FINAL REPORT

Transportation Master Plan

Town of Amherstburg

May 2024

TYLin Contract #10693

The Town of Amherstburg ONTARIO

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1 Introduction

The Town of Amherstburg's Transportation Master Plan (TMP) is a long-term strategic planning document that aims to guide transportation policies, programs, and infrastructure planning in the municipality. The Town of Amherstburg (Town) is located within County of Essex (County). The TMP outlines vision, goals, and policies and serves as a blueprint for guiding transportation-related decision-making and investment over a defined time frame, typically ranging from 10 to 30 years. Its recommendations and projects serve as a basis for future transportation investments, policies, and initiatives.

This TMP document considers various modes of transportation, including roadways, public transit, cycling infrastructure, pedestrian facilities, and parking. Its purpose is to establish a framework for creating a safe, efficient, and sustainable transportation system that sustains the needs of the community now and in the future, supports visitors to the community, enhances mobility, and promotes economic development.

Additionally, it documents a thorough assessment of the current transportation network, including traffic patterns, travel demand, infrastructure conditions, and review of the service levels of various modes.

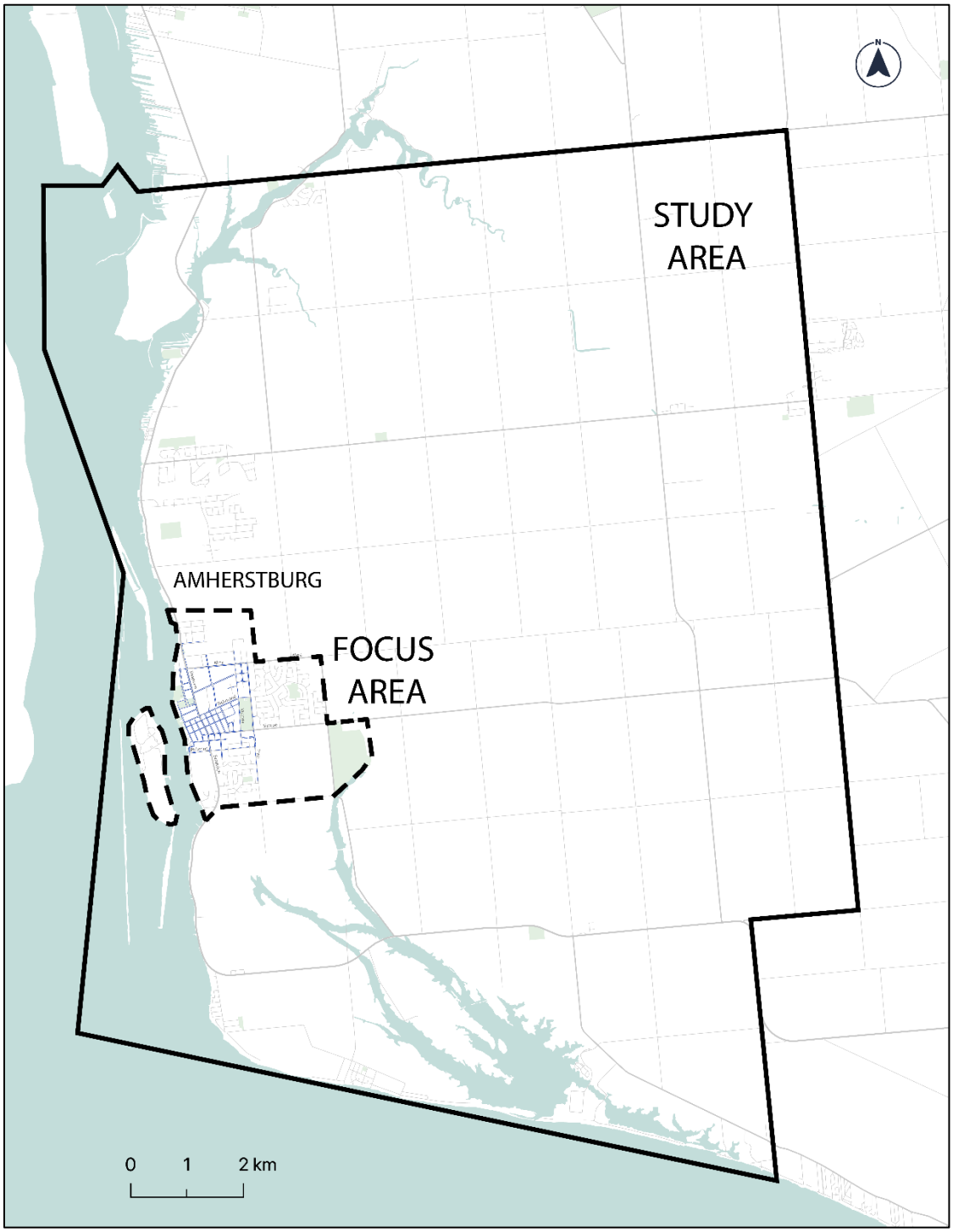
Finally, public and stakeholder engagement is a key tool used to develop TMPs. Inclusion of opportunities for public input and engagement to ensure that the plan reflects the needs, concerns, and aspirations of the community. They are typically developed by transportation planning agencies in collaboration with relevant stakeholders, including local governments, transportation agencies, community organizations, and the public. This TMP also documents the public consultation that has been undertaken for this project.

1.1 Study Area

The Town, located in southwestern Ontario, is steeped in history and culture. With its charming small-town atmosphere, the Town has been experiencing a steady growth in population as well as visitors. A TMP is essential to ensure the Town's transportation system meets the needs of its local business, residents, and visitors not only for the short-term but the long-term as well.

The following sections present the planning approach and summary of relevant policies utilized to build a strong foundation for this study. This is followed by a look at the Town's existing and future transportation systems and opportunities to enhance network connectivity, accessibility and making the community even more attractive to residents and visitors. **Figure 1-1** depicts the TMP study area limits, with a focus on the downtown core, the heart of the Town. The focus area is bounded by Lowes Side Road and Fryer Street to the south, Meloche Road to the east, Brunner Avenue to the north, and the waterfront to the west.

Figure 1-1: Study Area Limits



1.2 Planning Approach

This TMP was prepared in accordance with the Municipal Class Environmental Assessment (MCEA) Process, which is an approved process under the Ontario Environmental Assessment Act. The study has followed Approach #1, which involves the Master Plan being undertaken with a broad scope and level of assessment. This involves analysis on a regional or systems scale, which enables the proponent to identify needs and establish broader infrastructure alternatives and solutions. The inventory of the natural, social, and economic environments which are to be considered when assessing the alternative solutions may also be broader/more general.

Specific projects that are required to achieve the preferred solution described in the Master Plan may be identified within the Master Plan document, however the level of detail at a project-specific level is minimal. The Master Plan would therefore become the basis for, and be used in support of, future investigations for the specific Schedule B and C projects identified within it. For example, while the Master Plan may identify and recommend a series of transportation improvement projects, this would likely be done at a broad level, and additional work would be required to complete the MCEA process for the Schedule B or C projects (e.g., detailed inventory of the environment, impacts assessment and development of mitigation measures – all specific to a particular project).

The Transportation Master Planning process follows, at a minimum, the same steps of the first two phases of the MCEA process:

- Phase 1 – Problem or Opportunity
    - Identify and describe the problem or opportunity that the Master Plan is addressing.
    - *Notes for Master Plan studies (Phase 1): It is imperative that public, Indigenous Community, and agency consultation take place at the initiation of the Master Plan Study so that the scope and purpose of the study is understood. As such, proponents must use the discretionary consultation point.*
- Phase 2 – Alternative Solutions
    - Identify alternative solutions to the problem/opportunity by taking into consideration the existing environment and establish the preferred alternative solution considering public and review agency input. Then, document the Master Planning process.
    - *Notes for Master Plan studies (Phase 2): Depending on the level of detail of the Master Plan study being undertaken, "alternative solutions" may only involve broader network alternative solutions, or it may also involve alternative solutions at a project specific level where appropriate/needed.*

2 Planning Policy & Standards Review

This section provides an overview of relevant standards and policy that has been considered for the planning and development of the TMP, including the Town's Official Plan and the County Wide Active Transportation Master Plan. Additional industry-standard guidelines and resources such as the Ontario Traffic Manual and Transportation Association of Canada guidelines, were referenced in the development of the TMP but are not included in this summary.

2.1 Town of Amherstburg Official Plan (2009)

The Official Plan (2009) states that the primary objective of transportation policies is to provide optimum conditions for people and goods as well as facilitating traffic movement. The Amherstburg planning area policies should be in harmony with the County Road System. The Official Plan (OP) also briefly mentions the improvements of intersections as well as proposed improvements for sufficient off-street parking.

With regards to off-street parking, the OP proposes that sufficient off-street parking facilities be established as are required to serve the needs of the central business area. Off-street parking programs could be established by the Town, by private enterprises, or through a collaboration. The goal is that reasonable parking facilities be established, consistent with demand, and in accordance with the following general principles:

- *The parking facilities within the Central Business District should be a combination of short-term parking for shopping and business purposes and long-term for those employed in the area.*
- *The area behind the stores and businesses that line Richmond Street, Murray Street and Dalhousie Street should be developed in such a manner as to provide landscaped off-street parking areas for customers.*
- *The cash-in-lieu of parking policy and by-law, as provided for under Section 40 of the Planning Act R.S.O. 1990, c.P.13, may be implemented and the funds used to provide public parking facilities within the Central Business District in accordance with the policies of Subsections 4.4.2 and 6.2.*

In addition, the OP identifies Barrier Free Access as a policy that is to be given serious consideration for the creation of a barrier-free environment. Barrier free design will be applied to intersections, curb cuts, pedestrian activated signal, public buildings, all new institutional, recreational, commercial, industrial, or multi-unit structures. The Town will work to eliminate barriers to wheelchairs and mobility aids on public lands and buildings and will encourage developers to provide barrier free developments.

It is noted that an update to the Town's Official Plan is underway and extensive coordination was conducted to align the long-term growth forecasts assessed in this TMP with the updated Official Plan to ensure consistency across municipal planning documents.

2.2 The Town of Amherstburg Development Manual (2009)

Development of any new public infrastructure within Amherstburg is guided by the public available Development Manual (2009) and includes guidance on the design of:

- Streets and intersections
- Sidewalks
- Tree Planting (For new residential lots)
- Lighting
- Stormwater and sewerage

The Development Manual (2009) provides the following design objectives:

> *"It is a key objective of the Town to encourage the application of sustainable design techniques and planning considerations for the road network (i.e. traffic calming, environmental considerations, bikeways, etc.). The Town and applicant shall co-operate to develop more creative subdivision plans through the road network design process."*

It is noted that guidance for the design of cycling facilities is not included within the Development Manual (2009) and that designs for sidewalks are also not paired with street design requirements. Guidance for the planning and design of sidewalks is required in the Development Manual (2009) as follows:

- On both sides of arterial roads;
- On both sides of collector roads;
- On both sides of residential streets which may lead to a school or park;
- On one side of residential streets which do not lead to a school or park;
- Where there is a possibility of a requirement to provide continuity of sidewalk to future developments;
- All sidewalks shall be handicap accessible and include wheelchair access ramps at all intersections and curbed driveway approaches;
- No sidewalks are required in industrial areas;
- Minimum width of 1.5 m for all road types (excluding industrial). Preferable for sidewalk to be located adjacent to curb; and
- All platforms at crosswalk locations shall have an embossed concrete pattern at the curb line.

A review of street design requirements as per the Development Manual (2009) is shown in **Table 2-1** below for walking and cycling considerations.

Table 2-1: Street Design Requirements as per the Development Manual (2009)

Section | Street typology	Specifications as per Development Manual (2009)	Review notes
Arterial Roads	• 26-30 m ROW with 10 m or 14 m roadway (face of curb to face of curb) • 2 or 4 lanes • Traffic volumes >10,000 AADT • Design speed of 60 km/h to 80 km/h • Minimum stopping sight distance of 95 m • Traffic signals at major intersections • Curb lanes may be used for parking depending on conditions • Minimum median width of 4 m • Sidewalks on both sides (1.5 m wide) • Preferable for sidewalk to be located adjacent to curb	• Curb-adjacent sidewalk not appropriate for pedestrians in traffic environments with high vehicle travel speeds and AADT. • No guidance for cycling infrastructure which, based on AADT and design speeds, would need to be separated from motor traffic. • Lack of direction to include street trees to increase canopy coverage and shelter users from adverse weather. • Lack of instruction for curb to deflect errant vehicles encroaching on sidewalks. • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers. • Minimum stopping sight distance is greater than that needed for 60 km/h which can lead to excess speeding in urban areas due to more forgiving road conditions.
Collector Roads	• 22 m ROW with 10 m roadway (face of curb to face of curb) • 2 lanes (may be increased by the use of parking restrictions) • Traffic volumes of 1,000-10,000 AADT • Design speed of 50 km/h to 80 km/h • Traffic signals at major intersections when warranted. • Parking permitted on one side of road but may be restricted during peak hours. • Sidewalks on both sides (1.5 m wide) • Preferable for sidewalk to be located adjacent to curb	• Curb-adjacent sidewalk not appropriate for pedestrians in traffic environments with higher vehicle travel speeds and AADT. • No guidance for cycling infrastructure which, based on AADT and design speeds, would need to be separated from motor traffic. • High design speeds which can lead to speeding in the urban environment due to excessively forgiving conditions. • Lack of direction to include street trees to increase canopy coverage and shelter users from adverse weather. • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.
Local Roads	• 20 m ROW with 8.6 m roadway (face of curb to face of curb) • 2 lanes • Traffic volumes <1,000 AADT • Design speed of 40 km/h to 50 km/h • Intersections controlled by signage. • Parking permitted as posted • Minimize the use of cul-de-sacs by utilizing through streets and crescents. • Sidewalks (1.5 m wide) on both sides which may lead to the location of a school or park (one side for streets that do not lead to schools or parks) • Preferable for sidewalk to be located adjacent to curb	• Design speed too high for human survival in collision with motor vehicles (over 30 km/h). • No direction on traffic calming to reduce AADT below 1,000. • No direction on lane widths. Additionally, wide roadway width (either physical or visual) can create conditions for speeding (over 40 km/h). • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.
Industrial Roads	• 22 m ROW with 10 m roadway (face of curb to face of curb) • 2 lanes • Traffic volumes of 1,000 AADT • Design speed of 50 km/h to 60 km/h • Controlled by signage or signals where warranted. • Parking permitted as posted.	• No mandate or instruction for provision of sidewalks to meet external accessibility standards. • No guidance for bicycle infrastructure to allow commuters to cycle to work in industrial areas (whilst reducing conflicts with heavy vehicles). • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.

2.3 County Wide Active Transportation System (CWATS) Master Plan (2023)

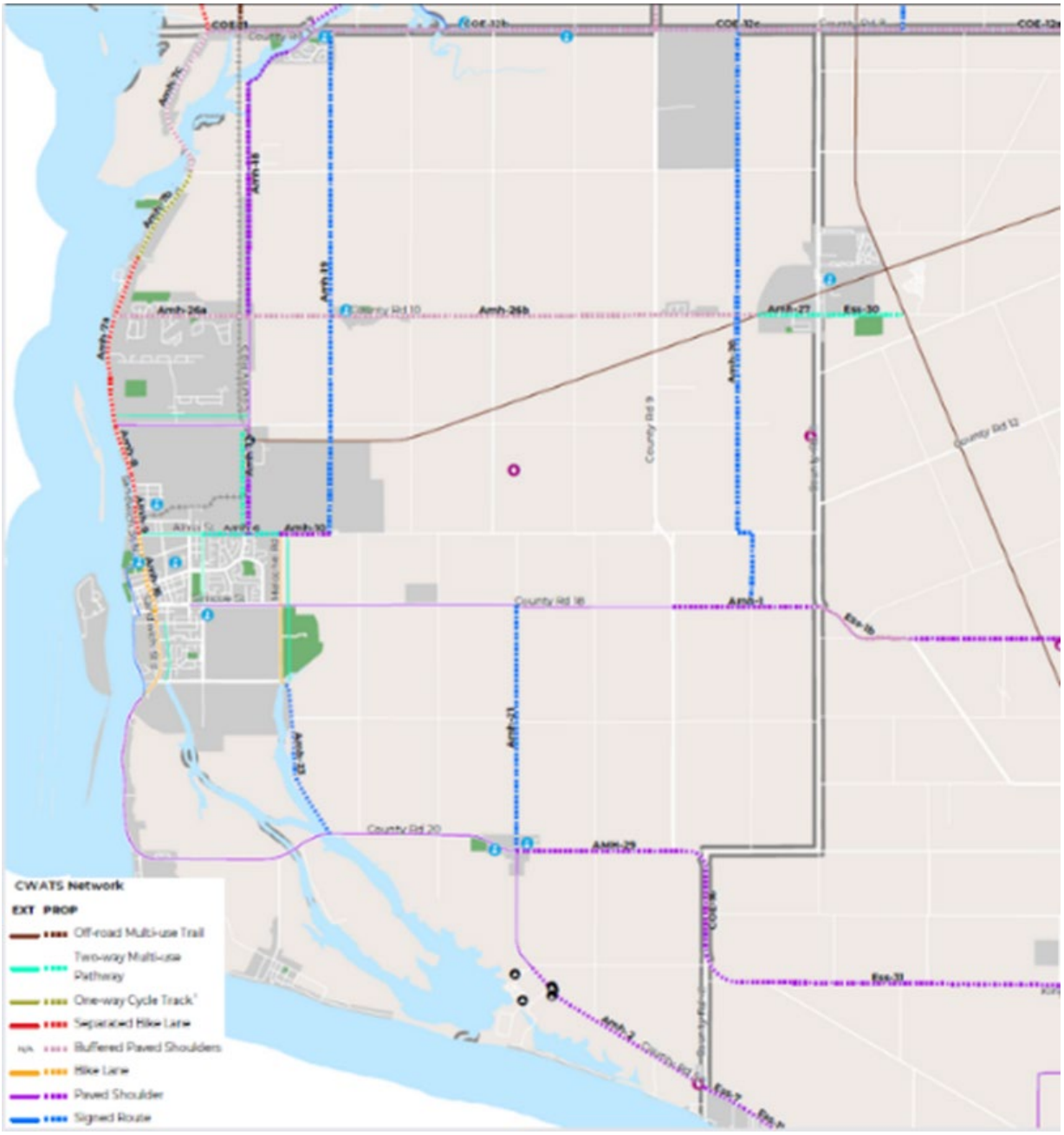
The first County Wide Active Transportation System (CWATS) Master Plan was developed in 2012 to provide information, tools, and recommendations to guide the future planning, design, implementation, and operation of active transportation (AT) infrastructure and programming in the County. Over the past decade, best practices, legislation, and design guidelines have changed significantly and progress has been made to expand the County's AT network.

The CWATS Master Plan was updated in 2023 to provide guiding policies and recommendations for the next 10 to 20 years but to date has not been finalized. The County's vision has been carried forward and built upon to guide progress in the coming years. This vision is as follows:

> *"The County of Essex and its seven local area municipalities support active transportation and in association with the Essex Region Conservation Authority, City of Windsor and Municipality of Chatham-Kent, Windsor-Essex County Health Unit and other partners, are working together to foster a safe, comfortable, bicycle and pedestrian friendly environment by encouraging people of all ages and abilities to engage in non-motorized activities for everyday transportation and recreation. Residents and visitors are able to travel and experience the urban and rural areas of the County by way of a connected network of on and off-road pedestrian and cycling facilities."*

The TMP includes reference to active transportation facilities recommended in the 2023 CWATS Master Plan update, and seeks to enhance the connectivity of the overall network by identifying additional pedestrian and cyclist infrastructure investments locally to connect to regional routes illustrated in **Figure 2-1** below.

Figure 2-1: CWATS network by facility type in Amherstburg



Source: CWATS Master Plan Update, 2023

2.4 CROW Design Manual for Bicycle Traffic

The CROW Design Manual for Bicycle Traffic is a Dutch design manual published by the Netherlands. CROW is a not-for-profit organization in which the government and businesses work together to improve the design, construction, and management of roads and other traffic and transport facilities in the country. The design manual is highly regarded in the Netherlands and around the world, providing guidance on the planning and design of bicycle networks and facilities, the design of junctions, and key details on implementation and maintenance as well as evaluation and management.

A key takeaway from the manual to inform active transportation in Amherstburg are the five principles of cycle network design (cohesion, directness, safety, comfort, and attractiveness). The bicycle facility selection tool may also provide important guidance by identifying suitable cycling facility types based on various road characteristics such as the road classification, speed limit, and traffic volumes. Finally, CROW provides guidance on the reduction of lane widths to ensure effective speed management through visual and physical narrowing of travel lanes which have been proven in effectively reducing travel speeds of motor traffic (nominal 2.9 m in width).

Relevant considerations for the improvement of the active transportation for Amherstburg from CROW Design Manual for Bicycle Traffic are shown in **Table 2-2**.

Table 2-2: Selection plan for cycle facilities in the case of road sections in built-up areas

Road category	Speed limit motorized traffic (km/h)		Volume of motorized traffic (PCU/24-hour period)	Cycle network category		
				Basic structure ($I_{bicycle}$ < 750/ 24-hour period)	Main cycle network ($I_{bicycle}$ 500-2,500/ 24-hour period)	Bicycle highway ($I_{bicycle}$ > 2,000/ 24-hour period)
Residential road	walking pace or 30		< 2,500	mixed traffic	mixed traffic or bicycle street	bicycle street (with right of way)
			2,000-5,000		mixed traffic or cycle lane	cycle path or cycle lane (with right of way)
			> 4,000	cycle lane or cycle path		
Distributor road	50	2×1 lane	not relevant		cycle path	
		2×2 traffic lanes				
	70			cycle/moped path		

Source: CROW Design Manual for Bicycle Traffic

2.5 Development Charges Study (2019)

The Development Charges Study from 2019 identified $12,644,000 in future capital works, which include road upgrades, active transportation infrastructure, bike lanes, additional public works facility space, and vehicles and equipment**. Table 2-3** shows the average level of investment in transportation related infrastructure that is expected to be updated until the year 2031. The study states that Amherstburg owns and maintains 180 km of roads and 61 km of sidewalks, which provides an average level of investment of $3,798 per capita. The Town also has 27 bridges and 74 culverts, which equates to $1,299 per capita. In addition, there are 1,653 streetlights equating to an average level of investment of $161 per capita.

Table 2-3: Average level of investment

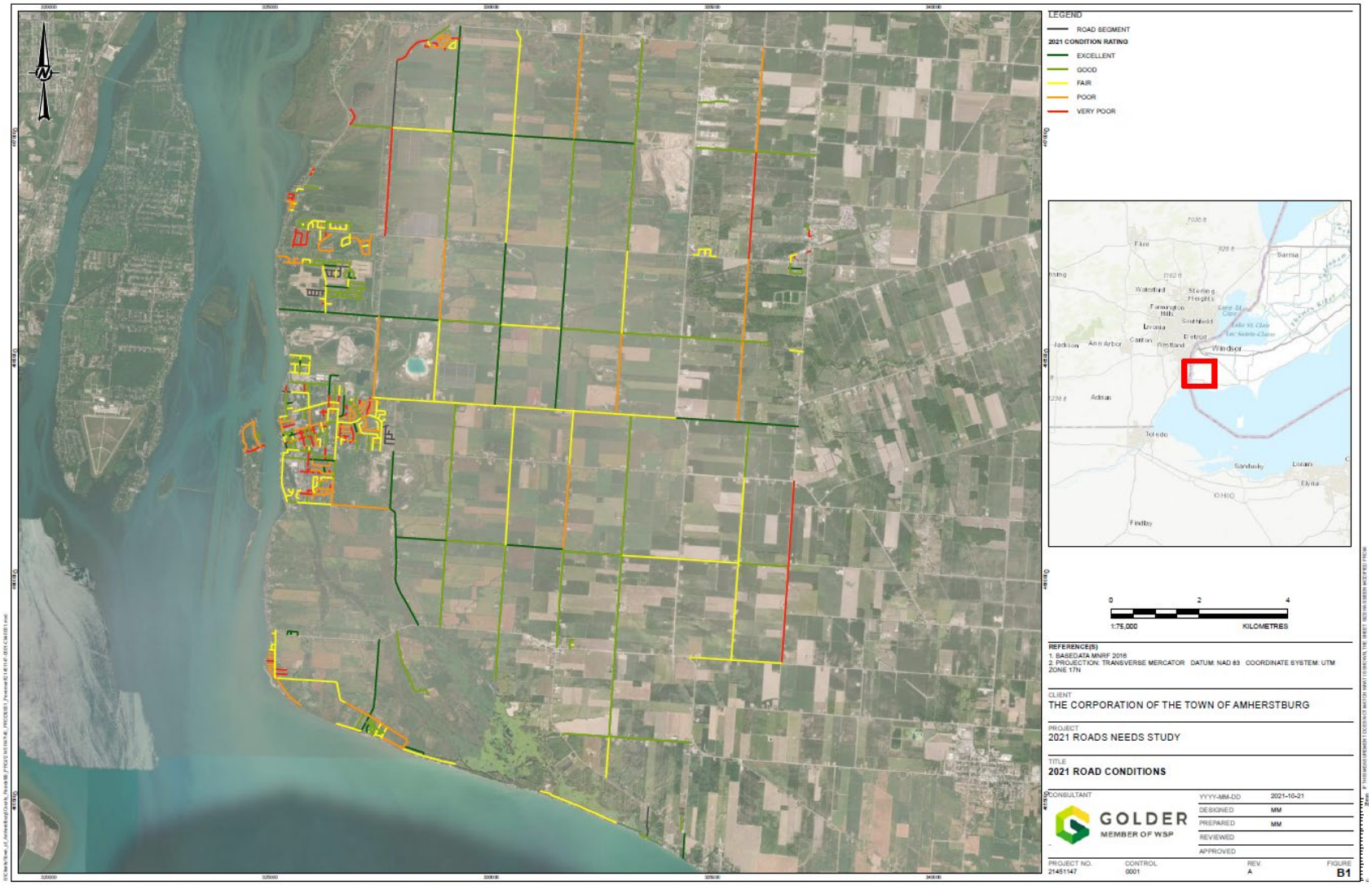
Prj .No	Increased Service Needs Attributable to Anticipated Development 2019-2031	Timing (year)	Gross Capital Cost Estimate (2019$)	Post Period Benefit	Other Deductions	Net Capital Cost	Less:		Potential D.C. Recoverable Cost		
							Benefit to Existing Development	Grants, Subsidies and Other Contributions Attributable to New Development	Total	Residential Share 86%	Non-Residential Share 14%
	Roads										
1	Fryer St. - Lowes SR to Pickering	2022-2023	3,080,000	666,000		2,414,000	1,848,000		566,000	486,760	79,240
2	Lowes S.R. - Sandwich St to Meloche Rd Upgrades & A.T.	2024-2025	5,647,000	1,221,000		4,426,000	3,388,200		1,037,800	892,508	145,292
3	Provision for Bike Lanes	2019-2031	1,162,000	-		1,162,000	-		1,162,000	999,320	162,680
4	Provision for Road Capacity, Intersection &/or signalization Upgrades in Downtown Area	2019-2031	500,000	-		500,000	-		500,000	430,000	70,000
	Public Works Facilities										
4	Provision for Facility Space (ft 2)	2019-2031	1,590,000	-		1,590,000	-		1,590,000	1,367,400	222,600
	Public Works Vehicles and Equipment										
5	Two Single Axle Dump Trucks w/plow	2020-2021	608,000	-		608,000	-		608,000	522,880	85,120
6	Boom Mower	2019	57,000	-		57,000	-		57,000	49,020	7,980
	Financing Costs & Reserve Adjustments										
7	Texas Road - County Road 20 to County Road 5 Growth Related Debt Principal	2019-2037	688,652	-		688,652	-		688,652	592,241	96,411
8	Texas Road - County Road 20 to County Road 5 Growth Related Debt - Interest (Discounted)	2019-2037	94,143	-		94,143	-		94,143	80,963	13,180
9	Reserve Fund Adjustment						1,310,524		(1,310,524)	(1,127,051)	(183,473)
	Total		**13,426,795**	**1,887,000**	**-**	**11,539,795**	**6,546,724**	**-**	**4,993,071**	**4,294,041**	**699,030**

Source: Town of Amherstburg Development Charges Study (2019)

2.6 Road Needs Study (2021)

The Town conducted a Road Needs Study, which assessed 233 km of the roads in Amherstburg and rated the Pavement Conditions of the Town's Road Network overall as fair (Pavement Condition Index (PCI): 60 out of 100). Most of the roads in Amherstburg are hot mix asphalt (70%), followed by surface treated (15.4%), gravel (14.1%), and only a small amount of concrete and paver interlock streets. **Figure 2-2** shows a map of the road needs study area where these assessments were conducted.

Figure 2-2: Road Needs Study Area Map & Findings



2.7 Amherstburg Asset Management Plan (2022)

The Amherstburg Asset Management Plan (2022) identifies current strategies and policies that are meant to manage public infrastructure and makes recommendations where they can be improved and refined. For the Town to meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, as well as achieve long-term sustainability, Amherstburg average capital requirements equal approximately $24.3 million. Considering a historical analysis of sustainable capital funding sources, the Town is committing approximately $13.98 million towards capital projects or reserves per year, leaving an annual funding gap of $10.32 million.

The Road Network has a total replacement cost of approximately $223 million. The current conditions of various asset categories are presented below. When taking a closer look at the road network conditions, it becomes clear that more than a third of the road network is in poor or very poor condition, with asphalt road surface in urban areas showing the highest percentage (25%) of 'very poor' condition. **Figure 2-3** and **Figure 2-4** show the current conditions of road networks, road surfaces, and other features.

Figure 2-3: Current Conditions of Road Networks

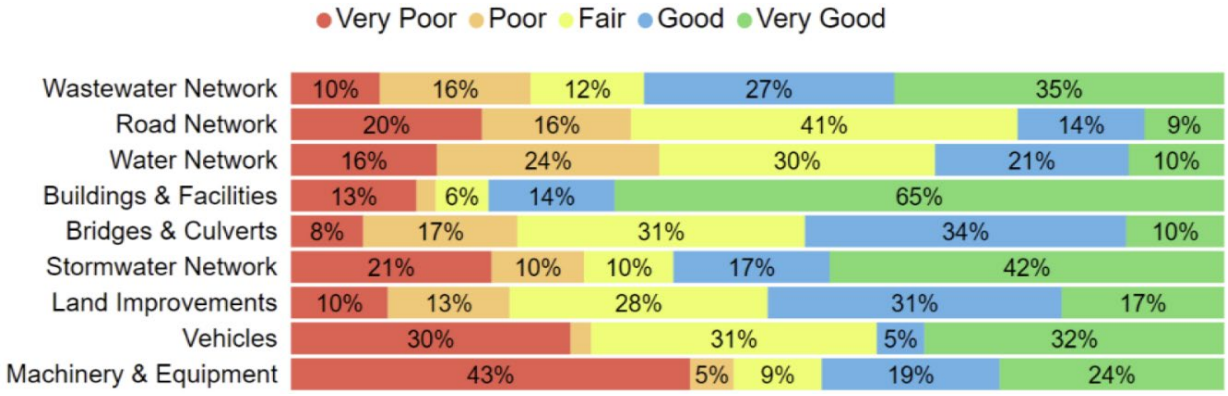
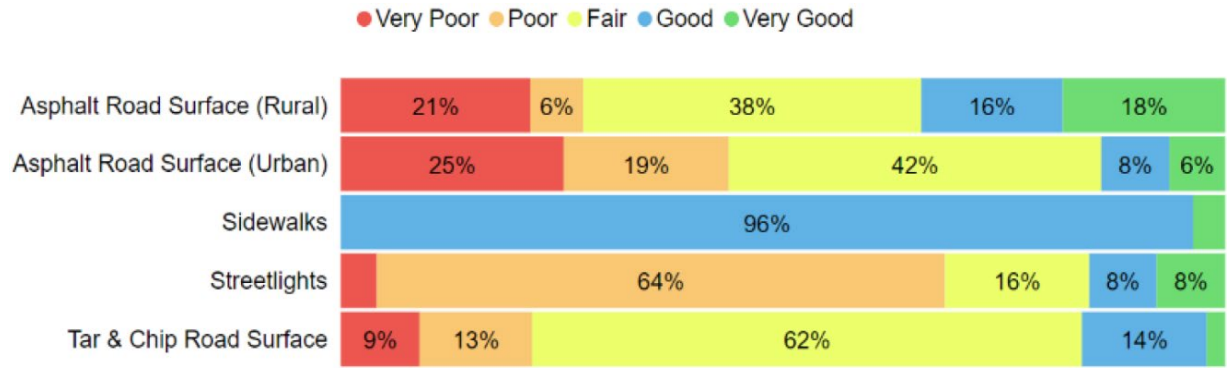


Figure 2-4: Current Conditions of the road surface and other street features



The road network is a critical component of the provision of safe and efficient transportation services. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks and streetlights **Table 2-4** summarizes the state of the road network:

Table 2-4 State of the Road Network

Replacement Cost	Condition	Financial Capacity	
$223 million	Fair (54%)	Annual Requirement:	$6.7 million
		Funding Available:	$4.9 million
		Annual Deficit:	$1.8 million

-Table 25 further clarifies quantity, total replacement cost, and annual capital requirements of each asset segment in the Town's road network:

Table 2-5: Quantity and costs of Asset Segments

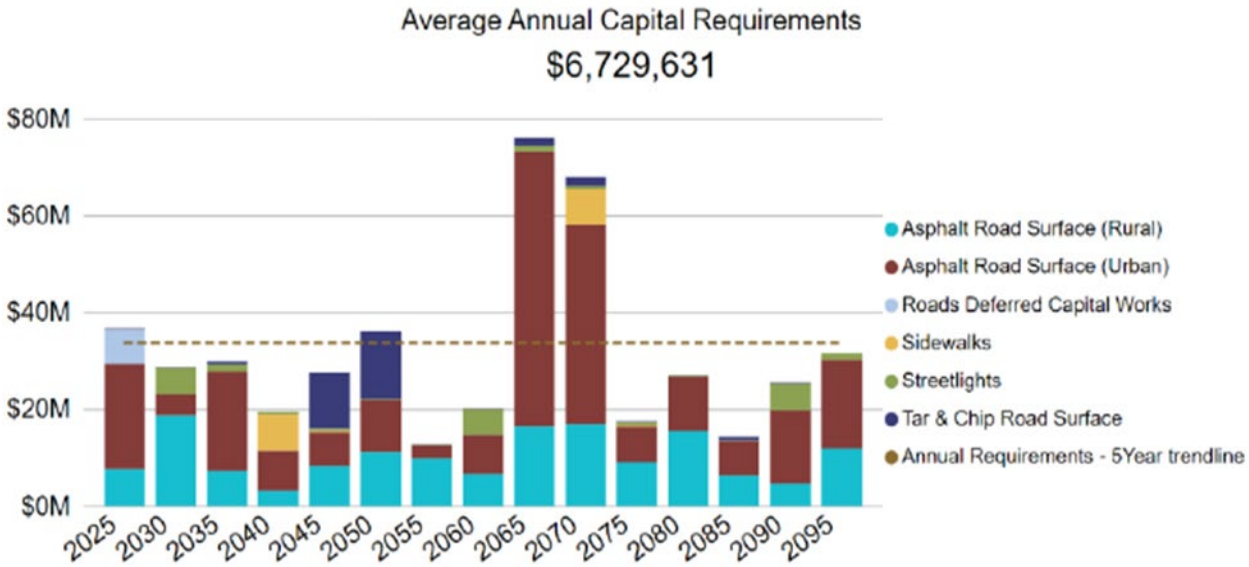
Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Asphalt Road Surface (Rural)	105.7 kms	$52,605,000	$2,192,000
Asphalt Road Surface (Urban)	94.6 kms	$124,873,000	$3,433,000
Sidewalks	53.1 kms	$7,724,000	$257,000
Streetlights	1597	$8,261,000	$278,000
Tar & Chip Road Surface	32.3 kms	$29,568,000	$569,000
Total		**$223,030,000**	**$6,730,000**

To understand capital requirements for future years, **Figure 2-5** presents the forecasted long-term (next 70 years) capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

The road network has a substantial backlog of capital works. The 2020 Roads Needs Study identifies $36 million of deferred capital works, primarily consisting of resurfacing and road reconstruction. The Amherstburg Asset Management Plan states that in addition to the long-term annual capital requirements of $6.7 million, the Town may need to deliver an additional $7.2 million each year for the first five years to account for this work.

-The main risk to the infrastructure road network is its age, as many sections of road are approaching their useful life. A program for timely renewal should be established to ensure roads are in suitable conditions. Amherstburg has managed roads reactively to this day but is currently developing programs for proactive maintenance and renewal. This will extend the life of roads and reduce the risk of unexpected failures. **Figure 25** illustrates the annual capital requirements to maintain existing road infrastructure across the Town.

Figure 2-5: Average Annual Capital Requirements



2.8 Inclusive Community Plan Needs Assessment & Action Plan (2022)

In 2020, the Town of Amherstburg applied for funding to the Province of Ontario for $60,000 under the Inclusive Community Grant Program (ICGP). The project consisted of 2 Phases: an initial 'Needs Assessment' to identify the needs, wants and desires of older adults and persons with disabilities, and development of an 'Action Plan' both of which are intended to support the Town's visions of improving the well-being and better promoting independence and active living for older adults and persons with disabilities in the Town of Amherstburg. In March 2021 the Town of Amherstburg received funding up to $60,000, with the initiative to be completed by March 31, 2022.

The community engagement process, resulted in a comprehensive Needs Assessment aligned with the World Health Organization's Age-Friendly and Inclusive Communities framework that considers 8 domains of quality community life that overlap and intersect to affect an individual's personal well-being, their independence and active living. The 8 domains through which community needs are assessed include:

- Outdoor Spaces and Buildings
- Transportation
- Housing
- Communication and Information
- Social Participation
- Civic Participation and Employment
- Community Support and Health Services
- Respect and Social Inclusion

Accessible and affordable public transportation is vital to ensure older people and persons with disabilities stay engaged with their community and can access social and health services facilities. It is important for the Town to keep seniors and people with disabilities in mind when discussing transportation options which should:

- allow seniors and people with disabilities to navigate the Town with ease;
- provide a number of options to choose from;
- cater to people with a range of mobility needs, and
- be affordable.

A survey that was conducted as part of the needs assessment includes the following findings:

- 45% of the respondents indicated that they would use public transit services if available;
- 48% of the respondents felt that there are currently sufficient specialized and public transit (care links) services available to meet the needs of seniors and people with disabilities;
- 93% of respondents indicated that traffic signs are easy to read and understand;
- 62% of respondents indicated that available taxi services are meeting their needs;
- 43% of those surveyed felt that current taxi services are affordable;
- 53% of responses indicated a need for increasing a demand on the proportion of on-demand taxi services offered;
- 45% of those surveyed indicated they felt roads were excellent/well maintained;
- 33% thought that there are good options for volunteers, shuttle and/or pooled driving resources; and
- 47% of respondents agreed that there is enough information about transportation services available for seniors and people with disabilities in the Town of Amherstburg.

The ICP Report states that given the needs identified, the Town should explore opportunities to connect Amherstburg to a wider transit network to ensure the widest possible access to interconnected networks of accessible, reliable, and affordable transit services for riders.

The Action Plan is divided into short-, medium-, and long-term initiatives. In the short term, there will be a review of options that are available for a public transit pilot project with consideration given to the integration into a wider Regional Transit Network. In the medium-term (3-4 years) the effectiveness of the chosen pilot project will be assessed to determine whether it is viable as a permanent service. In addition, the Town will develop transportation mapping inclusive of all options available, such as walking trails and paths, active transportation routes, public transit, and more.

In the long term (5+ years) the Town will explore the creation of a 'Senior Sensitive' and 'Accessible Sensitive' course or certification program for licensed taxi service providers. Ongoing initiatives include road repairs and maintenance, discounted public transportation prices for seniors and people with disabilities and their accompanying person.

2.9 Additional Policy Documents

Additional policy documents that were reviewed to develop the TMP included the Town of Amherstburg Community-Based Strategic Plan. This Plan includes the improvement of roadways and sidewalks under *Pillar 3: Investment in Infrastructure*.

Additionally, the Essex-Windsor Regional Transportation Master Plan describes forecasted LOS deficiencies on County Roads 9, 11, and 18 which are linking Amherstburg with the Windsor area. The TMP states that it is essential for the Town and County to monitor traffic conditions on the critical South Shore roads in Amherstburg to understand how roadway enhancements and urban form changes result in desired LOS improvements. Overall, the TMP states that without action there will be several future deficiencies on roads linking Amherstburg to the City of Windsor.

3 Community Understanding

This section provides a high-level statistical portrait of demographic, socio-economic and mobility metrics today in Amherstburg. Data from Statistics Canada has been visualized through maps and graphs to highlight key components of the Town's existing community profile, which will be referenced to ensure future investments can be distributed equitably through the community.

3.1 Demographics

The Town is located in southwestern Ontario, on the shores where the Detroit River meets Lake Erie. With a population of 23,525 in 2021, the Town is comparable in size to other communities in Essex County such as Kingsville, Essex, and Leamington. From 2016 to 2021, the Town's population grew by 7.4 per cent, faster than the Canadian average of 5.2 per cent. With recent shifts to remote work brought on by the COVID-19 pandemic expected to continue, the Town expects a doubling of the population to nearly 50,000 residents by 2050 as workers move out of large urban centres such as Windsor, London, and the Greater Toronto Area.

Census Data reveals that population percentage change from 2016 to 2021 (Census Subdivision) is about 7.2% and the change outpaced the overall growth rate in the Windsor Census Metropolitan Area (6%). A review of the community's age distribution reveals that the population cohort above 65 years of age grew to comprise 21% of the population today, whereas this age group accounted for 18% in 2016. The growing trend in the aging of the population will require the Town to adapt mobility that can capture demands from all ages to maintain a good quality of life.

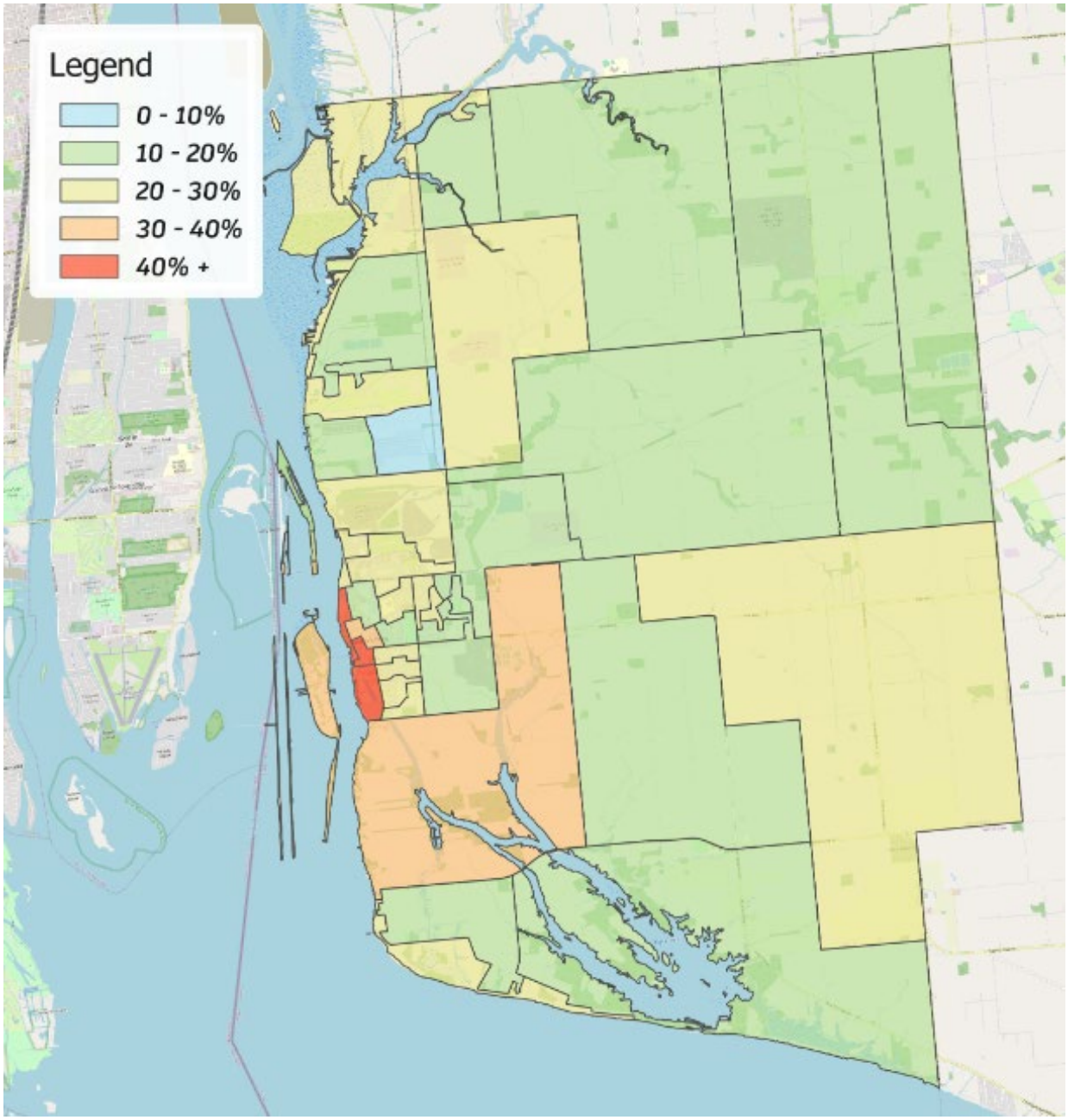
One factor to consider is how mobility affects our health. According to a Canadian study conducted in 2021, the level of walkability in a neighborhood can have an impact on the occurrence of multiple health conditions within a population, known as multi-morbidity. The study found that less walkable areas have a 14% higher risk of multi-morbidity compared to areas that are more walkable. This highlights the importance of not just focusing on the practical aspects of mobility, but also considering its potential health benefits.

First/last-mile connections to transit and destinations are another example where walkable design can help create safe, comfortable, and direct active connections to schools and bus stops to experience for young and elderly residents alike.

Amherstburg is comprised of a relatively older demographic with a median age of 45.6 in 2021. This is higher than the median age of 41.6 for both Ontario and Canada as a whole. Despite the overall population growth from 2016 to 2021, the median age increased from 44.5 in 2016, indicating the growth is not driven by births or an increase in families with children.

Figure 3-1 illustrates the proportion of senior residents within each delineated area of the Town, with blocks in orange and red indicating neighbourhoods with a generally older population. It is evident that there is a high percentage of senior residents concentrated in the west end of the Town, along Dalhousie Street and the Detroit River.

Figure 3-1: Percentage Distribution of Senior (Age 65+) Residents



Understanding that older populations are generally at risk of transportation-related isolation, as a person's ability to drive may be impacted by health, mobility, and other factors, it is important that at-risk populations are provided a robust transportation system with options to get around. Accordingly, this data will be used to ensure the TMP tackles accessibility and provides improved pedestrian connections that are safe and attractive in these areas.

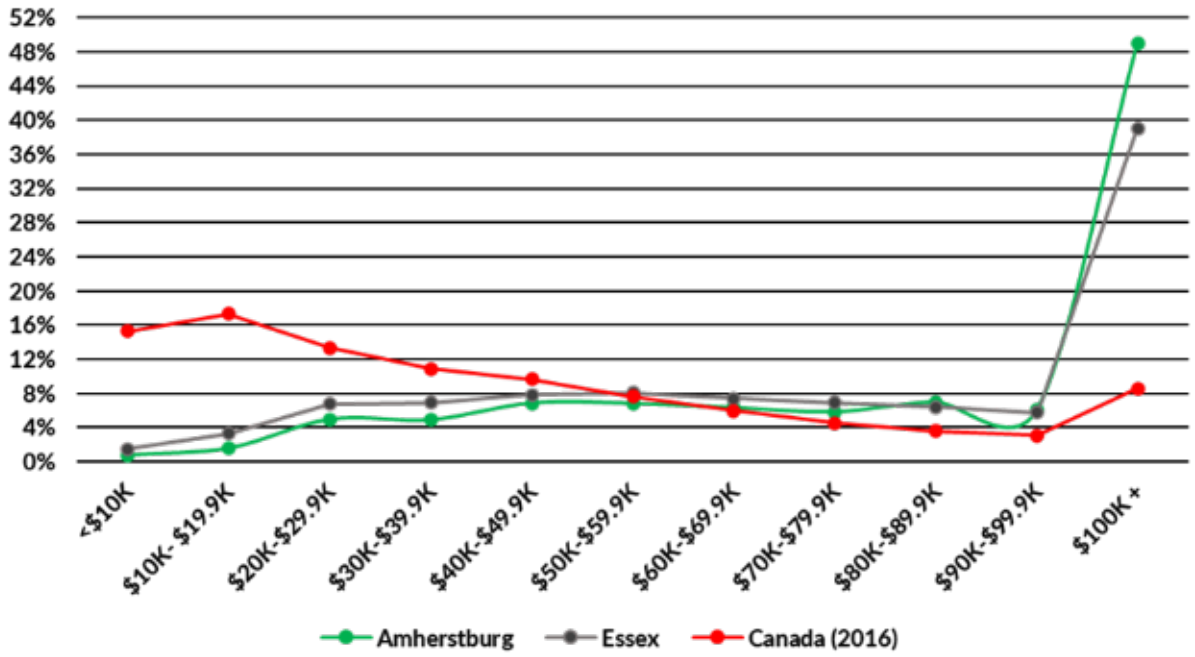
3.2 Income Distribution

Transportation and income are inherently linked, as a person's income level can affect the access to transportation options. Understanding income distribution across the Town helps in determining the affordability and accessibility of various transportation options, as lower-income residents may rely more on public transit or non-auto modes of transportation.

According to the Canadian Poverty Institute (CPI), transportation is a key factor in the ability of an individual or family to manage and overcome experiences of poverty. Affordable and accessible transit is a basic societal need, supporting positive economic and social benefits for people of all economic classes. A future centralized transit hub could unlock access to opportunities for more residents by providing convenient and more accessible mobility, helping to re-invigorate the core in-tandem with ongoing streetscape improvements. 2021 Census data (depicted in

Figure 3-2 visualizes household income for the Town of Amherstburg and County of Essex, against the national average, based on 2021 Census data, Per the figure, local household income is generally evenly distributed across income brackets, and breaks away from the national average for incomes over $100,000, with 49% of Amherstburg residents in that bracket.

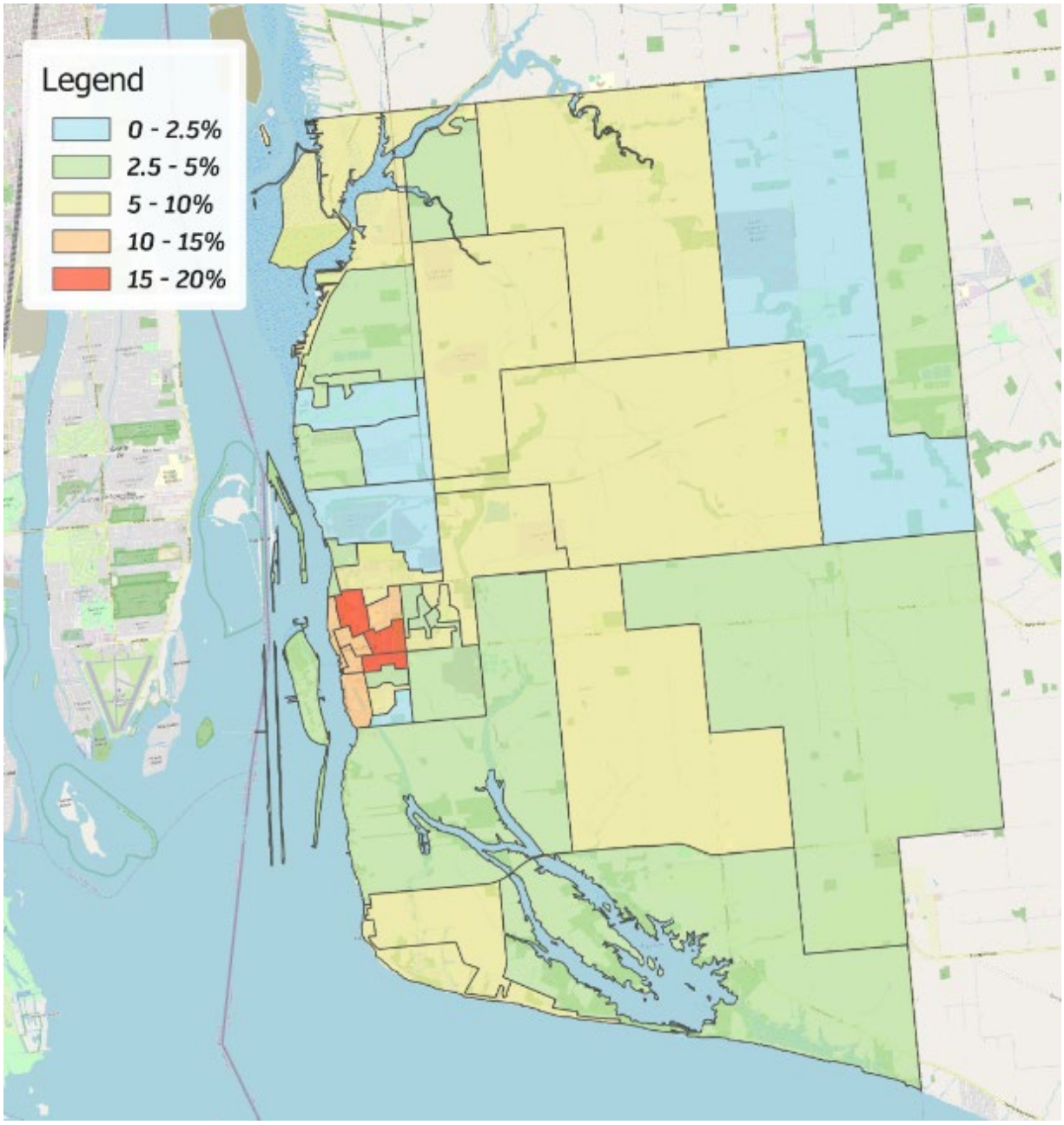
Figure 3-2: Household Income Distribution



The low-income measure, after tax, refers to a fixed percentage (50%) of median-adjusted after-tax income of private households. The household after-tax income is adjusted by an equivalence scale to take economies of scale into account. This adjustment for different household sizes reflects the fact that a household's needs increase, but at a decreasing rate, as the number of members increases. Further details low-income measures thresholds in Canada can be found in 2021 Statistics Canada census summary.

Figure 3-3 illustrates the proportion of low-income residents within each delineated area of the Town, with red areas indicating a higher concentration of lower income households.

Figure 3-3: Percentage Distribution of Low-income Households

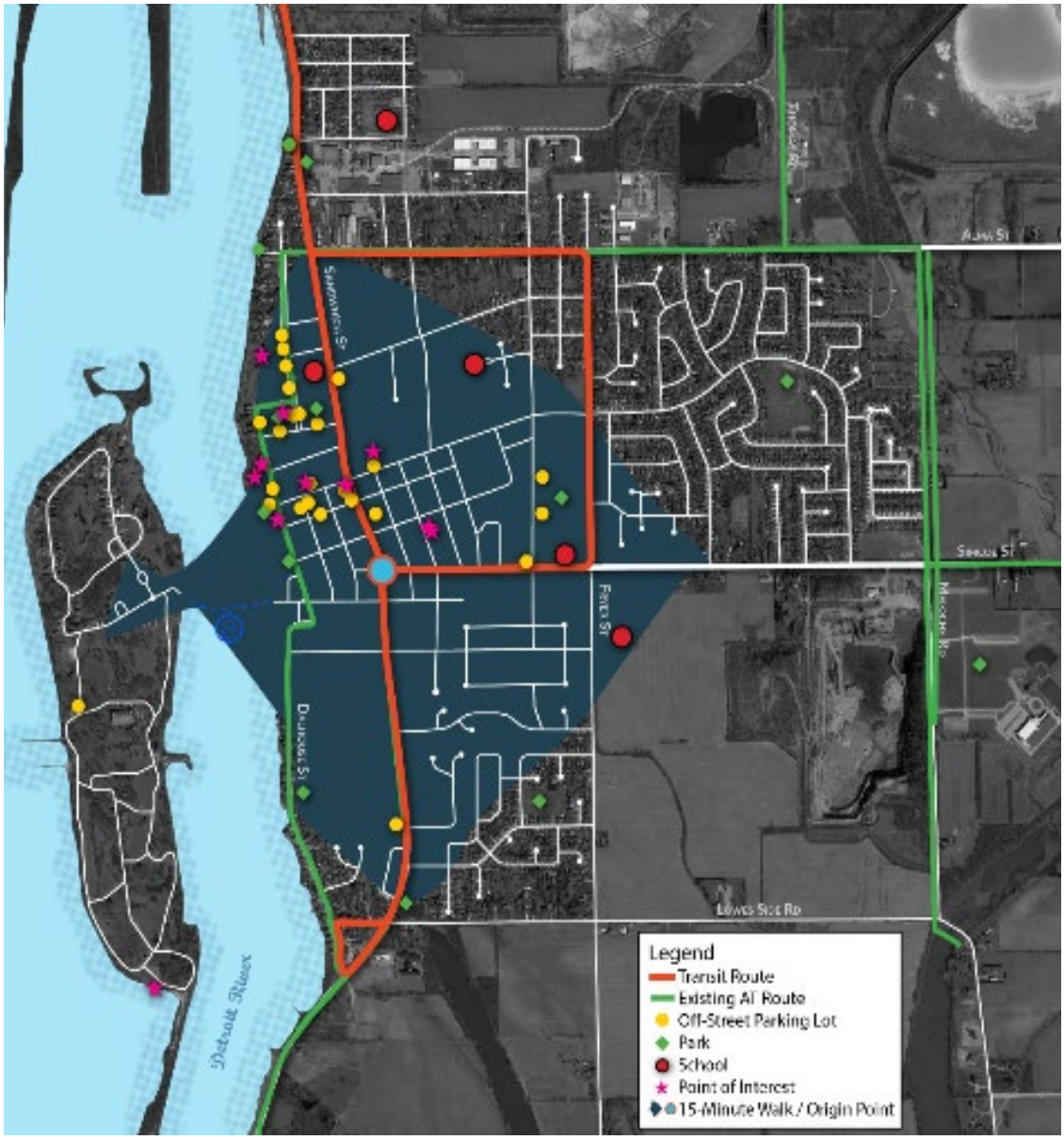


As per the figure above, a larger percentage of lower income households are located near the downtown area between Alma Street and Simcoe Street, corresponding with the Focus Area of the TMP study.

Accordingly, the TMP will explore opportunities to enhance non-auto transportation options within this area to reduce household costs associated with auto ownership and auto-reliance, to provide residents with safe and affordable alternatives. These investments may be in the form of enhanced Active Transportation facilities to connect residents to destinations and workplaces, as well as new transit routes and increasing frequency of the bus operation within the downtown area to capture and serve a greater portion of low-income residents within a 5–10-minute walk of stop locations.

Figure 3-4 highlights that virtually the entire downtown is within a 15-minute walk of planned transit presenting an opportunity to not only benefit known lower-income areas but provide all residents with an affordable alternative to auto-reliance.

Figure 3-4: Downtown Accessibility Map

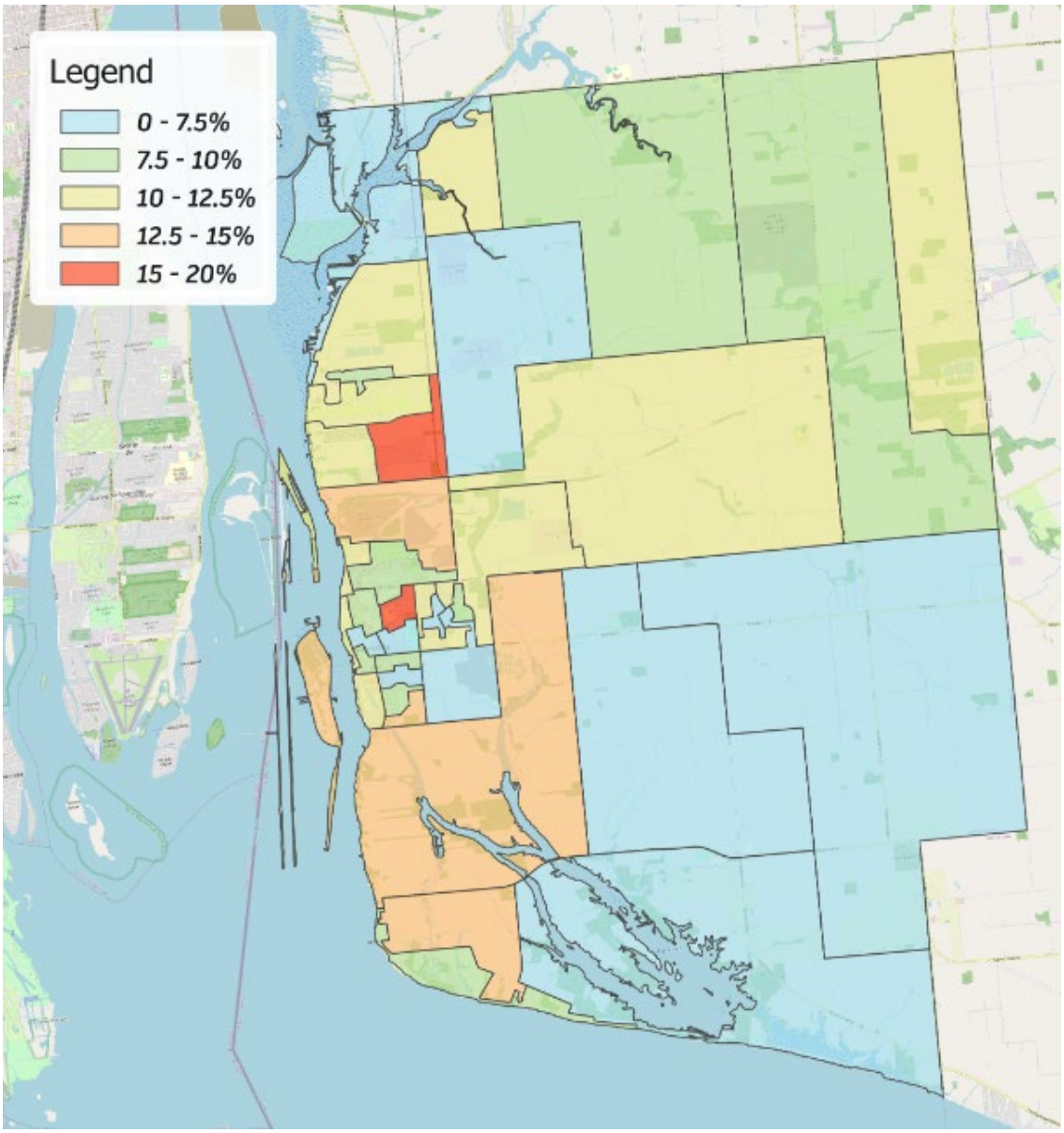


3.3 Social Equity

In accordance with the Town's Official Plan, it is recommended that the Town prioritizes equity and accessibility to ensure all residents, including newcomers and visible minorities, have safe, reliable, and affordable transportation options. Understanding the distribution of immigrant population is important in transportation planning as providing improved access to underserved communities will help ensure that the benefits and rewards that come with transportation infrastructure investments are distributed.

Figure 3-5 illustrates the percentage distribution of visible minorities, who are generally spread out proportionately throughout the Town, and would be fairly served by investments driven by the TMP.

Figure 3-5: Percentage Distribution of Visible Minorities



As illustrated above, Amherstburg is a diverse community with 4% of the population identifying as Indigenous and about 10% of the population being immigrants or newcomers. Census data reveals that the percentage change from 2016 to 2021 (Census Subdivision) is about 18.6% and that is a significant jump considering the population growth rate of Amherstburg is about 7.2% from 2016 to 2021. It is apparent that Amherstburg is a town that attracts immigrants to settle in the country.

Overall, access to transportation plays a huge impact to the ability of newcomers to participate fully in society, including access to business, education, and other necessities. There are also factors to consider such as differences in income, language barriers, and cultural practices.

3.4 Employment

With the recent growth in retirees and older people in the town, the proportion of the population participating in the labour force decreased from 64.8 per cent in 2016 to 61.4% in 2021. As such, the proportion of the population in the labour force is now below the national average of 63.7%.

Sales and service occupations are the most reported with 23.1% of the workforce within this field, followed by those in trades, transport, and equipment operations (19.9%). The proportion of the workforce in trades, transport, and equipment operations is greater in Amherstburg than the rest of Canada where this sector makes up 16.8% of the labour force.

Looking further into the details of occupation classification, manufacturing (20.5%) comprises the greatest proportion of jobs in Amherstburg. Being situated at the mouth of the Detroit River, only 30 minutes from the Detroit-Windsor border crossing (the busiest in North America) the Town attracted manufacturing through the 1900s due to its proximity to cities around the Great Lakes. This history has continued to today, though the sector is in decline with the total number of people employed falling by five per cent from 2016. The health care and social assistance (14.3%) and retail trade (11.2%) sectors make up the next highest proportions of the labour force. It is expected that as the population ages, employment within health care and social assistance will increase as this segment of the population will require more care.

Overall, the Town will continue to have various employers and occupations which will reinforce the need for sustainable travel options across the community. Given the concentration of business within the downtown core, a key focus for the active transportation network should be on allowing workers to commute to work safely and efficiently.

3.5 Land Use

Amherstburg's built environment has been shaped by its connection to the water and nearby Windsor. Its position at the mouth of the Detroit River was a military advantage that led to the construction of Fort Malden (now a national historic site) and the development of a significant navy yard (now designated as the Amherstburg Navy Yard National Historic Site). Many years later, Amherstburg was linked to Windsor as a streetcar suburb for a brief period, shaping its growth. Given this history, majority of the urban environment is aligned north-south with the river and former streetcar line while the downtown core extends east from the waterfront.

Amherstburg now features these characteristics:

- Strong but small grid and relatively dense urban core (100 metre block lengths) based on horse and buggy, and walking trips in the early 1800s;
- Significant number of fine grain retail and commercial properties within downtown area indicative of past successful commerce;
- Nearby residential areas within walking distance from the pre-war era have been expanded to further extents due to the advent of the car. The changes are noticeable in the street network as one travels outward from the downtown core where post-war planning aspects such as cul-de-sacs and curvilinear streets can be seen, and housing typologies change;
- Strong north-south connection to the economic hub of Windsor and east-west connections to nearby agricultural lands and communities; and
- Light and heavy industrial lands located just north of the downtown and aggregate extraction located to the east.

In addition to these features within the settlement area boundary, Amherstburg's Town limits include a large rural area mainly comprised of agricultural lands, natural environments, and provincially significant wetlands. Some extractive industrial lands are present for solar energy generation and aggregate extraction and are served by the current regional road network.

In recent times, new residential subdivisions have been formed on the outer edges of the town in lands that were previously rural, rural-residential, or agricultural. These new subdivisions are based around post-war and modern road networks of curvilinear streets within gridded collector roads (i.e., windowpanes). Due to the curvilinear and cul-de-sac designs of internal local streets, last mile transit, walking, and cycling are not as competitive as private vehicle use for travel times. Additionally, the homogenous suburban land uses (i.e., single dwelling residential) also limit the practicality of short trips (which are well suited to more sustainable travel modes) for utility and recreational purposes.

3.6 Events and Seasonal Variance

Downtown Amherstburg is a major tourist spot, in part due to its historic character as well as its abundance of shops, restaurants, and cafes. In addition to these offerings, the downtown is located on the shores of the Detroit River, providing visitors with pleasant surroundings for a walk along the waterfront. This setting drives a seasonal variance with regards to tourism and its associated effects on mobility, transportation connectivity and infrastructure in the Town.

Downtown Amherstburg is the site of many attractions for tourists to learn about and immerse themselves in the town's history. Historic sites such as Fort Malden and King's Navy Yard Park, both located along the town's waterfront and within or close to the downtown core, are key sites to focus efforts for improved active transportation connections for visitors. Park House Museum is also located downtown and in close proximity to the Visitor Information Centre, found inside the historic Gordon House. While not situated in the downtown core, the Amherstburg Freedom Museum is

only a 10-minute walk away. With so many attractions located in the downtown, implementing high-quality active transportation facilities will ensure visitors can safely and comfortably navigate the town by active modes to explore all the town has to offer.

In addition to the cultural attractions in Amherstburg, there is opportunity to promote recreational tourism in the area. The Cypher Systems Group Greenway not only connects Amherstburg to the Town of Essex but also to the Chrysler Greenway which runs north-to-south and links Tecumseh, LaSalle, and Windsor. This trail could become a major recreational corridor for tourism in Essex County with Amherstburg being an attractive destination. However, the trail does not currently connect to downtown with safe facilities. The Town is also popular with sport cyclists, with open data from Strava (an endurance sports based social media platform using GPS data) showing several frequently used routes along Front Road/Sandwich Street and Dalhousie Street, as well as roads outside the downtown such as Texas Road, Alma Street, Lowes Side Road, Meloche Road, and Pike Road. Providing safe facilities on these routes may further enhance their use for recreational and sport cycling.

The Town offers a wide variety of festivals during the year, especially in the Summer. Among the attractions offered by the Town, there are outdoors activities like the Uncommon Festival in late September, TRUE Fest in January, Canada day, movie nights, Bagpipes in the Burg, night markets and the famous Open Air Amherstburg weekends throughout the summer.

The Open Air festival usually occurs every weekend from the first weekend of June to Labor day in September. It is the main festival in Town and attracts a great number of visitors every weekend. Furthermore, every third Friday of the month, local vendors convene for the night markets, where live music enhances the vibrant atmosphere. The festivities include live music, yoga in the park, recreational games, food trucks, face painting, among others. Local businesses also open their doors to welcome everyone visiting the festival. Locals and visitors can find clothes, books, coffee, craft beer, fine dining, ice cream, jewelry, etc.

During Open Air, the main downtown streets are closed to vehicular traffic to promote a better environment for the pedestrians to walk. Designated areas around the downtown core are assigned for bicycle and vehicular parking to accommodate attendees, generally within a 5-10-minute walk of the core. The TMP will assess the network's capacity to distribute parking supply on a more permanent basis on select streets, or reconfigure existing on-street parking areas, to provide improved access to the downtown, safer circulation for events, and public realm space for businesses and residents to stay, spend time, and enjoy the downtown area.

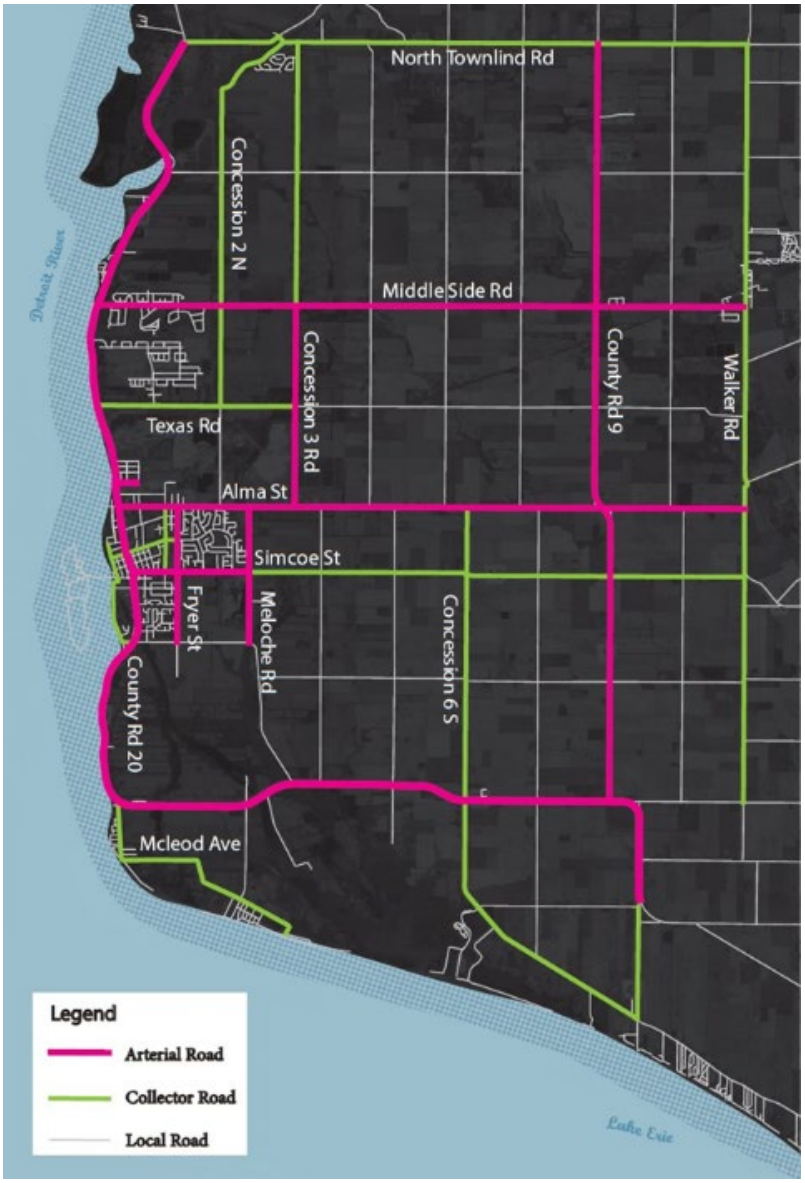
4 Connectivity Assessment

The purpose of this section is to examine the current state of transportation network connectivity and infrastructure in the Town. Existing Traffic conditions and analyses will be summarized, and parking and transit opportunities will also be discussed in this section.

4.1 Road Network and Hierarchy

Figure 4-1 shows the road hierarchy (i.e., arterial, collector and local) of the existing transportation network and the following section describes the existing road network within the study area:

Figure 4-1: Existing Road Network Hierarchy



County Road 20 is known as Front Road North (between Malden Road and Brunner Avenue), Sandwich Street North (between Brunner Avenue and Alma Street), Sandwich Street South (between Alma Street and Dalhousie Street), and Front Road South (between Dalhousie Street and Front Road South) as the two diverge to the south of the study area). It is an arterial road under the jurisdiction of Essex County.

County Road 20 is a four-lane roadway north of Malden Road until Alma Street, converting to a three-lane road with a dual left centre median until McCurdy Drive where it converts to a two-lane road. There are unprotected at grade cycling lanes provided south of Pickering Road on either side of the road which continues past the study area. Sidewalks begin on the east side of the road starting some 780 metres south of North Side Road, an additional sidewalk is provided to the west side of the road starting at St. Arnaud Street, the west side sidewalk terminates some 75 metres south of Pickering Street with the east side also terminating 100m south of Lowes Side Road. The posted speed limit is 70km/h along Front Road, and 50km/h along Sandwich Street North/South.

Alma Street (County Road 16) is a two lane east-west arterial roadway operated under the connecting link agreement with the County of Essex from Sandwich Street to Meloche Road. It is operated under the connecting link agreement with the County of Essex from Meloche Road easterly. It provides sidewalks on both sides of the road until Fryer Street with paved shoulders from Fryer Street to Meloche Road, east of which there is only a gravel shoulder. The posted speed limit is 50 km/h west of Meloche Road and 80km/h east of Meloche Road

Simcoe Street / Pike Road (County Road 18) operated under the connecting link agreement with the County of Essex from Sandwich Street to Meloche Road. From Meloche Road easterly it falls under the jurisdiction of the County of Essex. It is a two-lane arterial road from Sandwich Street to Meloche Road and becomes Pike Road east of Meloche Road as a collector road. There are sidewalks on both sides of the road starting from the west until George Street where the sidewalk continues along the north side, terminating at Victoria Street South. The sidewalk is then replaced with an at grade multi-use pathway terminating at Meloche Road. The posted speed limit is 50 km/h for Simcoe Street and 80 km/h along Pike Road.

Malden Road (County Road 3) is a two-lane local road under the jurisdiction of the County of Essex. There are no sidewalks on either side of the road, and the posted speed limit is 50 km/h.

Middle Side Road (County Road 10) is an arterial two-lane road under the jurisdiction of Essex County. The sidewalk is provided on the north side of the road until Golfview Drive, where it continues the south side of the road terminating at Ironwood Drive. The posted speed limit is 60km/h to the west leg of Golfview Drive, 80km/h to 3rd Concession North, 60km/h to 4th Concession N, 80km/h to 8th Concession North and 60km/h to Walker Road (CR11)

Meloche Road (County Road 5) is an arterial two-lane road operated under the connecting link agreement with the County of Essex from Alma Street to Simcoe Street and Town operated from Simcoe Street to Lowes Sideroad. Separate at-grade bicycle and pedestrian paths are provided along the west side of the road between Alma Street and Simcoe Street. The posted speed limit for Meloche Road is 60km/h between Alma Street and Simcoe Street, and a reduced speed limit of 50km/h south of Simcoe Street.

Howard Avenue (County Road 9) is a collector two-lane road under the jurisdiction of Essex County. There are no sidewalks provided on either side of the road. The posted speed limit varies from50km/h to 80 km/h.

Fryer Street is an arterial two-lane road under the jurisdiction of the Town. Sidewalks are provided on both sides of the road until Pickering Street where it continues along the west side of the road and terminating on either side at Crownridge Road. It has unprotected bicycle lanes from Alma Street to Simcoe Street. It has a posted speed limit of 50 km/h and a reduced community safety speed of 40km/h between 100m south of Richmond Street and McCurdy Drive.

Dalhousie Street is a collector two-lane road under the jurisdiction of the Town. There are sidewalks provided on either side of the road starting from the north end of the road until Pickering Road where it continues along the east side of the road. The posted speed limit is 50 km/h.

Texas Road is a two-lane collector town road from Front Road North to Concession 3 N. Texas Road provides an at-grade multiuse pathway along the north side of the road terminating at Concession 2. The posted speed limit is 50 km/h.

Richmond Street is a collector two-lane road under the jurisdiction of the Town. It has a sidewalk on both sides of the road from Dalhousie Street to Victoria Street S, where it continues with a sidewalk along the north side of the road. The posted speed limit is 50 km/h.

Fort Street is a local two-lane road with sidewalks on both sides under the jurisdiction of the Town. The posted speed limit is 50 km/h.

North Street is a local two-lane road with an unprotected sidewalk on the south side under the jurisdiction of the Town. The posted speed limit is 50 km/h.

Murray Street is a local two-lane road under the jurisdiction of the Town, which converts to a one lane roadway with exclusive westbound movement west of Sandwich Street S. There are sidewalks provided on either side of Murray Street and has a posted speed limit of 50 km/h.

Gore Drive is a local two-lane road under the jurisdiction of the Town which converts to a one lane roadway with exclusive eastbound movement west of Sandwich Street S. There are sidewalks on either side of the road until Brock Street where it continues along only the south side. The posted speed limit is 50 km/h.

Park Street is a local two-lane road with sidewalks on either side of the road under the jurisdiction of the Town. The posted speed limit is 50 km/h.

Pickering Drive is a local two-lane road with a sidewalk provided on the north side of the road under the jurisdiction of the Town. The posted speed limit is 50 km/h.

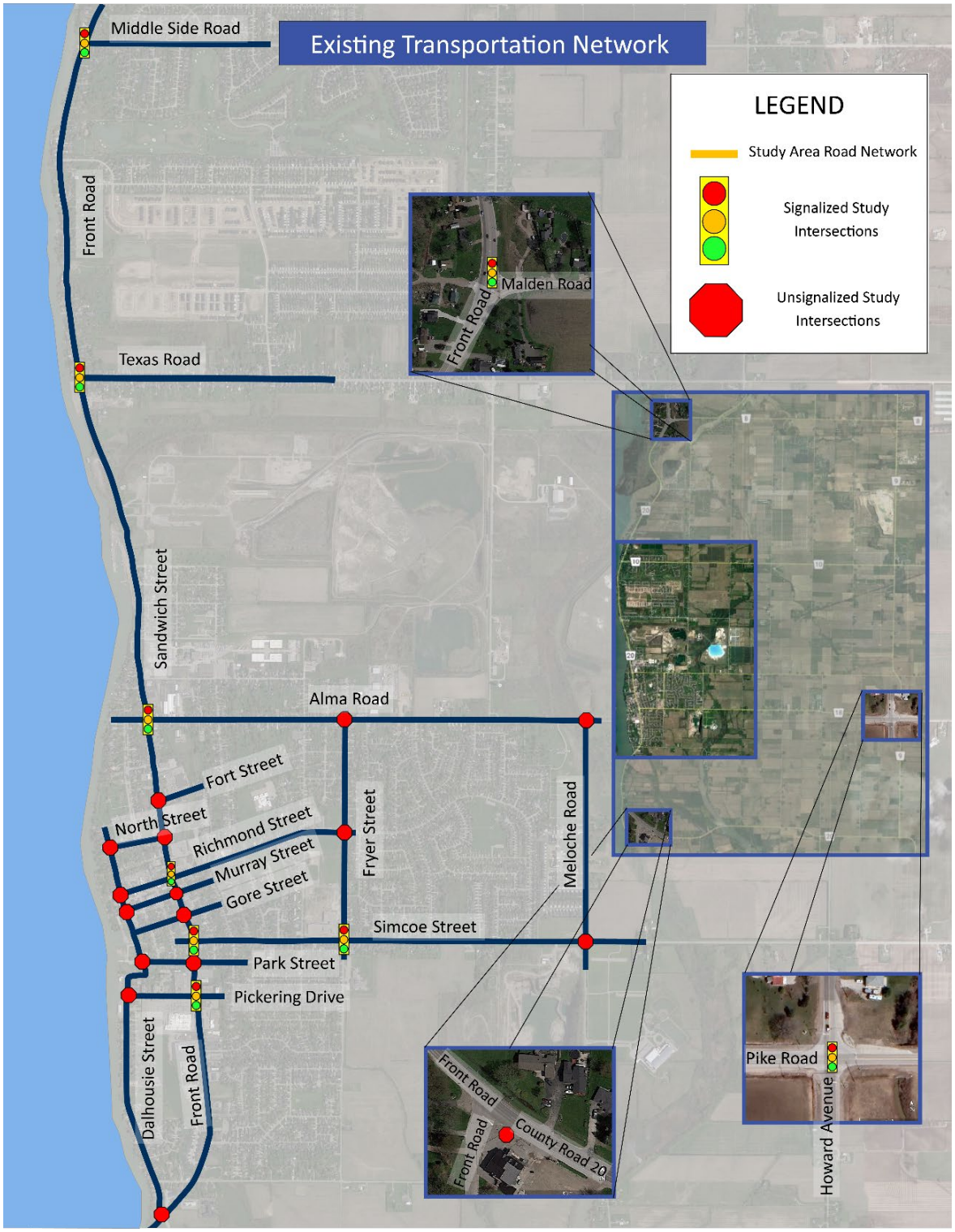
4.2 Study Area Intersections

The following existing intersections have been included in the study area. Traffic Turning Movement Counts (TMC) Data was collected in March 2023. The existing signalized and unsignalized intersections listed in **Table 4-1** and depicted in **Figure 4-2** have been included in the study area for the TMP traffic network analysis.

Table 4-1 Study Intersections

Signalized Intersections	Unsignalized Intersections
Front Road North & Middle Side Road	Sandwich Street South & Fort Street
Front Road North & Texas Road	Sandwich Street South & North Street
Sandwich Street North & Alma Street	Sandwich Street South & Murray Street
Sandwich Street South & Richmond Street	Sandwich Street South & Gore Street
Sandwich Street South & Simcoe Street	Sandwich Street South & Park Street
Sandwich Street South & Pickering Drive	Front Road South & Dalhousie Street
Simcoe Street & Fryer Street	Dalhousie Street & North Street
Front Road North & Malden Road	Dalhousie Street & Richmond Street
Howard Avenue & Pike Road	Dalhousie Street & Pickering Drive
	Simcoe Street/Pike Road & Meloche Road
	Front Road South & County Road 20
	Meloche Road & Alma Street
	Dalhousie Street & Murray Street
	Dalhousie Street & Park Street
	Richmond Street & Fryer Street
	Alma Street & Fryer Street

Figure 4-2: Existing Transportation Network

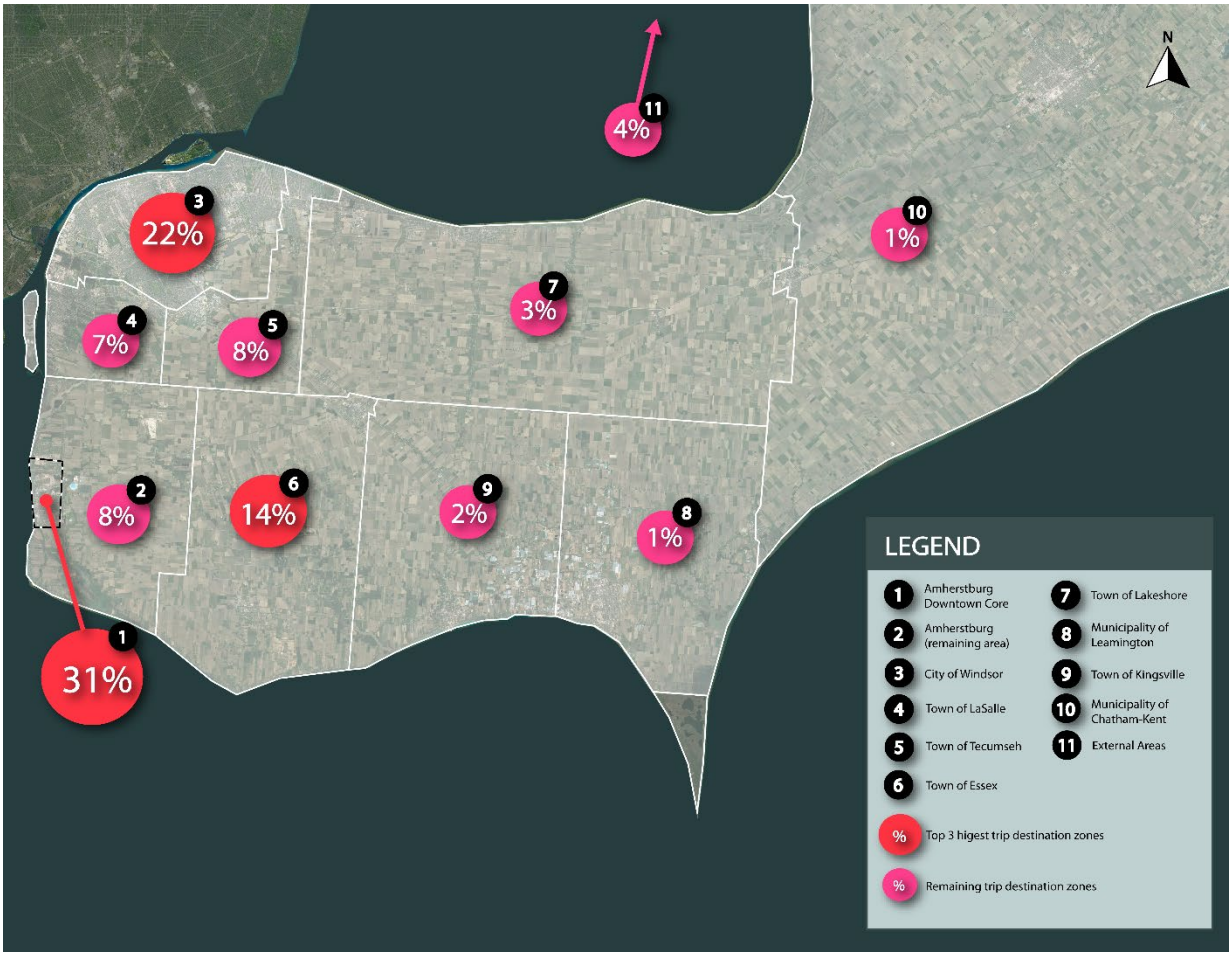


4.3 Origin – Destination

An origin-destination analysis was conducted to determine the percentage of total trips originating from the Town. A significant population among the Town's residents work in the City of Windsor (City) and often make daily commutes between the City and Town.

Figure 4-3 identifies the proportion of trips to destination zones for trips originating in the Town of Amherstburg. The figure illustrates that close to quarter of all trips originating from the Town end up in the City of Windsor. The largest proportion of origin trips are ending in Town's downtown core (31%) and an additional 8% end within the rest of the Town. The Town of Essex is the second largest destination attraction after the City of Windsor for trips originating from the Town at 14% while other nearby towns within Essex County contribute the remaining trip destinations. The remaining 4% of trips are destined for areas outside of the Essex County and the Municipality of Chatham-Kent, primarily to other areas of the province.

Figure 4-3: Destination for trips originating in Amherstburg



4.4 Traffic Capacity

The traffic capacity analysis identifies how well study area intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the Level-of-Service (LOS) is a measure of the average delay for each turning movement.

The HCM level of service criteria, as shown in **Table 4-2** were used in representing the expected delays for both the existing and future conditions.

Table 4-2: HCM Intersection Level of Service Criteria

Level of Service	Intersection Delay Criteria (seconds/vehicle)	
	Signalized	**Stop-Controlled**
A	≤ 10	≤ 10
B	> 10.0 and ≤ 20.0	> 10.0 and ≤ 15.0
C	> 20.0 and ≤ 35.0	> 15.0 and ≤ 25.0
D	> 35.0 and ≤ 55.0	> 25.0 and ≤ 35.0
E	> 55.0 and ≤ 80.0	> 35.0 and ≤ 50.0
F	< 80.0	> 50

Source: Highway Capacity Manual, 6th Edition, 2010

The effectiveness of an intersection's traffic operations is measured in terms of average vehicular delay, the volume to capacity ratio (v/c), and vehicle queuing. The LOS ranges from LOS 'A' to LOS 'F'; LOS 'A' is the 'best' level of operation for an intersection representing little or no delay and generally free flow conditions where the general level of comfort and convenience experienced by motorists is excellent. At the other end of the spectrum, LOS 'F' often represents an at- and over-capacity condition usually associated with heavy congestion, and occasionally severe peak period delays and queuing.

The analysis found within this report includes identification of all intersections and for all movements; v/c ratios, and LOS indicators. Due to the absence of a municipal guideline, critical intersections and movements shall be highlighted (**in bold**) based on the City of Windsor's Transportation Impact Study Guidelines. While TIS Guidelines are similar across the province, the utilization of the nearest local guideline is an industry-standard practice to ensure regional characteristics and area expectations are applied to the study. Based on this benchmark, 'critical' intersections and movements considered for this TMP traffic analysis include:

- Unsignalized intersections:
    - any movement with level of service "E" or worse.
- Signalized intersections:
    - any movement with level of service "F".
    - through movements and shared through/turning movements: any movement with v/c of 0.85 or higher.
    - Exclusive turning movements: any movement with v/c of 1.0 or higher.

Note that the Signal Timing Plans (STP) of the intersections listed in **Table 4-3** had amber phases less than the minimum 2 seconds required for Synchro. Therefore, a lost time adjustment was applied to comply with their STP accordingly, and the calibration has been carried forward to all future scenarios:

Table 4-3: Amber phase – Lost Time Adjustment

Intersection	Movement	Amber Phase in STP	Lost Time Adjustment
Sandwich Street South & Simcoe Street	SBL	1.5 s	-0.5 s
Sandwich Street South & Pickering Drive	NBL	1.0 s	-1.0 s
	SBL	1.0 s	-1.0 s

The following tables summarize the Synchro/HCM and queuing results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2023), future conditions (2028, 2033, and 2040) traffic conditions. Detailed Synchro reports for existing and future conditions are enclosed in **Appendix A, E, F, and G.**

Existing 2023 Traffic Operations Analysis

The traffic capacity analysis results for the study area intersections are summarized in **Table 4-4** for both the weekday a.m. and p.m. peak hours under 2023 existing traffic conditions. Applicable existing signal timing plans were obtained from the Town.

Table 4-4: Existing Conditions - 2023 Traffic Operation Results (weekday AM/PM)

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Front Road North/Front Road North & Middle Side Road (Signalized)	*Overall*	*0.34*	*9*	*A*	*0.46*	*9*	*A*
	WBLR	0.31	16	B	0.31	18	B
	NBT	0.35	7	A	0.24	6	A
	NBR	0.05	6	A	0.07	6	A
	SBTL	0.22	7	A	0.52	9	A
Front Road North & Texas Road (Signalized)	*Overall*	*0.27*	*7*	*A*	*0.34*	*7*	*A*
	WBL	0.36	19	B	0.31	19	B
	WBR	0.02	18	B	0.02	18	B
	NBTR	0.25	5	A	0.27	5	A
	SBTL	0.20	5	A	0.35	6	A
Sandwich Street South/Sandwich Street North & Alma Street (Signalized)	*Overall*	*0.40*	*11*	*B*	*0.57*	*12*	*B*
	EBLTR	0.17	22	C	0.18	23	C
	WBTL	0.43	26	C	0.59	29	C
	WBR	0.10	22	C	0.05	22	C
	NBL	0.01	7	A	0.01	8	A
	NBT	0.38	10	A	0.50	12	B
	NBR	0.06	7	A	0.10	8	A
	SBL	0.15	5	A	0.24	5	A
	SBTR	0.33	6	A	0.51	8	A
Sandwich Street South & Richmond Street (Signalized)	*Overall*	*0.34*	*17*	*B*	*0.51*	*21*	*C*
	EBL	0.10	17	B	0.24	17	B
	EBT	0.04	16	B	0.08	16	B
	EBR	0.00	16	B	0.02	15	B
	WBLTR	0.34	24	C	0.43	25	C
	NBL	0.04	13	B	0.06	16	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	NBT	0.39	18	B	0.66	25	C
	NBR	0.01	14	B	0.04	16	B
	SBL	0.07	10	B	0.21	13	B
	SBT	0.37	16	B	0.58	20	B
	SBR	0.05	13	B	0.06	13	B
Sandwich Street South & Simcoe Street (Signalized)	*Overall*	*0.40*	*10*	*B*	*0.58*	*12*	*B*
	EBLTR	0.04	19	B	0.20	20	B
	WBLTR	0.44	21	C	0.52	23	C
	NBL	0.00	0	-	0.01	8	A
	NBTR	0.41	10	A	0.62	14	B
	SBL	0.07	4	A	0.12	5	A
	SBTR	0.22	5	A	0.43	7	A
Sandwich Street South & Pickering Street (Signalized)	*Overall*	*0.29*	*9*	*A*	*0.47*	*14*	*B*
	EBL	0.21	25	C	0.47	25	C
	EBTR	0.07	24	C	0.23	22	C
	WBLTR	0.37	26	C	0.31	23	C
	NBL	0.04	3	A	0.07	5	A
	NBTR	0.29	6	A	0.42	10	A
	SBL	0.02	3	A	0.06	5	A
	SBTR	0.28	6	A	0.53	11	B
Fryer Street & Simcoe Street (Signalized)	*Overall*	*0.20*	*14*	*B*	*0.18*	*13*	*B*
	EBLTR	0.22	14	B	0.19	14	B
	WBLTR	0.14	14	B	0.10	13	B
	NBLTR	0.18	13	B	0.16	13	B
	SBLTR	0.16	13	B	0.17	13	B
Front Road North & Valley Road/Malden Road (Signalized)	*Overall*	*0.33*	*13*	*B*	*0.34*	*13*	*B*
	EBLTR	-	-	-	-	-	-
	WBL	0.13	11	B	0.15	12	B
	WBR	0.04	11	B	0.05	11	B
	NBTL	0.53	14	B	0.32	12	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	NBR	0.06	11	B	0.06	11	B
	SBL	0.23	14	B	0.21	13	B
	SBTR	0.21	12	B	0.53	14	B
Howard Avenue & Pike Road (Signalized)	*Overall*	*0.25*	*11*	*B*	*0.31*	*12*	*B*
	EBLTR	0.17	11	B	0.13	10	B
	WBLTR	0.14	10	B	0.23	11	B
	NBLTR	0.32	12	B	0.17	11	B
	SBLTR	0.17	11	B	0.39	13	B
Sandwich Street South & Fort Street (Stop-controlled)	WBL	0.05	16	C	0.23	32	D
	WBR	0.02	11	B	0.08	13	B
	NBTR	0.26	0	-	0.38	0	-
	SBL	0.01	8	A	0.02	9	A
	SBT	0.24	0	-	0.39	0	-
Sandwich Street South & North Street/Private Access (Stop-controlled)	EBLTR	0.03	15	C	0.17	27	D
	WBLTR	0.00	11	B	0.04	19	C
	NBL	0.00	8	A	0.01	9	A
	NBTR	0.25	0	-	0.35	0	-
	SBL	0.01	8	A	0.00	9	A
	SBTR	0.24	0	-	0.40	0	-
Sandwich Street South & Murray Street (Stop-controlled)	WBLTR	0.02	13	B	0.03	14	B
	NBL	0.01	8	A	0.02	9	A
	NBTR	0.21	0	-	0.32	0	-
	SBL	0.00	8	A	0.01	9	A
	SBTR	0.19	0	-	0.34	0	-
Sandwich Street South & Gore Street (Stop-controlled)	EBLTR	0.03	11	B	0.05	13	B
	WBL	0.00	13	B	0.01	15	C
	WBR	0.01	10	B	0.02	11	B
	NBTR	0.21	0	-	0.32	0	-
	SBL	0.01	8	A	0.01	9	A
	SBT	0.18	0	-	0.32	0	-

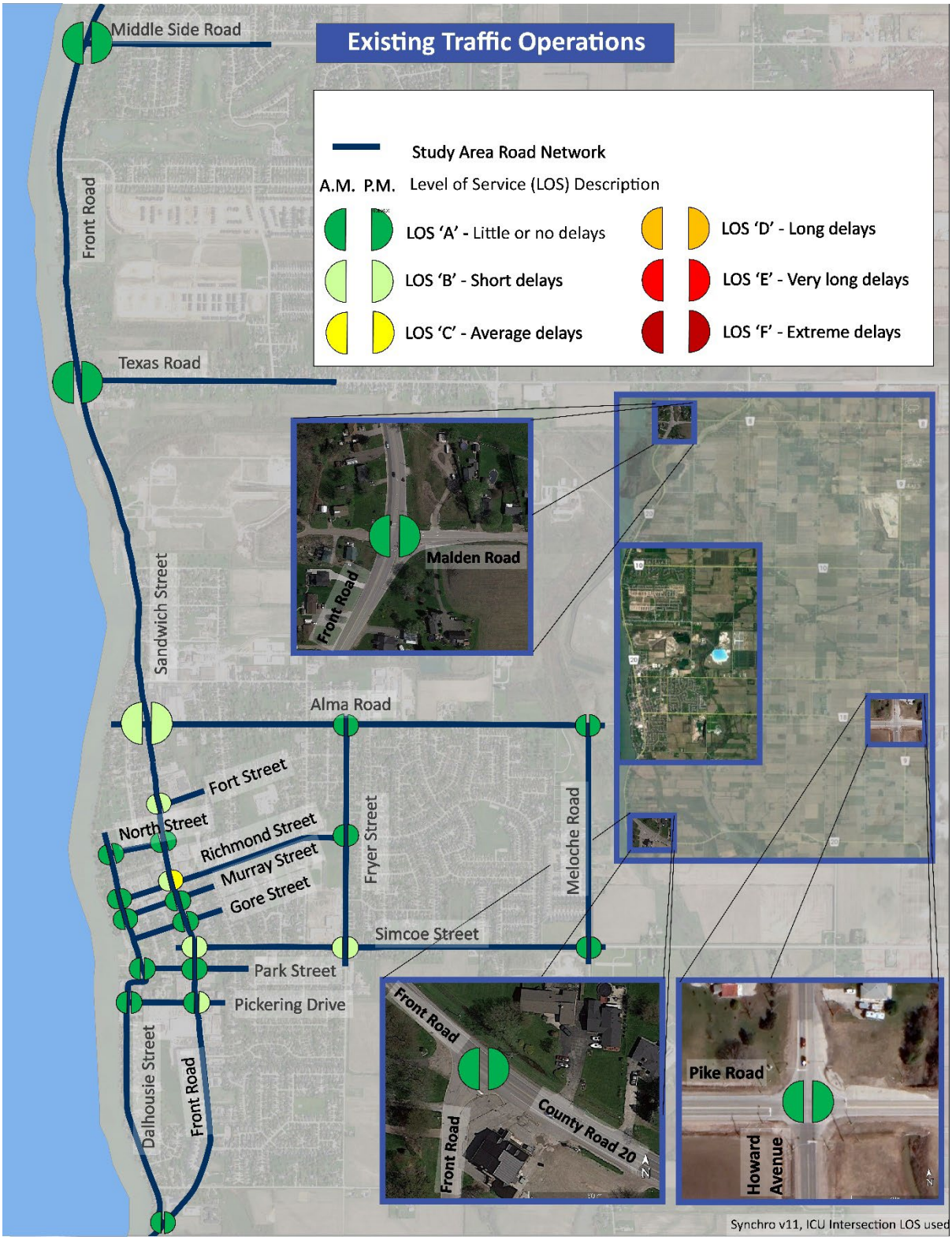
Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Sandwich Street South & Park Street (Stop-controlled)	EBLTR	0.03	12	B	0.09	17	C
	WBLTR	0.01	12	B	0.04	21	C
	NBL	0.01	8	A	0.02	9	A
	NBTR	0.23	0	-	0.33	0	-
	SBL	0.00	0	-	0.01	9	A
	SBTR	0.20	0	-	0.37	0	-
Sandwich Street South/Front Road South & Dalhousie Street (Stop-controlled)	EBLTR	0.02	10	B	0.07	10	B
	WBLTR	0.00	0	A	0.00	0	A
	NBL	0.01	7	A	0.01	8	A
	NBTR	0.11	0	-	0.08	0	-
	SBLTR	0.00	0	-	0.00	0	-
Dalhousie Street & North Street (Stop-controlled)	WBLR	0.03	8	A	0.06	8	A
	NBTR	0.06	7	A	0.07	7	A
	SBLT	0.02	7	A	0.03	7	A
Dalhousie Street & Richmond Street (Stop-controlled)	WBLR	0.08	8	A	0.14	8	A
	NBTR	0.10	7	A	0.14	8	A
	SBLT	0.05	8	A	0.13	8	A
Dalhousie Street & Pickering Street (Stop-controlled)	WBLR	0.07	7	A	0.12	10	A
	NBTR	0.04	0	-	0.03	0	-
	SBLT	0.02	4	A	0.04	4	A
Meloche Road & Simcoe Street/Pike Road (Stop-controlled)	EBLTR	0.01	1	A	0.01	1	A
	WBLTR	0.02	2	A	0.04	3	A
	NBLTR	0.07	10	B	0.13	11	B
	SBLTR	0.08	11	B	0.12	11	B
County Road 20 & Front Road South (Stop-controlled)	EBLR	0.07	10	A	0.07	11	B
	NBTR	0.01	1	A	0.01	1	A
	SBLT	0.06	0	-	0.14	0	-
Meloche Road & Alma Street (Stop-controlled)	EBTR	0.11	0	-	0.16	0	-
	WBLT	0.01	1	A	0.04	1	A
	NBLR	0.08	11	B	0.17	14	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Dalhousie Stret & Murray Street (Stop-controlled)	WBLR	0.01	8	A	0.04	7	A
	NBT	0.09	8	A	0.09	8	A
	SBT	0.08	7	A	0.14	8	A
Dalhousie Street & Park Street (Stop-controlled)	EBLTR	0.04	10	A	0.03	11	B
	WBLTR	0.03	9	A	0.06	10	B
	NBLTR	0.00	0	-	0.00	0	-
	SBLT	0.00	1	A	0.01	1	A
	SBR	0.00	0	-	0.00	0	-
Fryer Street & Richmond Street (Stop-controlled)	EBLTR	0.18	10	A	0.22	9	A
	WBLTR	0.36	11	B	0.20	9	A
	NBLTR	0.28	10	B	0.19	9	A
	SBLTR	0.29	10	B	0.22	9	A
Fryer Street/Tofflemire Street & Alma Street (Stop-controlled)	EBLTR	0.00	0	A	0.00	0	A
	WBLTR	0.11	3	A	0.05	2	A
	NBLTR	0.45	20	C	0.18	14	B
	SBLTR	0.09	20	C	0.04	15	B

Under existing conditions, all study area intersections are operating well overall within capacity and acceptable delays during both the weekday a.m. and p.m. peak hours. Overall intersections are operating with LOS D or better during the peak hour.

Figure 4-4 illustrates the traffic operations of study intersections within the existing conditions traffic model.

Figure 4-4: Existing Traffic Operations



4.5 Safety

4.5.1 Collision Data

Collision history data was obtained from the Town and local law enforcement to assess the safety of study area roadways. From 2019 to 2021, Amherstburg saw 172 collisions that involved injury and four fatal collisions. **Table 4-5** provides a summary of the fatal crashes.

Downtown Amherstburg has higher traffic volumes has and is the reason it represents higher collisions than the rest of the Town. **Figure 4-5, Figure 4-6, Figure 4-7, and Figure 4-8** show collision locations and the number of collisions at each location in Amherstburg from 2019 to 2021.

Table 4-5: Summary of Fatal Crashes

Occurrence Date	Time	Collision Location	In Parking Lot
8/29/2019	20:45	3rd Concession Road North at County 10 Road	No
2/26/2020	01:11	4th Concession Road North at County 8 Road	No
11/4/2020	17:25	Front Road North At Kingsbridge Drive	No
12/27/2021	06:25	7300 Block County Road 9	No

Detailed collision data is enclosed in **Appendix B**.

Figure 4-5: Collisions in Downtown Amherstburg

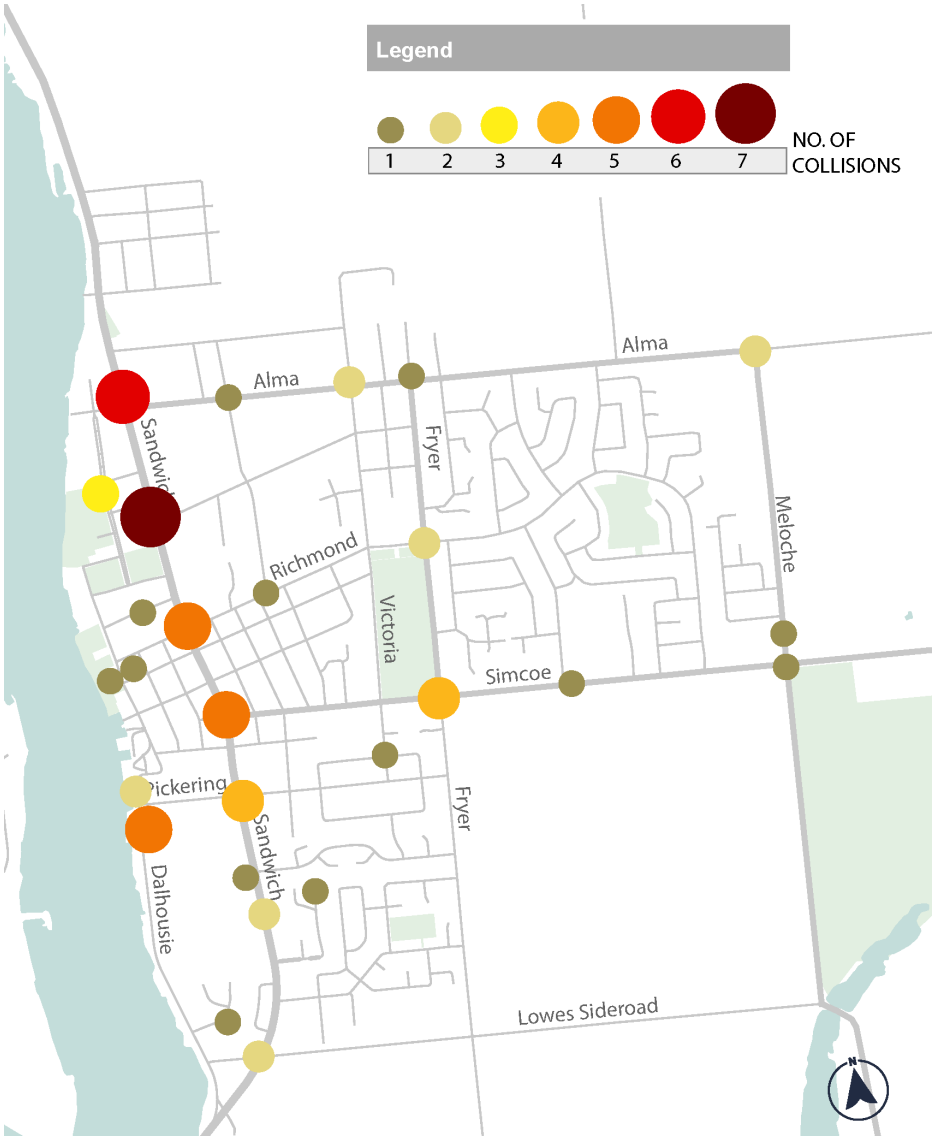


Figure 4-6: North of Downtown Amherstburg Collisions

Figure 4-7: North Amherstburg Collisions

Figure 4-8: Amherstburg East and South of Downtown Collisions

4.5.2 Speed Data

Speed data was obtained by TYLin's data analytics software and is summarized below based on the measured 85th percentile speeds on all municipal roadways. The 85th percentile speed is the speed at or below which 85 percent of the drivers travel on a road segment. Motorists traveling above the 85th percentile speed are considered to be exceeding the safe and reasonable speed for road and traffic conditions.

Generally, 85th percentile speeds are generally higher in the rural areas than in the core. This is a natural tendency as rural roads tend to be longer, straighter and have lower traffic volumes than in downtown areas. As expected, the core of Amherstburg has higher traffic volumes but fairly low 85th percentile speeds which can be attributed to a less car-oriented road design with narrower streets and smaller blocks. The downtown area also has higher traffic volumes, more frequent traffic control devices and a higher volume of pedestrians than rural areas. Many of the streets in the downtown core have 85th percentile speeds of less than 40 km/h and some, even less than 30 km/h. Higher 85th percentile speeds are observed on the major east-west and north-south streets in Amherstburg.

Table 4-6 provides a comparison of the posted speed limit and the 85th percentile speeds on the major roads of the Town. The 85th percentile speeds that are higher than the posted speed limit by more than 5 km/hr, are **bolded below.**

Table 4-6: Posted Speed Vs 85th Percentile Speed

	Posted Speed Limit (km/hr)	85th Percentile AM (km/hr)	85th Percentile PM (km/hr)	Overall 85th Percentile Weekday (km/hr)	Overall 85th Percentile Weekend (km/hr)
Major East- West Roads					
Essex Townline Road – County Road 8	80	82	**89**	85	**87**
North Side Road	70	68	66	69	69
Middle Side Road	60/80	**87**	**88**	**86**	**90**
Texas Road	50/80	**88**		**88**	
Alma Street (west of Meloche)	50	**56**	**58**	**56**	**60**
Alma Street (east of Meloche)	80	82	79	81	85
Simcoe Street	50	**59**	47	51	54
Lowes Side Road	50	55	49	52	51
Pike Road	80	82	82	84	84

County Road 20	80	**89**	81	83	**88**
Major North-South Roads					
Sandwich Street	50	**59**	**59**	**58**	**60**
Front Street North	70	**81**	**80**	**80**	**79**
Front Street South	70	73	74	73	74
Fryer Street	40	**56**	**51**	**54**	43
Meloche Road (between Alma and Simcoe)	60	56	57	56	60
Meloche Road (between Simcoe and Lowes Side Road)	50	54	52	52	**56**
Concession Road 2	70	**79**	74	75	75
Concession Road 3	80	75	67	74	79
Concession Road 4	80	82	72	81	62
Concession Road 5	80	87	74	77	80
Concession Road 6	80	80	55	70	72
Walker Road	50/80	82	85	83	84
Malden Road/Smith Road	50/80	**95**	**87**	**90**	**91**
Thomas Road	60	66	**67**	**66**	**68**
County Road 50	50/60/80	**91**	**86**	**87**	84
County Road 41	80	73	74	72	**87**
Creek Road	60	**78**	**75**	**76**	**77**

Figure 4-9 and Figure 4-10 show the 85th percentile speeds on the roads of Amherstburg during the AM and PM peak hours respectively. **Figure 4-11 and Figure 4-12** show the overall average 85th percentile speeds during weekday and weekends, respectively. As visualized, the color gradient reflects average slower speeds in green and average faster speeds in red for all roadways in the Town.

Figure 4-9: Location of 85th Percentile Speed (AM Peak Hour)

Figure 4-10: Location of 85th Percentile Speed (PM Peak Hour)

Figure 4-11: Overall Weekday 85th Percentile Speed

Figure 4-12: Overall Weekend 85th Percentile Speed

4.6 Heavy Vehicle Network

Figure 4-13 showcases the existing road network in the Town and **Table 4-7** lists the roadways which permit heavy vehicle passage, also known as Truck Routes. Simcoe Street (County Road 18), Sandwich Street (County Road 20) and Alma Street are the major roads amongst the highlighted truck routes which provide access to and from the downtown core. The remaining roads, Meloche Road, Park Street and Victoria Street North provide local access to communities within the Town.

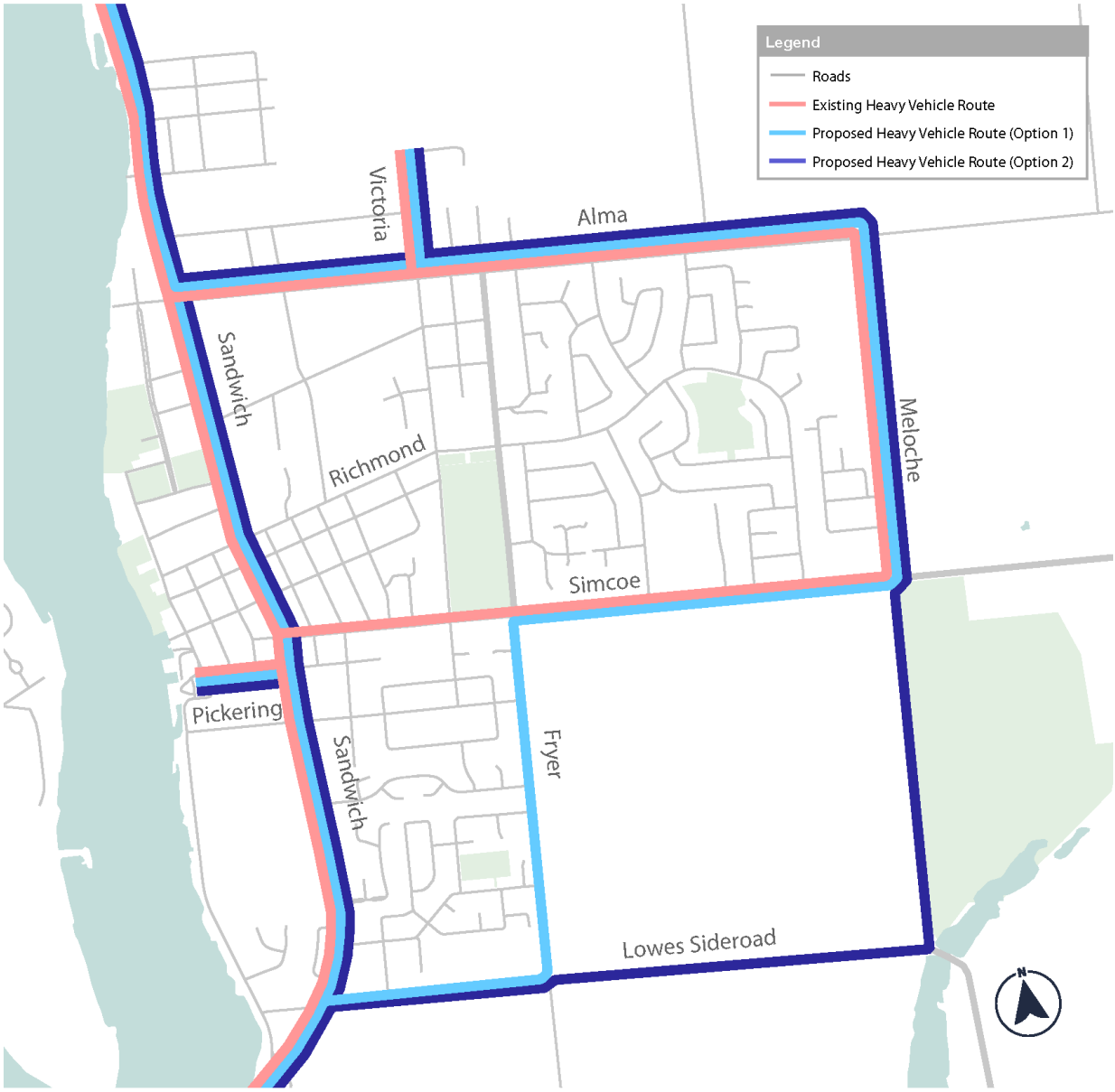
Table 4-7: Existing Heavy Vehicles / Truck Routes

Roadway	FROM	TO
Sandwich Street	Northerly limit	Southerly limit
Alma Street	Sandwich Street	Meloche Road
Simcoe Street	Sandwich Street	Easterly limit
Meloche Road	Simcoe Street	Alma Street
Park Street	Sandwich Street South	Dalhousie Street
Victoria Street North	Alma Street	Northerly limit

Additionally, **Figure 4-13** also indicates two potential heavy vehicle route options. Option 1 and 2 will realign heavy vehicle routes to serve the south-east quadrant of the Town where future development is expected within the next five years. This re-allocation of the heavy vehicle road network is contingent upon infrastructure upgrades along Lowes Sideroad, Fryer Street, and Meloche Street, which are not currently build to withstand intensive use by heavy trucks and other vehicles.

The selection of Option 1 versus Option 2 is dependant on the timing of infrastructure upgrades and the timing of forecasted development growth in the block bounded by Fryer Street to the west, Simcoe Street to the north, Meloche Street to the west, and Lowes Sideroad to the south.

Figure 4-13: Existing & Proposed Heavy Vehicle Road Network



4.7 Parking

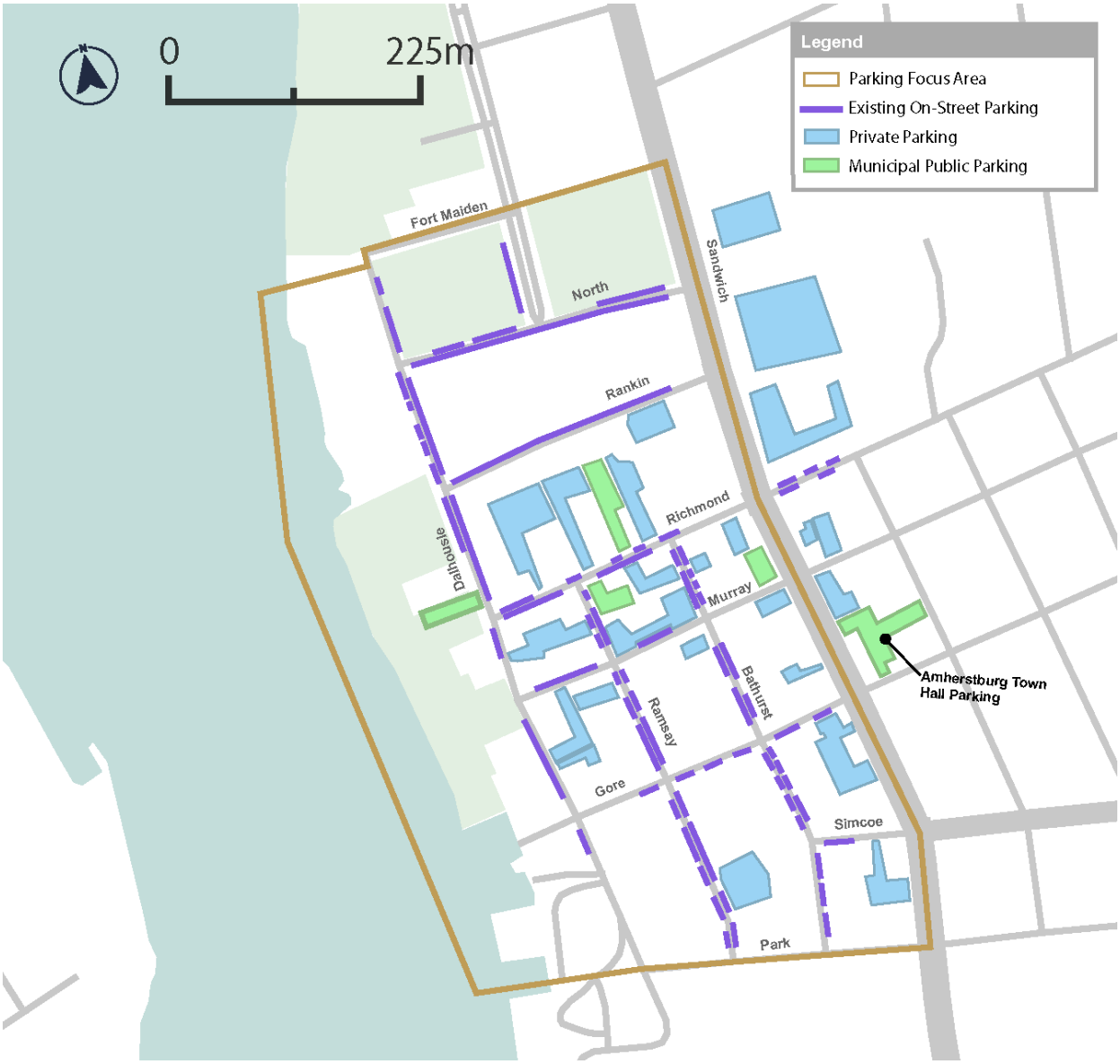
It is noted that there is a significant number of on-street parking spaces, and several off-street lots in Downtown Amherstburg. Currently, off-street parking demand does not exceed capacity, except during events. On-street parking is well distributed throughout the Town, allowing users to easily find a parking space within an acceptable walking distance (less than 5 to 10 minutes) to their destination. Private off-street parking is also abundant in the Town center. **Figure 4-14** illustrates the existing parking conditions in the focus area.

To improve the walkability and accessibility in the Downtown Amherstburg, it is recommended that more space for sidewalks could be provided to promote a better pedestrian experience by converting select on-street parking spaces. In this scenario, it is considered that parking demand would likely reallocate to the nearest off-street parking lot within an acceptable walking distance for people already used to parking their vehicles on-street. Moreover, the provision of a better walking environment would add place value to the Downtown Core and encourage more users to walk to the downtown.

A few important road segments have been described below with regards to on-street parking in the Amherstburg downtown core:

- Richmond Street between Seymour Street and Sandwich Street South (parking on both sides of the road)
- Dalhousie Street (parking on both sides of the road)
- Dalhousie Street between Richmond Street and Rankin Avenue (parking on the west side)
- Dalhousie Street between Rankin Avenue and North Street (parking on both sides)
- Dalhousie Street between North Street and Fort Malden Drive (parking on the east side)
- North Street between Sandwich Street South and Dalhousie Street (parking on both sides)
- Laird Avenue South between Fort Malden Drive and North Street (parking on the west side)
- Rankin Avenue between Sandwich Street South and Dalhousie Street (parking on the north side of the road)
- Dalhousie Street between Richmond Street and Gore Street (parking on the west side)
- Ramsey Street between Richmond Street and Park Street (parking on both sides)
- Bathurst Street between Park Street and Simcoe Street (parking on the east side)
- Bathurst Street between Simcoe Street and Richmond Street (parking on both sides)
- Murray Street between Dalhousie Street and Bathurst Street (parking on the north side)

Figure 4-14: Existing Parking Conditions



4.8 Transit

A new bus route has been implemented as a pilot project in fall of 2022 in the Town in partnership with the City of Windsor. Route Amherstburg 605 (Amherstburg to Hôtel-Dieu Grace Healthcare Terminal) is a route operated by Transit Windsor. This pilot program was expected to last for two years and was ultimately formalized by Town Council in 2023 for permanent service in the Town.

Figure 4-15 illustrates the existing transit route in the Town.

Figure 4-15: Existing Route 605

Source: Windsor Transit

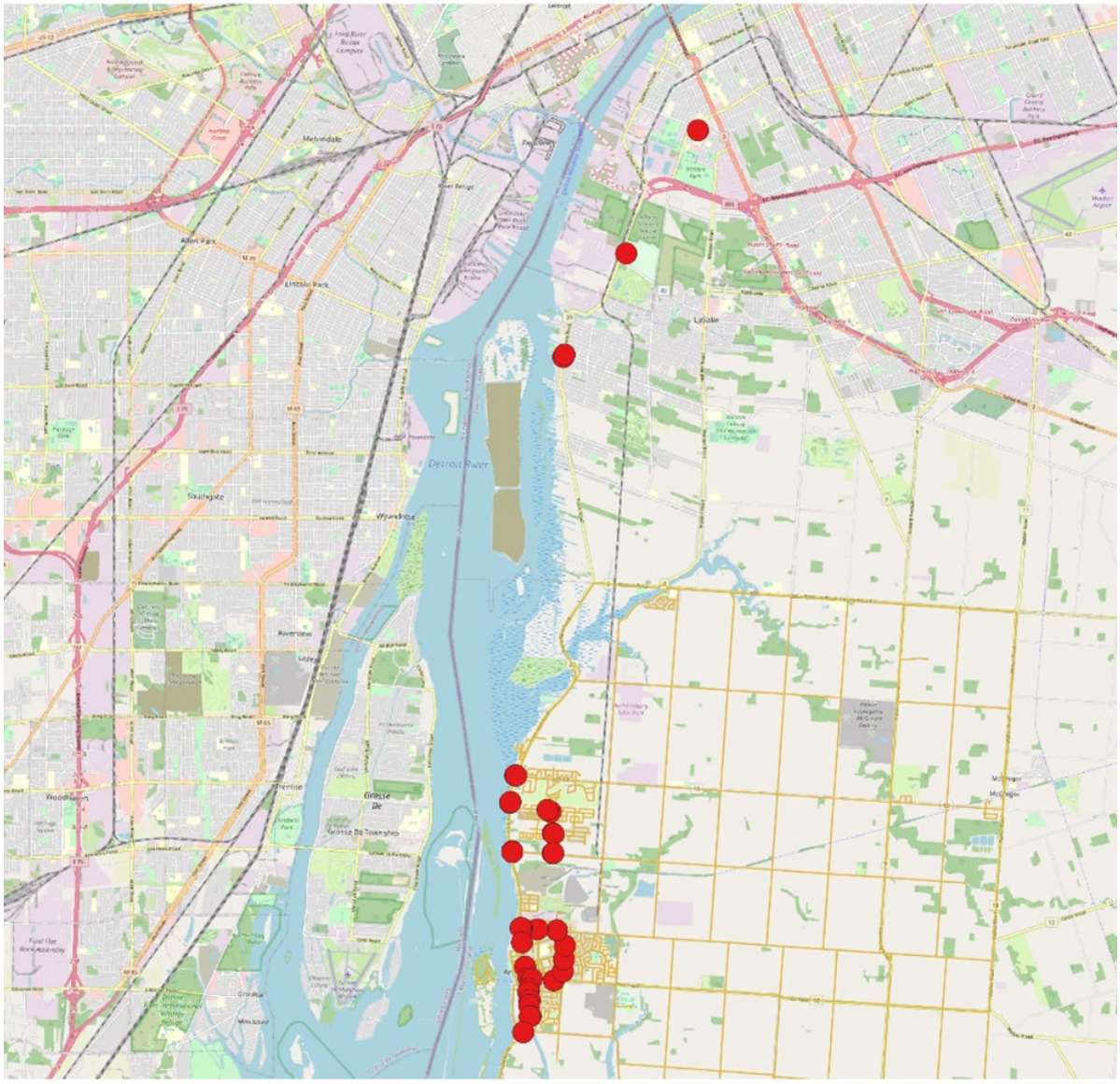
Transit Fares

As per the Town of Amherstburg website, single fares to ride the Route 605 bus cost $4.75. Cost-saving alternatives are available as well. Smart Cards are available for purchase and the cost per trip can drop to $4.00 per adult.

4.8.1 Schedule and Stops

Currently this route runs services three (3) times a day. During weekdays, the first service starts early morning at 6:00 am at the Hotel Dieu Grace Healthcare in Windsor. The second service resumes at 1:30 in the afternoon and the last one leaves Windsor at 6:00 pm. During Saturdays, Sundays and holidays, the hour of operation slightly changes but the frequency of three buses per day is kept the same. There are 16 bus stops in total and 9 major bus stops in the route, as per **Figure 4-16**.

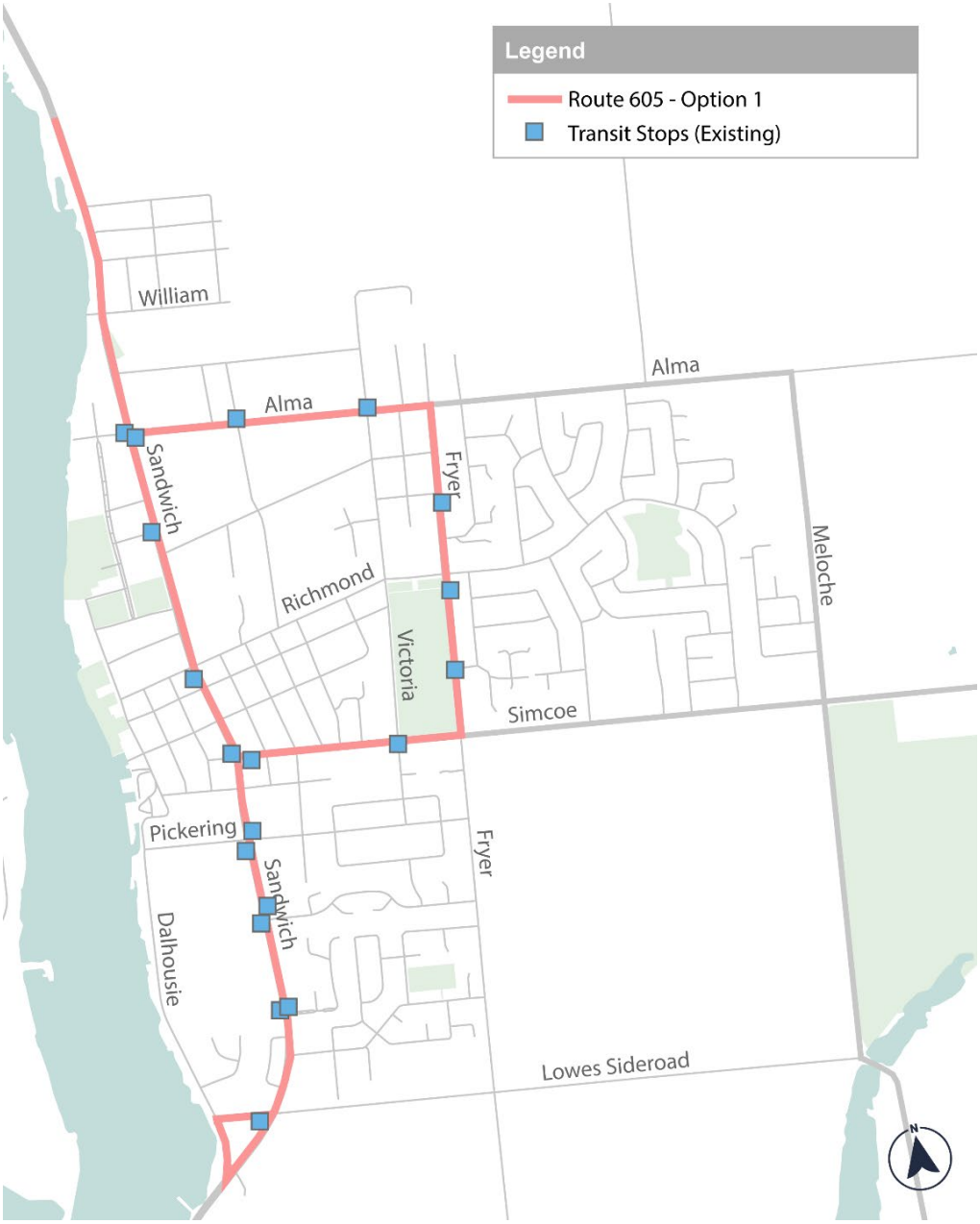
Figure 4-16: Existing Bus Stop Locations



The route runs in the North-South direction and the entire trip lasts about 40 to 50 minutes and service the Windsor western area, the Town of LaSalle and the Town of Amherstburg via Front Road North and Sandwich Street South. Maps, schedules, and route information can be found at the Windsor Transit website.

Figure 4-17 illustrates the existing bus service, Route 605, with the existing bus stops locations within the TMP Focus Area in the central core of Amherstburg.

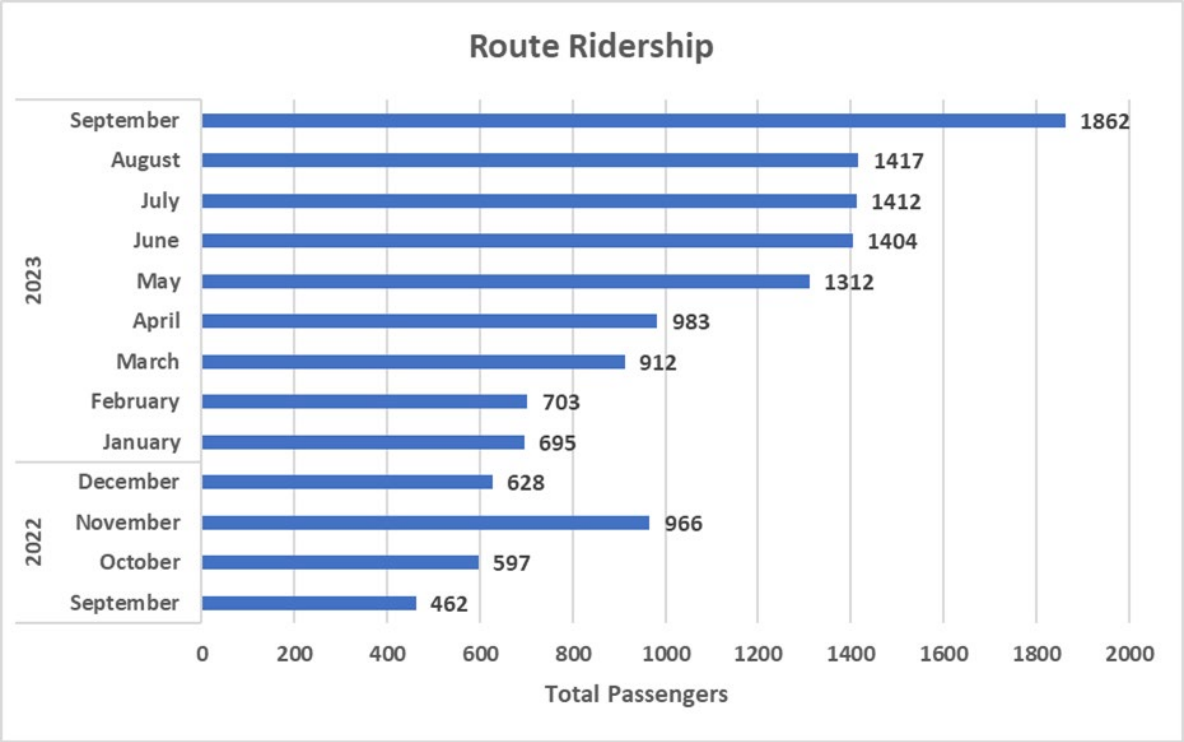
Figure 4-17: Existing Transit Stops & Route #605 Route



4.8.2 Ridership

In addition, data to date has been provided by the City of Windsor regarding the route ridership and shows an average of 1027 passengers per month using the route. According to **Figure 4-18**, the route saw an increase of passengers in the first few months and then a large drop in December 2022, with numbers continuing to grow from December 2022 to September 2023.

Figure 4-18: Route 605 Ridership to Date



4.8.3 Existing Bus Stop Infrastructure

The Town's existing bus stops currently lack shelters and amenities, which can be a deterrent in attracting transit ridership, particularly in harsh climate. There is an opportunity to take advantage of increasing transit ridership to formalize existing bus stops and invest in stop amenities to further increase transit usage and enhance the sustainability of the Town's transportation network. These recommendations are detailed in Section 5.

4.8.4 Regional Rail Connectivity

As detailed, Route 605 connects to the City of Windsor but is currently missing a key connection at the City's VIA rail station. VIA Rail offers service across the Province of Ontario and currently has four trains that serve Windsor daily. However, due to the lack of stop infrastructure, the transfer to the Town is inconvenient and not attractive for visitors who need to catch two buses (Route 2 and Route 605) to connect to and from the VIA Rail station. As a result, the travel time from VIA Rail station located in the City of Windsor to the Town of Amherstburg is approximately 1 hour and 30 minutes.

A long-term opportunity exists to utilize existing railway infrastructure between Windsor and Amherstburg to institute the provision of passenger rail service in the area. Currently the railway network that operates between Windsor and Amherstburg only provides freight services and could potentially be upgraded to service passengers as well. This opportunity is further explored in Section 5.4.4 with regards to future transit infrastructure considerations.

4.9 Active Transportation (AT) Review

The Town's urban area is connected to the rural lands and neighbouring municipalities by way of several major east-west corridors and a few key north-south corridors. The Town's goal is to encourage walking, cycling and accommodate needs for all commuters. This section will explore the current state of the AT infrastructures in Amherstburg.

Alma Street and Simcoe Street allow access for residents and visitors in and out of Amherstburg's settlement area from the east. County Road 10 (Middle Side Road) and County Road 20 are two other east-west corridors that link the neighbouring towns to other major roads in Amherstburg.

As noted in Section 4.1, within the urban area of Amherstburg, Dalhousie Street, Richmond Street, and Victoria Street South comprise the key collector roads within the Town's jurisdiction. The remainder of streets in Town are classified as local roads which have a nominal curb-to-curb width of 8.5 metres (allowing for one travel lane in each direction and a parking lane on both sides).

4.9.1 Existing Walking Network

Walking and using a wheelchair are the most basic ways people get around. This means that the system of paths and sidewalks for walking is very important in how we all move from one place to another. No matter how we choose to travel, there's a point at the beginning and end of our journey where we have to walk. Plus, walking or using a wheelchair is something everyone can do, no matter how old they are or whether they can drive or ride a bike. When we make sure that our community has a well-thought-out and well-designed network of paths and sidewalks, we make it easier and safer for people to get around. These paths are the first part of any trip, including walking to a parked car, and having smooth, accessible sidewalks is crucial for making an area easy to get around, especially for people with disabilities.

Sidewalks are generally present within the right-of-way (ROW) on most streets in the urban core and immediate surrounding areas. The area roughly bound by Alma Steet, Fryer Street, Pickering Street, and the Detroit River includes a large number of businesses; public buildings such as Town Hall and Essex County Library – Amherstburg Branch, several parks, and some of the town's elementary and high schools which can be accessed by the existing network.

However, a number of gaps in the sidewalk network have been noticed in the wider urban core (bound by Alma Street, Pickering Street, Fryer Street and the Detroit River) which include:

- Around Amherstburg Public School where sidewalks along Hamilton Drive are only available on one side of the roadway;
- Victoria Street where sidewalks only exist on one side of the street. Victoria Street is a key north-south link and provides a key spine for walkability (especially to key destinations such as parks and schools);
- Pickering Street where sidewalks are missing along the southern side. Although not as high a priority Simcoe Street, Pickering Street still forms a key east-west access for those travelling to the downtown area, especially for the residential areas bound by McCurdy Drive;

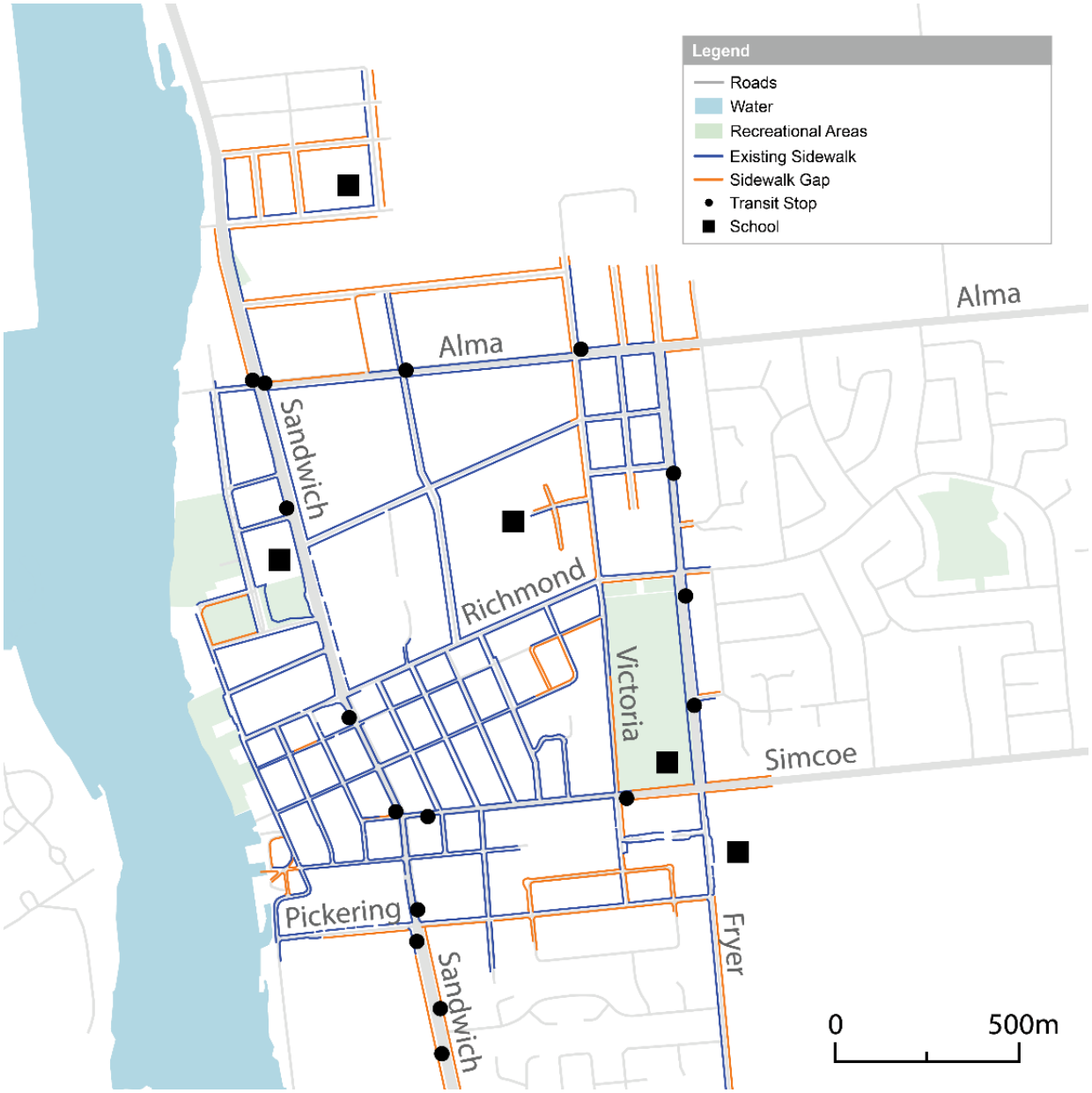
- Immediately around Austin "Toddy" Jones Park, which is an area-wide destination with high quality playground and green space. Sidewalks to access the park are limited to the eastern boundary, whereas a high-quality path (approximately 2.5 meters-wide) runs through the center of the park (see **Figure 4-19**).

Figure 4-19: Austin "Toddy" Jones Park (the lack of AT facilities)

Outside the downtown core but still within the urban area, there is a significant lack of sidewalks. The vast majority of streets in the suburban-style residential neighbourhoods have no sidewalks at all, while a few streets have a sidewalk on one side. These gaps undermine the walking network by negatively impacting cohesion and safety, two of the five principles of active transportation network planning and design.

Although residential speed limits are lower than on collector and arterial roads, the wide and clear style of road design and construction for residential areas allow for vehicle travel speeds faster than survivable speed limits for humans. Combined with less street lighting on residential streets, the risk of pedestrian-vehicle conflicts at non-survivable limits reduces overall safety for pedestrians, and thereby also makes walking less attractive. The gaps in the existing sidewalk network and the accessibility gaps to schools and transit stops within the urban core are shown in **Figure 4-20**.

Figure 4-20: Sidewalk and Accessibility Gaps



Trails and multi-use paths also provide pedestrian connections through parks and other natural settings, providing recreational opportunities while simultaneously connecting people to sidewalks within the ROW. Paved pathways exist in some locations such as Austin "Toddy" Jones Park, Amherstburg Public School, and Jack Purdie Park. Pedestrian priority crossovers and other crossing facilities (which are generally more amenable for those using strollers, children, and mobility devices) are rarely present which would make walking and wheeling safer and more convenient.

Crossings are an integral component of the walking network. Formal crossings allow pedestrians to be prioritized over modes of transportation and provide active users with a safe location to cross the street. Pedestrians are provided priority to cross the street at three crossing types:

- Signalized intersections
- Stop-controlled intersections
- Crosswalks formalized by pavement markings and signage (can be mid-block or at an intersection)

Stop-controlled intersections are abundant in Amherstburg, managing traffic right-of way and offering active users an opportunity to cross the street with priority over motor traffic. On the other hand, there are only five signalized intersections along Sandwich Street which allow pedestrians to formally cross the street:

- Alma Street
- In front of General Amherst High School
- Richmond Street
- Simcoe Street
- Pickering Street

The general spacing between these formal crossing opportunities along Sandwich Street range between 300 meters and 520 meters. These are considered to be spaced too far apart to be beneficial for users unable to cross mid-block (either due to age or ability) and would thus cause lengthy detours thereby detracting from walking and wheeling as a mode. Furthermore, this is compounded by the severing nature of Sandwich Street which acts as a key north-south link for motor traffic and includes three lanes (two travel lanes and a center turning lane). Pedestrian pushbuttons are provided for users to activate the walk signal at signalized intersections. Existing formal pedestrian crossing opportunities in the Town are shown in **Figure 4-21**. The distance between the existing formal pedestrian crossings along Sandwich Street is shown in **Figure 4-22**.

Stop-controlled intersections are the most common type of intersection in the Town, providing pedestrians the ROW to cross. Despite the abundance of these intersections, there is a relatively small number of all-way stop intersections. On the other hand, the majority of intersections in Amherstburg are two-way stop control with vehicles from the minor side streets being required to stop and wait for a gap in traffic to proceed to cross or merge onto the higher order street. While this design enables more efficient traffic flow, it can present barriers to active users needing to cross as they only have the right of way across the minor streets. If they wish to cross the higher order street, they must wait for a gap in traffic and judge the size of the gap and speed of traffic to determine if it is safe to cross.

Unsignalized pedestrian priority crossovers are the final type of pedestrian crossing present in Amherstburg. Within the urban core, only one is located along Richmond Street which provides access to the pedestrian path leading to Amherstburg Public School, which is served by a crossing guard during school hours.

Figure 4-21: Location of Formal Pedestrian Crossings

Figure 4-22: Distance between Formal Crossing Locations along Sandwich Street

4.9.2 Quality of Walking Environment

Sidewalks within Amherstburg are generally 1.5-metres wide (as noted in aerial imagery and site visits). Whilst this standard allows for two pedestrians to pass each other, the limited width does not provide a comfortable walking environment during events when foot traffic is higher, nor does it allow for passing between strollers and wheelchairs. It is also noted that a number of sidewalks within the historic areas of the Town are limited to non-curb treatments which provide little separation and protection from errant vehicles and also do not dissuade parking encroachment thereby reducing effective width and attractiveness. This is noted for Dalhousie Street in **Figure 4-23** (north of Rankin Street) and adjoining streets.

Figure 4-23: Non-curb sidewalk treatment on Dalhousie Street

Source: Google Streets Images

Tree canopy coverage over sidewalks is limited within the downtown area, especially along Sandwich Street (see **Figure 4-24**), Dalhousie Street (south of Rankin Street), and adjoining streets that have higher place value. Urban trees provide multiple benefits for users which make walking environments more amenable:

- Wind breaks to ameliorate wind tunnel effects on streets;
- Shade coverage that cools sidewalks by multiple degrees during hot periods (generally in the summer);
- Canopy coverage that provides some shelter during rain events (as well as reduced rain run-off rate);
- Adds visual amenity to a streetscape through introduced interest items thereby making perceived walking distances shorter;
- Provides a buffer between motor traffic and pedestrians when placed between sidewalks and the roadway, thereby reducing visual and noise pollution from motor traffic.

Figure 4-24: Sandwich Street indicating a lack of urban tree canopy across sidewalk

Finally, walking environments with higher volume of traffic can lead to perceptions of longer walking distances which deter people from walking (regardless of single mode or as part of a trip chain). A walking environment that is not pedestrian friendly can be caused by a number of factors, including:

- High traffic speeds and volumes
- Insufficient separation between pedestrians and motor traffic (especially for higher speed roads)
- Insufficient visual interest
- Insufficient shade / canopy coverage
- Insufficient crossing opportunities
- A combination of the above

Pedestrian infrastructure & Parking

Notably, there is also a perceived issue of parking shortfall (and driving access to the downtown) during peak tourism periods and events from community responses. Considered within the context of the walking environment, improvements for walking amenity can shift perceptions towards positive last mile walking access to the downtown core, as well as encourage users to park further away which also has indirect benefits in reducing urban congestion.

4.9.3 Existing Cycling Network

Cycling networks typically cater to two user types: recreational and utility cyclists. These users have different needs and desires and value different aspects of the five principles of AT network planning and design. Recreational cyclists tend to prefer routes that are attractive and comfortable, creating an enjoyable experience. Utility cyclists tend to place greater importance on directness and cohesion so they can travel between origins and destinations quickly and easily. Safety is an important aspect for both users.

The Town's cycling network, shown in **Figure 4-25** and **Figure 4-26** are currently a mix of facility types including signed routes, paved shoulders, painted bike lanes, bidirectional multi-use paths (MUPs), and trails. As such, there are a variety of conditions within the Town with some streets requiring cyclists to share the road with vehicles (either within the vehicle lane or in a dedicated bike lane beside the vehicle lane) and some streets offering separated facilities.

The Cypher Systems Group Greenway offers recreational cyclists for all ages and abilities (AAA) facility. This route begins off Concession Road 2, south of Texas Road, and connects users to the Town of Essex by way of a gravel trail over 20 km in length. Aside from this trail, MUPs on Meloche Road, Texas Road, Alma Street, and Fryer Street are the only other AAA facilities available in the town. While the separation from motor traffic makes them attractive for visitors and residents looking for opportunities to exercise and spend time outside, these routes do not connect many major origins and destinations and are not well connected to each other, limiting their potential.

Overall, existing facilities in Amherstburg are sporadic and disconnected and do not serve either recreational or utility cyclists. In addition, the on-road facilities that are provided are not appropriate given the existing traffic environment as cyclists must share the roadway with vehicles on high-speed and volume roadways.

Figure 4-25: Existing Bike Facilities

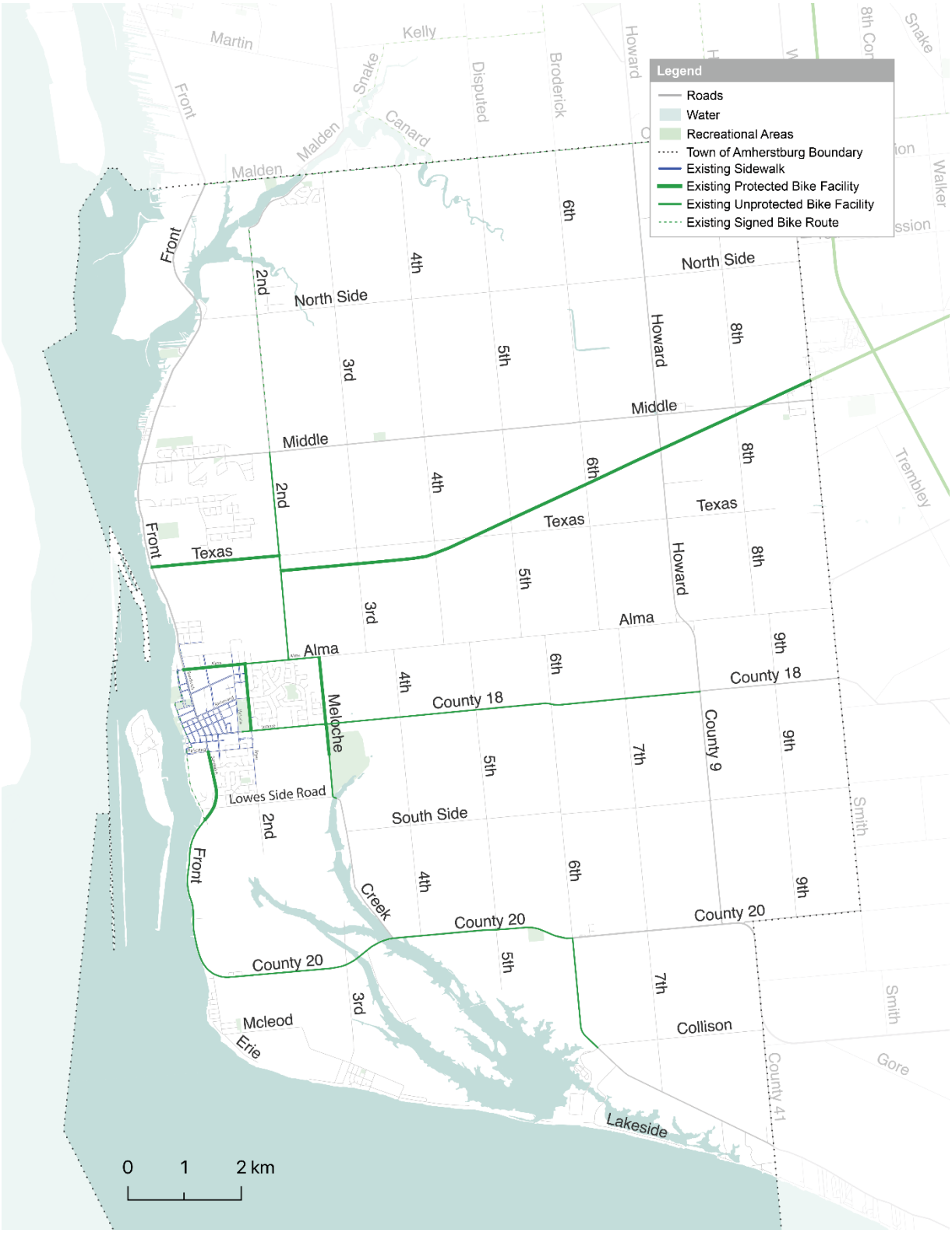
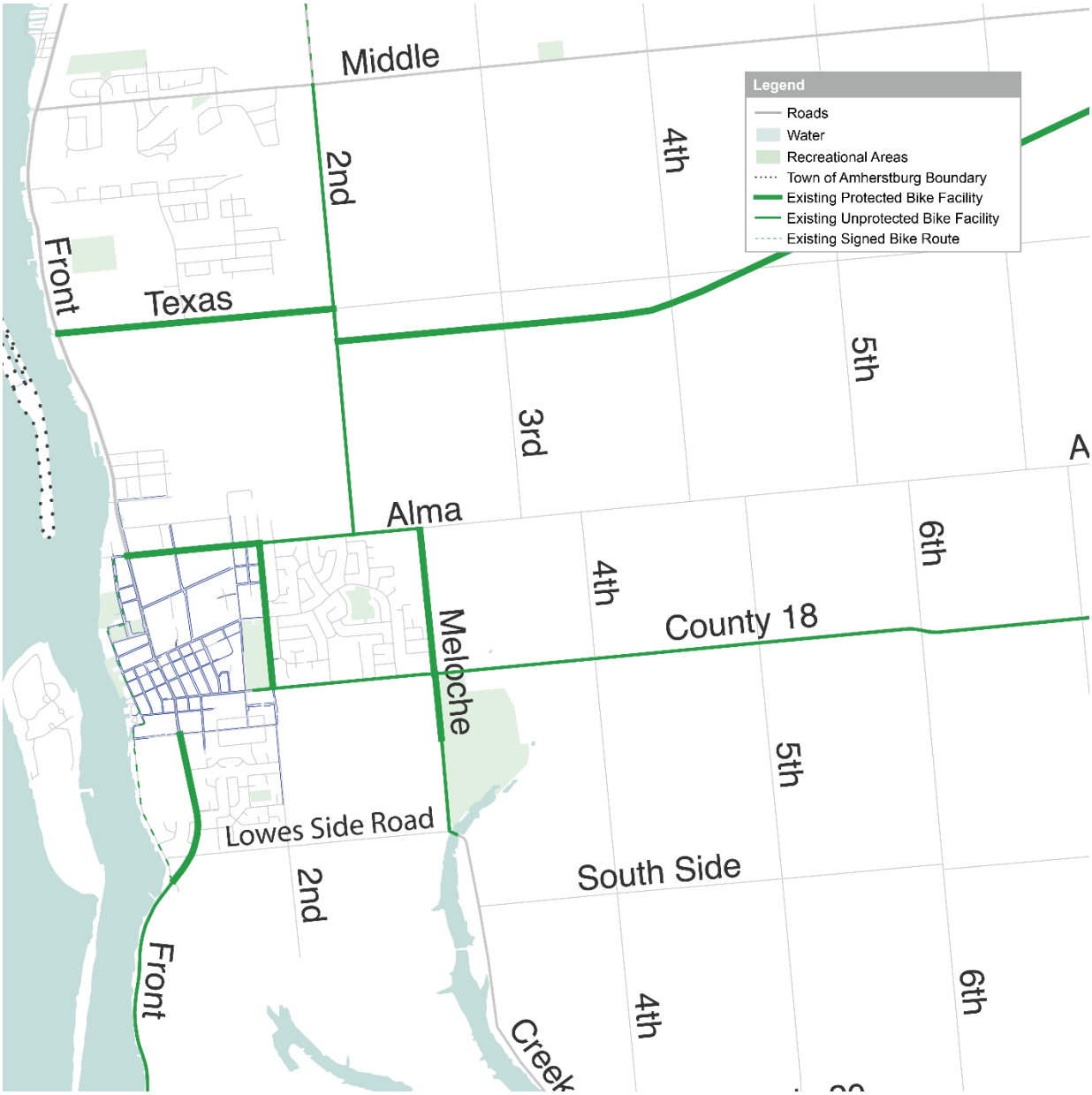


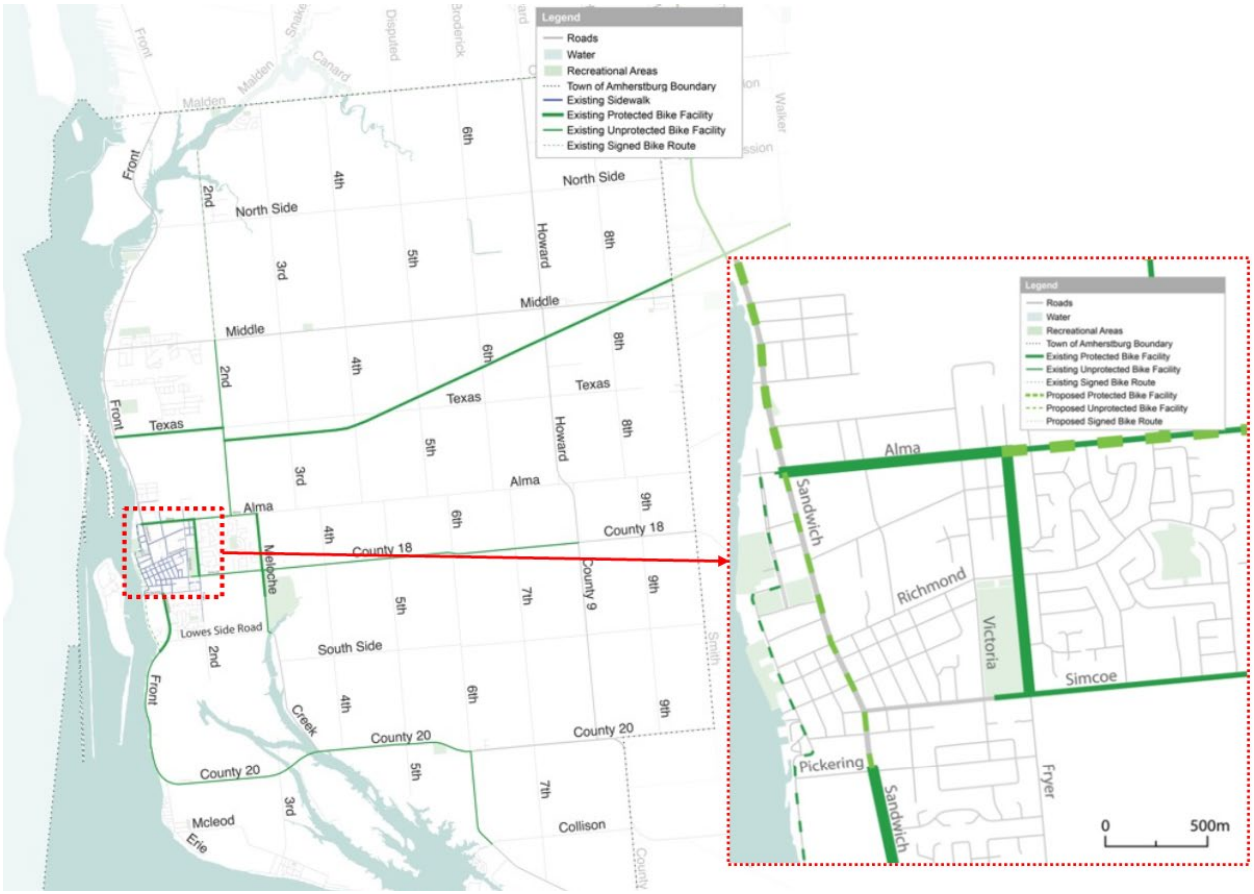
Figure 4-26: Existing Bike Facilities (Downtown)



The County is seeking to remedy this problem through the development of a new County Wide Active Transportation System (CWATS) Master Plan Update. The update includes a proposed cycling network for Amherstburg and the County as a whole, to be implemented in the coming 10 to 20 years. The proposed network intends to close gaps in the existing network by implementing a variety of cycling facility types. A north-south spine route is planned for Sandwich Street with bike lanes and separated bike lanes providing dedicated facilities for users. A MUP extension is also identified for Alma Street and Thomas Road to connect to Texas Road. Additional signed routes and paved shoulders are also proposed for the rural area of Amherstburg.

The improvements identified in the CWATS Master Plan Update do not provide sufficient facilities and connections within the urban area of Amherstburg. The development of the Town's cycling network will need to focus on the key origins and destinations within the Town and seek opportunities for integration with the CWATS while ensuring the local network adheres to the five principles of active transportation planning and design. The current planned cycling routes as per CWATS is presented in **Figure 4-27**.

Figure 4-27: County Wide Active Transportation System (CWATS)



4.9.4 Key Places - Origins

Amherstburg can be broken down into neighbourhood units bound by major streets. These neighbourhoods are largely residential in nature and mainly comprised of single-family homes. There are a few neighbourhoods surrounding the town's major commercial areas as well as other residential settlements like Amherst Pointe, Willow Beach, and Edgewater Beach. Although they include some key destinations such as schools and parks, these neighbourhoods mainly serve as origins in the transportation network as the vast majority of trips begin or end at one's home.

4.9.5 Destinations – Commercial Areas

Downtown Amherstburg generally falls within the bounds of Rankin Avenue to the north, Gore Street to the south, Sandwich Street to the east, and the Detroit River to the west. The downtown is recognized as one of the Town's primary commercial districts and is home to several shops, services, and employment opportunities. Downtown Amherstburg is also home to the Town's waterfront – King's Navy Yard Park – which offers pedestrian paths and views of the Detroit River.

As discussed in Section **3.6**, the Town has hosted Amherstburg Open Air Weekends every weekend from June to September. For this event, three blocks of the downtown are closed to vehicles and the streets are opened for active users, restaurant patios, markets, and live entertainment. This weekly event has seen great success and draws large numbers of residents and visitors into the downtown. As such, this, in addition to the permanent shops and services, will make the downtown area a key draw for users of the AT network.

A second major commercial area exists east of downtown along Sandwich Street South. From Alma Street to Lowes Side Road, a variety of shops and services are scattered along the corridor including big box stores for groceries and other household goods. This corridor will be important for promoting utility cycling in the Town.

4.9.6 Destinations – Schools and Parks

Amherstburg is home to six elementary schools and one high school falling within the public and catholic school boards. These schools are spread across the Town's jurisdiction but are mostly located east and north of the downtown. The elementary schools near the core are located within residential areas offering an opportunity to establish a network of traffic calmed streets to develop active transportation connections to schools that encourage students to use active modes. The high school is situated near the intersection of two arterial roads, allowing for the development of a north-south and east-west cycling spine that connects many neighbourhoods to the school. Three elementary schools, St. Joseph Catholic Elementary School, Anderdon Public School and Malden Central Public School are located outside the settlement area boundary to the northeast and southeast of the urban area.

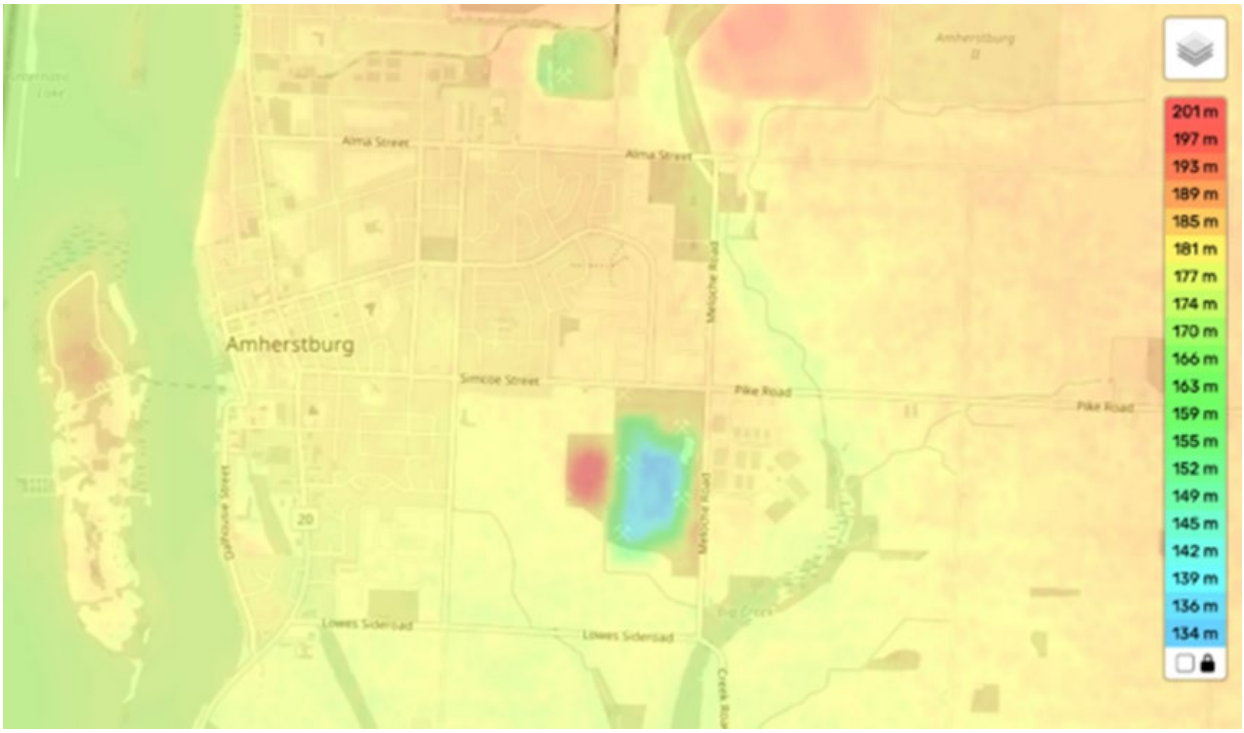
Amherstburg's major parks are situated in the downtown or in relatively proximity. King's Navy Yard Park is in downtown along the waterfront while Austin "Toddy" Jones Park and Bill Wigle Park are a short walk away just north of the core. Centennial Park and the Libro Credit Union Centre are centrally located within the settlement area boundary. These parks are easily accessed by active modes but only Austin "Toddy" Jones Park permits cycling on the pathways as well as a gravel trail towards the Libro Centre. Cycling is not permitted through King's Navy Yard Park. North Gatewayand Angstrom Park can be found north of the urban area and offer views of the Detroit River. These parks are not easily accessible by active modes as they are positioned along Front Road North/Highway 18, a major north-south arterial road with limited active transportation facilities. Libro Credit Union Centre, a key recreational destination, also lacks active transportation connections to downtown. While the existing MUP is a good start, facilities need to reach other parts of the town to encourage active travel to this location as growth occurs in the surrounding areas.

4.9.7 Terrain/Topography Review

Amherstburg has a flat terrain (See **Figure 4-28**) in nature with little variation in topography. Elevation ranges from about 176 m to 190 m with lower elevations in the south, around the Amherst Pointe and other southerly neighbourhoods, and higher elevations in the south-eastern portions of the Town near the municipal boundary neighbouring the County of Essex.

The topographical nature of Amherstburg is conducive for walking and cycling. A flatter terrain means there are fewer hills for active transportation users to navigate and allows them to expend less effort as part of their daily transportation routine. This, in turn, allows users to travel greater distances as less effort is required to traverse the terrain.

Figure 4-28: Topographic map of Amherstburg



(source: https://en-ca.topographic-map.com)

4.10 Simcoe Street & Meloche Road Intersection Control and Safety Review

A site-specific intersection control study was requested by the Town of Amherstburg to address resident concerns regarding pedestrian safety and traffic operations at the intersection of Simcoe Street (County Road 18) and Meloche Road. The review aims to provide a more detailed assessment of the junction, located at the boundary between the Town's rural and urban areas, within the broader TMP study. As such, the assessment and recommendations for this intersection have been extracted from the broader Road Network review and were presented as a standalone section during public consultation.

Data was collected for this review, including traffic volumes, collision history, vehicle speeds, lane configuration and intersection geometry, and intersection controls. Additionally, the network role of Simcoe Street/County Road 18 was specifically considered, as it transitions from a rural roadway with a higher speed limit, to an urban roadway with a lower required speed, east of Meloche Road.

The following analysis measures intersection performance against operational and subjective safety indicators, including traffic capacity and delays, and the pedestrian experience. Crossing safety was a key objective, due to the community's fundamental concerns regarding the safety of children and families crossing the intersection by foot or cycle, to connect to and from the residential neighbourhoods to the north and west of Meloche Road, to the Libro Credit Union Centre to the southeast of the intersection. As a major community hub, the safety of all-ages access to/from the facility, regardless of mode of transportation, is a key priority for this study.

4.10.1 Intersection Characteristics Review

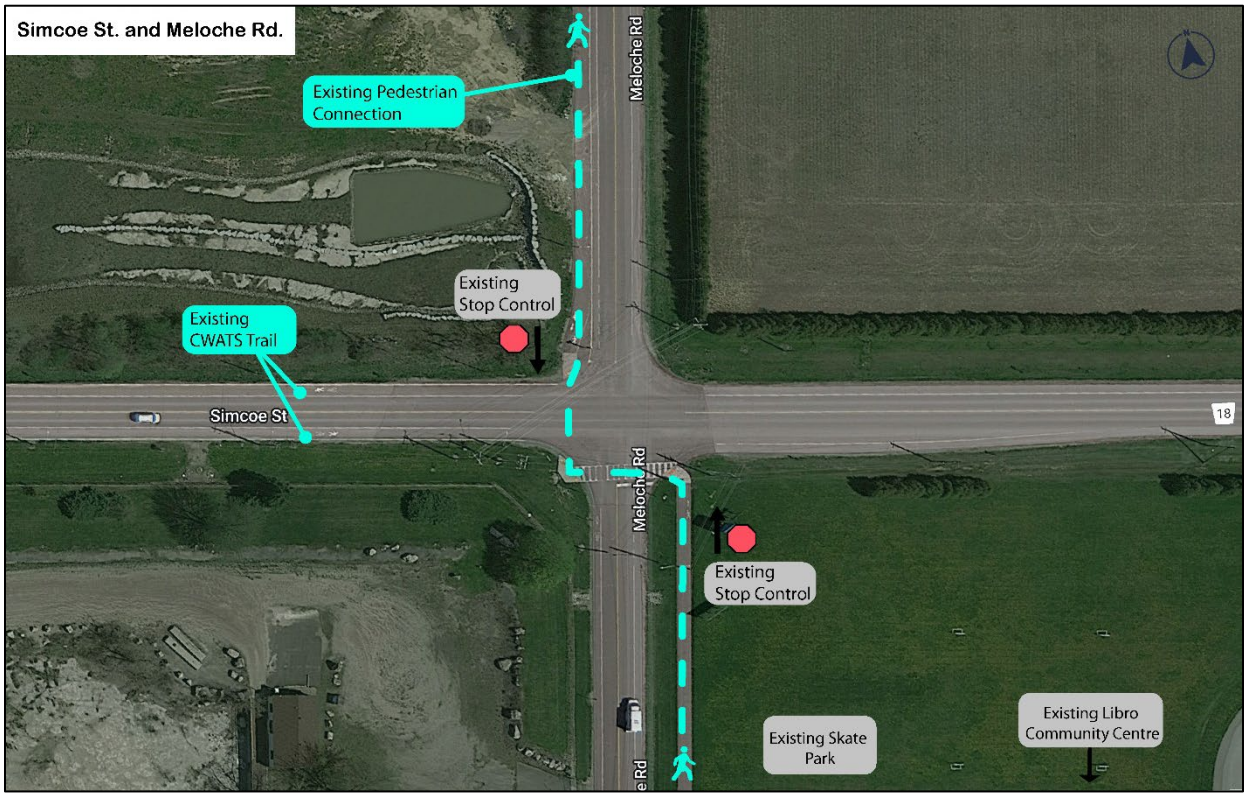
The intersection of Simcoe Street (County Road 18) and Meloche Road is currently a two-way stop-controlled junction, with the east-west corridor (Simcoe Street) operating with a free flow of vehicular traffic.

Simcoe Street is a two-lane roadway classified as an arterial road west of Meloche Road with a posted speed limit of 50 km/h, and a collector road east of Meloche Road with a posted speed limit increasing to 80 km/h approximately 100m east of the intersection. On the west leg of the intersection, Simcoe Street provides painted multi-use lanes on both roadside shoulders, however there are no barriers to protect pedestrians & cyclists from vehicular traffic.

Meloche Road is a two-lane roadway, designated as an arterial road and under the jurisdiction of the Town of Amherstburg, with a posted speed limit of 50 km/h south of Simcoe Street, and 60 km/h north of Simcoe Street. Meloche Road provides a painted multi-use path on both legs of the intersection. It should be noted that the only painted pedestrian crosswalk is provided on the south leg, disconnected from active transportation pathways around the intersection.

The existing transportation conditions for the intersection of Simcoe Street and Meloche Road are illustrated in **Figure 4-29**.

Figure 4-29: Existing transportation features at Simcoe Street and Meloche Road



As illustrated, there is a separated three-meter-wide pedestrian path south of Simcoe Street, which runs parallel to the east side of Meloche Road and connects to the Bruno Casanova Way at the Libro Credit Union Centre. The path also has an additional connection to Meloche Road prior to reaching the Centre. It should be noted that the pathway is the only pedestrian connection to the Libro Centre and is difficult to access with pedestrian infrastructure limited to paved shoulders along Simcoe Street.

Overall, the network assessment concludes that the pedestrian crossing on the south side of the intersection does not adequately connect to surrounding pedestrian infrastructure, which is also limited. Despite being signed, the existing paved shoulders are not considered to be effective as pedestrian infrastructure, as the lack of grade separation does not prevent vehicles from veering into the space. Along high-speed roads with high traffic volumes, separated and protected facilities are required for adequate pedestrian and cyclist circulation. Additionally, the lack of physical separation does not discourage parking in the roadside shoulder space, which can become as hazard for pedestrians, especially those with accessibility issues, who would have to use the road's vehicular lane to navigate around parked cars.

There is an opportunity to vastly improve crossing safety at this location through the addition of painted crosswalks on the east, west, and north legs of the intersection. Further improvements can build upon network-wide active transportation recommendations to incorporate a pedestrian sidewalk along the south side of Simcoe Street that directly ties into the existing sidewalk on Fryer

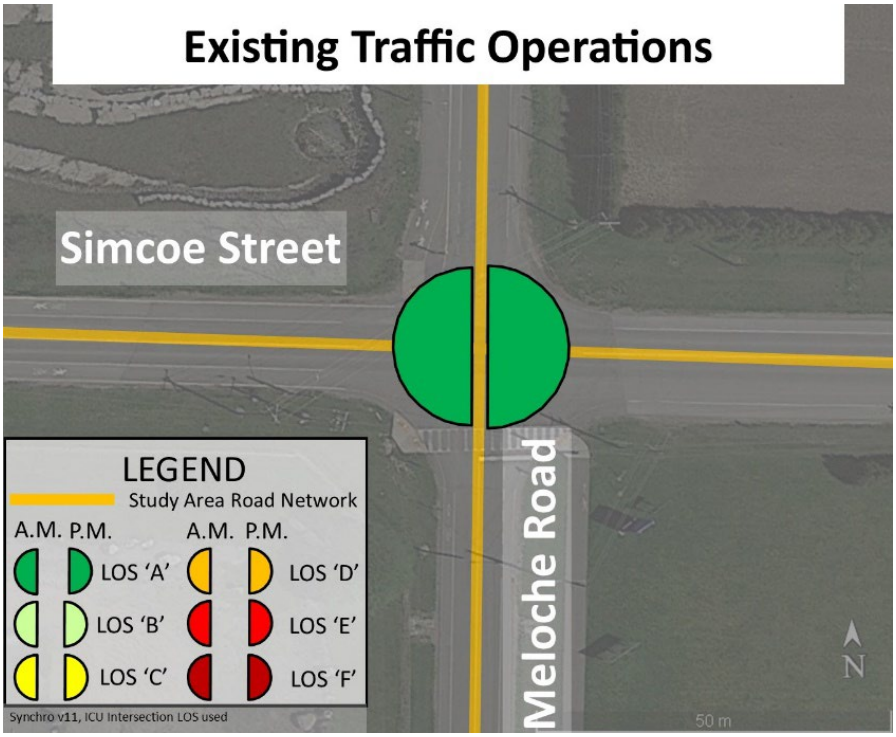
Street, a block to the west. Providing this simple connection will encourage residents of the Town to walk along Simcoe Street and take the multi-use path along Meloche Road to get to Libro Credit Union Centre. There is also an opportunity to extend and continue the multi-use path down from Bruno Casanova Way towards Lowes Side Road/Creek Rd. This additional pedestrian access point will provide an opportunity to connect any future development on the south side of the Centre.

4.10.2 Intersection Traffic Operations Review

A traffic operations analysis was conducted to assess existing and future intersection capacity based on forecasted growth in the area. The aim of the analysis was to determine the feasibility of larger traffic calming interventions at the study intersection, without triggering significant delays or undue concerns to traffic operations in the area.

Under existing conditions (2023), traffic at this intersection operates with a Level of Service (LOS) of A, illustrated in **Figure 4-30**. The traffic capacity assessment illustrates a high level of service that may absorb minor delays to traffic circulation through the introduction of traffic calming measures to improve pedestrian crossing safety at this junction.

Figure 4-30: Existing Traffic Operations at Simcoe Street & Meloche Road



Furthermore, a safety analysis was conducted to evaluate collision and speed data against traffic volume data to measure intersection performance against operational and subjective safety indicators. The safety review considers the impact of the roadway geometry and visible crossing infrastructure on driver behaviour where the speed limit on Simcoe Street reduces from 80km/h to 50km/h approaching the urban boundary at Meloche Road.

Speed data enclosed in **Section 4.5** was utilized to validate reported concerns of speeding at this intersection. Vehicular speeds along Simcoe Street were measured to be 5-15km/h over the posted limit west of Meloche Road, with notable increases in travel speeds east of the intersection as the posted speed limit increases from 50 km/h to 80 km/h. Speeding on Meloche Street is less severe, and likely mitigated by the presence of stop signs at Simcoe Street, for northbound and southbound traffic.

Overall, due to the intersection's function as a delineator between the urban and rural condition of Simcoe Street/County Road 18, traffic calming measures such as gateways should be considered to facilitate a natural transition of speed limits and safer driver behaviour at the junction, while maintaining the traffic capacity of the intersection.

4.10.3 Consideration of a New Fire Hall

The Town of Amherstburg is currently planning to construct a new fire station southeast of the Simcoe Street and Meloche Road intersection, adjacent to the Libro Centre property. This planned development imposes additional considerations for potential changes to the existing intersection design, with the ultimate objective of creating a safer and more convenient access point for fire truck circulation.

Any proposed intersection improvements should consider the ease of circulation for large fire trucks in the event of an emergency. For example, to bypass traffic, any proposed medians should include a gap or segment of mountable curb upstream of the intersection to allow fire trucks to use the oncoming lane if there is a queue of stopped traffic at the intersection. Additionally, the placement of curbs or medians should consider the standard requirement of a clear-zone with a no-stopping area marked on the roadway adjacent to the fire station driveway.

Should the intersection control study require the implementation of traffic signals at this location, there is an opportunity to install firehall pre-emption for emergency circulation. With this potential measure, emergency personnel would have control over traffic signal timing when responding to calls. The pre-emption would cycle the signal to all-way red, then rest in westbound green as well as any westbound green arrows (with no eastbound green, and no walk signals) for an appropriate number of seconds to allow for a fire truck to pass.

5 Future Conditions & Recommendations

5.1 Future Traffic Capacity Analysis

5.1.1 Study Horizon Years

The TMP's traffic analysis horizon years were determined in conjunction with Town staff to ensure alignment with growth forecasts under development for the Official Plan update and other initiatives. Ultimately, an existing conditions horizon of 2023, and three future horizon years were selected. Under future conditions, the traffic analysis will be modelled to a 5-year horizon year of 2028 (H1), a 10-year horizon year of 2033 (H2), and an ultimate horizon year of 2040 (H3).

5.1.2 Background Corridor Growth

The conservative corridor growth rate of 2%, an industry standard rate, was utilized up to the 2028 horizon year and 0.5% per year for the subsequent horizon periods (2033 and 2040). Corridor growth was limited to major corridors studied in the TMP, in alignment with growth forecasts and targeted development areas. **Table 5-1** specifies all corridors analyzed and their associated growth rate that were applied within the respective horizon years.

Table 5-1: Background Corridor Growth Rates

Corridor	Direction	Compound Annual Growth Rate %	
		Until 2028	2033 +
Growth Applied			
Count Road 20 / Front Road / Sandwich Street	Northbound	2.0%	0.5%
	Southbound	2.0%	0.5%
Alma Street	Eastbound	2.0%	0.5%
	Westbound	2.0%	0.5%
Simcoe Street / Pike Road	Eastbound	2.0%	0.5%
	Westbound	2.0%	0.5%
No Growth Applied			
Malden Road	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Middle Side Road	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Texas Road	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Fort Street	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
North Street	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Richmond Street	Eastbound	0.0%	0.0%

Corridor	Direction	Compound Annual Growth Rate %	
		Until 2028	2033 +
	Westbound	0.0%	0.0%
Murray Street	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Gore Street	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Park Street	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Pickering Drive	Eastbound	0.0%	0.0%
	Westbound	0.0%	0.0%
Dalhousie Street	Northbound	0.0%	0.0%
	Southbound	0.0%	0.0%
Fryer Street	Northbound	0.0%	0.0%
	Southbound	0.0%	0.0%
Meloche Road	Northbound	0.0%	0.0%
	Southbound	0.0%	0.0%
Howard Avenue	Northbound	0.0%	0.0%
	Southbound	0.0%	0.0%

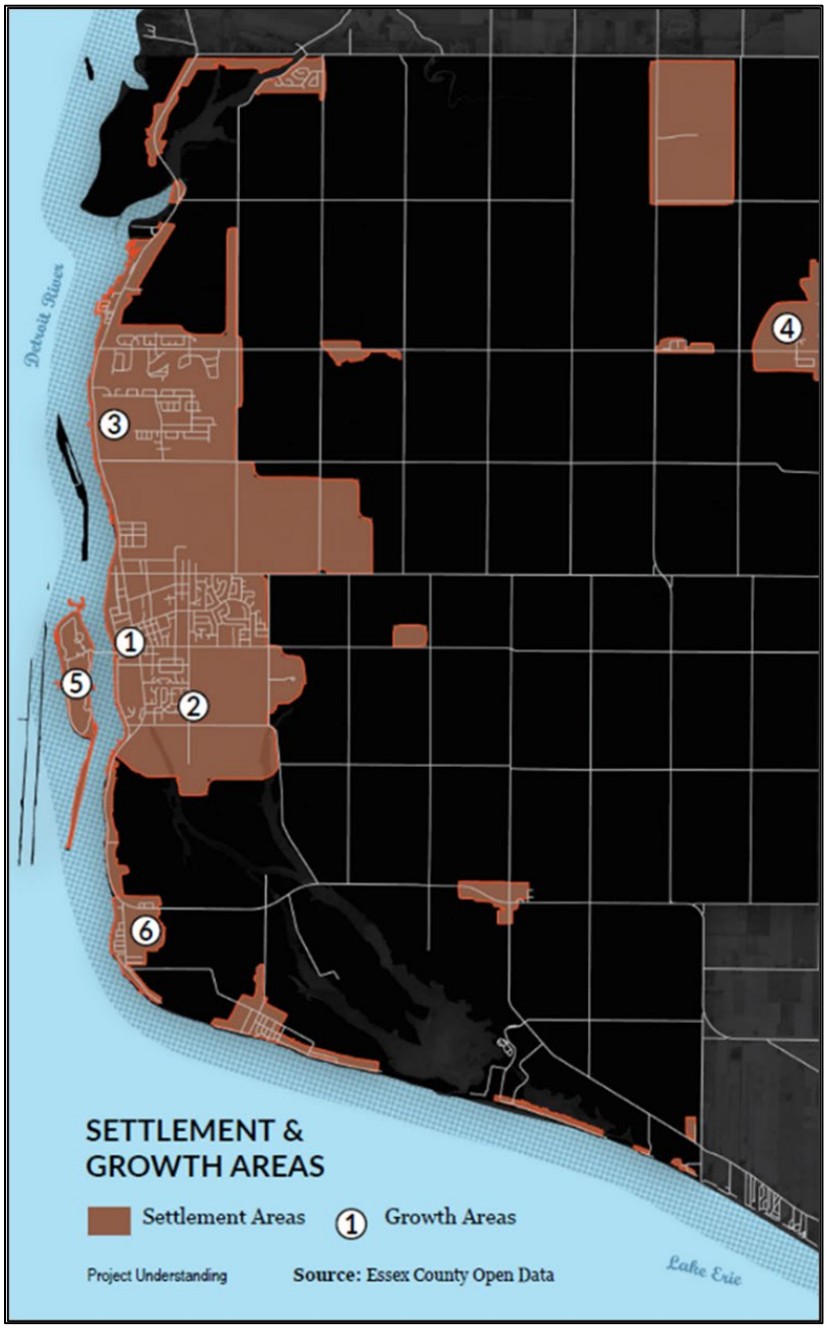
5.1.3 Trip Generation Zones

Future traffic generation associated with anticipated new developments and densification targets within the Town were coded into the future conditions' traffic models. **Figure 5-1** illustrates the approximate future development zones within and in the surrounding areas of the downtown core. These areas and their associated development extent have been identified by the Town's Planning Services department to serve as estimates for the traffic modelling process.

Within **Figure 5-1,** the following growth areas are identified:

1. Old Town
2. Lands south of Old Town
3. Lands north of Texas Road
4. McGregor
5. Bois Blanc Island
6. Amherst Point

Figure 5-1: Future Development Zones



The anticipated new development within Zone 1 primarily focuses on redevelopment of areas within the Town's downtown core to increase residential density. As the exact bounds of this zone are not yet determined, **Figure 5-2** illustrates the road intersections along Sandwich Street which have been assumed to be in closest proximity to the expected densification in Zone 1.

Figure 5-2: Roads surrounding the expected trip generation area within Zone 1

The parking lots and areas of unused open space which are located adjacent to Sandwich Street, between Alma Street and Richmond Street have been coded as the Zone 1 trip generation area as part of the future traffic modelling. Resultingly, these intersections will experience relatively larger volumes of traffic when compared to the existing traffic volumes.

Table 5-2 outlines the estimated new units of various building types which are expected to be constructed during each future horizon period. The values shown in **Table 5-2** represent a cumulative count of new units within each zone.

Table 5-2 also shows the expected new development (cumulative) within each Trip Generation Zone. The expected future development and the associated land-use codes were utilized in conjunction with the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition to determine the number of new trips generated from each zone. These new trips were then inputted into the existing traffic model alongside background growth factors to then determine expected future traffic conditions.

Table 5-2: Expected new development (cumulative) within each Trip Generation Zone

Zone	Horizon Period	Single-detached House	Semi-detached House	Rowhouse	Mutli-residential Unit	Total New Units
1	**H1**	-	325	-	758	1083
	H2	-	325	-	758	1083
	H3	-	325	-	758	1083
2	**H1**	471	157	79	79	785
	H2	942	314	157	157	1570
	H3	1601	534	267	267	2669
3	**H1**	20	180	-	-	200
	H2	20	180	-	-	200
	H3	20	180	-	-	200
4	**H1**	75	-	-	-	75
	H2	121	30	-	-	151
	H3	202	56	-	-	258
5	**H1**	-	55	-	-	55
	H2	-	110	-	-	110
	H3	-	220	-	-	220
6	**H1**	10	10	-	-	20
	H2	10	10	-	-	20
	H3	10	10	-	-	20

5.1.4 Horizon Year 1 – 2028

The traffic capacity analysis results for the study area intersections under 2027 future conditions are summarized in **Table 5-3** for both the weekday a.m. and p.m. peak hours, with complete traffic analysis Synchro reports enclosed in **Appendix E**.

The Horizon 1 traffic model incorporates a 15% trip reduction factor for all the future trips generated by Zones 1-6 resulting from an expected growth in transit usage. The future traffic analysis and results also incorporate the proposed closure of Murray Street for vehicular traffic between Dalhousie Street and Ramsay Street to assess the feasibility of this network change.

Horizon 1 traffic modelling included the following changes made to the intersections of Sandwich Street & Fort Street and Sandwich Street & Richmond Street:

Sandwich Street & Fort Street

- A traffic signal has been coded into the traffic model at this intersection to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Sandwich Street & Richmond Street

- The existing traffic signal structure has been optimized at this intersection to ensure more allotted green time for northbound and southbound traffic volumes to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Table 5-3: Future Horizon 1 – 2028 Traffic Operation Results (weekday AM/PM)

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Front Road North & Middle Side Road (Signalized)	*Overall*	*0.49*	*11*	*B*	*0.65*	*11*	*B*
	WBLR	0.46	16	B	0.49	17	B
	NBT	0.51	11	B	0.33	7	A
	NBR	0.13	8	A	0.10	6	A
	SBTL	0.31	9	A	0.72	12	B
Front Road North & Texas Road (Signalized)	*Overall*	*0.46*	*9*	*A*	*0.53*	*10*	*A*
	WBL	0.43	17	B	0.46	17	B
	WBR	0.02	15	B	0.02	15	B
	NBTR	0.47	8	A	0.44	8	A
	SBTL	0.29	7	A	0.56	9	A
Sandwich Street South/Sandwich Street North & Alma Street (Signalized)	*Overall*	*0.65*	*16*	*B*	*0.83*	*22*	*C*
	EBLTR	0.13	21	C	0.13	20	B
	WBTL	0.44	24	C	0.61	27	C
	WBR	0.15	21	C	0.09	19	B
	NBL	0.01	9	A	0.04	11	B
	NBT	0.76	21	C	0.84	27	C
	NBR	0.11	10	B	0.13	12	B
	SBL	0.43	10	A	0.70	18	B
	SBTR	0.49	9	A	0.84	19	B
Sandwich Street South & Fort Street (Signalized)	*Overall*	*0.55*	*8*	*A*	*0.69*	*12*	*B*
	WBL	0.33	15	B	0.35	15	B
	WBR	0.11	14	B	0.13	14	B
	NBTR	0.61	8	A	0.76	11	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	SBL	0.15	4	A	0.60	17	B
	SBT	0.47	6	A	0.79	12	B
Sandwich Street South & Richmond Street (Signalized)	*Overall*	*0.48*	*20*	*C*	*0.69*	*30*	*C*
	EBL	0.11	18	B	0.27	20	B
	EBT	0.05	17	B	0.08	18	B
	EBR	0.00	17	B	0.02	18	B
	WBLTR	0.36	25	C	0.48	29	C
	NBL	0.05	14	B	0.14	19	B
	NBT	0.62	22	C	**0.90**	**40**	**D**
	NBR	0.01	14	B	0.04	15	B
	SBL	0.15	11	B	0.35	17	B
	SBT	0.59	19	B	0.84	29	C
	SBR	0.05	12	B	0.06	13	B
Sandwich Street South & Simcoe Street (Signalized)	*Overall*	*0.59*	*15*	*B*	*0.79*	*24*	*C*
	EBLTR	0.03	18	B	0.15	18	B
	WBLTR	0.52	22	C	0.59	23	C
	NBL	0.00	0	-	0.01	11	B
	NBTR	0.70	20	B	**0.95**	**40**	**D**
	SBL	0.30	7	A	0.46	11	B
	SBTR	0.33	7	A	0.63	12	B
Sandwich Street South & Pickering Street (Signalized)	*Overall*	*0.40*	*13*	*B*	*0.56*	*16*	*B*
	EBL	0.22	24	C	0.57	30	C
	EBTR	0.05	22	C	0.22	23	C
	WBLTR	0.53	27	C	0.50	26	C
	NBL	0.04	5	A	0.08	6	A
	NBTR	0.40	10	B	0.58	15	B
	SBL	0.09	4	A	0.24	6	A
	SBTR	0.39	9	A	0.60	13	B
Fryer Street & Simcoe Street (Signalized)	*Overall*	*0.31*	*14*	*B*	*0.28*	*15*	*B*
	EBLTR	0.35	11	B	0.31	13	B
	WBLTR	0.24	10	B	0.23	12	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	NBLTR	0.24	19	B	0.19	18	B
	SBLTR	0.22	19	B	0.24	18	B
Front Road North & Valley Road/Malden Road (Signalized)	*Overall*	*0.41*	*14*	*B*	*0.47*	*14*	*B*
	EBLTR	0.00	-	-	0.00	-	-
	WBL	0.18	12	B	0.29	13	B
	WBR	0.05	11	B	0.05	11	B
	NBTL	0.65	16	B	0.39	13	B
	NBR	0.10	11	B	0.08	11	B
	SBL	0.33	17	B	0.24	13	B
	SBTR	0.25	12	B	0.64	16	B
Howard Avenue & Pike Road (Signalized)	*Overall*	*0.37*	*12*	*B*	*0.45*	*13*	*B*
	EBLTR	0.43	13	B	0.34	12	B
	WBLTR	0.28	12	B	0.50	14	B
	NBLTR	0.32	12	B	0.17	11	B
	SBLTR	0.17	11	B	0.39	13	B
Sandwich Street South & North Street/Private Access (Stop-controlled)	EBLTR	0.04	21	C	0.15	22	C
	WBLTR	0.34	23	C	0.29	25	C
	NBL	0.00	9	A	0.02	11	B
	NBTR	0.38	0	-	0.51	0	-
	SBL	0.02	9	A	0.04	11	B
	SBTR	0.35	0	-	0.56	0	-
Sandwich Street South & Murray Street (Stop-controlled)	WBLTR	0.01	13	B	0.03	16	C
	NBL	0.00	0	-	0.00	0	-
	NBTR	0.32	0	-	0.46	0	-
	SBL	0.00	9	A	0.01	10	A
	SBTR	0.31	0	-	0.50	0	-
Sandwich Street South & Gore Street (Stop-controlled)	EBLTR	0.04	13	B	0.07	17	C
	WBL	0.00	14	B	0.02	19	C
	WBR	0.02	12	B	0.03	14	B
	NBTR	0.32	0	-	0.46	0	-
	SBL	0.01	8	A	0.01	10	A

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	SBT	0.30	0	-	0.49	0	-
Sandwich Street South & Park Street (Stop-controlled)	EBLTR	0.12	19	C	0.12	22	C
	WBLTR	0.01	13	B	0.06	27	D
	NBL	0.01	8	A	0.02	10	B
	NBTR	0.31	0	-	0.42	0	-
	SBL	0.00	0	-	0.01	9	A
	SBTR	0.28	0	-	0.49	0	-
Sandwich Street South/Front Road South & Dalhousie Street (Stop-controlled)	EBLTR	0.02	11	B	0.08	11	B
	WBLTR	0.00	0	A	0.00	0	A
	NBL	0.01	8	A	0.01	8	A
	NBTR	0.14	0	-	0.14	0	-
	SBLTR	0.00	0	-	0.00	0	-
Dalhousie Street & North Street (Stop-controlled)	WBLR	0.03	8	A	0.07	8	A
	NBTR	0.06	7	A	0.07	7	A
	SBLT	0.02	7	A	0.04	7	A
Dalhousie Street & Richmond Street (Stop-controlled)	WBLR	0.08	8	A	0.14	8	A
	NBTR	0.10	8	A	0.14	8	A
	SBLT	0.05	8	A	0.13	8	A
Dalhousie Street & Pickering Street (Stop-controlled)	WBLR	0.07	9	A	0.12	10	A
	NBTR	0.04	0	-	0.03	0	-
	SBLT	0.02	4	A	0.04	4	A
Meloche Road & Simcoe Street/Pike Road (Stop-controlled)	EBLTR	0.01	1	A	0.01	1	A
	WBLTR	0.04	2	A	0.09	4	A
	NBLTR	0.54	20	C	0.64	30	D
	SBLTR	0.24	17	C	0.52	26	D
County Road 20 & Front Road South (Stop-controlled)	EBLR	0.08	10	B	0.08	12	B
	NBTR	0.01	1	A	0.02	1	A
	SBLT	0.09	0	-	0.17	0	-
Meloche Road & Alma Street (Stop-controlled)	EBTR	0.18	0	-	0.23	0	-
	WBLT	0.03	2	A	0.09	3	A
	NBLR	0.28	14	B	0.42	24	C

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Dalhousie Stret & Murray Street (Stop-controlled)	WBLR	-	-	-	-	-	-
	NBT	0.09	7	A	0.09	7	A
	SBT	0.08	7	A	0.14	8	A
Dalhousie Street & Park Street (Stop-controlled)	EBLTR	0.09	10	B	0.03	11	B
	WBLTR	0.04	9	A	0.06	10	B
	NBLTR	0.00	0	-	0.00	0	-
	SBLT	0.00	1	A	0.01	1	A
	SBR	0.00	0	-	0.00	0	-
Fryer Street & Richmond Street (Stop-controlled)	EBLTR	0.22	10	B	0.25	10	A
	WBLTR	0.39	12	B	0.25	10	A
	NBLTR	0.32	11	B	0.21	9	A
	SBLTR	0.31	11	B	0.23	10	A
Fryer Street/Tofflemire Street & Alma Street (Stop-controlled)	EBLTR	0.01	0	A	0.01	0	A
	WBLTR	0.13	3	A	0.05	1	A
	NBLTR	**0.66**	**38**	**E**	0.26	18	C
	SBLTR	0.15	30	D	0.05	19	C

Under Horizon 1 conditions, all study area intersections are operating well overall, within capacity and acceptable delays during both the weekday a.m. and p.m. peak hours. Overall intersections are operating with LOS D or better during the peak hour.

The stop-controlled intersection of Fryer Street/Tofflemire Street & Alma Street operates at LOS E for its NBLTR shared traffic movement drivers traveling on the minor leg (Fryer Street) have few gaps to enter the traffic stream onto Alma Street. Two northbound movements on the Sandwich Street South & Richmond Street and Sandwich Street South & Simcoe Street signalized intersections present v/c ratios larger than 0.85; however, their LOS remains acceptable.

5.1.5 Horizon Year 2 – 2033

The traffic capacity analysis results for the study area intersections under 2033 future conditions are summarized in **Table 5-4** for both the weekday a.m. and p.m. peak hours, with complete traffic analysis Synchro reports enclosed in **Appendix F**.

The Horizon 2 traffic model incorporates a 20% trip reduction factor for all the future trips generated by zones 1-6 resulting from an expected growth in transit usage. The future traffic analysis and results also incorporate the proposed closure of Murray Street for vehicular traffic between Dalhousie Street and Ramsay Street to assess the feasibility of this network change.

Horizon 2 traffic modelling builds upon the improvements recommended in Horizon 1, with the addition of the following network changes to achieve more optimal traffic conditions.

Meloche Road & Simcoe Street

- A traffic signal has been coded into the traffic model at this intersection to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Sandwich Street & Alma Street

- The existing traffic signal structure has been optimized at this intersection to ensure more allotted green time for southbound left turning traffic volumes to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Sandwich Street & Simcoe Street

- The existing traffic signal structure has been optimized at this intersection to ensure more allotted green time for northbound and southbound traffic volumes to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Table 5-4: Future Horizon 2 – 2033 Traffic Operation Results (weekday AM/PM)

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Front Road North & Middle Side Road (Signalized)	*Overall*	*0.60*	*12*	*B*	*0.80*	*28*	*C*
	WBLR	0.53	16	B	0.45	16	B
	NBT	0.65	13	B	0.43	10	A
	NBR	0.17	9	A	0.11	8	A
	SBTL	0.37	10	A	**1.02**	**43**	**D**
Front Road North & Texas Road (Signalized)	*Overall*	*0.56*	*10*	*A*	*0.66*	*11*	*B*
	WBL	0.45	17	B	0.54	17	B
	WBR	0.02	15	B	0.02	15	B
	NBTR	0.61	10	A	0.53	9	A
	SBTL	0.34	7	A	0.71	12	B
Sandwich Street South/Sandwich Street North & Alma Street (Signalized)	*Overall*	*0.75*	*20*	*C*	***0.95***	***30***	***C***
	EBLTR	0.16	29	C	0.17	29	C
	WBTL	0.54	35	D	0.84	53	D
	WBR	0.35	31	C	0.23	29	C
	NBL	0.01	9	A	0.06	12	B
	NBT	0.84	25	C	0.84	28	C
	NBR	0.12	10	A	0.16	12	B
	SBL	0.57	15	B	0.85	37	D
	SBTR	0.50	8	A	**0.93**	**27**	**C**
Sandwich Street South & Fort	*Overall*	*0.73*	*8*	*A*	*0.73*	*10*	*A*
	WBL	0.53	*22*	*C*	0.53	*34*	*C*

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Street (Signalized)	WBR	0.08	*20*	*C*	0.08	*30*	*C*
	NBTR	0.67	*7*	*A*	0.67	*7*	*A*
	SBL	0.44	*4*	*A*	0.44	*7*	*A*
	SBT	0.76	*5*	*A*	0.76	*9*	*A*
Sandwich Street South & Richmond Street (Signalized)	*Overall*	*0.58*	*24*	*C*	*0.78*	*30*	*C*
	EBL	0.11	18	B	0.35	30	C
	EBT	0.05	17	B	0.10	27	C
	EBR	0.00	17	B	0.02	26	C
	WBLTR	0.35	25	C	0.60	42	D
	NBL	0.06	14	B	0.14	23	C
	NBT	0.82	30	C	0.81	28	C
	NBR	0.02	14	B	0.04	13	B
	SBL	0.19	14	B	0.33	17	B
	SBT	0.64	20	C	0.90	33	C
	SBR	0.05	12	B	0.06	11	B
Sandwich Street South & Simcoe Street (Signalized)	*Overall*	*0.74*	*24*	*C*	*0.82*	*24*	*C*
	EBLTR	0.03	18	B	0.16	27	C
	WBLTR	0.56	23	C	0.77	42	D
	NBL	0.00	0	0	0.02	11	B
	NBTR	**0.92**	**36**	**D**	**0.87**	**30**	**C**
	SBL	0.44	10	B	0.63	18	B
	SBTR	0.37	8	A	0.68	13	B
Sandwich Street South & Pickering Street (Signalized)	*Overall*	*0.48*	*17*	*B*	*0.61*	*19*	*B*
	EBL	0.23	23	C	0.65	36	D
	EBTR	0.04	21	C	0.21	25	C
	WBLTR	0.67	30	C	0.64	32	C
	NBL	0.05	7	A	0.08	8	A
	NBTR	0.47	14	B	0.67	19	B
	SBL	0.13	6	A	0.43	8	A
	SBTR	0.43	11	B	0.61	13	B
Fryer Street & Simcoe Street (Signalized)	*Overall*	*0.32*	*14*	*B*	*0.33*	*15*	*B*
	EBLTR	0.37	11	B	0.38	13	B
	WBLTR	0.29	11	B	0.26	12	B
	NBLTR	0.24	19	B	0.19	18	B
	SBLTR	0.23	19	B	0.26	19	B
Front Road North & Valley	*Overall*	*0.49*	*16*	*B*	*0.59*	*16*	*B*
	EBLTR	0.00	0	-	0.00	0	-
	WBL	0.22	12	B	0.41	15	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Road/Malden Road (Signalized)	WBR	0.05	11	B	0.05	11	B
	NBTL	0.76	19	B	0.45	14	B
	NBR	0.13	11	B	0.10	11	B
	SBL	0.40	21	C	0.28	14	B
	SBTR	0.28	12	B	0.77	19	B
Howard Avenue & Pike Road (Signalized)	*Overall*	*0.41*	*13*	*B*	*0.50*	*14*	*B*
	EBLTR	0.51	15	B	0.42	13	B
	WBLTR	0.33	12	B	0.62	16	B
	NBLTR	0.32	12	B	0.17	11	B
	SBLTR	0.17	11	B	0.39	13	B
Meloche Road & Simcoe Street/Pike Road (Signalized)	*Overall*	*0.55*	*12*	*B*	*0.63*	*13*	*B*
	EBLTR	0.57	15	B	0.32	10	B
	WBLTR	0.66	18	B	0.77	20	B
	NBLTR	0.51	8	A	0.51	12	B
	SBLTR	0.15	5	A	0.36	10	A
Stop-controlled							
Sandwich Street South & North Street/Private Access (Stop-controlled)	EBLTR	0.06	29	D	0.25	37	E
	WBLTR	0.42	31	D	0.42	43	E
	NBL	0.00	9	A	0.02	14	B
	NBTR	0.38	0	-	0.53	0	-
	SBL	0.06	10	A	0.05	11	B
	SBTR	0.34	0	-	0.67	0	-
Sandwich Street South & Murray Street (Stop-controlled)	WBLTR	0.01	14	B	0.03	18	C
	NBL	0.00	0	-	0.00	0	-
	NBTR	0.42	0	-	0.52	0	-
	SBL	0.00	9	A	0.02	11	B
	SBTR	0.33	0	-	0.62	0	-
Sandwich Street South & Gore Street (Stop-controlled)	EBLTR	0.04	14	B	0.10	23	C
	WBL	0.10	16	C	0.02	25	D
	WBR	0.02	12	B	0.03	15	B
	NBTR	0.41	0	-	0.50	0	-
	SBL	0.01	9	A	0.01	10	B
	SBT	0.32	0	-	0.61	0	-
Sandwich Street South & Park Street (Stop-controlled)	EBLTR	0.25	23	C	0.44	48	E
	WBLTR	0.01	15	B	0.08	34	D
	NBL	0.01	9	A	0.04	12	B
	NBTR	0.39	0	-	0.45	0	-
	SBL	0.00	0	-	0.01	10	A

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	SBTR	0.31	0	-	0.59	0	-
Sandwich Street South/Front Road South & Dalhousie Street (Stop-controlled)	EBLTR	0.02	12	B	0.09	11	B
	WBLTR	0.00	0	A	0.00	0	A
	NBL	0.01	8	A	0.01	8	A
	NBTR	0.15	0	-	0.15	0	-
	SBLTR	0.00	0	-	0.00	0	-
Dalhousie Street & North Street (Stop-controlled)	WBLR	0.03	8	A	0.07	8	A
	NBTR	0.06	7	A	0.07	7	A
	SBLT	0.02	7	A	0.04	7	A
Dalhousie Street & Richmond St (Stop-controlled)	WBLR	0.08	8	A	0.14	8	A
	NBTR	0.10	8	A	0.14	8	A
	SBLT	0.05	8	A	0.13	8	A
Dalhousie Street & Pickering St (Stop-controlled)	WBLR	0.07	9	A	0.12	10	A
	NBTR	0.04	0	-	0.03	0	-
	SBLT	0.02	4	A	0.04	4	A
County Road 20 & Front Road S (Stop-controlled)	EBLR	0.09	11	B	0.09	12	B
	NBTR	0.01	1	A	0.02	1	A
	SBLT	0.11	0	-	0.19	0	-
Meloche Road & Alma Street (Stop-controlled)	EBTR	0.19	0	-	0.28	0	-
	WBLT	0.05	2	A	0.15	4	A
	NBLR	0.51	19	C	0.74	49	E
Dalhousie Street & Murray Street (Stop-controlled)	WBLR	-	-	-	-	-	-
	NBT	0.09	7	A	0.09	7	A
	SBT	0.08	7	A	0.14	8	A
Dalhousie Street & Park Street (Stop-controlled)	EBLTR	0.13	11	B	0.03	11	B
	WBLTR	0.06	9	A	0.06	11	B
	NBLTR	0.00	0	-	0.00	0	-
	SBLT	0.00	1	A	0.01	1	A
	SBR	0.00	0	-	0.00	0	-
Fryer Street & Richmond Street (Stop-controlled)	EBLTR	0.22	10	B	0.25	10	A
	WBLTR	0.39	12	B	0.25	10	A
	NBLTR	0.34	11	B	0.21	9	A
	SBLTR	0.31	11	B	0.23	10	A
Fryer Street/Tofflemire Street & Alma Street (Stop-controlled)	EBLTR	0.01	0	A	0.01	0	A
	WBLTR	0.13	3	A	0.06	2	A
	NBLTR	**0.63**	**42**	**E**	0.38	25	D
	SBLTR	**0.17**	**35**	**E**	0.07	22	C

Under Horizon 2 conditions, all study area intersections are operating well overall within capacity and acceptable delays during both the weekday a.m. and p.m. peak hours. The only exceptions are the Sandwich Street South/Sandwich Street North & Alma Street, which has an overall v/c ratio of 0.95 during the p.m. peak period; however, it operates at LOS C, indicating acceptable traffic conditions. Overall intersections are operating with LOS D or better during the peak hour.

Additionally, the stop-controlled intersection of Fryer Street/Tofflemire Street & Alma Street operates at LOS E for its NBLTR shared traffic movement drivers traveling on the minor leg (Fryer Street) have few gaps to enter the traffic stream onto Alma Street. This constrained movement is also presented within the Horizon 1 traffic model. Additionally, a few individual traffic movements on some signalized intersections present v/c ratios larger than 0.85; however, their LOS remains acceptable.

5.1.6 Horizon Year 3 – 2040

The traffic capacity analysis results for the study area intersections under 2040 future conditions are summarized in Table 5-5 for both the weekday a.m. and p.m. peak hours, with complete traffic analysis Synchro reports enclosed in **Appendix G**.

The Horizon 3 traffic model incorporates a 20% trip reduction factor for all the future trips generated by zones 1-6 resulting from an expected growth in transit usage. The future traffic analysis and results also incorporate the proposed closure of Murray Street for vehicular traffic between Dalhousie Street and Ramsay Street to assess the long-term feasibility of this network change.

Horizon 2 traffic modelling builds upon the improvements previously recommended under Horizon 1 & 2, with the addition of the following network changes to achieve acceptable traffic conditions.

Sandwich Street & North Street

- Currently, the east leg of this intersection exists as a driveway for a commercial service building. As this intersection is within the Zone 1 of expected development, it is assumed that this intersection leg could be extended and there will be larger traffic volumes travelling westbound in all three future horizon periods. As a result, during Horizon 3, the westbound traffic movement operates with a critical LOS, hence, a traffic signal has been coded into the traffic model at this intersection to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Sandwich Street & Alma Street

- Under Horizon 3, there is a large volume of westbound traffic, leading to critical traffic operations. As a result, a new dedicated westbound left turning lane has been coded into the traffic model to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Alma Street & Fryer Street/Tofflemire Street

- Under Horizon 3, there is a large volume of northbound left and right turning traffic, leading to critical traffic operations. As a result, a new traffic signal has been coded into the traffic

model to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Meloche Street & Alma Street

- Under Horizon 3, there is a large volume of northbound left and right turning traffic, leading to critical traffic operations. As a result, a new traffic signal has been coded into the traffic model to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Sandwich Street & Simcoe Street

- The existing traffic signal structure has been optimized at this intersection to ensure more allotted green time for northbound and southbound traffic volumes to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Front Road North/Front Road North & Middle Side Road

- The existing traffic signal structure has been optimized at this intersection to ensure more allotted green time for northbound and southbound traffic volumes to ensure acceptable traffic operations with non-critical delays and v/c ratios.

Following these changes, and as indicated in the table below, a few individual traffic movements at some study intersections are still expected to operate with LOS E with near- or at-capacity conditions. These few movements indicate a possibility of more expansive road infrastructure changes or transit expansion to accommodate further traffic growth.

Table 5-5: Future Horizon 3 – 2040 Traffic Operation Results (weekday AM/PM)

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Front Road North & Middle Side Road (Signalized)	*Overall*	*0.70*	*14*	*B*	*0.84*	*18*	*B*
	WBLR	0.56	16	B	0.75	41	D
	NBT	0.80	16	B	0.38	8	A
	NBR	0.23	9	A	0.13	6	A
	SBTL	0.45	11	B	**0.90**	**21**	**C**
Front Road North & Texas Road (Signalized)	*Overall*	*0.70*	*12*	*B*	*0.80*	*22*	*C*
	WBL	0.51	17	B	0.53	16	B
	WBR	0.03	15	B	0.02	13	B
	NBTR	0.78	13	B	0.69	13	B
	SBTL	0.40	8	A	0.97	31	C
Sandwich Street South/Sandwich Street North & Alma Street (Signalized)	*Overall*	***0.95***	***39***	***D***	***1.07***	***52***	***D***
	EBLTR	0.15	34	C	0.13	28	C
	WBL	0.54	40	D	**0.93**	**68**	**E**
	WBT	0.04	33	C	0.06	27	C
	WBR	0.81	56	E	0.22	29	C
	NBL	0.01	9	A	0.08	16	B
	NBT	**1.00**	**50**	**D**	**0.98**	**52**	**D**

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	NBR	0.14	10	B	0.20	16	B
	SBL	0.89	68	E	**1.00**	**76**	**E**
	SBT	0.56	9	A	**1.05**	**56**	**E**
Sandwich Street South & Fort Street (Signalized)	*Overall*	*0.73*	*10*	*B*	***0.89***	***20***	***C***
	WBL	0.38	*22*	*C*	0.51	*32*	*C*
	WBR	0.31	*22*	*C*	0.08	*29*	*C*
	NBTR	0.80	*11*	*B*	0.79	*11*	*B*
	SBL	0.29	*7*	*A*	0.74	*27*	*C*
	SBT	0.53	*6*	*A*	**0.96**	***26***	***C***
Sandwich Street South & North Street/Private Access (Signalized)	Overall	0.73	*9*	*A*	0.84	*11*	*B*
	EBLTR	0.01	*18*	*B*	0.15	*44*	*D*
	WBLTR	0.38	*20*	*B*	0.32	*46*	*D*
	NBL	0.00	*2*	*A*	0.07	*3*	*A*
	NBTR	0.79	*10*	*B*	0.68	*5*	*A*
	SBL	0.09	*3*	*A*	0.09	*2*	*A*
	SBTR	0.59	*6*	*A*	**0.89**	***13***	***B***
Sandwich Street South & Richmond Street (Signalized)	*Overall*	*0.72*	*45*	*D*	***0.90***	***38***	***D***
	EBL	0.11	18	B	0.45	46	D
	EBT	0.05	17	B	0.12	41	D
	EBR	0.00	17	B	0.02	40	D
	WBLTR	0.36	25	C	0.79	73	E
	NBL	0.08	15	B	0.18	35	C
	NBT	**1.07**	**75**	**E**	0.81	28	C
	NBR	0.02	14	B	0.04	11	B
	SBL	0.23	18	B	0.33	22	C
	SBT	0.74	24	C	**0.97**	**44**	**D**
	SBR	0.05	12	B	0.06	9	A
Sandwich Street South & Simcoe Street (Signalized)	*Overall*	***0.86***	***30***	***C***	***0.92***	***35***	***D***
	EBLTR	0.03	26	C	0.19	32	C
	WBLTR	0.77	42	D	0.79	49	D
	NBL	0.00	0	-	0.02	11	B
	NBTR	**0.94**	**39**	**D**	**0.98**	**46**	**D**
	SBL	0.63	21	C	**0.90**	**58**	**E**
	SBTR	0.38	8	A	0.75	15	B
Sandwich Street South & Pickering Street (Signalized)	*Overall*	*0.65*	*26*	*C*	*0.81*	*30*	*C*
	EBL	0.19	20	C	0.62	34	C
	EBTR	0.03	19	B	0.18	24	C
	WBLTR	0.86	40	D	0.76	37	D

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
	NBL	0.06	11	B	0.10	11	B
	NBTR	0.60	22	C	0.87	35	D
	SBL	0.27	10	B	0.83	32	C
	SBTR	0.53	18	B	0.72	20	C
Fryer Street & Simcoe Street (Signalized)	*Overall*	*0.50*	*18*	*B*	*0.42*	*16*	*B*
	EBLTR	0.40	12	B	0.46	14	B
	WBLTR	0.24	10	B	0.25	12	B
	NBLTR	0.65	28	C	0.37	20	C
	SBLTR	0.25	20	B	0.29	19	B
Meloche Road & Simcoe Street/Pike Road (Signalized)	Overall	0.65	14	B	0.75	19	B
	EBLTR	0.54	14	B	0.31	10	A
	WBLTR	0.81	28	C	0.92	34	C
	NBLTR	0.57	10	A	0.59	14	B
	SBLTR	0.22	6	A	0.55	13	B
Front Road North & Valley Road/Malden Road (Signalized)	*Overall*	*0.57*	*19*	*B*	*0.71*	*19*	*B*
	EBLTR	0.00	0	-	0.00	0	-
	WBL	0.26	13	B	0.52	17	B
	WBR	0.05	11	B	0.05	11	B
	NBTL	0.88	24	C	0.52	14	B
	NBR	0.16	12	B	0.12	11	B
	SBL	0.40	21	C	0.33	16	B
	SBTR	0.32	12	B	0.89	25	C
Howard Avenue & Pike Road (Signalized)	*Overall*	*0.49*	*15*	*B*	*0.60*	*18*	*B*
	EBLTR	0.66	18	B	0.57	16	B
	WBLTR	0.44	14	B	0.81	24	C
	NBLTR	0.32	12	B	0.17	11	B
	SBLTR	0.17	11	B	0.39	13	B
Meloche Road & Alma Street (Signalized)	Overall	0.52	14	B	0.90	25	C
	EBTR	0.56	12	B	0.44	6	A
	WBTL	0.78	20	B	**0.95**	**33**	**C**
	NBLR	0.30	10	A	0.68	48	D
Fryer Street/Tofflemire Street & Alma Street (Signalized)	*Overall*	*0.82*	*22*	*C*	*0.52*	*18*	*B*
	EBLTR	0.50	9	A	0.72	17	B
	WBLTR	0.90	27	C	0.81	21	C
	NBLTR	0.65	30	C	0.19	13	B
	SBLTR	0.04	18	B	0.02	11	B
Sandwich Street South & Murray	WBLTR	0.02	17	C	0.05	25	C
	NBL	0.00	0	-	0.00	0	-

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Street (Stop-controlled)	NBTR	0.53	0	-	0.60	0	-
	SBL	0.00	11	A	0.02	12	B
	SBTR	0.38	0	-	0.78	0	-
Sandwich Street South & Gore Street (Stop-controlled)	EBLTR	0.05	16	C	**0.18**	**39**	**E**
	WBL	0.10	19	C	0.03	34	D
	WBR	0.03	15	C	0.03	17	C
	NBTR	0.53	0	-	0.55	0	-
	SBL	0.01	11	A	0.02	11	B
	SBT	0.37	0	-	0.76	0	-
Sandwich Street South & Park Street (Stop-controlled)	EBLTR	**0.42**	**40**	**E**	**0.33**	**41**	**E**
	WBLTR	0.02	19	B	**0.08**	**36**	**E**
	NBL	0.01	9	A	0.04	13	B
	NBTR	0.50	0	-	0.49	0	-
	SBL	0.00	0	-	0.01	10	A
	SBTR	0.36	0	-	0.66	0	-
Sandwich Street South/Front Road South & Dalhousie Street (Stop-controlled)	EBLTR	0.03	13	B	0.10	12	B
	WBLTR	0.00	0	A	0.00	0	A
	NBL	0.01	8	A	0.02	8	A
	NBTR	0.16	0	-	0.19	0	-
	SBLTR	0.00	0	-	0.00	0	-
Dalhousie Street & North Street (Stop-controlled)	WBLR	0.03	8	A	0.07	8	A
	NBTR	0.06	7	A	0.07	7	A
	SBLT	0.02	7	A	0.04	7	A
Dalhousie Street & Richmond Street (Stop-controlled)	WBLR	0.08	8	A	0.14	8	A
	NBTR	0.10	8	A	0.14	8	A
	SBLT	0.05	8	A	0.13	8	A
Dalhousie Street & Pickering Street (Stop-controlled)	WBLR	0.07	9	A	0.12	10	A
	NBTR	0.04	0	-	0.03	0	-
	SBLT	0.02	4	A	0.04	4	A
County Road 20 & Front Road South (Stop-controlled)	EBLR	0.09	11	B	0.10	13	B
	NBTR	0.01	1	A	0.02	1	A
	SBLT	0.13	0	-	0.21	0	-
Dalhousie Stret & Murray Street (Stop-controlled)	WBLR	-	-	-	-	-	-
	NBT	0.09	7	A	0.09	7	A
	SBT	0.08	7	A	0.14	8	A
	EBLTR	0.13	11	B	0.09	11	B

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Dalhousie Street & Park Street (Stop-controlled)	WBLTR	0.06	9	A	0.16	11	B
	NBLTR	0.00	0	-	0.00	0	-
	SBLT	0.00	1	A	0.01	1	A
	SBR	0.00	0	-	0.00	0	-
Fryer Street & Richmond Street (Stop-controlled)	EBLTR	0.24	11	B	0.25	10	B
	WBLTR	0.43	13	B	0.25	11	B
	NBLTR	0.52	14	B	0.21	11	B
	SBLTR	0.33	12	B	0.23	10	B

Under future background 2040 conditions, as indicated within Table 5-5, a few intersections along the Sandwich Street corridor are expected to perform at critical conditions where the v/c ratios are of some movements are 0.85 or greater.

The Sandwich Street & Alma Street, Sandwich Street & Fort Street, Sandwich Street & Richmond Street, Sandwich Street & Simcoe Street and Meloche Road & Alma Street intersections present these near- or at-capacity conditions during Horizon 3. These operations are indicative or a possible need for further road network and transit improvements to accommodate the forecasted travel volumes at these intersections.

5.1.7 Compatibility of Roundabouts

Roundabouts have emerged as a popular and effective traffic management solution which addresses issues related to congestion, safety, and overall traffic flow at intersections. Unlike traditional stop-controlled intersections, roundabouts are designed to facilitate continuous traffic movement by channeling vehicles in a circular path around a central island. One of the key benefits of constructing roundabouts is their proven ability to enhance traffic calming measures. By promoting a smoother flow of traffic and eliminating the need for abrupt stops, roundabouts reduce the likelihood of aggressive driving behaviors and contribute to a more controlled and predictable traffic environment.

The safety improvements associated with roundabouts are notable, as studies consistently show a reduction in the severity and frequency of crashes compared to stop-controlled intersections. The circular design minimizes severity of crashes, such as right-angle and high-speed collisions, which are common in traditional intersections. Additionally, the lower speeds maintained within roundabouts contribute to decreased crash severity, as collisions are more likely to be glancing or sideswipes rather than high-impact crashes. These safety enhancements make roundabouts an attractive option for urban planners and traffic engineers seeking sustainable solutions to mitigate road accidents and improve overall transportation safety.

Moreover, roundabouts often result in improved traffic efficiency and reduced travel times. The continuous flow design minimizes delays caused by stop signs or traffic signals, making them particularly effective in areas with heavy traffic volumes. As vehicles navigate the circular path, they

merge seamlessly, allowing for a more efficient use of road capacity. This increased efficiency not only benefits drivers by reducing travel times but also contributes to decreased fuel consumption and lower emissions, aligning roundabouts with broader environmental and sustainability goals.

The construction of roundabouts presents a multifaceted approach to traffic management, offering benefits that relating to enhanced safety, efficiency, and sustainability in urban landscapes. Within Amherstburg, roundabouts can be implemented at intersections which indicate future traffic constraints or experience numerous collisions. As outlined above, there are a total of 5 intersections which are currently stop-controlled, which have been recommended to be signalized to ensure acceptable traffic operations in future horizon scenarios.

The intersections along Sandwich Street (Sandwich Street & Fort Street and Sandwich Street & North Street) do not support a feasible scenario for constructing roundabouts largely due to the space limitations in the area. Both intersections are enclosed by existing developments, parts of which would need to be expropriated or deconstructed to install a roundabout. The Alma Street & Fryer Street/Tofflemire Street intersection is also constrained by space limitations and does not indicate a suitable roundabout location.

The remaining two intersections which are expected to experience traffic constraints (Meloche Street & Alma Street and Meloche Road & Simcoe Street) are unlike the previous intersections as they are currently not surrounded by existing developments.

In conjunction with this TMP, a separate Intersection Control Study (ICS) has been undertaken for the Meloche Road & Simcoe Street intersection, which outlined a priority to improve pedestrian crossings at the intersection. It was concluded that traditional roundabout designs generally do not provide superior pedestrian crossing benefits over protected signalized intersections and therefore, would not be suitable for this location. However, the design of a roundabout can make a difference in terms of safety for active transportation users. The use of a protected radial roundabout with appropriate setbacks, buffers and pedestrian and cyclist crossing facilities will provide benefits for active mode users over a protected intersection.

The remaining intersection of Meloche Street & Alma Street can support a new roundabout to enhance traffic operations and reduce chances of vehicular collisions. Additionally, as this roundabout would be placed on the north-east corner of the town, it would exist an indicator of an upcoming built-up area for west-bound drivers that are entering the Town.

5.2 Road Safety

Based on the collision data and speed data discussed in Section 4.5, and holistically considering the overall improvements proposed to active transportation, transit, and road infrastructure in the Town, various specific measures to improve road safety for all users have been assessed.

These improvements are inclusive of short-term measures such as traffic calming gateways into a slow speed area in the downtown core, to long-term improvements to the right-of-way design of all roadways based on updated cross-section recommendations.

It is noted that the improvements outlined in this section are anticipated to be adopted in phases over time, with the design of specific interventions (gateways, raised crossings, etc.) at the discretion of Town staff. Generally, it is expected that roadways will be redesigned based on the following recommendations once the existing infrastructure reaches the end of its life cycle and is designated for resurfacing or reconstruction.

5.2.1 Network Safety Improvements

5.2.1.1 The "Big Move" - Proposed Downtown Slow Zone

As discussed in **Section 4.5**, the downtown area has the highest traffic volumes and has recorded the greatest number of crashes according to collision data from 2019 to 2021. The Town should ensure local streets are traffic calmed and suitable environments for the mixing of road users, allowing users of all ages and abilities to cycle on the roadway. As part of the recommended network, two areas around Downtown Amherstburg are recommended to be designated as Slow Speed Zones with **30 km/hr speed limits** on local streets and priority for the implementation of traffic calming measures.

The Downtown Slow Zone can best be described in two parts. The first zone is the downtown core, bound by Fort Malden Drive to the north, Sandwich Street South to the east, Park Street to the south, and the Detroit River to the west. As the hub of the community with shops, services, restaurants, cafes, and numerous tourist attractions, prioritizing people in this zone would contribute to the creation of a safe, inviting, and vibrant core as the heart of the community.

The second zone is the residential area bound by Richmond Street to the north, Victoria Street South to the east, Simcoe Street to the south, and Sandwich Street South to the west. This area includes the Amherstburg Freedom Museum (a previously identified tourist attraction) and is within a 10 to 15-minute walk or 5-minute bicycle ride of the downtown core. Creating a designated slow zone and implementing traffic calming measures here will improve the environment for active transportation and encourage residents of the neighbourhood to walk for their daily needs. The implementation of traffic calming measures in this area will also help mitigate the potential for Murray Street and Gore Street to be utilized as cut-through routes to avoid calming and potential minor traffic delays caused by other right-of-way improvements proposed on Richmond Street and Murray Street.

The proposed downtown "slow zone" is illustrated in **Figure 5-3**.

Figure 5-3: Proposed Slow Zone

The following traffic calming measures are proposed, as illustrated in **Figure 5-3**:

- Gateway treatments, which are a mixture of ground markers and vertical signage, at the entrance to local streets within the slow zone to indicate the change in driving environment and expected driving behaviour;
- Implementation of traffic circles and mini-roundabouts to encourage drivers to slow down at certain intersections where pedestrian crossings are expected and encouraged;
- Raised Intersections in the pedestrian-focused core to reinforce slow speeds and encourage motorists to yield to pedestrians at the crosswalk.

Additional measures for traffic calming and local area traffic management for consideration include:

- Modal filters and directional diverters to deter through traffic from using local streets that would otherwise be served by parallel corridors;
- Regular horizontal and vertical deflection (either through hard physical infrastructure or streetscaping) features throughout certain zones to reduce slingshot effects and reinforce safe speed limits and driver behaviours;
- Signage and markings such as warning signs and posted speed limits as well as hazard pavement markings;
- Landscaping and streetscaping which provide a sense of visual narrowing such as an enclosed tree canopy or through the use of travel lane narrowing;
- Shared spaces and pedestrian zone treatments such as a more tactile roadway surface as well as gateway treatments;
- Circulation and access changes such as modal filters, one-way street arrangements and limited vehicle type access.

Overall, the proposed local area traffic management goes beyond reducing speeds and focuses on creating comprehensive strategies for optimizing traffic flow, enhancing safety, and fostering community. The intent is to design streets that cater to the needs of all users, including pedestrians, cyclists, and transit users. Therefore, all sidewalks will maintain accessibility standards. Techniques including the establishment of slow zones, traffic diversions, and one-way streets help discourage through traffic while maintaining local access. This approach not only improves safety but also promotes social interaction, reduces noise levels, and enhances the overall quality of life in the area.

5.2.1.2 Justification for Downtown Slow Zone

The integration of slow zones in urban planning and transportation infrastructure is a strategic approach that fosters safer, more livable, and sustainable communities. Slow zones, characterized by lower speed limits in designated areas, are justified by their capability to enhance road safety, reduce accidents, improve pedestrian and cyclist comfort, and contribute to overall urban quality of life. This approach aligns with the broader goals of promoting active transportation, reducing the severity of accidents, and cultivating vibrant public spaces in the Town of Amherstburg.

Slow zones offer a range of benefits that contribute to safer roads and improved urban environments, such as:

- **Enhanced Road Safety:** Lowering speed limits in slow zones significantly reduces the risk of accidents, especially those involving pedestrians and cyclists. Slower speeds allow drivers more time to react to unexpected situations, leading to fewer collisions and minimizing the severity of accidents when they do occur.
- **Pedestrian and Cyclist Comfort:** Slow zones create a more pedestrian and cyclist-friendly environment, making streets more inviting for people to walk or cycle. This encourages the use of active transportation, reducing traffic congestion and improving public health.
- **Improved Livability:** Slow zones contribute to the creation of more livable urban spaces. Reduced noise levels, less aggressive driving behavior, and improved air quality lead to an overall higher quality of life for residents.
- **Community Engagement:** The introduction of slow zones often involves community engagement and participation. This fosters a sense of ownership and pride among residents, leading to increased community cohesion.
- **Economic Benefits:** Safer streets and enhanced walkability can attract more visitors to commercial areas within slow zones, benefiting local businesses.

There are numerous examples of slow zone integrations – some Canadian cities which have successfully implemented slow zones and witnessed positive outcomes include:

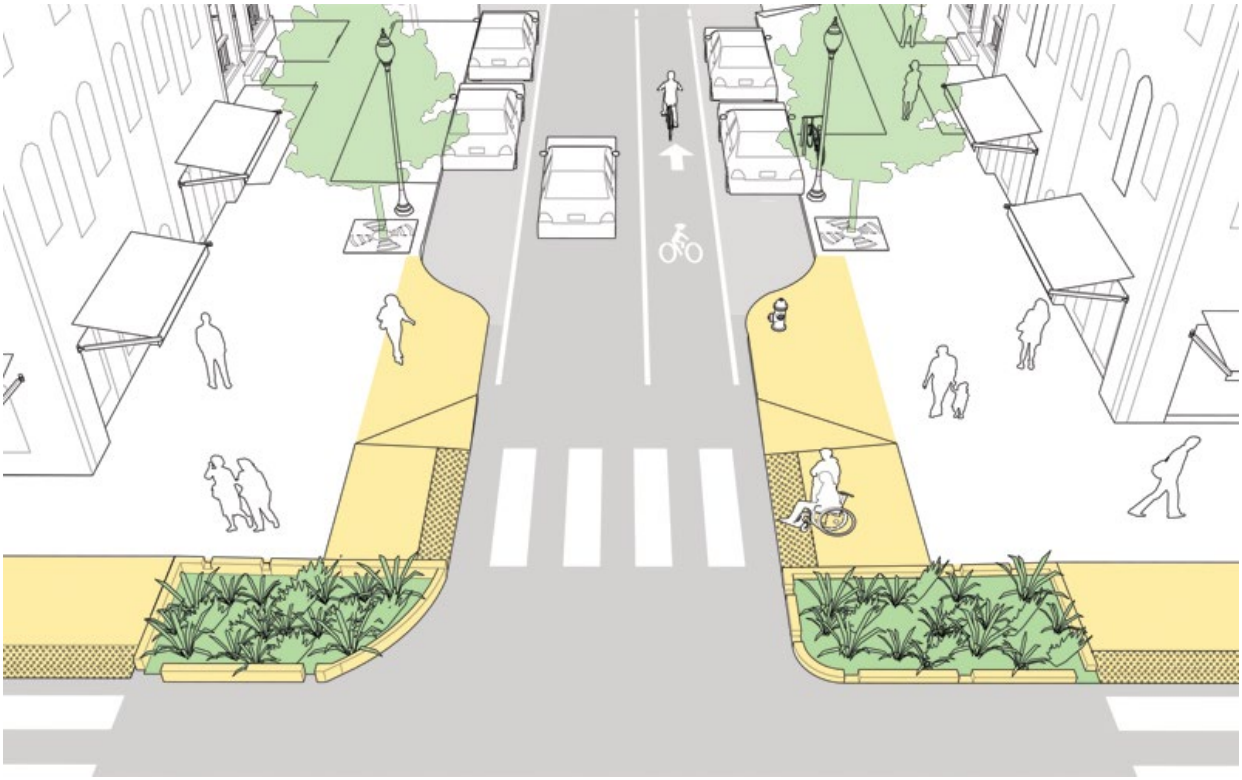
- **Montreal, Quebec:** Montreal introduced slow zones in certain neighborhoods, reducing speed limits to 30 km/h. This initiative led to a 30% reduction in road accidents and an improved sense of safety among pedestrians and cyclists.
- **Calgary, Alberta:** Calgary established residential slow zones with a 30 km/h speed limit in certain areas. These zones have contributed to a safer environment for children playing outdoors and have received positive feedback from residents.
- **Vancouver, British Columbia:** Vancouver implemented slow zones in school areas, parks, and residential neighborhoods, enhancing safety for vulnerable road users. These zones have helped reduce the number of accidents involving children.
- **Halifax, Nova Scotia:** Halifax has implemented slow zones in downtown areas and neighborhoods with heavy pedestrian traffic. The reduced speed limits have contributed to safer road conditions and more pleasant urban spaces.

These examples demonstrate that slow zones play a pivotal role in creating safer and more livable communities. The integration of slow zones aligns with the shared objectives of reducing accidents, promoting active transportation, enhancing public spaces, and ultimately improving the overall quality of life in the Town.

5.2.1.3 Recommended Curb Extensions (Curb Bump Outs)

In addition to the slow speed zone, curb bump-outs are recommended at the locations shown in **Figure 5-6.** Curb bump-outs are extensions which extends the width of the sidewalk and curb line at crosswalks, as illustrated in **Figure 5-4** and **Figure 5-5**. They visually and physically narrow the roadway, which discourages speeding and slows turning vehicles at intersections, helping to create safer and shorter crossings for pedestrians.

Figure 5-4: Curb Bump Outs

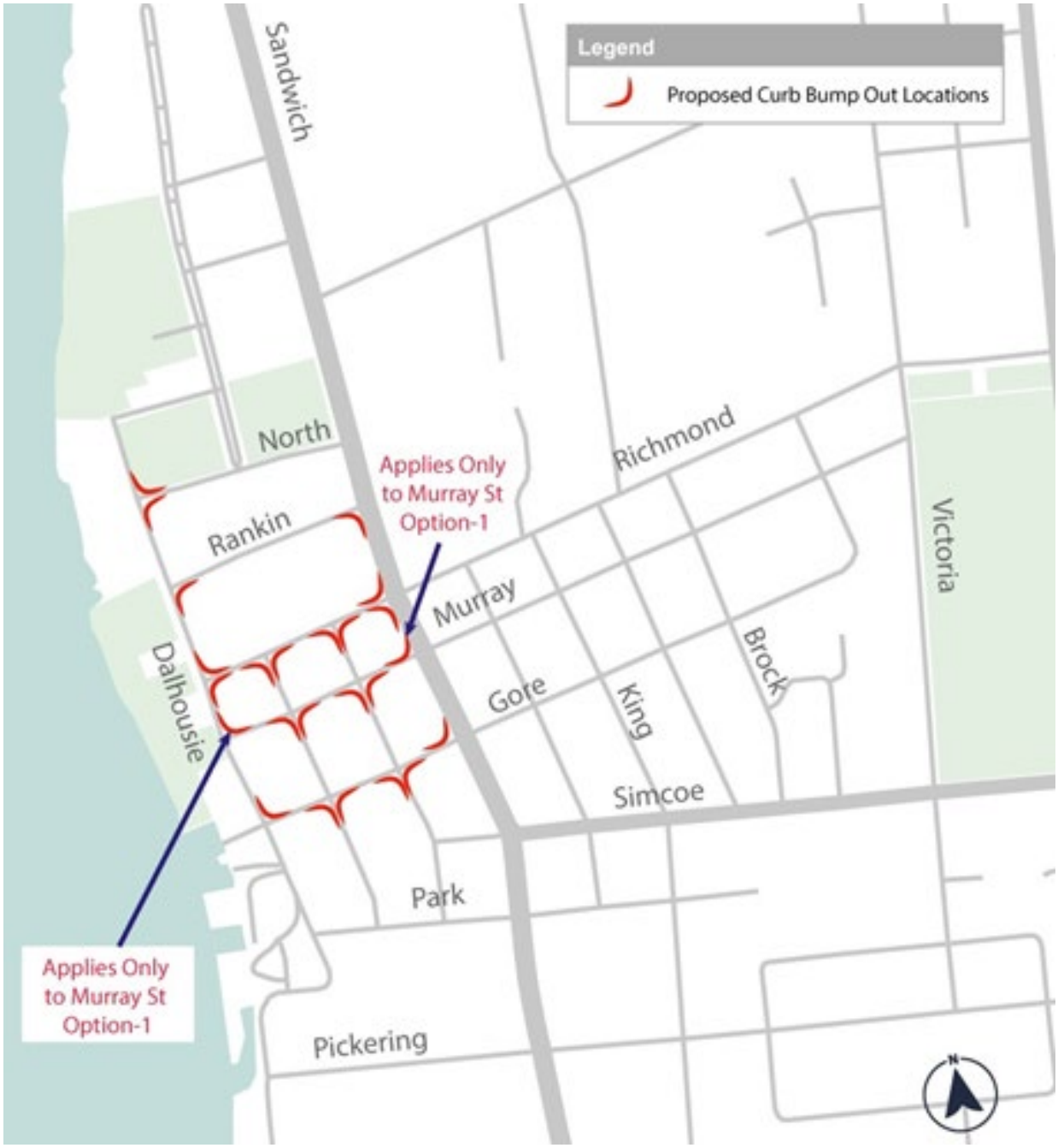


Source: NACTO

Figure 5-5: Curb Bump Outs on a street.

Source: St. Andre St, Montreal, QC

Figure 5-6: Proposed Curb Bump Out Locations



5.2.1.4 High Risk Zones

The collision and speed data detailed in **Section 4.5** was analyzed to inform the proposed traffic calming improvements. Some locations which are vulnerable to crashes have been identified and a few traffic calming measures proposed from which one or more measures may be chosen. Please refer to the **Canadian Guide to Traffic Calming** for more details on the proposed countermeasures, their application, consideration, design guidelines, maintenance, and operation.

Please note that Sandwich Street, Fryer Street and Simcoe Street are classified as arterial roads, however for the purpose of traffic calming implementation, the associated recommendations have been individually assessed based on their local conditions.

1. **Sandwich Street between Alma Street and Lowes Side Road:** This segment has seen the highest number of collisions in Amherstburg per the crash history data. The 85th percentile speed observed on this is 10 km/hr over the posted speed limit. This is also a heavy vehicle route. Recommended traffic calming countermeasures include:
    - Speed Cushion
    - Raised Intersections
    - Enforcement
    - Speed display devices
    - Pavement markings
2. **Fryer Street and the Fryer & Simcoe Intersection:** The 85th percentile speed observed on Fryer Street is over 10 km/hr more than the posted speed limit. 4 collisions involving injury occurred at Simcoe & Fryer intersection per the 3-year crash history data. Fryer Street is also part of a recommended bike route. Recommended traffic calming countermeasures include:
    - Raised Crosswalks
    - Raised Intersection
    - Speed Cushions along Fryer Street
    - Speed Humps/Tables along Fryer Street
    - Intersection Channelization
    - Enforcement
3. **Dalhousie Street south of Pickering Drive and Dalhousie & Pickering intersection:** There have been 7 collisions involving injury in the 3-year crash history. This area has numerous access points along Dalhousie Street. Based on the speed data obtained from TYLin's Big Data partner Urban SDK, speeding has not been an issue in this area. It is recommended that the Town investigate the possible causes of crashes and implement applicable measures.

4. **Major collector roads** –

   i. **County Road 50 between County Road 20 and County Road 41**

   ii. **Malden/Smith Road between Pike Road and County Road 20**

   The 85th Percentile speed is 10 km/hr or more than the posted speed limit per the speed data on the above 2 segments per the speed data.

   iii. **Essex Townline Rd/County Road 8** –1 fatality occurred near Concession Road 4 per the crash history.

   Recommended traffic calming countermeasures include:

   - Transverse Rumble Strips
   - Gateways
   - Enforcement
   - Vertical Centerline Treatments
   - Pavement markings
   - Education – Speed Display Devices

5. **Arterial Roads**

   The following roadways are under the jurisdiction of the County of Essex, and any decision regarding the implementation of traffic calming measures would be at the discretion and direction of the County.

   i. Front Road North between Middle Side Road and County Road 8

   ii. Middle Side Road between Walker Road and Front Road North

   iii. Howard Avenue between Pike Road and Middle Side Road

   All three of these segments have a significant number of collisions including 1 fatality on each of them per the 3-year crash history. The 85th Percentile speed is 10 km/hr or more than the posted speed limit per the speed data on all these segments. To note, the fatality on Howard Avenue was near a trail path. There are also a significant number of collisions at and near the Howard and Alma Street intersection.

5.2.2 Road Design (Cross-Section) Improvements

The right-of-way design of existing roadways across the Town of Amherstburg are largely influenced by historic design practices which do not typically align with the strategic objectives of the Transportation Master Plan to the improve safety, equity, and sustainability of the Town's transportation network. Therefore, it is recommended that the Town adopt the following updates to typical local, collector, and arterial road cross-sections, which are designed to enhance user safety and balance the needs of all users in the public realm.

It is important to note that the proposed changes might not take effect immediately, as roads will only be repaved and reconstructed once they reach the end of their life cycle. The following improvements should be utilized as a guideline during the detailed design process and will be subject to variations in the right-of-way along a given roadway. It is also noted that future roadway design should be aligned with the roadway's desired operating speed and inclusive of safety and traffic calming improvements recommended within this report.

Furthermore, this section leverages the proposed local, collector and arterial road designs and provides recommended rights-of-way cross-sections for all major roadways within the TMP's downtown focus area. The right-of-way widths depicted are approximate and vary throughout the road's length. The proposed cross-sections maintain the estimated existing ROW width and no additional land acquisition is required except at:

- North Street
- Simcoe Street
- Sandwich Street between Brunner Avenue & Street Arnaud Street
- Sandwich Street between St. Arnaud Street & Fort Street

Generally, vehicular travel lane widths are recommended to be reduced to support slower speeds and influence driver behaviour in pedestrian-priority areas. On-street parking is accommodated and often 'fenced in' at intersections with the use of curb extensions, as illustrated in **Figure 5-7**. Where a green canopy is currently absent, street trees are proposed adjacent to sidewalks and interspaced within the parking lane to provide shade, expand water-permeable surfaces, and provide an improved walking experience. Trees have also been shown to help calm traffic and reduce vehicle speeds by appearing to narrow the width of the roadway, influencing driver behaviour. Finally, wherever possible, sidewalk widths are recommended to be maximized and bike lanes and street furniture be provided.

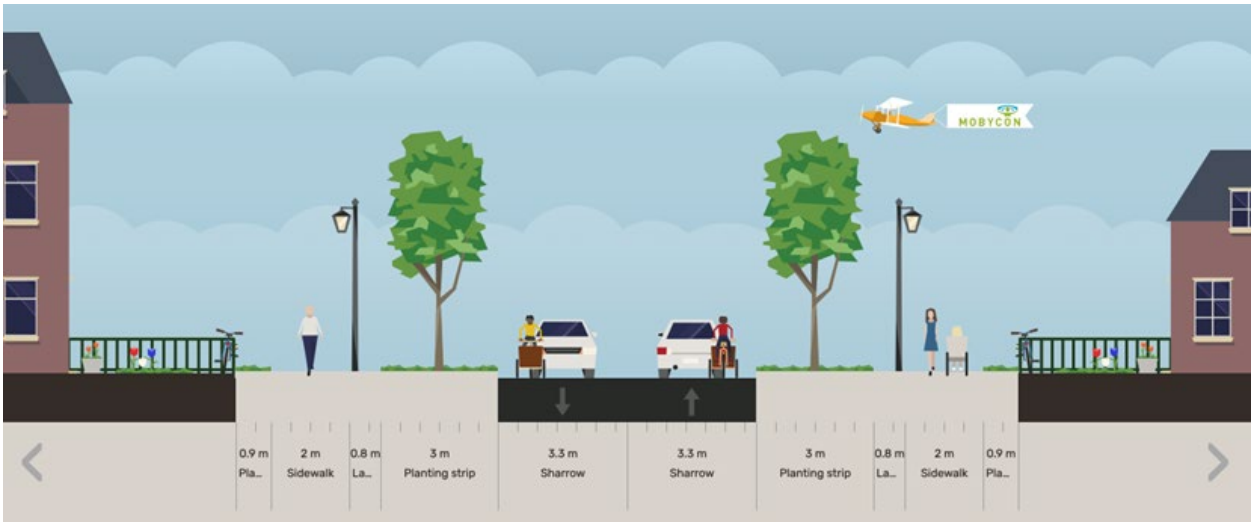
Figure 5-7: On-Street Parking interspersed with trees

Osgood Avenue, Australia. Source: Google Maps

5.2.2.1 Local Roads

Local roads are recommended to be narrowed to help limit vehicular speeds and pedestrian crossing distances at local intersections. As noted above, on-street parking is recommended to be interspersed with trees to provide a shaded canopy and improved traffic calming while maintaining local parking supply. **Figure 5-8** illustrates a typical proposed cross-section for local roadways.

Figure 5-8: Proposed Typical Cross-Section for Local Roads



The following cross-section improvements are proposed for local roads within the TMP Focus Area.

5.2.2.1.1 North Street

Figure 5-9 illustrates a typical snapshot of North Street, near Dalhousie Street, which has a ROW width of approximately 20 metres. **Figure 5-10** illustrates the proposed cross section within same ROW, with wider sidewalks and a dedicated parking lane interspersed with shade and potential amenities such as benches and garbage receptacles.

Figure 5-9: Existing North Street Cross-Section near Dalhousie Street

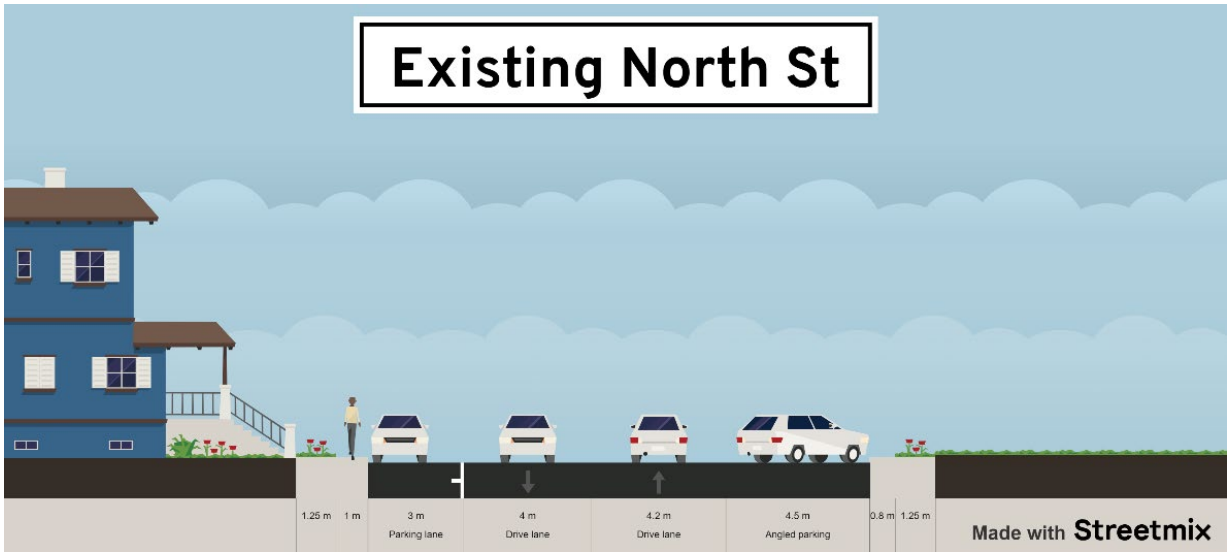


Figure 5-10: Proposed North Street Cross-Section

5.2.2.1.2 Rankin Avenue

Figure 5-11 illustrates a typical snapshot of Rankin Avenue, near Dalhousie Street, with a ROW width of approximately 20 metres. Currently, the westbound lane is designed as a shared driving and parking lane, which visually widens the lane for drivers and increases speeds. **Figure 5-12** illustrates the proposed cross section, within the same ROW, with wider sidewalks and a dedicated parking lane interspersed with shade and potential amenities such as benches and garbage receptacles.

Figure 5-11: Existing Rankin Avenue Cross-Section near Dalhousie Street

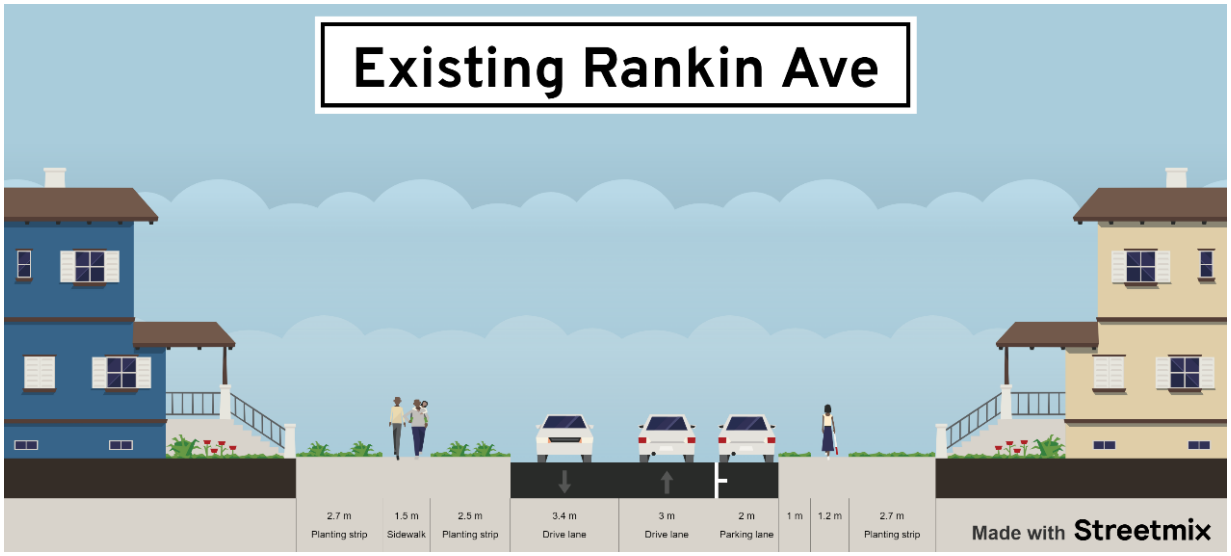


Figure 5-12: Proposed Rankin Avenue Cross-Section

5.2.2.1.3 Richmond Street

Figure 5-13 illustrates a typical snapshot of Richmond Street, near Bathurst Street, which has ROW width of approximately 17.0 m. **Figure 5-14** illustrates the proposed cross section with space reallocated for wider sidewalks, street furniture, and trees interspersed with on-street parking.

Figure 5-13: Existing Richmond Street Cross-Section near Bathurst Street

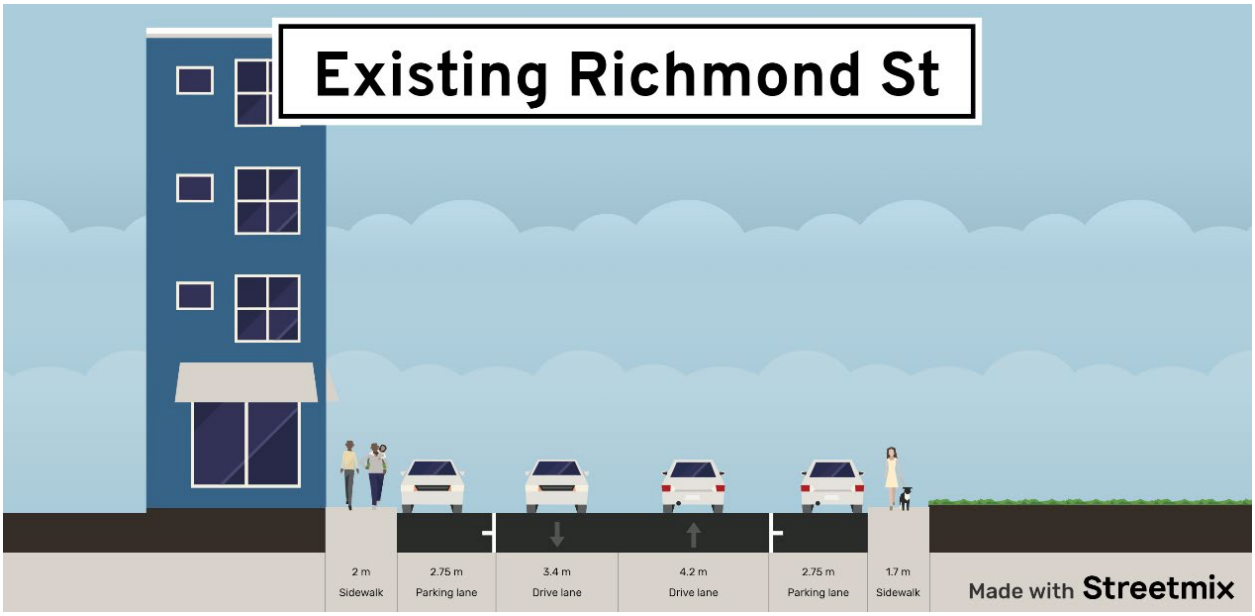
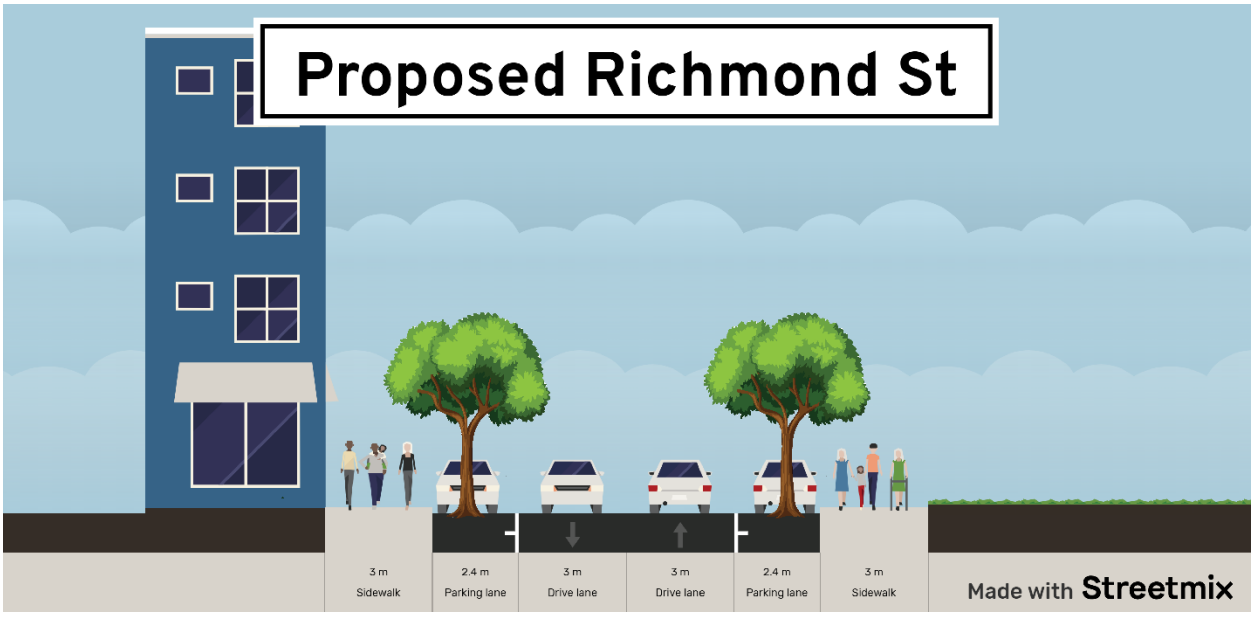


Figure 5-14: Proposed Richmond Street Cross-Section



5.2.2.1.4 Murray Street

Figure 5-15 illustrates Murray Street, near Dalhousie Street, which has an existing right-of-way width of approximately 9.6-metres from building edge to building edge. A few options are proposed for this one-way street, as detailed in **Section 5.6.1**, with Option 1 which maintains on-street parking, illustrated in **Figure 5-16** below.

Figure 5-15: Existing Murray Street Cross-Section near Dalhousie Street

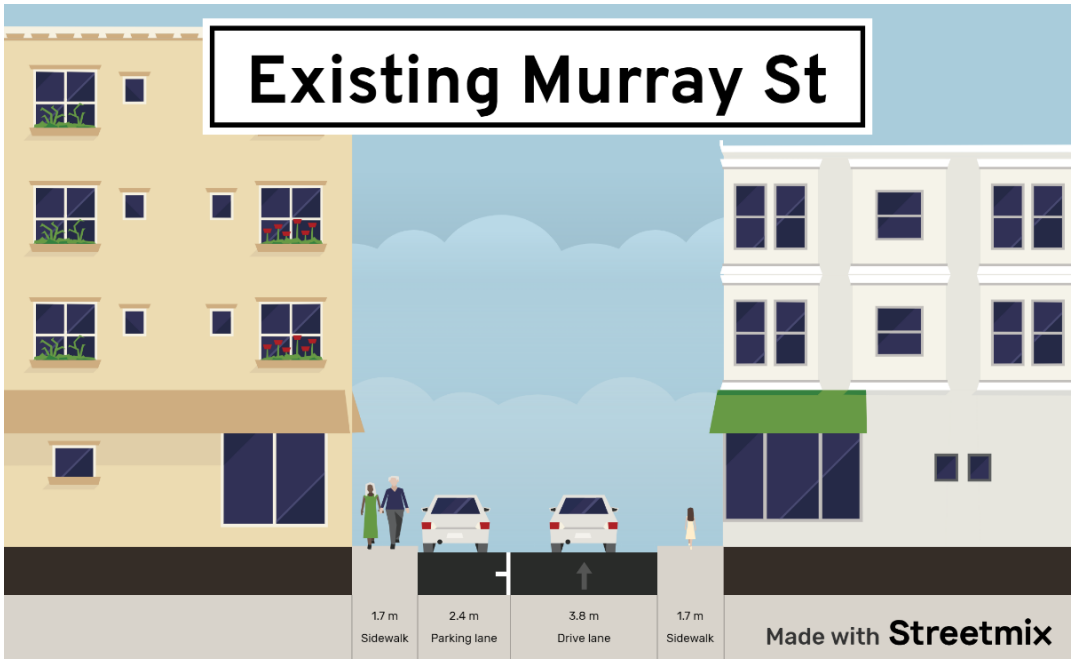


Figure 5-16: Proposed Murray Street Cross-Section – Option 1

5.2.2.1.5 Gore Street

Figure 5-17 illustrates a typical snapshot of Gore Street, near Dalhousie Street, which has a ROW width of approximately 9.5 metres. **Figure 5-18** illustrates the one-way street's proposed cross-section with the inclusion of a dedicated on-street parking lane to increase formalized parking supply in the downtown area.

Figure 5-17: Existing Gore Street Cross-Section near Dalhousie St

Figure 5-18: Proposed Gore Street Cross-Section

5.2.2.1.6 Ramsay Street

Figure 5-19 illustrates a typical snapshot of Ramsay Street, near Richmond Street, which has a ROW width of approximately 16.0 metres. There is notably a lack of pavement markings such as the yellow centerline to delineate driving lanes, in part contributing to speeding and crossing-safety concerns around this roadway. **Figure 5-20** illustrates the proposed right-of-way with wider sidewalks, and a formalized parking lane with interspersed trees and street furniture, bounded by curb extensions to reduce the pedestrian crossing distance and slow speeds at each intersection.

Figure 5-19: Existing Ramsay Street Cross-Section near Richmond St

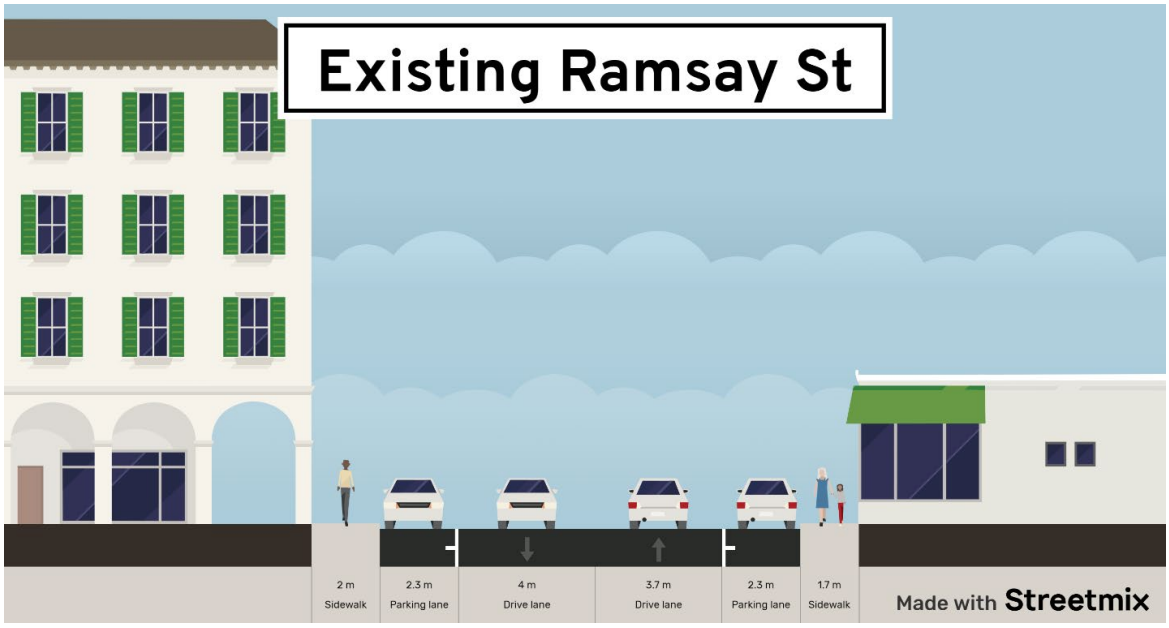
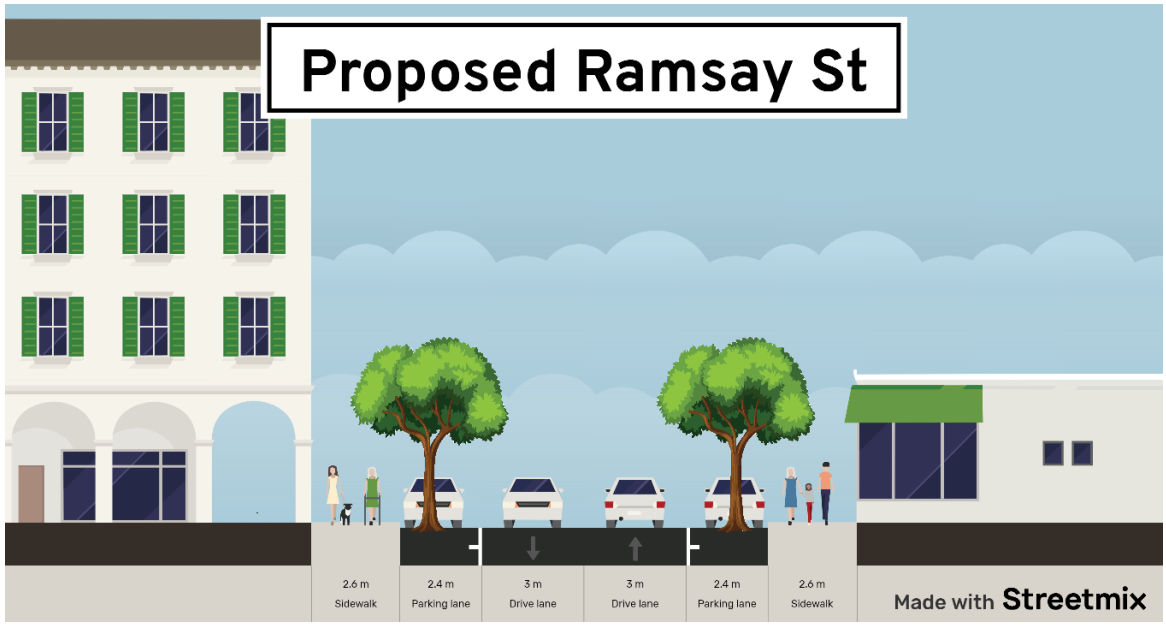


Figure 5-20: Proposed Ramsay Street Cross-Section



5.2.2.1.7 Bathurst Street

Figure 5-21 illustrates a typical snapshot of Bathurst Street, near Richmond Street, which has a ROW width of approximately 16 metres. **Figure 5-22** illustrates the proposed cross section for Bathurst Street with wider sidewalks, and a formalized parking lane with interspersed trees and street furniture, bounded by curb extensions to reduce the pedestrian crossing distance and slow speeds at each intersection.

Figure 5-21: Existing Bathurst Street Cross-Section near Richmond Street

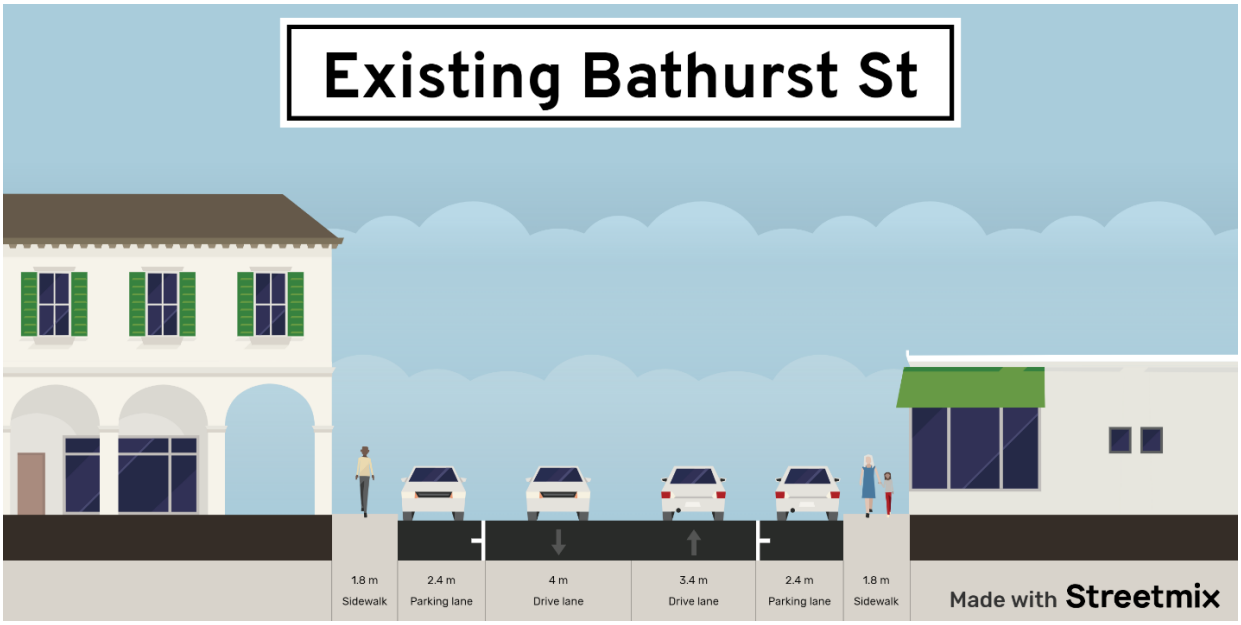
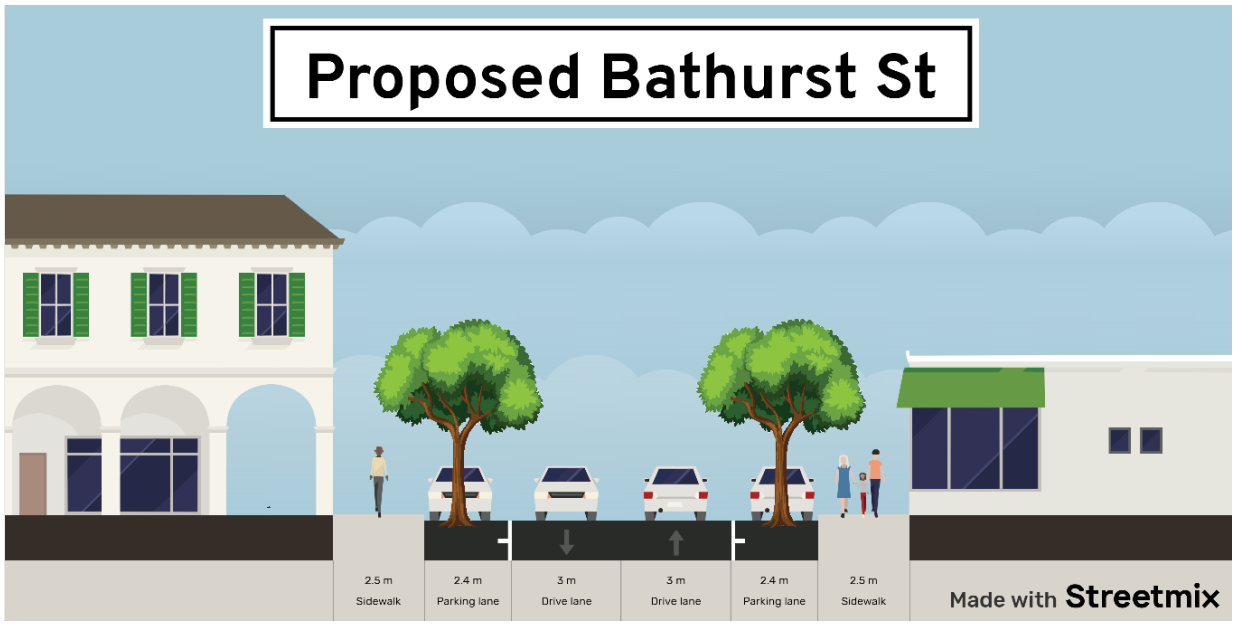


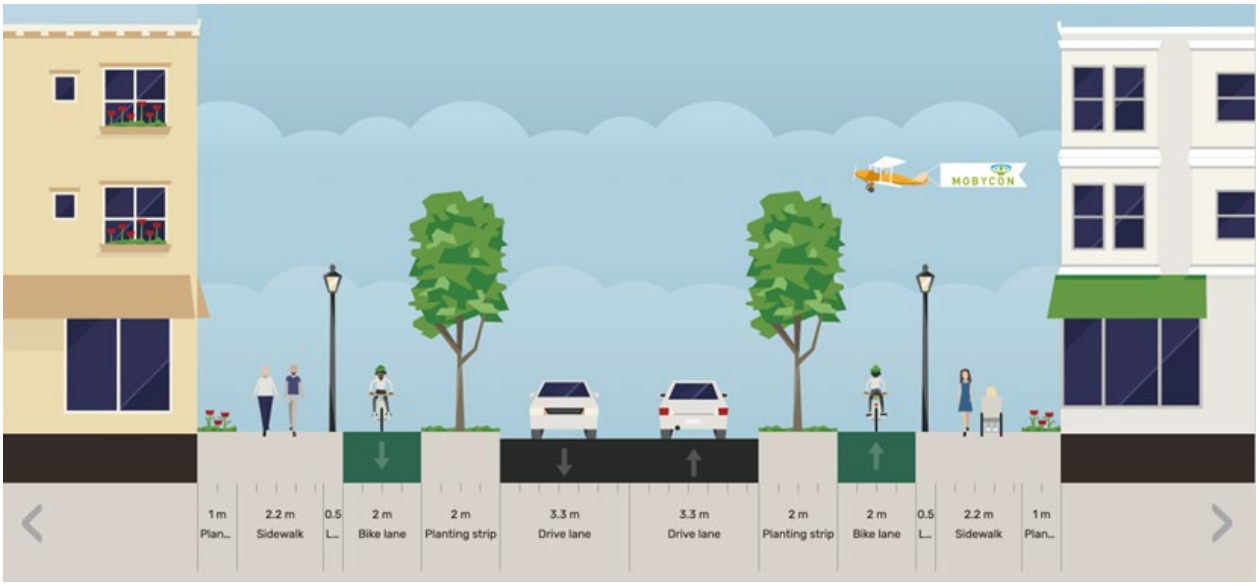
Figure 5-22: Proposed Bathurst Street Cross-Section near Richmond Street



5.2.2.2 Collector Roads

Collector roads are recommended to be designed with vehicular travel lanes sufficiently wide enough to accommodate larger vehicles such as transit buses, while also improving safety and accessibility for vulnerable road users. The roadways should be designed with street trees and pedestrian-oriented lighting, limited on-street parking, and separated and protected cycling infrastructure. **Figure 5-23** illustrates a typical proposed cross-section for collector roadways.

Figure 5-23: Proposed Typical Cross-Section for Collector Roads



5.2.2.2.1 Dalhousie Street

Dalhousie Street is the main collector road within the focus area. Due to its changing environment, the right-of-way recommendations have been divided into four (4) sections, as follows:

- Between North Street and Rankin Avenue;
- Between Rankin Avenue and Richmond Street;
- Between Richmond Street and Murray Street: and,
- Between Murray Street and Gore Street.

North Street & Rankin Avenue:

Figure 5-24 illustrates the typical conditions of Dalhousie Street between North Street and Rankin Avenue, which has a ROW width of approximately 20 metres. The road is part of the CWATS cycling network with signage indicating shared facility for vehicular traffic and cyclists.

Figure 5-25 illustrates the proposed cross-section which provides on-street parking and protected bike lanes on both sides as well as safer and wider sidewalks to better accommodate pedestrian connecting between parks, parking, and downtown businesses.

The narrowed pavement width also supports the desire for Dalhousie Street to function as a shared CWATS facility within the Downtown Slow Zone.

Figure 5-24: Existing Dalhousie St Cross-Section between North Street & Rankin Avenue

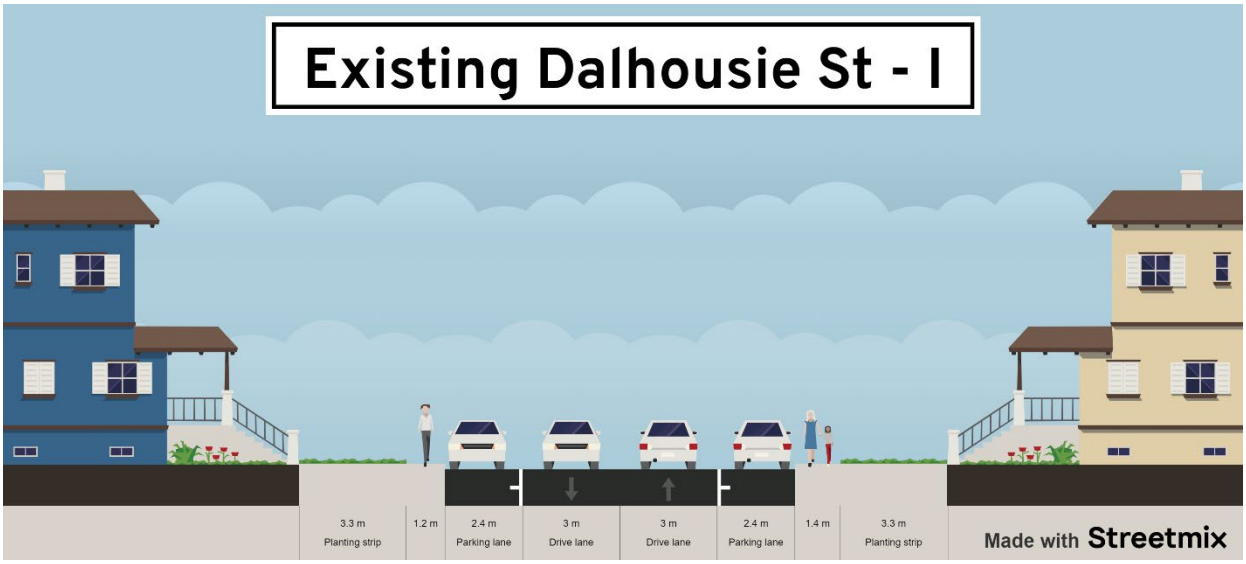
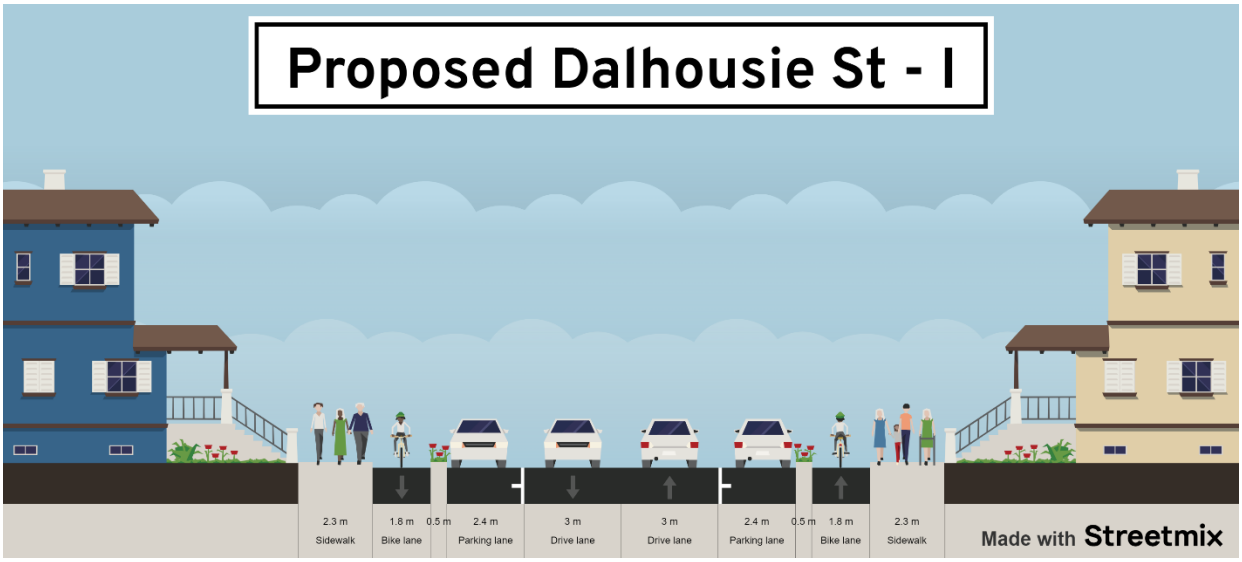


Figure 5-25: Proposed Dalhousie St Cross-Section between North Street & Rankin Avenue



Rankin Avenue and Richmond Street:

Figure 5-26 illustrates the existing typical cross-section of Dalhousie Street between Rankin Avenue and Richmond Street which has a ROW width of approximately 21 metres.

Figure 5-27 illustrates the proposed cross-section of this section which eliminates parallel parking for a wider sidewalk and shared patio space (sidewalks are maintained on both sides), while maintaining angled parking on one side of the road.

Figure 5-26: Existing Dalhousie Street between Rankin Ave & Richmond Street

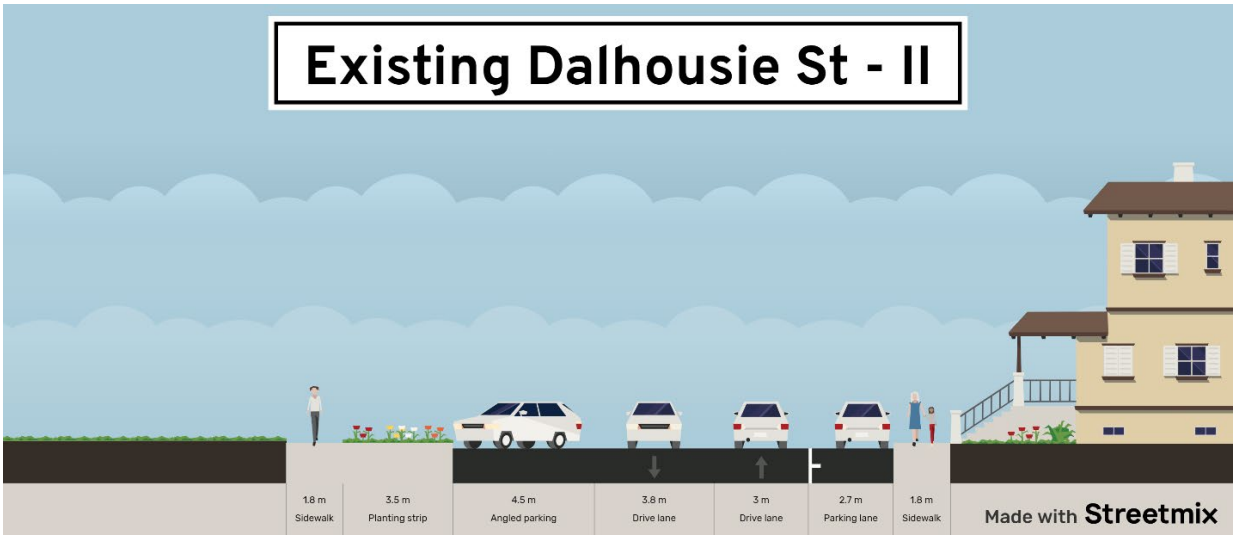
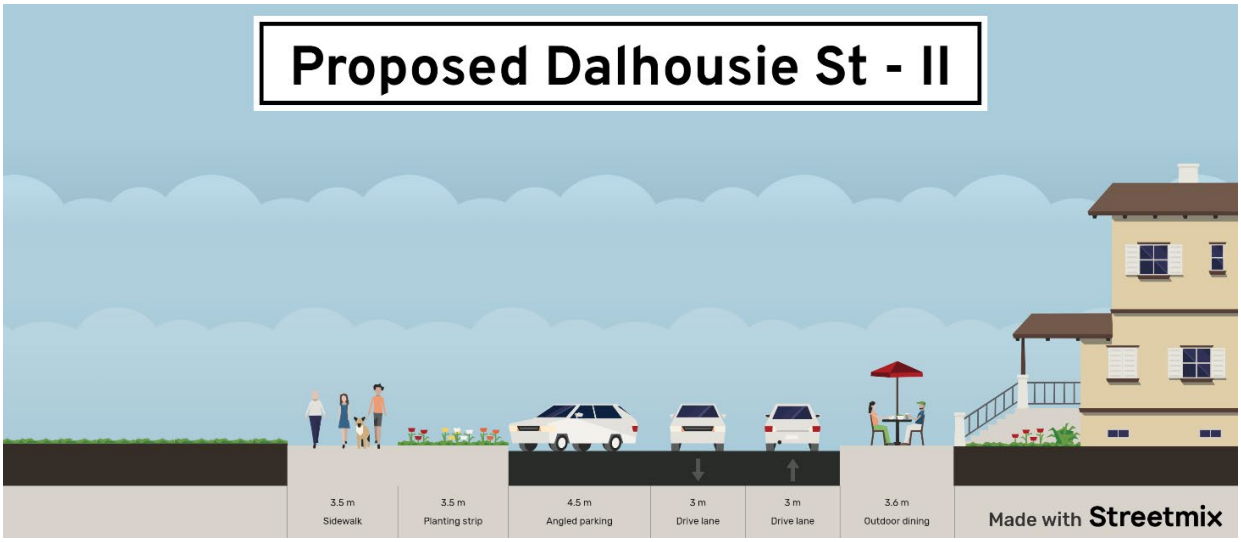


Figure 5-27: Proposed Dalhousie Street between Rankin Avenue & Richmond Street



Additionally, Dalhousie Street between Rankin Avenue and Murray Street has been identified as a key location serving a high place-making function. As Sandwich Street provides a parallel north-south corridor with a higher movement focus, it is proposed that Dalhousie Street would be ideal in

use as a shared street to improve walkability and placemaking as well as forming a north-south cycling connection. Key requirements in achieving a shared space along Dalhousie Street include:

- Gateway treatments at the north and southern end to indicate a change in road conditions. This could potentially be supplemented with horizontal and vertical deflection devices to reinforce travel speed expectations (10km/h for a shared space);
- Open element pavement such as cobbles and brick pavers which provide a visual, auditory and tactile feedback to drivers on the street conditions;
- Curbless street arrangement which induces a controlled conflict environment to slow vehicle speeds. This also has the effect of reducing accessibility barriers along the length of the street for users with mobility impairments); and,
- Signage and line marking indicating the street conditions to drivers, including posted speed limits. For reference, **Figure 5-28** and **Figure 5-29** show examples of shared streets.

Figure 5-28: Shared Street Example - Market Street, Toronto, ON

Figure 5-29 Dundas Street, London ON

Sources: Google Maps Images

Richmond Street and Murray Street:

Figure 5-30 illustrates the typical cross section of Dalhousie Street between Richmond Street and Murray Street which has a ROW width is approximately 12 metres. **Figure 5-31** illustrates the proposed cross-section which reallocates space to maintain appropriate widths of parallel accessible parking bays and drive lanes for a wider pedestrian realm on both sides. The parking lane is interspersed with trees, patios, and other local amenities.

Figure 5-30: Existing Dalhousie Street between Richmond Street & Murray Street

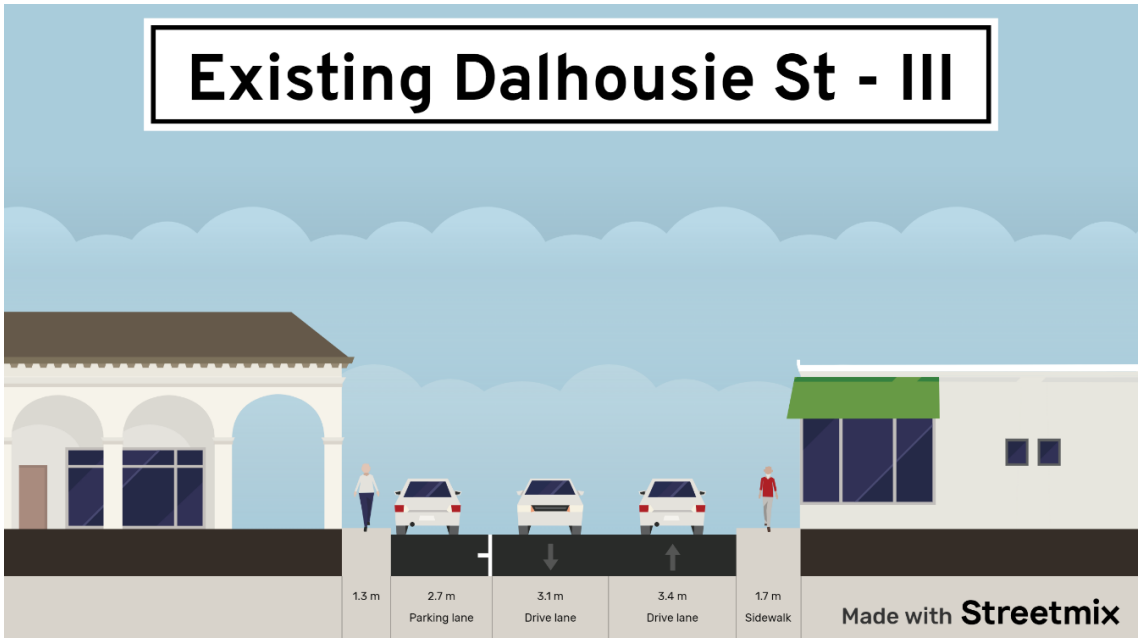
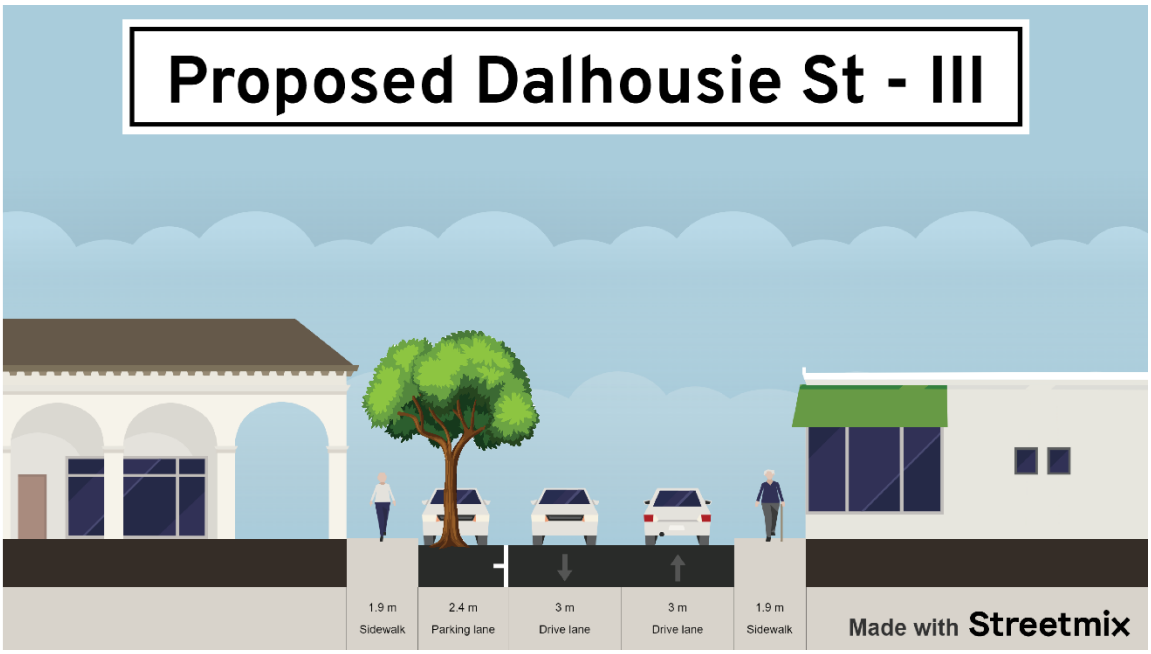


Figure 5-31: Proposed Dalhousie Street between Richmond Street & Murray Street



Murray Street and Gore Street:

Figure 5-32 illustrates the typical cross section of Dalhousie Street between Murray Street and Gore Street, which has a ROW width of approximately 13 metres. **Figure 5-33** illustrates the proposed cross-section which reallocates narrowed vehicular travel lane space for a wider sidewalk and parking lane.

Figure 5-32: Existing Dalhousie Street Cross-Section between Murray Street & Gore Street

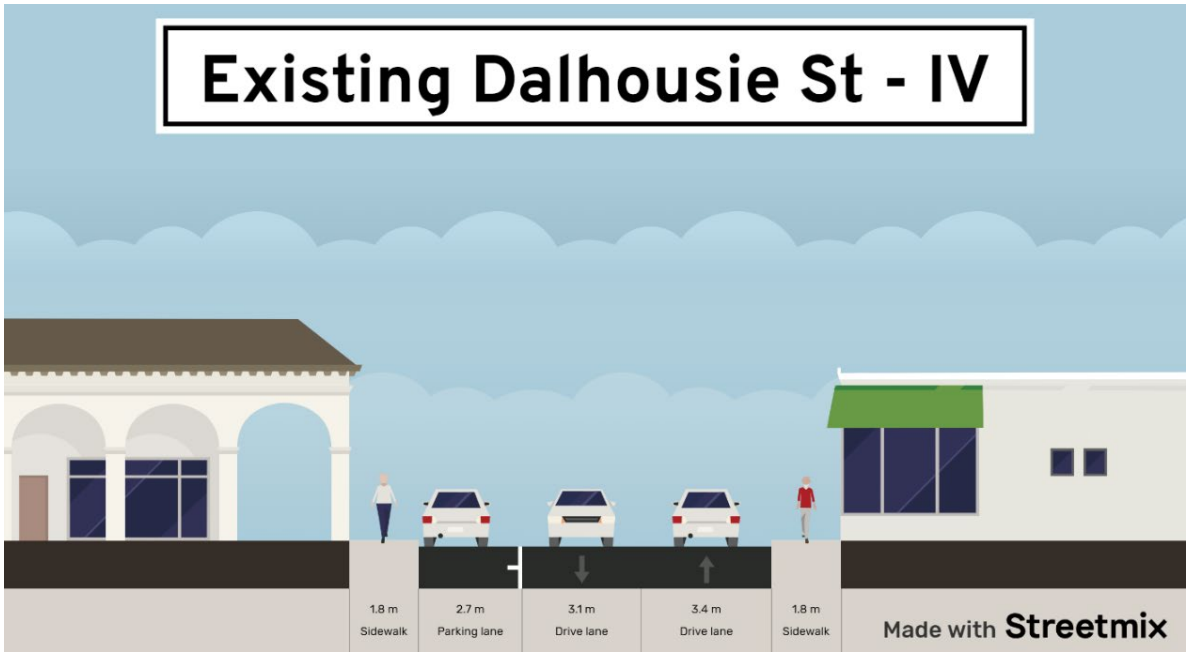
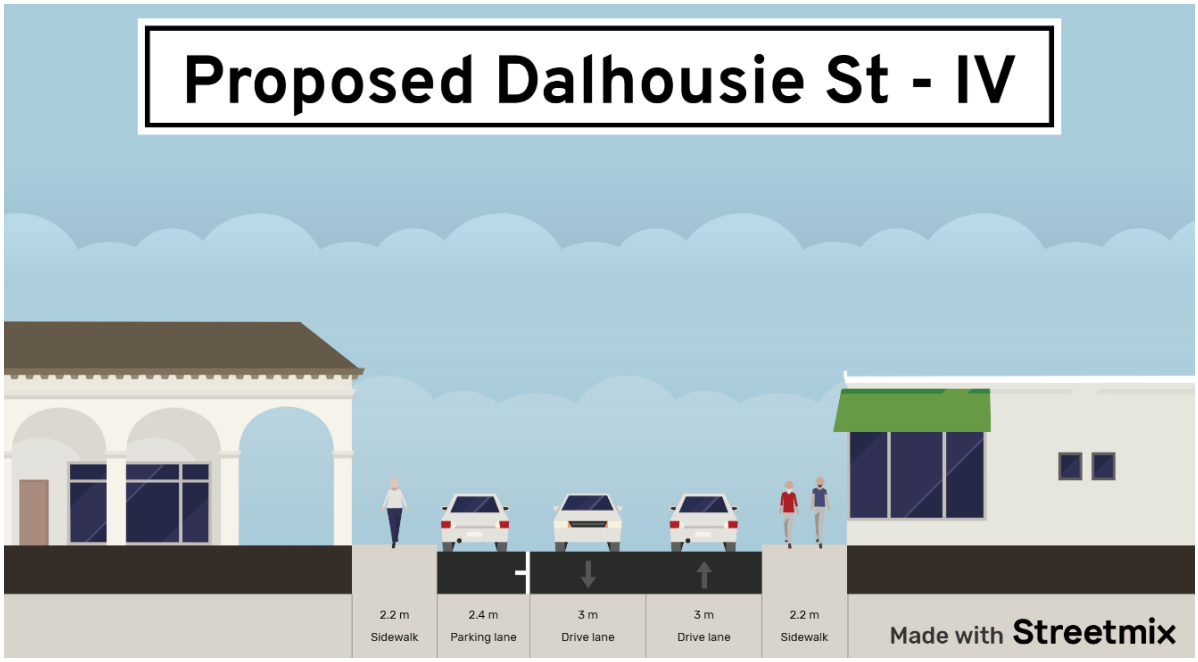


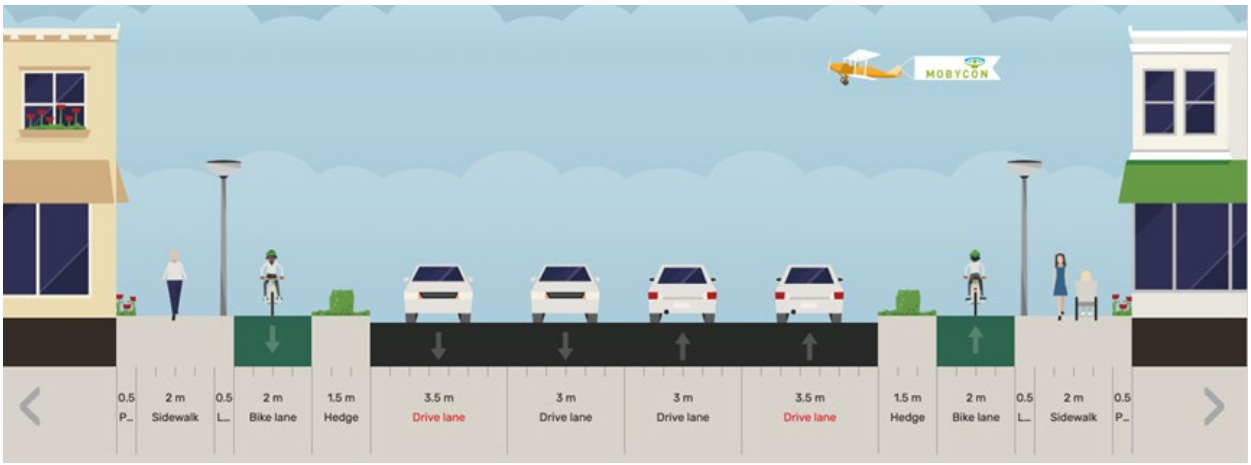
Figure 5-33: Proposed Dalhousie St Cross-Section between Murray Street & Gore Street



5.2.2.3 Arterial Roads

Arterial roads are recommended to be designed to support larger volumes of traffic and specifically to accommodate heavy vehicles and trucks traveling through the Town. On-street parking is discouraged on these roadways, and separation should be prioritized between vehicles and active transportation. **Figure 5-34** illustrates a typical proposed cross-section for arterial roadways.

Figure 5-34: Typical Cross-Section for Arterial Roads



Where recommended by the Active Transportation plan, bike lanes and sidewalks should be designed with a buffer from traffic between 0.3 metres to 1.0 metres wide. This may be in the form of pavement marking buffers or physical buffers like flex bollards, planters, pre-cast concrete curbs, cast-in-place concrete curbs, rubber curbs, concrete barriers, mountable/semi-mountable curb or barrier curbs based on best practices and guidelines from Ontario Traffic Manual (OTM) Book 18.

Additionally, in-boulevard Multi-Use-Paths (MUP) may be incorporated, which horizontally and vertically separate motor vehicle traffic by a curb and a strip of grass which is often referred to as a "boulevard" or paved "splash strip "within the ROW. **Figure 5-35** illustrates examples of MUPs.

Figure 5-35: Separated Multi-Use Paths (MUPs)

Multi-Use Path Separated by Grassy Boulevard, Waterloo

Multi-Use Path Separated by Grassy Boulevard, Richmond Hill

Source: Ontario Traffic Manual Book 18

The following cross-sections are proposed for arterial roads within the TMP Focus Area.

5.2.2.3.1 Simcoe Street

Figure 5-36 illustrates a typical snapshot of Simcoe Street near Meloche Road, which has a ROW width of approximately 24 metres. Simcoe Street, a designated heavy vehicle route, currently lacks sidewalks between Victoria Street and Meloche Road and utilizes paved shoulders that act as shared paths between pedestrians and cyclists. This design increases the risk of injury through interactions between fast-moving and heavy vehicle traffic and vulnerable road users **Figure 5-37** illustrates the proposed cross-section within the same ROW.

Figure 5-36: Existing Simcoe Street Cross-Section near Meloche Road

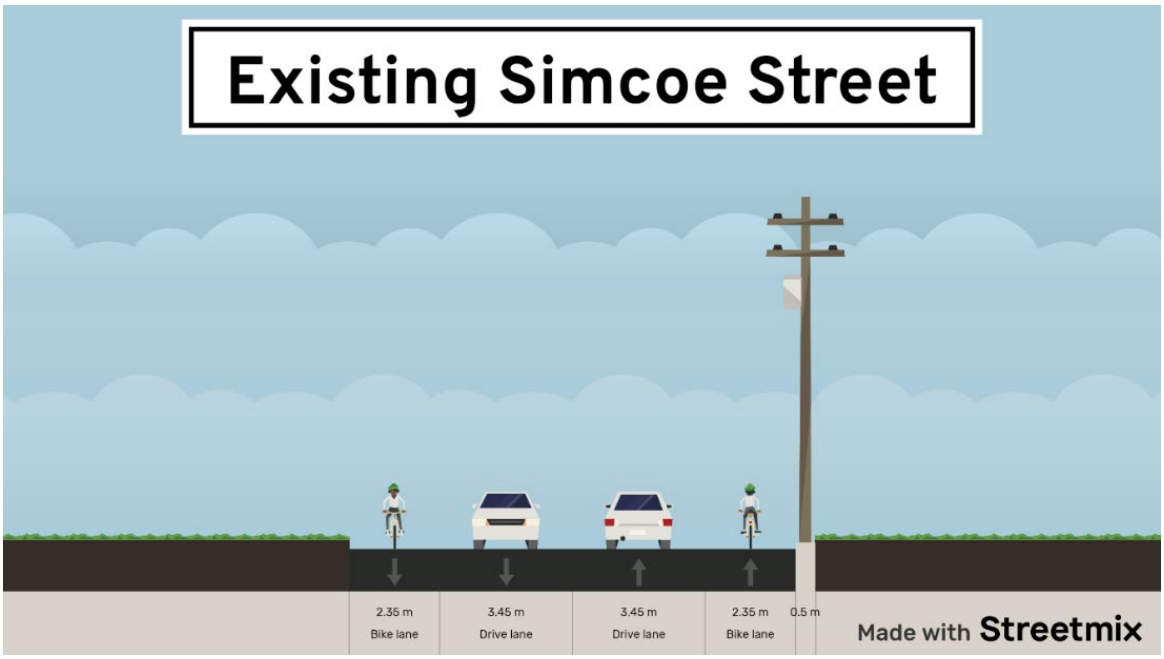


Figure 5-37: Proposed Simcoe Street Cross-Section near Meloche Road

5.2.2.3.2 Sandwich Street

Sandwich Street is a major arterial road within the Town and a designated heavy vehicle route. This roadway is also proposed to include a dedicated cycling facility per the CWATS master plan. Due to the various environments through which it runs, the right-of-way recommendations have been divided into five (5) sections, as follows:

- Between Brunner Avenue and St. Arnaud Street;
- Between Street Arnaud Street and Fort Street;
- Between Fort Street and Park Street;
- Between Park Street and Crownridge Boulevard; and,
- Between Crownridge Boulevard and Dalhousie Street.

Brunner Avenue & St. Arnaud Street:

Figure 5-38 illustrates a typical snapshot of Sandwich Street between Brunner Avenue and Street Arnaud Street, which has a pavement width of approximately 20 to 27metres. **Figure 5-39** illustrates the proposed cross-section improvements for this section of Sandwich Street, including protected cycling facilities and wider sidewalks, within the current ROW width.

Figure 5-38: Existing Sandwich Street between Brunner Avenue & St. Arnaud Street

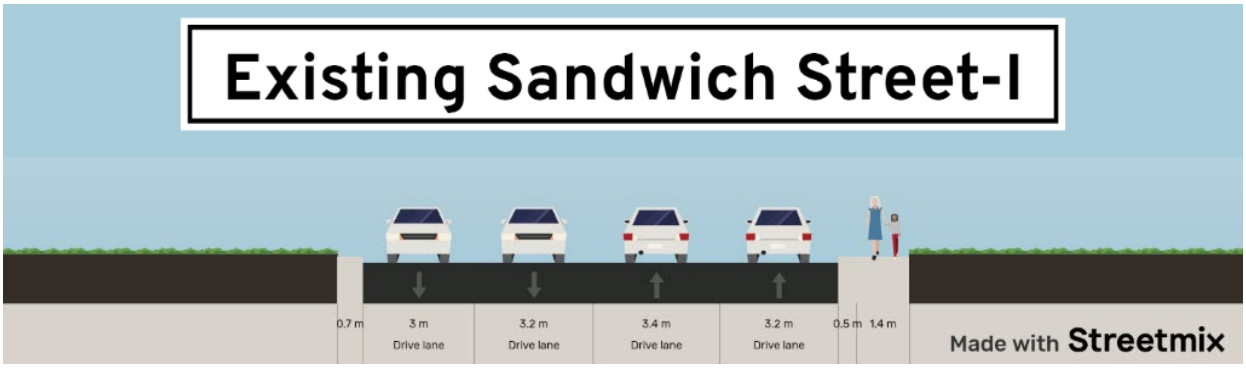
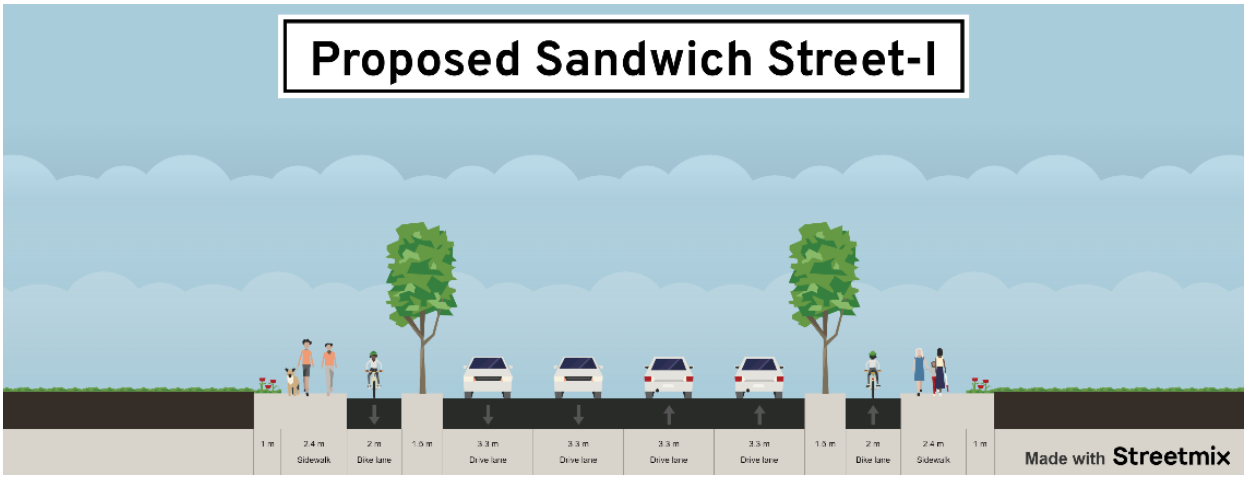


Figure 5-39: Proposed Sandwich Street between Brunner Avenue & St. Arnaud Street



St Arnaud Street and Fort Street:

Figure 5-40 illustrates a typical snapshot of Sandwich Street between St. Arnaud Street and Fort Street, which has a ROW width of approximately 27 metres. This section transitions from a four-lane road to a three-lane road with a center two-way left turn lane. **Figure 5-41** illustrates the proposed cross section which features wider sidewalks, separated and protected bike lanes and narrower vehicular travel lanes.

Figure 5-40: Existing Sandwich Street between St. Arnaud Street & Fort Street

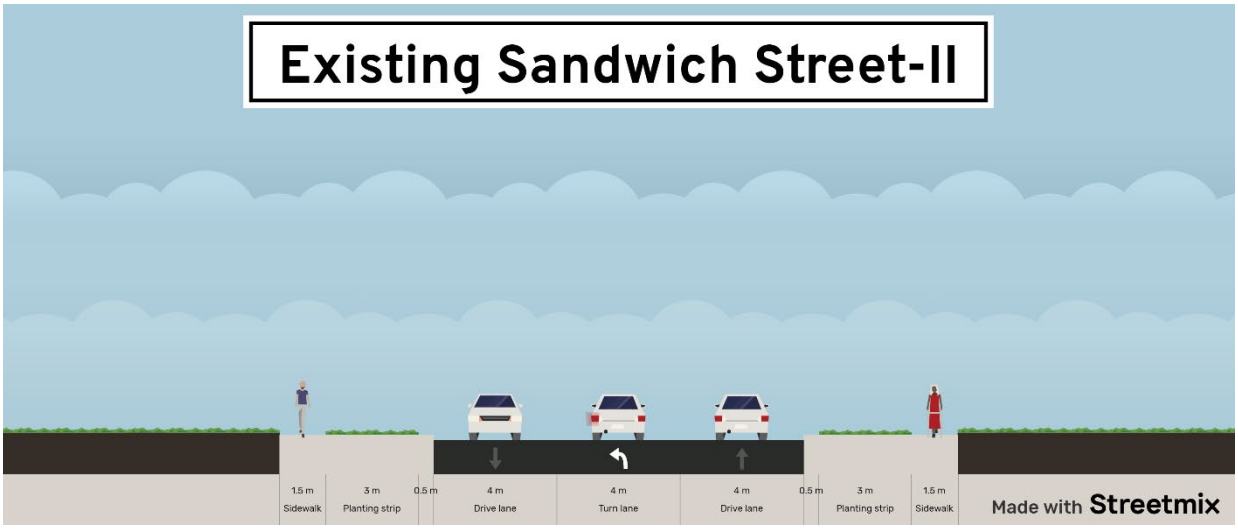
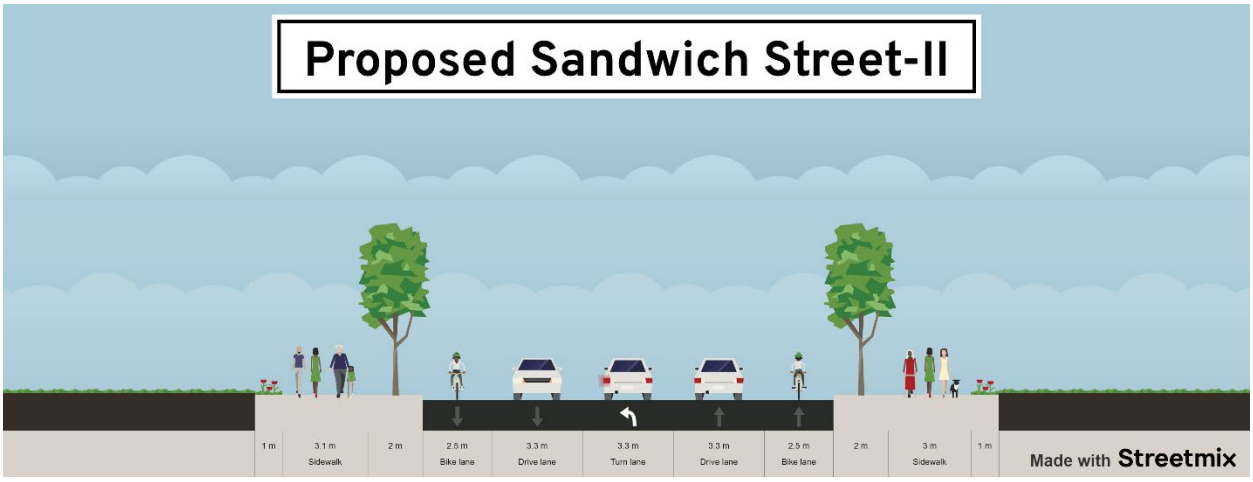


Figure 5-41: Proposed Sandwich Street between St. Arnaud Street & Fort Street



It is noted that the buffer zone between cyclists and vehicles may take shape in various forms, including a concrete buffer, planters, bollards, or other materials.

Fort Street & Park Street:

Figure 5-42 illustrates a typical snapshot of Sandwich Street between Fort Street and Park Street, which has a ROW width of approximately 18 to 20 metres. This section has a 3-lane cross-section with a center two-way left turn lane and substandard sidewalks on both sides. **Figure 5-43** illustrates the proposed cross-section improvements with painted on-street bike lanes with flex-bollard buffers.

Figure 5-42: Existing Sandwich Street Cross-Section between Fort Street & Park Street

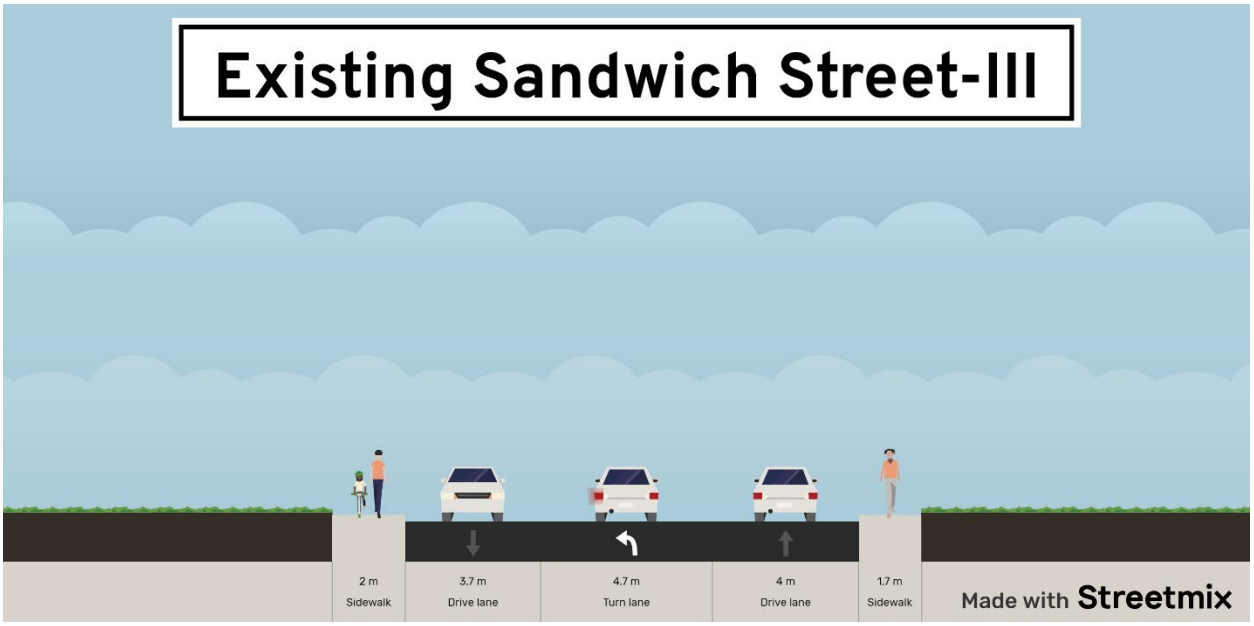
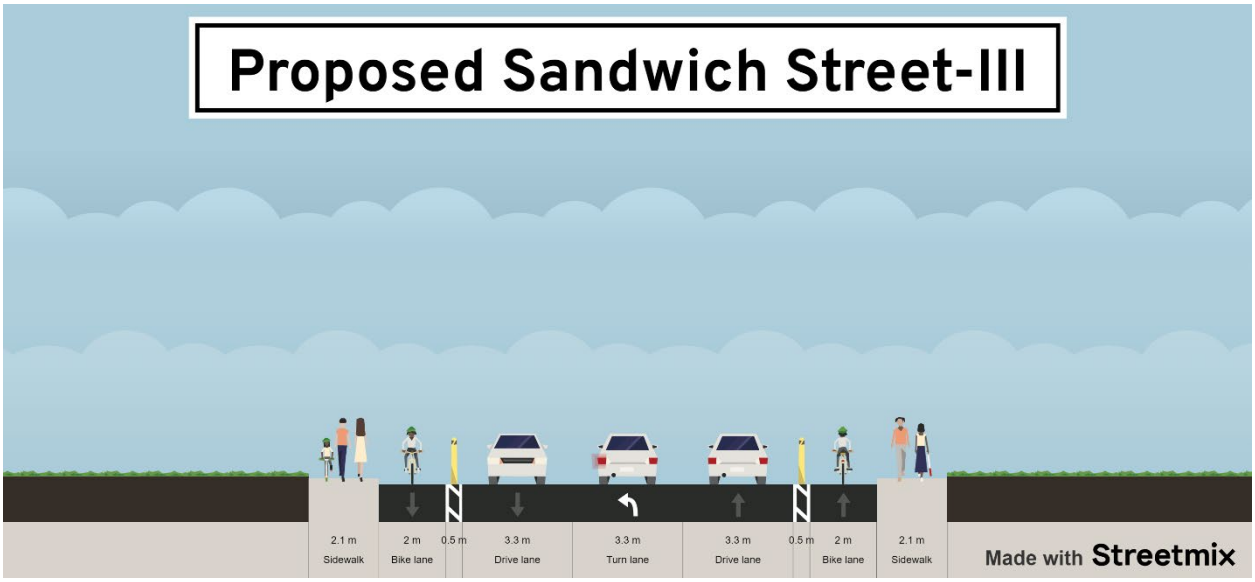


Figure 5-43: Proposed Sandwich Street Cross-Section between Fort Street & Park Street



Park Street and Crownridge Boulevard:

Figure 5-44 illustrates a typical snapshot of Sandwich Street between Park Street and Crownridge Boulevard which has a ROW width of approximately 21 metres. The roadway lacks sidewalks on one side in most portions and has shoulders on both sides. This is also an existing bike route which requires cyclists share the curb lane with drivers. **Figure 5-45** illustrates the proposed cross section which features wider sidewalks and on-street bike lanes with buffers.

Figure 5-44: Existing Sandwich Street between Park Street & Crownridge Boulevard

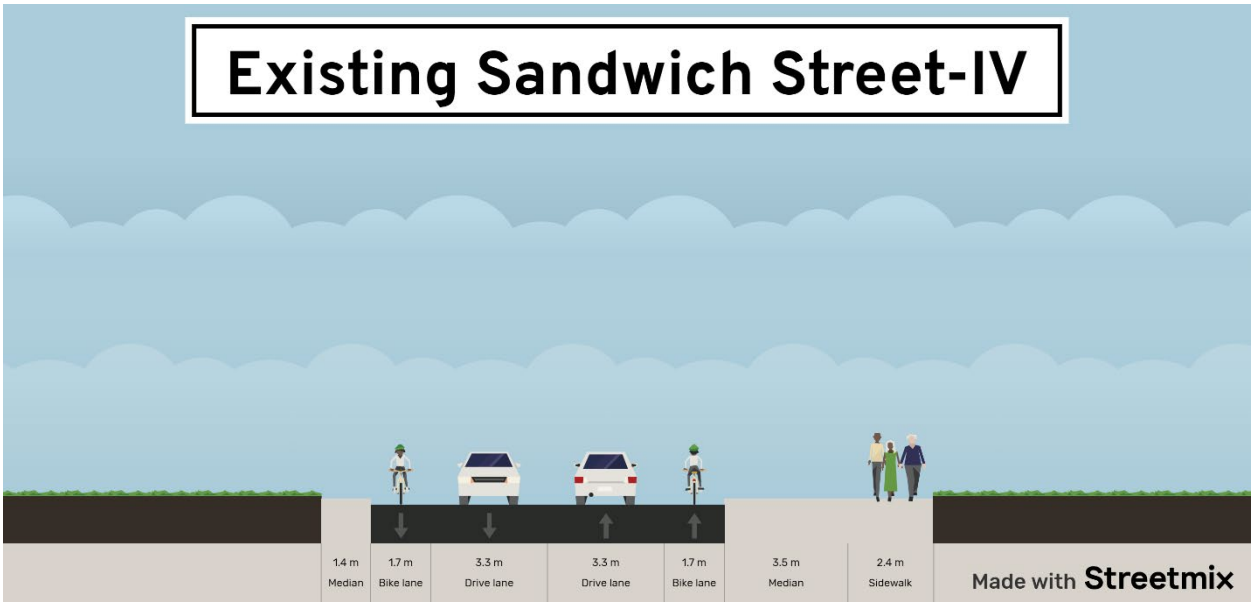
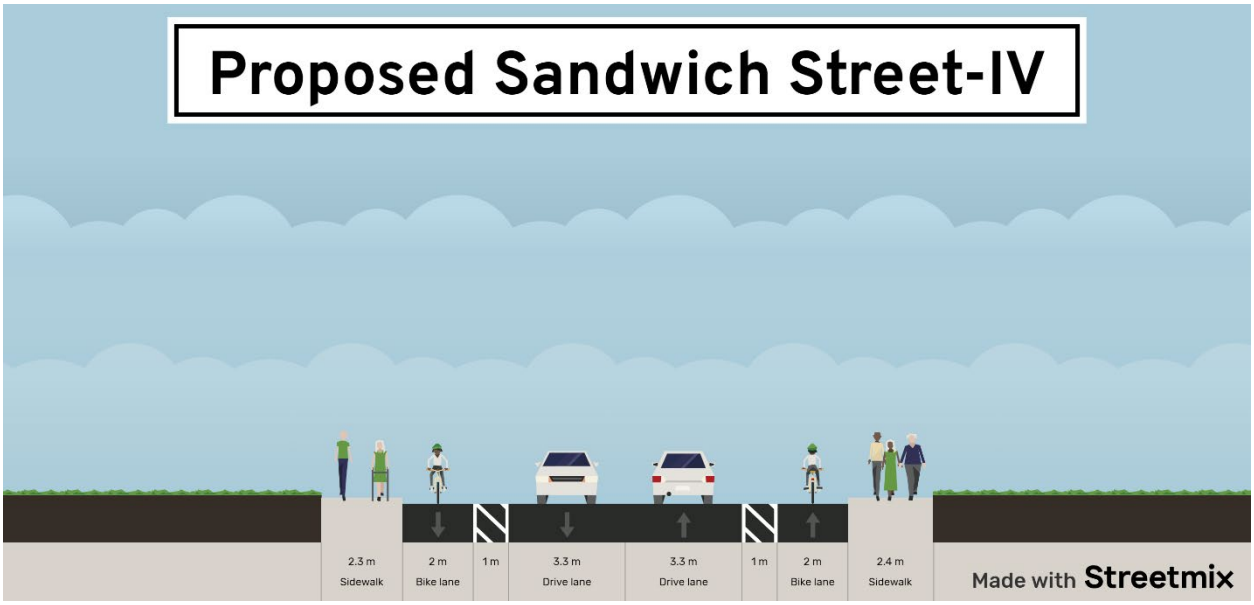


Figure 5-45: Proposed Sandwich Street between Park Street & Crownridge Boulevard



Crownridge Boulevard and Dalhousie Street:

Figure 5-46 illustrates a typical snapshot of Sandwich Street between Crownridge Boulevard and Dalhousie Street which has a ROW width of approximately 21.5 metres. The section near Dalhousie Street lacks sidewalks and the rest of the roadway has a walking path on one side. This is also an existing bike route which requires cyclists share the curb lane with drivers. **Figure 5-47** illustrates the proposed cross section improvements which features, wider sidewalks and bike lanes with a buffer on both sides of the road.

Figure 5-46: Existing Sandwich Street between Crownridge Boulevard & Dalhousie Street

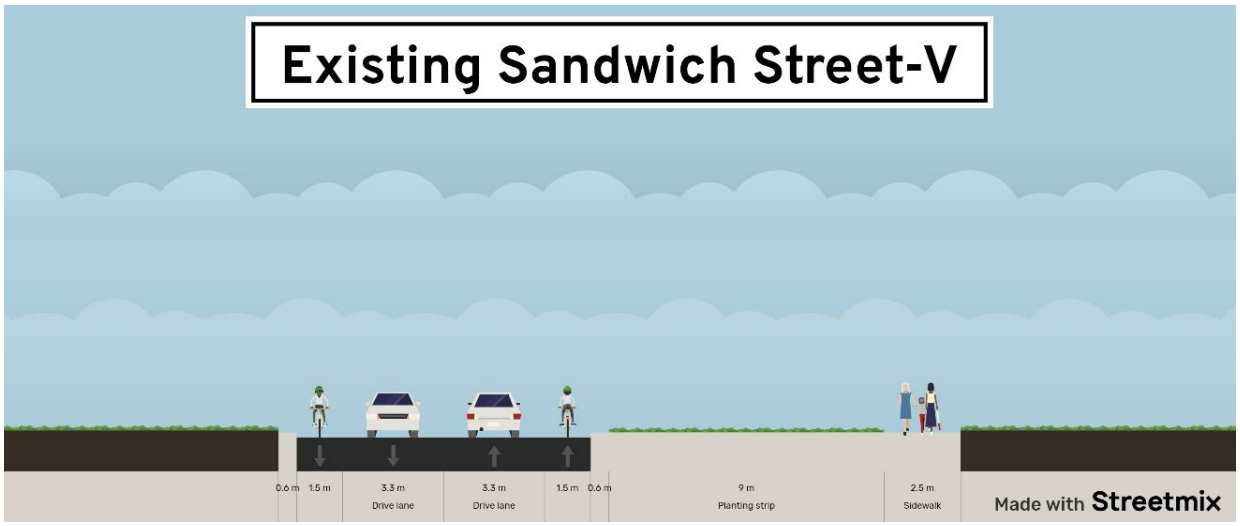
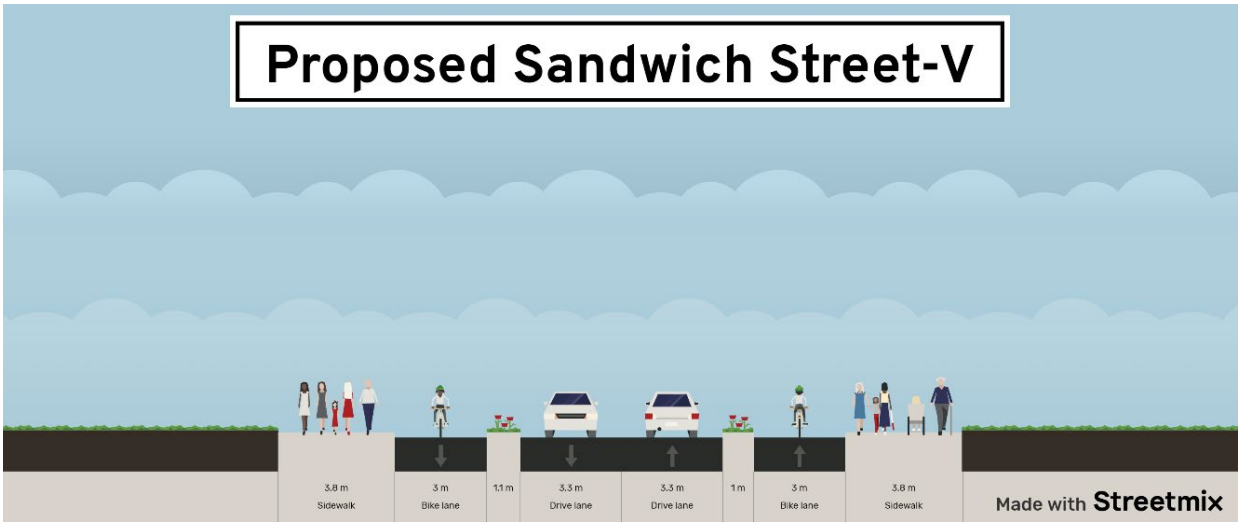


Figure 5-47: Proposed Sandwich Street between Crownridge Boulevard & Dalhousie Street



It is noted that the buffer zone between cyclists and vehicles may take shape in various forms, including a concrete buffer, planters, bollards, or other materials.

5.2.3 Road Classification

The Town's Development Manual was developed in 2009 as noted in Section 2. An update is recommended to reflect current industry best practises and standards for pedestrian and cycling facilities, traffic calming, street lighting, and street trees and greenery.

Table 5-6 provides the specifications of the current development manual that were reviewed, key issues identified through the review and opportunities to improve the design criteria. The recommended changes would improve conditions for walking and cycling along arterial, collector, local, and industrial roads to support mode shift and thereby reduce car dependence in Amherstburg. An indirect side effect from a broader modal shift would be in a gentle reduction of asset maintenance costs due to a more space-efficient design and thereby less overall pavement and asphalt area as well as reduced Vehicle Kilometers Traveled on streets and roads.

The following opportunities are highlighted for considerations during an update to the Development Manual, to adhere to standards for all new road construction and existing road reconstruction, which will allow the Town to gradually transform the road network and enhance active transportation in a manner that is financially sustainable.

Table 5-6: 2009 Development Manual Review and Identification of Key Issues

Section / Street Typology	Specifications as per Town's Development Manual (2009)	Review Notes / Key Issues	Opportunities
Arterial Roads	• 26-30 m ROW with 10 m or 14 m roadway (face of curb to face of curb) • 2 or 4 lanes • Traffic volumes >10,000 AADT • Design speed of 60 km/h to 80 km/h • Minimum stopping sight distance of 95 m • Traffic signals at major intersections • Curb lanes may be used for parking depending on conditions • Minimum median width of 4 m • Sidewalks on both sides (1.5 m wide) • Preferable for	• Curb-adjacent sidewalk not appropriate for pedestrians in traffic environments with high vehicle travel speeds and AADT. • No guidance for cycling infrastructure which, based on AADT and design speeds, would need to be separated from motor traffic. • Lack of direction to include street trees to increase canopy coverage and shelter users from adverse weather. • Lack of instruction for curb to deflect errant vehicles encroaching on sidewalks. • Lack of instruction on	• Differentiate between urban and rural arterial road designations. • Require sidewalks to achieve a pedestrian level of service (LOS) D or better based on Ontario Traffic Council Multimodal Level of Service Guidelines. Pedestrian LOS E is sufficient for rural arterials. This includes the requirement of horizontal separation (buffer) between sidewalk and roadway. • Require cycling infrastructure consistent with Ontario Traffic Manual Book 18 for the given traffic environment. With design speeds of 60 km/h to 80 km/h, cycling infrastructure should be separated from

Section / Street Typology	Specifications as per Town's Development Manual (2009)	Review Notes / Key Issues	Opportunities
	sidewalk to be located adjacent to curb	street lighting standards, especially at key crossing locations such as near crosswalks and crossovers. • Minimum stopping sight distance is greater than that needed for 60 km/h which can lead to excess speeding in urban areas due to more forgiving road conditions.	the roadway in the form of cycle tracks or a multi-use path, depending on user types and volumes. • Mandate street lighting at crossing locations and along key routes.
Collector Roads	• 22 m ROW with 10 m roadway (face of curb to face of curb) • 2 lanes (may be increased by the use of parking restrictions) • Traffic volumes of 1,000-10,000 AADT • Design speed of 50 km/h to 80 km/h • Traffic signals at major intersections when warranted. • Parking permitted on one side of road but may be restricted during peak hours. • Sidewalks on both sides (1.5 m wide) • Preferable for sidewalk to be located adjacent to curb	• Curb-adjacent sidewalk not appropriate for pedestrians in traffic environments with higher vehicle travel speeds and AADT. • No guidance for cycling infrastructure which, based on AADT and design speeds, would need to be separated from motor traffic. • High design speeds which can lead to speeding in the urban environment due to excessively forgiving conditions. • Lack of direction to include street trees to increase canopy coverage and shelter users from adverse weather. • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.	• Differentiate between urban and rural collector road designations. • Require sidewalks to achieve a pedestrian level of service (LOS) D or better based on Ontario Traffic Council Multimodal Level of Service Guidelines. Pedestrian LOS E is sufficient for rural collectors. This includes the requirement of horizontal separation (buffer) between sidewalk and roadway. Collector roads in the urban core/downtown should achieve a minimum LOS C. • Require cycling infrastructure consistent with Ontario Traffic Manual Book 18 for the given traffic environment. With design speeds of 50 km/h to 80 km/h, cycling infrastructure should be separated from the roadway in the form of cycle tracks or a multi-use path, depending on user types and volumes.

Section / Street Typology	Specifications as per Town's Development Manual (2009)	Review Notes / Key Issues	Opportunities
			• Reduce design speeds to 30 km/h to 60 km/h. Even with this design speed, cycling infrastructure should still be separated from the roadway due to the defined traffic volumes for collector roads. • Mandate street lighting at crossing locations and along key routes. • Consider the requirement of greenery and street trees to provide shelter from the elements along sidewalks.
Local Roads	• 20 m ROW with 8.6 m roadway (face of curb to face of curb) • 2 lanes • Traffic volumes <1,000 AADT • Design speed of 40 km/h to 50 km/h • Intersections controlled by signage • Parking permitted as posted • Minimize the use of cul-de-sacs by utilizing through streets and crescents. • Sidewalks (1.5 m wide) on both sides which may lead to the location of a school or park (one side for streets that do not lead to schools or parks) • Preferable for sidewalk to be located adjacent to curb	• Design speed too high for human survival in collision with motor vehicles (over 30 km/h). • No direction on traffic calming to reduce AADT below 1,000. • No direction on lane widths. Additionally, wide roadway width (either physical or visual) can create conditions for speeding (over 40 km/h). • Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.	• Require sidewalks to achieve a pedestrian level of service (LOS) D or better based on Ontario Traffic Council Multimodal Level of Service Guidelines. Local roads in the urban core/downtown should achieve a minimum LOS C. • Implement traffic calming measures (targeting both traffic volumes and speeds) on local streets to achieve <1,000 AADT and vehicle operating speeds of 30 km/h. Doing so will allow for the creation of bicycle boulevards and local streets that are suitable for cyclists of all ages and abilities to share the same space as vehicles. This will require the 8.6 m roadway to be narrowed to achieve a 30 km/h design speed. City of Toronto Lane Width Guideline targets a through lane width of 3.0 m.

Section / Street Typology	Specifications as per Town's Development Manual (2009)	Review Notes / Key Issues	Opportunities
			• Mandate street lighting at intersections, crossing locations, and along key routes. • Consider the requirement of greenery and street trees to provide shelter from the elements along sidewalks.
Industrial Roads	• 22 m ROW with 10 m roadway (face of curb to face of curb) • 2 lanes • Traffic volumes of 1,000 AADT • Design speed of 50 km/h to 60 km/h • Controlled by signage or signals where warranted. • Parking permitted as posted.	• No mandate or instruction for provision of sidewalks to meet external accessibility standards. • No guidance for bicycle infrastructure to allow commuters to cycle to work in industrial areas (whilst reducing conflicts with heavy vehicles). Lack of instruction on street lighting standards, especially at key crossing locations such as near crosswalks and crossovers.	• Require sidewalks that achieve a pedestrian level of service (LOS) D or better based on Ontario Traffic Council Multimodal Level of Service Guidelines. Pedestrian LOS E is sufficient for minor industrial connector roads. This includes the requirement of horizontal separation (buffer) between sidewalk and roadway. • Require cycling infrastructure consistent with Ontario Traffic Manual Book 18 for the given traffic environment. With design speeds of 50 km/h to 60 km/h, cycling infrastructure should be separated from the roadway in the form of cycle tracks or a multi-use path, depending on user types and volumes. • Mandate street lighting at intersections and regular intervals along street sections.

5.3 Parking

There is an abundance of public and private parking spaces in the downtown core of the Town, with both on-street and off-street parking available throughout the area. While a parking utilization survey was not conducted as part of the TMP, feedback from municipal staff and key stakeholders indicated that the availability of parking is not a concern, as there is sufficient supply to meet typical demand throughout the year. **Figure 5-48** below shows available parking lots in the Town centre, as well as a 5-minute and 10-minute walking distance from the clocktower in downtown Amherstburg.

Figure 5-48 Downtown walkshed and parking lot locations.

Despite the increased demand during periodic festivals such as Open Air Amherstburg, the TMP seeks to address parking in the study's Focus Area in a holistic manner, inclusive of broader recommendations proposed for other modes of transportation. Generally, the majority of the existing parking supply is located on local streets and in off-street parking lots around the core, but not directly adjacent to businesses. The objective of this review seeks to align recommendations with the consideration that the walking experience from existing under-utilized lots would be significantly enhanced by way of improvements to sidewalks, crossings, and expansion of public realm amenities such as street trees, benches, and pedestrian-oriented lighting.

Accordingly, the following three parking options have been developed for the Town to consider and implement where applicable.

5.3.1 Option 1 – Formalize Existing Spaces

This option is considered to be the most feasible improvement in the short-term. As parking supply is not presently a major concern among key stakeholders, improvements to existing infrastructure can be considered in the interim prior to broader streetscape modifications proposed in **Section 5.2.2.** Specifically, it is recommended that existing on-street parking areas on local roadways be re-painted and signed, to ensure space is well-utilized, visible, and convenient. Marking on-street parking bays on local roadways will provide a dual-purpose to narrow the available drive aisle for vehicles, helping slow speeds and improve road safety in the core. In addition, paint and signage can be implemented to indicate additional accessible parking spaces, and other restrictions where general parking may not be currently permitted.

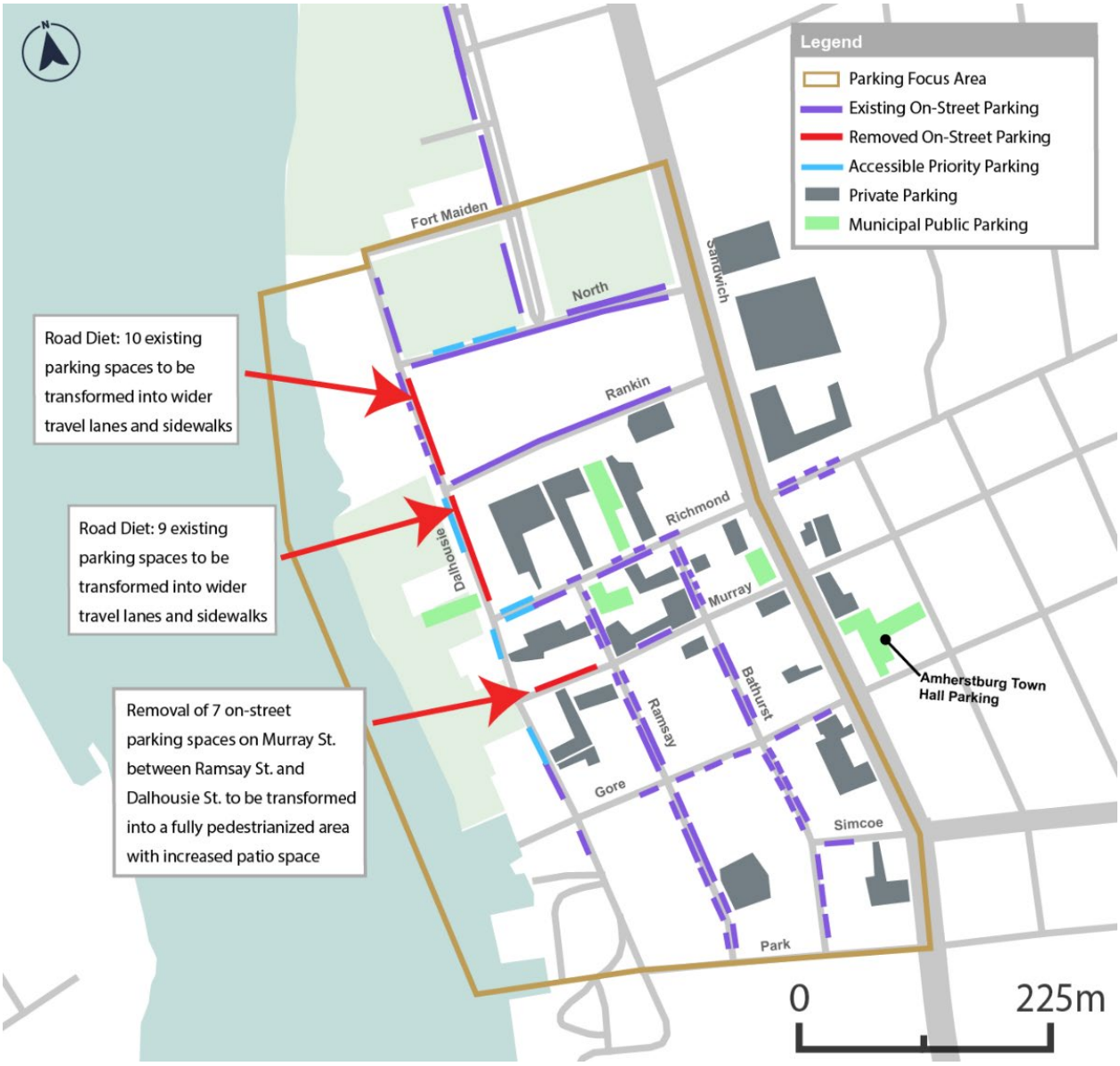
5.3.2 Option 2 – Reallocate Select Parking Spaces

Figure 5-49 illustrates Option 2, which considers improvements to existing sub-standard sidewalks and broader right-of-way improvements by removing and reallocating select on-street parking spaces. As detailed in **Section 5.2.2,** and illustrated below, Dalhousie Street is suitable for a reallocation of on-street parking for sidewalk upgrades.

Despite the slightly longer walking distance from parking spaces to some destinations, the opportunity for an enhanced public realm with wider sidewalks, shorter crossings, pedestrian-oriented lighting, trees and shade, and space for street furniture, will improve the walking experience to promote a higher pedestrian level of service in the downtown area. Overall, pedestrian improvements are known to benefit local businesses as the wider sidewalk creates a safe and welcoming environment for people to walk, thereby increasing foot traffic and patronage.

In addition, it is recommended that the Town implement additional priority spaces for Accessible Parking, as illustrated in light blue in **Figure 5-49.** Adjacent parking spaces may be removed over time, however a focus on accessible spaces is needed to maintain accessibility for all users. The exact locations for the accessible priority parking spaces are to be determined by staff on an as-needed basis, and as nearby spaces are removed, but is recommended to be concentrated in the areas identified in the figure. This way equitable access is maintained to the downtown core and its businesses can be equitably accessed despite the reallocation of parking in select blocks.

Figure 5-49: Parking Option 2 – Proposed Re-allocation of Parking Spaces



5.3.3 Option 3 – Off-Street Parking Investment

Finally, Option 3 considers a long-term increase and investment in the off-street public parking network. It involves the re-development of public surface parking lots or potential expropriation of land in the vicinity of the downtown to construct a multi-level parking facility or underground facility. This long-term approach may be viable if parking demand continues to increase and/or as existing off-street parking lots are redeveloped through private in-fill development, as projected by the Town's Official Plan update.

While it is expected that parking demand will in fact decrease over time, as investments in active transportation and transit are realized, and user demand shifts to non-auto modes of transportation, it is noted that should sustainable investments fail to materialize, and growth increases, parking demand may become strained. However, in the short-medium-term, the downtown parking supply is expected to satisfy the Town's demands. It is recommended that the Town monitor parking demand within the downtown area in order to determine the need for additional off-street public parking investments in the long-term.

Furthermore, it is recommended that the Town conduct a review of current off-street vehicular and bicycle parking requirements for new developments, including accessible parking requirements to ensure in-force rates are aligned with existing demand and industry best practices. There are opportunities to consider the reduction or elimination of minimum parking requirements in the downtown area, to support the affordability and feasibility of new infill development projects, as desired by the Town and forecasted in the Official Plan update. In addition, the inclusion of electric vehicle and e-bike parking spaces and charging infrastructure should be considered Town-wide, with a particular focus on secure bike/e-bike parking spaces in the downtown area.

5.4 Transit

As detailed in **Section 4.8**, Transit Windsor currently operates a transit service in the Town of Amherstburg, which is funded by the Town itself. This twoyear pilot project, recently made permanent, connects the Hotel Dieu Grace Healthcare Terminal to Amherstburg via Sandwich Street and Front Road.

It is recommended that the Town examine options to develop its own transit service separate from the City of Windsor and engage with the County of Essex to develop a funding strategy to subsidize cross-municipal transportation costs. Similar to how roadways are managed and maintained by the County and its respective local jurisdictions, it is recommended that options be explored to engage higher orders of government to help fund the capital and operating expenses associated with a connecting service between Amherstburg and Windsor, while the Town covers the portion of the route which services local neighbourhoods. While beyond the scope of this municipal TMP, it is noted that the expansion of a public transportation system in the County may be key to promoting local development, tourism, and economic growth. Any service would further reduce congestion, improve safety, promote a sustainable and convenient alternative for commuters, and provide an affordable transportation alternative for regional trips.

At a municipal level, the TMP has developed the following strategies to improve the public transit service within the Town of Amherstburg. It is understood that, regardless of regional connections, a vibrant public transit service will support several local strategic objectives including addressing transportation equity, reducing greenhouse gas emissions, reducing auto-dependency and addressing affordability. An improved local service will also benefit the Town during events such as Open Air Amherstburg, to shuttle festival-goers between their neighbourhoods and downtown, to both reduce the demand for vehicular parking spaces in the downtown area, and also address public health concerns raised during public consultation regarding the desire for a safe alternative to get home to cut down and eliminate the risk of drinking and driving in the Town.

5.4.1 Phase 1 – Minor Immediate Adjustments

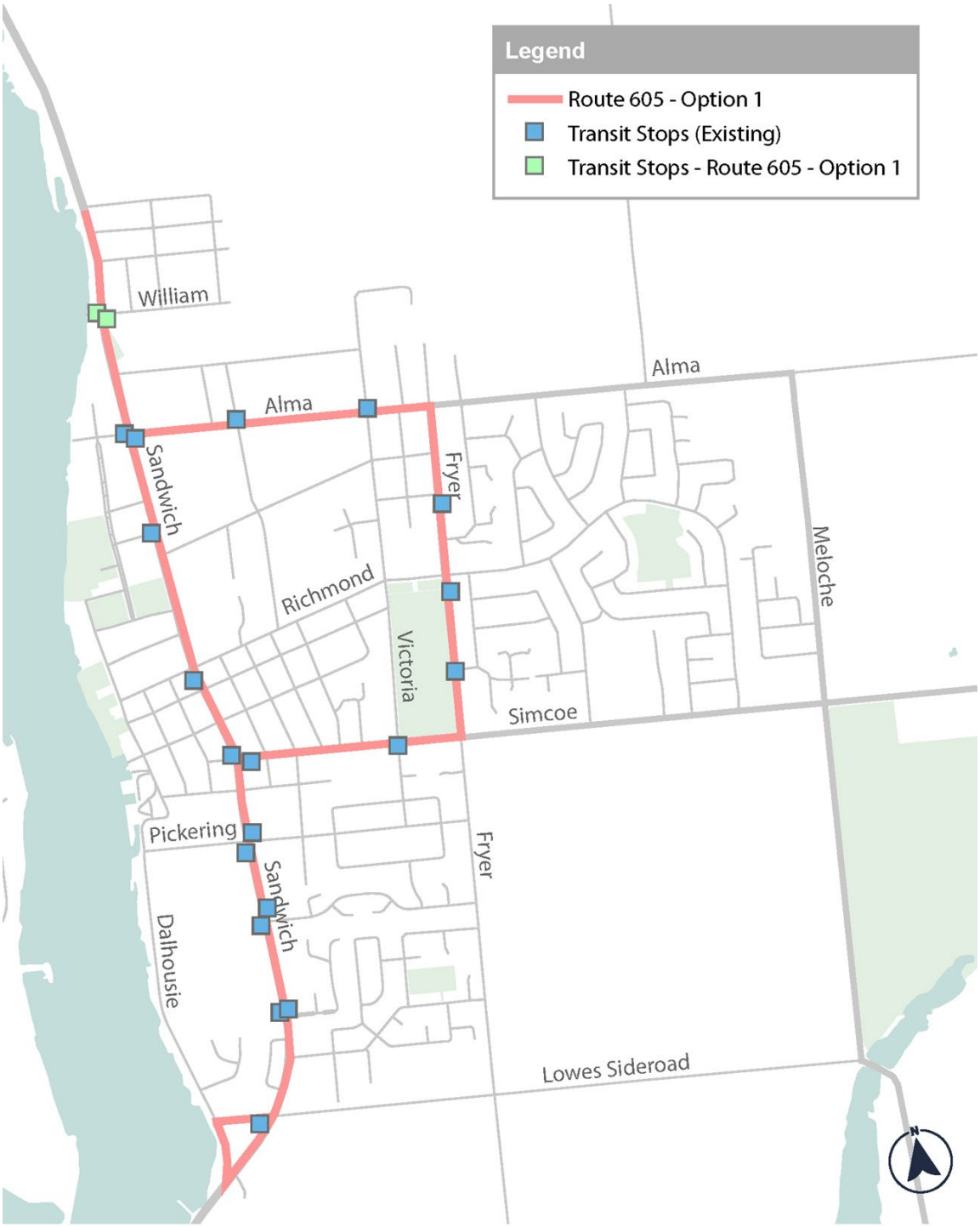
Phase 1 seeks to formalize the existing service and direct enhancements to route frequency, stop amenities, and stop locations. Specifically, it is recommended that the Town consolidate the existing Transit Windsor Route #605 itinerary with a few adjustments to the service headways at various stops, according to passenger demand and observed peak periods.

It is advised that all transit stops should have appropriate signage, concrete pads, and shelters to facilitate the all-season needs and accessibility of passengers. In the short-term, shelters should be installed at all the major stops, and expanded to all locations in the medium-term. Other improvements include implementation of bicycle parking at or near the transit stops to promote active transportation and first-mile/last-mile mobility across the Town.

In addition, as illustrated in **Figure 5-50** two new transit stops are recommended at the intersection of William Street and Sandwich Street North, one in each direction, in order to service the residential area located at the northeast quadrant of the intersection.

Finally, as noted in **Section 4.8.3**, the current cost of a transit fare is $4.75. It is advised that the fare be reduced to address transit equity and affordability concerns, and to incentivize and attract new passengers by making the service affordable and competitive to driving. As ridership continues to grow, frequent bus service is also recommended to improve reliability and reduce travel times.

Figure 5-50: Transit Phase 1 – Minor Immediate Adjustments



5.4.2 Phase 2 – Short-Term Improvements

Phase 2 builds upon the recommended improvements under Phase 1, while recommending an extension of coverage east of Fryer Street. This expansion to key public institutions, such as public schools, Libro Credit Union Centre, Jack Purdie Park, and the Amherstburg Community Services Centre (see **Figure 5-51**) would greatly improve the service's convenience to area residents who frequent these key destinations. The proposed route extends the service along Victoria Street South instead of Fryer Street in order to provide a better service at the Amherstburg Public School and begin to support and promote sustainable transportation options for all ages. It is noted that the existing concrete pads recently implemented along Fryer Street could be used as bicycle parking or for street furniture if the transit route is re-routed to use Victoria Street South instead.

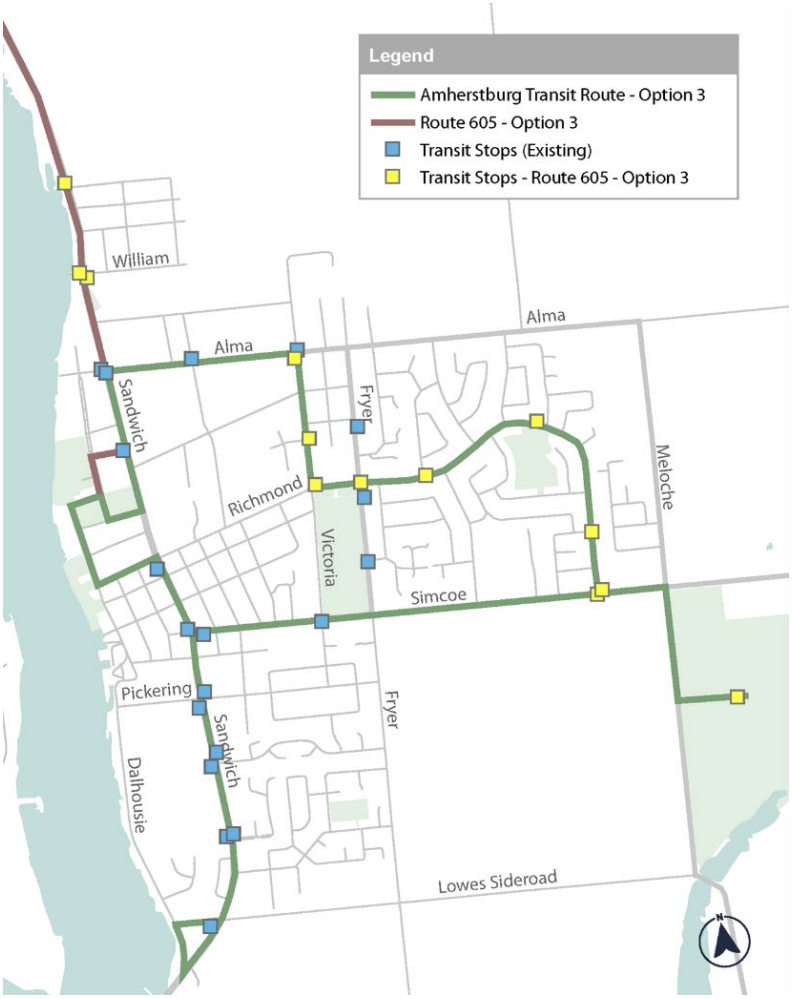
Figure 5-51: Transit Phase 2 – Short-Term Improvements

In addition to the service expansion within the Town, the route can also be extended to the VIA Rail Station in the City of Windsor to promote frequent and accessible public transit service to and from the Town. This service would benefit a great number of passengers who wish to travel to VIA Rail stations and would be an additional transportation option to travel to other parts of the province.

5.4.3 Phase 3 – Amherstburg Transit Service – Long Term Improvement

Figure 5-52 below illustrates the recommended long-term transit plan. As illustrated, the existing transit service, Route 605 operated by Transit Windsor, would run from the City of Windsor to a transfer point in downtown Amherstburg. Locally, a new route, fully operated by the Town of Amherstburg, would provide service from the downtown area through multiple neighbourhoods and to the Libro Centre, providing coverage to key destinations across the Town. It is noted that service headways and departure times of the two transit routes would have to be aligned to provide a better integrated transit service, but this separation of service is expected to provide enormous benefit for the Town through the flexibility of operating, expanding, and adjusting its service to meet local needs.

Figure 5-52: Transit Phase 3 – Long Term Improvement



5.4.4 Long-Term Opportunities

Transit Hub

In the long term, the downtown transfer location for the proposed Windsor and Amherstburg transit services, detailed above, would terminate at a new dedicated Transit Hub. This vision proposes a public transportation facility, repurposing the existing publicly owned building north of Bill Wigle Park at the northwest corner of Sandwich Street and North Street.

The bus transfer bays would utilize existing (school) bus bays along Laird Avenue South, minimizing the cost of construction and making new use of existing public infrastructure.

The site is identified to be a strategic location for a transit terminal due to its central location and its existing bus bays. Moreover, there are two recreational parks in the vicinity which are known travel destinations for not only tourists but also for the local community.

Figure 5-53 shows the proposed Transit Hub location, while **Figure 5-54** shows an areal view that highlights the existing infrastructure at the proposed location.

Figure 5-53 Proposed Transit Hub Site

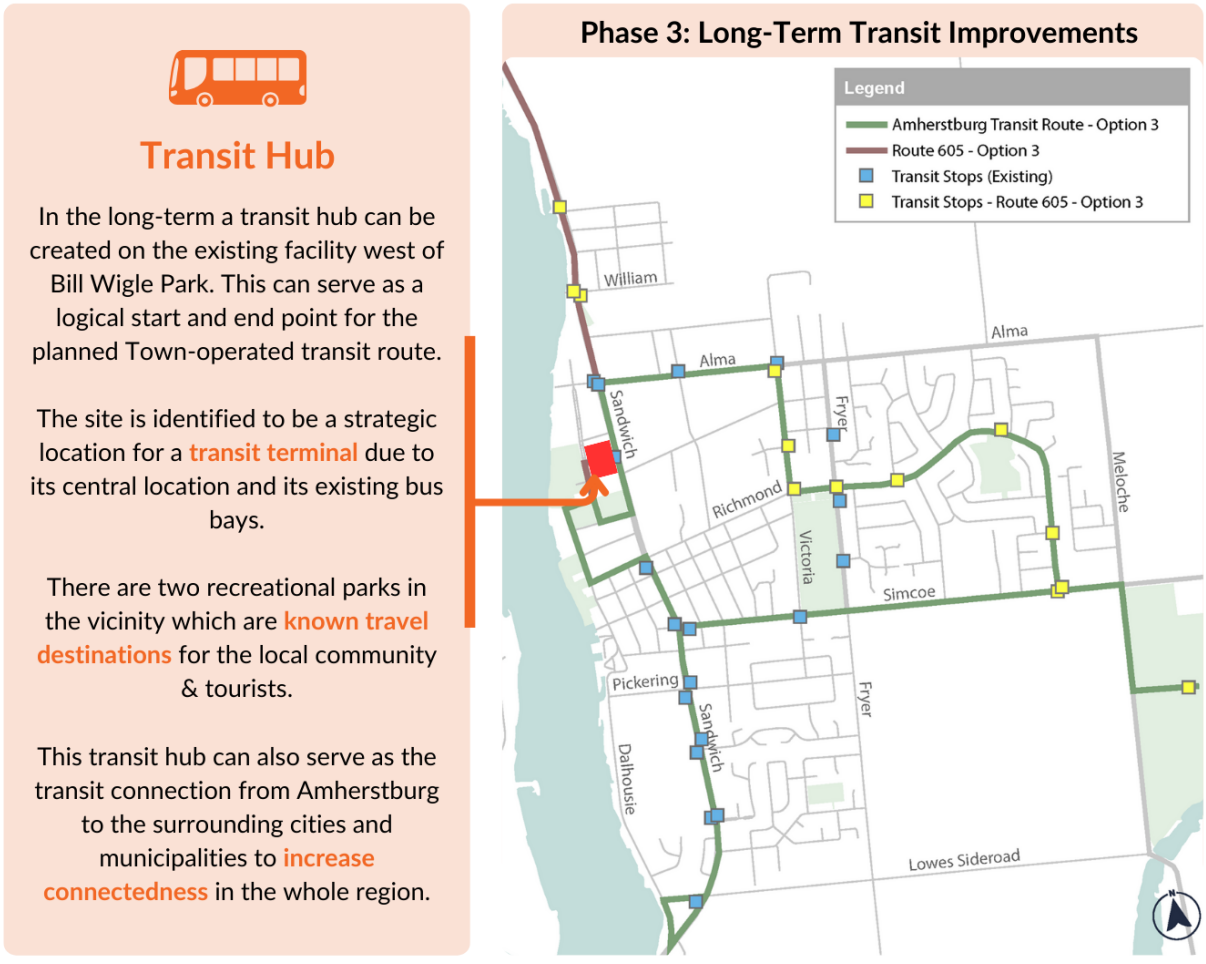


Figure 5-54 Aerial view of proposed transit hub location.

Passenger Rail Expansion

Finally, a long-term vision would see the implementation of a passenger rail service between the Town of Amherstburg and the City of Windsor. This existing rail corridor was built over 120 years ago connecting the two communities and is currently utilized for freight and industry. The railway network runs in a North – South direction and it is operated by the Essex Terminal Railway Company.

The current rail yard in Amherstburg is situated between Texas Road and Alma Street, also bounded by Thomas Road on the east and Front Road North to the west. This location is close to the downtown and proposed bus route which could reasonably service a future rail station. Providing this commuter rail service would reduce passenger vehicular trips to and from Windsor area and offset the required bus service from Amherstburg to the VIA Rail station in Windsor.

Based on the demand for passenger travel between Amherstburg, Windsor, and the rest of Ontario, the opportunity to expand existing infrastructure to address passenger mobility demand should be considered by the Town, County, Province, and VIA rail.

5.5 Active Transportation

5.5.1 The Gap Analysis Framework

As the Town continues to grow there will be increasing demand for safe active transportation facilities. To ensure the future network meets the various needs of residents, the active transportation network should be based on a proven framework to identify gaps (see Section 4.9 for more details on existing conditions) in the existing network and build out new routes. The Gap Analysis Framework applied to develop the recommended AT network in Amherstburg consists of the following four key elements:

1. **The identification of missing links:** These links can be identified in a variety of ways but are often easily recognized by locals and other stakeholders who use the facilities regularly. These links could be a short section where a trail does not connect to on-street facilities or where a cycling lane ends short of a key destination. These missing links are also generally easy to spot when examining a map of existing facilities.
2. **The identification of quality gaps:** Quality gaps refer to existing facilities that are not safe or sufficient for the road typology or traffic environment in which they are located. A prime example of a quality gap is a painted bicycle lane or sharrow on a high speed and/or high-volume roadway. Insufficient facilities are not inviting to all ages and abilities as the environment may still feel stressful or unsafe for users. Upgrading these facilities or modifying the street environment to fit the facility will result in an active transportation route that is inviting to all and serves an important purpose in the network. A bicycle facility selection tool is used to determine the appropriate facility type by considering traffic volumes, roadway operating speed, and the number of vehicle lanes.
3. **The network density**: It is best practice for the primary cycling network to have a grid size between 400 metres and 800 metres, depending on land uses and the density of origins and destinations. A denser grid means fewer detours are needed to access amenities. Ideally, a network of primary routes does not need a grid size less than 400 metres as local streets should be designed to be low traffic, slow speed environments where cyclists can share the roadway with motorists.
4. **The detour review:** Given that active modes of transportation require users to expend energy, unnecessary detours can be a deterrent to their use. The AT network should be at least as competitive as the vehicle network in terms of directness. This is especially pertinent when considering major barriers such as railways, highways, and waterways. Active users should have at least the same number of crossing opportunities as motorists, and ideally more, to reduce detours and make active modes more appealing.

5.5.2 Recommended Walking Network

To enable and encourage walking in Amherstburg, a connected and cohesive network of sidewalks and trails that provide adequate width and comfort should form the basis of the walking network. Walking and wheeling are fundamental movement patterns for all. The inclusion of sidewalks on all streets provides a safe space for those who may have greater difficulty navigating streets such as parents with strollers or those using wheelchairs and other mobility devices (persons with disabilities and the elderly).

As noted in the previous review of the existing walking network in Section 4.9, there are currently several gaps in the Town's network with some streets in the core missing facilities and streets outside the core but still within the urban area with no sidewalks at all. Facilities should be implemented on at least one side of all streets within the urban area and on both sides of all streets within the downtown core. Where sidewalks are present on only one side of the street, the facility should be continuously provided on the same side, so users do not need to cross the street if they wish to continue on a sidewalk. Efforts to improve the walking network should first focus on prioritizing pedestrian facilities around schools, key destinations, and transit stops.

5.5.2.1 Enabling Active School Travel

One of the top priorities for improving walking conditions in the Town should focus on connection to schools. Some schools in Amherstburg are not easily accessed by foot due to a lack of sidewalks and formal crossing facilities which makes walking to school less safe for students (noting that most travel decisions for students are decided by parents and caregivers).

Amherstburg Public School and North Star High School are two such examples. At Amherstburg Public School, Victoria Street South does not currently have a sidewalk on the west side of the street and Hamilton Drive does not have one on the north side. These gaps, paired with a modest school crossing at Victoria Street South and Hamilton Drive, negatively impact pedestrian access to the front entrance of the school. The side access from the pathway south of the school, however, has a clear school crossing and sidewalks on both sides of Richmond Street. This level of pedestrian service should also be provided for the main entrance.

There is a gap in safe walking facilities for areas surrounding North Star High School. While the north side of Simcoe Street now has a sidewalk associated with the construction of the school, the south side of the street has a paved shoulder where pedestrians are expected to share the unprotected space with other active transportation users. Surrounding streets also lack sidewalks with Victoria Street South missing a sidewalk on the east side from the Amherstburg Community Hub (320 Richmond Street) to Pickering Street, limiting opportunities to access the school (and Centennial Park) on foot from the nearby residences.

5.5.3 Connecting Commercial Areas and Tourist Attractions

Amherstburg's commercial areas and tourist attractions are generally well connected with sidewalks. Downtown Amherstburg is well-served by sidewalks but lacks formal crossing opportunities along Richmond Street. There are several shops and services on both sides of Richmond Street west of Sandwich Street but there are no formal crosswalks, all-way stops, or signalized intersections between Sandwich Street and Dalhousie Street. As a key gateway into downtown for all road users – particularly motorists – this corridor should be welcoming for all users. Brightly coloured crosswalks (such as the rainbow crosswalk installed near North Star High School) at Bathurst Street and Ramsay Street would improve crossing opportunities for pedestrians and help to signal motorists to slow down when entering the core.

As noted in Section 4.9.1, Austin "Toddy" Jones Park is another area that presents an opportunity to improve the walking environment as there is currently no sidewalk on the north, south, or west side around the perimeter of the park. Additionally, there is only one formal, marked pedestrian crossing to access the park on the east approach of the Dalhousie Street and North Street intersection. Additional marked crosswalks on all sides of the park will improve the pedestrian experience by reducing detours to cross streets and reinforce pedestrian priority in this area.

Just north of this park is Fort Malden National Historic Site. While this site is connected by sidewalks, there are no formal crosswalks directly to the site. Adding crosswalks on Laird Avenue South at Fort Malden Road and Fort Malden Drive at Dalhousie Street will help encourage visitors to walk by improving access and safety.

In addition to providing sidewalks and formal crossing opportunities, the Town should focus on improving the quality of the walking environment for the "last mile" connection between parking areas and key destinations. This topic was discussed previously in the review of existing conditions in Section 4.9.1, and is especially relevant for Amherstburg Open Air Weekends when streets are closed to cars and people are required to walk a bit further than they may be used to. Wide sidewalks (minimum width of 1.8 metres), curb treatments (so the sidewalk is placed higher than the level of the roadway), and greenery help to create a more comfortable and attractive walking environment that will encourage people to walk greater distances and limit dissatisfaction if they need to park their vehicle slightly further from their ultimate destination.

Finally, managing traffic flow at intersections can be used to enhance pedestrian priority, improving their experience and safety. While a common practice across Ontario, permitting motorists to turn right at a red light undermines pedestrian safety and comfort and has been proven to be dangerous for vulnerable road users. Another unintended consequence of this permission is that motorists may block the crosswalk while waiting for a gap in traffic to make their turn, forcing pedestrians to detour further into the intersection in front of the vehicle or into the vehicle lanes behind. The Town should consider enacting right-turn-on-red restrictions at busy signalized intersections such as Sandwich Street at Richmond Street.

5.5.4 Recommended Cycling Network

The recommended cycling network has been developed based on the gap analysis framework upon review of the existing network in Amherstburg and the proposed network from the Essex County Wide Active Transportation System (CWATS). Given the focus of CWATS on rural connections across the county, greater emphasis on developing a recommended network was placed on identifying urban routes as they have a greater potential to support the vibrancy of Amherstburg, facilitate social connectivity, and allow for utility cycling to access shopping, employment, and education. Connections were identified to create a dense, connected grid of cycling facilities linking urban residential neighbourhoods with commercial areas, schools and parks, and tourist attractions. This urban network will be linked to Amherst Pointe, Sun Retreats Campground (previously Willowood), and Edgewater Beach via Front Road to offer opportunities for longer-distance utility cycling as well as recreational cycling. **Figure 5-55** illustrates the recommended cycling network for the Town and the Downtown core.

More information about proposed cycling infrastructure is enclosed in **Appendix H**.

Figure 5-55: Recommended Cycling Network in the Town

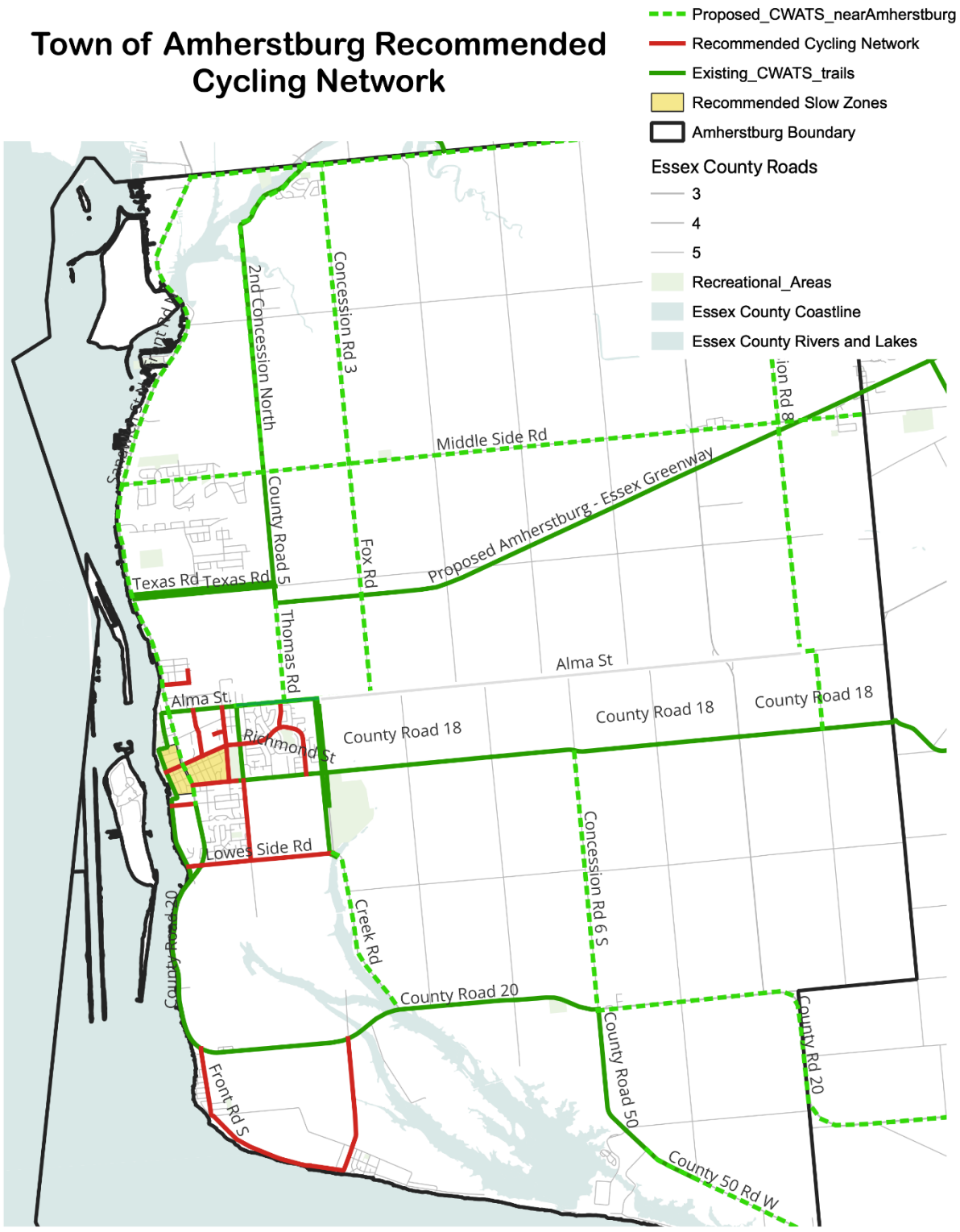


Figure 5-56: Recommended Cycling Network in the Downtown Core

5.5.4.1 Connecting Neighbourhoods and Commercial Areas

Taking the Gap Analysis considerations into account, the recommended cycling network was established in a systematic manner of evaluating the existing and CWATS proposed network and resolving gaps. Discernable gaps were first identified to connect existing facilities over a short span. These routes can be considered "quick wins" that connect existing facilities, improving the practicality of what infrastructure is already in place. One such infill route includes connecting the paved shoulder on Simcoe Street further west to the CWATS proposed cycling corridor along Sandwich Street. Not only will this extend the rural route from Pike Road / Simcoe Street into downtown, but it will also connect the new North Star High School to Sandwich Street and downtown Amherstburg.

General neighbourhood units were then established for the Town and major corridors were identified to connect the neighbourhoods to each other and to the major commercial areas. Key east-west and north-south corridors were identified at 400-metre to 800-metre intervals to establish connections between and through neighbourhoods. This distance between routes is referred to as "mesh" or "grid" size and is a key aspect of developing a cycling network to ensure the network is accessible and doesn't require significant detours to access safe facilities.

Richmond Street presents an excellent opportunity for a high-quality cycling facility connecting users to downtown. The existing and recommended routes on Alma Street and Simcoe Street are 1.2 kilometres apart which would require users to detour to access safe facilities. Richmond Street is roughly halfway between these streets, helping to create a denser cycling network (and thereby reducing this grid to 600 metres). Richmond Street is also a prime corridor for a spine route due to its prominence as a key gateway into downtown Amherstburg. Extending this route east along Richmond Street into the residential neighbourhood also provides a connection for this neighbourhood to downtown and surrounding routes on Alma Street and Simcoe Street.

Given the size of Amherstburg's rural area, consideration was also given to connect smaller rural settlements to Amherstburg's urban area. CWATS has proposed facilities to connect the Edgewater Beach neighbourhood along Front Road North but there was a lack of connections south to Amherst Pointe and Willowood. Routes are recommended here to link the residential settlement areas to existing facilities on County Road 20.

Fryer Road has also been considered as a key north-south link which can provide a connection to east-west links towards downtown Amherstburg (such as Richmond Street and Simcoe Road). The future development patterns along Fryer Road (south of Lowes Side Road) have also been considered with corresponding cycling infrastructure recommended to be constructed at the same time as housing developments in that area.

5.5.4.2 Enabling Active School Travel

With a general network established linking neighbourhoods and commercial areas, connections to schools were then examined. Providing safe facilities connecting schools to surrounding residential areas provides numerous benefits including physical activity for children, the opportunity for children to safely travel to school independently, reducing vehicle congestion around schools at pick-up and drop off times, and establishing habits of sustainable travel.

Having already established a grid for the cycling network, only a few connections are required to link the network to schools:

- Victoria Street South is a recommended route with a connector on Hamilton Drive to allow school children to safety access Amherstburg Public School;
- Facilities on Richmond Street would also serve this school, connecting users to the multi-use path just west of Wolfe Street;
- Extending facilities on Simcoe Street to Sandwich Street as well as a route along Fryer Street south of Simcoe Street will improve access to North Star High School and Saint-Jean-Baptiste Catholic Elementary School;
- Anderdon Public School and Malden Central Public School are adequately connected by the CWATS proposed network.

5.5.4.3 Recreational and Tourism Routes

The final piece in building out the recommended cycling network was the development of links to other key places such as parks, trails, recreational facilities, and tourist attractions. The recommended network takes into account connections to the recreational opportunities at:

- Libro Credit Union Centre
- Austin "Toddy" Jones Park
- Centennial Park and Amherstburg Recreation Centre
- North Gateway
- Angstrom Park
- Cypher Systems Group Greenway.

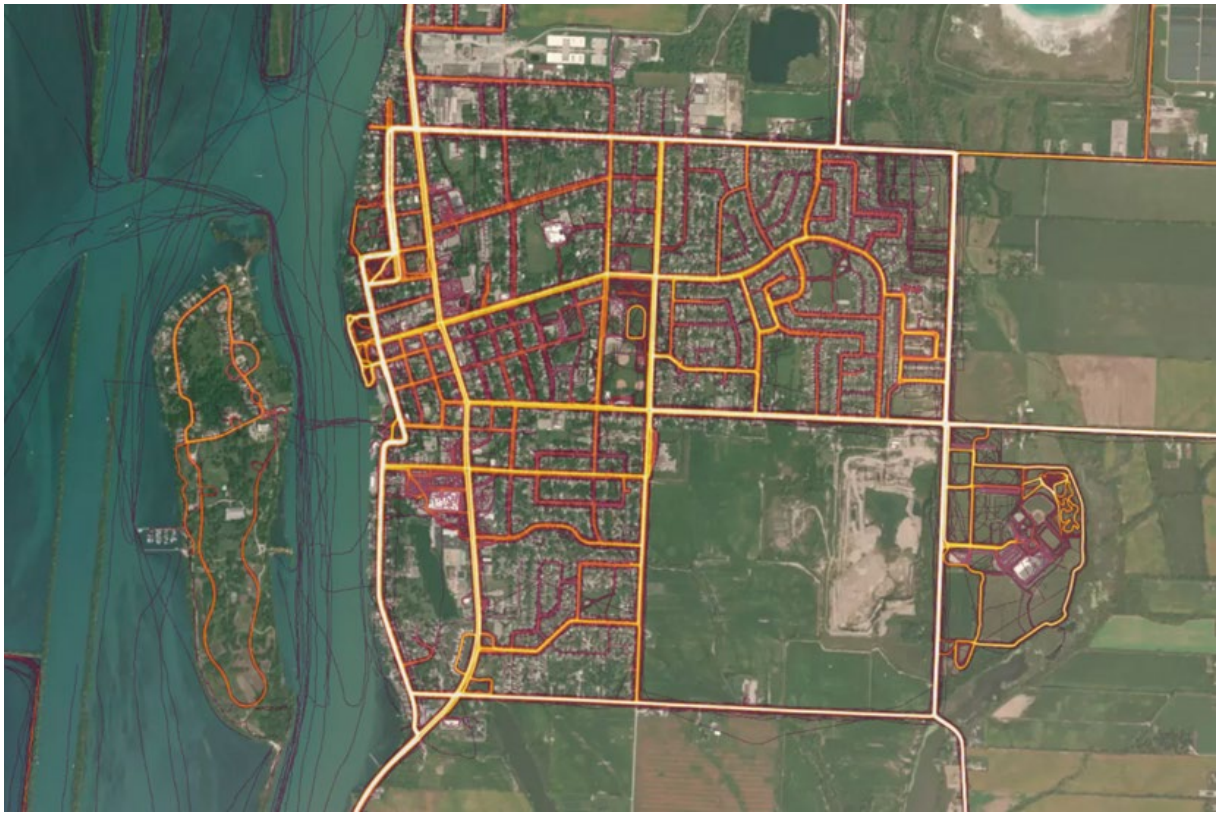
Many of these connections have been established by the proposed CWATS network but the facility type chosen for implementation will be key to ensuring their suitability for all ages and abilities. This would include specification based on the following:

- Active transportation facility type based on intended cyclist and pedestrian numbers (multi-use path or separated cycle track and walking path).
- Adjacent volumes and speeds (or posted speed limits) of vehicles on the adjacent roadway.

Connecting users to tourist attractions in Amherstburg is expected to require less effort due to their concentration in the downtown. King's Navy Yard Park, Fort Malden, Park House Museum, and the Visitor Information Centre are all in close proximity and would be served by a cycling route along Dalhousie Street, as proposed by CWATS. The Amherstburg Freedom Museum is a short bicycle ride away and could be reached by facilities on Sandwich Street, Richmond Street, and Simcoe Street in combination with traffic calmed local streets in the residential neighbourhood.

Higher intensity recreational cycling – such as sport cycling or cycle touring – is another popular form of recreation and tourism in the area. Open data from Strava, as shown in **Figure 5-57**, can be a useful tool to identify popular recreational routes and was used to identify recommended routes. Routes such as Front Road, Sandwich Street, Dalhousie Street, Meloche Road, and Pike Road are popular among recreational riders and are included in the network, either as existing routes or proposed by CWATS. Additional routes recommended to serve the needs of this user type include Lowes Side Road and extending facilities on Alma Street. Routes are also recommended for Front Road South at Amherst Pointe and Concession 3 Road South, connected by an existing unpaved trail linking Sunset Beach to Willow Beach. Formalizing this trail creates a small loop along the waterfront that can serve recreational and utilitarian users alike.

Figure 5-57: Strava Heatmap – Recreational Routes



(source: https://www.strava.com/heatmap#14.36/-83.10977/42.10003/hot/all)

5.5.5 AT and Transit Integration

A thoughtfully integrated active transportation and transit network is critical to providing residents with a menu of transportation options. Some trips may require a combination of transit, cycling and walking and so successful integration between these modes ensure positive mobility outcomes for the community. Ensuring universally accessible features such as curb ramps, wide sidewalks and designated crossings assists users with mobility challenges but also supports and encourages cycling.

5.5.5.1 Bicycle Parking

Bicycle parking is a critical but often underappreciated element of a comprehensive active transportation system. Residents and visitors will only cycle if they can be reasonably assured that their bicycle can be safely stored at each end of their destination – home, work, school, shops, restaurants and transit stops. Placing secure bicycle parking within 100 metres of these destinations removes a major barrier to cycling.

5.5.5.2 Bicycle Racks on Buses

Bicycle racks on transit vehicles, as shown in **Figure 5-58** are another element of an integrated AT and Transit system. Bicycle parking at transit stops is much more space-efficient for larger numbers of bikes but having a few bicycle racks on buses gives users options. Having bicycle racks on buses are a good "just in case" measure that means that cyclists can travel with fewer tools or worries about inclement weather. Bicycle racks on buses, like bicycle racks at destinations, encourage cycling by giving choices and making them feel supported. A short trip, especially somewhere flat, will be as fast (or faster) by bicycle than bus so someone cycling would only put their bicycle on a bus for inclement conditions (such as a mechanical issue, injury, or bad weather).

Figure 5-58: Bicycle Racks on Transit Vehicles

Source: OC Transpo Twitter @OC_Transpo

Installing bicycle racks on buses works best if users can reliably expect all buses to have them. If only a few buses have them, there will be uncertainty about which buses do and don't have them, meaning users can't be assured of them if needed. Bicycle racks on buses can be used all year-round.

5.5.5.3 Integrating Active Transportation and Transit Stops

It is also important to ensure that transit stops are comfortable. Seating, accessible signage and wayfinding should be available at most stops and shelters available at higher-volume stops. And example of such facility from City of London in Ontario is shown in **Figure 5-59.** Including seating and shelters makes waiting more comfortable while signage/wayfinding makes a transit system easier to use.

Secure bicycle parking facilities at transit stops would also be a key factor in achieving better integration to support trunk routes from suburban areas (such as those travelling to Windsor via bus on a day-to-day basis).

Figure 5-59: Bus-stop with Shelter & Bicycle Parking (London, ON)

5.5.6 Active Transportation Implementation

It is advised to incorporate recommended Active Transportation network investments seamlessly into the planning and development process. This entails utilizing updated typical cross-sections, detailed in **Section 5.2.2**, as a blueprint for guiding road network expansion within new subdivisions, as well as for the reconstruction of existing streets as infrastructure approaches the end of its life cycle. Priority should be given to Active Transportation facilities recommended within the TMP and to local neighbourhood connectivity to key amenities such as parks and schools, ensuring seamless integration with the broader network. Additionally, efforts should be made to align the Transportation Master Plan (TMP) with the updated Official Plan (OP) to maintain consistency and coherence in transportation planning and development initiatives.

5.6 Simcoe / Meloche Intersection Improvements

As detailed in **Section 4.10,** a site-specific intersection control study was requested by the Town of Amherstburg to address resident concerns regarding pedestrian safety and traffic operations at the intersection of Simcoe Street (County Road 18) and Meloche Road.

A standalone detailed assessment was conducted for the study intersection located at the boundary between the Town's rural and urban areas. A multi-modal analysis measured intersection performance against operational and subjective safety indicators, including traffic capacity and delays, and the pedestrian experience. Crossing safety by foot or cycle was a key objective, to address connectivity between residential neighbourhoods and the Libro Credit Union Centre. The assessment and recommendations were presented during public consultation, refined in coordination with staff, and are presented in this section.

The operational and safety analysis identified vehicular speeds as a key issue, particularly along Simcoe Street, which operates with a free-flow condition at Meloche Road. This concern is in-part due to a change in speed limit from 80 km/h to 50 km/h east of Meloche Road, and the absence of geometric features or other physical characteristics to alert drivers to the changing road environment and neighbourhood setting. As detailed in **Section 4.5**, recorded speeds reach 70-90 km/h in the 50 km/h zone, verifying the concerns raised by area residents. Following an assessment of the limited pedestrian crossing infrastructure, low traffic volumes and generally acceptable traffic capacity, a suite of traffic calming measures were proposed.

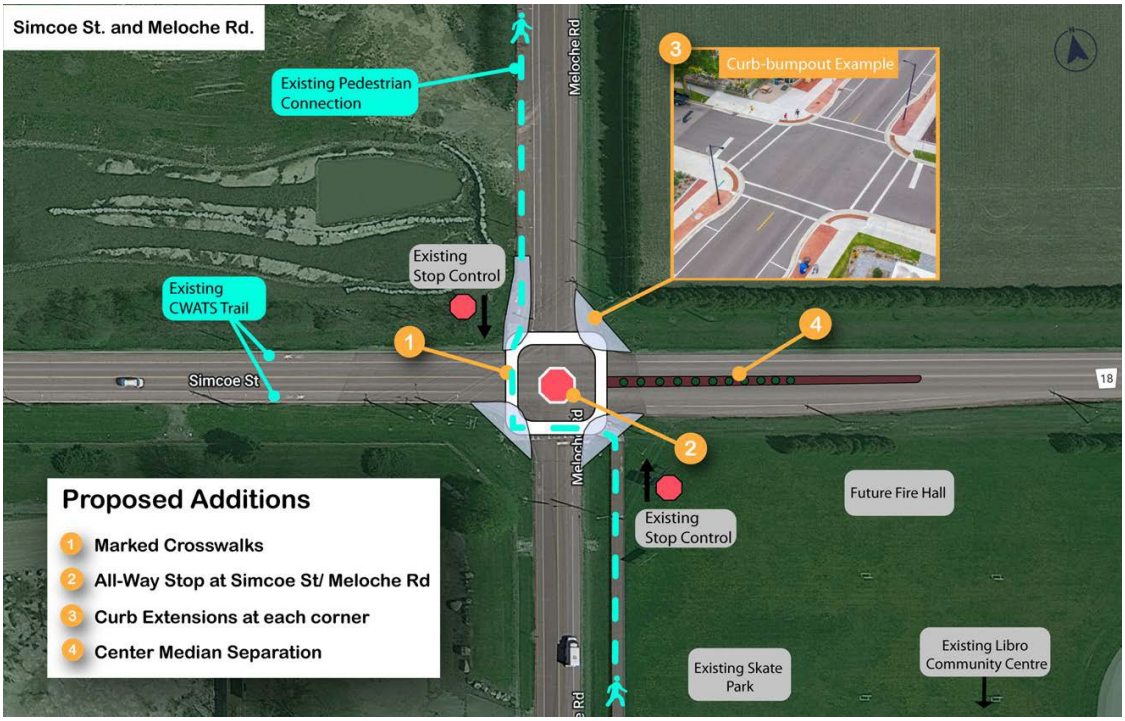
Several alternatives were assessed in terms of their feasibility, impact, and compliance with roadway design standards. A conceptual design was presented for public consultation at the Public Open House on February 13th, 2024, and feedback was appropriately considered in refining the design. Ultimately, the following improvements are recommended in the short- and long-term to help manage speeds and improve safety for all users.

Recommended Improvements – Short Term

Figure 5-60 illustrates the proposed short-term improvements to the study intersection to enhance pedestrian and cyclist safety and connectivity to/from the Libro Credit Union Centre. Overall, the proposed infrastructure improvements to the intersection of Simcoe Street and Meloche Road include:

- The implementation of stop signs on Simcoe Street to create an all-way stop controlled intersection.
- Marked crosswalks on all four legs of the intersection to alert drivers from each approach.
- The construction of curb extensions at each corner of the intersection to reduce crossing distances and provide a curb-separated pedestrian refuge and waiting area.
- A new centre median with vertical signage in the east leg of the intersection to act as a traffic calming gateway to alert vehicles of the changing speed limit and increased presence of vulnerable road users.

Figure 5-60: Short-term intersection improvements at Simcoe Street and Meloche Road



As illustrated, the foremost traffic management measure that is recommended to control vehicular speeds and enhance crossing safety at the intersection is the implementation of an all-way stop control (AWSC) for vehicles across all approaches of the intersection. It is noted that existing traffic volumes do not solely warrant AWSC, however this measure is justified by the presence of high speeds, local collision history, and the need for the safe crossing of vulnerable road users. To enhance crossing safety, painted crosswalks on the east, west, and north legs of the intersection should be introduced to facilitate safer pedestrian movement in all directions, which are now controlled by stop signs. To further enhance accessibility and pedestrian safety, curb extensions are recommended to reduce crossing distances , particularly across Simcoe Street. This measure will help formalize existing and planned active transportation facilities at the intersection, and further improve safety by slowing turning vehicles by creating a slightly narrowed drive aisle.

Finally, installing a center median along the intersection's westbound approach is recommended as a gateway feature to indicate the entry into an urban area and operate as a traffic calming device, specifically lowering vehicle speeds where the speed limit changes east of Meloche Road. The centre median may be combined with decorative improvements such roadside hedges and directional signage on the westbound approach can indicate the proximity of the community centre and residential neighbourhoods to alert drivers of the change of environment.

The proposed measures are anticipated to result in a decrease in vehicular travel speeds while avoiding adverse impacts to local traffic operations. The measures will significantly improve the pedestrian crossing experience and attract more residents to travel to/from the community

centre by foot or cycle once user safety at the junction has improved.

It is noted that during the Public Open House in February 2024, and within the second Online Survey, many respondents indicated a preference for the implementation of traffic signals at the study intersections. However, as detailed below, signals are not currently warranted by the traffic analysis enclosed in **Section 5.1**, until the 2033 horizon period.

Recommended Improvements – Long Term

In the long-term horizon, traffic volumes are projected to increase to a level ultimately requiring the signalization of the Simcoe Street and Meloche Road intersection. As detailed in **Section 5.1**, this infrastructure upgrade is highly dependent on extent of surrounding development that is projected to occur by 2033 and the overall growth in vehicular traffic in the Town. Should development be pushed until after the studied horizon year, or the auto mode share in the Town were to decline in response to investments in alternative modes of transportation, as recommended throughout this TMP, then the timing of signalization may be extended.

In general, signalization at this intersection presents the benefit of further managing active transportation travel resulting from protected phases for pedestrians and cyclists aiming to cross the junction. Enhancements such as a Leading Pedestrian Interval (LPI) and other features such as bicycle signals may be considered, depending on the level of pedestrian and cycling traffic measured at the time of improvement.

It should be noted that the Town is engaged in plans of constructing a new fire station south of the intersection. As a result of the proposed location's proximity to the intersection, there would be an opportunity to install firehall pre-emption to manage the traffic signal. With this measure, the fire personnel would be able to control the traffic signal timing when responding to emergencies. The pre-emption would safely transform the signal to all-way red, followed by a green light for the northbound left turning movement to allow for a fire truck to pass.

Overall, it is advised that staff monitor traffic conditions at the intersection and assess whether the timing of developments necessitate the implementation of traffic signals at this location before or after the study horizon year of 2033.

5.6.1.1 Roundabout Considerations

The implementation of a roundabout was considered as an alternative redesign for the intersection of Simcoe Street and Meloche Road. While it is noted that roundabouts can offer efficient traffic flow compared to signalized intersections, as vehicles enter and exit the roundabout without needing to stop which can reduce congestion and delay, traditional roundabout design is considered to adversely impact pedestrian safety. While lower travel speeds may reduce the frequency and severity of vehicular collisions, roundabouts, protections for pedestrians are more costly to integrate. Based on the configuration of this location, and the need to accommodate both heavy vehicles and prioritize fire and emergency services, a roundabout would be accompanied with higher construction costs and land expropriation. The compatibility and feasibility of roundabouts in Amherstburg are further detailed in **Section 5.1.7** above.

5.7 Feasibility of Murray Street Closure

Following an assessment of traffic conditions in the downtown core of Amherstburg, an opportunity was identified to re-design Murray Street, a one-lane one-way street, to better accommodate pedestrians and businesses in the area. A traffic analysis confirmed that a partial closure of Murray Street from Dalhousie Street to Ramsay Street would not result in any adverse effects to vehicular congestion, delay, or circulation feasibility within the downtown area, based upon traffic recorded on a typical weekday peak hour. All businesses and off-street parking areas would remain accessible, while limiting through traffic along a portion of the roadway.

Accordingly, three options were developed to assess public interest in the proposed road network change. Option 1 proposes no change, Option 2 reallocates the existing on-street parking lane in exchange for wider sidewalks, and Option 3 proposes a full closure of the portion of Murray Street o vehicular traffic in exchange for placemaking alternatives. Generally, Options 2 and 3 would see significant improvements for pedestrian accessibility, with new opportunities for adjacent businesses to expand new patios onto the street and establish a new destination near the waterfront.

Option 1 "Do Nothing" is depicted in **Figure 5-61**.

- Currently, the existing right of way (ROW) at Murray Street is 9.6m.
- The sidewalks are small, and the street prioritizes the movement of cars.
- The option allocates more space for vehicles as opposed to pedestrians.

Figure 5-61 Murray Street Option 1

Option 2 "Parking Removal" is shown in **Figure 5-62**.

- Removal of up to 8 on-street parking spaces on the north side of Murray Street.
- This increases the sidewalk width to 3.5 metres and provides more space for pedestrians, creating an enhanced walking experience.

Figure 5-62 Murray Street Option 2

Option 3 "Street Closure" is shown in **Figure 5-63.**

- Proposes pedestrianizing Murray Street from Dalhousie Street to Ramsay Street.
- This would invite an increase in active transportation, placemaking, and socializing.
- Businesses would have more space for patios and other outdoor displays.
- Traffic modeling shows no significant impact.

Figure 5-63 Murray Street Option 3

All three of the proposed alternative designs were presented to all stakeholders during the Public Open House in February 2024 and via the Online Survey #2. Public reaction was generally mixed between Options 2 and 3, with residents interested in the potential for new patios and pedestrian space but concerned about the displacement of up to 8 on-street parking spaces. It is noted that as per the parking review enclosed in **Section 5.3**, the downtown area currently contains a sufficient supply of parking spaces, including within the immediate vicinity of the proposed Murray Street improvements.

It is recommended that temporary improvements such as planters and bollards be implemented in a pilot program to test the proposed options and survey public feedback on the alternatives before larger capital funds are allocated and a permanent improvement is made to the street.

6 Public Engagement Summary

Consistent with the requirement for Master Plan projects under the MCEA Process, consultation with federal, provincial, and municipal agencies, Indigenous communities, local elected representatives, interest groups, landowners, and members of the public was on-going over the course of the study.

6.1 Notice of Study Commencement

A Notice of Study Commencement was published in the local newspaper on January 16, 2023. It was also digitally published on the Town's website (https://www.talktheburg.ca/transportation), and social media sites. The Town mailed a hard copy of the notice to residents, and TYLin emailed the Notice and information on how to contact the project team for comments and questions to all key stakeholders identified by the Town including technical agencies such as neighboring municipalities, provincial and federal agencies, emergency services, utilities, and school boards, in addition to Indigenous communities, interest groups, etc. The stakeholder list and all consultation notification materials are enclosed in **Appendix C** for reference.

6.2 Online Survey #1

Along with the Notice of Commencement, an online survey was developed to collect information on existing conditions throughout the community directly from the residents and visitors and gather input from members of the community on this project. The online survey was made available on the Town's website for a period of 30 days from January 16th to February 15th in 2023. A total of 296 member of the public responded to the online survey, which had 37 questions in total. The questions varied from gathering information on community profile, travel patterns, perception on safety from a transportation perspective, accessibility around town, challenges experienced in using the existing infrastructure, and so forth.

Key takeaways from the online survey results include:

- 49% of the respondents work exclusively in-person;
- None of the respondents chose transit as their primary mode of transportation to access Amherstburg Downtown (Question 5);
- 85% of respondents have never used the Town's Public Transit System, 10% experience it as being poor, while only 1.4% votes the Town's Public Transit System as good or excellent (Question 16);
- Shopping or using other services and recreation were the most common reasons for travelling in Town. (Question 18);
- ~40% of the respondents chose congestion along route as the biggest challenge faced when travelling in Town. (Question 20);
- When asked what mode of transportation respondents would ideally prefer 169 respondents indicated being a car driver, followed closely by 140 who would like to

walk, and 116 who would like to bike. (Question 22);

- Lack of active transportation infrastructure, sense of safety, parking space during special events, travel time was identified as the top reasons preventing respondents from using their preferred mode of transportation. (Question 23);
- Survey participants were also able to provide written comments for Q21 which asked if there are any additional challenges faced when travelling to town that were not listed in previous questions. The most common answers include the lack of safe bicycle lanes and pedestrian walkways, as well as parking and lack of public transit.

For a full summary of the online surveys, please refer to **Appendix D**.

6.3 Public Open House #1

The first in-person Public Open House #1 (POH #1) for this project was conducted on May 9, 2023, from 5:00-7:00 pm, at the Libro Community Centre. The purpose of the Public Open House was to present the project, introduce the project team, present the vision and objectives for the Town's first Transportation Master Plan, provide a summary of existing conditions that were reviewed, and share the next steps of the study.

The Notice of Public Open House #1 was emailed to all key stakeholders, digitally published on the Town's website (https://www.talktheburg.ca/transportation), social media channels, and advertised in River Town Times, a local newspaper in Amherstburg. The notice can be found in **Appendix C.**

The event was organized as a flexible drop-in space for informal interactive discussions with members of the public, in lieu of a formal presentation with limited engagement. There were sixteen (16) display boards in total with project information and two (2) digital monitors that displayed an animated presentation. The display boards contained the following information:

- Introduction to the study and how to participate in the Study;
- The Transportation Master Plan process;
- Study objectives and what we heard so far from the consultation process;
- Community Profile (demographics, travel trends, road network and growth areas);
- Existing Traffic, Parking, Transit and Active Transportation Conditions;
- Next Steps.

Members of the Town's Staff and TYLin (consultant team) were present to answer any questions. A total of seventeen (17) attendees visited the POH #1 with total of five (5) comment sheets completed by the attendees at the event. In general, some of the comments received included:

- More tree planting along sidewalks (i.e., Richmond Street and Meadowview Avenue) to provide shade.
- County Road 5 is a common access to Windsor City and the condition and width of this road could be improved for safety.

- Safety concerns for intersection of Meloche Road & Simcoe Street.
- Community needs transit with regular service to destinations in Town during the day. Consider a 4th trip to/from Windsor City for more access to Windsor City. (Great now for student & commuters.)
- Pedestrians and cyclists are a sign of healthy vibrant community. Amherstburg needs to connect the existing bike lanes to make cyclists and pedestrians safer at following locations:
    - Simcoe Street bike lane ends at Victoria Street.
    - Downtown currently has no bike access.
- Far too many of the parking spaces at the Libro Community Centre are reserved for Accessible Parking. These spots are rarely fully occupied.
- Request for more information meetings for this project so people have enough time to become more involved with their Town.

Attendees were encouraged to provide comments directly on the display board with map of the study area. The general comments received directly on the boards included:

- At Alma Street & Meloche Road Intersection bike lane ends and cyclists are forced to merge with vehicular traffic.
- County Road 10 and County Road 20 residential speed needs to reduce to 50km/h.
- Road between Richmond & the park is too congested. Consider making it one-way street and remove parking.
- Add/expand angle parking in downtown with one-way streets.
- Consider 40 km/h speed limit in downtown core.
- Need for transit service within the town consider "on demand" service.
- More trees along paths i.e., Meloche Road by cemetery & walking path/bike lane need shade and benches.
- Long stretches of Dalhousie Street very packed with parking. Consider closing it or make it a one way.
- More pilot bike lanes in general and in school zones. Public Education and campaign to encourage biking.
- Review barriers for school kids to get from one neighborhood to another and students wanting to ride their bike to school. i.e., active safe routes to school.
- Lack of directional signage from the CWATS trail to direct cyclists to waterfront (their desired destination).
- More bike parking in the core close to shops & restaurants, not at perimeter in park.

Following POH #1, the study team consolidated public and agency feedback, updated the existing conditions analysis (Section 4), and defined the priorities for the subsequent phases of the study (Section 5) and development of the Transportation Master Plan.

6.4 Public Open House #2

A second in-person Public Open House #2 (POH #2) for this project was conducted on February 13th, 2024, from 5:00 to 7:00 pm at the Town's Libro Community Centre. The goal of the session was to provide stakeholders with an update on the study, present preliminary concepts, and their evaluation, share draft recommendations, and summarize feedback heard to date. A second online survey also was launched in parallel to gather input from residents on the presented solutions to guide the selection of a preferred alternative for each component of the study.

The Notice of Public Open House #2 was digitally disseminated on the Town's website (https://www.talktheburg.ca/transportation), with additional advertisements in the River Town Times and on the Town's Facebook page. The Notice of POH #2 can be found in **Appendix C.**

Similar to POH #1, the event was organized as a flexible drop-in space for informal interactive discussions with members of the public. Attendees engaged with eighteen (18) display boards and one (1) digital monitor showcasing an animated presentation. **Figure 6-1** shows the set up at the Libro Centre. The topics covered in the boards include:

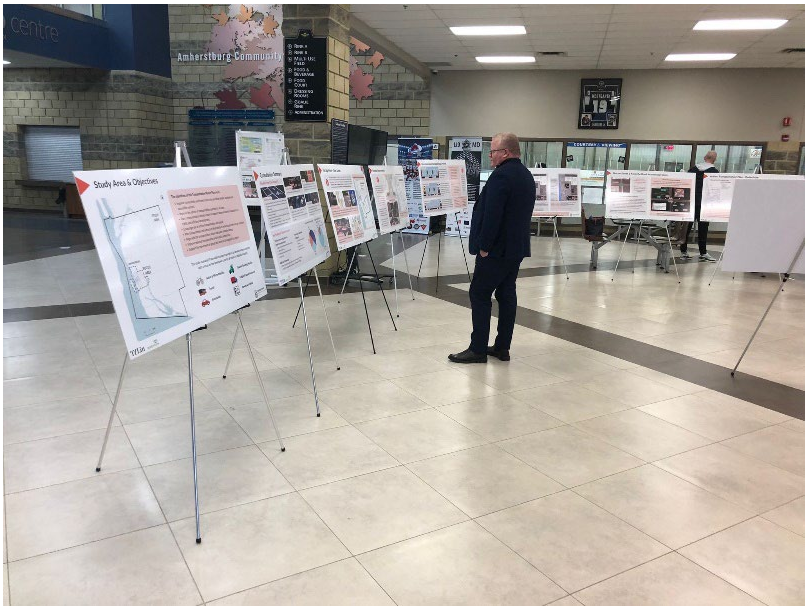
- Proposed changes in road profile;
- Downtown parking improvements;
- Three recommended options for changes to Murray St;
- Active transportation enhancements for pedestrians and cyclists;
- Proposed transit routes and future traffic operations;
- Recommended improvements to make the Simcoe and Meloche intersection safer;
- Next Steps.

Figure 6-1: Set up of POH #2 at the Libro Centre

Representatives from the Town's Staff and TYLin (the Town's consultant) were present to engage with the residents and address any questions or concerns.

A total of thirteen (13) attendees participated in the POH #2, with two (2) comment sheets completed during the event, reflecting an encouraging level of community engagement and feedback. **Figure 6-2** shows attendees viewing the boards at the POH.

Figure 6-2: Visitors at the POH



6.5 Online Survey #2

Following POH#2, an online survey was crafted to gather insights directly from residents and visitors on existing conditions throughout the community and to solicit input on the project. This survey was accessible on the Town's website for a 17-day period, from February 13th to March 01, 2023. During this time, 110 individuals responded to the survey, which comprised 14 questions. These questions ranged from exploring preferences for implementing slow zones and altering road profiles to providing more transit options and enhancing pedestrian-friendly initiatives along Murray Street. Some of the themes that were brought up in the survey are:

Accessibility Enhancement:

Certain residents express apprehensions regarding the adequacy of crossings for individuals with accessibility requirements, including those utilizing motorized scooters and individuals with mobility impairments.

Improvements in Active Transportation (AT):

Concerns arise regarding the safety of biking on sidewalks. Residents are worried about people cycling on sidewalks instead of using the dedicated bike lanes that are being proposed.

Navigating Roundabout Preferences:

Differing opinions emerge among residents regarding the preferred traffic control measure at Simcoe and Meloche intersections. While some advocate for a roundabout, others favor an all-way stop control (AWSC).

Perspectives on Murray St:

Opinions on the proposed closure of Murray Street are divided among residents, with approximately a 50/50 split. Additionally, comments suggest the importance of striking a balance between parking availability and the integration of curb bump-outs to accommodate restaurant needs, urging careful consideration of both aspects.

For a full summary of the online survey, please refer to **Appendix D.**

6.6 Stakeholder Comments

Throughout the duration of the project, key stakeholders and members of the public were able to submit their thoughts, concerns, and comments through the Talk the Burg website or via email to the project team. Some of the most addressed concerns included:

Traffic Lights:

- Suggestions for improved traffic light programming to enhance traffic flow and reduce unnecessary stops.
- Concerns about sudden light changes and the need for longer pedestrian crossing times.

Signage and Line Painting:

- Issues with worn-out road markings and unclear signage, impacting general road safety and particularly crossings.
- Suggestions for improved street signage readability and placement.

Residential Street Parking:

- Suggestions to limit parking to one side of residential roads and enhance traffic safety around parked vehicles.

Accessibility and Accessible Parking:

- Requests for improved accessibility features, including designated parking spots and wider sidewalks.
- Concerns about the lack of accessible parking and sidewalk conditions.

Commercial Parking:

- Issues with parking lot design and traffic flow, particularly in commercial areas like Walmart and Sobeys.
- Suggestions for adding turning lanes and improving traffic management in high-traffic areas.

Enforcement & Safety:

- Calls for better enforcement of speed limits and traffic regulations, especially in areas with schools and parks.
- Concerns about the need for warning signs and safe pedestrian crossings.

Stakeholder feedback was reviewed and discussed with the study team and Town staff, with various plan improvements incorporated throughout the study process. All feedback has been enclosed in **Appendix D**.

7 Recommended Policy Considerations

7.1 Traffic Calming

One of the key objectives of the Transportation Master Plan is to develop a safe transportation system for all users in the community. The analysis and network recommendations contained within this report have leveraged Vision Zero and Safe Systems best practices to ensure transportation-related decision making and investment is tied to strategic road safety objectives. In accordance with this goal, it is recommended that the Town of Amherstburg implement a Traffic Calming Procedure to bolster and action the improvements directed by the TMP.

A standalone traffic calming procedure is being developed in coordination with Town staff based on the typical framework provided in this section. The following information is provided on the standard steps required to implement traffic calming measures including the processing of requests, selection process, and implementation, in order to guide the development of the Traffic Calming Procedure and any applicable policy updates, in accordance with the direction from this TMP.

7.1.1 Purpose of this Traffic Calming Overview

The following presents a framework to guide the development of a typical Traffic Calming Procedure. The guidance refers to industry best practices, specifically reflecting the principles within the **Canadian Guide to Traffic Calming (CGTC) Second Edition**, which was jointly prepared by the Transportation Association of Canada (TAC) and the Institute of Engineers (ITE). The adoption of the universally recognized practices within this guide ensures that the implementation of traffic calming programs ensures a broad consistency of application and minimizes liability risks to the municipality. In alignment with the TMP, this framework is being used to inform the creation of a Traffic Calming Procedure facilitating its adoption and execution in the Town.

7.1.2 Framework Overview

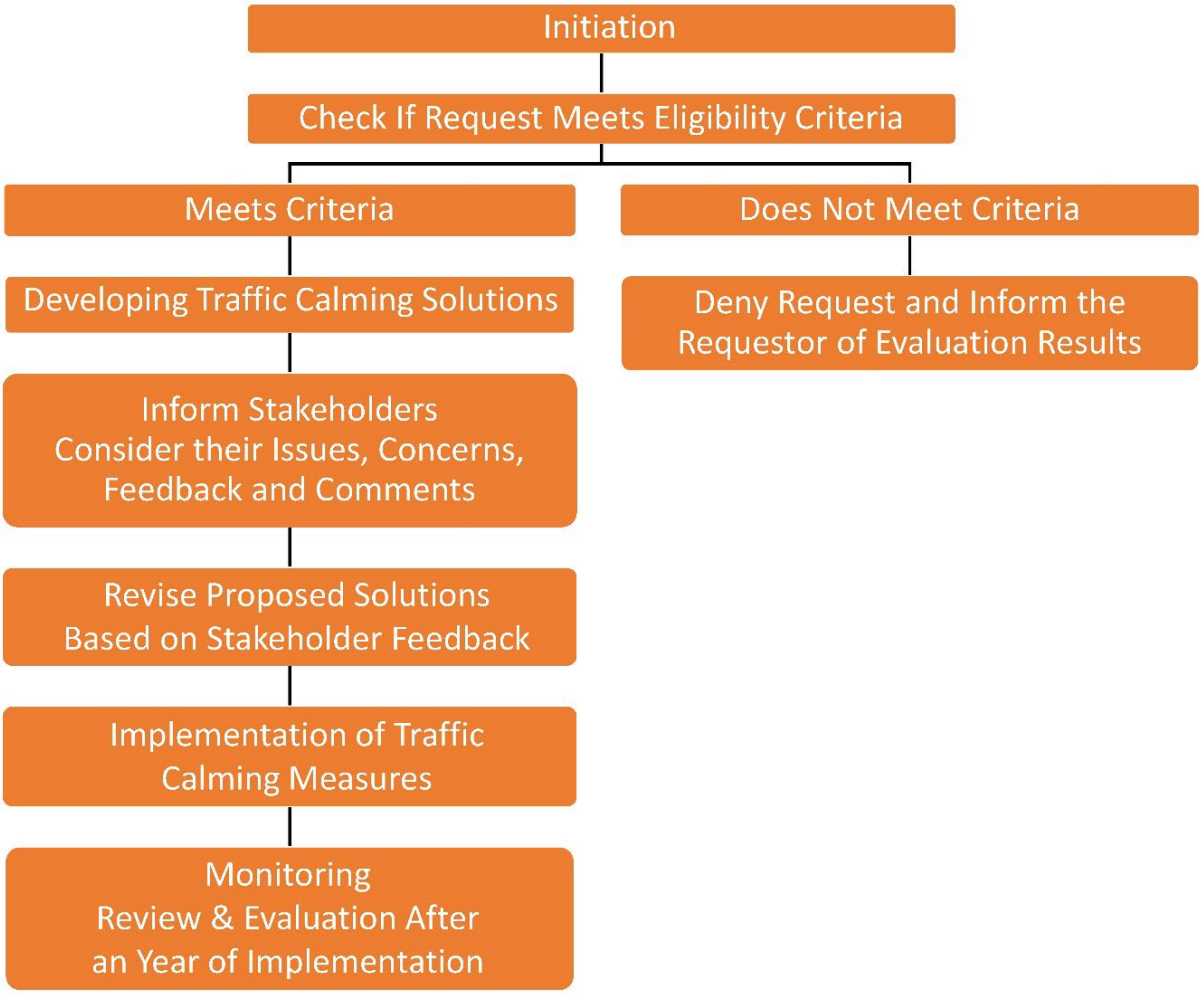
Traffic calming is the implementation of physical measures intended to reduce the negative effects of motor vehicle use. It aims to change driver behavior and improve safety conditions for all street users. The main purposes of a typical traffic calming procedure is to:

- **Reduce Vehicular Speed:** Excessive speeding increases the risk as well as severity of collisions.
- **Discourage "Shortcutting":** "Shortcutting" occurs when drivers, aiming to bypass congestion on main roads, use local and collector streets as through routes to their destinations, often leading to increased traffic, speeding, and safety risks on residential streets.
- **Improve Safety:** Traffic calming aims to reduce conflicts between motorists, cyclists, pedestrians, and other street users.
- **Active Transportation:** With improved safety, decreased motor speeds, reduced noise and emissions, traffic calming fosters the use of active transportation.

Historically, traffic calming strategies were typically applied on local and collector roads, but they can also extend to arterial roads provided these interventions do not impede the arterial roads' primary functions nor restrict access or divert traffic flow.

Figure 7-1 illustrates typical steps that should be followed when considering the implementation of traffic calming measures.

Figure 7-1: Traffic Calming Implementation Steps



7.1.3 Selection Process

As outlined in **Figure 7-1,** the following steps are typically recommended when assessing and implementing traffic calming features:

1. **Initiation:** The review of a traffic calming request is typically initiated through a specific process which would in the Traffic Calming procedure. Often a review begins with a request from a resident, group, elected official, or Town staff. This request can be via a letter, email, or even a phone call.

   Within the Traffic Calming procedure, there will be guidance on how to determine the eligibility of a request. The procedure will outline a specific initial screening process which will review specific criteria including the road classification, local, length, and other characteristics.

2. **Data Collection and Analysis**: Once a request has been confirmed, the next step in the process is data collection and analysis. Typically a site visit must be conducted at the proposed location and observations noted. Data relevant to the affected street and surrounding area should be assembled and analyzed. Relevant data to be assessed usually includes:

   a. Speed: 85th Percentile Speed and Posted Speed Limit;
   b. Collision History: Causes, patterns;
   c. Traffic Volume- volumes by class of vehicles, pedestrian and cyclist volumes, through volumes, turning volumes, determine travel patterns, potential conflicts, and operational issues;
   d. Roadway Classification- arterial or collector or local roads;
   e. Pedestrian facilities;
   f. Bicycle facilities;
   g. Existing traffic controls;
   h. Presence of on-street parking - To identify parking demand and its potential implications for application of measures;
   i. Adjacent land uses – commercial, residential, institutional, industrial, community facilities like childcare centers, schools, senior's residences, and parks;
   j. Route Usage: If it is on a principal access route, school route, truck route, emergency response route, transit route;
   k. Relevant Road Design Features: Road curvature, tangent length, grades, sight distances, lane widths, road cross section, presence and location of catch basins, utilities, trees, presence of any potential hazards; and,
   l. Pavement Markings and Signage.

   The data should then be evaluated to check ensure that it meets the eligibility criteria as specified in the next step.

3. **Eligibility Criteria:** Assessing the eligibility of a location for traffic calming is the next step in the process. If a location passes this screening process, it will proceed to the identification of an appropriate traffic calming measure. Typical eligibility screening criteria include an assessment of the 85th percentile speed and review of collision history. Specific thresholds for these screening criteria and any other criteria will be outlined in the Traffic Calming procedure.
4. **Developing Traffic Calming Solutions**: We identifying the appropriate traffic calming solutions for a given location staff should analyze and evaluate the potential advantages, disadvantages, and costs of multiple measures. Please note that measures like traffic signal retiming, changing traffic signage, turn prohibitions and parking restrictions may be measures that improve the operations of the road network but do not fall under "traffic calming measures".

   As a general guideline, the most appropriate traffic calming measures must be selected depending on the issue from the traffic calming toolbox from the "**Canadian Guide to Traffic Calming (CGTC)**". To comply with typical traffic calming measures, please refer to CGTC for more details on these countermeasures, their application, consideration, design guidelines, maintenance, and operation.

As referenced above, a detailed Traffic Calming Procedure is currently being prepared by Town staff, which utilizes the framework enclosed within this Transportation Master Plan, to define the required steps, eligibility criteria, warrants, and traffic calming solutions. The following provides a guideline to support the preparation of this procedure.

7.1.4 Implementation

Preliminary designs of the chosen solution should be prepared for further discussion and these next steps:

It is noted that the requirements of this stage would not be triggered for every traffic calming request, but only those which have been filtered through the above process to require more significant traffic calming investments.

1. **Identify and Inform Stakeholders:** All groups that are interested and may be impacted by the traffic calming implementation must be informed and invited to provide their inputs and share their concerns. The Town should host an open house or a workshop and invite the following to participate:
   a. Town Staff and Council
   b. Emergency Service Providers (police, ambulance, fire)- Traffic calming plans should be designed to accommodate emergency vehicles as far as possible. Careful consideration of alternative solutions and design treatments that pose less impact, and consultation with emergency service providers during the planning and design phases is recommended.

c. Transit Operators- There should be an effort to choose solutions that are suitable for the types of buses that use the route.

d. Agencies, Boards and Commissions (including adjacent municipalities and road authorities

e. Directly Impacted Residents and Businesses

f. Public

g. Community Groups, Cycling and Walking advocacy groups.

All issues, concerns, feedback, and comments given by participants should be considered before finalizing the traffic calming measure(s) to be implemented.

2. **Implementation:** The preliminary design of the final traffic calming measure(s) may be revised based on the feedback received in the consultation. The procurement process should then be completed followed by implementation of the traffic calming measure. Traffic calming measures should be clearly and consistently signed and marked in accordance with the MUTCDC and/or applicable provincial standards and guidelines.

3. **Monitoring:** The traffic calming measure(s) implemented should be reviewed and evaluated after one year of installation. New data may be collected after the traffic calming treatment has been installed and traffic has adjusted to evaluate the location again. If the issue raised is not addressed, additional measures must be considered.

As referenced above, this traffic calming review should be considered as a general guideline for the preparation a Traffic Calming Procedure, which is currently under development in coordination with the Town staff.

7.2 Intersection Implementation

The intersection implementation policy is meant to be blueprint and implementation guide for Town's Staff for reviewing needs for new intersections, provision of active transportation infrastructure within intersections, intersection control types, etc. The policy not only focuses on provision of active transportation facilities through intersections, but it will also focus on pedestrian and cycling improvements both on and off-road and provides a framework for increasing active forms of transportation and recreation throughout the Town. It is:

- A long-range blueprint;
- A tool to facilitate implementation;
- An action-plan for short-term priorities; and
- A recommended funding strategy.

7.2.1 Principles and Guiding Factors

The key principles and factors that should guide intersection planning and design decisions might include:

- prioritizing safety;
- promoting active transportation;
- considering environmental impacts;
- accommodating future growth, and,
- ensuring equitable access for all users.

As per the Town's OP noted in Section 2, any intersection improvements, as per the traffic condition warrants, should investigate improvements in the form of:

- jog eliminations;
- regulation of turn movements;
- proper signing;
- installation of traffic signals;
- marking of traffic lanes, and,
- channelization construction.

All policies and guides should align with broader transportation goals (CWATS by Essex County etc.) and be adaptable to changing circumstances and future growth. The relevant traffic and parking related "Policies for Downtown Revitalization in the OP" states:

- Truck and industrial traffic shall be discouraged in the Central Business Area except where such traffic has business in the downtown area.
- Because the Central Business Area is the sector of the Town wherein the volume of pedestrians is the most dense, it shall be designed primarily to serve a pedestrian function and to encourage social interaction.
- Parking facilities within the Central Business Area shall be limited primarily to short-term parking with high turnover, serving shopping and business purposes.
- Long-term or all-day parking facilities, except those developed by private business for their own use, shall be provided on the periphery rather than in the core of the Central Business Area. Where a fee is charged for off-street parking, the rate structure shall generally be such as to render the facility self-supporting. Moreover, rates shall be set so as to discourage all-day parking in the core of the Central Business Area and to encourage long-term parking on the periphery.
- Entrances and exits to off-street parking facilities shall be located so as to minimize interference with street traffic. The frontage on Richmond Street shall not be used for surface off-street parking facilities. The development of pedestrian walkways to parking areas located behind the Richmond Street frontage as well as Murray and Dalhousie Streets, shall be encouraged, as well as ensuring barrier free accessibility and accessible parking spaces.

7.2.1.1 Barrier Free Access

It shall be a policy of this Plan that, in reviewing development applications and when the Town is undertaking public works, serious consideration be given to the creation of a barrier free environment. Encouragement will also be given to design standards that create a safe pedestrian environment. Barrier free design will be applied to:

- Intersection;
- curb cuts;
- pedestrian activated signals;
- public buildings; and,
- all new institutional, recreational, commercial, industrial, or multi-unit structures.

The Town should explore ways to eliminate barriers to wheelchairs and mobility aids on public lands and buildings. The Town will encourage developers to provide barrier free developments. Proposals for the installation of barrier free access involving heritage structures must demonstrate that the alteration will not adversely impact the heritage attributes.

The Town's Zoning By-law will establish standards for the provision of parking spaces for persons with disabilities where the magnitude of the development warrants the provision.

7.2.2 Road Hierarchy

7.2.2.1 Classification

As per the Town's OP, each road within the Planning Area is not designed nor intended to serve the same function. The roads within the Planning Area have been classified according to the anticipated ultimate function that each road would fulfil. Where additional land is required for widenings, extensions, or intersection improvements, such land shall be obtained wherever possible in the course of approving plans of subdivision, development applications, or by conditions attached to individual consents.

7.2.2.2 Arterial Roads

Arterial roads are existing roads of two to four traffic lanes. Due to existing development, desired ROW widths may not always be achievable. Whenever possible, Sandwich Street/County Road 20 ROW width shall be 30 m. Alma Street, Simcoe Street, Lowes Sideroad, Meloche Road, Fryer Street, Fox Road and County Roads 9 and 10 shall be 26.0 m wherever possible.

The number of access points from abutting properties should be restricted in number. Every effort will be made to reduce the number of driveway entrances along Arterial Roads by ensuring that, wherever possible, mutual driveway entrances serving two or more lots or developments are provided or planned for through Site Plan Control. The function of the arterial roads is to facilitate the inter-municipal and through municipal movement of high volumes of traffic to and from major traffic generating sectors in the Planning Area. New industrial, commercial, institutional, and multiple family residential uses may have access to arterial roads but in each instance an attempt shall be

made to group developments, to reduce the number of access points which could hinder the movement of traffic. Strip or linear development shall be discouraged. Where such conditions exist, the number of access points shall be reduced wherever possible.

It is not the intention of this TMP document that arterial roads existing in a built-up area will necessarily be widened, or that direct access will be eliminated or restricted, except where redevelopment is taking place.

7.2.2.3 Collector Roads

Collector roads are existing and proposed roads with a minimum of two traffic lanes and a ROW width of 20 to 26 m, which are designed to collect and carry medium volumes of local traffic to arterial roads or distribute traffic to the local roads as well as provide access to abutting properties.

Collector roads shall include Essex County Roads 3, 5, 8, 11, 18, 41 and 50.

7.2.2.4 Local Roads

Local roads are existing and proposed roads with two traffic lanes and a ROW width of 20 m which are designed primarily to provide access to abutting properties. They should be designed to discourage the movement of through traffic and function as local distributors of traffic to the local roads, as well as to provide access to abutting properties.

7.2.2.5 Private Roads

There are several private roads in the municipality that service development along the lakeshore. It is the intention of the Municipality that no further development will take place on the Private Roads known as Bingham Road, Goodchild Beach Road, Lake Erie Country Club Road, or Erie View Road, until such time as they have been upgraded to Ministry of Transportation standards.

7.2.3 Recommended Steps to Implementation

When a request for a new intersection arises through planning of sub-division process, the Town should request to review the data and analysis used to identify priority intersections and assess their current performance. This should include traffic volume, collision history, pedestrian and cyclist usage, and other relevant data.

If there is a specific request for the inclusion of active transportation facilities along a corridor or through an intersection, the Town should refer to the OTM Guide to perform the pedestrian facilities warrant to select the most appropriate infrastructure based on the surrounding land uses and local context.

7.2.3.1 Types of Intersections / AT Facilities

There are three (3) basic intersection control types between arterial, collector and local roads, namely:

- Stop controlled intersections;
- Signalized intersections; and,
- Roundabout.

Typically, a signal warrant analysis is reformed based on the signal warrant process as per OTM book 12. It informs whether a traffic signal is warranted for an intersection based on total volume, crossing volumes, delay to cross traffic, collision, and pedestrian volumes.

7.2.3.2 Review of Design

The Town should consider requesting an intersection control study report from proponent when there is a new intersection with arterial and collector roads being proposed. The intersection control study should document traffic analysis results for both signalized intersection and roundabouts to compare which option has the best solves the problem at hand with the least number of impacts.

The Town staff should always request provision of clear design standards and guidelines for intersection design. Designers should ensure that the design aligns with provincial and national standards and may cover areas such as lane widths, turning radii, signal timing, pedestrian crossings, and bicycle facilities.

When reviewing the potential need for a new traffic control signal at a particular location, in addition to the numerical justification for traffic signals described above, staff also apply engineering judgement about the location being considered for a traffic signal, even if the numerical requirements of the warrant are not met. Consideration of road width, posted speed limit, operating speeds, adjacent land uses (including new development in the area), pedestrian desire lines and demographics, presence of a transit stop, sight lines, and distance between existing signalized crossing opportunities, etc. should be reviewed. Town staff should also emphasize the importance of sustainable and resilient intersection design, considering climate change impacts and promoting energy-efficient transportation options.

7.2.3.3 Funding & Implementation Strategy

The funding and implementation strategy should involve phased approaches when appropriate, prioritizing high-impact intersections and neighborhoods such as public community centers, schools, hospitals, major employment areas etc., and coordinating with other infrastructure projects.

The Town should advocate for provincial and federal funding as well as approaching other potential funders to share costs to deliver the projects outlined in the TMP. The federal, provincial other partnership funding opportunities are typically available that the Town should seek out to build roads, transit infrastructure and operating funding. It is important to coordinate with local municipalities, regional transportation authorities, and other relevant partners in executing these projects.

7.2.3.4 Monitoring and Evaluation

Describe the mechanisms for monitoring and evaluating the performance of implemented intersection improvements. This will help identify successes and areas for improvement, ensuring the policy remains adaptive and effective.

7.3 Smart Mobility

7.3.1 Introduction to Smart Mobility

Smart mobility refers to the integration of technology, data, and innovative solutions to enhance the efficiency, safety, and sustainability of transportation systems. As urbanization continues to speed up, the concept of smart mobility has appeared as a promising solution to address the challenges posed by congestion, pollution, and limited infrastructure. By leveraging advancements in areas like autonomous vehicles, electric mobility, real-time data analytics, and shared transportation services, smart mobility aims to revolutionize the way people and goods move within urban areas. This involves creating a seamless and interconnected network that enables citizens to make informed travel decisions, reduces traffic congestion, lowers carbon emissions, and ultimately enhances the quality of urban life.

When considering the application of smart mobility in smaller communities like the Town of Amherstburg, tailored solutions can have a great impact on the Town's transportation network. With a smaller population and distinct geographical characteristics, Amherstburg presents an opportunity to implement targeted smart mobility initiatives that can bring about significant improvements. For instance, the introduction of electric vehicle charging stations across the town could encourage the adoption of sustainable transportation. By embracing shared mobility services, such as ride-sharing or community-based shuttle programs, Amherstburg could address transportation gaps, making it easier for residents and visitors to access essential services and facilities. Overall, the integration of smart mobility concepts in Amherstburg has the potential to enhance connectivity, reduce environmental impact, and contribute to the Town's overall livability.

According to the International Transport Forum and Smart Cities Council, some key principles of smart mobility include:

- **Integration and multimodality**: Smart mobility emphasizes the seamless integration of different transportation modes, such as public transit, active transportation, and shared mobility services, in order to create an interconnected transportation network.
- **Data-driven decision-making**: Data plays an essential role in smart mobility and involved comprehensive data collection, analysis, and interpretation to make informed decisions and improve user experiences.
- **User-centric design**: Smart mobility make user needs and preferences a priority. Creating accessible and responsive services that cater to diverse needs is important.
- **Sustainability and environmental responsibility**: Encouraging environmentally friendly transportation modes and reducing greenhouse gas emissions are fundamental principles of smart mobility.
- **Public-Private collaboration**: Public-private collaborations can foster innovation, leverage private sector expertise, and provide efficient conceptualization and realization of smart mobility solutions.
- **Accessibility and inclusivity**: It is vital to ensure that transportation systems are accessible

to all. Smart mobility promotes equitable access to transportation services.

- **Resilience and adaptability**: smart mobility solutions are designed to be adaptable to changing circumstances and resilient in the face of disruptions, such as extreme weather events.
- **Safety**: Prioritizing safety in smart mobility includes protecting vulnerable road users, enhancing road safety technologies, and implementing measures to reduce traffic accidents.
- **Economic viability**: Smart mobility solutions should be economically viable, focusing on cost-effectiveness and sustainability.
- **Public engagement and governance**: Effective governance structures and public engagement are critical in shaping smart mobility initiatives. Engaging with stakeholders and the public ensures that transportation systems align with community needs.

Several Canadian Cities have been implementing smart mobility projects step-by-step through pilot projects. To effectively implement smart mobility initiatives, several crucial factors need to be addressed, such as data ownership, governmental roles, and the coordination of various stakeholders.

When considering the implementation of smart mobility solutions, a clear framework for data ownership and responsibilities is essential. This ensures that data generated by smart mobility solutions are properly managed, shared, and analyzed. Municipal governments need to define their role in governing data and establish agreements with data providers to ensure compliance with privacy regulations and ethical standards. This involves negotiating the terms for data access, usage, storage, and sharing. Clarity in data ownership not only safeguards individuals' privacy but also fosters public trust in the utilization of emerging technologies.

To effectively steer the demands and network of actors, resources, and power inherent in smart mobility projects, municipal governments must adopt a holistic approach. Collaboration with private sector partners, research institutions, community organizations, and residents is essential for successful implementation. Establishing multi-stakeholder partnerships encourages shared ownership, diversified expertise, and broader perspectives, leading to more robust solutions that address to various needs (Urban Policy Lab, 2021).

7.3.2 Smart Mobility Implementation and Results in Similarly Sized Municipalities

Smart mobility does not just apply to big cities like Toronto, Vancouver, and Montreal. There are numerous successful examples of smart mobility implementations in smaller communities. Below are some highlights from communities with up to 100,000 residents:

- **Saanich, British Columbia - Active Transportation Planning:** Saanich has implemented active transportation planning, which focuses on creating pedestrian and cycling-friendly infrastructure. This has led to increased walking and cycling, improved safety for pedestrians, and reduced dependence on cars for short trips.
- **Stratford, Ontario - Electric Bus Fleet:** Stratford adopted an electric bus fleet for its public transit system, reducing emissions and noise pollution. This initiative aligns with the Town's commitment to sustainability and has garnered positive attention as a forward-thinking community.
- **Collingwood, Ontario - Electric Vehicle Charging Stations:** Collingwood installed electric vehicle charging stations to encourage EV adoption among residents and tourists. This has contributed to a cleaner environment and positioned the Town as a destination for eco-conscious travelers.
- **Wolfville, Nova Scotia - Community Bike Share:** Wolfville launched a community bike-sharing program that offers residents and visitors access to bicycles for short trips. This initiative promotes sustainable transportation, reduces traffic congestion, and enhances the town's livability.

7.3.3 Smart Mobility in the Town of Amherstburg

Table 7-2 provides an overview of Smart Mobility options for the Town. The proposed initiatives are sorted by short-term, medium-term, and long-term steps and include topics such as active transportation, transit, safety, electric vehicles (EV), partnerships, and delivery. **Figure 7-2** also shows the proposed locations of Shared Mobility Stations & EV Charging Stations along Transit Routes.

Table 7-1: Smart Mobility Initiatives for Amherstburg

Initiative	Short-term	Medium-term	Long-term
Active Transportation & Shared Mobility	• Encourage employers to implement "Smart Commute Programs • Encourage employers to implement active transportation programs such as a	• Encourage employers to offer their own Shared Mobility programs such as providing bikes, e-bikes, or e-scooters for their employers (e.g., as part of their benefits) • Implement a public	• Maintain and expand mobility share program as appropriate (expand stations, expand

Initiative	Short-term	Medium-term	Long-term
	"bike to work" or "walk to work" week • Survey the downtown area to identify the best locations for a public mobility share program (bikes, e-bikes, e-scooters)	Shared Mobility Program	
Transit	• If current Route 605 bus stops are formalized, ensure transit schedules are added to bus stops and are also made publicly available on the Amherstburg and the Windsor Transit website.	• As Amherstburg is planning to offer its own transit system, the Town has an opportunity to implement smart technologies from the beginning and design the transit system that works best for the communities. Appropriate technology the Town could adopt include Passenger Information Systems such as: • Passenger Information Systems • install variable message signs at all major stops • developing an app for its transit system or pushing for a well-working integration with different map services • Use electric buses for its fleet	• Integrate the mobility share program with the local transit improvements. e.g., use the same method of payment for both, provide an integrated mobile phone application that can be used for both transit and shared mobility
Safety	• Integration of slow zones	• Raised crosswalks in school zones and downtown	• 3D crosswalks in school zones

Initiative	Short-term	Medium-term	Long-term
EV Infrastructure	• Identify spots in the Town that would be appropriate for EV charging infrastructure. An example is the planned transit mobility hub. • Plan for EV infrastructure for the transit fleet	• Install EV charging stations for transit • Install EV charging stations at desired spots	• Assess performance and use of EV charging stations and expand where appropriate
Partnerships	• Research for appropriate partnerships to help implement the Smart Mobility Strategy • Options include Windsor-Essex Electric Vehicle Society, Automobility Hub Windsor-Essex • Create a list of partnership criteria and create a partnership assessment matrix to regularly review and assess how well partnerships are working	• Create partnerships for pilot projects and run first pilots • e.g., implement a few EV charging stations, or a few bike-share stations • Tap into the Joint Venture of large auto manufacturers who are bringing 30,000 EV chargers to North America	• Regularly review and assess partnership quality and expand possible partnership pool through networking

Figure 7-2: Recommended Shared Mobility Stations & EV Charging Stations

7.4 Transportation Demand Management (TDM)

Transportation Demand Management (TDM) involves the strategic use of methods to regulate how people travel. Instead of only focusing on expanding infrastructure, TDM offers a nuanced approach to optimizing transportation systems. TDM has the potential to generate various benefits including promoting environmental sustainability, enhancing public health, easing traffic congestion, and contributing to the overall enhancement of the Town's quality of life.

The Association for Commuter Transportation defines TDM as the strategic implementation of initiatives that guide individuals towards using transportation networks in the most optimal way. This leads to improved mobility, reduced traffic congestion, and a reduction of vehicular emissions. Given that transportation systems currently contribute to nearly a quarter of energy-related greenhouse gas emissions, the implementation of effective demand management to mitigate these emissions is essential. This approach plays a pivotal role in our commitment to mitigating our carbon footprint and nurturing a more ecologically sound urban environment.

From worsening urban air quality to higher rates of road accidents and casualties, the toll of increased vehicular activity on community well-being is clear. By adopting the principles of Transportation Demand Management within this transportation master plan, the Town of Amherstburg aims to foster a more resilient, healthier, and thriving community.

7.4.1 Review of Typical TDM Measures

TDM involves smart strategies to make transportation system work better for everyone. Here are some examples of TDM measures:

- **Transportation Management Associations:** These groups use both public and private funds to encourage more ridesharing and other ways of getting to work that can ease traffic and reduce pollution.
- **Better Walkways:** Making spaces more pedestrian-friendly by adding short crossings for pedestrians, wide sidewalks, and trees along the streets.
- **Improved Public Transit:** Implementing and optimizing public transit routes. Ensuring public transit runs smooth and is reliable.
- **Affordable Transit:** Subsidizing transit costs for employees or residents.
- **Biking Support:** Creating safer places for biking, including secure bike storage, bike lanes, and trails.
- **Helpful Information:** Providing tools like apps and signs that offer information on finding the best ways to get around without using a car.
- **Flexible Work Hours:** Creating flexible work time arrangements with employers to reduce traffic during busy hours.
- **Active Traffic Management Technologies**: The integration of advanced technologies for traffic management optimizes traffic flow, enhancing efficiency and minimizing congestion-

related challenges.

- **Congestion Pricing Strategies**: Implementing peak-hour congestion pricing can serve as a mechanism to reduce traffic volume during periods of high demand, ultimately improving overall traffic conditions.
- **Thoughtful Road Space Reallocation**: Reconsidering the road space allocation with a balanced approach that accommodates diverse transportation modes can promote inclusivity and sustainability in our urban planning.

These ideas are examples of how the Town of Amherstburg could make transportation more efficient, healthier, and more enjoyable for everyone.

7.4.1.1 Transport Canada's TDM Guide

The TDM Guide by Transport Canada (2011) defines TDM as "the use of policies, programs, services, and products to influence whether, why, when, where, and how people travel." The guide also states that TDM measures can shape the economic and social factors behind personal travel decisions.

Some of the actions suggested by the guide include the following:

- **Public Transit:**
  - **Marketing Initiatives:** Transit systems can employ strategic marketing campaigns to raise awareness and highlight the benefits of using public transit. Effective communication can dispel myths and encourage individuals to explore transit options.
  - **Special Events:** Organizing events that encourage residents to experience public transit, such as free ride days or community excursions, can help break down barriers to entry.
  - **Fare Incentives:** Introducing fare incentives, such as discounts for transit passes or off-peak travel, makes public transit more appealing and cost-effective for riders.
- **Active Transportation:**
  - **Cycling and Walking Maps:** Providing accessible and detailed maps for cyclists and pedestrians showcases safe routes, landmarks, and connections, fostering confidence in active transportation.
  - **Special Events:** Events like "bike to work week" create a sense of community and encourage residents to embrace cycling as a viable commuting option.
  - **Cycling Skills Courses:** Offering cycling skills courses enhances safety awareness and riding proficiency, contributing to a more bike-friendly environment.
  - **Bike Parking:** Well-designed and secure bike parking facilities at key destinations encourage cycling by addressing concerns about bike storage.
  - **Public Bike Sharing:** Promoting and integrating public bike sharing systems provides flexible and sustainable mobility options for short trips.

- **Trail and Lane Celebrations:** Showcasing new trails or bike lanes through celebratory events raises awareness and fosters enthusiasm for alternative transportation modes.

- **Carpool Lanes & Carpool Lots:**
  - **Effective Promotion:** Carpool lanes and lots can be effectively promoted through clear signage and outreach campaigns that emphasize benefits like reduced travel time and cost savings.
  - **Ride Matching Services:** Establishing user-friendly platforms for ride matching enhances the convenience of carpooling by connecting individuals with similar travel routes.
- **Land Use Intensification:**
  - **Supporting Intensification:** TDM programs play a pivotal role in guiding residents and employees to opt for sustainable travel choices in densely developed areas.
  - **Attracting Developers:** In regions with limited parking capacity, TDM initiatives can increase the attractiveness of vacant land to developers by offering transportation solutions that mitigate parking concerns.
- **Transit-Oriented Development:**
  - **Effective Design and Education:** Transit-oriented development can be bolstered by educating residents about the accessibility and advantages of living in areas well-connected to transit networks.
- **Air Quality Improvement and Greenhouse Gas Emission Reductions:**
  - **Shifting to Sustainable Travel:** TDM measures contribute to shifting travel patterns towards more sustainable options, aiding in the reduction of air pollution and greenhouse gas emissions.
- **Economic Competitiveness:**
  - **Telework and TDM:** Offering telework options and other TDM initiatives that enhance commuting flexibility can improve workplaces' appeal, broaden their talent pool, and foster economic competitiveness.
- **Active Living Promotion:**
  - **Complementary Initiatives:** TDM strategies that encourage active transportation align seamlessly with active living programs, promoting healthier lifestyles and reduced reliance on cars.
- **Child and Youth Development:**
  - **Cycling Skills and Active Routes:** TDM measures like cycling skills courses and Safe Routes to School programs empower children and youth, fostering physical activity, independence, and confidence.

The TDM Guide also provides a framework for planning TDM programs. The framework includes the following steps:

- Step 1: **Gather Information**
    - Develop knowledge to enable good decisions by conducting a scan of current activities, talking with stakeholders, and researching key markets.
- Step 2: **Set Direction**
    - Articulate the community's TDM vision, goals, and objectives, and identify its most important opportunities and challenges.
- Step 3: **Assess Options**
    - Consider how different TDM measures could help the community achieve its goals by using a range of criteria to evaluate them.
- Step 4: **Identify Actions**
    - Build a plan of action that explains what TDM measures will be implemented and how TDM program will strengthen over time.

TDM offers a variety of benefits when implemented effectively. However, there are also some challenges associated with creating TDM programs, these include:

- **Coordination and Collaboration:** Successful TDM implementation often requires collaboration among various stakeholders, including government agencies, businesses, transit operators, and community groups. Coordinating these efforts and maintaining alignment can be a challenge.
- **Short-Term vs. Long-Term Benefits:** Some TDM strategies might offer long-term benefits like reduced traffic congestion and improved air quality, but these benefits might not be immediately visible to individuals. Convincing people of the long-term gains can be challenging in a world often focused on immediate results.
- **Data Collection and Analysis:** Accurate data collection and analysis are crucial for assessing the effectiveness of TDM strategies. However, obtaining reliable data and analyzing it to measure the impact of these strategies can be complex and resource intensive.

It is important for the Town of Amherstburg to be aware of these challenges in order to establish a clear framework of how to mitigate these risks to ensure successful adoption of TDM measures from the beginning.

7.4.1.2 TDM Programs in Similarly Sized Municipalities

Table 7-3 provides examples of TDM programs in other municipalities such as the City of Windsor, York Region, and the Town of Oakville.

Table 7-2: TDM Programs in Canadian Municipalities

Municipality	TDM Program/Measure/Initiative

City of Windsor	Increase offering of on-demand services:
	• Explore opportunities for partnerships with on-demand mobility providers as a service alternative for:
	  ○ Surrounding communities in the County of Essex
	  ○ First-mile/last-mile transit user connections
	• Explore opportunity to provide in-house on-demand transit service for communities within Windsor and surrounding communities in the County of Essex
	Sustainability:
	• Walking, cycling, and transit are more environmentally sustainable modes of travel than single vehicle trips.
	• Transit Windsor will incorporate and commit to relevant actions from their 2019 ATMP, including:
	  ○ Improve walking & cycling connections to transit service consistent with the concurrent Transit Windsor Transit service review.
	  ○ Prioritize amenities at bus stops such as benches, shelters, and customer information.
	  ○ Install secure bicycle parking at high activity bus stops & transit exchanges.
	  ○ Continue to provide bike racks on all buses throughout the year.
	  ○ Continue to work towards a fully accessible transit system, making improvements to bus stops to ensure that they are accessible year-round, and have sidewalk access.
	  ○ Prioritize the installation of sidewalks and crossings along designated bus routes.
	  ○ Ensure the design of bicycle facilities considers the location of, and access to bus stops.
	  ○ Undertake a campaign to encourage all residents to

Municipality	TDM Program/Measure/Initiative
	consider transit as a viable and comfortable means of transportation. Integrated mobility: • Modern transit has to respond to today's travel demands & expectations - with the rise of an "on-demand" culture in all aspects of life, people want transit to meet individual lifestyle needs - transit has the opportunity to be a fundamental component of the concept of integrated mobility, defined by the Canadian Urban Transit Association (CUTA) as "the ability for people to move easily from place to place according to their own needs". Transit Windsor will identify mutually beneficial integrated mobility partnerships with mobility service provers, including (but not limited to) o Transportation network companies (TNCs) such as Uber & Lyft o Sharing economy mobility provers (car-sharing and bike sharing companies) o Handi transit
York Region	Climate Action: • To help ease climate change the York Region TMP aims to increase the use of more active & eco-friendly modes of transportation that help to manage the demand put on the road network by single occupant vehicles. It also supports the adoption of electric and low-emission vehicles by residents and businesses • Transit buses, fleet vehicles, trucks and other work vehicles typically account for approx. 3/4 of the regions corporate GHG emissions. o They have plans to phase out fossil-fuel powered vehicles by 2051 in both transit and corporate fleets. A short-term goal is to convert fleet automobiles to GHG emissions-free technology by 2030 Reducing car travel (especially during rush hours): • There are many ways to build on the growing interest in walking, cycling, transit, carpooling, etc. o e.g. a developer will work with the region and local municipalities to provide transit incentives and sustainable transportation information to residents and businesses to

Municipality	TDM Program/Measure/Initiative

	help reduce the dependence on automobiles
	• A key element will be encouraging a shift to more active & eco-friendly options, e.g., through:
	  ○ Supporting transit ridership growth with continued investment into infrastructure, service, and marketing efforts
	  ○ Adding more active transportation infrastructure
	  ○ Advancing lake-to-lake cycling route & walking trail and building stronger links throughout the trails network
	  ○ Better understanding the opportunities for transportation over short distances via eco-friendly, single-person vehicles such as e-scooters and e-bikes and how to accommodate their use in the transportation network
	  ○ Working with the development community to ensure new communities are designed to be walkable …, pedestrian connections, lower parking space requirements
	  ○ Creating a comprehensive transportation demand strategy, building on such initiatives as Smart Commute, including its website & app, carpooling, MyTrip and Active School Travel pilot programs, encouragement of walking, cycling, and other eco-friendly options for the first/last mile connections & providing access to major mobility hubs by transit or AT

Town of Oakville	• Reducing vehicular parking standards within the Upper Kerr Village area is a fundamental element of the TDM measures that would be considered - it goes hand-in-hand with the inclusion of such TDM measures as Car Share facilities and memberships, the concept of bike share facilities, enhanced cycling infrastructure on-site, enhanced connections between development and the public realm, pick up & drop off facilities to support shared ride services, and parcel delivery, and transit pass incentives • Oakville is promoting TDM measures as part of Smart Commute, a program administered by Metrolinx with the supported of local municipalities with the goal of easing gridlock in the GTHA. • TDM advocates and accommodates sustainable commuting options such as carpooling, transit, cycling, walking, telework & flexible work hours. Currently the following are offered to employers who are

Municipality	TDM Program/Measure/Initiative
	members of Smart Commute Halton: • Carpool Ride matching service • Preferential carpool parking • Emergency ride home program • Improved transit service • Car & bicycle sharing and trip planning • Sale of reduced fare transit passes for employees • Bike lockers • Key benefits of TDM include: • Reduced congestion & travel time • Lower commuter operating costs • Improved health

7.4.2 TDM in the Town of Amherstburg

Table 7-4 provides an overview of TDM options for the Town of Amherstburg. The initiatives are sorted by short-term, and medium-term/long-term steps, covering topics from active transportation and shared mobility, transit, child and youth development, to senior engagement and education.

Table 7-3: TDM Initiatives for Amherstburg

Initiative	Short-term	Medium- and Long-Term
Active Transportation and Shared Mobility	• Create proper, easily-understandable, and easy to navigate walking and cycling maps – make use of materials already available through CWATS	• Once a Shared Mobility system is in place, offer incentives for the first few months in terms of: ○ Offer discounted pricing ○ Gamify it – whoever logs the most kilometers on a shared bike/ e-bike/ scooter gets a price or can use the service for free the second month (there are various options) • Tie the shared mobility incentives to the Amherstburg Open Air period, encourage people to bike or use another form of AT, to get to the downtown area

Initiative	Short-term	Medium- and Long-Term
Transit	• Offer discounts on the current Windsor route	• Once the Town of Amherstburg introduces its own public transit system, push for Marketing and information dissemination. Educate citizens of all groups about the new and improved transit possibilities • To incentivize more people to try out the new transit options offer free rides on weekends or discounted rides in the first month
Child & Youth Development	• Educate children and youth about different ways to get around and their respective benefits • Educate children & youth about health & sustainability advantages of active transportation	• Offer courses for learning how to bike and navigate the CWATS/ Amherstburg bicycle network • Offer information on how to safely take public transit, how to pay, how to navigate it, how to read information maps, etc. ○ This could possibly be done in school or through a field trip activity
Senior Engagement and Education	• Offer bike and e-bike courses for seniors focused on safety, navigation, health, and sustainability benefits	• Once a bike and e-bike share are implemented, provide education sessions to seniors on how to safely use the shared system

7.4.3 TDM Policies for Active Transportation

There are a wide variety of strategies and measures available that do not target specific user groups but rather benefit all users regardless of trip purpose, age, or ability. The following is a list of recommended actions applicable to the Town that may be explored to promote active transportation in the community:

- **Conduct regular travel surveys** – As was the case when developing the recommended active transportation network, it is important to first understand the existing context of the community. It is recommended that the Town conduct a travel survey to better understand existing travel patterns (such as mode share, typical trip distances, and origins and destinations) and barriers to active travel. A standard survey should be developed that can be administered to Amherstburg residents on a regular basis so the Town can track trends over time and make adjustments to programs and planning. Surveys may be distributed every one to five years, depending on staff capacity and budget. More frequent surveys will allow the Town to be more responsive and make changes, as necessary. This survey may also be supplemented (or be supplementary) to the Statistics Canada National Census that occurs every five years.
- **Develop a transportation demand management municipal strategy and checklist for new developments** – Many municipalities develop transportation demand management strategies to guide programs and actions from a municipal perspective. Developing such a strategy will allow the Town to outline their goals in greater detail than is provided in this plan. As part of this strategy, it is recommended that the Town develop a TDM checklist to assess new development applications. There are a wide variety of measures and design features that the Town can require or encourage developers to incorporate to help create a culture and environment that is conducive to active transportation. Such requirements or recommendations may include details on the provision of bicycle parking and other end-of-trip facilities, resident or employee subsidies, or unbundling vehicle parking costs from monthly rent or condominium purchase prices. The City of Ottawa has developed a comprehensive TDM Measures Checklist and TDM-Supportive Development Design and Infrastructure Checklist that may provide inspiration for the development of a checklist in Amherstburg. Additionally, and given the proliferation of suburban development in Amherstburg, it is recommended that infrastructure is conditioned for streets in new sub-divisions that boosts walking and cycling such as:
    - narrowing of streets
    - trees and planting
    - modal filters
    - wide sidewalks and multi-use paths.
- **Provide accessible maps online and at key destinations** – Residents and visitors will be more likely to use the active transportation system if they understand the network and are confident that they can safely access their destination using the network. The Town should

ensure easy-to-understand maps are posted online and at key destinations in the downtown and along trail corridors. This should include maps with key destinations (tourism, shopping and commerce, and dining / entertainment) and the types of infrastructure to cater to different abilities and ages (separated infrastructure, trails, bicycle lanes on low-speed roads, etc.).

- **Use inclusive language and imagery in marketing materials** – Traditionally, cycling in Canada is viewed as an activity for middle- and upper-class males with sporty bikes and clothing. To attract cyclists of all ages and abilities, marketing efforts by the Town should use inclusive language and imagery depicting a wide variety of users. Potential users should feel they are welcome to use active transportation in the Town without special gear by seeing content with people of all ages, races, and abilities riding a variety of bicycle types and wearing a variety of clothing.
- **Provide valet bicycle parking at events** – The Town could consider providing secure valet bicycle parking services at a temporary location for special events such as the Open Air Weekends. This initiative would allow guests to cycle to events knowing they have a secure place to park their bicycle and would reduce reliance on the Town's permanent bicycle parking infrastructure, which may not be sufficient for large gatherings.
- **Install bicycle repair stations at key locations** – Residents and visitors may be more likely to cycle if they have confidence that they will be able to access tools should something go wrong while they are out. Repair stations, such as the one installed at Austin "Toddy" Jones Park, also allow nearby residents to access tools to perform basic maintenance on their own bicycle without needing to purchase their own tools. Repair stations should be located at convenient locations such as in the downtown core, along Sandwich Street, at the bicycle lockers at Richmond Street and Ramsay Street, at Libro Credit Union Centre, and along trails like the Cypher Systems Group Greenway.
- **Charge for vehicle parking and implement time restrictions** – Part of an effective strategy for changing travel behaviour is disincentivizing less-desirable modes (private vehicles) while simultaneously improving the conditions for those considered to be more desirable (walking, cycling and transit). The Town could consider pricing car parking and eliminating free parking at key locations and destinations such as downtown Amherstburg and Sandwich Street where space is valuable, and turnover of customers is desirable. Parking prices should reflect the true cost of providing the space as well as the demand. Providing parking for a rate that is too low for the location and demand will not have a significant impact on mode share. Time restrictions at key locations (i.e., downtown) may also be implemented to encourage turnover and prevent motorists from parking for the entire day. Any introductions to pricing parking should consider the broader transportation network and be supplemented with support for walking, cycling and transit to ensure overall accessibility is maintained. In many locations around the world, on-street parking can be free for the first two to three hours (the upper time limit when people no longer spend money) with subsequent hours of parking requiring payment.

7.4.3.1 Commuters and Utilitarian Users

- **Offer adult cycling courses** – Some adults may be interested in cycling but may never have learned to ride or are not confident on a bicycle. The Town may consider offering free courses for adults interested in learning to ride. CAN-BIKE is a Canadian cycling education program that works with municipalities, community associations, and others to provide training opportunities for people of all ages.
- **Establish and promote bike-to-work days or weeks** – Many municipalities designate a Bike Week or Bike Month with special events and opportunities for cycle commuters to win prizes as an incentive to cycle to work. This time period typically includes at least one designated Bike-to-Work Day where coffee and breakfast is provided at a central location. Through partnerships with local businesses, other services may be offered such as free bicycle tune-ups in partnership with a local mobile bicycle mechanic service. Commuters may also be encouraged to log their bicycle trips over a week or month for a chance to win prizes. The City of Hamilton has successfully implemented such a program for 15 years and may provide inspiration for Amherstburg.
- **Partner with local employers to promote cycling to work** – The Town may consider partnering with local employers to encourage sustainable commuting by offering employees a bicycle allowance or bicycle commuter benefit, paying them per kilometre cycled to work up to a monthly maximum. The Town could also provide grants to businesses to install end-of-trip facilities such as secure bicycle parking, showers, changerooms, and lockers to support commuting by bicycle.
- **Partner with local businesses to provide discounts for cycling to shop** – As an incentive to encourage people to cycle for utilitarian purposes, some municipalities partner with local businesses to offer discounts or prizes for those who cycle to do their shopping. These perks may be offered only during designated times such as a Bike Month or Bike Week but would provide greater benefit if offered year-round.

7.4.3.2 School-Aged Children

- **Establish an Active and Safe Routes to School program** – Active and Safe Routes to School or Active School Travel programs are widely employed across Ontario and Canada to establish a toolkit for encouraging children to travel to school by sustainable means. They typically include actions addressing the five E's (Education, Encouragement, Engineering, Enforcement, and Evaluation) with a particular focus on education and encouragement. Ontario Active School Travel is a network of partners working together to advance programs across the province with a variety of resources available on their website. It is recommended that the Town of Amherstburg explore these resources and considering joining the network.
- **Implement a School Street pilot** – School Streets are streets that are closed to vehicle traffic (with the exception of local traffic from homes along the street closure) to allow and encourage children and parents to use active means to commute to school. The street closures typically last for 30 to 60 minutes during the morning drop-off and afternoon pick-

up periods. For the 2021-22 school year, 8 80 Cities coordinated an Ontario School Streets Pilot program in four Ontario communities and found increases in active school travel, community building and social connection, and community awareness around road safety.

- **Offer cycling courses for students** – Teaching children cycling skills from a young age will help ensure they are confident and safe on a bicycle. The Town should consider offering free courses for children and youth and can work with the local school board to integrate courses into the school curriculum. CAN-BIKE is a Canadian cycling education program that works with municipalities, community associations, and others to provide training opportunities for people of all ages. There is a potential to partner with the local health unit (Windsor-Essex County Health Unit) as there is overlap in public health outcomes.

7.4.3.3 Tourists and Recreational Users

- **Market Amherstburg as a destination for cycling** – If the Town wishes to invite more tourists and recreational cyclists, efforts should be made to promote the Town as a destination for cyclists. Essex County already hosts several day-ride and multi-day routes such as the Heritage Waterfront Trail and the Windsor Essex Kingsville Tour, both of which pass through Amherstburg. There is also the Essex Region Conservation Bike Tour, an annual event organized by Essex Region Conservation. The Town should work closely with relevant partners such as Tourism Windsor Essex, Pelee Island, Southwest Ontario Tourism Corporation, and Ontario by Bike to develop and distribute marketing materials for the community such as maps of recreational routes and loops of various distances and difficulties. The Town and tourist agencies may also explore events to attend, such as the Toronto Bicycle Show, to promote the community and attract visitors from the wider area.
- **Implement additional "open street" days** – In addition to Open Air Weekends, the Town may consider organizing weekend bicycle days or "walk and roll" days where a road is closed to vehicles to provide additional space specifically for walking, cycling, and other physical exercise. Such a closure may take place on one day every weekend or could be implemented as a once-per month event. An ideal road for such an event would provide an attractive route to invite tourists and recreational users such as Dalhousie Street south of the downtown, which could connect to the Open Air Weekends event.
- **Provide multi-modal travel option information in advertising for events and other tourist destinations** – As part of the Town's marketing efforts for events and tourist attractions, the Town should provide details on how the event or attraction can be accessed by way of active transportation. This could include highlighting safe routes to cycle or comfortable and attractive routes to walk. It is also recommended that the Town advocate for the use of bicycle racks on Transit Windsor buses servicing Amherstburg, allowing visitors (and commuters) to bring their bicycle along on their trip.

7.4.4 Emerging Trends in Micro Mobility

Emerging trends within micromobility (and mobility in general) have meant that a wide variety of transportation modes and systems are now available to move people and goods across cities in ways that could not have been imagined just 20 years ago. Low-cost and efficient electric motors, a huge improvement in battery quality and capacity, and the now ubiquitous 4G (and soon to be 5G) wireless internet have enabled a visible and invisible transformation of the transportation sector.

Electrification of the transport system has expanded beyond electric cars with the development of e-bikes (which now out-sell electric cars by a factor of 2-to-1, even in the USA), and e-scooters. The widespread use of internet-connected mobile phones has also allowed shared mobility to take off with bicycle and e-scooter sharing systems being implemented in cities around the world. The logistics industry is also seeing this transformation with e-bike couriers and other technological advancements such as drones and robots expanding to shape the future of goods movement.

Many of the new forms of mobility can be classified as micromobility. Micromobility vehicles are small, usually electric-powered devices that can (physically) operate across different transportation domains (roadway, cycle lanes, sidewalks, and multi-use paths). These can include e-bikes, e-cargo bikes, e-scooters, hoverboards, segways, mobility scooters, and others. Finding a place for these new forms of mobility on our streets will continue to be a challenge for communities across Canada and around the world. While each mode presents unique challenges, these new technologies and systems are not drastically different from traditional forms of mobility. To help explain this, we can draw on The Good Street approach, developed in the Netherlands in part by Mobycon.

7.4.4.1 The Good Street Approach

To maintain order on our streets, we must ensure new vehicle types have a clear place in the public realm. The Good Street approach, a Dutch framework for designing high-quality streets and coherent transportation networks, offers a systematic way of thinking about how various forms of mobility can fit into our existing cities and street networks. In this approach, the wide range of vehicles available to meet transportation needs is broken down into six vehicle families ranging from pedestrians to rail-based vehicles (see **Figure 7-3**). These vehicle families are categorized by both mass and achievable speed – the two factors influencing kinetic energy (see **Figure 7-3**) so that the various modes within each family have similar energy. Kinetic energy is important because in case of a crash between vehicles with a significant difference in kinetic energy, the chance of injury is much greater. By grouping vehicle types by kinetic energy, we ensure these vehicles can be safely operated in the same physical space, and thus can be treated equally for the purposes of planning, design, and policy.

Based on this framework, micromobility can be loosely classified to include bicycle-like as well as light motor vehicles (LMVs) in vehicle families B and C. These range in mass from about 35 kg up to 350 kg with operating speeds ranging from 10 km/h up to 50 km/h or more. This framework gives us the tools to both classify new vehicles that enter the market and assign them a safe, comfortable location in the ROW.

Figure 7-3: Vehicle Families (The Good Street Approach)

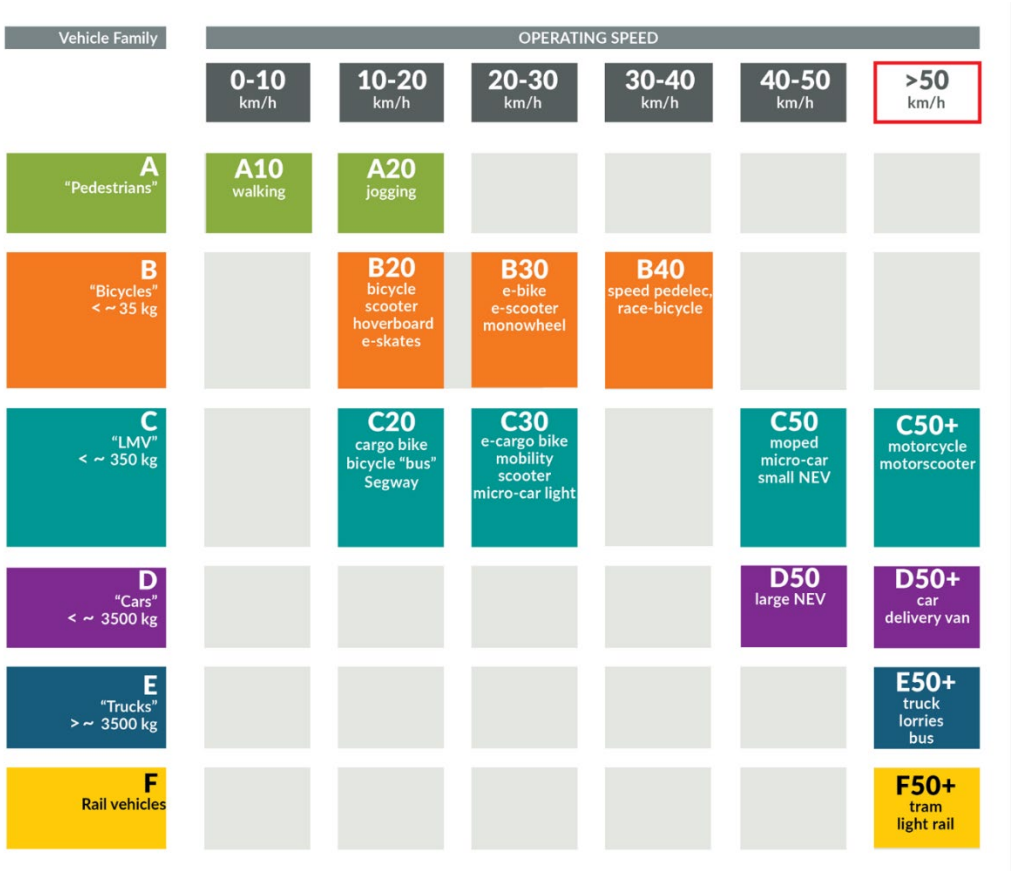
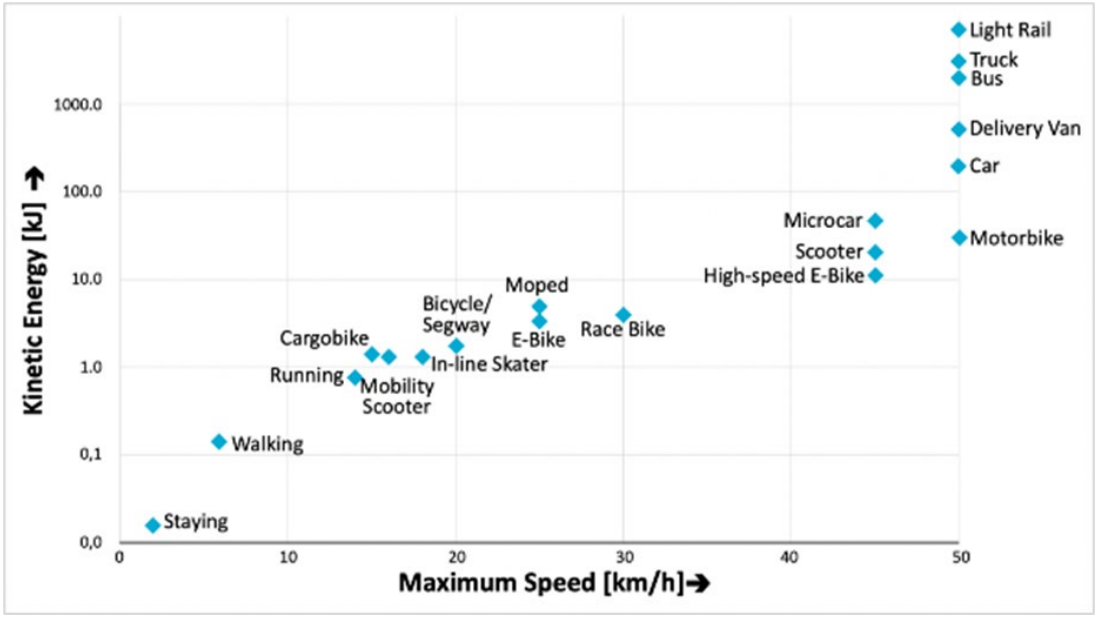


Figure 7-4: Relationship between Speed and Kinetic Energy for various forms of Mobility



7.4.5 Micro-mobility in the Canadian Context

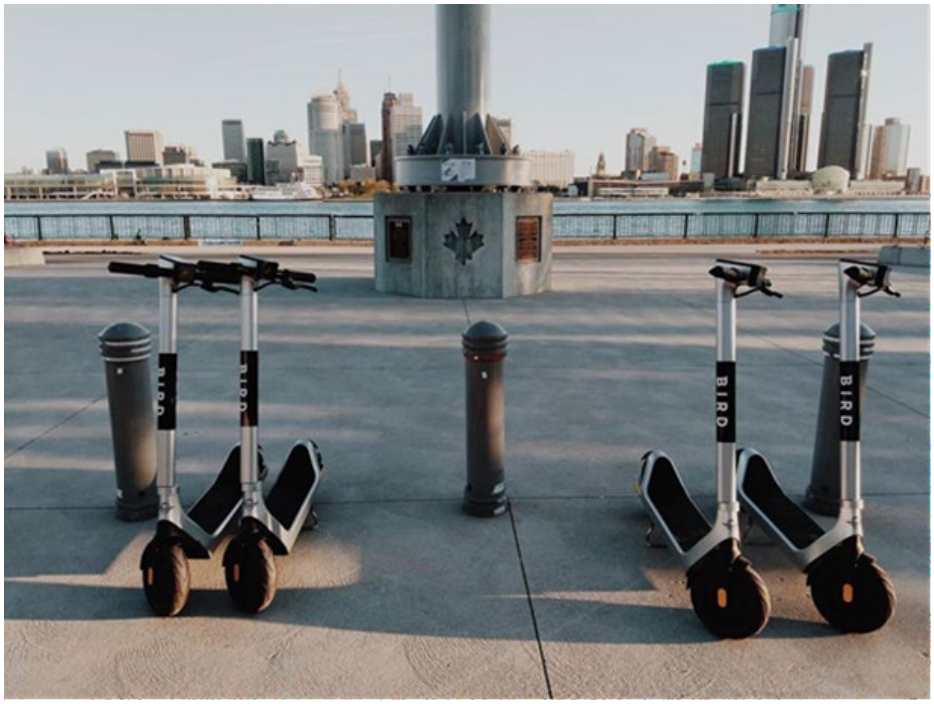
The emergence of new mobility forms has been, and will continue to be, a challenge for cities and towns as they learn to adapt. This is especially true for Amherstburg as the town has a unique historic character that makes it a popular tourist destination despite having a population under 25,000. New forms of mobility need to respect the needs and desires of locals first while also considering Amherstburg as a tourist destination, being mindful to not overwhelm the community and municipal staff. Small communities across Canada face financial and human resource constraints that must be taken into consideration.

7.4.5.1 Bike-Share and E-Bikes

Shared mobility has gained huge popularity in the last few years as cities around the world continue to roll out shared bicycle, e-bike, and e-scooter systems. Bike share was the first form of shared mobility to emerge with many cities deploying their own publicly funded systems. Bike share systems have been proven successful in large Canadian cities like Montreal (population 1.7 million) and Toronto (population 2.8 million) while alternative approaches to bike share have been implemented with some success in smaller communities.

One larger city that has recently implemented a successful shared mobility system is nearby Windsor, ON. In spring 2021, the City began a one-year pilot project introducing shared e-scooters operated by Bird Canada. The scooters were limited to a 20 km/h speed limit and the City designated Slow Zones (such as the waterfront pathways) where the speed was capped at 15 km/h as well as No Park Zones. Such limits can be implemented because of geo-location technology that can identify a scooter's location. This same technology allowed the City to establish a boundary where scooters can be operated, outside of which they will slowly come to stop once crossing the defined boundary. In the first four months, over 16,000 unique riders tried the e-scooters, roughly 7.3 per cent of Windsor's population. The first summer of e-scooters was so successful in Windsor that in October 2021 they added dockless electric bikes to the shared mobility system. The bikes had a range of up to 8 kilometres and designated parking spots were encouraged to be used but not required. Following a pilot project extension through 2022, the system was deemed a success in March 2023 and the program will be continued for at least another three years with an expansion of the boundary area and the number of devices expanding to 450 up to 600 depending on demand.

Figure 7-5 Shared E-Scooters in Windsor, ON



Source: https://tinyurl.com/Windsor-e-scooters

Recognizing the success of the shared mobility system in Windsor, in April 2023 the nearby Town of Tecumseh partnered with Bird Canada to start their own four-month e-scooter pilot program. Bird Canada was only willing to launch in the small community if they could leverage the existing system in Windsor or have county-wide involvement. As a result, the system is now linked with the City of Windsor's system with riders able to seamlessly cross the municipal boundary into Windsor. Tecumseh will have 30 e-scooters available to their residents and the pilot is operating from May 19 to September 30, 2023. They have stated they will assess the addition of e-bikes upon review of the program in October.

Two small cottage communities in the City of Kawartha Lakes have also shown that bike share can be viable even without high population densities. In 2017, Bobcayegon, ON (pop. 3,500) implemented a small pilot bike share system with two stations and 10 bikes for $22,000 (funded by a Kawarthas Northumberland grant). Over a year later, nearby Fenelon Falls, ON (pop. 2,500) had set up a station with 10 bikes with funding from Ontario regional tourism (RTO8) and a sponsorship deal with Enbridge Gas. In both communities, the system was more focused on providing a way for tourists to explore – particularly those arriving by boat along the Trent-Severn Canal – rather than for residents to get from A to B but this model has proven successful. Fenelon Falls' system is still active in 2023 while in Bobcaygeon it is unclear, with the latest indication of operation being November 2021.

Figure 7-6 Bike Shares in Fenelon Falls, ON and Bobcaygeon, ON

(Source: *https://tinyurl.com/Fenelon-Falls-Bike-Share &* https://tinyurl.com/Bobcaygeon-Bike-Share)

7.4.5.2 Shared Mobility Lessons for Towns and Smaller Cities

Smaller cities tend to have lower population densities which reduces the accessibility and financial viability of shared mobility services, particularly if they are docked to dedicated stations. There may also be large upfront costs when implementing a system, which smaller municipalities may have more difficulty in overcoming. However, strong partnerships with service providers and surrounding communities can improve the likelihood of a successful system.

Most of the bike share systems outlined above only operate through late spring, summer, and early fall. Toronto and Kelowna offer their bikes year-round, but there is no indication that special considerations (such as studded tires) are provided. If offered through winter, cities must ensure proper winter maintenance of roads and pathways through plowing, salting, and sanding to reduce risk of injury to users.

While bike sharing systems have been the focus of this section, it is important to also provide facilities for people riding their own bikes. A network of safe cycling facilities serves all cyclists, but sufficient and convenient bicycle parking must not be forgotten for those who choose to ride their own bicycle. As Amherstburg continues to enhance its cycling environment, it is recommended that consideration be given to installing e-bike chargers at public bicycle parking hubs. The growth in the popularity of e-bikes is expected to continue and serves as an opportunity to enhance the active mode share in Amherstburg.

7.4.5.3 Unique Approaches to Bike Share

Taking a unique approach to bike share, the rural community of Cochrane, ON (pop. 5,300) with the support of a provincial grant and non-profit 880 Cities, started a free bike share program in 2014 (see **Figure 7-7)**. Using 30 stolen bicycles that were recovered and donated by the Ontario Provincial Police (that would otherwise go to auction after being unclaimed), high school students were recruited to repair the bicycles and paint them bright, identifiable colours. The bicycles were then distributed to five racks at key locations across the town with signs identifying them as bike share bikes and left unlocked for anyone to use, free of charge and with no need for technology to lock and unlock. While some bikes inevitably went missing, the project was deemed a success and operated for several years. The Town of Cochrane still operates a free bike share program and while it's not clear if the program still takes the same form as the original program, it demonstrates the demand for bike share even in small communities.

Figure 7-7: Free Bike-Share Station in Cochrane, ON

Source: https://tinyurl.com/Cochrane-Bike-Share

Another unique approach to bike sharing has been taken by Athens County Public Libraries (ACPL) in Athens County, OH, USA. Beginning in 2013, ACPL started their Book-a-Bike program offering the public free, three-hour bicycle rentals using their library card. Thanks to funding from various grant programs over the years, the program is celebrating its 10th anniversary this year and ACPL offers bikes to rent at six of its seven libraries across the county including communities with populations under 2,000 people. The largest community, Athens, OH (pop. 24,300) has just begun renting out e-bikes.

The bike share systems outlined above only operate through late spring, summer, and early fall. If offered through winter, the communities would need to ensure proper winter maintenance of roads and pathways through plowing, salting, and sanding to reduce risk of injury to users.

It is widely known that smaller municipalities tend to have lower population densities and fewer resources to devote to start-up and maintenance costs, two challenges that threaten the implementation and continued viability of bike share programs. However, these examples demonstrate how strong partnerships with service providers, community groups, and surrounding municipalities can improve the likelihood of a successful system.

7.4.6 Micro-mobility in the Amherstburg Context

The emergence of new mobility forms has been, and will continue to be, a challenge for cities and towns as they learn to adapt. This is especially true for Amherstburg as the town has a unique historic character that makes it a popular tourist destination despite having a population under 25,000. New forms of mobility need to respect the needs and desires of locals first while also considering Amherstburg as a tourist destination, being mindful to not overwhelm the community and municipal staff. Small communities across Canada face financial and human resource constraints that must be taken into consideration.

Ideas for Amherstburg to start integrating micro-mobility are presented in **Section 7.3.3**, especially in **Figure 7-1**.

7.4.6.1 E-Bikes and Cycling Facilities

While Bike-Share systems have been the focus of this section, it is important to also provide facilities for people riding their own bikes. A network of safe cycling facilities serves all cyclists, but sufficient and convenient bicycle parking must not be forgotten for those who choose to ride their own bicycle.

Electric bikes are rapidly growing in popularity and should also be considered as the cycling network is built out. Generally, e-bikes do not need special accommodation, but some extra considerations should be taken into account when designing infrastructure to improve the environment for e-bike users. E-bikes – whose maximum speed, weight, and motor size are regulated at the provincial level – can generally achieve greater speeds than non-electric bikes. As such, designing wider cycling facilities that allow users to overtake one another will limit conflicts between users. The design of bicycle parking facilities must also consider the needs of e-bike users by providing more space for users to maneuver the bicycle when parking it as they can be challenging to move due to their weight. Grade changes should be minimized due to the weight of e-bikes and the challenge of moving them up steps or steep slopes. It is also recommended that consideration be given to installing e-bike chargers at public bicycle parking hubs. The growth in the popularity of e-bikes is expected to continue and serves as an opportunity to enhance the active mode share in Amherstburg, allowing users to travel greater distances with less effort than non-electric bikes.

8 Implementation

8.1 Cost Estimates

The following sections show the project cost breakdown for Simcoe St and Meloche St, for each phase, as well as overall estimates. A detailed costing framework is enclosed in **Appendix I**.

8.1.1.1 Simcoe St and Meloche St Components & Cost Estimates

Simcoe & Meloche		
Category	**Item**	**Cost**
Active Transportation	Crosswalks	$4,207.50
	Subtotal	*$4,207.50*
Traffic Controls, Intersections & Pavement Design	Stop Signs	$700.00
	Concrete Median	$7,200.00
	New Signalization (Traffic Signal)	$300,000.00
	Subtotal	*$307,900.00*
Traffic Calming Measures	Curb Bump-out	$80,000.00
	Subtotal	*$80,000.00*
Total		***$392,107.50***

In the table above, the cost estimate for Simcoe St and Meloche St encompasses Stop Signs and New Signalization (Traffic Signal). For clarification, stop signs will be implemented in the short term to establish the intersection as an all-way stop, while traffic signals will be installed in the long term as traffic volumes increase, justifying the need for signals at the intersection.

8.1.1.2 Murray St Options – Components and & Cost Estimates

The following are the costs for the three Murray Street Options:

Murray St – Option 1: Do Nothing		
Category	**Item**	**Cost**
Traffic Calming Measures	Curb Bump-out	$60,000.00
	Raised Intersection	$50,000.00
	Subtotal	*$110,000.00*
Total		***$110,000.00***

Murray St – Option 2: Parking Removal		
Category	**Item**	**Cost**
Active Transportation	Concrete Sidewalk Construction	$18,360.00
	Subtotal	*$18,360.00*
Traffic Calming Measures	Raised Intersections	$50,000.00
	Subtotal	*$50,000.00*
Total		***$68,360.00***

Murray St – Option 3: Street Closure		
Category	**Item**	**Cost**
Active Transportation	Concrete Sidewalk Construction	$22,950.00
	Concrete Sidewalk Widening	$18,360.00
	Subtotal	*$41,310.00*
Traffic Calming Measures	Raised Intersections	$50,000.00
	Subtotal	*$50,000.00*
Total		***$91,310.00***

8.1.2 Short Term (1-5 Year) Components & Cost Estimates

1-5 Years		
Category	**Item**	**Cost**
Active Transportation	Concrete Sidewalk Construction	$345,195.00
	Concrete Sidewalk Widening	$295,029.00
	Crosswalks	$12,420.38
	Painted Bike Lanes	$2,845,000.00
	Subtotal	*$3,497,644.38*
Transit	Concrete Bus Pad	$38,250.00
	Bus Shelter	$90,000.00
	Bike Rack	$11,832.00
	Bike Share Station	$300,000.00
	Subtotal	*$440,082.00*
Traffic Controls, Intersection & Pavement Design	New Signalization (Traffic Signal)	$300,000.00
	Stop Signs	$700.00
	Concrete Median	$7,200
	Subtotal	*$307,900.00*
Traffic Calming Measures	Curb Bump-out	$500,000.00
	Traffic Calming Gateways	$770,000.00
	Raised Intersections	$200,000.00
	Subtotal	*$1,470,000.00*
Parking & Placemaking	EV Charging Stations	$40,000.00
	Subtotal	*$40,000.00*
Total		**$5,755,626.38**

8.1.3 Medium Term (5-10 Year) Components & Cost Estimates

5-10 Years		
Category	**Item**	**Cost**
Active Transportation	Concrete Sidewalk Construction	$94,500.00
	Crosswalks	$5,841.00
	Painted Bike Lanes	$5,302,500.00
	Subtotal	*$5,402,841.00*
Transit	Concrete Bus Pad	$45,900.00
	Bus Shelter	$210,000.00
	Subtotal	*$255,900.00*
Traffic Controls, Intersection & Pavement Design	New Signalization (Traffic Signal)	$300,000.00
	Subtotal	*$300,000.00*
Traffic Calming Measures	Mini Roundabout	$1,000,000.00
	Subtotal	*$1,000,000.00*
Total		***$6,958,741.00***

8.1.4 Long Term Components & Cost Estimates

Long Term		
Category	**Item**	**Cost**
Traffic Controls, Intersection & Pavement Design	New Signalization (Traffic Signal)	$900,000.00
	Subtotal	*$900,000.00*
Total		***$900,000.00***

8.1.5 Overall Cost Estimates

Overall Cost Estimates represent 1-5 Years, 5-10 Years, and Long Terms costs combined.

Overall Cost Estimate	
Category	**Cost**
Active Transportation	$8,895,895.38
Transit	$695,982.00
Traffic Controls, Intersection & Pavement Design	$1,507,900.00
Traffic Calming Measures	$2,470,000.00
Parking and Place Making	$40,000.00
Total	***$13,609,777.38***

8.2 Funding Opportunities

It is understood that the suite of recommendations enclosed within this Transportation Master Plan will require secure and reliable funding to implement and maintain in the Town. As a result, a review of potential funding opportunities was conducted to identify a source of capital funds to help ensure the Town can address active transportation and transit improvements without placing a larger burden on local taxpayers. Ultimately the Green Municipal Fund (GMF) was determined to be the best opportunity for the Town to consider, based on the synergies between the Fund's target sectors and the recommendations enclosed within this report.

8.2.1 What is the Green Municipal Fund (GMF)?

The Green Municipal Fund is a $1.6 billion program funded by the Government of Canada. Its aim is to accelerate local governments' transition to sustainability through a unique mix of funding, resources, and training, empowering municipalities to enhance resilience and improve the lives of Canadians.

The GMF targets five sub-sectors for change, which are the following:

1. Energy
2. ***Transportation***
3. Land Use
4. Circular Economy
5. Water

Under the Transportation sub-sector for change, GMF aims for net-zero transportation emissions in municipalities through demand management, affordable transit, and active transportation, utilizing zero-emission vehicles. Investments also prioritize resilience in infrastructure and equipment.

8.2.2 Net-Zero Transformation Initiatives

The GMF offers four funding initiatives under their Net-Zero Transformation program. The funding is open to the following:

- Canadian municipal governments
    - Towns, cities, regions, districts, and local boards
- And Municipal Partners
    - Private sector entities
    - Municipally owned corporations
    - Regional, provincial, or territorial organizations delivering municipal services
    - Non-governmental organizations
    - Not-for-profit organizations

- Research institutes (e.g., universities)
- An Indigenous community is an eligible lead applicant if they are partnering with a Canadian municipal government on an eligible project, or if they have a shared service agreement with a Canadian municipal government related to municipal infrastructure, climate change or adaptation.

The Net-Zero Transformation program has four funding opportunities. Each of these initiatives have goals for which are described below:

- **Planning Studies:** A plan that sets a high standard for municipal planning exercises and sets the stage for a net-zero future.
- **Feasibility Studies:** A feasibility study that assesses in detail new approaches and solutions to bring your community closer to net-zero.
- **Pilot Projects:** A pilot project that evaluates innovative GHG reduction solutions in real-world conditions.
- **Capital Projects:** A capital project that has the potential to result in a significant contribution to net-zero.

The following table is a summary of the GMF's funding information under the Net-Zero Transformation Initiatives:

Table 8-1: Summary of GMF's Funding Information

Planning Studies	• Grant for up to 50 percent of eligible costs • Up to a maximum of $200,000
Feasibility Studies	• Grant for up to 50 percent of eligible costs • Up to a maximum of $200,000
Pilot Projects	• Grant for up to 50 percent of eligible costs • Up to a maximum of $500,000
Capital Projects	• Combined grant and loan for up to 80% of eligible costs • Combined grant and loan up to a maximum of $10 million • Grant up to 15% of total loan amount. • Additional 5% grant available if the project involves the remediation of a brownfield site

For more information about the above describe funding opportunities, please refer to the Green Municipal Fund website.

8.2.3 Applicability for Amherstburg

The Town of Amherstburg is eligible to apply for all four initiatives detailed above as a Canadian municipal government. Its eligibility is further propelled by the recommendations outlined in this TMP, which pave the way for a net-zero future. These include:

1. **Pedestrian Facilities:** Sidewalks are recommended to be present on all streets within the urban area and downtown core, prioritizing areas around schools, key destinations, and transit stops to improve walking networks.
2. **Cycling Network:** Based on existing and proposed networks, emphasis is placed on urban routes to support vibrancy and connectivity in Amherstburg. The recommended cycling network aims to connect residential neighborhoods, commercial areas, schools, parks, and tourist attractions, facilitating both utility and recreational cycling.
3. **School Connections:** Safe facilities connecting schools to residential areas are essential for promoting physical activity, independent travel for children, and reducing congestion during school hours. Specific routes are proposed to ensure safe access to various schools in the area.
4. **Tourist Attractions:** Cycling routes are proposed to link tourist attractions concentrated in the downtown area, facilitating easy access for visitors. Recreational cycling routes are identified, including popular paths and recommended extensions to serve the needs of cyclists.
5. **Active Transportation and Transit Integration:** Integration between active transportation modes and transit networks is crucial for providing diverse transportation options. This includes ensuring universally accessible features at transit stops and providing secure bicycle parking within proximity to destinations. Comfortable transit stops with seating, shelters, signage, and wayfinding are essential for encouraging usage, especially for trunk routes from suburban areas.

These recommendations not only foster healthier and more vibrant communities but also play a crucial role in reducing greenhouse gas emissions. By prioritizing walking and cycling infrastructure, individuals are encouraged to opt for sustainable transportation modes, thereby decreasing reliance on fossil fuels and lowering carbon emissions from the transportation sector.

Such efforts align with the GMF goals of transitioning towards a net-zero future by promoting eco-friendly travel options and mitigating the environmental impact of daily commuting and recreational activities, thereby enhancing the Town's eligibility for GMF funding opportunities.

9 Conclusion

In conclusion, the Transportation Master Plan (TMP) for the Town of Amherstburg serves as a cornerstone guiding document, poised to shape the trajectory of the transportation network for years to come. Developed in harmony with the updated Official Plan and Strategic Plan, this comprehensive TMP provides a blueprint for sustainable growth and development. It stands as a robust framework for enhancing the existing network, addressing present challenges, and preparing for future demands as the Town continues to grow.

The phased implementation of solutions, contingent upon council discretion and available funding, ensures a pragmatic approach to realizing the strategic vision for this TMP. With a focus on creating complete streets, the TMP prioritizes improved pedestrian accessibility and proposes bold road design changes aimed at increasing road safety and multi-modal connectivity. Following a robust public engagement effort and with the support of identified funding sources, the Town is poised to cultivate a safer, more efficient, and interconnected transportation system that enhances the quality of life for all residents and visitors of the Town of Amherstburg.