especially if the adjacent roadway speed is reduced; though if the preferred route type is a separated multi-use path, this would be the Municipality's responsibility.

[2] The Municipality of Middlesex Centre will continue to ensure that any plans for cycling facilities that cross or intersect a provincial highway will involve consultation with the MTO's Engineering Office, and continue to align with currently Ministry policies.

A25. Advocate that the County prioritize a safe and direct cycling route between Ilderton and London via Ilderton Road (County Road 16) and Wonderland Road (County Road 56).

Ilderton Road (County Road 16) and Wonderland Road (County Road 56) form a key connection between Ilderton and London representing a high priority direct connection for the Municipality, and should be prioritized to improve safe access for local residents into London. A future extension of the London-Denfield rail trail would be an alternative multi-modal connection between Ilderton and London—see Action A27, below.

A26. Work with London and Middlesex County to provide a direct cycling connection between Komoka-Kilworth and London over the Thames River, preferably over the Glendon Drive/Oxford Street West bridge.

A direct cycling network link between Komoka-Kilworth the Byron neighourhood of the City of London would be a well-used inter-municipal cycling travel connection. In the longer term, a direct connection over the Glendon Drive (County Road 14)/Oxford Street West bridge would be ideal, which would likely require a costly bridge widening, as the bridge is currently too narrow to safely accommodate active travel users.

In the shorter-term, a routing along Oxbow Drive, an important parallel east-west connection between London and the growing Komoka settlement area, and also part of the Provincial Cycling Network, should be implemented. Given the limited existing crossings of the Thames River in western London that are suitable for cyclists and pedestrians, Oxbow Drive is part of one of few cycling connectivity options between London and the Komoka-Kilworth area.

Trails Master Plan Update

A27. Update the Trails Master Plan (developed in 2014), coordinating with the County and adjacent municipalities for regional connectivity. The plan would build on and connect with the County's planned cycling network to provide connections to local destinations, points of interest and natural areas.

Off-road trails, sidewalks and cycling lanes together form a network for active transportation serving an array of users. A plan for these interconnected network elements was outlined in Middlesex Centre's *Trails Master Plan*. However, a number of changes have taken place since the plan was developed and adopted in 2014, including the development of the County's Cycling Network Plan in 2018, updated guidance from the Province on cycling design, and considerable growth in Middlesex Centre.

An update to the 2014 Trails Master Plan is recommended to:

- Provide a comprehensive up-to-date trails plan for Middlesex Centre;
- Expand and improve planned cycling and trail connections throughout the municipality, including connections within and between settlement areas, in alignment with the County's Cycling Network Plan;
- Reflect current and planned road infrastructure plans such as the Glendon Drive improvement plan;
- Add specificity to residential and employment growth areas;
- Provide a strengthened assessment and actionable plan toward development of the London-Denfield rail trail (this is a priority for the Municipality over the short- to medium-term and represents a key opportunity to expand safe multi-modal travel options between Middlesex Centre and London; meanwhile, the City of London is advancing the rail trail as a short-term priority, with paving of the trail from Fanshawe Park Road as far north as Sunningdale Road);
- Ensure transportation planning and route design best practices are considered; and
- Identify trail infrastructure, phasing and funding requirements needed above and beyond the scope of this TMP.

9.2 Pedestrians

Needs and Opportunities

- Respond to safety concerns regarding pedestrian road crossings across busy roadways.
- Implement safe walking routes between homes and schools.
- Improve network connections for pedestrian activity in settlement areas.
- Prioritize a network of sidewalks and trails in new developments in Middlesex Centre.
- Remove barriers to building sidewalks in existing neighbourhoods.

Actions

Pedestrian Crossing Guidance and Implementation

A28. Continue to follow Ontario Traffic Manual guidance for the implementation of pedestrian crossings on Municipal roadways where needed.

The Ontario Traffic Council via *Ontario Traffic Manual Book 15 – Pedestrian Crossing Treatments* (2016) provides guidance for the selection of appropriate pedestrian crossing treatments under a variety of contexts. Guidance is also provided on locating pedestrian crossing gaps. An overview of this guidance is provided in the Phase 2 report.

The continued installation of safe and appropriate pedestrian crossings in settlement areas across Middlesex Centre will be instrumental to increasing pedestrian activity and to support the development of Complete Streets, allowing for convenient and safe pedestrian access to destinations and improving transportation sustainability and equity.

While a preliminary review has not identified a need for additional controlled pedestrian crossings along municipal roadways, it is recommended that the Municipality continue to monitor potential future needs based on population and employment growth.

A29. In collaboration with the County, upgrade pedestrian crossings from school crossings to pedestrian crossovers at strategic locations along County roads to reflect latest best practices.

A preliminary review was conducted of two school crossings across County roads that were frequently perceived to have inadequate pedestrian crossing provision:

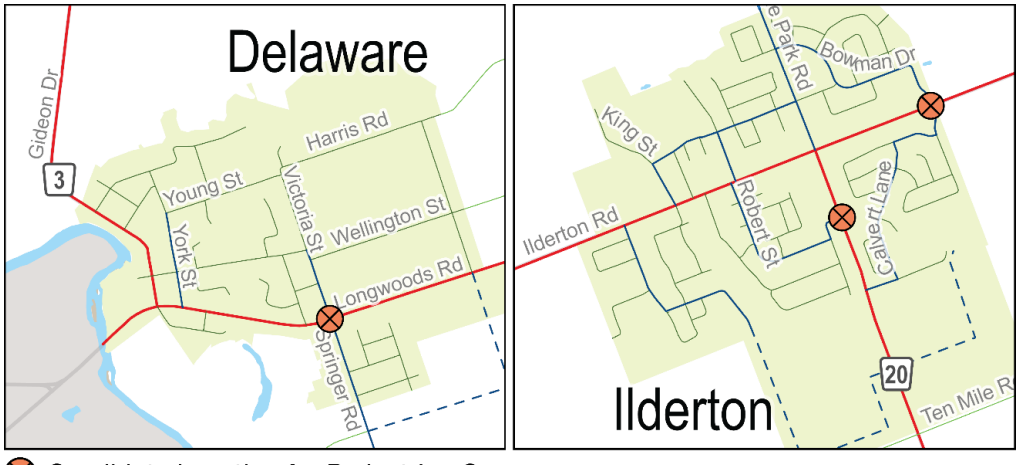
- Longwoods Road (CR 2) at Springer Road/Victoria Street in Delaware
- Hyde Park Road (CR 20) at Heritage Drive in Ilderton

Based on the review, these should be considered as candidate locations for upgrades to pedestrian crossovers for improved all-day and all-season pedestrian safety and connectivity. These two locations in particular provide connectivity across the County roads at or near intersecting collector roads (Action A2), and have increased presence of vulnerable road users due to the proximity of either a school or community centre. For the Delaware crossing, the potential to move the crossing location further east where sight lines can be increased should be explored.

Additionally, another candidate location for a pedestrian crossing/ crossover is at Ilderton Drive (County Road 16) at Bowman Drive/Willow Ridge Road, both collector roads (Action A2), on the east side of the Ilderton settlement area to support a connected pedestrian network. This crossing would also facilitate use of the Ilderton Drive cycling/walking infrastructure upgrades recommended as Actions A24 and A25, above.

The above three crossing locations are presented in Exhibit 9.2.

Exhibit 9.2: Candidate Pedestrian Crossover Locations



Candidate Location for Pedestrian Crossover

It is also noted that the County's Glendon Drive improvement plan (Action A1) will respond to operational and safety concerns by providing new or improved pedestrian crossing opportunities.

Sidewalk Implementation and Prioritization

A30. Formalize a framework to prioritize sidewalks gaps based on road classification, proximity to schools, transit, parks, community facilities, etc.

A sidewalk prioritization framework is presented in the Phase 2 report. This framework utilizes a scoring system to help identify the sidewalk projects that will provide the largest impact within the urban areas of the municipality. Prioritization criteria includes alignment with road classification standards, proximity to schools, transit stops, and other pedestrian generators, as well as consideration for prioritizing streets with no sidewalks over streets with sidewalks on one side already, and prioritizing gaps where existing demand is shown through the existence of worn paths. This tool is intended to prioritize sidewalk gaps already identified for future construction. Scoring is relative, and lower scoring segments are not necessarily excluded from future sidewalk implementation.

A31. Update by-laws and relevant policies to require new developments to include sidewalks or trails consistent with the road classification framework.

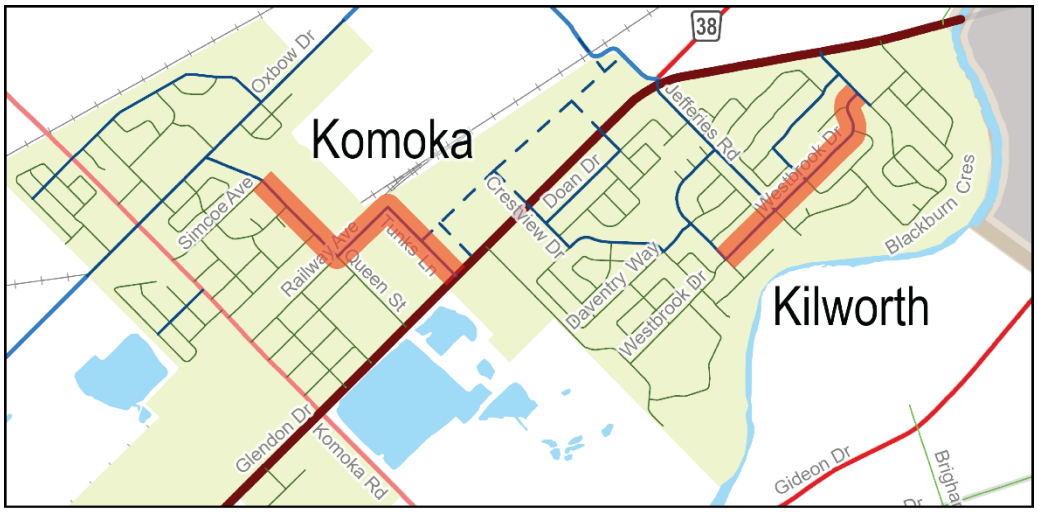
The recommended road classification framework (Action A2) emphasizes safety while meeting the needs of all road users throughout communities by including guidance for sidewalks along different roadway classes. All relevant by-laws and policies should be updated so that sidewalk and trail requirements for new roads and new developments adhere to the road classification framework. This infrastructure is much simpler to include at during initial development than to retrofit at a later time.

A32. Implement a connected sidewalk network using a sidewalk prioritization framework for guidance in filling network gaps, and including pedestrian lighting and amenities such as benches where needed, consistent with AODA requirements.

While a comprehensive sidewalk gap analysis and prioritization was not part of this TMP, a preliminary list of collector roads (Action A2) was identified as being among priority sidewalk gap locations on existing roadways. The TMP identified two priority locations, also presented in Exhibit 9.3 for sidewalk installation/expansion:

- **Komoka:** Queen Street from Simcoe Avenue to Railway Avenue, Railway Avenue from Queen Street to Tunks Lane, and Tunks Lane from Railway Ave to Glendon Drive (County Road 14); and
- **Kilworth:** Westbrook Drive between Jeffries Road and Kilworth Park Drive.

Exhibit 9.3: Example Sidewalk Infill Priorities



Recommended Sidewalk Implementation

The Municipality should continue to develop a fuller inventory of sidewalks gaps to prioritize by applying this framework and allocate consistent funding on an annual basis to complete the sidewalk network, prioritizing the segments that score the highest based on the recommended prioritization framework.

Amenities such as appropriate night-time lighting, seating such as benches, and improved streetscapes can also encourage increased use of sidewalks and trails and should also be provided.

A33. Update design guidelines to include alternative sidewalk designs and placement to facilitate sidewalk retrofits along existing roads.

The standard sidewalk design placement in Middlesex Centre is approximately 2 metres from the road edge. While this is within the Municipality's right-of-way and allows space for utilities and accumulated snow, it can create issues in some circumstances. An alternative sidewalk design with the sidewalk adjacent to the roadway (e.g. Wellington Street in Delaware) may be more acceptable or avoid issues in some instances in some established neighbourhoods or on narrower roads.

10 Strong Local Industry

Supports prosperity in Middlesex Centre by meeting the transportation needs of agriculture and other local industries, such as efficiently moving goods to and from markets.

The focus of this goal is to help sustain a vibrant local economy in Middlesex Centre through important transportation-related considerations for goods movement and local businesses. Actions support access to economic opportunities and the efficient movement of goods within, to and from the municipality by maintaining appropriate Municipal roadway connections to County roads and Provincial highways. The ability for businesses and agriculture to operate and move goods is a municipal priority, to be balanced with the need for minimizing negative community impacts, including safety concerns.

10.1 Goods Movement

Needs and Opportunities

- Continue to plan for the efficient and reliable movement of goods.
- Address challenges to the movement of trucks and agricultural equipment.
- Create a direct road connection between the planned employment area in Delaware and Highway 402.
- Continue to collaborate toward implementing a road-rail freight transfer opportunity in Middlesex Centre.

Actions

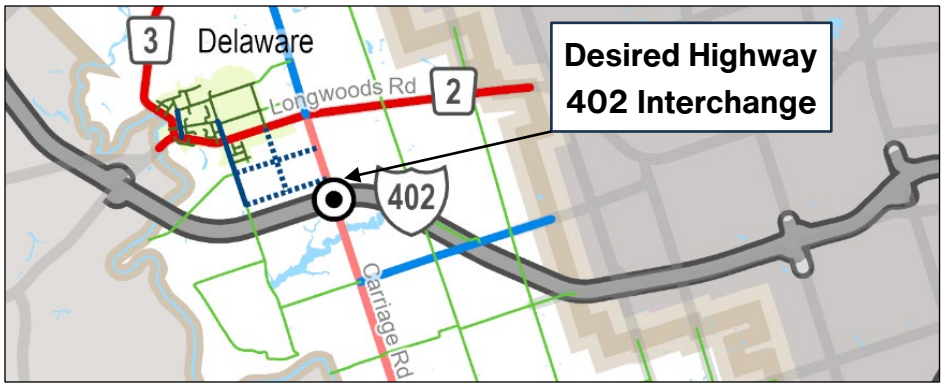
More-Direct Highway 402 Connectivity

A34. Collaborate with other government agencies toward a new interchange at Highway 402 and Carriage Road.

Direct connections to Highway 402 would greatly benefit planned future industrial and commercial growth in southeast Delaware. Carriage Road (County Road 15) is identified as the most suitable candidate location for a new interchange at Highway 402, as shown in Exhibit 10.1. With this new interchange, commercial vehicles and other traffic would not have to pass through the Delaware settlement area to access the closest interchange to the west at Longwoods Road (County Road 2), or through London to access the closest interchange to the east at Colonel Talbot Road. The new interchange would require support and coordination between the Municipality and other governments[3]. More investigation as a Schedule C EA is needed with evaluation of environmental impacts of alternatives.

During the TMP Technical Advisory Committee stakeholder meeting, City of London representatives stated support for the interchange as it would reduce neighbourhood cut-through traffic in Lambeth.

Exhibit 10.1: Preferred Location of New Highway 402 Interchange



[3] As noted in the Middlesex Centre Official Plan (2023), "The Municipality, Middlesex County and the Ministry of Transportation (MTO) will work cooperatively with respect to the land use planning and its associate access connections within the Ministry's permit control area adjacent to all provincial highways and interchanges within the Municipality, in order to protect for the future safety, operation and capacity of the provincial, county and municipal highway networks for the movement of people and goods" (Section 9.4.1 n).

Agricultural Equipment on Public Roads

A35. Ensure that farm equipment is considered in the design and maintenance of rural roads.

Moving large, slow-moving farm equipment on public roads brings many challenges. Road design needs to consider road widths, maneuverability through intersections and roundabouts, speed limits, and availability of road shoulders if needed. The Phase 2 report outlines considerations regarding the movement of agricultural equipment on public roads.

Rail Transload Opportunities

A36. Work with partners (e.g. CN, CPKC) to explore the feasibility of a road-rail transload station.

Rail freight lines passing through Middlesex Centre represent an additional opportunity for local industries to move goods to markets farther afield, but freight transfer opportunities within the municipality are lacking.

The potential for a rail transload station at the convergence of the CN and CPKC rail lines has long been a topic of discussion in Middlesex Centre. While a rail transload facility, HCL Transport under HCL Logistics Inc., has recently begun operation in northeast London (over 40 km away via highways and expressways), the planned increase in employment land in Delaware will add further demand for a transload opportunity. Early steps toward a potential transload facility within Middlesex Centre would include specifying a location for the station and preparing a business case for discussion with the rail operators.

10.2 Parking Supply

Needs and Opportunities

» Continue to provide adequate parking to support local businesses.

Actions

Municipal Parking Supply

A37. Continue to plan for Municipality parking provision in or near Village Centres to support local businesses as well as other Municipality objectives (e.g. electric vehicle charging, supporting carpooling and supporting transit services), and implement as needed.

In addition to parking supplied by private businesses and on-street parking where permitted, Middlesex Centre currently provides municipal off-street parking in Ilderton and in Arva. While parking supply in the municipality is currently adequate and was not identified as a significant concern at present, it is a need to monitor and address with future growth. Middlesex Centre's Official Plan policy 5.3.2 speaks to providing parking within Village Centres in the context of new development.

Municipal parking can dovetail with other objectives, such as supporting carpooling and transit services (e.g. by serving as a transit stop and including a transit shelter), as well as providing electric vehicle charging infrastructure—these also align with Provincial and County goals.

A candidate location for municipal off-street parking is at the southwest corner of Longwoods Road (County Road 2) and Pleasant Street in Delaware, shown in Exhibit 10.2. This parcel of land is under Municipality ownership and is conveniently located close to Delaware's commercial centre to support local businesses (e.g. the adjacent Royal Canadian Legion), as well as Highway 402 to support commuter carpooling. It also has direct access to power supply for EV charging.

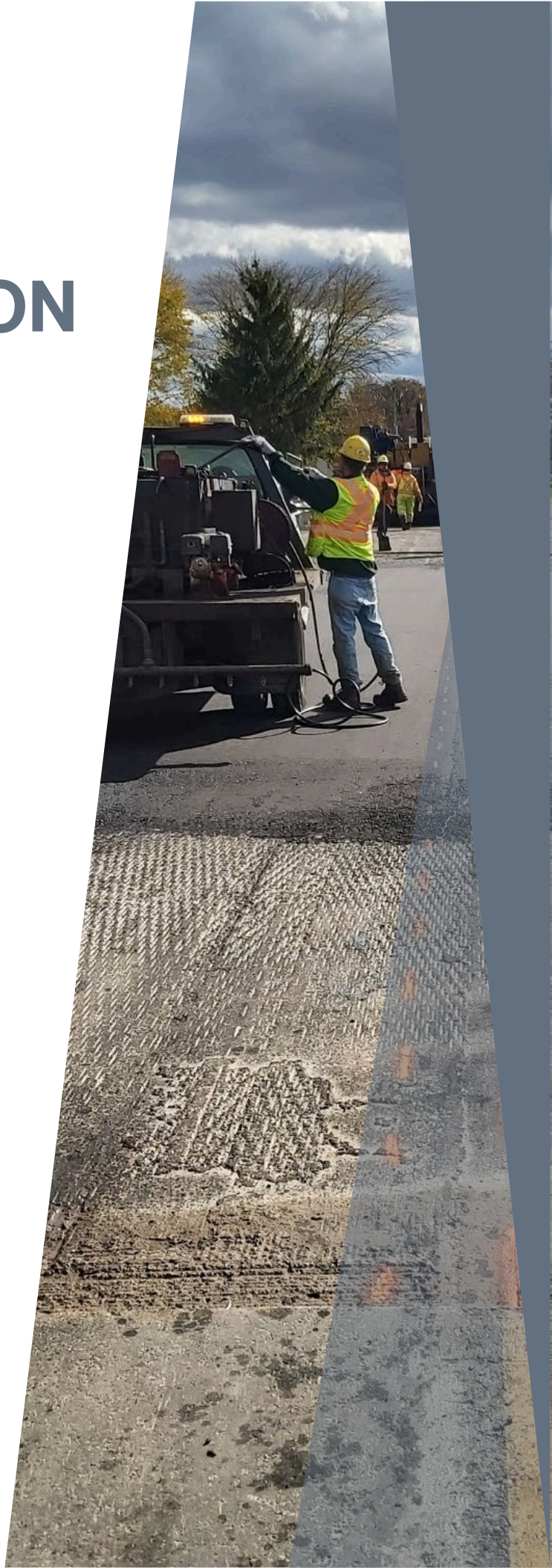
Exhibit 10.2: Candidate Municipal Parking/Carpool Lot Location in Delaware

Map Data: Google ©2023 CNES / Airbus, First Base Solutions, Maxar Technologies, SWOOP

Part 3

IMPLEMENTATION

Part 3 outlines a phased Action Plan for the Transportation Master Plan, with targets for the short, medium and long term. It also provides broad cost estimates for actions that would incur higher costs such as collector road upgrades, cycling and pedestrian infrastructure and larger studies. Measures to monitor the progress of the TMP are also discussed, providing a framework to ensure that key indicators are continually reviewed to confirm they continue to align with the goals of the TMP. Finally, considerations for when the TMP should be updated are provided.



11 Action Plan

The actions laid out in Part 2 of this document represent tangible steps toward helping the Municipality of Middlesex Centre progress toward its vision and goals. Exhibit 11.1 outlines an implementation phasing plan for these actions with the following planning horizons:

- Short-term: 2024 to 2026
- Medium-term: 2027 to 2031
- Long-term: 2032 to 2046

Many of the recommended actions can be accommodated within or at a relatively low-cost increment to the Municipality's capital and operations activities and budgets. Broad cost ranges are indicated for higher-cost items only. Cost estimates are outlined for these items in Section 12 and summarized by planning horizon.

As indicated in the action plan table, some recommended actions have very uncertain associated costs, as they depend on participation by potential partners and the mutual value that can be derived from the resulting collaboration and partnerships, as well as the nature of any cost-sharing agreements that result.

Exhibit 11.1: Action Implementation and Phasing

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
Goal 4: Provides Safe and Efficient Connectivity			
Road Design and Classification			
A1. Support and collaborate with Middlesex County on the implementation of Glendon Drive corridor capacity and operational improvements.	Initial phases implemented **Medium Cost (committed costs)**	All phases (Amiens to Thames River Bridge) implemented **Medium Cost (committed costs)**	
A2. Adopt a new road classification framework and map including designations for urban and rural roads via an Official Plan amendment or update.	Framework adopted and integrated into the Official Plan	Framework and classifications reviewed as part of Official Plan or future TMP update	Framework and classifications reviewed as part of Official Plan or future TMP update
A3. Where feasible and in conjunction with other capital works or as other needs arise, implement upgrades to existing roads identified as collector roads to better align with the typical characteristics outlined in the framework.	Portion of collector roads upgraded in conjunction with typical lifecycle capital works **High Cost**	Portion of collector roads upgraded in conjunction with typical lifecycle capital works **High Cost**	Remaining collector roads upgraded in conjunction with typical lifecycle capital works **High Cost**

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A4. Encourage the County to update County functional road classification and associated design standards for greater recognition of municipal priorities within urban contexts, in collaboration with its local area municipalities.	In collaboration with local municipalities in Middlesex County, increased recognition for design and operating standards in urban areas adopted by County	Periodic review of road standards, collaborating with the County in implementation of changes	Periodic review of road standards, collaborating with the County in implementation of changes
Road Safety			
A5. Continue the Municipality's Vision Zero campaign and related initiatives.	Ongoing, together with monitoring of effectiveness	Ongoing, together with monitoring of effectiveness.	Ongoing, together with monitoring of effectiveness
A6. Continue to collaborate with the County regarding safety improvements and efforts to reduce speeding along County roads, especially through urban areas.	Ongoing, together with monitoring of effectiveness	Ongoing, together with monitoring of effectiveness	Ongoing, together with monitoring of effectiveness
A7. Implement infrastructure changes toward improving safety at top collision locations.	Higher-impact and/or lower-cost recommend-ations implemented, as appropriate	Remaining recommendations implemented, as appropriate	

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A8. Apply measures to reduce risk of wildlife collisions.	Corridor reviews of roads identified for feasibility of wildlife fencing or other preventative measures initiated	Wildlife fencing or other preventative measures, where identified through corridor reviews, have been implemented **Medium Cost**	
A9. Maintain safety at all at-grade railway crossings through review of signal warrants and placement of warning signals when road conditions change, e.g. in tandem with addition of paved shoulders on Oxbow Drive.	Technical study completed for train warning infrastructure needed in tandem with Oxbow Drive improvements	Train warning system implemented in tandem with Oxbow Drive improvements. Continued monitoring of issues and changes at all crossings, technical study as needed, and implementation	Continued monitoring of issues and changes at all crossings, technical study as needed, and implementation
A10. Identify and remove excess vegetation within municipal rights-of-way at existing at-grade crossings to improve sightlines and potentially increase safety.	All at-grade rail crossings are kept clear of excess vegetation that would reduce sight lines	Ongoing	Ongoing

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
Passenger Transit Services			
A11. Support and promote Middlesex County Connect transit services for Middlesex Centre residents and visitors. Provide barrier-free access to stops, as well as amenities at stops (e.g. benches and shelter).	Continue collaboration with Middlesex County Connect; Continued monitoring of service levels and ridership and advocating for potential service improvements or changes as appropriate; All transit stops are barrier free and have amenities in place	Ongoing	Ongoing
A12. Seek to partner with London Transit Commission to extend routes to nearby settlements of Komoka-Kilworth, Arva, Delaware and Ilderton as they continue to grow.	Together with the County, discussions with LTC on partnering to expanded services into Middlesex Centre have been initiated	Expansion of LTC service into Middlesex Centre, if partnership is reached **Services and cost pending agreements**	Ongoing **Services and cost pending agreements**
A13. Seek to partner with Perth County Connect and Huron Shores Area Transit to add stops along existing routes that pass through Arva and Birr.	Together with the County, discussions with Perth County Connect and Huron Shores Area Transit initiated	Expansion of service into Middlesex Centre **Services and cost share pending agreements**	Ongoing **Services and cost share pending agreements**

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A14. Collaborate with and promote future passenger transit service connections into the broader region with a focus on service to employment centres (e.g. new Amazon distribution centre in Elgin County and future electric vehicle battery plant in St. Thomas).	Together with the county discussions with appropriate stakeholders and transit agencies (e.g. Middlesex County Connect, LTC, Local Motion) on broader regional transit service connection have been initiated	Services to broader area connections are in place **Services and cost pending agreements**	Ongoing **Services and cost pending agreements**
A15. Develop and maintain an up-to-date one-stop source for transit information in and around Middlesex Centre to improve ease and convenience of the transit systems serving residents.	Municipality's existing transit page (or alternative) updated and maintained with more comprehensive area transit information	Ongoing	Ongoing
Resiliency			
A16. Update standards for bridges and culverts to account for increased frequency and magnitude of extreme weather, and implement the updated stormwater management strategy.	Standards for bridges and culverts updated and used in design and maintenance	Ongoing, with periodic review of standards	Ongoing, with periodic review of standards

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A17. Continue to apply road surface conversion policy as first outlined in the 2023 *Road Needs Study*.	Ongoing	Ongoing	Ongoing
A18. Develop and implement a strategy for electric vehicle (EV) charging stations.	Strategy initiated and completed, i.e. EV charging locations and implementation phasing identified **Medium Cost**	Ongoing review of and implementation of strategy **Medium Cost**	Ongoing review of and implementation of strategy **Medium Cost**
A19. Develop and implement a travel demand management strategy to reduce demand for vehicular road capacity.		TDM study initiated and completed; Strategy implementation and monitoring begins **Medium Cost**	Ongoing implementation, review and monitoring of strategy

Goal 5: Promotes Healthy Local Mobility

Cycling			
A20. Update the Municipality's design guidance for cycling facility (route) selection (e.g. bike lane, paved shoulder, multi-use path, etc.) to reflect latest guidance provided by the Ontario Traffic Council (*Ontario Traffic Manual Book 18 – Cycling Facilities*, 2021).	Cycling design guidance reflects latest best practice in Ontario	Cycling design guidance is reviewed and updated to reflect any new Provincial guidance	Ongoing

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A21. Adopt the above updates to the County Cycling Network Plan based on preliminary facility type review and in consideration of additional inter-municipal connectivity, and encourage the County of Middlesex to adopt the same changes in their Cycling Network Plan.	Revised intercommunity cycling plan for Middlesex Centre adopted by Municipality and County; Implementation of routes on Municipality roads proceeds in conjunction with other major capital works (pending detailed design review) **Medium to High Cost**	Implementation and periodic review of routes continues **Medium to High Cost**	Implementation and periodic review of routes continues **Medium to High Cost**
A22. Continue to support implementation of the County Cycling Network Plan on County Roads, encouraging the County to take into consideration updated Provincial guidance on cycling facility type selection, as well as the impacts of the Municipality's population and employment growth on traffic conditions on planned cycling routes.	Ongoing	Ongoing	Ongoing

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A23. Provide safe crossings at intersections and at locations where trails cross roadways.	Crossings identified as part of Trails Master Plan update (Action A27)	Priority crossings improvements implemented **Medium Cost**	All trails have appropriate road crossings **Medium Cost**
A24. Encourage the County to prioritize implementation of its planned cycling network along Ilderton Road (County Road 16) between the Ilderton settlement area and Oxbow Public School. This would allow for safer cycling/ walking to Oxbow Public School.	Together with the County, detailed design of this priority segment is completed	Cycling and walking facilities have been constructed. **Medium to High Cost (pending jurisdiction of agreed-upon infrastructure)**	
A25. Advocate that the County prioritize a safe and direct cycling route between Ilderton and London via Ilderton Road (County Road 16) and Wonderland Road (County Road 56).		Preferred Ilderton-London route implemented, pending County agreement	
A26. Work with London and Middlesex County to provide a direct cycling connection between Komoka-Kilworth and London over the Thames River, preferably over the Glendon Drive/Oxford Street West bridge.	Voice need/support for connection to County and City	Ongoing if needed	Ongoing if needed

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A27. Update the Trails Master Plan (developed in 2014), coordinating with the County and adjacent municipalities for regional connectivity. The plan would build on and connect with the County's planned cycling network to provide connections to local destinations, points of interest and natural areas.	Trails Master Plan update study initiated and completed **Medium Cost**		Periodic review and update of plan as needed
Pedestrians			
A28. Continue to follow Ontario Traffic Manual guidance for the implementation of pedestrian crossings on Municipal roadways where needed.	Priority pedestrian crossings or improvements implemented **Medium Cost**	Implementation of pedestrian crossings or improvements completed **Medium Cost**	Continued review and implementation of pedestrian crossings or improvements as needed
A29. In collaboration with the County, upgrade pedestrian crossings from school crossings to pedestrian crossovers at strategic locations along County roads to reflect latest best practices.	Priority pedestrian crossings or improvements implemented **Medium Cost**	Implementation of new or improved pedestrian crossings completed **Medium Cost**	Continued review and implementation of pedestrian crossings or improvements as needed

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A30. Formalize a framework to prioritize sidewalks gaps based on road classification, proximity to schools, transit, parks, community facilities, etc. *Sidewalk implementation reflected in Action A32.*	Sidewalk gaps have been inventoried and prioritization framework applied	Ongoing sidewalk gap prioritization	Ongoing sidewalk gap prioritization
A31. Update by-laws and relevant policies to require new developments to include sidewalks or trails consistent with the road classification framework.	By-laws and relevant policies updated		
A32. Implement a connected sidewalk network using a sidewalk prioritization framework for guidance for filling network gaps, and including pedestrian lighting and amenities such as benches where needed, consistent with AODA requirements.	Infill highest-priority sidewalk gaps identified by prioritization framework (Action A30) **Medium Cost**	Continued infilling of priority sidewalk gaps; Plan is prepared for pedestrian amenities in urban areas; Initial implementation **Medium Cost**	Connected sidewalk network with appropriate amenities is in place **Medium Cost**
A33. Update design guidelines to include alternative sidewalk designs and placement to facilitate sidewalk retrofits along existing roads.	Design guidelines are updated		

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
Supports Local Industry			
Goods Movement			
A34. Collaborate with other government agencies toward a new interchange at Highway 402 and Carriage Road.	Lands adjacent to proposed interchange designated for future use **Low Cost**	Environmental Assessment conducted; Detailed Design prepared; Land acquisition underway **High Cost**	Land acquisition completed; Interchange constructed and opened **Very High Cost (pending cost sharing with other government agencies)**
A35. Ensure that farm equipment is considered in the design and maintenance of rural roads.	Design and maintenance guidance is updated to include considerations for farm equipment	Ongoing implementation and review of guidance	Ongoing implementation and review of guidance
A36. Work with partners (e.g. CN, CPKC) to explore the feasibility of a road-rail transload station.	Confirm locations for potential road-rail transload station and designated land for future use	Business case developed for road-rail station **Medium Cost**	Pending acceptance of business case and partnership by rail companies: Land acquired; Station constructed and in operation **Services and cost pending agreements**

Action	Short-Term Targets 2024 to 2026	Medium-Term Targets 2027 to 2031	Long-Term Targets 2032 to 2046
A37. Continue to plan for Municipality parking provision in or near Village Centres to support local businesses as well as other Municipality objectives (e.g. electric vehicle charging, supporting carpooling and supporting transit services), and implement as needed.	Identify potential new sites near Village Centres as potential future municipal parking sites; assess these and existing sites for potential to support other municipal objectives	Build or enhance municipal parking facilities	Build or enhance municipal parking facilities

12 Cost Summary

This Transportation Master Plan provides high-level cost estimates for larger cost items such as major road works, capital work required for cycling routes, costs to implement pedestrian crossings, and major studies. Some of these fall into existing recurring capital investments, such as an ongoing allocation of funding towards infilling sidewalks on existing roads.

There also a number of recommended actions that do not have significant incremental costs involved. For the most part, these are considered to fall within the Municipality's existing budgets for ongoing operations.

12.1 Cost Assumptions

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

Road Network

Major capital costs for road network improvements are limited to upgrades proposed where collector roads have been identified. While these upgrades are intended to be completed as part of regularly scheduled capital works based on the lifecycle of the roadway, there are still significant additional costs associated with bringing these corridors up to collector road standard.

As such, the cost for **rural collector roads** is based on the following unit cost:

- **Platform Widening – $2,000,000/km:** This cost includes platform widening associated works to allow for gravel shoulders to be constructed and travel lanes to be increased to appropriate widths. Land acquisition costs are **not** included in this estimate.

Where cycling facilities are recommended on rural roadways, the incremental cost of paving these shoulders is captured as part of the cycling network costing.

For **urban collector streets**, the road work is less substantial, and largely consists of the provision of active transportation facilities (e.g. sidewalks, cycling facilities). Costs for sidewalks are assumed to be included as part of pre-existing, ongoing funding by the Municipality (subject to prioritization through the framework identified in this TMP), while the cost for cycle tracks, protected bike lanes, multi-use paths, etc. is captured in the cycling network costing.

Cycling Network

Unit costs were developed based on the type of cycling improvement recommended, and are presented below with key assumptions:

- **Bikeways – $600,000/km:** This cost assumes bikeways in the urban areas are of higher-order, such as in-boulevard trails, protected bike lanes, or cycle tracks. This cost assumes there is relatively high levels of construction needed, such as widening the paved surface, rather than retrofitting facilities on the existing surface.
- **Buffered Paved Shoulders – $120,000/km:** This cost is incremental to any work required to widen the road platform, as noted under the road estimates above. It represents the cost to upgrade gravel shoulders to a 1.5 m wide paved surface, plus an extra buffer of up to 0.5 m in width to further separate cyclists and pedestrians from faster moving traffic.
- **Paved Shoulders – $100,000/km:** This cost is incremental to any work required to widen the road platform, as noted under the road estimates above. It represents the cost to upgrade gravel shoulders to a 1.5 m wide paved surface.
- **Signed Route - $25,000/km:** This includes the provision of signage and pavement markings where necessary for routes in mixed traffic designated as cycling routes.

Pedestrian Network:

There are several levels of pedestrian crossings as noted in this TMP. The following cost assumptions were used:

- Pedestrian Crossover Type 1 Level A - $95,000 each
- Pedestrian Crossover Type 2 Level B - $75,000 each
- Pedestrian Crossover Type 2 Level C - $50,000 each
- Pedestrian Crossover Type 2 Level D - $25,000 each

Though new sidewalks are not costed as part of this TMP, a unit cost was identified to help inform future capital planning:

- Sidewalks - $150,000/km

12.2 Cost Estimates

Projects were grouped across the three planning horizons identified for the TMP: short-term (by 2026), medium-term (by 2031), and the ultimate long-term horizon (by 2046). Any individual initiatives arising from this TMP that have significant capital or operating cost impacts will need to be approved by Municipal Council.

Cost estimates are listed and summarized by phase in Exhibit 12.1.

Exhibit 12.1: Cost Details and Estimates by Phase ($ millions)

Action	Project	Notes	Short-Term 2024-2026	Medium-Term 2027-2031	Long-Term 2032-2046	Total
A1	Glendon Drive Improvement Plan (Committed)	Committed costs identified in Five Year Capital Plan	$0.8	$2.9	-	**$3.7**
A3	Collector Road Upgrades	9.1 km of rural road upgrades	$2.4	$4.0	$11.9	**$18.2**[4]
A18	EV Charging Strategy	Include study costs only	$0.1			**$0.1**
A21	Cycling Routes on Municipal Roads		$1.5	$2.4	$7.3	**$11.2**[5]
	Bikeway	10.0 km				$6.0 M
	Buffered Paved Shoulders	18.6 km				$2.2 M
	Paved Shoulders	27.7 km				$2.8 M
	Signed Route	9.2 km				$0.2 M
A24	Ilderton Road (CR 16) Active Transportation Improvements	Assumes 665-m multi-use trail	$0.33	-	-	**$0.33**

[4] Collector road upgrade costs are assumed to be evenly distributed across all phases at approximately $790,000/year. Land acquisition costs are not included.

[5] Cycling routes on municipal roads costs assumed to be evenly distributed across all phases at approximately $487,000/year.

Action	Project	Notes	Short-Term 2024-2026	Medium-Term 2027-2031	Long-Term 2032-2046	Total
A27	Trails Master Plan Update	Includes study costs only	$0.1	-	-	**$0.1**
A29	Upgraded School Crossings/New Crossing	Assumes two upgraded crossovers and one new crossover	$0.2	-	-	**$0.2**
A34	Hwy 402 and Carriage Road Interchange	Cost assumed to be shared with other government agencies[6]	-	$3.0	$8.0	**$11.0**
A37	Build or enhance parking facilities			$0.1	$0.1	**$0.2**
	Total [7]		**$5.4**	**$12.4**	**$27.3**	**$45.1**

[6] Cost represents Municipality's anticipated share and includes land acquisition, related planning and engineering studies, and construction, with an additional estimated $22 million provided by other government agencies required.

[7] Individual items may not sum to match listed totals due to rounding.

13 Monitoring and Updates

13.1 Plan Monitoring

In tandem with implementing the TMP Action Plan, an additional action for Municipality staff is to undertake a regular TMP progress monitoring program. There are two components to this progress:

- Measures of progress towards the **implementation of the recommended actions** in this plan; and
- Measures of the resulting **performance of the transportation system** to assess the effectiveness of the TMP in achieving the vision and goals.

Given the action-by-action structure of the recommendations and Action Plan, implementation of the actions can be relatively straightforward to review and track on annual basis.

The transportation performance monitoring program will depend on the availability and frequency of data. Potential measures to include in the program can include the following, among others; potential data sources are indicated for each:

- Vehicle traffic counts: traffic count program, classifying vehicles by type if feasible;
- Cycling network usage: count program;
- Pedestrian network usage: count program;
- Transit ridership: transit service provider counts;
- Total reported vehicle collisions: Ontario Provincial Police;
- Total reported serious/fatal collisions: Ontario Provincial Police;
- Total collisions involving wildlife: Ontario Provincial Police; and
- Commuting mode shares (walking, cycling, transit, driver or passenger: available every five years via Statistics Canada Census Journey-to-Work data.

13.2 TMP Review and Updates

A review every five years is recommended for master plans developed under the Municipal Class Environmental Assessment process to determine whether a formal update to the TMP is needed.

It is important to review the Transportation Master Plan at regular intervals to assess whether the document continues to respond to the right issues, challenges and opportunities. As Middlesex Centre continues to change and grow, the underlying conditions that were factored into developing the TMP may also change.

During the TMP review, the Municipality should consider the following:

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

The findings of this review will determine whether there is a need to undertake a formal TMP update at that time.