

DUFFERIN COUNTY

Transportation Master Plan

Date: October 2023



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EXECUTIVE SUMMARY

Introduction

The Dufferin County Transportation Master Plan (TMP) presents multi-modal transportation investments to accommodate the forecast growth of population and employment for the County to the year 2051. The TMP was prepared following the Municipal Class Environmental Assessment (MCEA) process for master plans, addressing Phase 1 (problem/opportunity statement), and Phase 2 (assessment of alternatives), and included multiple opportunities for input in the Municipal Comprehensive Review and TMP processes.

The Vision for the TMP, which addresses Phase 1 of the MCEA process is:

“A vibrant and integrated community that supports users of all ages and abilities through active transportation facilities, transit routes and roads. The multi-modal transportation network should provide mobility and connectivity in an accessible, equitable, environmentally, and financially sustainable manner. Viable transportation options should be provided to foster healthier, more sustainable choices for its residents and visitors.”

To address Phase 2 of the MCEA process (assessment of alternatives), a travel demand model was prepared to analyze three scenarios for the 2051 horizon year:

1. Alternative 1:
 - Business as usual (no further investment in the County's transportation network)
2. Alternative 2:
 - Dufferin County Roads:
 - Widening of Dufferin County Road 109 to 4-lane roadway between Dufferin County Road 25 and Highway 10.
 - Widening of Dufferin County Road 16 to 4-lane roadway between Highway 10 and Mono Amaranth Townline Road.



- Widening of Dufferin County Road 7 to 4-lane roadway between Highway 10 and Side Road 5.
- Widening of Dufferin County Road 25 to 4-lane roadway between Dufferin County Road 109 and Dufferin County Road 10.
- Widening of Provincial Highways:
 - Widening of Highway 9 to 4-lane roadway from Highway 10 to Dufferin County Road 18.
 - Widening of Highway 10 to 4-lane roadway between Side Road 15/Mono Center Road and Highway 89.
 - Widening of Highway 10 to 4-lane roadway between Highway 89 and Dufferin County Road 17.
 - Widening of Highway 89/Highway 10/Main St to 4-lane roadway between Owen Sound Street and Greenwood Street.

3. Alternative 3:

This alternative proposes the following roadway improvements (County initiatives):

- Widening of Dufferin County Road 109 to 4-lane roadway between Dufferin County Road 25 and Highway 10;
- Widening of Dufferin County Road 16 to 4-lane roadway between Highway 10 and Mono Amaranth Townline Road;
- Widening of Dufferin County Road 7 to 4-lane roadway between Highway 10 and Side Road 5; and
- Construct a new two-lane road along Amaranth East Luther Townline to bypass Grand Valley, from Dufferin County Road 109 to Dufferin County Road 10 (Grand Valley).

In addition to the Dufferin County improvements, the third alternative includes Provincial improvements along highways, and the need for a Provincial solution for highways in Shelburne as recommended in the following projects:



- Construct a by-pass of Shelburne to alleviate truck traffic on Highways 10 and 89 that presently travels on these highway through the centre of Shelburne;
- Widening of Highway 9 to a 4-lane roadway from Highway 10 to Dufferin County Road 18; and,
- Widening of Highway 10 to a 4-lane roadway between Side Road 15/Mono Centre Road and Highway 89.

Consultation and Engagement

Several rounds of consultation were conducted with the public and interested stakeholders. Meetings were held with the following groups in three rounds of consultation:

- The Public (Public Information Centres (PICs) on March 3, 2020, July 26, 2022, and January 21, 2023);
- Technical Agencies
- County Staff
- Councillors

The first round of consultation provided the opportunity for the public to learn about the Municipal Comprehensive Review (MCR) process including the Transportation Master Plan (TMP), ask questions, and participate in a visioning exercise. The second round of consultation presented the growth forecast of population and jobs for the municipalities within Dufferin County to the 2051 horizon year. The third round of consultation was a joint MCR and TMP PIC. The last consultation was a MCR public workshop that focused on infrastructure topics including public transit, road access on highways and traffic volumes, as well as bypasses.

Common themes of the comments heard from the consultation rounds included:

- Plan for improved and expanded transportation networks to support anticipated areas of growth in the future;
 - Consider bypasses of Shelburne and Grand Valley;
- Improve road safety and work towards the reduction of vehicular-related accidents;



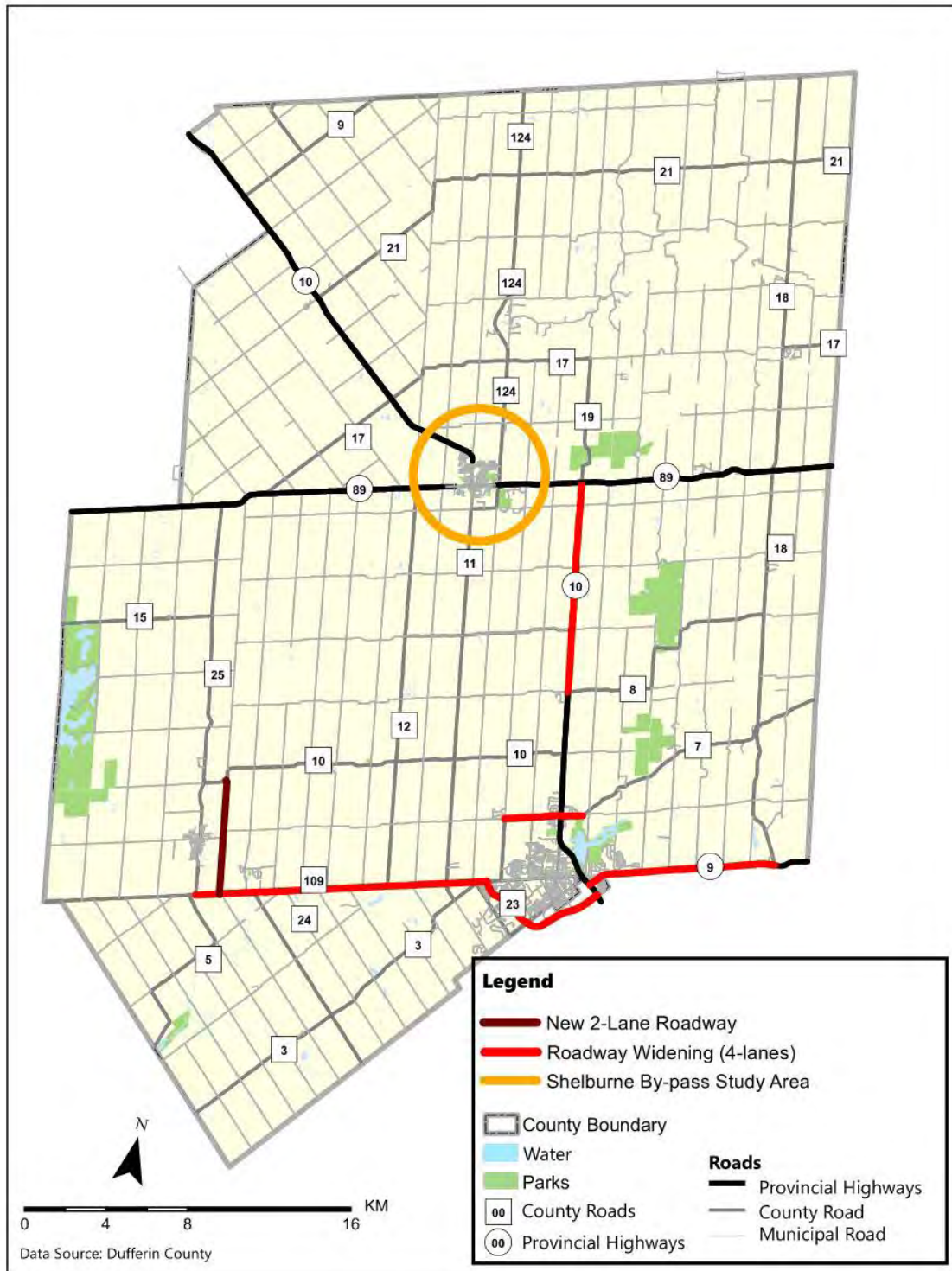
- Maintain and improve the local roads and arteries throughout the County;
- Support accessible transit and transportation options across the County; and
- Promote active transportation and healthy active living through the improvement of access to trails and recreational uses.

Recommendations

Alternative 3 is the recommended alternative. Alternative 3 ensures that the identified roadway improvements are feasible for construction and fully accommodate the future traffic growth, while providing the County with efficient network connectivity. Alternative 3 is supported by an active transportation network utilizing County and local existing and proposed facilities, as well as recommendations for increased GO Transit service, and policy initiatives involving Complete Streets, road safety, and the expansion of the number electric vehicle charging stations on public property. The recommended roadway improvements are shown on **Figure ES-1**.



Table ES-1. Recommended Roadway Improvements (Alternative 3)





1. DEVELOPING THE TMP

The Transportation Master Plan (TMP) for Dufferin County guides the enhancement of the existing multi-modal transportation network to accommodate the forecast growth in population and employment to the year 2051. The contents of this section provide the background needed to understand what Dufferin County's TMP is, including why and how it was developed.

1.1 TMP CONTEXT

1.1.1 WHAT IS A TMP?

A TMP is a flexible policy document which provides region-specific strategic transportation planning direction. Guided by community and municipal goals, the proactive plan examines future generations' needs for County-wide transportation services and infrastructure of all modes of travel. Demographics, existing conditions, emerging trends, best practices, stakeholder inputs and related policies are all assessed in a holistic manner across Dufferin County to produce long-term transportation recommendations that enhance the quality of life for residents and connected communities.

The contents and recommendations identified in this TMP reflect the Dufferin County context. The roles of this County-wide TMP include:



A community vision for the future of transportation in order to address the needs and abilities of its community members and visitors;



A communication tool to further discuss transportation challenges and opportunities with various audiences;



An opportunity for enhanced partnerships with both existing and future partners to improve coordination and collaboration;



An implementation guide to support short, medium, and long-term infrastructure objectives; and



A decision-making tool to support current and future key stakeholders involved in the implementation process.



An integrated, holistic, multimodal plan to address and integrate all modes of transportation, including walking, cycling, taking transit and private vehicle usage, in a cohesive manner.

A TMP is typically updated on a regular basis to proactively address changing social and economic patterns, new mobility trends and policy priorities. A strong TMP aligns with existing local community growth plans, as well as grander regional and provincial planning initiatives to achieve its goals. This document will continue to experience refinements in the future to reflect any changes Dufferin County may continue to witness in the years to come.

1.1.2 WHY DO WE NEED A TMP?

The County recognizes the benefits of a long-range planning approach to define, prioritize, and build infrastructure over an extended period of time. This approach has been taken in the preparation of the TMP, allowing the County to proactively address transportation issues and make informed decisions about capital investments in infrastructure. Dufferin County is developing the TMP to address the following key areas:



Growth in population and employment opportunities, especially in the County's urban settlement areas;



Alignment with existing and updated policies at the Provincial and Federal level;



Enhanced connectivity within the County and to surrounding municipalities for all modes of travel; and



Emerging trends a shift towards sustainable transportation, including walking, cycling, transit, and transportation demand management.



The TMP recognizes that the nature of transportation is changing. Mobile technology and new ways of providing mobility services are giving people more travel options. The intent of the document is to identify ways that these new transportation opportunities can be integrated into day-to-day life.

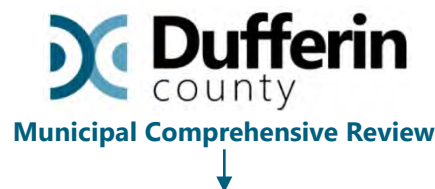
The TMP strives to identify enhanced active transportation options, transportation demand management strategies, transportation policies to improve the efficiency and effectiveness of the County’s transportation network. Developing a TMP enhances Dufferin County’s existing transportation facilities in the short-term and sets a course towards a more sustainable, integrated, and multimodal transportation system in the future.

1.1.3 HOW WAS THE TMP DEVELOPED?

To plan for and accommodate the growth anticipated, Dufferin County conducted a Municipal Comprehensive Review (MCR) to extensively review and update the Official Plan (OP) and related documents to implement the policies of the new Growth Plan for the Greater Golden Horseshoe (GGH) for the Province of Ontario (**Figure 1**).

The approach the County has taken is rooted in three areas of focus: growth management, integrated planning, and environment and sustainability. This TMP is a technical study under the MCR and aspires to address these three key areas in the transportation network and supporting infrastructure.

Figure 1. Components of Dufferin County’s Municipal Comprehensive Review



Transportation Master Plan	Planning & Engagement	Growth Management	Water and Wastewater Infrastructure	Municipal Fiscal Impact
Sustainability and Climate Change Response Framework	Community Services Master Plan	Natural Heritage System	Agricultural System	Watershed Planning



Dufferin County's TMP was developed as a collaboration between the County and WSP Canada Inc. (the consultant team), and included significant input and engagement with community residents, local stakeholders and interest groups, Dufferin County Council, as well as the surrounding jurisdictions and governmental agencies. The TMP was developed in accordance with the Municipal Class Environmental Assessment (MCEA) process for master plans, which requires the following:



Phase 1: Development of an opportunity statement, objectives and an overall TMP vision;



Phase 2: Development and evaluation of alternative scenarios and selection of a preferred alternative; and



Consultation: Engagement of public representatives and stakeholders at least twice over the course of the study.

Completion of Phases 1 and 2 allows the County to move on to implementation of any Schedule A, A+ or B projects and allows the County to continue to Phase 3 (Assessment of Design Alternatives) for the recommended projects that fall under Schedule 'C' of the Class EA Document. Further consultation will be required for any Schedule 'C' projects. The TMP was completed with four phases:

Context

1

- Research on key background information;
- Review of existing land use and mobility patterns; and,
- Identification of needs and opportunities in the network.

Assessment

2

- Identify potential alternatives to address transportation challenges;
 - Gather input on preliminary findings and existing travel conditions; and,
 - Develop preferred alternative and supporting strategies or policies.
-



Delineation

- 3
 - Develop an implementation strategy; and,
 - Identify strategic priorities for network improvements.
-

Application

- 4
 - Summarize transportation network recommendations into the TMP report; and,
 - Present outcomes to Council.

1.2 ABOUT THIS TMP

1.2.1 OVERVIEW OF EMERGING TRENDS

This section reviews some of the current and emerging trends that affect the transportation industry. A focus on emerging trends can help Dufferin County become more resilient to change in the coming decades and be better positioned to achieve its vision. These trends guide the approach taken in this TMP, shaping the analysis and recommendations to be more future ready and adaptable for the shift in focus.

1. NATURAL AND BUILT ENVIRONMENT

Over the past decade, there has been a heightened focus on the role of transportation in climate change. A variety of programs and policies in many jurisdictions have emerged, primarily focusing on promoting modes of transportation that serve as alternatives to the private, single-occupant vehicle. By encouraging the use of cycling, walking, and transit, there can be a reduction in the amount of released greenhouse gas emissions. The multi-modal network recommended by TMPs typically provides strategic improvements to reduce the barriers to these sustainable alternative modes. Related transportation approaches to improving the environment include considering transportation demand management to incentivize sustainable modes, parking management strategies to discourage single-occupant vehicle use, and Complete Streets concepts to make active transportation more viable and appealing.

Municipalities are encouraged to focus on supporting urban intensification through urban growth policies. Urban growth policies are present in all levels of government to



strategically plan for growth and project where the residential and employment areas should be. Denser areas should be developed to accommodate a more integrated transportation network. These areas of intensification form complete communities where major points of interests are located nearby. The use of active modes, such as walking and cycling, becomes a more viable and practical option as well. Public transit greatly benefits areas of intensification where it is considered a faster, more convenient, and more affordable option compared to private vehicles. Significant investments in transit projects have emerged over the past decade and investments in further transit projects, including rapid transit networks, are expected to increase.

2. TECHNOLOGY

Emerging mobility technologies have expanded the travel options over the past decade. Technologies such as ride-sharing platforms, electric vehicles, and automated vehicles are creating a new mobility landscape that will continue to evolve and affect transportation as a whole.

The concept of Mobility-as-a-Service (MaaS) describes a shift from viewing transportation as a product or a privately-owned mode and instead treat it as a service in which users pay per use based on their needs. Ridesharing platforms, such as Uber, Lyft, and other transportation network companies, offer these services. Ridesharing allows for private vehicle owners to register and provide transportation from users that can access the service on smartphones and mobile applications. Users are able to access this on-demand mobility option by requesting their pick-up and drop-off locations. In denser urban areas, some carpool features allow for multiple users travelling to a similar location to share one vehicle. Overall, ridesharing options tend to be more cost-competitive than taxis, though less cost competitive than transit.

Electric vehicles (EVs) are motor vehicles that operate partially or fully on an electric engine rather than the traditional combustion engine. These vehicles generate less air pollution and greenhouse gas emissions compared to the conventional vehicle. The adaptation of widespread use of EVs requires the appropriate infrastructure to be in place, such as charging stations. The provision of implementing charging infrastructure as well as other incentives may encourage more users to switch to EVs and produce a more sustainable, lower-carbon future.



Other emerging technology trends in the transportation sector include intelligent transportation systems (ITS) and the concept of smart cities. ITS use a combination of information and communication technologies to improve the safety, efficiency, and sustainability of transportation networks. Activities traditionally conducted by humans can be automated and better monitored to understand how to improve operations. Within the concept of ITS, autonomous vehicles (AVs) are examples of how widespread use within a network can enhance the traffic operations. AVs use advanced sensors and artificial intelligence to operate vehicles. The technology, although advanced in terms of development, is not widely deployed. Research into AVs show that if deployed in a wider scale, it is expected that AVs will improve road safety, enable flexible use of commute time for drivers, decrease cost of ride-sharing trips, reduce the demand for vehicle ownership, and reduce parking demand. **Section 6.2** provides a more detailed description of what EVs and AVs impact will be on the County of Dufferin's transportation network.

3. SOCIO-ECONOMIC

Equity is a fundamental aspect to resilient planning. The transportation network has a great impact on the movement of residents within their communities, and therefore their safety and level of comfort while using these modes. An increased focus has been placed on consideration for vulnerable road users and ensuring that there are accessible options for users of all ages and abilities. There are several approaches to actively promote road safety where emphasis is placed on the system itself to reduce the number of traffic-related deaths and injuries. Planners, engineers, and other system designers are encouraged to recognize that human errors are unavoidable and therefore systems should be intentionally designed to reduce these collisions. Additional traffic monitoring programs and school safety reviews are common with municipalities to understand how to improve safety for all road users, whether they are travelling by foot, bicycles, transit, or private vehicles. **Section 6.2.1** of this document helps address how to enhance road safety through incident reduction initiatives, existing road safety measures, and possible implementation steps that the County could initiate.

Economically, transportation is shifting towards shared mobility options, in addition to on-demand ride-sharing options discussed in the previous section. Outside of ridesharing, the concept of shared mobility or mobility as a service can also be applied



to multiple users having access to a transportation mode. Most commonly, there are carshare and bikeshare programs in which users can have a short-term rental of the vehicle or bicycle as needed. Since users do not own the mode of transportation, there are typically savings in the cost of using it. Dense urban areas are adopting bikeshare and scooter-sharing services to encourage active modes of transportation as alternatives, especially for short to medium-distanced trips.

4. POLICY GUIDELINES

A number of supporting policies provide a toolkit to support infrastructure investment and help achieve an inclusive, accessible, and safe transportation network. A Complete Streets approach is increasingly being adopted in TMPs and as standalone policies. Complete Streets refers to roads that are planned, designed, constructed, operated, and maintained in a way that accommodates all transportation modes and users. By redefining streets to encourage pedestrians, cycling and transit activity alongside private or commercial vehicles, there is greater connectivity and integration. This approach also encourages context sensitive solutions, promoting the idea that there is no “one size fits all” solution to transportation networks. Complete Streets guides indicate consideration for current and planned land use and other circumstances and affect the municipality’s own socio-economic and environmental landscapes.

Another policy that is increasingly widespread is transportation demand management (TDM). TDM refers to strategies and programs that focus on reducing the number of single-occupant vehicles by promoting alternatives and, more sustainable modes of travel. These measures optimize the distribution and use of available transportation resources to alleviate congestion, reduce pollution, and improve public health. These strategies can be considered at a municipality-wide level or site specific, including programs specific to workplaces, households, and schools, depending on the key audience.

1.2.2 KEY AREAS OF FOCUS

Understanding the general trends in transportation, Dufferin County has several key areas of focus considered in this TMP.



1. GROWTH IN THE COUNTY

The population and employment allocation to 2051 within Dufferin County is in accordance with the Draft Land Needs Assessment Report presented by WSP Canada Inc. on July 13, 2022. Based on the Growth Plan set out by the Provincial government, the County's OP is mandated to accommodate a total of 95,000 people and 39,000 jobs by 2051. The projected population and employment growth from 2021 to 2051 for the County needs to be appropriately and equitably allocated among the various municipalities.

There are different criteria that must be met from the Growth Plan in order for the County to allocate project growth. Based on the criteria, the Town of Grand Valley, the Town of Orangeville, and the Town of Shelburne have delineated built-up areas/designated greenfield areas and full municipal water and sewer services. The other municipalities within Dufferin are primarily rural lands that have less "community settlement areas" on partial services, or private individual services only.

Section 5.2 of this report goes into further detail about future population and employment allocation within the County. More information about existing and proposed population and employment can be found in the Draft Lands Needs Assessment Report.

2. SHELBURNE DOWNTOWN BYPASS

As one of the fastest growing communities in the County, there has been increasing traffic to the Town of Shelburne. In particular, the Downtown area is in consideration for a bypass to divert and calm the traffic that passes through this area. The implementation of a bypass can have significant economic and environmental improvements. The bypass would be to facilitate movement on two provincial highways, Highway 10 and Highway 89, that presently intersect in the middle of downtown Shelburne. The Dufferin County TMP examines the bypass, recognizing that the ultimate solution will require further study and will be the responsibility of the Province, with input from the County and Town.

3. ORANGEVILLE WEST

As the largest community in the County, Orangeville is expected to take on a significant amount of population and employment. Growth pressures on the west end of



Orangeville need to be studied in further detail to plan the County's network for the greater community to ensure multi-modal traffic flow. Concurrent with development of the TMP, Dufferin County is undertaking the Dufferin County Road 109 Schedule C Municipal Class Environmental Assessment to examine the road network in the vicinity of the Dufferin County Road 109 and 3 intersections. The EA is expected to identify a solution that will facilitate development and optimize the Dufferin County road network in this area with the future development in mind.

4. GRAND VALLEY GROWTH

The Town of Grand Valley is planning to grow and accommodate some of the increase in population allocated to the County. Dufferin County Road 25 presently is a north-south County road that traverses through the centre of the Grand Valley community, providing connectivity for through traffic. As Grand Valley grows and further develops its community, this through route needs to be re-examined to determine if a bypass of the downtown could be developed to maintain the north-south connectivity for through trucks and cars in this part of the county. The TMP addresses on a high level the county-wide flow of vehicles today and what is expected in the future and provides options for a bypass.



1.2.3 TMP REPORT ORGANIZATION

The TMP tells the story of how Dufferin County will move towards a more integrated, sustainable, and diverse transportation system to accommodate future growth. The organization of the TMP report is summarized below:

Chapter 1 Developing the TMP	Outlines the purpose of the study, how it was developed and the key areas of focus influencing the County;
Chapter 2 Who We Are	Describes the community context, the policy framework, and the existing context of the transportation network;
Chapter 3 Vision, Goals and Objectives	Provides the over-arching vision and the main goals and objectives of the study used as the foundation for analysis;
Chapter 4 Outreach and Engagement Strategy	Reports the consultation and engagement process and the input and key themes received throughout the rounds of engagement;
Chapter 5 Planning for Tomorrow	Identifies and evaluates alternative transportation scenarios, outlines the future needs for the different modes and recommends improvements for the future network;
Chapter 6 Supporting Policies	Identifies various supporting policies to support the future multimodal network, based on Complete Streets and emerging technologies;
Chapter 7 Implementing the TMP	Documents the proposed implementation approach, process, and tools to aid in the furthering the recommendations proposed in the TMP, including the key priorities; and



2 WHO WE ARE

This section presents the existing conditions of the transportation network, focusing on County-owned or managed active transportation, transit, roads, and goods movement networks. These existing conditions will allow to identify opportunities and challenges in the transportation network and will form a baseline for comparison with the future network recommended in this TMP.

2.1 OUR GEOGRAPHY

Dufferin County is an upper-tier municipality located in the north-western portion of the GGH. The County is north and west of the Greater Toronto Area, east of the Kitchener-Waterloo area and north of the City of Guelph. Five major headwaters, the Credit, Humber, Grand, Saugeen and Nottawasaga Rivers, are located within Dufferin County.

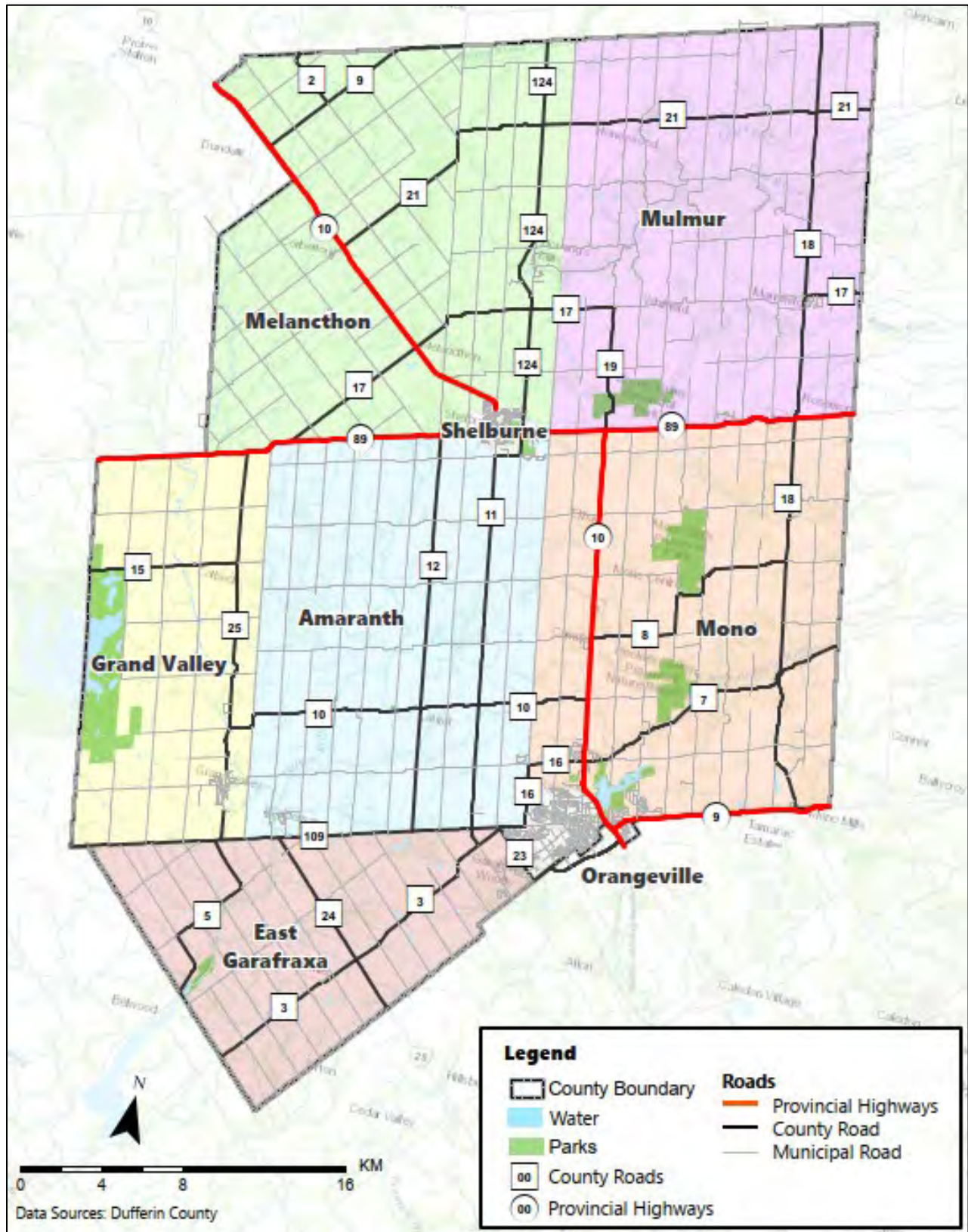
The County is comprised of the following eight lower-tier municipalities, as shown in

Figure 2:

- Township of Amaranth;
- Township of East Garafraxa;
- Town of Grand Valley;
- Township of Melancthon;
- Town of Mono;
- Township of Mulmur;
- Town of Orangeville; and
- Town of Shelburne.



Figure 2. Dufferin County TMP Study Area





2.2 OUR POLICY FRAMEWORK

Federal, Provincial, County, and local-level policies and plans provide overarching guidance which determine the nature of future development and growth. A review of pertinent policy documents at all levels of government provides the policy context for Dufferin County's TMP recommendations (**Section 5**).

A brief overview of key policies and relevance in the TMP development process is provided in this section.

2.2.1 FEDERAL POLICIES



Applies to all of Canada

Federal policies provide a very high-level guidance on the planning of various geographic areas. The general trend has been a shift towards climate change and sustainability. As a result, several policies focus on alternative modes of transportation and provide direction on how regional and local governments can address and

manage these trends.

The **Federal Sustainable Development Act (2008)** and **Strategies for Sustainable Transportation Planning: A Review of Practices and Options (2005)** are two documents that provide frameworks for how to conduct sustainable planning at different levels of government. These provide a precedent for policy initiatives that reduce the environmental impact of transportation networks and services. Federally, there has also been policies that focus on the integration and promotion of alternative, more sustainable modes of transportation, including **Communities in Motion: Bringing Active Transportation to Life Initiative (2008)** and the **National Vision for Urban Transit to 2020 (2001)**. These policies provide the fundamentals for addressing the need for active transportation and transit as part of a comprehensive transportation network that is accessible to users of all ages and abilities.



2.2.2 PROVINCIAL POLICIES

Similar to Federal policies, Provincial policies also provide high-level, strategic direction on the planning and development of wider regions. Sustainability trends are prevalent throughout this level of jurisdiction as well, providing specific guidance to municipalities to implement policies unique to their conditions.



Applies to all of Ontario

The **Provincial Policy Statement (2014)** sets the foundation for regulating land use planning and development within Ontario, promoting diverse land uses and transportation options. The **Accessibility for Ontarians with Disabilities Act (2005)** is an important legislated policy that ensures that challenges to accessibility are removed. Transportation networks should be proactively reviewed for any barriers that may affect users. Active transportation strategies at this level focus on accessibility and creating facilities that are enjoyable by a wide range of users of all ages and abilities. Strategies such as the **#CycleON Action Plan (2018)** and **Ontario Trail Strategy (2010)** provide the guidance to facilitate more infrastructure for both utilitarian / commuting and recreational travel purposes.



Applies to part of Ontario

At a smaller scale, policies such as the Growth Plan for the Greater Golden Horseshoe – Places to Grow (2019 Update) and Niagara Escarpment Planning and Development Act (2019) are Provincial policies that affect a portion of Ontario. These two policies apply to Dufferin County and have been reviewed as part of this TMP. The Growth Plan encourages intensification in built-up areas and key corridors. Intensification objectives have been adopted into the TMP. As part of Dufferin County is located within the Niagara Escarpment, there are increased environmental consideration to be taken to protect the integrity of the land.



2.2.3 COUNTY POLICIES



Applies to all of Dufferin County

As an upper-tier municipality, Dufferin County provides several policy documents that set out the goals and objectives intended to manage the growth across the region. Natural and built environmental, societal, and economic policies set out in this level applies to the lower-tier municipalities to create a cohesive vision for long-range transportation.

The **Dufferin County Official Plan (Under development, expected 2023 or 2024)** sets out a 2051 planning horizon and provides upper-tier land use planning direction across the County to manage growth and development, achieving its long-term vision and goals. This provides the foundation for the County's other region-wide policies. It includes future population and employment forecasts as well as strategies to enhance the quality of life, employment opportunities, transportation system and commercial intensification while protecting natural resources, heritage, and County character.

The **Dufferin County Active Transportation and Trails (DCATT) Master Plan (2010)** has recommendations that will be inputted directly into the analysis and considerations outlined in this TMP. The DCATT shows the initiative the County has taken to progress its transportation network to be more multi-modal and sustainable for projected growth.

Economically, the **Dufferin County Economic Development Strategy Plan (2017)** and **Development Charges Background Study (Under development, expected 2023 or 2024)** provide the financial basis for what infrastructure the County is prioritizing and in what area. This provides insight on previously planned initiatives that will be implemented and will affect the transportation network.

The **Dufferin County Climate Action Plan (2021)** sets forth the County's strategy for the community to reach net-zero greenhouse gas emissions by 2050. Almost half of current emissions are attributed to the transportation sector, The Action Plan addresses transportation in the "On the Move" focus area, which states:

Actions to support active, shared, and public transit modes, expand EV charging networks, and accelerate the transition to EVs. Key objectives include:

- Increasing use of active, shared, and public modes of transportation;



- Promoting climate-friendly driving habits;
- Shifting towards electric vehicles and alternative fuels;
- Designing urban areas to reduce vehicle use; and
- Creating a Transportation Demand Management Plan (TDM).

The **Dufferin County Asset Management Plan (2022)** describes the actions required to manage the County’s portfolio of assets in order to support established service levels, including the management of risks and costs. The document provides transparency and financial management considerations of limited resources. This Plan focuses on the 10-year period from 2022. Major sections of the report include state of the infrastructure, levels of service, lifecycle management strategy, financial strategy, and monitoring.

At the time of the preparation of the TMP, Dufferin County was undertaking the **Dufferin County Road 109 Schedule C Municipal Class Environmental Assessment** to determine the optimal road network for the lands around the Dufferin County Road 109 and 3 intersection and the surrounding area to help facilitate development of lands in Amaranth and potentially East Garafraxa.

2.2.4 MUNICIPAL POLICIES



Applies to individual municipalities

The County’s TMP will be a key guiding document for the development of the future network in the local municipalities. To ensure a coordinated effort between jurisdictions, local policies and plans were reviewed, as summarized in **Table 1**.

Table 1. Summary of Reviewed Policies for Dufferin County

Township of Amaranth	Official Plan (2004)
	Development Charges (2019)
Township of East Garafraxa	Official Plan (2004)
	Development Charges (2019)



Town of Grand Valley	Official Plan (2017) Development Charges (2019) Engineering Standards (2013) Transportation Master Plan (2017) Conservation and Demand Management Plan (2019)
Township of Melancthon	Official Plan (2014) Development Charges (2019) Strategic Plan (2017) Conservation and Demand Management Plan (2019)
Town of Mono	Official Plan (2018) Development Charges (2019)
Township of Mulmur	Official Plan (2012) Development Charges (2019)
Town of Orangeville	Official Plan (2018) Development Charges (2014) Downtown Parking Study (2017) Parks Master Plan (2015) Commercial Urban Design Study (2005) Land Needs Assessment (2016) Housing Needs Analysis (2010) Environmental Protection of New Residential Development Adjacent to the Orangeville-Brampton Railway (2001) Downtown Orangeville Heritage Conservation District Guidelines (2002)



	Cycling and Trails Master Plan (2019)
Town of Shelburne	Official Plan (2017) Development Charges (2020) Active Transportation Plan Study (2008) East Area Transportation Study (2012) Asset Management Plan (2016) Economic Development Strategy (2016) Parks Master Plan (2009)

2.3 OUR COMMUNITY

Dufferin County has experienced fast growth over the last few decades. Exhibit 3 in the **Draft Lands Needs Assessment Report, 2022** (the “2022 Lands Needs Report”) summarizes the estimated population and employment drawn from the 2021 Census data and projected 2051 numbers. Key recommendations for Towns impacted by 2051 growth have been drawn from the 2022 Lands Needs Report and are summarized in **Table 2**. These recommendations helped guide the 2051 future transportation network described in **Section 5**.

According to the 2016 Census, the Town of Shelburne grew 39% from 2012-2016, which makes it the fastest growing small town within Ontario and the second fastest expanding small town in Canada. The 2016 Census also indicates that Shelburne has a density of 1,239.7 per square kilometre and is expected to increase. The rapid growth of Shelburne along with safety of pedestrians, cyclists, and quality of life are key factors for the implementation of a truck bypass, as further described in **Section 2.4.5**.



Table 2. Lands Needs Assessment Report Key Recommendations for Dufferin County

Recommendation	Town		
	Grand Valley	Orangeville	Shelburne
Settlement Area Expansion Required?	Yes	No	Yes
Density of New Developments	Same as existing	Same as existing	Higher than existing
Additional Capacity at 40% Minimum Intensification Rate	795 dwelling units	909 dwelling units	483 dwelling units
Minimum Greenfield Density Goals	55 people and jobs per hectare	46 people and jobs per hectare	41 people and jobs per hectare
Industrial Land Needs & Conversions	Up to 2.6 hectares of land. Continue to monitor employment lands to ensure 21 jobs per net hectare on average.	Site-specific conversions up to 20 net hectares may be considered. Continue to monitor employment lands to ensure 21 jobs per net hectare on average.	Continue to monitor employment lands to ensure 21 jobs per net hectare on average.

2.4 OUR TRANSPORTATION NETWORK TODAY

2.4.1 TRAVEL CHARACTERISTICS

The Transportation Tomorrow Survey (TTS) data provides an overview of travel behaviour for both internal and external trips within Dufferin County. Data has been published for surveys completed in 2006, 2011, and 2016 and presents the shifts in travel behaviour for Dufferin County. At the time of writing this report, data from the



2021 TTS (which was postponed until 2022 due to the COVID-19 pandemic) has not been published.

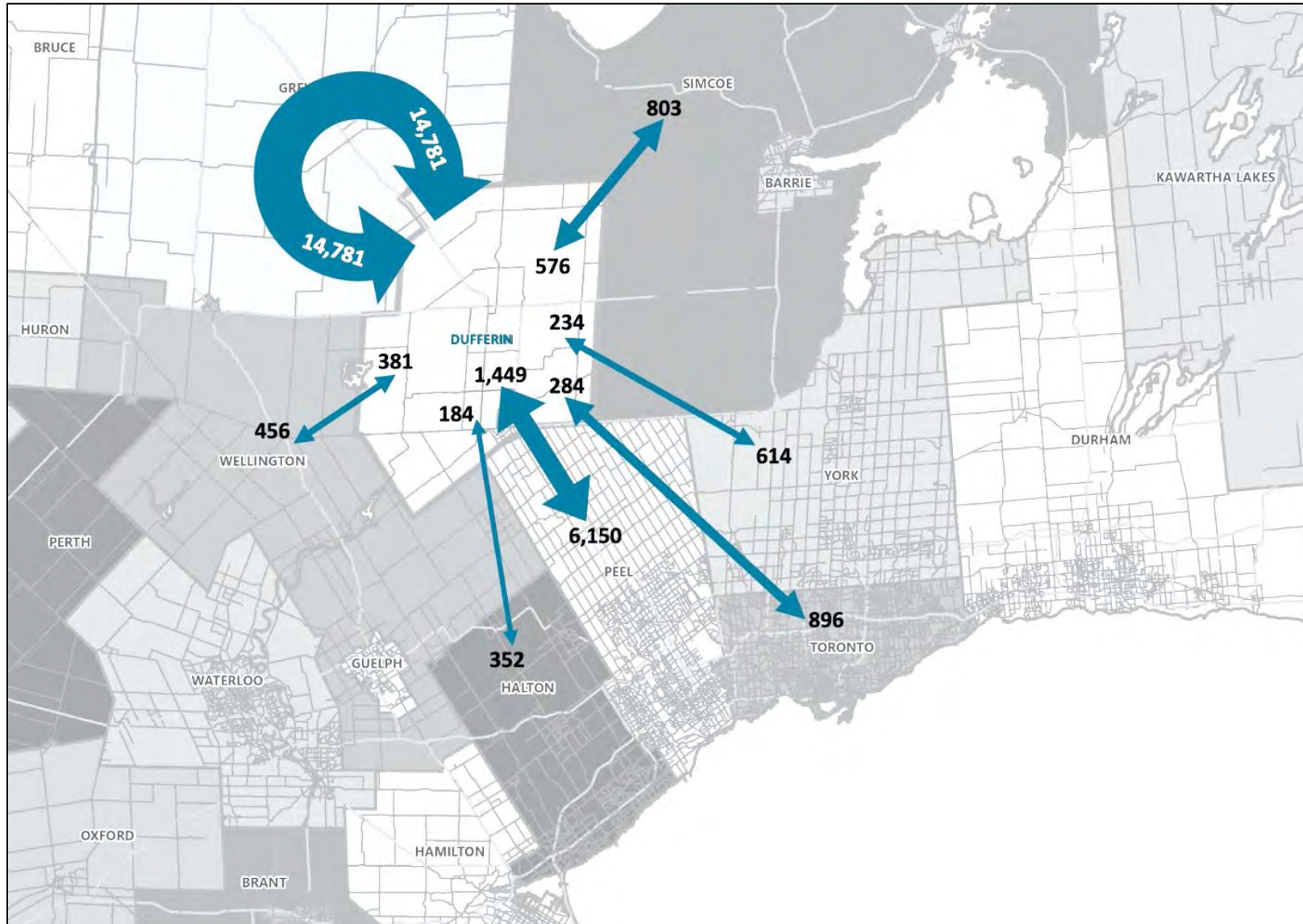
As shown in **Table 3**, the TTS data from 2006 to 2016 presents a steady shift in travel behaviour for both internal and external trips. Internal trips made within Dufferin County have declined in contrast to the increasing total travel distance. On the other hand, external trips to destinations outside of Dufferin County have increased. The data further indicates a 2.7% increase in trips between 2001 to 2006, and a 2.6% increase by 2016. The distribution of trips for the a.m. peak hour is shown in **Figure 3**.

Table 3. Transportation Tomorrow Survey Highlights

Trip Type	Description	2006	2011	2016
Average Daily Trips	Average daily trips (internal + external) made during the peak period	27,535	28,278	29,017
Internal Trips	Trips originating from and destined to Dufferin County	15,649 (57%)	14,810 (52%)	14,781 (51%)
External Trips	Trips destined to Dufferin County	11,886 (43%)	13,468 (48%)	14,236 (49%)
Transit Share	% of trips taken by transit	0.3%	1.0%	1.3%
Vehicle Occupancy	Measure of vehicle ownership	1.16	1.13	1.13



Figure 3. Existing AM Travel Patterns





2.4.2 ACTIVE TRANSPORTATION

One of the goals outlined in the Dufferin County Official Plan is to foster the creation of complete, healthy, and sustainable communities as well as enhancing the quality of life for all residents. A key component to supporting this goal is to build and maintain active transportation (AT) infrastructure and policies that encourage walking and cycling across the County. Active transportation refers to any form of human-powered transportation, including walking, cycling, using a wheelchair, and scootering.

Dufferin County's existing active transportation network consists of pedestrian, cycling and/or multi-use routes, including off-road routes, conventional and separated bike lanes on local municipal roads, paved shoulders (some with buffers) and signed routes. The following sections provide an overview of the existing and previously planned AT network.

SIDEWALK NETWORK

Existing sidewalks within Dufferin County are primarily located in the urban areas of Orangeville, Shelburne, and Grand Valley, with at least a sidewalk on one side of the road in the main settlement area. Paved shoulders on rural roads or on other non-urbanized roads act as a facility for both pedestrians and other active transportation users. The pedestrian infrastructure including sidewalk is typically the responsibility of the local level government in accordance with the Municipal Act.

CYCLING & MULTI-USE NETWORK

To understand the current AT context in the County, the existing and previously planned cycling and multi-use routes from the following documents were reviewed:

- Dufferin County Active Transportation and Trails (DCATT) Master Plan (2010);
- Dufferin County Official Plan (2017);
- Town of Orangeville Cycling and Trails Master Plan (2019);
- Town of Shelburne Official Plan (2017);
- Town of Grand Valley Transportation Master Plan Study (2017); and,
- Township of Mulmur Recreation Master Plan (2021).



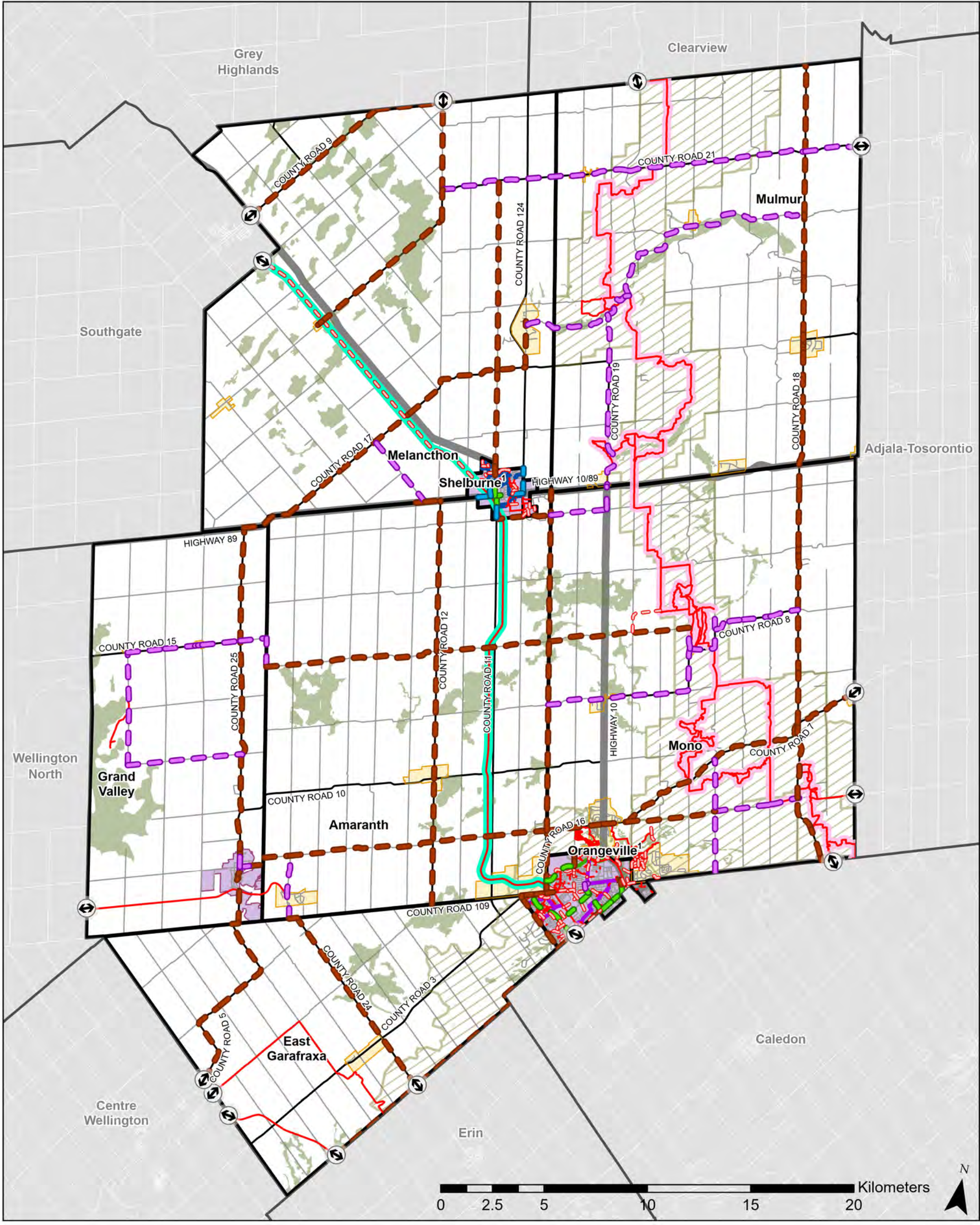
Table 4 summarizes the active transportation network lengths by facility type and municipality. The existing and previously planned network is illustrated in **Figure 4A and B**.



Table 4. Existing and Previously Planned Active Transportation Network Summary by Facility and Municipality (in KM length)

Facility	Status	Geographic Location								
		Amaranth	East Garafraxa	Grand Valley	Melancthon	Mono	Mulmur	Orangeville	Shelburne	Total
Off-Road Route	Existing	22.5	18.7	11.6	0.0	107.4	50.3	24.6	9.4	244.5
	Proposed	0.0	0.0	0.0	14.5	9.0	0.0	22.1	7.1	52.7
Buffered Paved Shoulder	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Proposed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paved Shoulder	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Proposed	59.2	31.3	19.6	55.0	56.9	19.5	6.1	2.0	249.6
Bike Lane	Existing	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.9
	Proposed	0.0	0.0	0.0	0.0	0.0	0.0	8.6	2.4	11.0
Signed Route	Existing	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	8.9
	Proposed	4.5	0.0	19.0	10.8	30.7	39.8	0.4	0.0	105.2
On-Road Route	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	9.5
	Proposed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3
Total	Existing	22.5	18.7	11.6	0.0	107.4	50.3	35.5	18.9	264.9
	Proposed	63.6	31.3	38.6	80.2	96.7	59.3	37.2	14.8	421.7

Note: The segregation of facility by municipality is done using GIS tools and the GIS Shapefile data.



- Dufferin County Boundary
- Urban Settlement Area
- Community Settlement Area
- Provincial Plan Areas
- Provincially Significant Wetlands
- Provincial Highway
- County Road
- Other Road
- Bruce Trail (Hiking Only)
- AT Connections to Surrounding Municipalities
- Existing Off-Road Route
- Existing Bike Lane
- Existing Signed Route
- Existing On-Road Route¹
- Proposed Off-Road Route
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed On-Road Route¹
- Developing Route

Figure 4A
Existing and Previously Proposed
Active Transportation Network

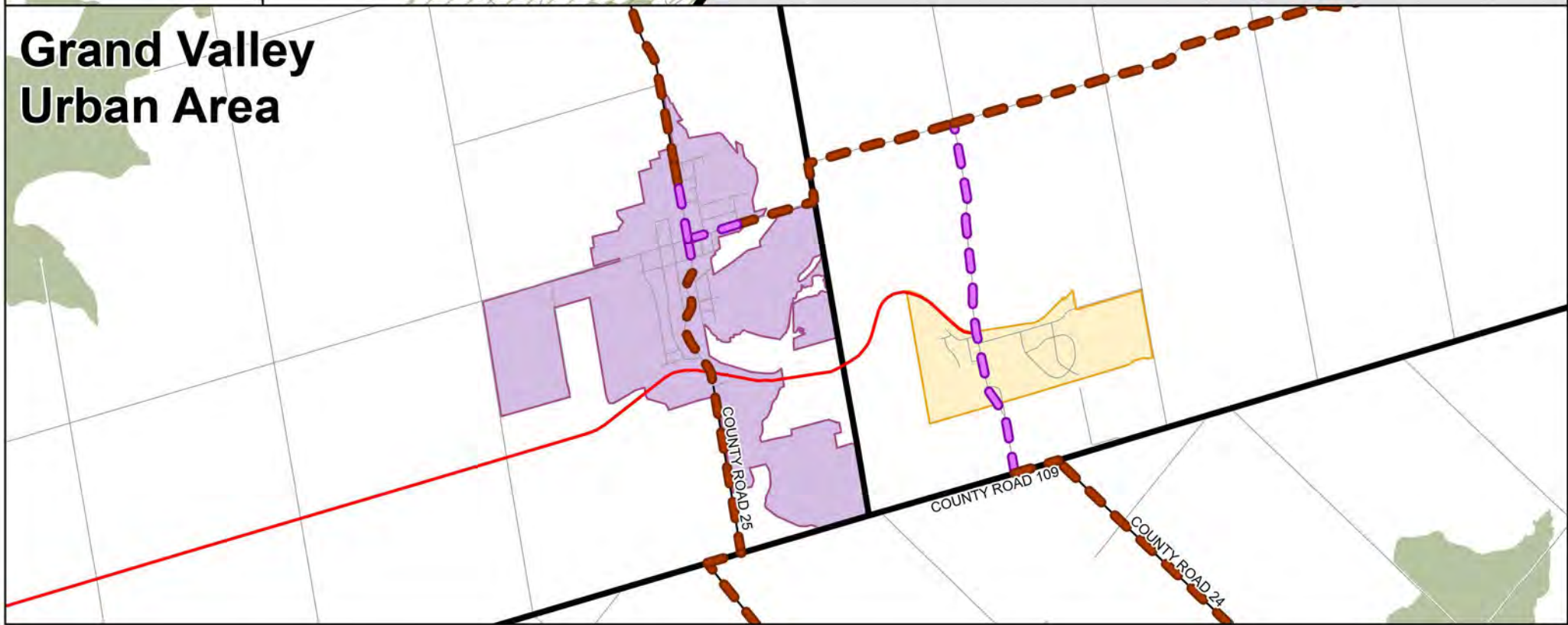
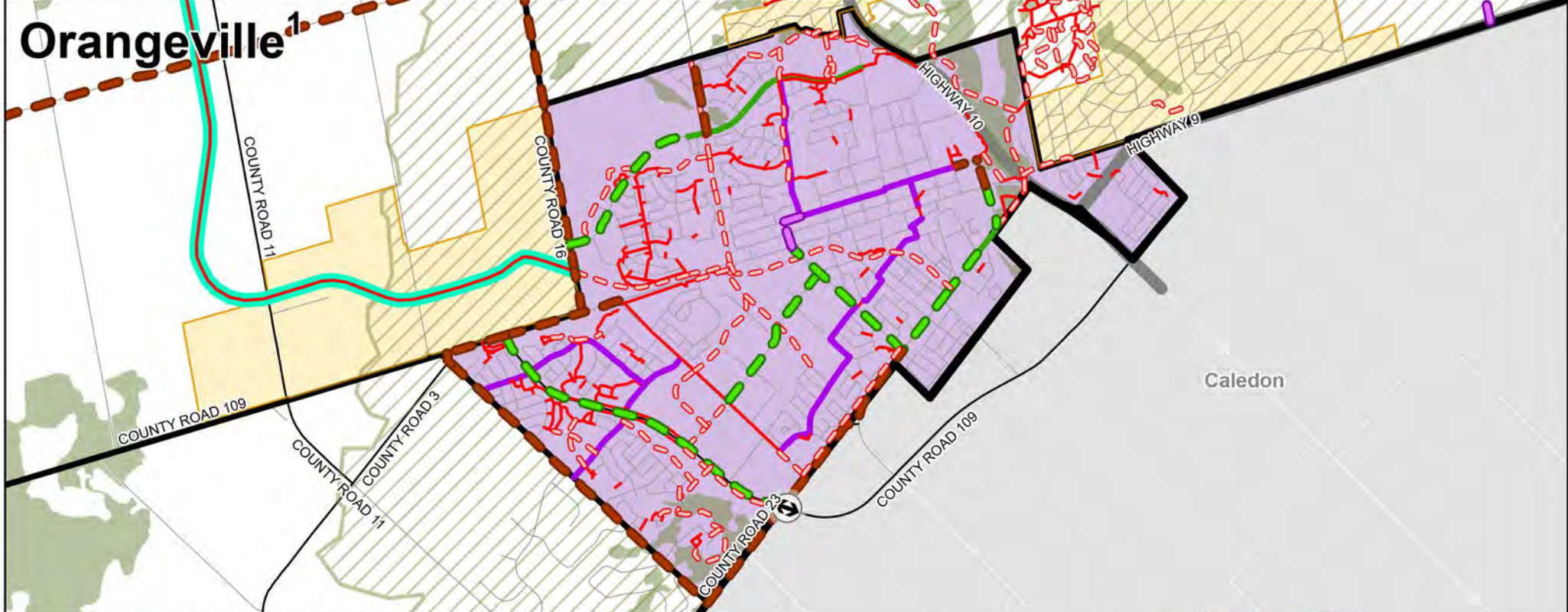
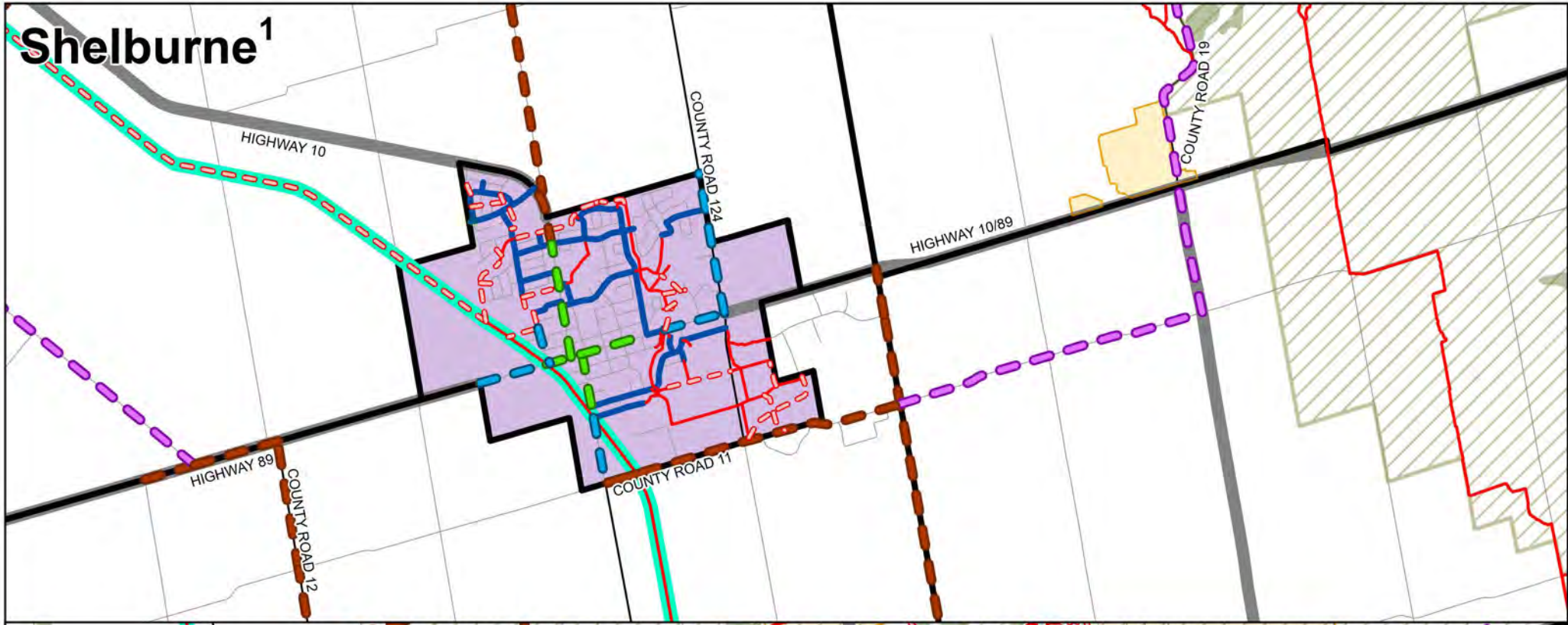
Dufferin
county

Thick dashed lines are County routes
 Thin dashed lines are Local routes

Notes:

1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
2. Proposed routes on gravel roads would only be constructed when the road is paved.

Last Updated: 8/10/23
 Projection: GCS North American 1983 Transverse Mercator
 Data obtained through: Land Information Ontario (LIO)
 GeoHub and Dufferin County



- Dufferin County Boundary
- Urban Settlement Area
- Community Settlement Area
- Provincial Plan Areas
- Provincially Significant Wetlands
- Provincial Highway
- County Road
- Other Road
- Bruce Trail (Hiking Only)
- AT Connections to Surrounding Municipalities
- Existing Off-Road Route
- Existing Bike Lane
- Existing Signed Route
- Existing On-Road Route¹
- Proposed Off-Road Route
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed On-Road Route¹
- Developing Route

Figure 4B
Existing and Previously Proposed
Active Transportation Network
(Urban Areas)

Notes:
 1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
 2. Proposed routes on gravel roads would only be constructed when the road is paved.

Thick dashed lines are County routes
 Thin dashed lines are Local routes

Last Updated: 8/10/23
 Projection:
 Data obtained through: Land Information Ontario (LIO) GeoHub and Dufferin County



2.4.3 TRANSIT

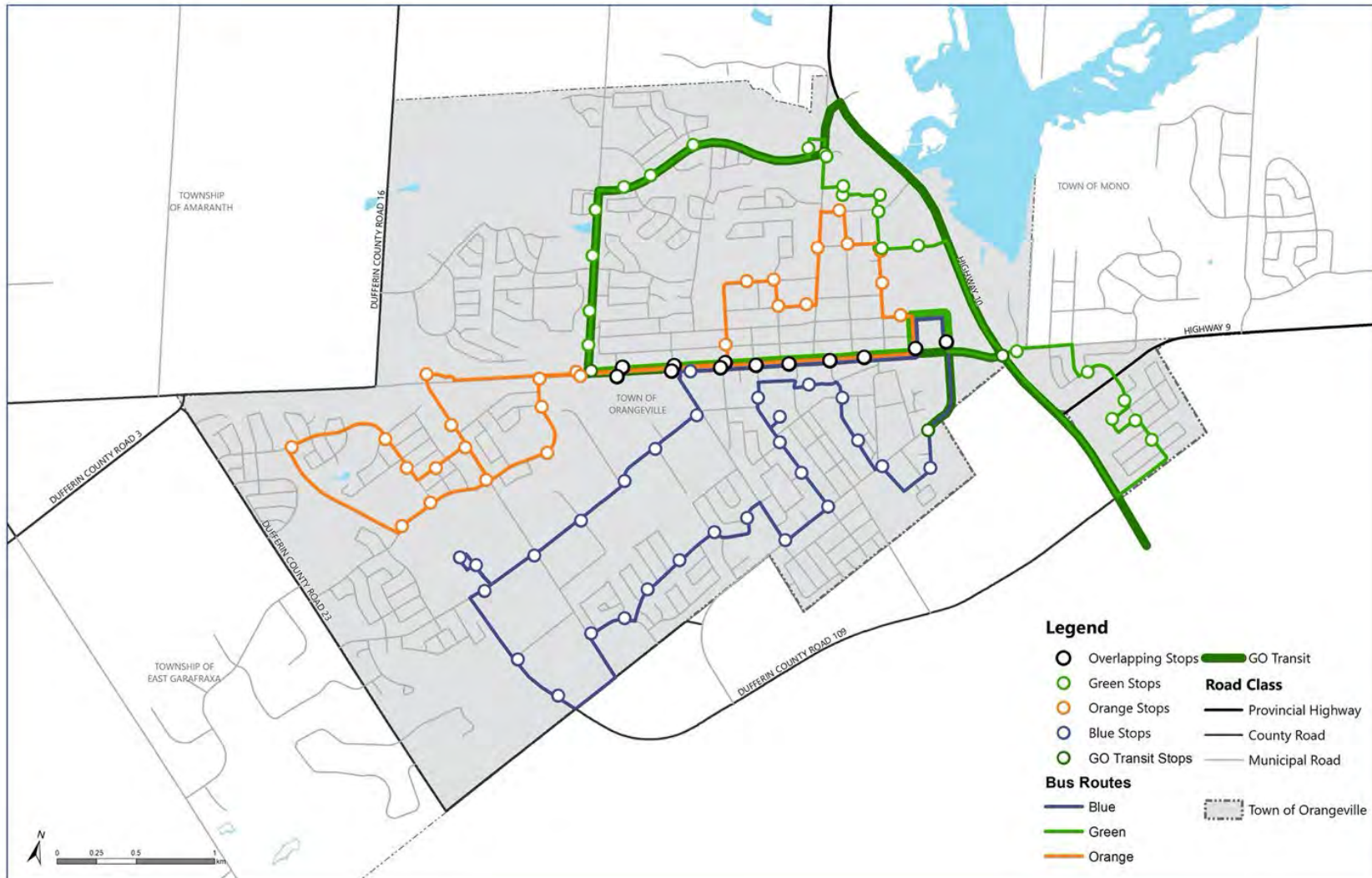
Transit is available locally in Orangeville and regionally through transit services provided by GO Transit and Grey Transit Route. The Town of Orangeville began providing transit services for visitors and residents since 1991.

In Orangeville, three local bus lines currently offer service between 7:15 a.m. to 8:45 p.m. Monday to Friday and from 7:15 a.m. to 6:15 p.m. on Saturday. There is no service on Sundays or holidays. Fares are \$2 for adults (ages 19 - 54) and \$1.5 for seniors (ages 55+) and students (ages 6 – 18 or anyone with a valid student card) for a single trip. Children 5 and under can ride for free. Monthly transit passes are available. During the COVID-19 pandemic, between April 2020 to March 2021, a fare-free transit program was offered as a COVID relief measure. Town's council has approved another two-year pilot for a fare-free transit that launched on January 2, 2023.

As shown in **Figure 5**, the local transit network contains three operating routes: Orange, Green and Blue. All routes have a 30-minute frequency and run on the same schedule from Monday to Friday (except after 6:15 p.m. on weekdays). There is a GO Bus operated by Metrolinx that services Orangeville to and from Brampton, specifically Route Number 37 shown in **Figure 6**.



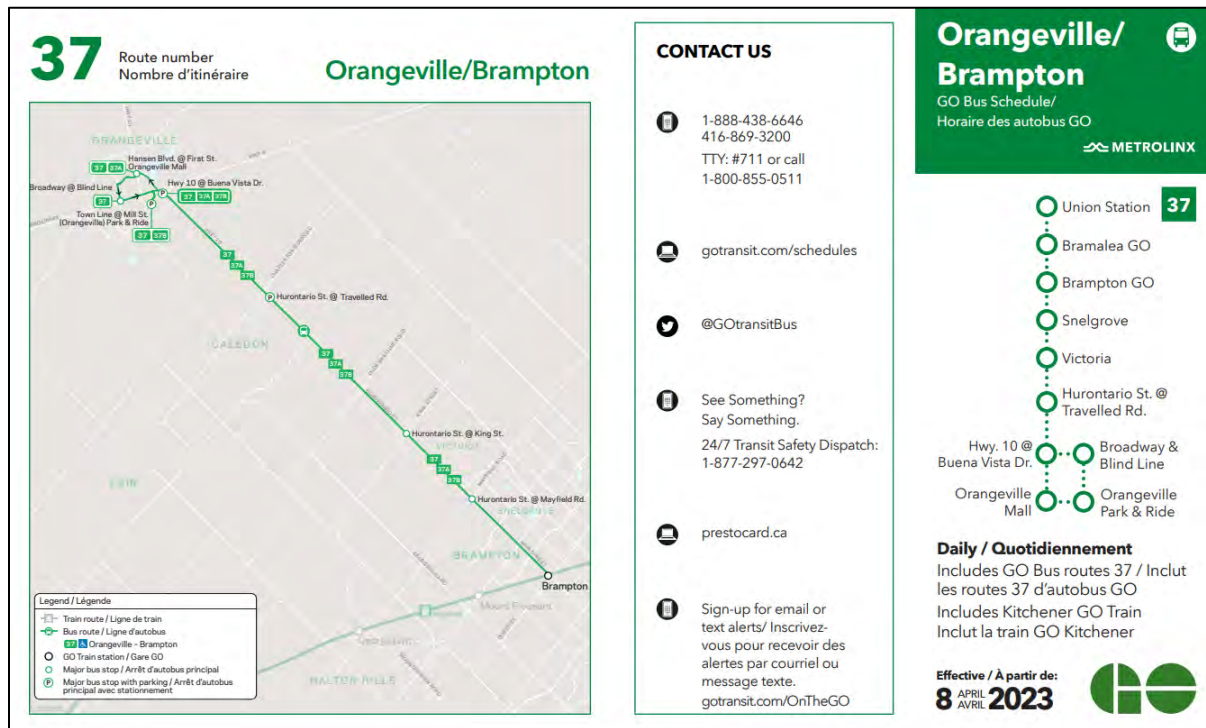
Figure 5. Existing Transit Routes Map (Orangeville Transit)



Source: Town of Orangeville, 2019



Figure 6. Existing GO Bus Services on Route 37 between Orangeville and Brampton



Source: Metrolinx, 2023

Grey County announced in August 2020 that a Grey Transportation Route (GTR) would begin service in September 2020. The route was made possible after Grey County received \$1,850,000 under the Ontario Community Transportation Program. Grey County contracted a local transportation company called Driverseat Owen Sound to provide 10 passenger vehicles for the GTR service. Payment can be made online through credit card, debit credit card, and ticket/ coupon codes. Payment can also be made through the phone by credit card, debit credit card, ticket/coupon code, and exact cash.

Routes One and Two offer services on Highway 10 between Owen Sound and Orangeville, the transit route is available five days a week, from Monday to Friday. Specifically, Route 1 is from Owen Sound to Dundalk and vice versa, while Route 2 is between Dundalk to Orangeville and vice versa. Transit fares vary based on the age of transit user and the route that is taken. The routes and transit fares are shown in **Figure 7**.



Figure 7. Existing Transit Routes Map, Route 1 and 2 (Grey County)



Source: Grey County, 2023

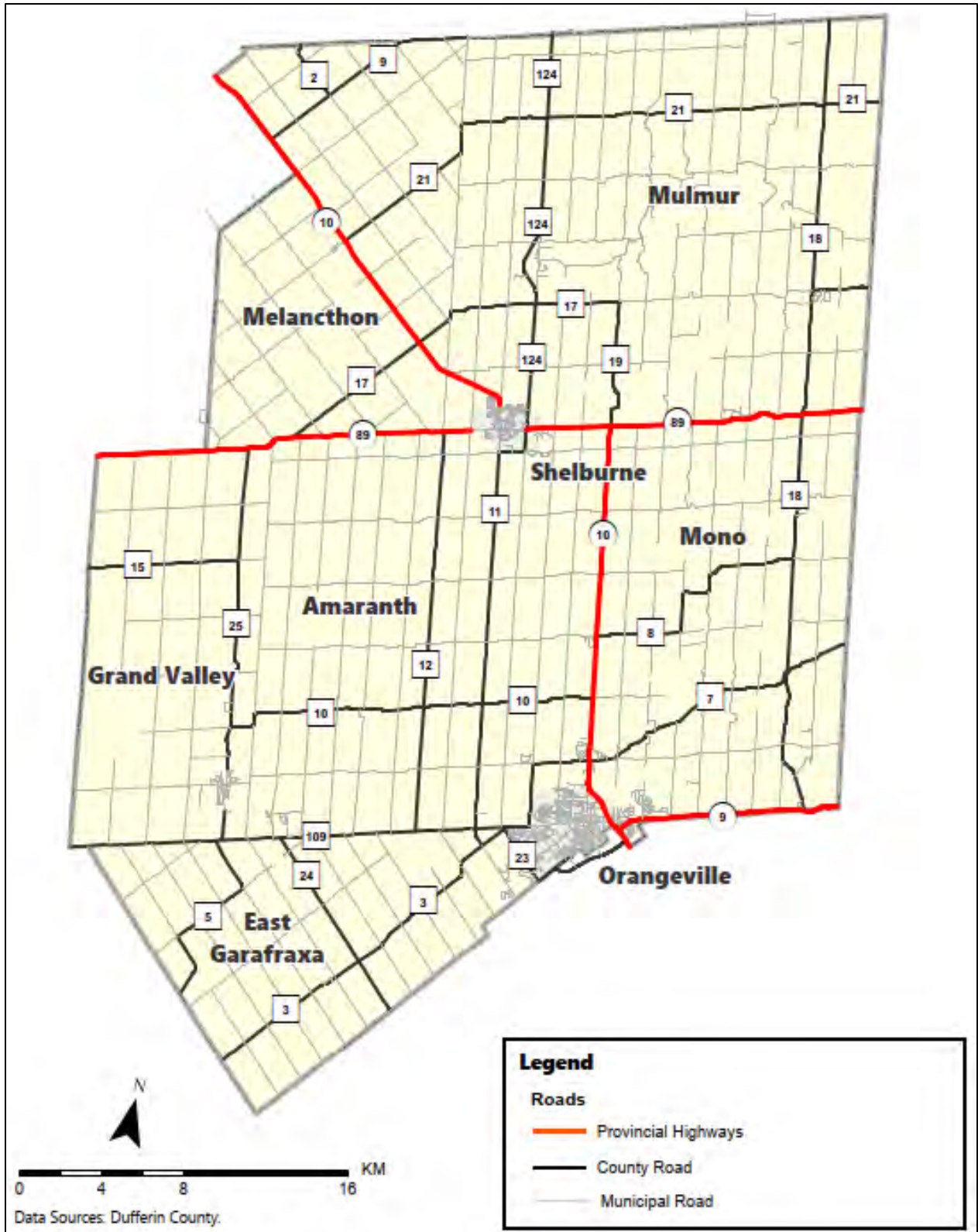
2.4.4 ROADS

Dufferin County has an extensive transportation network to support a variety of transportation modes. The road network within the County includes Provincial Highways, Dufferin County roads and municipal roads. The Dufferin County roads and municipal roads are further classified as arterial, collector and local roads depending on the function served by these roads.

The existing road in the County consists of approximately 1,850 kilometres of an urban and rural road network. This includes 88 kilometers of provincial highways, 315 kilometres of Dufferin County roads owned and maintained by the County, and 1445 kilometres of local and collector road network owned and maintained by the municipalities within the County. **Figure 8** presents the existing road network and provides additional information on roads within the County.



Figure 8. Existing Dufferin County Road Network



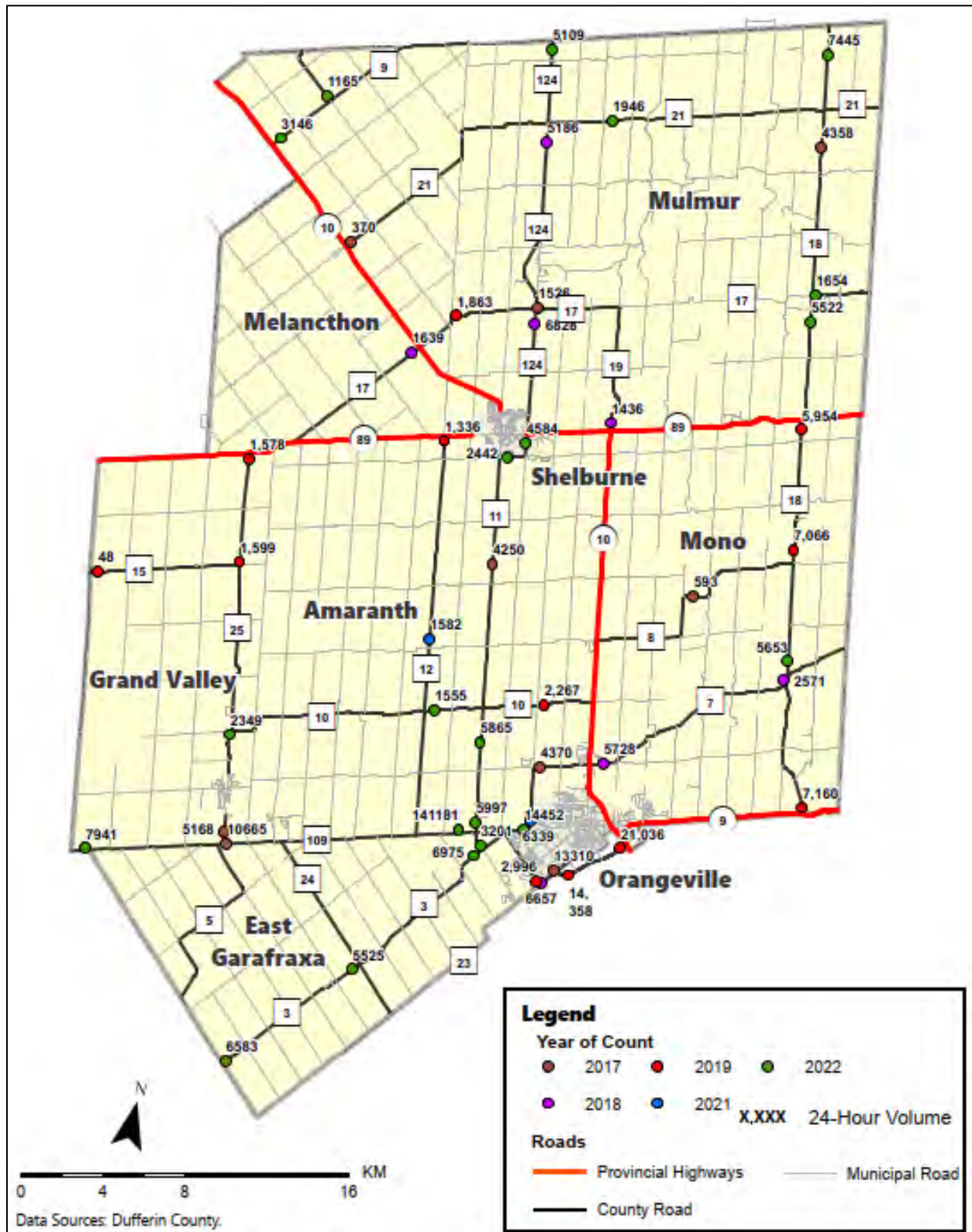


5. ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Figure 9 shows the AADT counts on the Dufferin County roads that has been used to analyze the existing conditions. Dufferin County roads in the vicinity of the Town of Orangeville, as well as along Dufferin County Roads 3, 109 and 18 through Town of Mono, have higher traffic volumes than the rest of the roads within the County. The remainder of the Dufferin County roads have AADTs less than 5,000 in the study area.



Figure 9. Existing 24-Hour Volume Counts on Dufferin County Roads





2.4.5 TOWN OF SHELBURNE TRUCK BYPASS

Traffic concerns for the Town include increased volume of transport truck, heavy equipment, seasonal traffic paired with daily residential traffic that goes through the downtown core. Truck traffic has negatively impacted downtown businesses, presented health and safety issues, and increased noise, wind, air pollution, and traffic congestion. The Town of Shelburne endorses a truck bypass as it would provide pedestrians and small vehicle traffic a safer environment when accessing the downtown area. If a long-term method was implemented, it would allow better efficiency in goods movement.

Figures 10 and 11 shows the truck route maps obtained from Town of Shelburne. **Figure 10** illustrates the current truck route for the northbound traffic in the Town of Shelburne, and **Figure 11** shows the westbound traffic.

In 2019, Mayor Wade Mills and Town representatives presented three truck bypass route options to the Minister of Transportation at the annual ROMA conference in Toronto. The Town of Shelburne residents have consistently requested the Ministry of Transportation (MTO) to implement a solution to address concerns of heavy truck traffic on Highway 10 and 89 since 2003.

Exploring Solutions

Three route options the Town provided for the truck bypass are:

- Route Option 1: single lane distance of 7.3 km- currently a combination of asphalt and gravel roads (**Figure 12**).
- Route Option 2: single lane distance of 8.9 km – currently a combination of asphalt and gravel roads (**Figure 13**)
- Route Option 3: single lane distance of 20.3 km – on asphalt roads (**Figure 14**).

Final routing of a bypass would need to be studied further and led by the Province, as the roads that need a bypass, Highways 89 and 10, are Provincial highways. These previously proposed options could be considered, in addition to other options that include constructing new roads for a bypass.

Through this TMP, areas in Shelburne, Orangeville, and Grand Valley have been reviewed to consider bypasses. All bypasses require coordination with the local municipal government, Shelburne and Orangeville also involve the Ministry of Transportation.



Figure 10. Current Truck Route (Northbound Traffic)



Disclaimer: Terms of use apply. Please contact the Town of Shelburne Municipal Office for more information.

Source: Town of Shelburne, 2019



Figure 11. Current Truck Route (Westbound Traffic)



Disclaimer: Terms of use apply. Please contact the Town of Shelburne Municipal Office for more information.

Source: Town of Shelburne, 2019



Figure 12. Truck Bypass Route - Option 1



Source: Town of Shelburne, 2019



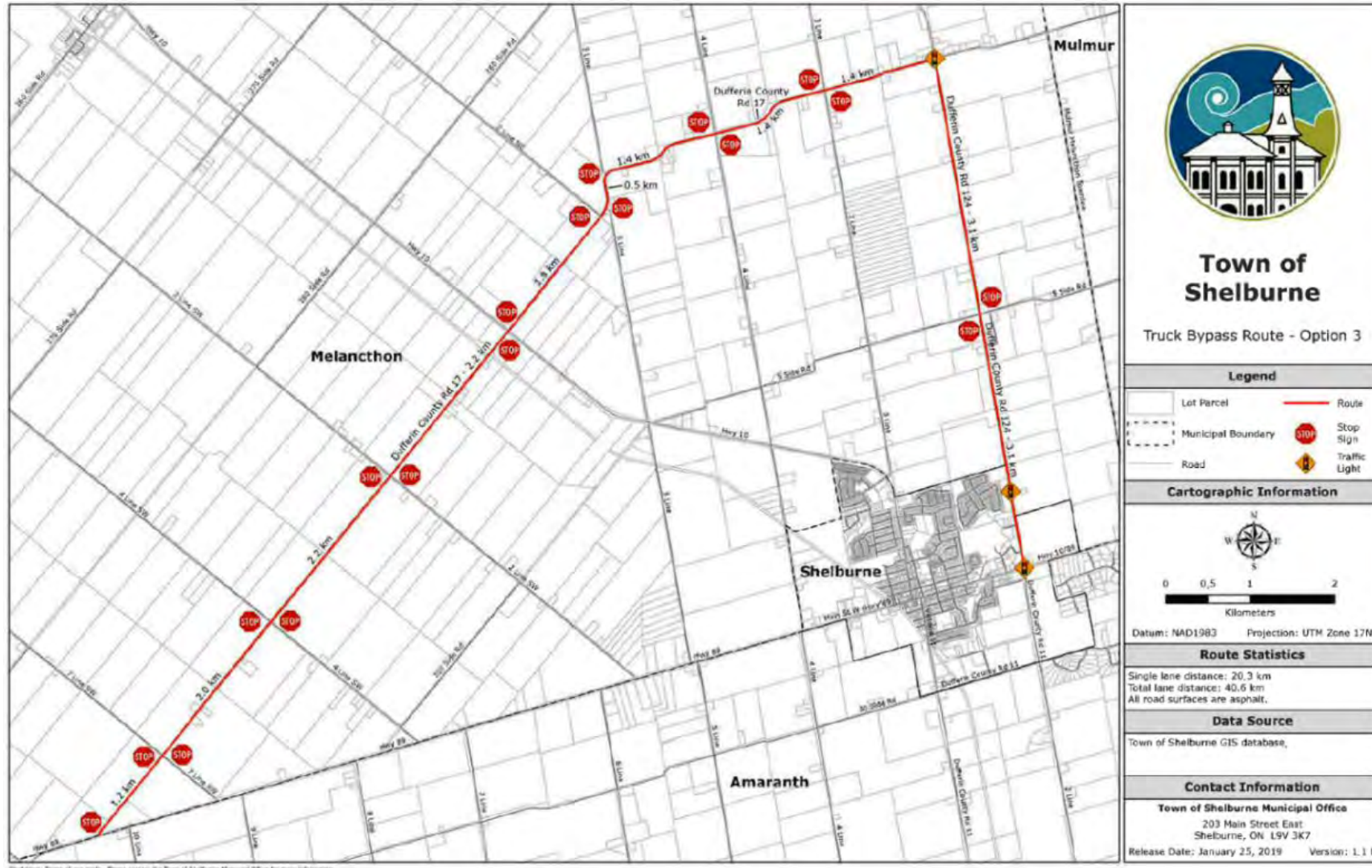
Figure 13. Truck Bypass Route - Option 2



Source: Town of Shelburne, 2019



Figure 14. Truck Bypass Route - Option 3



Source: Town of Shelburne, 2019



2.4.6 GOODS MOVEMENT

Highway 10 and Highway 89 have segments within the County, which help make the County a key gateway for freight movement and industrial activity.

- Township of Amaranth:
 - Amaranth has businesses distributed throughout the Township, including landscaping, carpentry, construction, and manufacturing sectors. Dufferin County Road 109, Dufferin County Road 11, and Dufferin County Road 10 are important goods movement routes, with Dufferin County Road 12 providing an additional north/south route.
- Township of East Garafraxa:
 - The Township is primarily rural with local businesses mainly in the industrial and farming sectors. The key roads for goods movement are Dufferin County Road 3, Dufferin County Road 24, Dufferin County Road 109, and Wellington County Road 26 that provide connections to the Town of Grand Valley, Town of Orangeville as well as outside the County boundary.
- Town of Grand Valley:
 - Trucks currently use the County roads for movement, primarily Dufferin County Road 25 for north-south movement and Dufferin County Road 109 for east-west movement. Several potential routes to bypass the Town have been identified. One route is on the east side of the Main Settlement Area and would use Amaranth East Luther Townline, then trucks would travel on Dufferin County Road 10 to Dufferin County Road 25. The second route would be using Sideroad 27 & 28 on the west of the Main Settlement Area and Concession Road 4/5. Truck routing would need to be investigated further to ensure that the current routes are functioning adequately.
- Township of Melancthon:
 - The Ontario Geological Survey showed that there was potential that there are large reserves of mineral aggregates in the Township and the extraction of the resources could potentially generate substantial amounts of truck traffic transporting mineral aggregates to markets within the Greater Toronto Area.



The Township favours the notion of minimizing truck traffic by utilizing Provincial highways and Dufferin County roads, which are designated as Arterial Roads according to the OP.

- Town of Mono:
 - Businesses are located predominantly in the south portion of the Town. The major roads that are used to transport goods are Highway 9, Highway 10, Dufferin County Road 18, and Dufferin County Road 7.
- Township of Mulmur:
 - The major roads that are used to transport goods are Highway 89, and Dufferin County Roads 17, 18, and 21.
- Town of Orangeville:
 - Highways 89 and 10 converge in Orangeville, making it a goods movement centre in the County. Dufferin County Road 109 provides a bypass of Orangeville that can be used to expedite goods movement.
- Town of Shelburne:
 - Historically, most of the Town's commercial and residential development was situated in the core settlement area adjacent to Highway 10/89. With the growth of residential and commercial developments, the Town has expanded across Highway 10/89. The Town is experiencing increased volumes of transport trucks including gravel trucks, heavy machinery transportation, and regular vehicles that go through Highway 10/89, which also travels through the downtown area during all hours of the day. The downtown area encompasses many small businesses, such as restaurants, retail stores, and the Town Hall. Residential homes, apartments, and schools also occupy the area. Truck traffic is negatively affecting the area by causing noise, wind, air pollution, and traffic congestion. A study conducted in May 2008 by MTO demonstrated that 90% to 95% of truck traffic was through only, meaning the Town of Shelburne was not the final destination for majority of the trucks. Another study conducted in 2015 found there were 850-1200 vehicles per peak hour that went through the stretch of highways, with approximately 50% being truck traffic. In addition, 76% of business owners believe that it is vital



to decrease the amount of truck traffic in order to revitalize the Town of Shelburne's downtown.



3 VISION, GOALS AND OBJECTIVES

The purpose of the TMP is to address the growing mobility needs of the County and its local municipalities. It should align with the over-arching policies and be mindful and proactive in responding to emerging transportation trends and address pressing issues, like Dufferin County's Climate Action Plan. When developing a TMP, a Vision Statement should be established to provide the strategic foundation for the study. The Municipal Class Environmental Assessment process for master plans also requires a Vision Statement to fulfil Phase 1. This section will review the foundational vision, goals, and objectives of the TMP.

3.1 VISION STATEMENT

A vision establishes the desired future of the County. The TMP vision should be attainable, realistic and be based on a multi-faceted and integrated approach.

Dufferin County envisions...



a **vibrant and integrated**

community that supports users of all ages and abilities through active transportation facilities, transit routes and roads.

The multi-modal transportation network should provide mobility and connectivity in an **accessible, equitable, environmentally, and financially sustainable** manner.

Viable transportation options should be provided to foster **healthier, more sustainable choices** for its residents and visitors.



3.2 TMP OBJECTIVES

The objectives of the TMP include:

- Accommodate forecast growth in population and employment through improvements to the multi-modal transportation network;
- Identify solutions to pressing mobility concerns in Shelburne (Shelburne Bypass), Orangeville (Dufferin County Road 109 corridor west of town), and Grand Valley (Dufferin County Road 25 and a possible alternate route);
- Plan for expansion of the active transportation (primarily cycling) network;
- Consider the role of transit to meet County mobility needs; and
- Identify strategic road improvements to facilitate movement of people and goods.



4 WHAT WE HEARD: OUTREACH AND ENGAGEMENT

Consultation and engagement are one of the core elements of the TMP and are a requirement through the MCEA process. Consultation and engagement can take many forms and needs to be adaptable to the needs of the people being consulted and the context of the times. For instance, the TMP began prior to the COVID-19 pandemic and was completed after the pandemic. During the pandemic, consultation shifted to completely online meetings and has evolved into a hybrid of online and in-person activities. The County's Join In Dufferin consultation website was used to publicize the MCR and TMP events, with a page dedicated to the overall MCR, including the TMP.

Additionally, as the TMP was prepared in conjunction with the County's Municipal Comprehensive Review, some joint consultation events were used to obtain feedback on transportation matters.

4.1 WHO WAS CONSULTED?

The consultation and engagement program were designed with the intention of exchanging ideas with the following key audiences:

- **Residents, Employees and Visitors:** people who live in and/or work in, commute to, and visit the County of Dufferin;
- **Technical Advisory Committee:** representatives from municipalities, conservation authorities, provincial agencies, and utility companies who share and have interests in the County right-of-way and transportation-related assets in the County of Dufferin;
- **County Staff:** County staff are responsible for the implementation, execution, monitoring, assessment, and reporting of the TMP; and,
- **Council:** Councillors are responsible for endorsement and oversight.



4.2 CONSULTATION EVENTS

Several consultation events were conducted over the timeline of the project to gain feedback. These included:

- On **March 3, 2020**, a Public Open House was held to allow the opportunity for the public to learn more about the OP Review process, ask questions, and participate in a visioning exercise, including the development of a Vision Statement and defining Goals for key themes. The event took place at Monora Park Pavilion in Mono from 6:30 - 8:30 PM. A portion of the event was dedicated to introducing the TMP purpose, objectives, and discussing some existing conditions.
- On **July 26, 2022**, a Public Information Centre was held to provide the growth forecast of population and jobs for the municipalities within Dufferin County to the 2051 horizon year. The event took place at Mel Lloyd Centre – 167 Centre Street in Shelburne from 11:30 AM – 6:30 PM. The relation to the TMP was included in the presentation materials, as the growth forecast is used to identify transportation improvements needed to accommodate this growth. The meeting was held in-person as a drop-in style session in Shelburne.
- On **January 21, 2023**, a joint MCR and TMP Public Information Centre was held in Orangeville at the County facilities located at 55 Zina Street. This session included an in-person drop in period where County and consulting staff were available to speak to participants and explain presentation boards on the MCR and TMP. After the drop-in session, a live online session was broadcast on the County's YouTube page to present the very same slides that were available for review for in-person attendees. The presentation was structured so that participants could attend online or in-person to hear the presentation. Questions were taken live from those in the in-person audience and those online, and answers were provided during this live session.
- On **July 6, 2023**, a MCR public workshop focused on infrastructure was held from 9:00 to 10:30am at the Monora Park Pavilion, 500 Monora Park Road, Mono. The infrastructure topics discussed included:
 - Public transit;
 - Road access on highways and traffic volumes;



- Bypasses.

TMP staff made presentations on these three topics and engaged in dialogue with attendees. The presentations then were recorded and placed online for others to watch and provide feedback.

Numerous meetings were held with County staff throughout the duration of the MCR / TMP process to coordinate and take direction and feedback on draft materials. Meetings were also held with local municipal staff.

4.3 CONSULTATION SUMMARY

Several themes related to transportation emerged from the various consultation events held and the comments received. The public engagement activities provided the Project Team a clear understanding of existing conditions and potential opportunities to improve the different modes of transportation including active transportation, transit, and the road network in Dufferin County. Many ideas and common themes were discussed during the consultation that was used to inform the development of the TMP and set the priorities for the County. Key themes are summarized below:

- Plan for improved and expanded transportation networks to support anticipated areas of growth in the future;
 - Consider bypasses of Shelburne and Grand Valley;
- Improve and increase transit access to points south via GO Transit;
- Widen Highway 10 south of Shelburne;
- Improve road safety and work towards the reduction of vehicular-related accidents;
- Maintain and improve the local roads and arteries throughout the County;
- Support accessible transit and transportation options across the County; and
- Promote active transportation and healthy active living through the improvement of access to trails and recreational uses.



5 PLANNING FOR TOMORROW

5.1 THE PROCESS

The understanding of existing conditions as well as input from the public and stakeholders has laid the foundation to move forward to plan for tomorrow. The future conditions analysis and recommendations are presented with the most vulnerable users in mind, the pedestrians and cyclists, and then move on to transit, the road network, and goods movement. Addressing the MCEA process for master plans Phase 2 – alternatives assessment, is covered in the Roads Improvement Strategy in **Section 5.5**, as walking, cycling, and transit typically follow the road network. The people that will require mobility in the future are described first in the population and employment forecasts. Then the multi-modal analysis is undertaken.



5.2 POPULATION AND EMPLOYMENT GROWTH FORECASTS

Population and employment growth forecasts are the input data used to plan the multi-modal transportation network of the future for the County. Understanding where growth is forecast to occur and how much growth is expected is key to identifying appropriate transportation infrastructure to help ensure mobility. The existing and 2051 growth forecast by municipality within Dufferin County that has been used in the TMP analysis is shown in **Table 5**. The existing and 2051 employment forecast is presented in **Table 6**.

Table 5. Population by Municipality (2021 Estimate and Forecasted Allocations to 2051)

Municipality	Population (Nearest 100)		
	2021 Estimate	2051 Allocated	2021-2051 Growth
Amaranth	4,500	8,300	3,800
East Garafraxa	2,900	3,900	1,000
Grand Valley	4,000	16,500	12,500
Melancthon	3,200	4,300	1,100
Mono	9,700	9,600	-100
Mulmur	3,700	4,500	800
Orangeville	31,000	38,500	7,500
Shelburne	9,400	15,100	5,700

Table 6. Number of Jobs by Municipality (2021 Estimate and Forecasted Allocations to 2051)

Municipality	Employment (Nearest 100)		
	2021 Estimate	2051 Allocated	2021-2051 Growth
Amaranth	1,300	2,500	1,200
East Garafraxa	700	1,000	300
Grand Valley	900	4,600	3,700
Melancthon	600	900	300
Mono	2,800	3,300	500
Mulmur	900	1,200	300
Orangeville	14,700	21,700	7,000
Shelburne	3,100	5,700	2,600



5.3 ACTIVE TRANSPORTATION STRATEGY

The update to the active transportation network as part of this TMP focuses on the cycling and multi-use trail network. An iterative network development process was used to build upon the 2010 Dufferin County Active Transportation and Trails (DCATT) Master Plan. Since the development of the DCATT Master Plan:

- Changes to the County and local active transportation (AT) network based on previously planned routes have been reviewed, modified and/or implemented;
- Updates to the County's strategic goals which focus on building a comfortable, safe, and connected network that accommodates all ages and abilities;
- Advancements made to implementing a County-wide trail route along the rail corridor; and
- Updates to planning and design guidelines and standards relating to AT, including Ontario Traffic Manual Book 18: Cycling Facilities (2021).

5.3.1 ACTIVE TRANSPORTATION NETWORK UPDATE APPROACH

The network update approach is based on Ontario Traffic Manual Book 18: Cycling Facilities (2021), and uses a three-step process, consisting of reviewing the existing and previously proposed routes, setting objectives, establishing route selection criteria, and identifying routes for modification and areas that require a higher level of separation as guidance for the network recommendations. This high-level approach is intended to be used as a reference for future planning, design, and integration of AT into the County's multi-modal transportation network.

STEP 1: MAP EXISTING AND PLANNED CONDITIONS

The development process is a combination of technical analyses from georeferenced data and input from County staff and stakeholders regarding land use, transportation features and infrastructure. The goal is to create lasting recommendations that align with the County's context and vision. The database was updated throughout the project duration to reflect current conditions. Detailed existing conditions review for AT is provided in **Section 2.4.2**.

Outcome of Step 1: Map of existing and previously proposed routes.



STEP 2: IDENTIFY ROUTE SELECTION CRITERIA

The provision of convenient, safe, and connected walking and cycling infrastructure is at the core of promoting active transportation. Building off the understanding of the existing and previously proposed network, a review of key challenges was conducted to understand where opportunities for AT exist.

Challenges include:

- High motor vehicular speeds and volumes (determined from available AADT data);
- Safety for pedestrians and cyclists (and all road users) at road crossings, intersections, and trail access points; and
- Sight lines and roadway width constraints that can impact the design and implementation of AT facilities.

The following list of criteria are consistent with the principles outlined in best practices and planning documents and other active transportation studies of similar scope.

As a response to the challenges the following criteria were used to identify updates to the network. This list is consistent with best practices and planning documents such as OTM Book 18 and the Dufferin County OP.

- **Safe and Comfortable Facilities for All Ages and Abilities:** Planning and designing safe AT facilities that are appropriate for the context of the street and enhances the general perception of feeling safe;
- **Connectivity AT Routes:** Filling in gaps between existing facilities creates a connected AT network for both urban and rural contexts in the County that provides direct routes to key destinations such as recreational facilities, green spaces, and urban areas;
- **Resilient Facilities that Accommodate Future Trends:** Developing a future-proof AT network that accommodates micromobility (e-bikes, e-scooters) and other transportation trends; and
- **Support Multimodal Needs:** Enhancing connections to other modes of travel to facilitate first and last mile connectivity and transit connections (where available).

Outcome of Step 2: Set of route selection criteria.



STEP 3: REVIEW AND CONFIRMING PREVIOUSLY PROPOSED ROUTES

With an understanding of the existing conditions and objectives, previously proposed on and off-road routes were re-assessed through a desktop review. The previously planned routes were reviewed against OTM Book 18's pre-selection nomographs based on the posted speed and average daily traffic volumes to confirm that the proposed facility is still appropriate for the context and operating conditions of the road. This included a detailed evaluation of the surrounding land use, roadway conditions, available platform and other unique factors that affect the roadway cross-section. The updated AT network is presented in **Figure 15 (A and B)**, with lengths summarized by geographic location in **Table 7** and by jurisdiction in **Table 8**. The facility type will be confirmed in the detailed design stage.

Outcome of Step 3: Map of updated AT network.



Table 7. Updated Active Transportation Network Summary by Facility and Location (in KM Length)

Facility	Status	Geographic Location								
		Amaranth	East Garafraxa	Grand Valley	Melancthon	Mono	Mulmur	Orangeville	Shelburne	Total
Off-Road Route	Existing	22.5	18.7	11.6	0.0	107.4	50.3	24.6	9.4	244.5
	Proposed	2.3	0.0	4.4	14.5	9.0	0.0	22.1	7.2	59.5
Buffered Paved Shoulder	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Proposed	15.0	19.8	20.0	6.4	0.9	15.0	1.1	0.0	78.2
Paved Shoulder	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Proposed	57.6	14.2	1.1	55.5	36.4	2.7	5.0	2.0	174.5
Bike Lane	Existing	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.9
	Proposed	0.0	0.0	0.0	0.0	0.0	0.0	8.6	2.5	11.0
Signed Route	Existing	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	8.9
	Proposed	17.6	0.0	20.9	5.2	44.1	27.8	0.4	0.0	116.0
On-Road Route	Existing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	9.5
	Proposed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3
Total	Existing	22.5	18.7	11.6	0.0	107.4	50.3	35.5	18.9	264.9
	Proposed	92.4	34.1	46.4	81.5	90.4	45.5	37.2	14.1	441.5

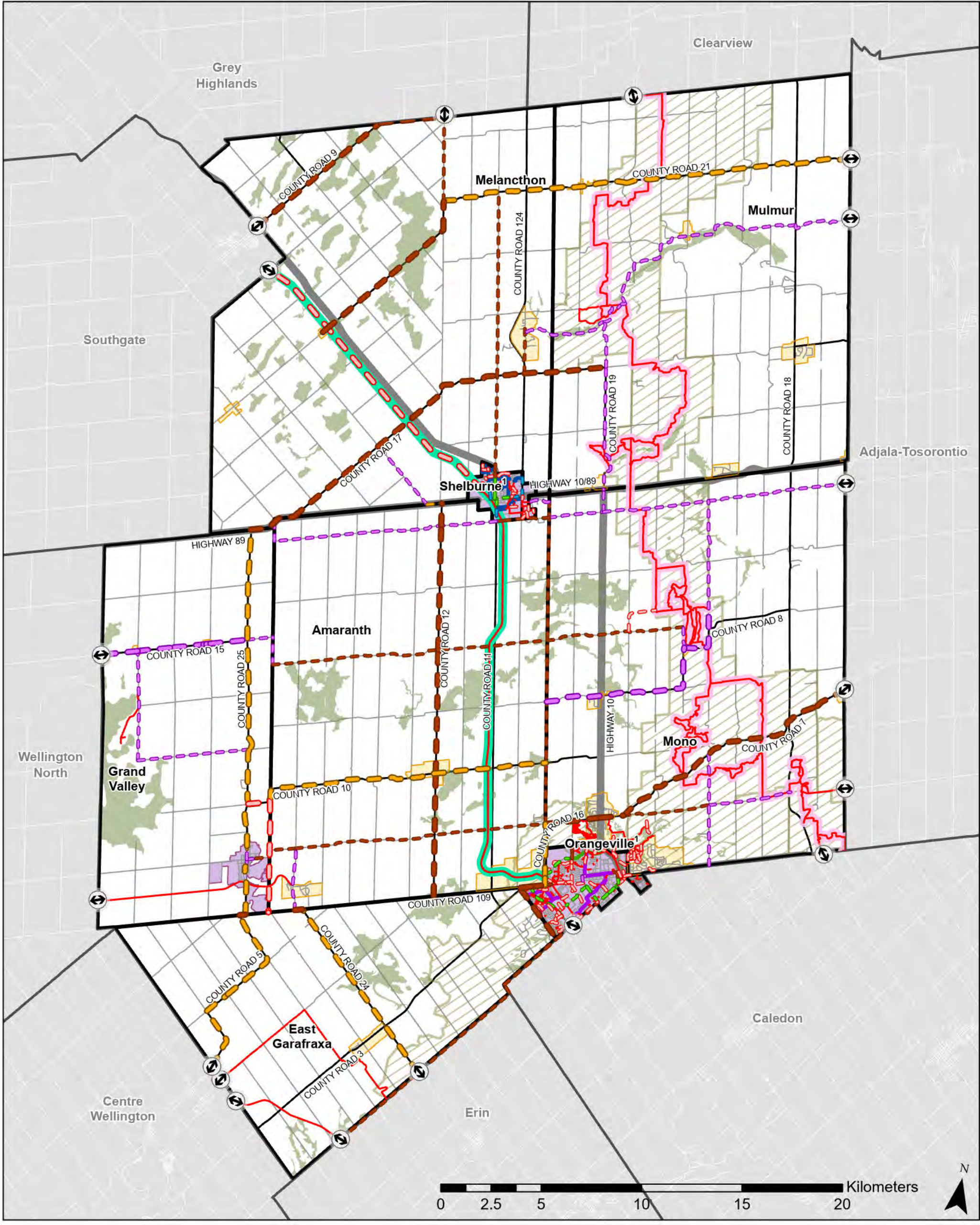
Note: The segregation of facility by municipality is done using GIS tools and the GIS Shapefile data.



Table 8. Proposed AT Network by Route Jurisdiction (in KM Length)

Municipality	County Share	Local Share	Total
Amaranth	37.5	55.0	92.4
East Garafraxa	22.5	11.5	34.1
Grand Valley	31.8	14.6	46.4
Melancthon	55.0	26.6	81.5
Mono	30.1	60.3	90.4
Mulmur	17.7	27.8	45.5
Orangeville	2.7	34.4	37.2
Shelburne	1.0	13.1	14.1
Total	198.2	243.3	441.5

Note: The segregation of facility by municipality/jurisdiction is done using GIS tools and the GIS Shapefile data.



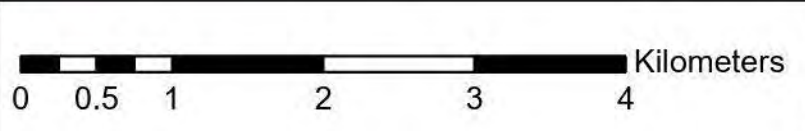
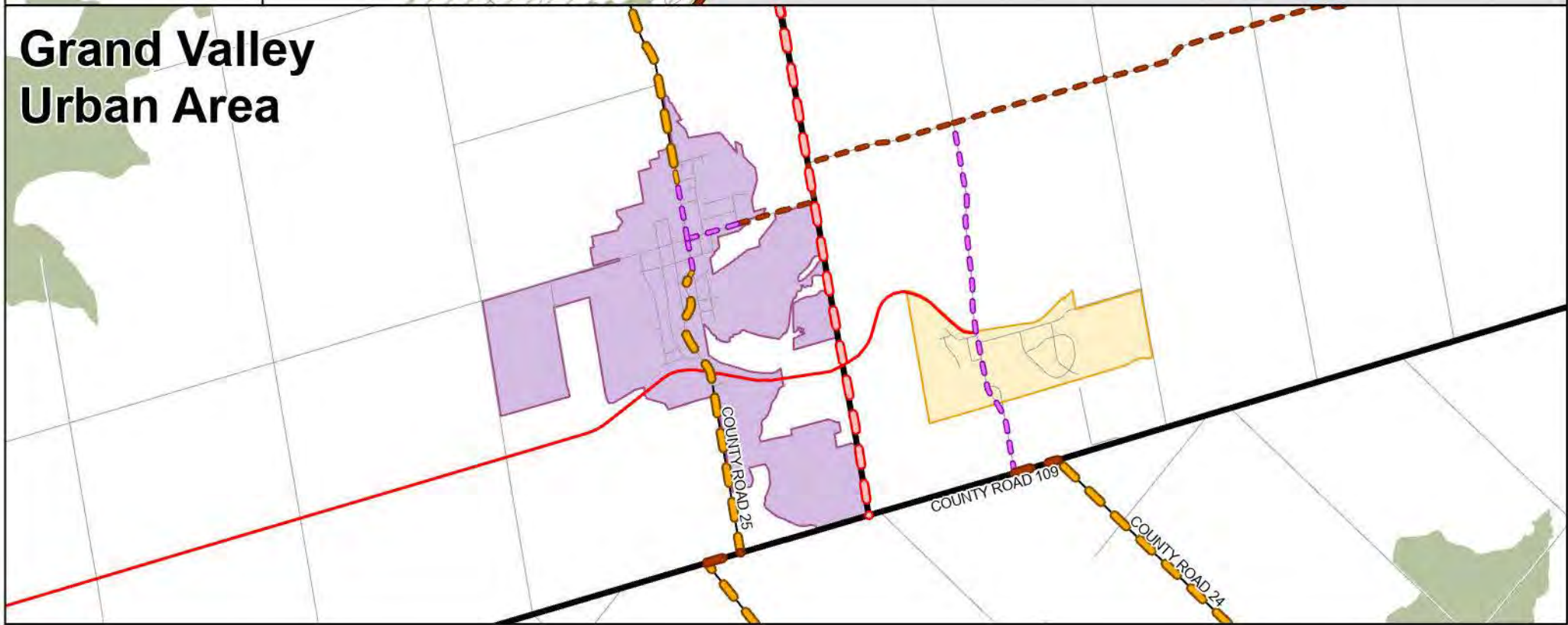
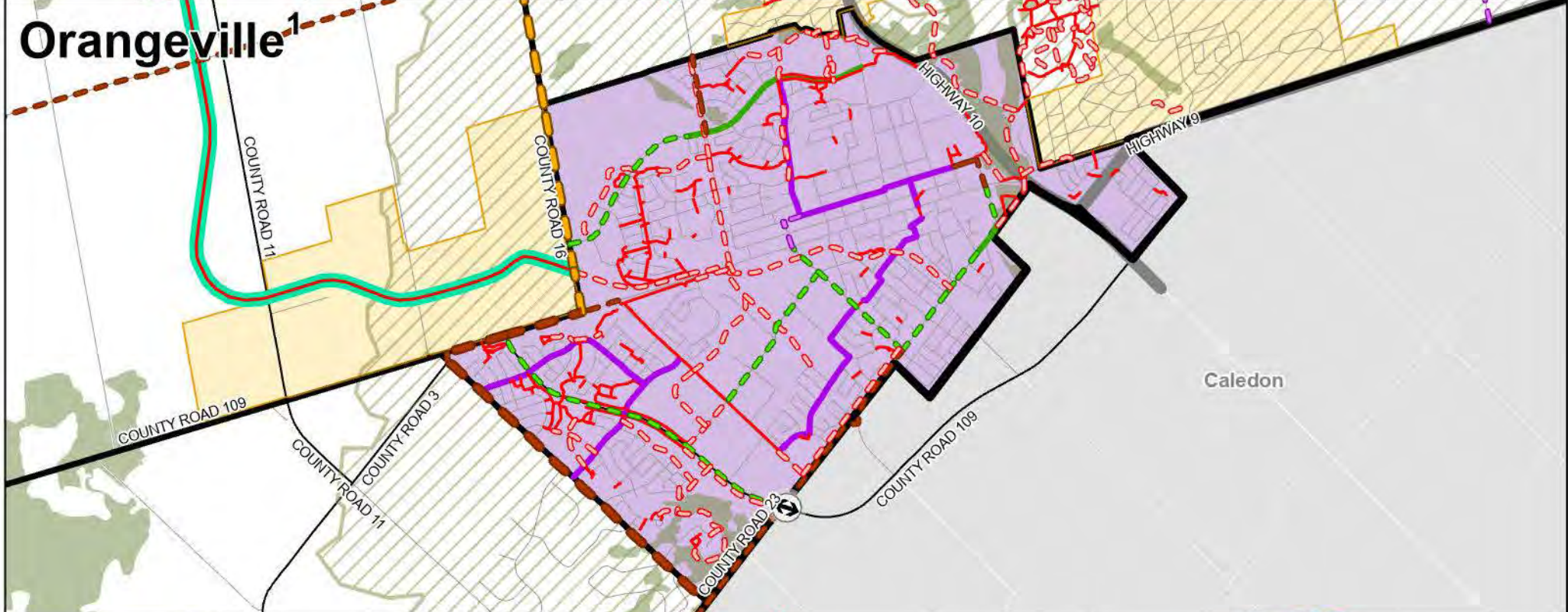
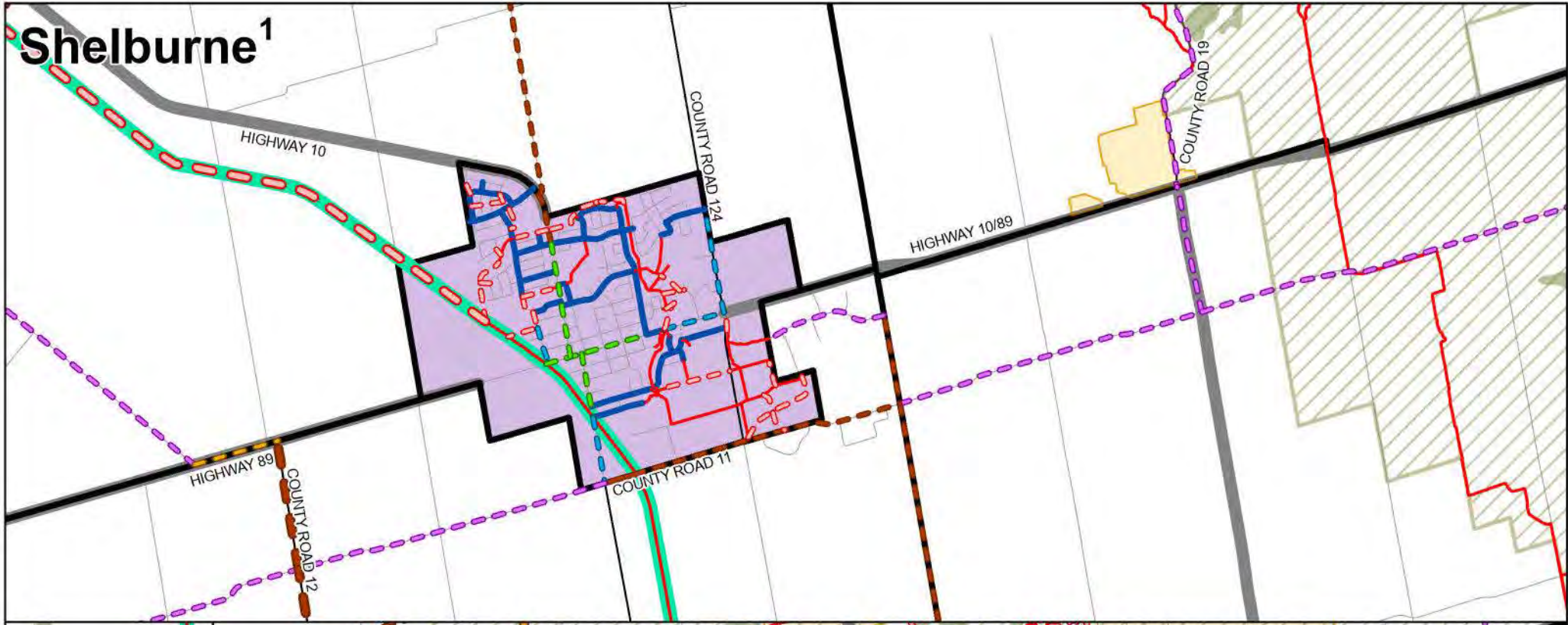
	Dufferin County Boundary		Existing Off-Road Route		Developing Route
	Urban Settlement Area		Existing Bike Lane		Thick dashed lines are County routes
	Community Settlement Area		Existing Signed Route		Thin dashed lines are Local routes
	Provincial Plan Areas		Existing On-Road Route ¹		
	Provincially Significant Wetlands		Proposed Off-Road Route		
	Provincial Highway		Proposed Bike Lane		
	County Road		Proposed Buffered Paved Shoulder		
	Other Road		Proposed Paved Shoulder		
	Bruce Trail (Hiking Only)		Proposed Signed Route		
	AT Connections to Surrounding Municipalities		Previously Planned On-Road Route ¹		

Figure 15A

Updated Active Transportation Network

Notes:
 1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
 2. Proposed routes on gravel roads would only be constructed when the road is paved.
 3. Facility type will be confirmed in the detailed design stage.

Last Updated: 8/10/23
 Projection: GCS North American 1983 Transverse Mercator
 Data obtained through: Land Information Ontario (LIO)
 GeoHub and Dufferin County



- Dufferin County Boundary
- Urban Settlement Area
- Community Settlement Area
- Provincial Plan Areas
- Provincially Significant Wetlands
- Provincial Highway
- County Road
- Other Road
- Existing Off-Road Route
- Existing Bike Lane
- Existing Signed Route
- Existing On-Road Route¹
- Proposed Off-Road Trail
- Proposed Bike Lane
- Proposed Buffered Paved Shoulder
- Proposed Paved Shoulder
- Proposed Signed Route
- Previously Planned On-Road Route¹
- Thick dashed lines are County routes
- Thin dashed lines are Local routes
- Developing Route

Figure 15B
Updated Active
Transportation Network
(Urban Areas)

Notes:
 1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
 2. Proposed routes on gravel roads would only be constructed when the road is paved.
 3. Facility type will be confirmed in the detailed design stage.



Last Updated: 8/10/23
 Projection:
 Data obtained through Land Information Ontario (LIO)
 GeoHub and Dufferin County



5.3.2 INTEGRATING ACTIVE TRANSPORTATION

An important consideration for route and facility type selection is how the existing and proposed AT infrastructure can be best integrated to the overall transportation network. Integrating active transportation and expanding the network of active transportation facilities can be part of the County's strategy to support tourism while reducing carbon emissions by promoting sustainable travel and providing alternatives to single occupant vehicle travel. The following summarizes strategies that support the integration process:

- Integrating the existing and proposed AT routes with existing and planned transit development;
- Expanding AT facilities and infrastructure to improve the accessibility and connectivity of the network, such as bike parking and other supportive infrastructure; and
- Conducting outreach to promote AT routes and introducing benefits.

5.3.3 AT NETWORK RECOMMENDATIONS

Following the objectives summarized in the AT strategy, the network should adopt the following recommendations:

1. Incorporate the proposed active transportation network illustrated in **Figure 15. Updated Active Transportation Network** as an update to Schedule H in the County's Official Plan. This TMP will inform the future implementation of AT routes. Note that the proposed routes on gravel roads would only be constructed when the road is paved.
2. Develop an Active Transportation Master Plan (ATMP) to establish a detailed strategy with input from local municipalities for recommending additional local candidate routes that support the network. As part of the ATMP, it is recommended that the County reconsider an alternate and parallel local municipal north-south corridor to Dufferin County Road 18 due to several obstacles associated with the roadway. The ATMP should include:
 - AT vision, goals, and objectives;
 - Summary of active transportation best practices, trends, and travel patterns;



- Detailed AT network strategy focused on recommendations on local roads that support the County spine network;
 - Recommendations for AT education and encouragement programs or initiatives; and
 - AT-specific public and stakeholder engagement to have discussions about the proposed network, maintenance, monitoring and programming to support the AT network.
3. Prioritize the formalization of the Dufferin Rail Trail to accommodate walking, cycling, snowmobiles, and ATVs. This route is an important connection for the County and will align with the connection to Peel Region in the south and Grey County in the north providing regional connectivity and ultimately connecting Lake Ontario with Lake Huron.
 4. Implementation of Share the Road signs at all approaches at the intersection of Highway 10 / Dufferin County Road 19 / Highway 89 by MTO to enhance the intersection and improve conditions for cyclists using the AT facilities.
 5. Consider implementing designated cycling facilities, such as conventional bike lanes, buffered bike lanes, and buffered paved shoulders when roads are planned for rehabilitation to achieve economies of scale with planned capital infrastructure projects.
 6. Use OTM Book 18: Cycling Facilities and OTM Book 15: Pedestrian Crossing Facilities as the key guidelines to inform the design and implementation of pedestrian and cycling facilities.
 7. Integrate AT with the transit strategy by providing connections to transit hubs and providing trip-end facilities to allow multimodal travel.



5.4 TRANSIT STRATEGY

A Transit Feasibility Study report was presented in November 2021 and approved by the County Council in May 2022. The report identifies the need for public transportation within the County, with growth predictions of 36% by 2036. With new transit technologies and the widespread use of smartphones, it is now possible to serve rural communities.

A “Needs and Opportunities” assessment revealed the need for transit in Dufferin County. It explored the existing transit network in inspected provincial and municipal initiatives and policies. Travel patterns were compared to similar demographic composite areas. The chosen alternative was an **On-Demand Curb-to-Curb** service. The operating company would be a third party that will be retained via a competitive Request for Proposals process. The process would be open to private transit operators, taxi companies, and technology companies. The service would cover the entire County and would operate Monday to Friday between 8:00 am and 6:00 pm. The service area would exclude the Town of Orangeville, which has its own transit service. One of the sections on the RFP would be providing a couple of light-duty vehicles, complying with accessible requirements for transit vehicles. Based on the report, the timeline for launching the service would be between four to five months after choosing the operator. The program was originally scheduled to be implemented in 2023.

County Council excluded funding for the on-demand curb-to-curb service in the 2023 budget. At its February 9, 2023, Council meeting, County Council received the report regarding the establishment of an On-Demand Transit program and directed staff to investigate alternate solutions to enhance transportation services for seniors through Dufferin County Community Support Services.

As the population in Dufferin County grows, the demand for transit is expected to increase. Transit service can be part of the County's strategy to reduce carbon emissions by providing alternatives to single occupant vehicle travel. The County should continue to consider external and internal opportunities for funding and when to introduce County-supported transit, with an on-demand service likely the most appropriate first step in terms of usefulness to the ridership and cost of provision of the service.



Better transit options to points south is an existing need and is expected to grow with population growth. While some of the forecast population growth will work within the County, it is expected that many will commute south outside of the County for work or school.

The GO Transit service in Orangeville should be enhanced to provide:

- More convenient times that better cater to the needs of commuters and post secondary students;
- More frequency to allow for more flexibility in travel plans and to increase overall ridership; and
- Faster (possibly non-stop) service from Orangeville to Brampton to make the service more useful and more attractive to riders.

Additionally, GO services should be extended to Shelburne with a stop in Orangeville on routes to and from points south of Dufferin County.

5.5 ROADS IMPROVEMENT STRATEGY

This section discusses the roads improvement strategy that is to be considered for implementation to address the future transportation demand in the County to the year 2051.

5.5.1 DEVELOPING ROADS IMPROVEMENT RECOMMENDATIONS

Dufferin County currently has a transportation network which provides an efficient system for the movement of goods and people. A transportation system should be efficient and effective to encourage and support economic development in the County and accommodate future growth. Therefore, in developing the roadway improvements, a comprehensive approach was adopted to meet the following transportation system-related objectives from the County's Official Plan:

- Promote the establishment of a comprehensive and efficient transportation system to move people and goods to support economic development objectives of the County.
- Support and encourage active transportation to contribute to the development of healthy, safe, and complete communities and minimize auto-dependence.



- Optimize the use of existing infrastructure and public facilities prior to considering the development of new infrastructure.

The development of roadway improvements also considered the inputs from the public and the study team to address the future growth areas and builds upon the previously identified recommendations in the Phase 1- Roads Rationalization Study, the Truck bypass briefing by the Town of Shelburne to MTO and the potential truck routes in the Grand Valley Transportation Master Plan Study. To identify capacity deficiencies across various corridors, a screenline analysis of the corridors across the County was also conducted by estimating future traffic volumes and assessing the available capacities along the roadway corridors. According to the Growth Plan for the Greater Golden Horseshoe 2020 report and the Land Needs Analysis Report prepared as part of the County's Municipal Comprehensive Review, about 90% of the future employment and population growth in the County is concentrated within the delineated built-up areas of Grand Valley, Orangeville, and Shelburne. This growth is expected to occur through intensification and expansions of the settlement areas. Thus, the road needs in the growth areas were identified by conducting an area focussed screenline analysis that evaluated the capacities of road corridors bordering these areas.

5.5.2 IDENTIFYING DEFICIENCIES BY SCREENLINE ANALYSIS

1. SCREENLINE ANALYSIS PROCESS

To establish the baseline conditions for the existing roadway network, a screenline analysis of the corridors was conducted for the year 2022 conditions by using the traffic volume data provided by the County for the study. The traffic data provided by the County was collected between the years 2004 and 2022. The traffic count data included volume, class, and speed by direction of travel. Owing to the large size of the County and scattered settlement areas throughout the County, the traffic growth rates were calculated by corridor using the historic counts which were year 2015 and newer for roads without 2022 data. These growth rates were used to develop the existing year 2022 volumes. The traffic growth rates were applied to the most recent counts available on the roadway network corridor. Directional volume proportions and peak hour volumes were estimated based on the traffic volume data.

The roadway capacity was calculated based on the road class hierarchy, as established by the Standard Capacity of Roadways ITE Transportation Planning Handbook (2nd



edition). According to the Handbook, the arterials in rural areas like in the Dufferin County, have a capacity of 1000 vehicles per hour per lane. Per the GIS data provided by the County, all the Dufferin County roads are classified as arterials. For the purpose of the analysis, the provincial highways in the study area were also considered to be having capacity equal to the arterials. The screenline analysis was conducted for the road network across the entire County and around the Towns of Orangeville, Shelburne, and Grand Valley in the east-west and north-south directions to measure the directional network performance across key corridors. The network performance was used to identify problem areas and specific improvements to the existing road network.

The screenlines used for baseline and future scenarios are depicted in **Figure 16**, **Figure 17**, **Figure 18**, and **Figure 19** for the Countywide, Town of Orangeville, Town of Shelburne and Town of Grand Valley, respectively. The roadway transportation network was evaluated based on the volume to capacity ratio ranges which were classified according to the following industry standards:

- At or over road capacity, equivalent to high congestion, yielding a volume to capacity (v/c) ratio greater than or equal to 1.
- Reaching road capacity, equivalent to moderate congestion, yielding a volume to capacity (v/c) ratio between 0.8 and 0.99.
- Available road capacity, equivalent to free-flow conditions or low congestion, yielding a volume to capacity (v/c) ratio between 0 and 0.79.



Figure 16. Countywide Screenline Locations

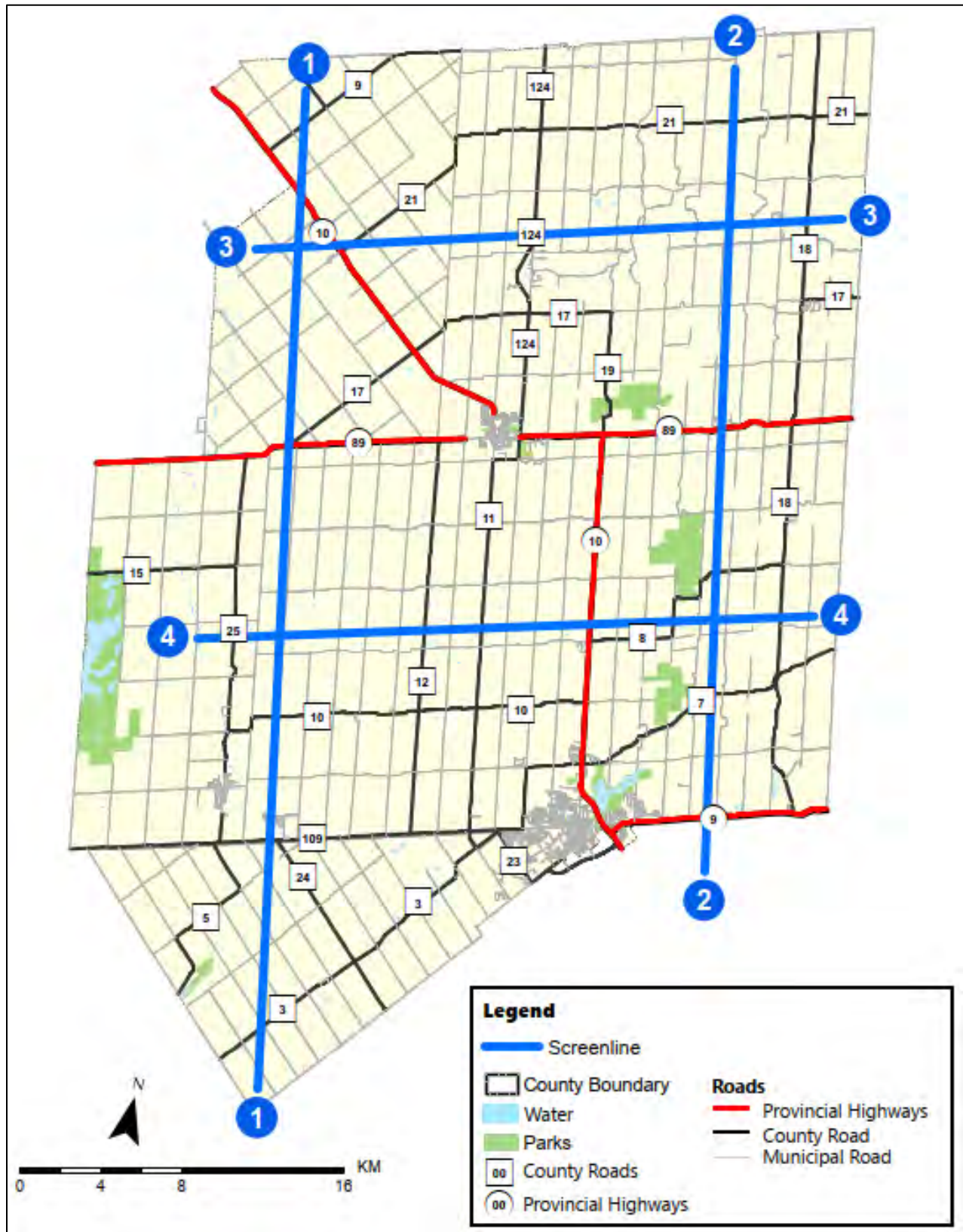




Figure 17. Town of Orangeville Screenline Locations

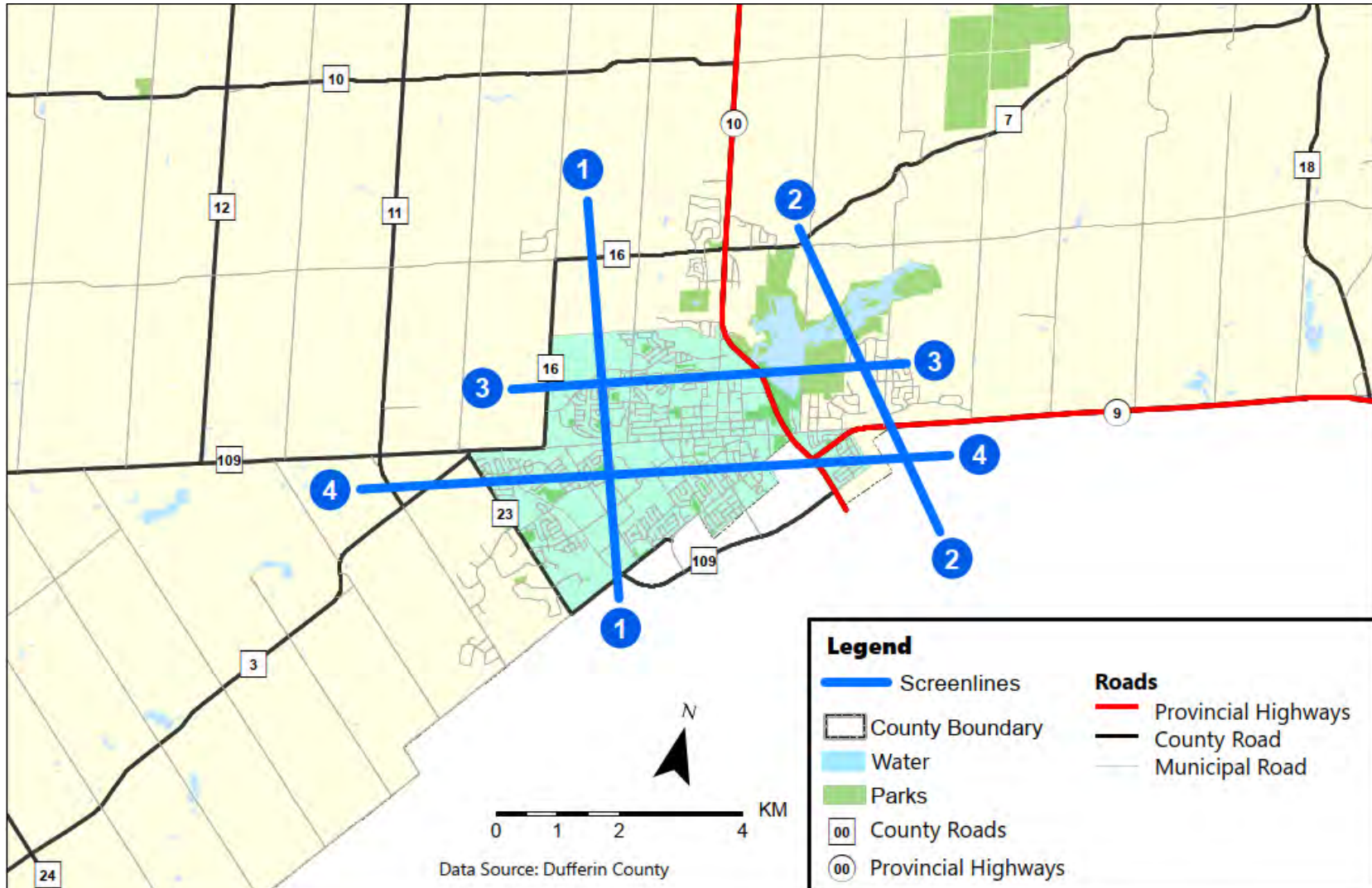


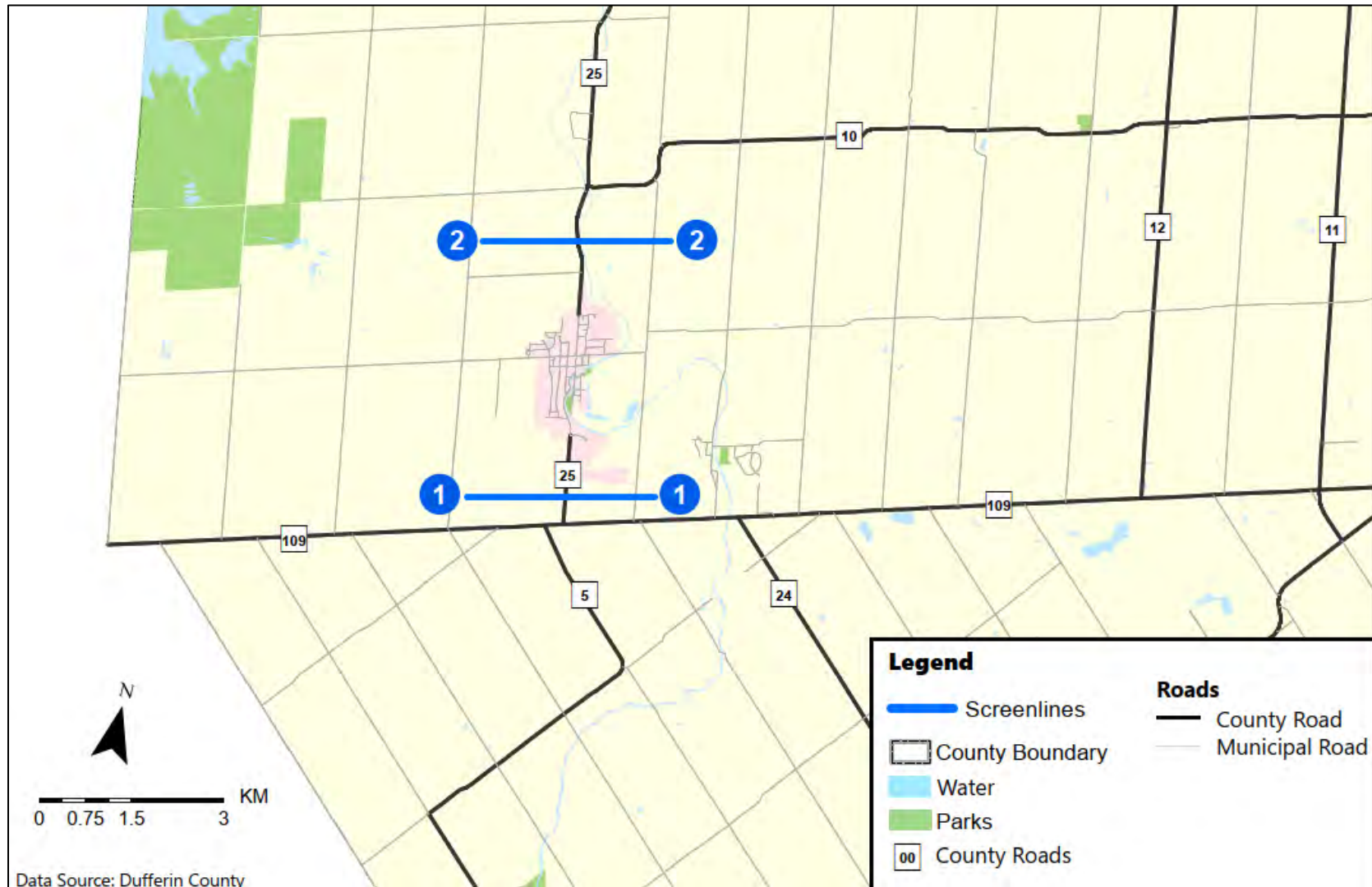


Figure 18, Town of Shelburne Screenline Locations





Figure 19. Town of Grand Valley Screenline Locations





2. BASELINE SCREENLINE ANALYSIS

The screenline volume to capacity (v/c) road network analysis was conducted for the existing year 2022 conditions to establish the baseline operating conditions. **Table 9** summarizes the Countywide screenline assessment based on the aggregate volume and capacity indexes along the respective screenlines and corresponding directions. **Figure 20** and **Figure 21** show the congestion on links crossing the screenline locations based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 9**, the overall network, and all locations along the screenlines are operating at near free-flow conditions with available capacity in the existing conditions. The overall network volume to capacity (v/c) ratio in all directions is 0.17 in the a.m. peak hour and 0.19 in the p.m. peak hour. The Screenline #2 shows the highest v/c of 0.27 in the eastbound direction during the a.m. peak hour and v/c of 0.24 in the westbound direction during the p.m. peak hour. When individual road links along Screenline #2 were examined more closely across the screenline, Highway 9 had the highest v/c ratio of 0.88 in the eastbound direction during the a.m. peak hour and a v/c ratio of 0.73 in the westbound direction during the p.m. peak hour. This indicates that under existing conditions, Highway 9 east of Orangeville is operating at moderate congestion conditions during the a.m. peak period in the eastbound direction and approaching moderate congestion conditions in the westbound direction during the p.m. peak hour. The other roadway links along the Screenline #2 are operating under free flow conditions.



Table 9. Countywide – Existing Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	East Parallel of Dufferin County Road 25/West Parallel of Dufferin County Road 124	EB	6,000	1,004	0.17	1,410	0.24
		WB	6,000	1,252	0.21	1,255	0.21
2	West Parallel of Dufferin County Road 18	EB	5,000	1,374	0.27	1,030	0.21
		WB	5,000	740	0.15	1,188	0.24
3	North Parallel of Highway 89/Dufferin County Road 17	NB	4,000	376	0.09	238	0.06
		SB	4,000	300	0.08	451	0.11
4	North Parallel of Dufferin County Road 109/Dufferin County Road 10	NB	6,000	1,079	0.18	1,373	0.23
		SB	6,000	1,069	0.18	1,199	0.20
Total		EB/WB	22,000	4,370	0.20	4,883	0.22
		NB/SB	20,000	2,824	0.14	3,261	0.16
		All Directions	42,000	7,194	0.17	8,144	0.19



Figure 20. Countywide AM Peak Hour Existing Network Performance

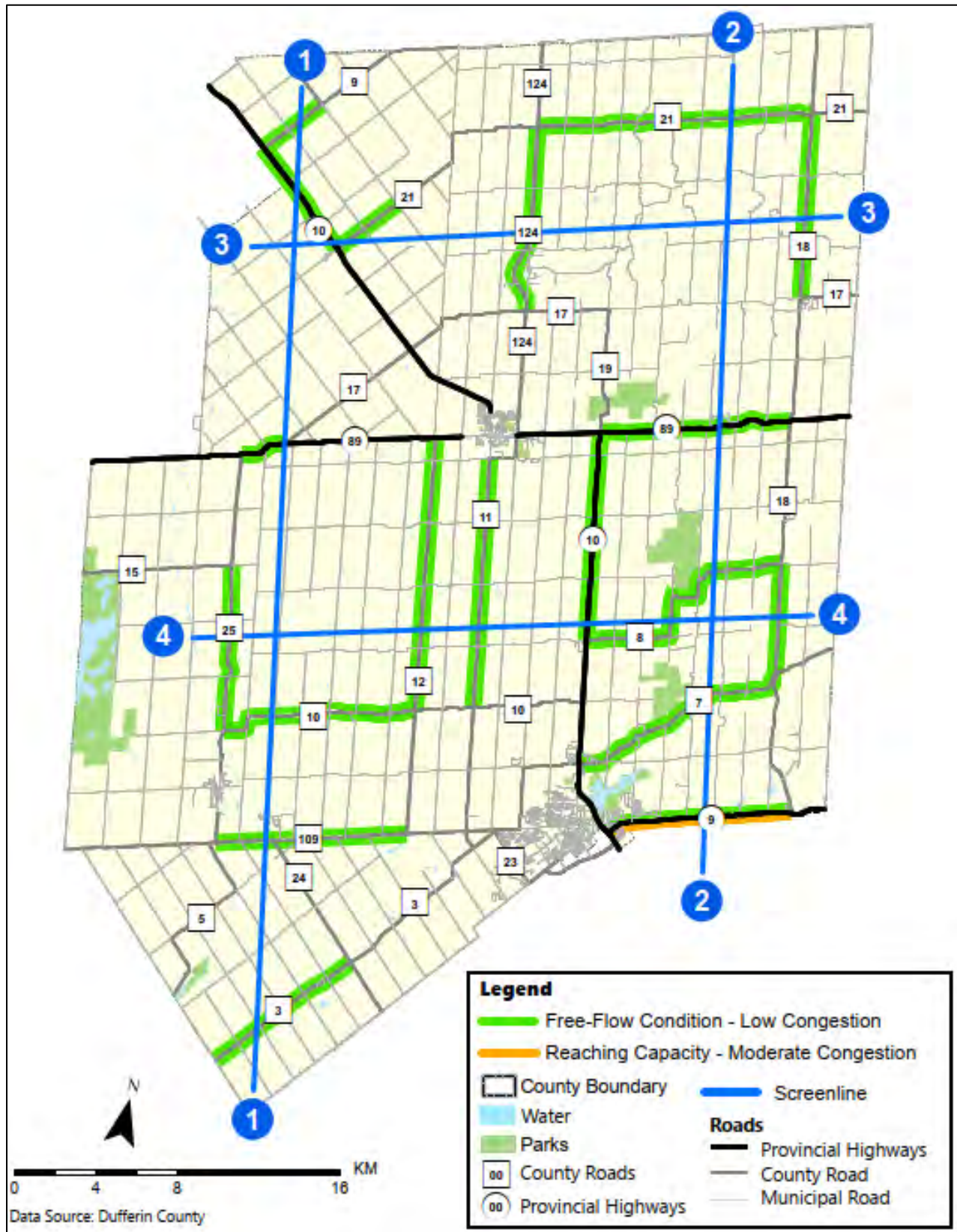




Figure 21. Countywide PM Peak Hour Existing Network Performance





Table 10 summarizes the screenline assessment bordering Town of Orangeville evaluating the operations of the roadways in the immediate vicinity of the Town. **Figure 22** and **Figure 23** shows the congestion on links crossing the screenline locations in Orangeville based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 10**, the overall network, and all locations along the screenlines are operating at near free-flow conditions with available capacity in the existing conditions. The overall network volume to capacity (v/c) ratio in all directions is 0.32 in the a.m. peak hour and 0.39 in the p.m. peak hour. The Screenline #2 shows the highest v/c among all the four screenlines. When individual road links are examined more closely across Screenline #2, this screenline had the highest v/c of 0.88 along Highway 9 in the eastbound direction during the a.m. peak hour and v/c of 0.73 in the westbound direction during the p.m. peak hour. This indicates that under existing conditions, Highway 9 is operating at moderate congestion conditions during both the peak periods in their peak direction of travel.



Table 10. Town of Orangeville – Existing Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	West Parallel of Town of Orangeville	EB	3,000	927	0.31	1,170	0.39
		WB	3,000	868	0.29	1,244	0.41
2	East Parallel of Town of Orangeville	EB	4,000	1,754	0.44	1,686	0.42
		WB	4,000	1384	0.35	1,907	0.48
3	North Parallel of Town of Orangeville	NB	3,000	801	0.27	1090	0.36
		SB	3,000	939	0.31	1065	0.36
4	South Parallel of Town of Orangeville	NB	6,000	1,518	0.25	2,407	0.40
		SB	6,000	2,175	0.36	1,921	0.32
Total		EB/WB	14,000	4,933	0.35	6,007	0.43
		NB/SB	18,000	5,433	0.30	6,483	0.36
		All Directions	32,000	10,366	0.32	12,490	0.39



Figure 22. Orangeville AM Peak Hour Existing Network Performance

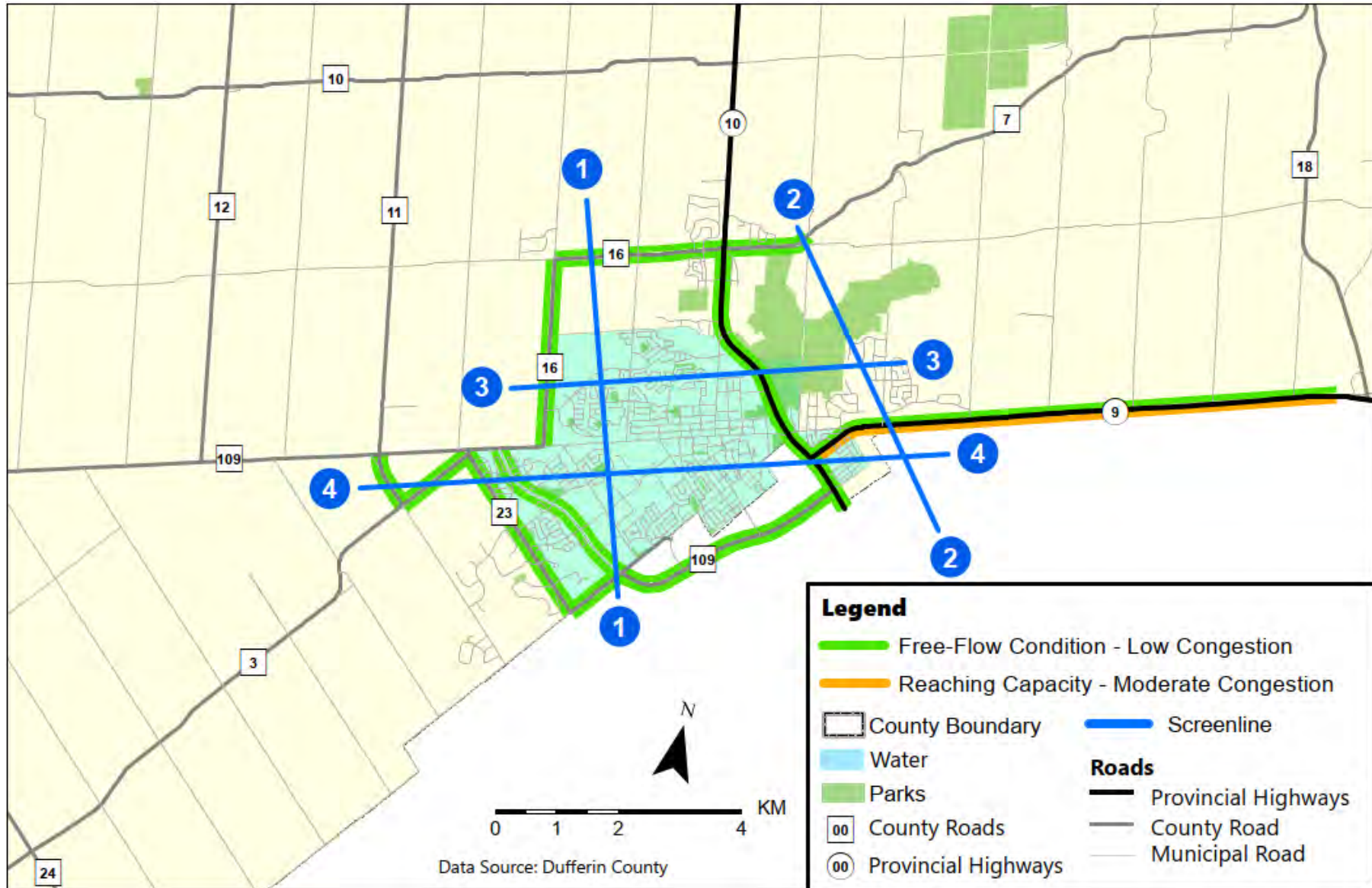




Figure 23. Orangeville PM Peak Hour Existing Network Performance

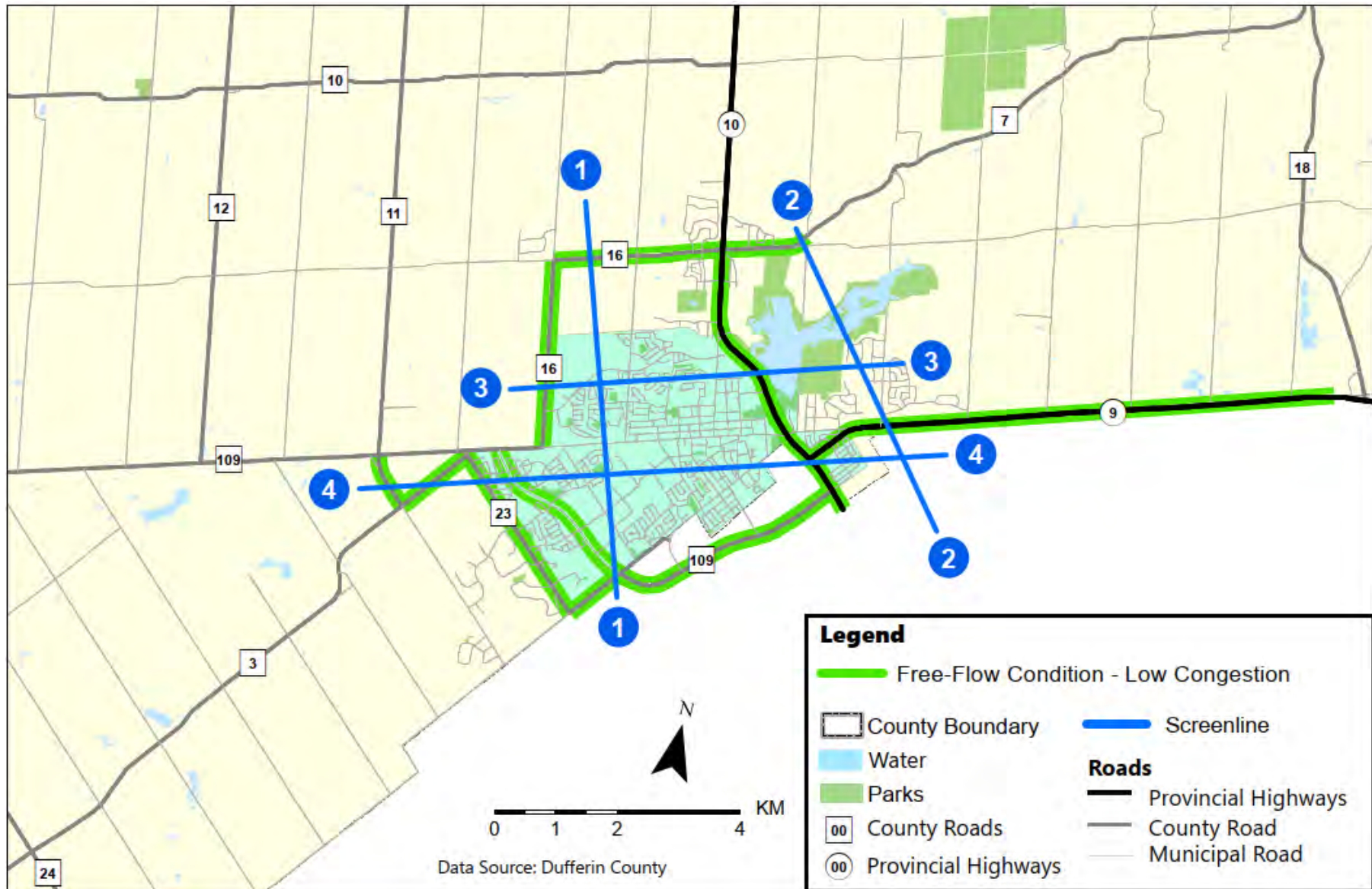




Table 11 summarizes the screenline assessment bordering the Town of Shelburne, evaluating the operations of the roadways in the immediate vicinity of the Town. **Figure 24** and **Figure 25** show the congestion on links crossing the screenline locations in Shelburne based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 11**, the overall network and all locations along the screenlines are operating at near free-flow conditions with available capacity in the existing conditions. The overall network volume to capacity (v/c) ratio in all directions is 0.20 in the a.m. peak hour and 0.22 in the p.m. peak hour. When individual road links are examined more closely across the various screenlines, Highway 10 along Screenline #1 & #3, had the highest v/c of 0.84 in the eastbound direction during the p.m. peak hour, operating under moderate congested conditions. The Town of Shelburne also experiences heavy truck traffic. According to a 2015 traffic study conducted by the Town, the vehicle traffic in the downtown area along Highway 10/89, is between 850 to 1200 vehicles per peak hour, with approximately 50% of the traffic being truck traffic. It is also showed by a 2008 MTO study, that 90-95% of the truck traffic is through traffic. The year 2016 MTO traffic count data shows that on Highway 10 north of Shelburne, there are a total of 710 average daily trucks (11%) of the total 6,450 vehicles (AADT), there are 2,100 (10%) average daily trucks on Highway 10/89 east of Shelburne and 440 (10%) average daily trucks on Highway 89 west of Shelburne. The Town is concerned about the impacts of the truck traffic on the safety and quality of life of its citizens and had identified various truck bypass options, that could reduce the truck traffic through the town and thus improve the operating capacity on Highway 10 and Highway 89 through the Town along with improving the safety for the residents.



Table 11. Town of Shelburne – Existing Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	West Parallel of Town of Shelburne	EB	3,000	859	0.29	1,014	0.34
		WB	3,000	915	0.31	1,013	0.34
2	East Parallel of Town of Shelburne	EB	3,000	791	0.26	697	0.23
		WB	3,000	634	0.21	783	0.26
3	North Parallel of Town of Shelburne	NB	4,000	312	0.08	355	0.09
		SB	4,000	300	0.08	325	0.08
4	South Parallel of Town of Shelburne	NB	3,000	582	0.19	934	0.31
		SB	3,000	786	0.26	662	0.22
Total		EB/WB	12,000	3,199	0.27	3,507	0.29
		NB/SB	14,000	1,980	0.14	2,276	0.16
		All Directions	26,000	5,179	0.20	5,783	0.22



Figure 24. Shelburne AM Peak Hour Existing Network Performance

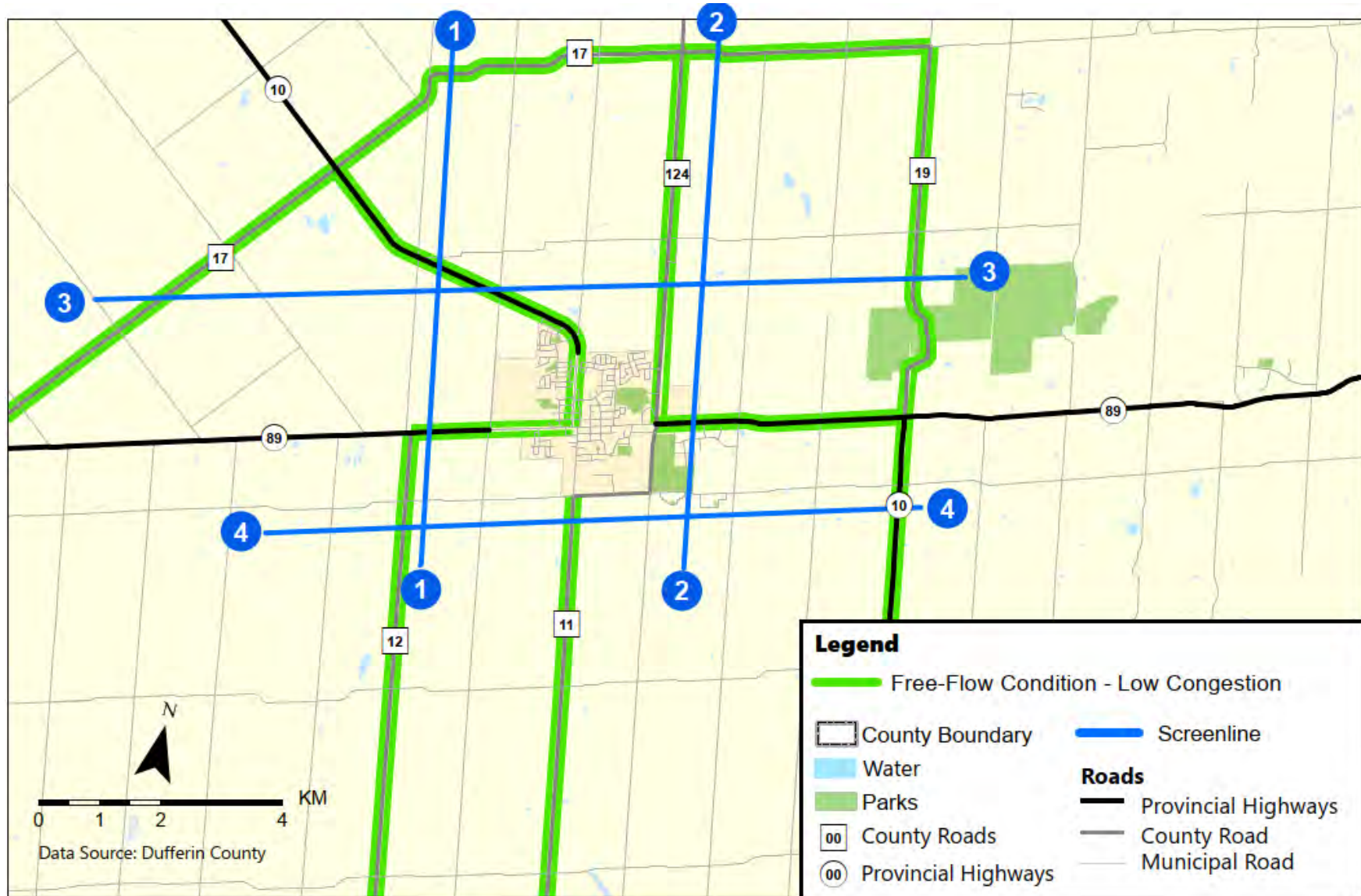




Figure 25. Shelburne PM Peak Hour Existing Network Performance

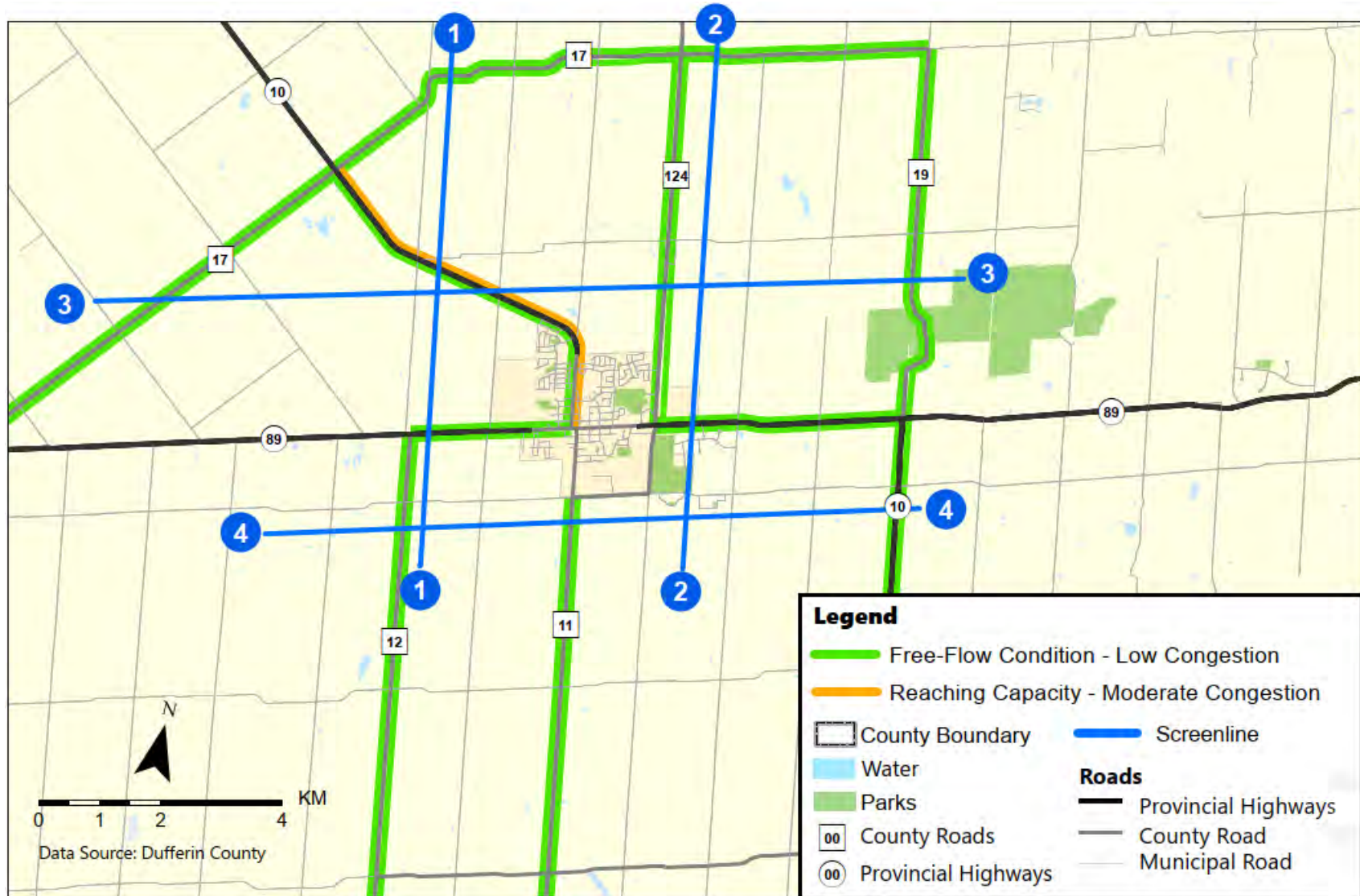




Table 12 summarizes the screenline assessment bordering the Town of Grand Valley, evaluating the operations of the roadways in the immediate vicinity of the Town. **Figure 26** and **Figure 27** show the congestion on links crossing the screenline locations along Dufferin County Road 25 in Grand Valley area based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 12**, Dufferin County Road 25 is operating under free flow conditions to the north and south of the Town of Grand Valley. There are an estimated 260 average daily trucks (4.1% of total traffic) along Dufferin County Road 25 south of Grand Valley in the year 2022. About 11.5% or 320 average daily trucks travel on Dufferin County Road 25 north of the Town of Grand Valley. It is to be noted that the Town is concerned about the impacts of the truck traffic on the safety and quality of life of its citizens as well as the operating capacity of the roadways through the Town. In light of this, the Town of Grand Valley has proposed a truck bypass for diverting the truck traffic away from the urban centre of the Town.

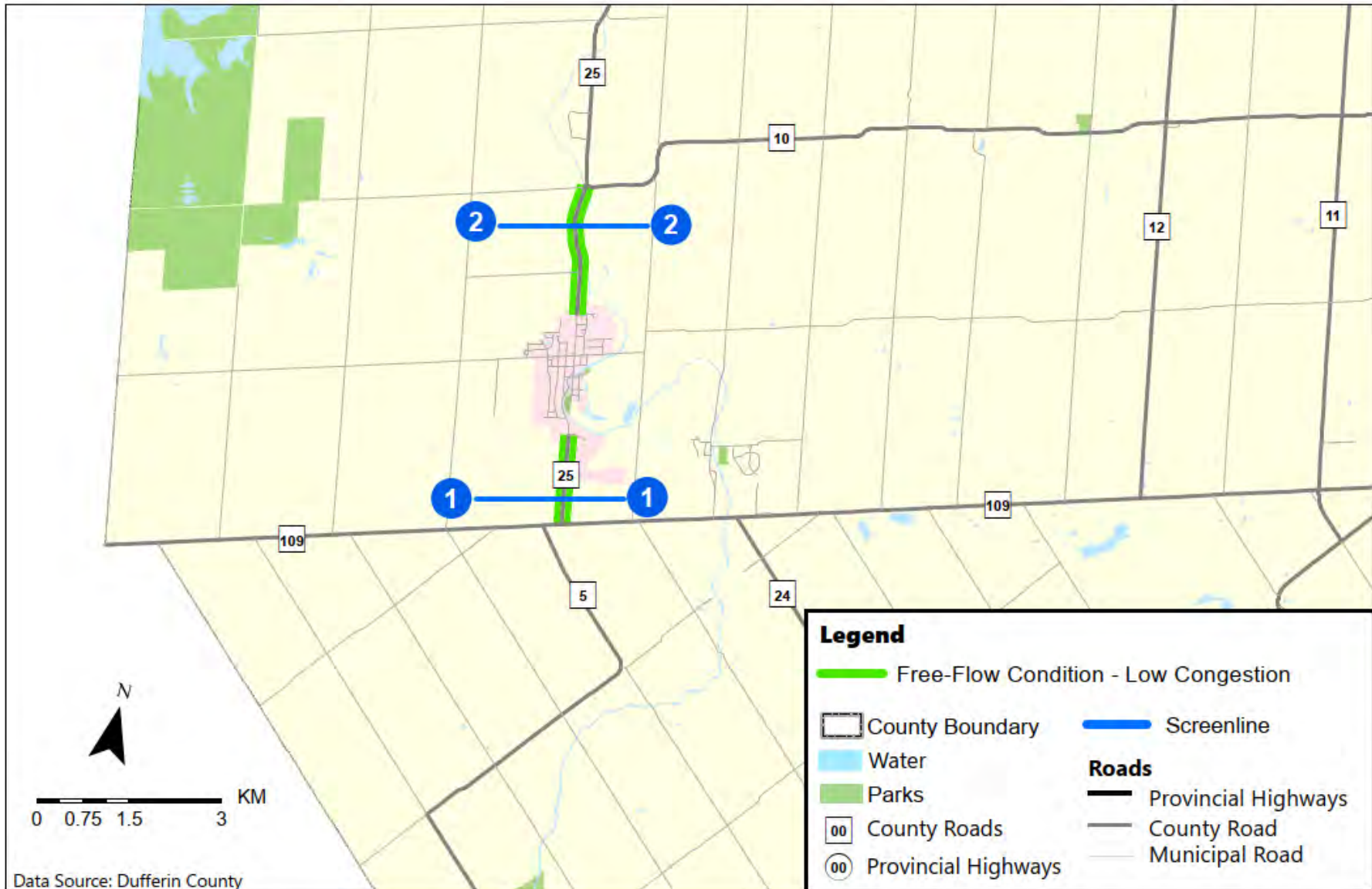


Table 12. Town of Grand Valley – Existing Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	South Parallel of Town of Grand Valley	NB	1,000	196	0.20	312	0.31
		SB	1,000	214	0.21	232	0.23
2	North Parallel of Town of Grand Valley	NB	1,000	126	0.13	64	0.06
		SB	1,000	67	0.07	176	0.18
Total		NB/SB	4,000	603	0.15	784	0.20



Figure 26. Grand Valley AM Peak Hour Existing Network Performance



Data Source: Dufferin County



Figure 27. Grand Valley PM Peak Hour Existing Network Performance





3. YEAR 2051 SCREENLINE ANALYSIS

To assess the future year performance of the transportation network, the v/c ratios were calculated across the same screenlines as in the baseline conditions, by estimating the future volumes along these corridors, using the historical traffic growth rates to project the year 2051 traffic volumes. The Land Needs Analysis Report prepared as part of the 2023 MCR study has allocated the future population and employment growth to mainly the areas within the Towns of Orangeville, Shelburne, and Grand Valley. Upon review of the historical population growth in these areas and the allocated new growth, it is observed that the population growth allocated in the Towns of Orangeville and Shelburne and the entire Dufferin County for year 2051 is less than the population estimated using historical growth trends. However, the population growth allocated to Grand Valley is more than the population estimated using the existing historical growth trend. Therefore, historical traffic growth rates were used to project to year 2051 traffic volumes for all roadways within Dufferin County, except for Dufferin County Road 25 in the Town of Grand Valley, where additional trips were assigned to Dufferin County Road 25 based on the allocated population and employment growth. The additional trips for the Town of Grand Valley were estimated using the ITE Trip Generation Handbook and the number of dwelling units and jobs allocated to Town of Grand Valley. The calculated trips were then assigned to the various screenline locations based on the year 2016 Transportation Tomorrow Survey's trip distribution data. Thus, the year 2051 projected traffic volumes accounted for all the potential traffic growth in the study area.

The year 2051 screenline analysis was performed for the do-nothing roadway network alternative, using the same roadway capacities that are in the baseline conditions and projected year 2051 traffic volumes.

Table 13 shows the Countywide screenline analysis results. **Figure 28** and **Figure 29** show the congestion on links crossing the Countywide screenline locations based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 13**, the overall network and all locations along the screenlines are operating at near free-flow conditions with an available capacity in the future year 2051 conditions. The overall network volume to capacity (v/c) ratio in all directions is 0.32 in the a.m. peak hour and 0.37 in the p.m. peak hour. However, when individual links across various screenlines are examined, the volumes are exceeding the capacity for



Dufferin County Roads 109, 11 and Highway 9. Dufferin County Road 109 along Screenline #1 is projected to operate at v/c ratio greater than 1.0 in the westbound direction in the a.m. peak hour and in the eastbound direction in the p.m. peak hour, indicating that additional capacity is required along this corridor to accommodate future growth. Dufferin County Road 109 is being examined as part of this TMP, as well as in more detail in a concurrent Schedule C Environmental Assessment, to determine the most appropriate Dufferin County road network to facilitate development and accommodate growth in this part of Dufferin County. Along Screenline #2, Highway 9 is projected to operate under congested conditions, with volumes exceeding capacity in the peak direction of travel during the peak periods. Dufferin County Road 11 along Screenline #4 is projected to operate under congested conditions in the northbound direction during the a.m. peak hour and in the southbound direction during the p.m. peak hour. However, it is to be noted that Highway 10, which is parallel to Dufferin County Road 11, has adequate capacity and will be a preferable option for travel between Orangeville and Shelburne in the north-south direction.



Table 13. Countywide – Year 2051 Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	East Parallel of Dufferin County Road 25/West Parallel of Dufferin County Road 124	EB	6,000	1,860	0.31	2,692	0.45
		WB	6,000	2,373	0.40	2,361	0.39
2	West Parallel of Dufferin County Road 18	EB	5,000	2,226	0.45	1,761	0.35
		WB	5,000	1,182	0.24	1,917	0.38
3	North Parallel of Highway 89/ Dufferin County Road 17	NB	4,000	709	0.18	535	0.13
		SB	4,000	590	0.15	820	0.21
4	North Parallel of Dufferin County Road 109/ Dufferin County Road 10	NB	6,000	2,416	0.40	2,917	0.49
		SB	6,000	2,194	0.37	2,683	0.45
Total		EB/WB	22,000	7,641	0.35	8,731	0.40
		NB/SB	20,000	5,909	0.30	6,955	0.35
		All Directions	42,000	13,550	0.32	15,686	0.37



Figure 28. Countywide AM Peak Hour Year 2051 Network Performance

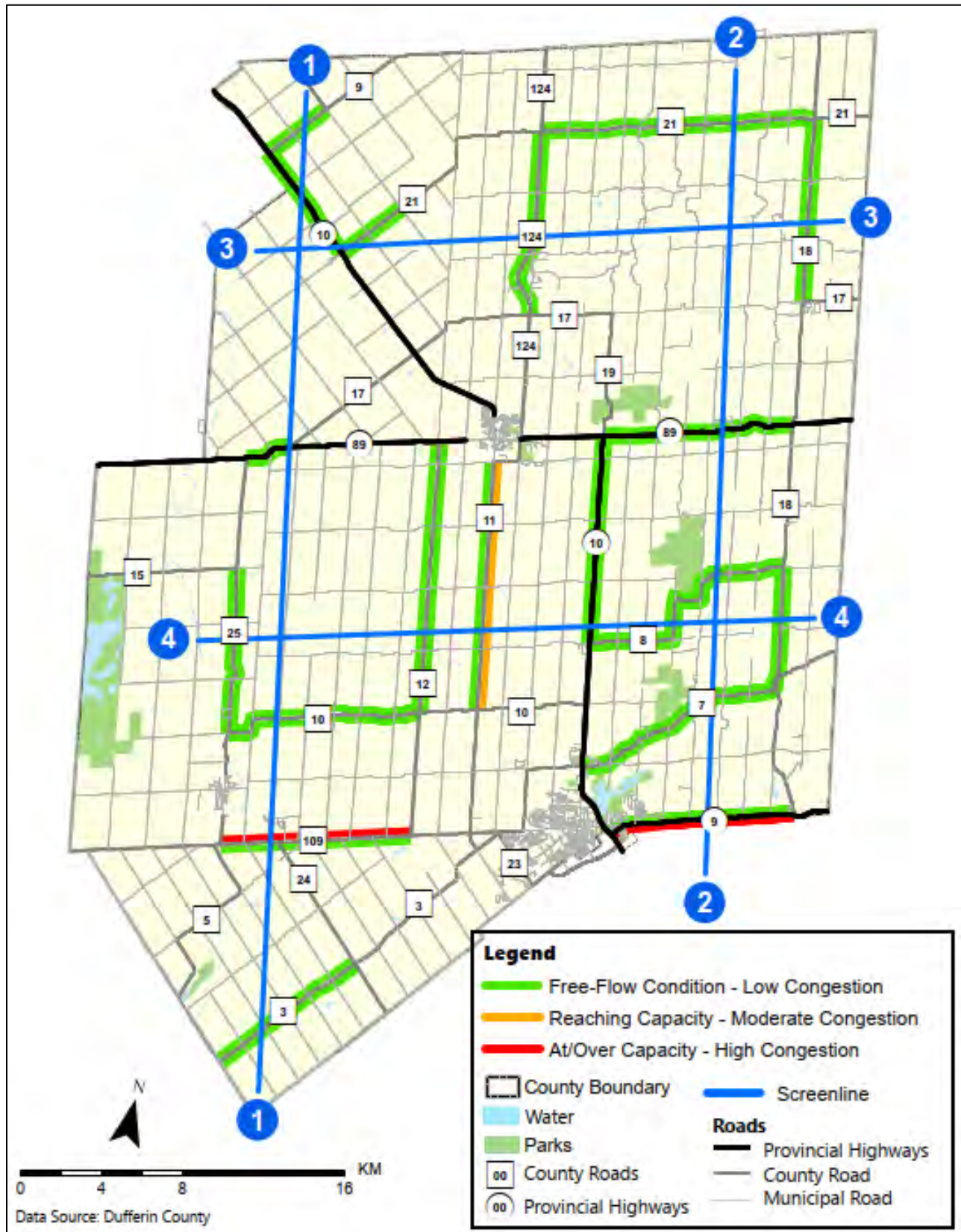




Figure 29. Countywide PM Peak Hour Year 2051 Network Performance

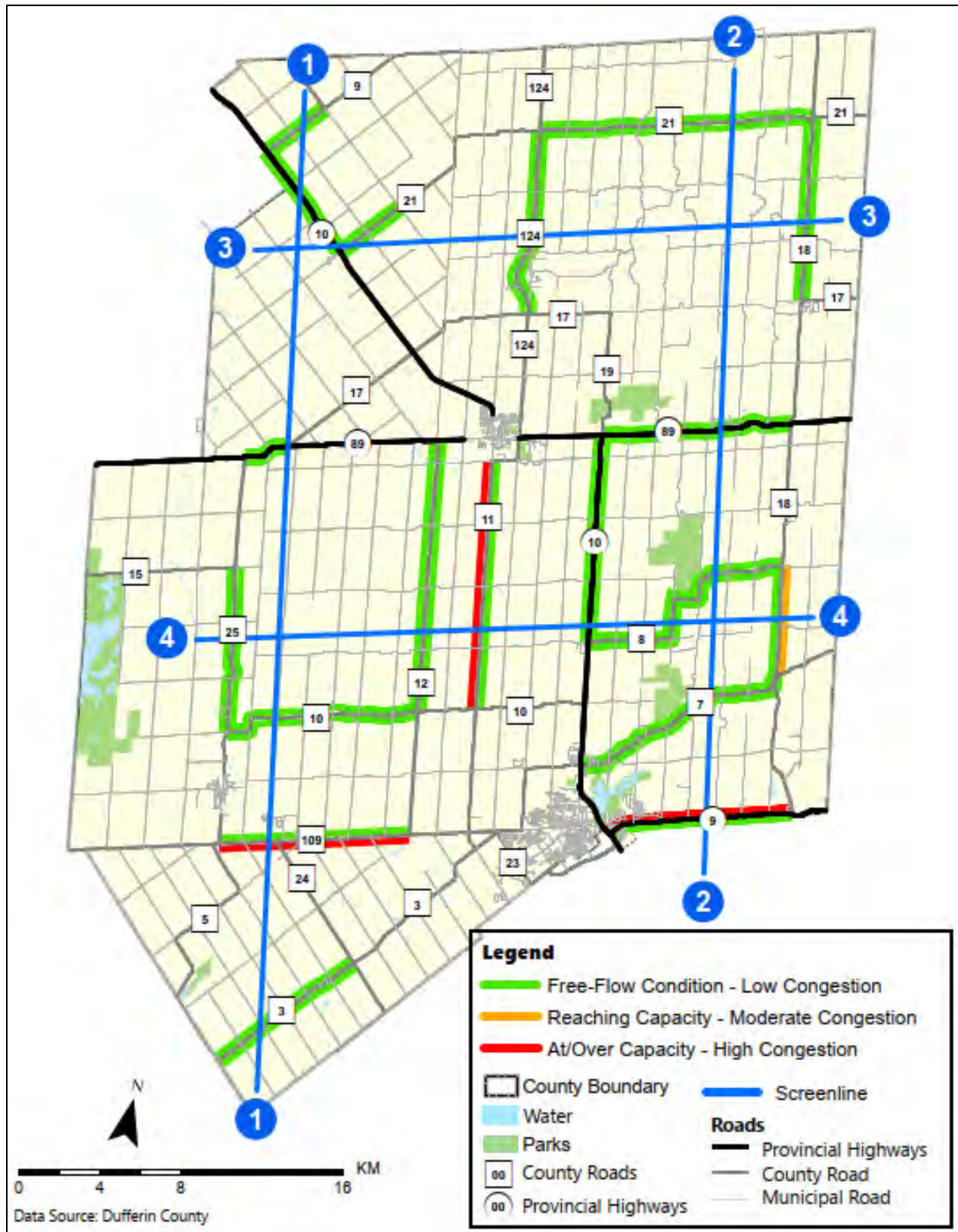




Table 14 summarizes the screenline assessment conducted surrounding the boundary of Town of Orangeville for the year 2051. **Figure 30** and **Figure 31** show the congestion on links crossing the Orangeville screenline locations based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 14**, the overall east-west direction of travel is reaching road capacity and is operating at moderate congested conditions. Screenline #1 is operating under congested conditions with volumes exceeding the capacity in the year 2051 during both the peak hours. When individual links are examined, Dufferin County roads 7, 16, 23, 109 and Highway 9 are operating at congested conditions during the p.m. peak hour. Dufferin County Road 109 and Highway 9 also are forecast to operate at congested conditions during the a.m. peak hour. It is evident that additional capacities are required along Dufferin County Road 109 and Highway 9 to accommodate the future traffic growth.



Table 14. Town of Orangeville – Year 2051 Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	West Parallel of Town of Orangeville	EB	3,000	3,970	1.32	3,702	1.23
		WB	3,000	2,962	0.99	3,931	1.31
2	East Parallel of Town of Orangeville	EB	4,000	3,049	0.76	2,910	0.73
		WB	4,000	2647	0.66	3,350	0.84
3	North Parallel of Town of Orangeville	NB	3,000	1680	0.56	1751	0.58
		SB	3,000	3399	1.13	1747	0.58
4	South Parallel of Town of Orangeville	NB	6,000	3,370	0.56	4,585	0.76
		SB	6,000	5,431	0.91	3,532	0.59
Total		EB/WB	14,000	12,628	0.90	13,893	0.99
		NB/SB	18,000	13,880	0.77	11,615	0.65
		All Directions	32,000	26,508	0.83	25,508	0.80



Figure 30. Orangeville AM Peak Hour Year 2051 Network Performance

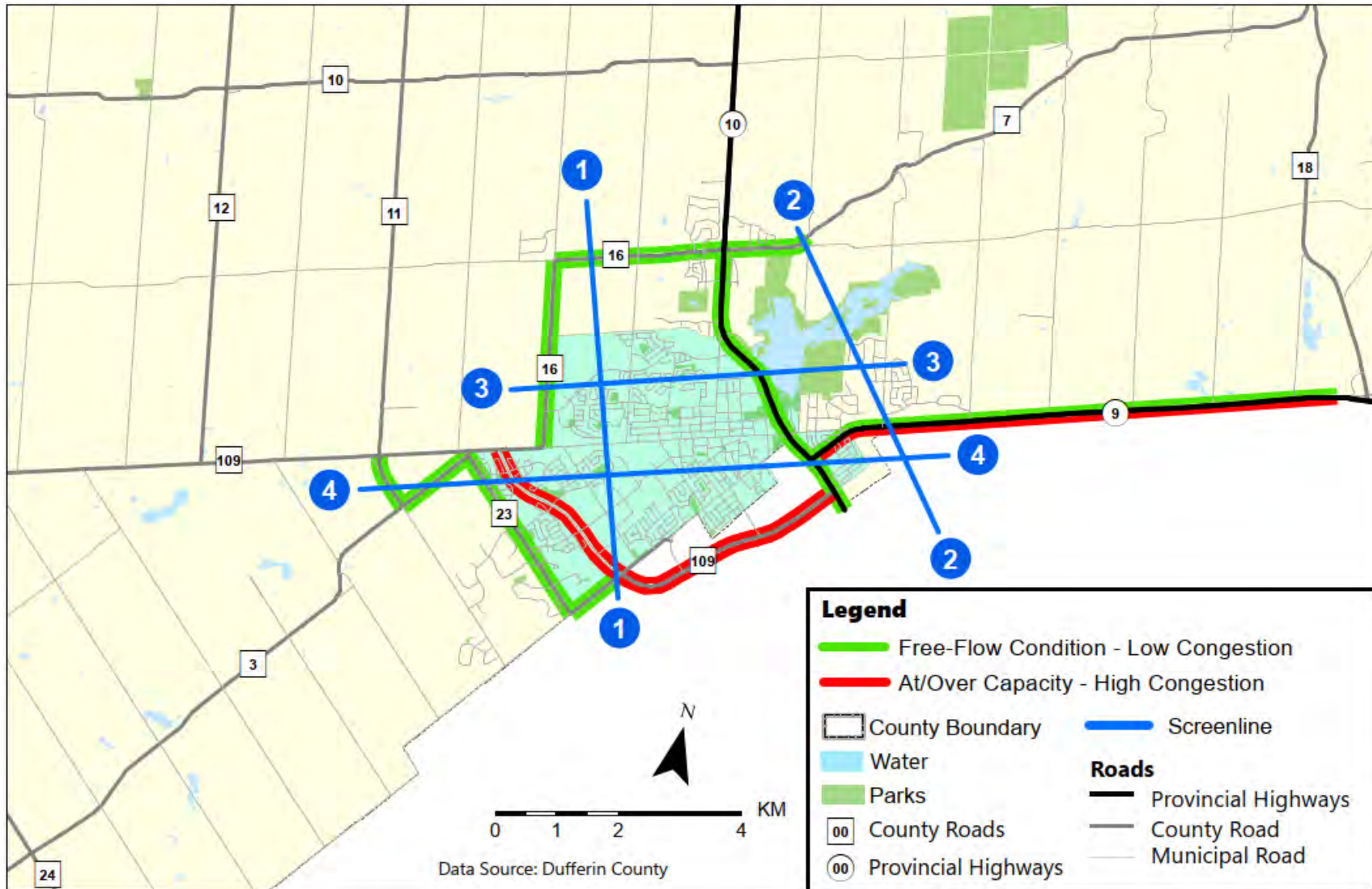




Figure 31. Orangeville PM Peak Hour Year 2051 Network Performance

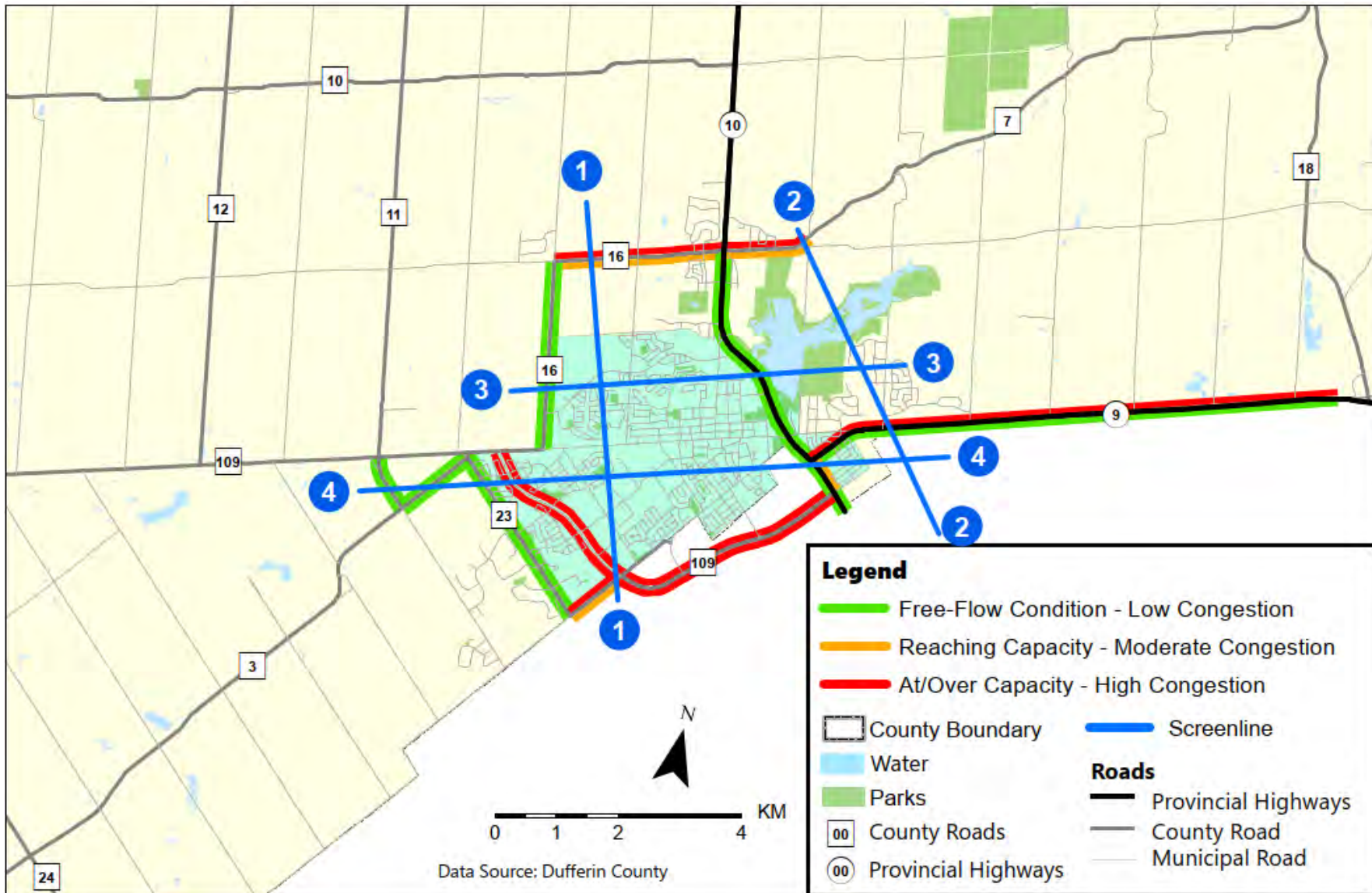




Table 15 summarizes the screenline assessment conducted surrounding the boundary of the Town of Shelburne for the year 2051. **Figure 32** and **Figure 33** show the congestion on links crossing the Shelburne screenline locations based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in **Table 15**, the overall network in the vicinity of Town of Shelburne has enough capacity to accommodate the future growth. However, when individual roadway links are examined, Highway 10 is operating under congested conditions with volumes exceeding the capacity along Screenlines 1 and 3. Along Screenline #4, Dufferin County Road 11 will also operate under congested conditions with volumes exceeding capacity in the northbound direction during the p.m. peak hour.



Table 15. Town of Shelburne – Year 2051 Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	West Parallel of Town of Shelburne	EB	3,000	1,203	0.40	1,398	0.47
		WB	3,000	1,254	0.42	1,416	0.47
2	East Parallel of Town of Shelburne	EB	3,000	1,091	0.36	993	0.33
		WB	3,000	882	0.29	1,087	0.36
3	North Parallel of Town of Shelburne	NB	4,000	644	0.16	763	0.19
		SB	4,000	627	0.16	707	0.18
4	South Parallel of Town of Shelburne	NB	3,000	1,170	0.39	2,130	0.71
		SB	3,000	1,718	0.57	1,259	0.42
Total		EB/WB	12,000	4,430	0.37	4,894	0.41
		NB/SB	14,000	4,159	0.30	4,859	0.35
		All Directions	26,000	8,589	0.33	9,753	0.38



Figure 32. Shelburne AM Peak Hour Year 2051 Network Performance

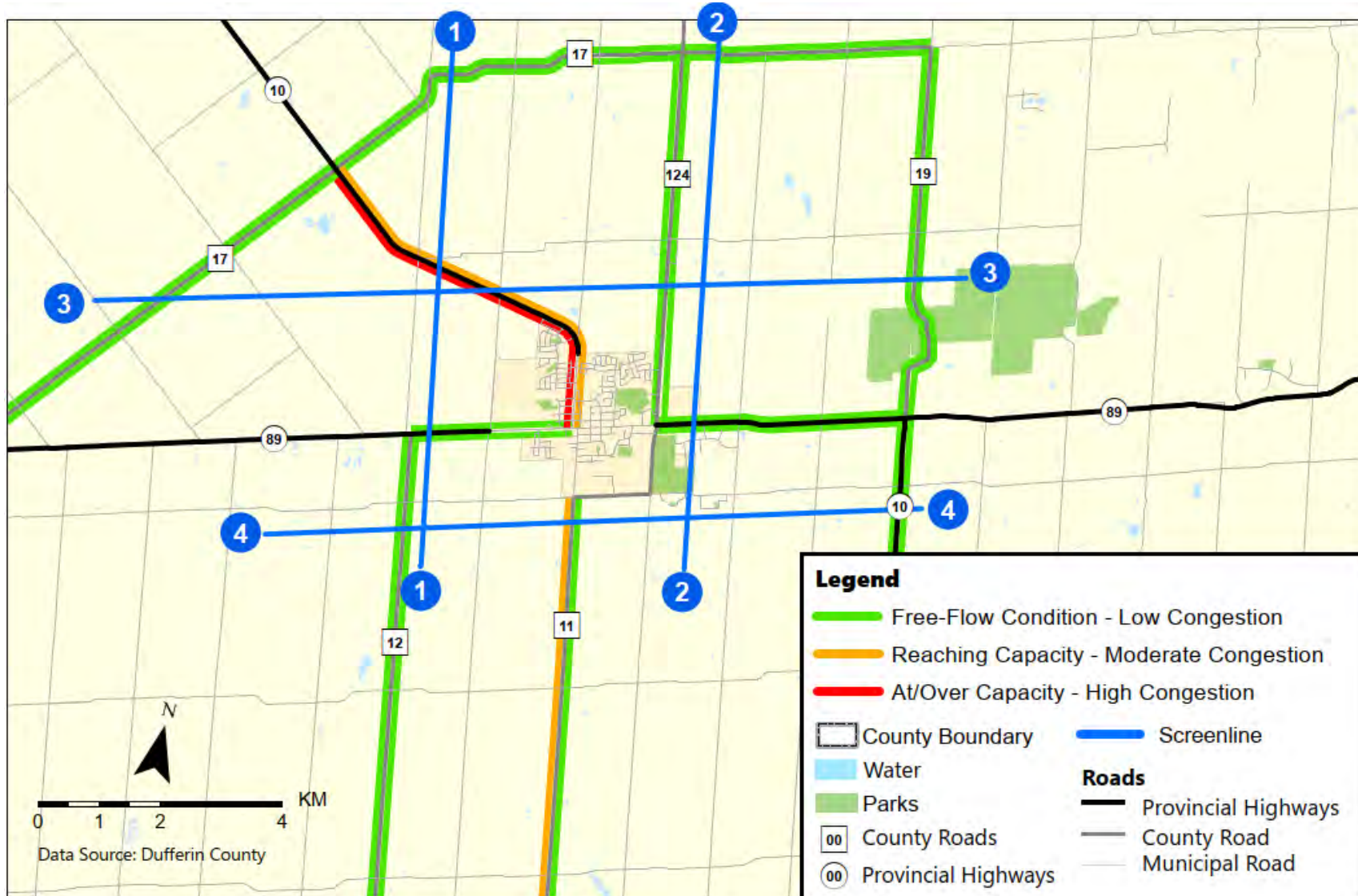




Figure 33. Shelburne PM Peak Hour Year 2051 Network Performance

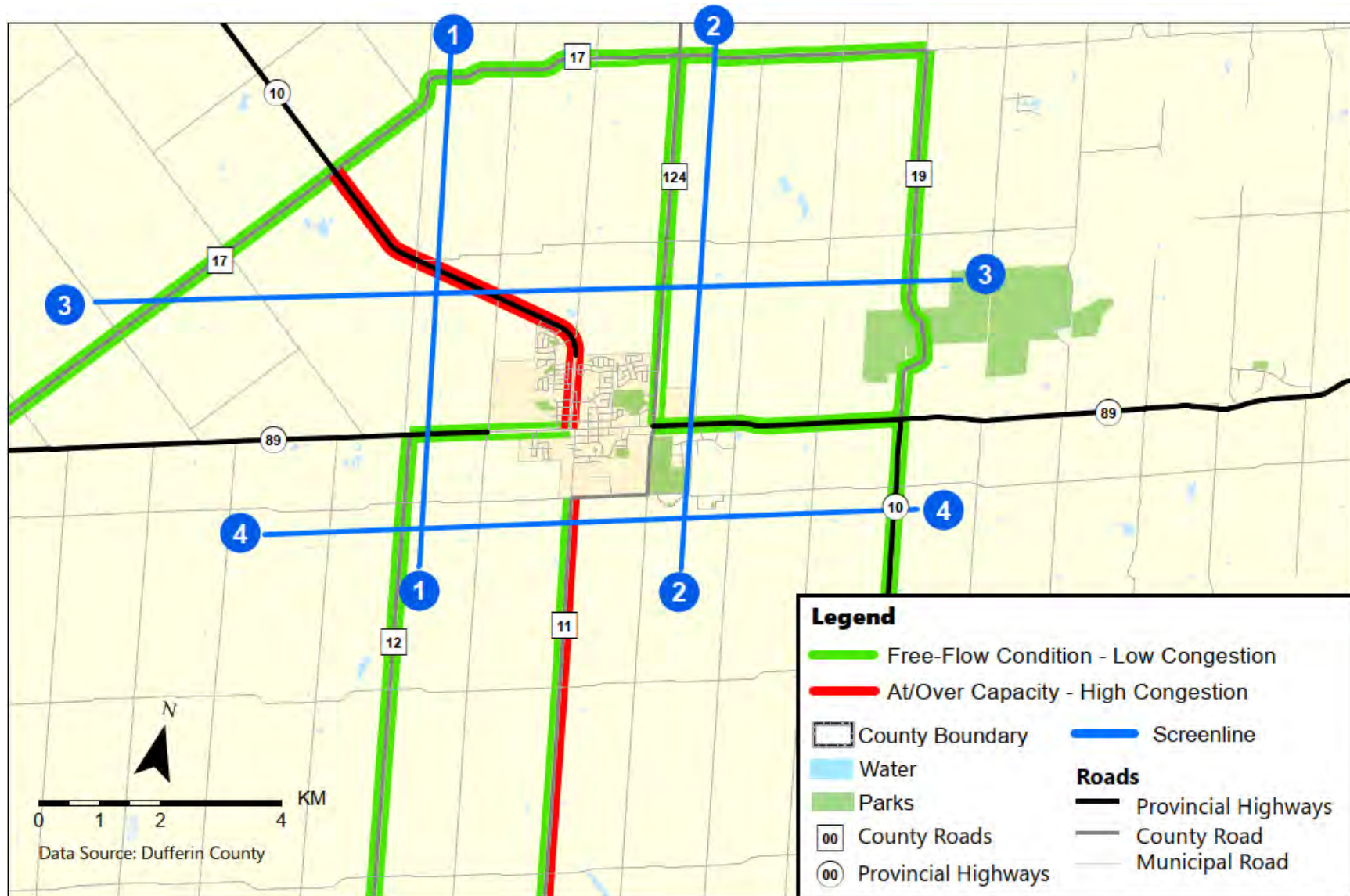




Table 16 summarizes the screenline assessment for the two screenlines to the south and north of Town of Grand Valley. **Figure 34** and **Figure 35** show the congestion on links crossing the Grand Valley screenline locations based on volume to capacity values for the a.m. and p.m. peak hours, respectively.

As shown in the **Table 16**, Dufferin County Road 25 is operating under congested conditions in both directions during both peak hours south of the Town. To the north of the Town, Dufferin County Road 25 operates under congested conditions in both directions during the p.m. peak period.

Based on the screenline assessment of the future year 2051 conditions, the Countywide transportation network would have capacity to accommodate the future traffic growth away from the settlement areas. However, the roadway network such as Dufferin County Roads 11, 16, 25, and 109, and Highways 9, and 10/89 would operate under congested conditions in the vicinity of Towns of Orangeville, Shelburne and Grand Valley with volumes exceeding the available capacity.



Table 16. Town of Grand Valley – Year 2051 Conditions Screenline Analysis

Screenline	Location	Direction	Capacity	AM Peak Hour		PM Peak Hour	
				Volume	Volume to Capacity Ratio	Volume	Volume to Capacity Ratio
1	South Parallel of Town of Grand Valley	NB	1,000	1,330	1.33	1,192	1.19
		SB	1,000	1,453	1.45	1,262	1.26
2	North Parallel of Town of Grand Valley	NB	1,000	661	0.66	1,027	1.03
		SB	1,000	722	0.72	1,288	1.29
Total		NB/SB	4,000	4,166	1.04	4,769	1.19



Figure 34. Grand Valley AM Peak Hour Year 2051 Network Performance





Figure 35. Grand Valley PM Peak Hour Year 2051 Network Performance





5.5.3 IDENTIFYING NETWORK ALTERNATIVES

This section describes the identification of roadway network alternatives based on the screenline assessment for various areas within the County, the findings from Phase 1-Roads Rationalization Study, and inputs from the study team. Three roadway network alternative future scenarios to the year 2051 were developed to address Phase 2 of the Municipal Class Environmental Assessment (MCEA) process. The three alternative scenarios are as follows:

- Alternative 1 (Do-Nothing): Existing Road network, no expansion of arterial/collector roads;
- Alternative 2: Only improvements to the roadway network based on the screenline analysis results; and
- Alternative 3: Improvements to the roadway network based on screenline analysis results, future connectivity and reducing congestion and truck traffic through the settlement areas.

1. ALTERNATIVE 1 (DO-NOTHING)

This scenario assumes that there will not be any change in the existing roadways. The existing transportation network of collectors and arterial roads will be maintained as it is currently until the year 2051. Under this alternative, although the Countywide transportation network is expected to have capacity to accommodate the future growth in traffic for the travel that is away from the settlement areas, the primary corridors in the vicinity of the settlement areas of the Towns of Orangeville, Shelburne and Grand Valley will experience congested conditions during peak periods. Under this alternative, the roadway network in and around the settlement areas will be operating under congested conditions.

2. ALTERNATIVE 2

This scenario assumes existing network of collector and arterial roads along with roadway improvements addressing the deficiencies identified in the screenline assessment for the year 2051. The following roadway improvements are included as part of this alternative:



- Widening of Dufferin County Road 109 to 4-lane roadway between Dufferin County Road 25 and Highway 10.
- Widening of Dufferin County Road 16 to 4-lane roadway between Highway 10 and Mono Amaranth Townline Road.
- Widening of Dufferin County Road 7 to 4-lane roadway between Highway 10 and Side Road 5.
- Widening of Dufferin County Road 25 to 4-lane roadway between Dufferin County Road 109 and Dufferin County Road 10.

Besides the above improvements on Dufferin County Roads, the following improvements along provincial highways are also needed to accommodate the future traffic growth:

- Widening of Highway 9 to 4-lane roadway from Highway 10 to Dufferin County Road 18.
- Widening of Highway 10 to 4-lane roadway between Side Road 15/Mono Center Road and Highway 89.
- Widening of Highway 10 to 4-lane roadway between Highway 89 and Dufferin County Road 17.
- Widening of Highway 89/Highway 10/Main St to 4-lane roadway between Owen Sound Street and Greenwood Street.

Figure 36 shows the Alternative 2 roadway improvements.



Figure 36. Alternative 2 Roadway Improvements





3. ALTERNATIVE 3

This scenario assumes the existing network of collector and arterial roads plus roadway improvements to address deficiencies in the year 2051 screenline assessment along with the improvements to the traffic through the settlement areas of the Town of Shelburne and the Town of Grand Valley.

As discussed in **Section 2.4.5**, the Town of Shelburne is considering a truck bypass route for the trucks traveling through the Town on Highways 10 and 89. The screenline capacity analysis of future conditions shows at or over capacity conditions on Highway 10. The need for a solution for truck traffic through Shelburne has been the most persistent request heard through consultation on this project. As the by-pass would be addressing concerns with Highways 10 and 89, the project would be led by the Ministry of Transportation. Alternative 3 shows a bubble encompassing Shelburne to indicate that a solution in the form of a by-pass is a recommendation and vital outcome of this alternative.

The trucks constitute a total of four percent of the total vehicles (200-250 trucks per day) that travel along Dufferin County Road 25 through Grand Valley on an average weekday. The presence of trucks on the Town roads is a cause of safety and congestion concerns through the Town. The Town of Grand Valley TMP and the Town's OP identifies two potential north/south routes for trucks to bypass the Town in existing rights-of-way and some options for new road construction. One route on the east side of the Town is to use the Amaranth East Luther Townline Road between Dufferin County Road 109 and Dufferin County Road 10 and the other is to use the Sideroad 27 & 28 on the westside of the Town. Currently, the Sideroad 27& 28 is a gravel road between Dufferin County Road 109 and Concession Road 5, where it can connect back to Dufferin County Road 25. The Amaranth East Luther Townline Road is paved north of Amaranth Street and connects back to Dufferin County Road 25 by traveling on Dufferin County Road 10 that connects Amaranth East Luther Townline Road and Dufferin County Road 25. Options for new road construction to traverse on the west side of the community have been considered but have been precluded by recent development and development applications.

It is recommended that a truck bypass be constructed on the east side of the Town using the Amaranth East Luther Townline Road between Dufferin County Road 109 and



Dufferin County Road 10. Doing so will enable the Town to develop a stronger community feel on its north-south main street. Most bypass traffic is coming from or destined to points east of Grand Valley, which makes the bypass on the eastern edge more appropriate than the potential bypass on the western edge using Sideroad 27&28.

In this alternative the following roadway improvements (County Initiatives) are included:

- Widening of Dufferin County Road 109 to 4-lane roadway between Dufferin County Road 25 and Highway 10;
- Widening of Dufferin County Road 16 to 4-lane roadway between Highway 10 and Mono Amaranth Townline Road;
- Widening of Dufferin County Road 7 to 4-lane roadway between Highway 10 and Side Road 5; and
- Construct a new two-lane road along Amaranth East Luther Townline to bypass Grand Valley, from Dufferin County Road 109 to Dufferin County Road 10.

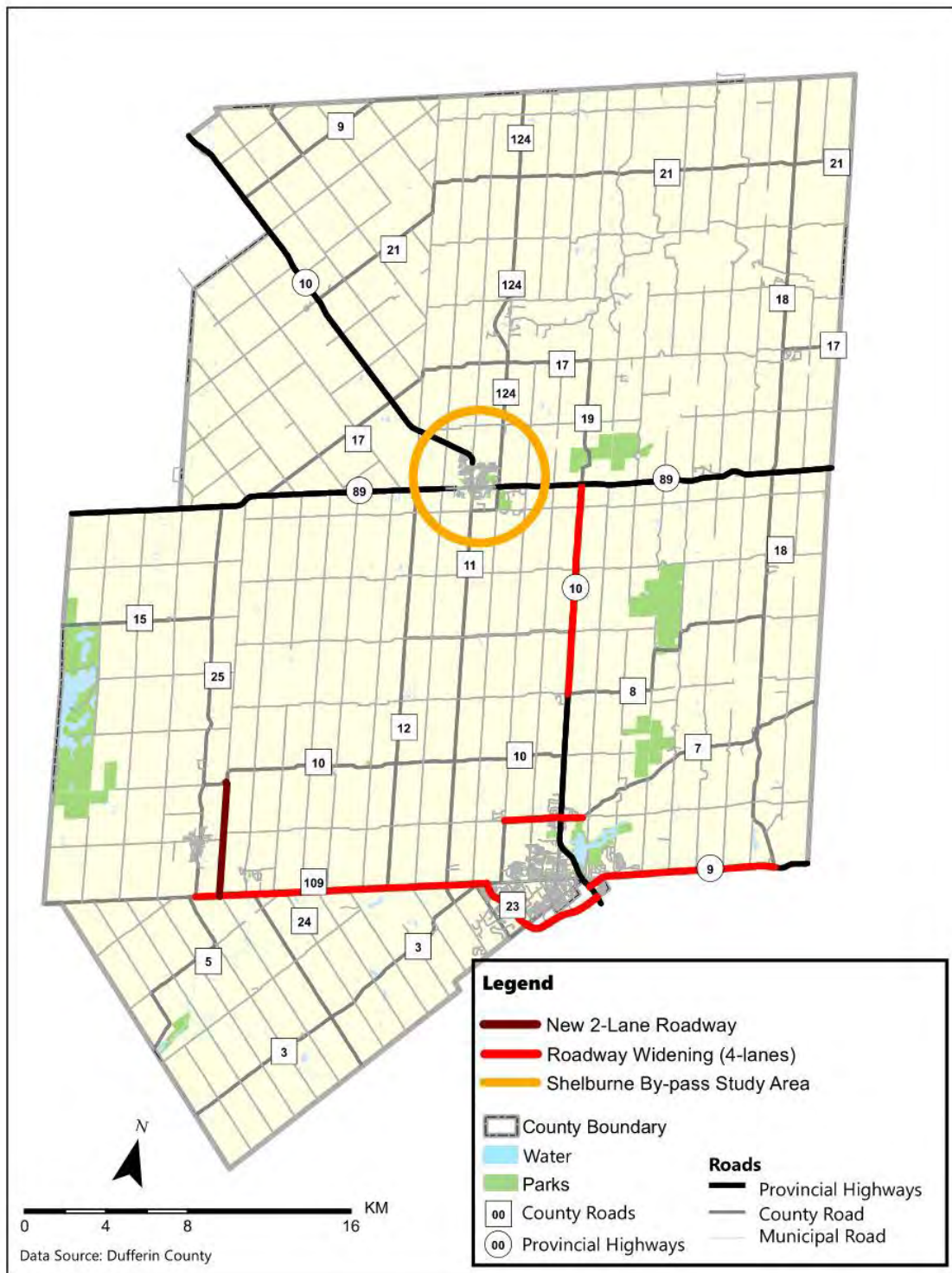
Besides the above improvements on Dufferin County roads, the following improvements along provincial highways are also needed to accommodate the future traffic growth. Note that the list also includes Dufferin County and local road improvements related to the Shelburne bypass. The Shelburne bypass is alleviating truck traffic from Highways 10 and 89 and is a Provincial initiative.

- Construct a by-pass of Shelburne to alleviate truck traffic on Highways 10 and 89 that presently travels on these highway through the centre of Shelburne;
- Widening of Highway 9 to a 4-lane roadway from Highway 10 to Dufferin County Road 18; and
- Widening of Highway 10 to a 4-lane roadway between Side Road 15/Mono Centre Road and Highway 89.

Figure 37 shows the Alternative 3 roadway improvements. Based on the alternative discussion presented above, Alternative 3 is the recommended alternative. Alternative 3 ensures that the identified roadway improvements are feasible for construction and fully accommodate the future traffic growth, while providing the County with efficient network connectivity.



Figure 37. Alternative 3 Roadway Improvements





5.5.4 ACCESSIBLE PEDESTRIAN SIGNALS

The Dufferin County TMP takes a county-wide view to travel and does not focus on any one intersection or set of intersections. However, as a general policy, should the County be installing new traffic signals or reconstructing traffic signals at an existing intersection, the County should install accessible pedestrian signals (APS). APS advise pedestrians who are blind or visually impaired when they have the right-of-way to cross at a signalized intersection. These should be installed as a best practice at any County-maintained intersection that might have a considerable amount of pedestrian traffic.

5.6 GOODS MOVEMENT STRATEGY

This section discusses the goods improvement strategy that determines transportation infrastructure improvements to be considered for implementation to address the future freight transportation demand by the year 2051 in the study area.

5.6.1 DEVELOPING A GOODS MOVEMENT STRATEGY

The goods movement strategy is developed based on the following guiding principles of the County:

- The County desires freight-supportive infrastructure for efficient goods movement through planning, design and operation of land use and transportation systems.
- The County works with transportation industries to facilitate the efficient movement of goods by improving the level of service while maintaining community safety and minimizing risk.
- The County also supports the protection of major goods movement facilities and corridors for the long term, by ensuring that development proposed on adjacent lands is compatible and supportive of the long-term purposes of the corridor and is designed to avoid, mitigate, or minimize negative impacts on and from the corridor and transportation facilities.

As mentioned in **Section 2.4.6**, Highway 10 and Highway 89 make the County a key gateway to freight movement and industrial activity connecting the Toronto region and the regions to the northwest of Dufferin County. Dufferin County roads facilitate the goods movement to and from businesses located in the County with the highways.



5.6.2 RECOMMENDED IMPROVEMENTS

Based on the current economic activity and existing policies of the County, the following improvements are recommended to establish a suitable infrastructure for the efficient movement of goods across the County:

- Provide alternative routes for truck movement around Grand Valley, which could be in the form of a bypass.
- Encourage MTO to provide alternative routes for truck movement through the Town of Shelburne, which could be in the form of a bypass around this community. Widen Dufferin County Road 109 south of Orangeville, to improve the capacity of the truck bypass route for the east-west truck traffic through Orangeville.
- Dufferin County Roads 10, 11 and 12 in the Township of Amaranth should be reconfirmed to be of adequate strength to remove seasonal load restrictions and accommodate the weight of trucks on these roads year-round.



6 SUPPORTING POLICIES

6.1 COMPLETE STREETS

Complete Streets is the concept of designing roads to cater towards all modes of transportation and all transportation system users. The Complete Streets approach focuses on creating safe and convenient streets for pedestrians, cyclists, transit, automobiles, and serving users of all ages and abilities. It considers aspects such as the interaction between the infrastructure and users of the street, the land use context, utilities, stormwater management, green infrastructure, and street furniture.

The concept of Complete Streets revolves around the notion that a transportation network is a system, specifically that not every street is designed for every mode. For example, a local road typically does not have a dedicated cycling facility and is not used as a truck route. The network must be complete in providing alternatives or parallel facilities that are “complete”.

As part of the built environment, Complete Streets play a role in public health by providing safe spaces for people to use active transportation. Additional key benefits of applying a Complete Streets approach include supporting local businesses, climate resiliency, connectivity, and new development.

In recent years, multiple municipalities across Canada have developed design guidelines to provide overarching policies that support and direct the planning of transportation network infrastructure. These guidelines include policy and design directives that accommodate various land use contexts and street functionalities. In order to support the process of Complete Streets policy development, Complete Streets for Canada has identified 10 “action elements” that serve as a model of best practices. These elements serve as a guide for planning and design processes that are equitable and context sensitive. **Table 17** presents these elements as well as a recommended Complete Streets Policy adapted for the County.



Table 17. Elements of Complete Streets Policy

Guiding Element	Description	Recommendations
Vision		
1.	Embodies a Community Vision	<p>Establishes Dufferin County’s vision, objectives, and purpose for implementing a Complete Streets policy framework.</p> <ul style="list-style-type: none"> • New and reconstruction infrastructure projects should be in alignment with the County’s Complete Streets vision, objectives, and purpose.
Core Commitments		
2.	Defines All Users and Modes	<p>Provides equal consideration for people of all ages and abilities and the various modes of travel within Dufferin County. Modes for consideration include active transportation, transit, micromobility, accessibility devices, trucks, and automobiles.</p> <ul style="list-style-type: none"> • Infrastructure (such as roads, sidewalks, bike lanes, and transit stops) should be designed free of barriers for all ages and abilities; and • The County’s overall road network, including elements such as available right-of-way (ROW) and connectivity, should be considered during the planning stages of new or reconstruction road projects.
3.	Applies to All Projects and Phases	<p>Recognizes opportunities to apply Complete Streets policies towards new or reconstruction transportation projects, including</p> <ul style="list-style-type: none"> • Project designs should integrate Complete Streets elements as per the County-defined process to ensure efficiency and sufficient accommodation of all ages and abilities;



Guiding Element	Description	Recommendations
	capital projects. Policies include areas such as design, planning, as well as maintenance and operations.	<ul style="list-style-type: none">• The impact on network connectivity should be particularly reviewed for infrastructure projects that involve retrofitting or upgrading of the existing network; and• Consistent policy elements are to be developed by County and Town/Township staff to ensure seamless continuity within the network at locations where Dufferin County roadways intersect with Town/Township roads.
4. Identifies Clear, Accountable Exceptions	Takes into consideration appropriate legislative, topographical, technical, cost-benefit limitations or other exemptions that are specified and approved by County Council.	Exceptions to the Complete Street policies may be granted subject to County approval for certain circumstances. Possible circumstances include: <ul style="list-style-type: none">• When emergency and transit vehicle services and maintenance operations are compromised;• The travel demand or the future needs are not supported compared to financial costs; and,• Where there may be negative impacts to the natural environment and topographical limitations exist.
5. Encourages Network	Supports a street network that integrates multimodal travel in a comprehensive and connected way. These directives would be	<ul style="list-style-type: none">• Support active transportation network connections between County and local facilities;



Guiding Element	Description	Recommendations
Connectivity and Integration	aligned with the guidance provided in the County’s most recent OP and TMP.	<ul style="list-style-type: none"> • Provide additional consideration for active transportation facilities (such as paved shoulders) along specific high-demand corridors; and • Coordinate with local Towns/Townships to implement end-of-trip infrastructure (such as bike parking), where applicable. This infrastructure should accommodate all ages and abilities and should be considered for high-volume destinations in urban settlement locations.
Best Practices		
6. Adoptable by All Agencies and Jurisdictions	Establishes a Complete Streets approach that can be adopted and understood by all Townships, departments, and other agencies that may be involved in design, construction, and maintenance processes.	Where appropriate, external stakeholders (such as Townships, departments, and other agencies) will be informed and consulted regarding design, construction, and maintenance processes.
7. Utilizes Latest Design Guidelines	Draws from industry requirements while maintaining flexibility to balance road user needs. The County’s existing policies, by-laws,	The following are recommended design guidelines used in best practices in Canada:



Guiding Element	Description	Recommendations
	standards, and guidelines are also to be referenced.	<ul style="list-style-type: none">• Transportation Association of Canada – Geometric Design Guide for Canadian Roads (2017);• The Province of Ontario – Ontario Regulation 191/11 Integrated Accessibility Standards (2016);• Transportation Association of Canada – Manual of Uniform Traffic Control Devices for Canada (2021);• The Ministry of Transportation Ontario – Ontario Traffic Manual Book 15 Pedestrian Crossing Treatments; and,• The Ministry of Transportation Ontario - Ontario Traffic Manual Book 18 Cycling Facilities.
8. Acknowledges Context Sensitive Solutions	Recommends design and planning solutions in alignment with the County’s road classification, land use and transportation needs. These solutions would be in alignment with the directives presented in existing County policy documentation including the 2017 Economic Development Strategy	Factors to consider when recommending design and planning solutions include: <ul style="list-style-type: none">• Land use and demographics;• Topography and available platform, and right-of-way width; and,• Operating speed and road capacity.



Guiding Element		Description	Recommendations
		Plan and the 2021 Climate Action Plan.	
9.	Defines Performance Standards with Measurable Outcomes	Establishes performance indicators specific to the County to evaluate and monitor outcomes over time. Indicators can be either qualitative or quantitative, and should be aligned with the goals and objectives of the TMP and OP.	Measurable criteria should be established as part of a measuring and monitoring tool. The tool development should consider existing and future capital infrastructure projects. Complete Streets projects should be reviewed periodically against the tool to monitor success and rate of implementation.
Implementation			
10.	Proposes Specific Implementation Steps	Provides an overview of specific steps and timelines for implementing Complete Streets across the County's transportation network. These timelines would be in alignment with the implementation recommendations in the most recent TMP.	The County should consider the following implementation steps: <ol style="list-style-type: none">1. Gather input from appropriate County departments and staff to confirm and incorporate the Complete Streets Policy as part of its best practices;2. Consider developing an internal working committee of County staff involved with the delivery, operations, and maintenance of the street network to support the life cycle of streets;3. Consider existing design standards against the Complete Streets principles and determine where changes may be necessary to



Guiding Element	Description	Recommendations
		<p>support with implementation. Possible changes include the development of design guidelines;</p> <p>4. Consider implementing the Complete Streets element towards ongoing as well as new projects, including in the context of land use planning and where complete street elements are being considered;</p> <p>5. Support and provide education opportunities for County staff for development and training through workshops and seminars; and</p> <p>6. Develop a measuring and monitoring tool to evaluate implementation of Complete Streets elements.</p>

Source: Complete Streets for Canada



6.2 FUTURE READY

6.2.1 ENHANCING ROAD SAFETY

Road safety is integral to the functionality, usability, and enjoyment of the overall transportation system. The long-term goal of road safety is to reduce all road fatalities and serious injuries, ultimately, to zero via three main avenues: education, enforcement, and engineering. Evaluation and engagement also play large roles in this comprehensive road safety strategy.

The first step of implementing a road safety plan in Dufferin County is to understand the existing local road safety approach. Dufferin County currently does not have a road safety campaign or traffic calming initiatives in place.

Town of Orangeville

At the local level, the Town of Orangeville developed a traffic calming study in October 2021. Suitable traffic calming measures were identified that included horizontal deflections, roadway narrowing, and surface treatments (limited for installation on roads that were proven by a traffic study and evaluation to have significant aggressive driving issues). Traffic calming measures that involve vertical alignment shifts were not recommended on roads under the jurisdiction of the Town of Orangeville.

Town of Shelburne

Shelburne Councillors unanimously voted on July 26, 2021, to enact the bylaw amendments required to reduce the speed limit of majority of the Town's roads to the speed of 40 kilometres per hour. Owen Sound Street (Highway 10) and Main Street (Highway 10/89) are currently the only exception to the speed limit reduction.

Other Townships

In addition, the Township of Melancthon published a Road Safety Task Force report that investigates and recommends strategies for road safety throughout the Township. The report provides a vision for Melancthon roads, principles to guide decision-making, scope of the task force's work, limitations, research methodology, and a road safety task force timeline.



The Town of Mono also created a Road Safety Task Force, which conducted traffic and speed counts and in 2019 prepared a report to Council. The report includes the Task Force's methodology, findings, and outlined seventeen recommendations to Council. The report focuses primarily on policing, supporting more robust policing efforts and increased fines within the Township.

The Township of Mulmur has a Roads Safety Committee which met most recently in August 2022. This Committee discusses road safety concerns and current actions within the Township. Most action is centred around education, signage updates, and other non-geometric safety improvements.

Road Safety Supporting Policy Recommendations

- As a follow up to this TMP, the County could consider conducting an additional study to develop a Road Safety Action Plan. The Plan would provide a set of road safety guidelines for the County and be the foundation of all road safety initiatives for the future. The plan could provide several emphasis areas, such as cyclists, pedestrians, school zones, impaired drivers, and outline a number of tools and potential actions to be taken to counter road fatalities and injuries. By providing a road safety plan on a County level, municipalities would be able to use the plan as a foundation to develop Town-specific road safety action plans to best cater to their Town-specific needs and pave the path for physical implementation. The Plan should also identify current measures taken within the various towns and townships making up the County and incorporate existing road safety efforts.
- Create a database of road fatalities and serious injuries with partnership from local municipalities and OPP. This database would be used to guide road safety initiatives and isolate dangerous areas of the transportation network as candidates for road safety improvement measures. A monitoring and evaluation framework should be developed to assist with analyzing the data and determining how to apply the data to make the transportation system safer. The monitoring and evaluation framework also provides opportunities to update the aforementioned Road Safety Plan using a data-driven structure to ensure it is kept up to date with current best practices and remains accurate and location-specific to the County.



- Continue to support local municipalities with their road safety efforts and provide guidance with their local road safety policies and initiatives.

6.2.2 ELECTRIC VEHICLES

Approximately 50% of Dufferin County's greenhouse gas emissions are produced in the transportation sector. Pursuing newer technologies, such as promoting the expansion of electric vehicle usage, can lead to the reduction of the carbon footprint in the county. This would also be a way to advance a key priority in the Dufferin Climate Action Plan. The Charge Up in Dufferin network project was supported by Natural Resources Canada's Zero Emissions (ZEVIP) with the total investment of \$289,000 to assist Dufferin County in building the electric vehicle charging network. ZEVIP's goal is to address the lack of charging stations in Canada in order to align with the national climate plan.

Since November 30, 2021, the electric charging network within Dufferin County has consisted of 22 Level-two charging stations, as well as two Level-three fast chargers located across municipal offices, recreation, and cultural centres (**Figure 38**). By the end of 2022, 20 more chargers were installed to expand the EV network. The installation of Charge Up in Dufferin network was spearheaded by the County of Dufferin, and the collaboration of local municipalities such as East Garafraxa, Grand Valley, Melancthon, Mono, Mulmur, Orangeville, and Shelburne.

During the first year of implementation, an incentive was created to allow level-two charging to be free for the first two hours, once the time was lapsed, users would pay \$2 an hour. Level-three fast chargers had a rate of \$5 an hour.

The County should consider continuing to apply for funding to expand the existing charging station network, working towards equipping all public facilities having at least Level-two fast chargers, providing incentives for community partners and private businesses to provide charging stations, acquiring capital funds through governmental or developer partnerships, raising public awareness through climate action initiatives, and reviewing electric vehicle parking requirements for new residential or commercial property development.

The County should also continue to maintain and expanding upon its current EV education program and continue to facilitate events such as the June 10, 2023, Electric Vehicle Test Drive event. The County should consider electric vehicles for any future



County-owned transit vehicles, and partner with transit providers such as Orangeville Transit and Grey Transit on electrification of transit fleets. As the County considers introducing transit options and services to residents, the electrification of the fleet used would be a step in the right direction toward promoting electric vehicle usage.

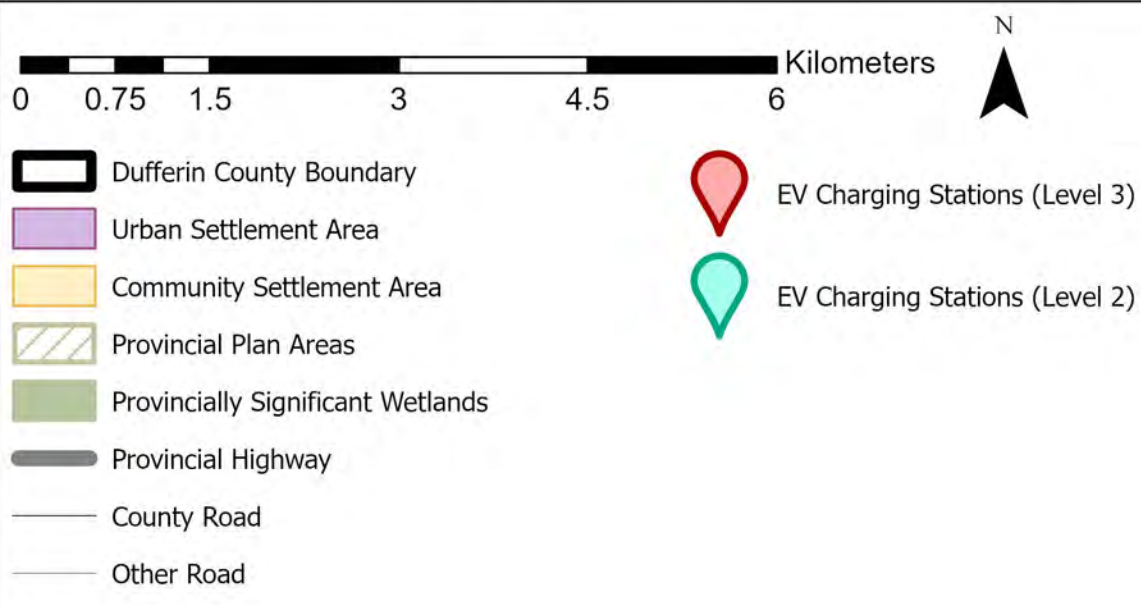
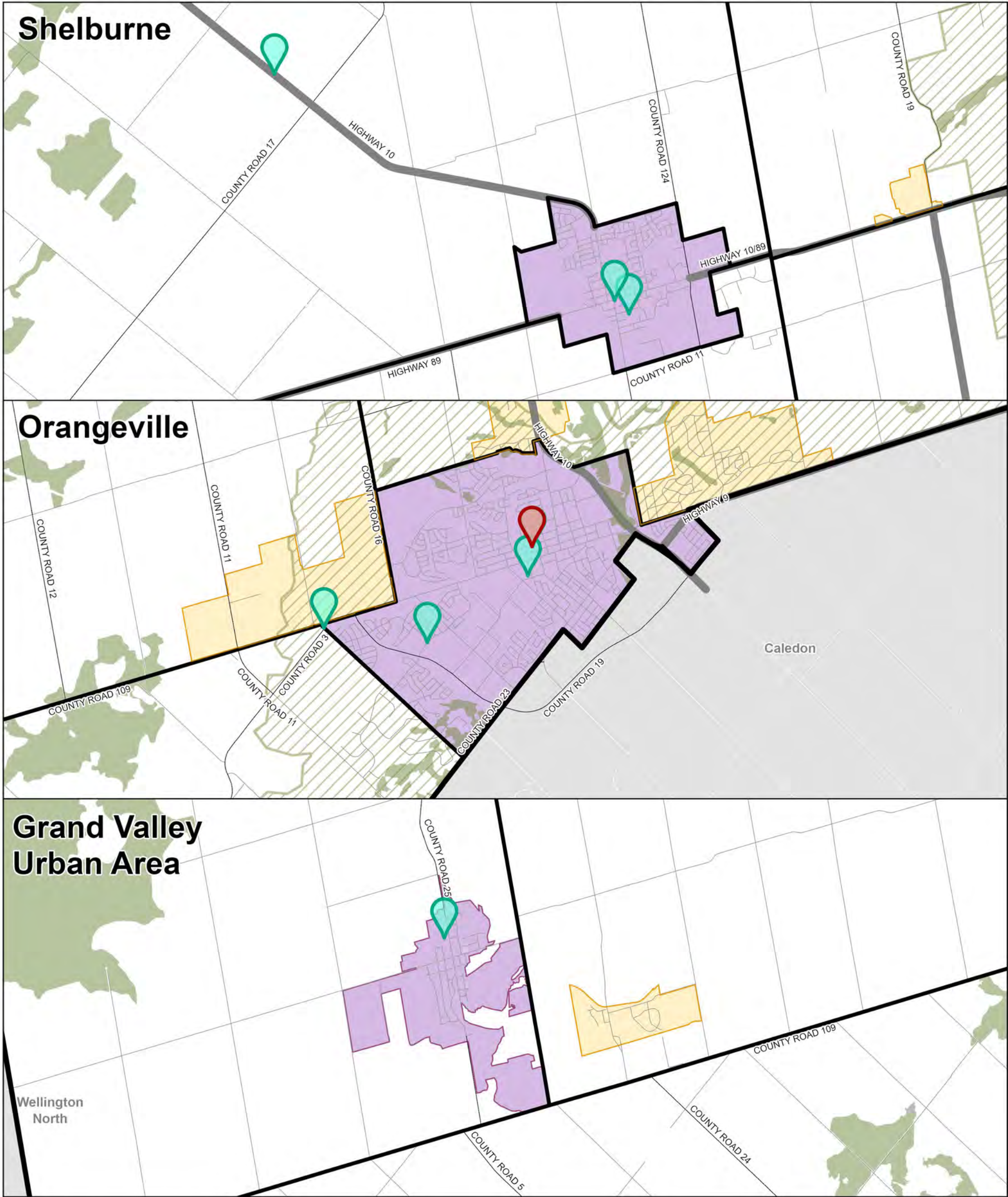


Figure 38
Charge-Up Dufferin Network



Last Updated: 2023-06-09
 Projection:
 Data obtained through: Land Information Ontario (LIO)
 GeoHub and Dufferin County



6.2.3 AUTONOMOUS VEHICLES

Autonomous vehicles (AVs) will continue to evolve over the planning horizon of the Dufferin County TMP. To operate and complete driving-related tasks, AVs use advanced sensors and artificial intelligence with little to no human intervention to operate. AVs are designed to navigate public rights-of-way with limited input from a driver related to steering, acceleration, and braking. Although this technology is in relatively advanced stages of development, there is currently limited clarity related to its deployment. AVs are expected to improve road safety, reduce the cost of ridesharing, and allow for more flexible use of time for drivers, when this technology is widely adopted.

Within Ontario, AVs are regulated in accordance with the Highway Traffic Act, which is informed by guidance from the Ministry of Transportation (MTO). This guidance falls under the Automated Vehicle Pilot Program (Ontario Regulation 306/15: Pilot Project – Automated Vehicles). Currently, the Ontario legislation allows for the public to drive a Society of Automotive Engineer (SAE) level 3 vehicle that is commercially available in Canada. AVs remain a possibility for the County and are therefore an important element for consideration to remain future ready. Potential benefits of AVs within the County include greater opportunities for shared parking, leading to reduced parking demand and the reduction of vehicle ownership.

The County should continue to monitor the introduction of autonomous vehicles and track best practices on ways to be prepared for autonomous vehicles. The County could consider developing an AV strategy to help prepare the County for the introduction of highly automated (or driverless) vehicle usage on streets, public transit systems, and municipal services delivery. The strategy can include descriptions of the County's current understanding of automated vehicle technology, expected timelines for deployment, business models, a scan of Dufferin County's automated vehicle ecosystem, as well as investments and initiatives that are needed to prepare for and advance this technology. Similar to the City of Toronto, the County could develop an AV strategy that includes overarching themes that highlights how the County would like to encourage and integrate the adoption of automated vehicles.



7 IMPLEMENTING THE TMP

This chapter provides an implementation strategy for the recommended transportation network improvements, separating them into three timeframes including short-term, medium-term, and long-term. It is recognized that no project can be constructed without the funding and/or approval from Council. The implementation plan is dynamic and acknowledges that priorities can change over time. The implementation plan is supported by a high-level costing plan that provides an indication of estimated funds that are required to construct the various projects. A monitoring plan is provided at the end of the chapter to monitor the progress that has been made to complete the multi-modal transportation network.

7.1 IMPLEMENTATION PLAN

Efficient prioritization and allocation of financial resources are required to implement the recommendations of this TMP successfully. The phasing plan includes high level cost estimates for the active transportation and road capital projects. As a living document, these costs will need to be reviewed and updated as the projects continue to the detailed design and implementation phases. As the timeline progresses, additional studies, detailed designs and technical assessments are required to identify the unique requirements of each project.

All transportation recommendations are phased within one of three implementation horizons:

- **Short-Term:** Generally implemented by the year 2031;
- **Medium-Term:** Generally implemented by 2041
- **Long-Term:** Generally implemented by 2051

This phasing scheme was applied to all recommendations, including routes recommended as part of the proposed road and active transportation recommendations. Assignments within these horizons were based upon the estimated transportation infrastructure that is required to support residential development, an understanding of the timing of industrial growth, and the analysis of future traffic volumes on Dufferin County roads.



7.2 PHASING OF RECOMMENDATIONS

7.2.1 ACTIVE TRANSPORTATION NETWORK PHASING

Implementation of the AT network will require a long-term approach and collaboration between the County and its local municipalities. The implementation of the County's AT network is organized into the three implementation horizons consistent with the phasing for the roadway improvements and implementation strategies from other approved plans and policies.

The 2010 DCATT Master Plan outlined a phasing strategy which informed the strategy for this TMP update. This section provides an outline of the criteria used to inform how different segments of the AT network were phased.

SHORT-TERM HORIZON (BY 2031)

- Routes that represent “quick wins” given their low cost and high feasibility relative to their benefit to overall network connectivity and user comfort (for example, granular surface roads are considered good candidates for signed routes if the traffic volumes are low);
- Routes that align with short-term roadway improvement projects outlined in this TMP; and
- Routes likely to service a high degree of demand, based on their proximity to key travel destinations and travel corridors (for example, the Dufferin Rail Trail).

MEDIUM-TERM HORIZON (BY 2041)

- Routes that align with medium-term roadway improvement projects outlined in this TMP; and
- Routes whose cost and usage are contingent on new developments occurring.

LONG-TERM HORIZON (BY 2051)

- Routes that align with long-term roadway improvement projects outlined in this TMP or are not currently part of the County's capital improvement plans for the next 20 years;
- Routes with substantive cost and constructability challenges;
- Routes that serve as a secondary route within the overall network; and



- Routes which require the buy-in and coordination of additional stakeholders.

Table 18 summarizes the proposed phasing strategy by route lengths by facility type and **Table 19** summarizes the lengths by local municipality. **Figure 39** (A and B) visually shows the phasing strategy.

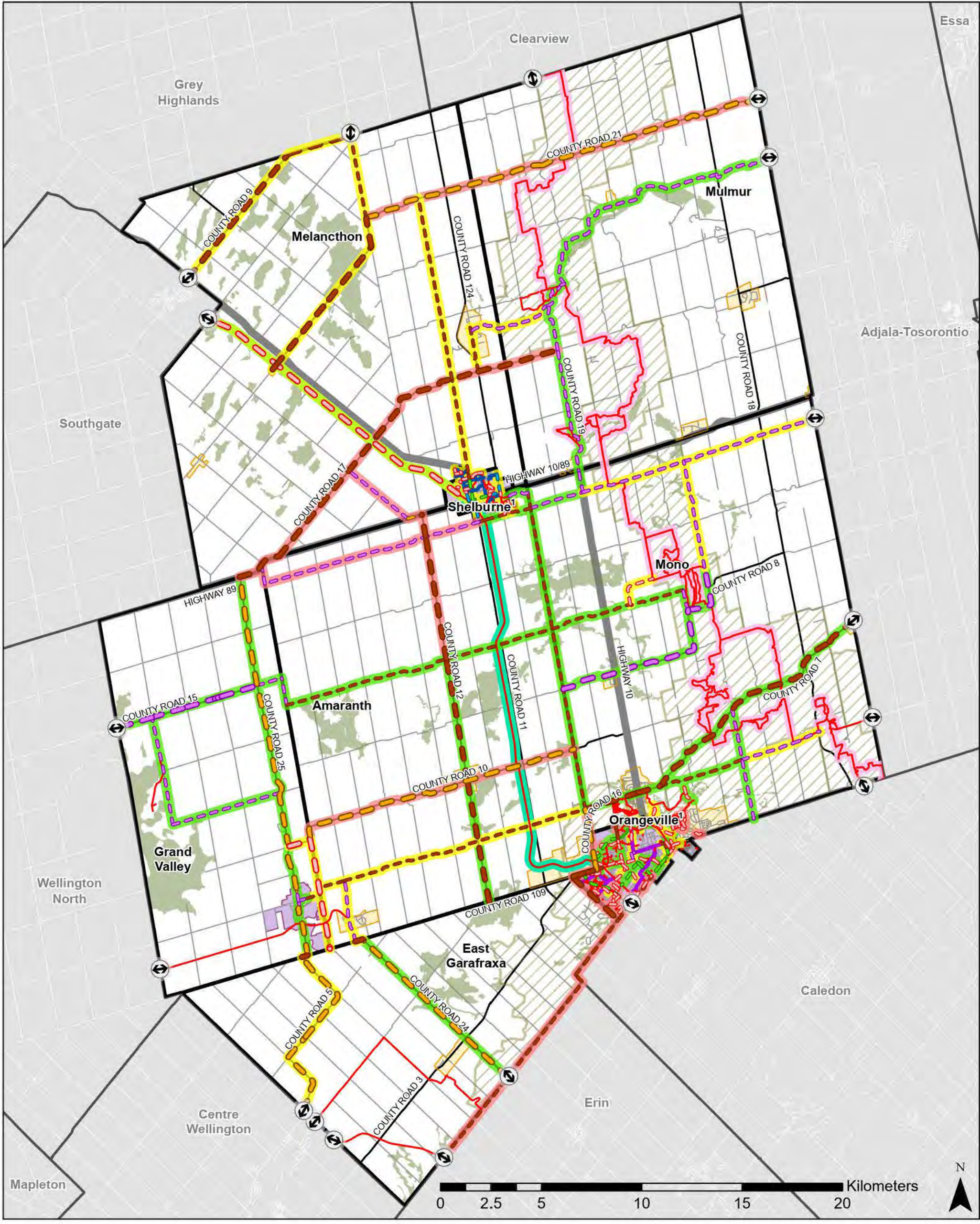
Table 18. High-level Overview of the Proposed Active Transportation Network’s Phasing

Facility Type	Existing Length (km)	Proposed Length (km)			Total Length (km)
		Short-Term (0-5 Years)	Medium-Term (6-15 Years)	Long-Term (16-25+ Years)	
Off-Road Route	244.5	10.7	38.4	10.5	304.1
Buffered Paved Shoulder	0.0	28.4	9.9	39.9	78.2
Paved Shoulder	0.0	73.4	54.8	46.2	174.4
Bike Lane	1.9	4.8	3.3	2.9	12.9
Signed Route	8.9	70.8	29.4	15.8	124.9
On-Road Route	9.6	0.0	2.3	0.0	11.9
Total	264.9	188.1	138.1	115.3	706.4



Table 19. High-level Overview of the Proposed Active Transportation Network's Phasing

Municipality	Existing Length (km)	Proposed Length (km)			Total Length (km)
		Short-Term (0-5 Years)	Medium-Term (6-15 Years)	Long-Term (16-25+ Years)	
Amaranth	22.5	37.9	19.9	34.6	114.9
East Garafraxa	18.7	10.0	9.9	14.2	52.8
Grand Valley	11.6	39.3	5.5	1.5	57.9
Melancthon	0.0	0.0	53.8	27.8	81.6
Mono	107.4	60.5	25.3	4.5	197.7
Mulmur	50.3	25.0	2.8	17.7	95.8
Orangeville	35.5	13.8	8.4	15.0	72.7
Shelburne	18.9	1.6	12.5	0.0	33.0
Total	264.9	188.1	138.1	115.3	706.4



Legend

- Dufferin County Boundary
- Urban Settlement Area
- Community Settlement Area
- Provincial Plan Areas
- Provincially Significant Wetlands
- AT Connections to Surrounding Municipalities

Proposed Phasing

- Short-Term
- Medium-Term
- Long-Term

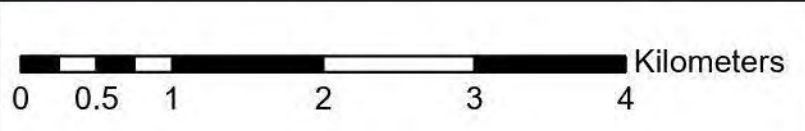
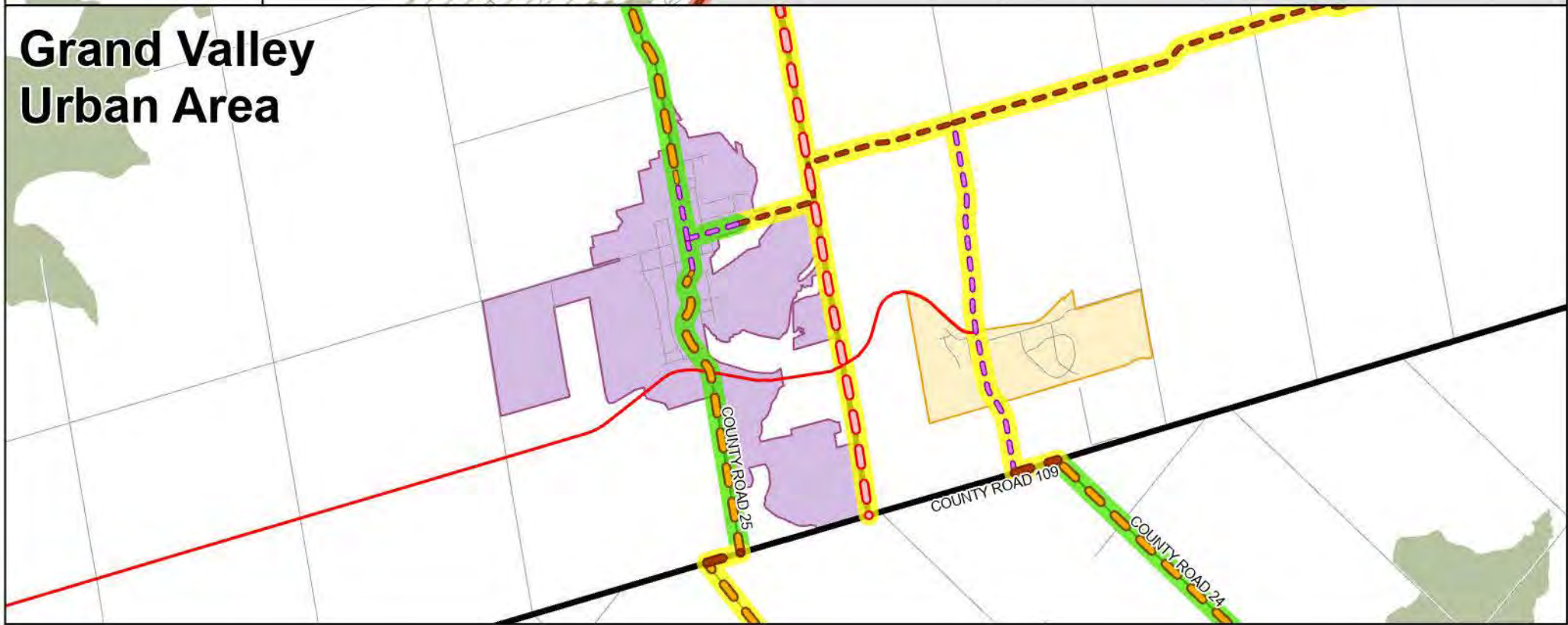
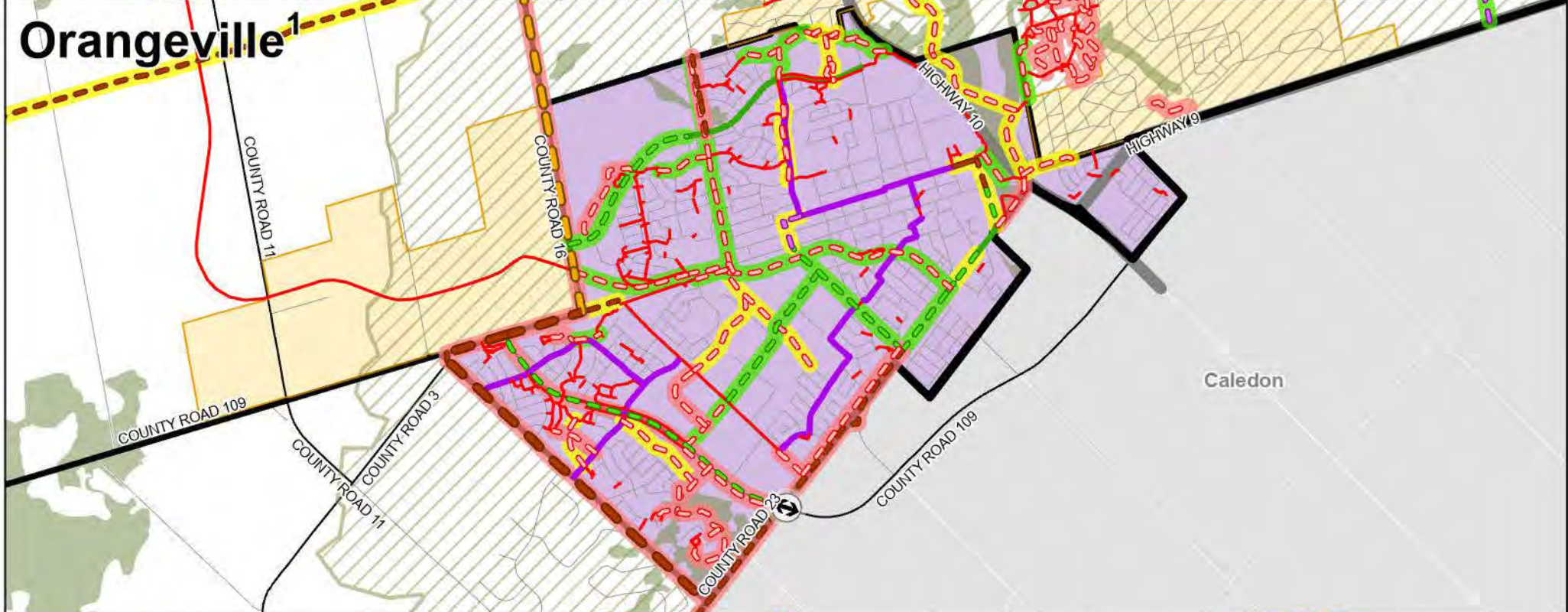
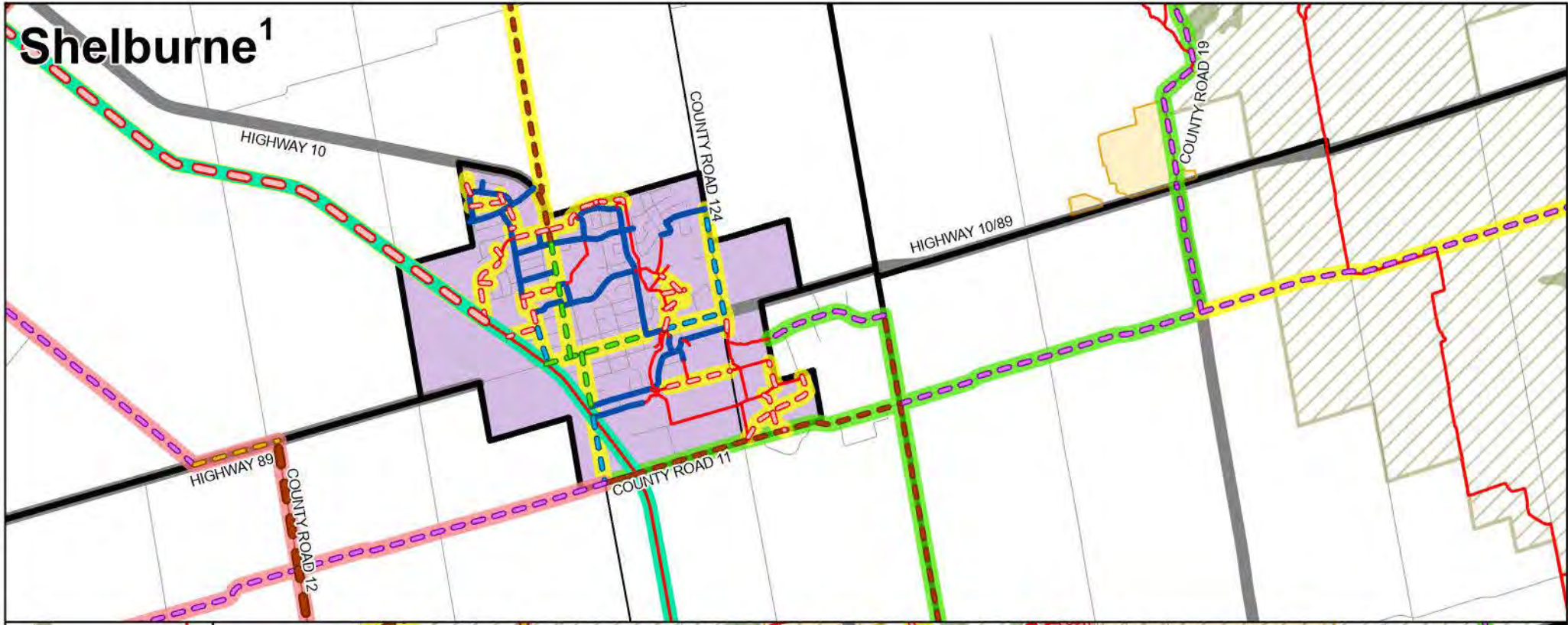
- Existing Off-Road Route
- Existing Bike Lane
- Existing Signed Route
- Existing On-Road Route¹
- Proposed Off-Road Route
- Proposed Bike Lane
- Proposed Signed Route
- Previously Planned On-Road Route¹
- Proposed Buffered Paved Shoulder
- Proposed Paved Shoulder
- Proposed Signed Route
- Previously Planned On-Road Route¹

- Developing Route
- Thick dashed lines are County routes
- Thin dashed lines are Local routes

Figure 39A
Updated Active Transportation Network Phasing

Notes:
1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
2. Proposed routes on gravel roads would only be constructed when the road is paved.
3. Facility type will be confirmed in the detailed design stage.

Last Updated: 8/10/23
Projection: GCS North American 1983 Transverse Mercator
Data obtained through Land Information Ontario (LIO)
GeoHub and Dufferin County



- Dufferin County Boundary
- Urban Settlement Area
- Community Settlement Area
- Provincial Plan Areas
- Provincially Significant Wetlands

- Proposed Phasing
- Short-Term
 - Medium-Term
 - Long-Term

- Existing Off-Road Route
- Existing Bike Lane
- Existing Signed Route
- Existing On-Road Route¹
- Proposed Off-Road Trail
- Proposed Bike Lane
- Proposed Buffered Paved Shoulder
- Proposed Paved Shoulder
- Proposed Signed Route
- Previously Planned On-Road Route¹

- Thick dashed lines are County routes
- Thin dashed lines are Local routes

Notes:
 1. For existing and previously planned routes within the urban areas of Orangeville and Shelburne, refer to the Town of Orangeville Cycling and Trails Master Plan and Town of Shelburne Transportation Master Plan.
 2. Proposed routes on gravel roads would only be constructed when the road is paved.
 3. Facility type will be confirmed in the detailed design stage.

Figure 39B
Updated Active Transportation Network Phasing (Urban Areas)



Last Updated: 8/10/23
 Projection: Data obtained through Land Information Ontario (LIO) GeoHub and Dufferin County



7.2.2 ROAD PHASING

The estimated phasing for proposed roads being considered is summarized in **Table 20**. The location ID numbers are shown in **Figure 40**. The phasing is based on the technical analysis described in **Section 5.5**, along with feedback from stakeholders on pressing needs and likely financial capabilities.

Table 20. Estimated Phasing for Proposed Roads of Preferred Alternative

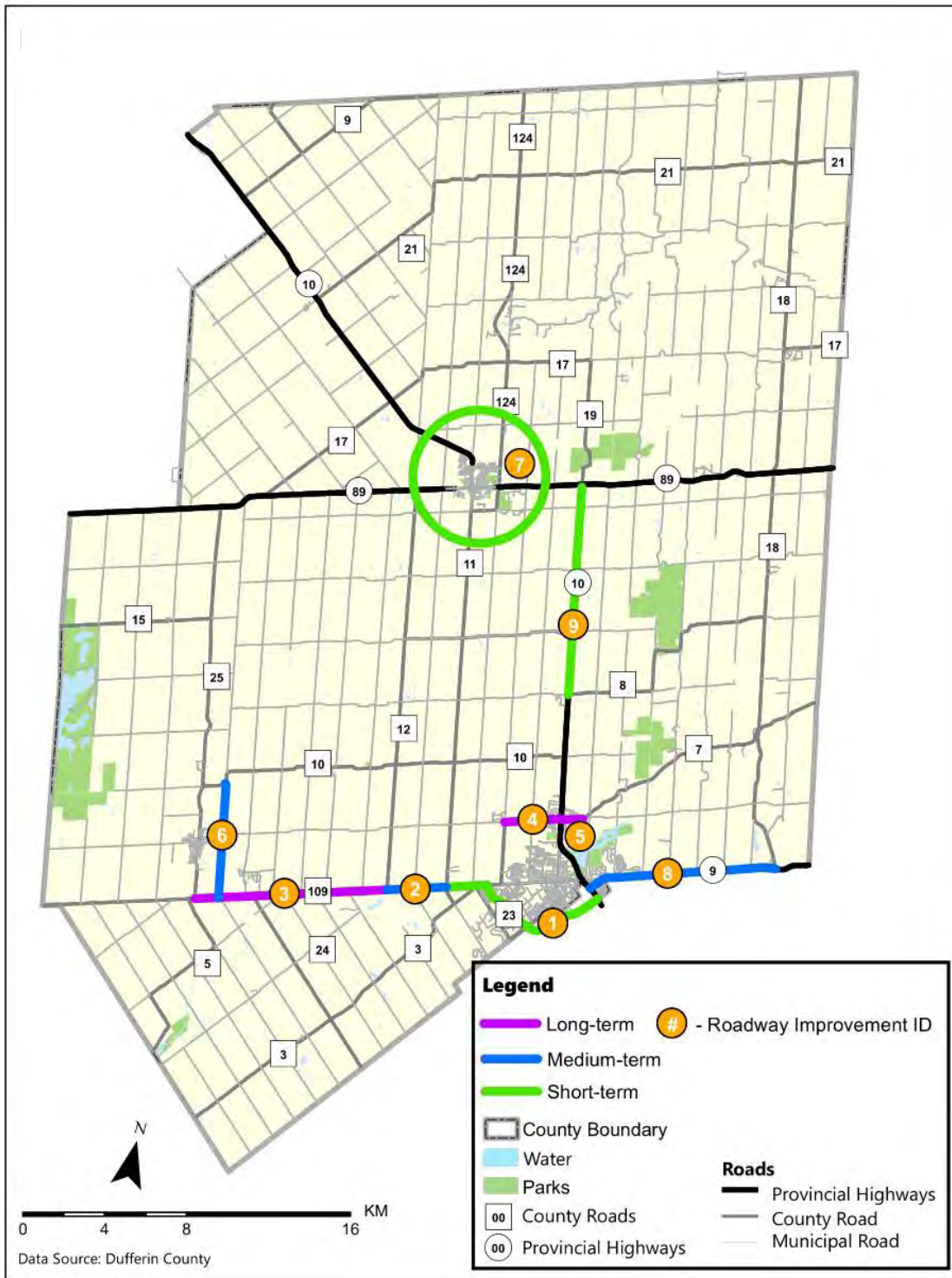
ID	Road	From	To	Improvement Type	Phasing Period
County Initiatives					
1	Dufferin County Road 109/Riddell Road	Highway 10	Dufferin County Road 11	Widen to four lanes	Short-term
2	Dufferin County Road 109	Dufferin County Road 11	Dufferin County Road 12	Widen to four lanes	Medium-term
3	Dufferin County Road 109	Dufferin County Road 12	Dufferin County Road 25	Widen to four lanes	Long-term
4	Dufferin County Road 16	Highway 10	Mono-Amaranth Townline	Widen to four lanes	Long-term
5	Dufferin County Road 7	Highway 10	Side Road 5	Widen to four lanes	Long-term
6	Amaranth East Luther Townline	Dufferin County Road 109	Dufferin County Road 10	New 2-lane construction	Medium-term



ID	Road	From	To	Improvement Type	Phasing Period
Provincial Initiatives					
7	Shelburne Bypass			Construct to MTO road standard	Short-term
8	Highway 9	Highway 10	Dufferin County Road 18	Widen to four lanes to MTO road standard	Medium-term
9	Highway 10	Highway 89	Dufferin County Road 8	Widen to four lanes to MTO road standard	Short-term



Figure 40. Dufferin County Phasing for Proposed Roads





7.3 COSTING

The multi-modal transportation recommendations in the TMP are created to specifically address growth in population and employment and the required facilities to accommodate this growth. The projects that are costed as part of this TMP include active transportation facilities and road facilities, with the road network group under the categories of the construction of new roads, road widening, and strengthening of existing roads.

7.3.1 ACTIVE TRANSPORTATION NETWORK

The estimated cost to implement the County's updated AT network was determined to help inform future capital budgets and decision making. The costs for the active transportation improvements are based on unit prices and include the following assumptions:

- Unit prices used are in 2023 dollars and intended to be used for functional design purposes and do not include taxes, contingency, design, and approval costs;
- Costs reflect the construction costs of the route and do not include property acquisitions, signal modifications, underground utility relocations, major roadway draining works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and stairways, unless otherwise noted;
- Assume typical environmental conditions and topography; and
- Further detailed studies will need to be completed in coordination with relevant agencies where required to ensure alignments meet requirements.

The unit costs used are based on best practices and recent tenders and projects of similar scope in Ontario and are not intended to be prescriptive. It should be recognized that the level of effort to implement an active transportation facility will vary on a project-by-project basis. It is recommended the County review the estimated costs as part of their capital planning process to reassess the conditions at the time of implementation. The cost estimate by phase and jurisdiction is provided in **Table 21** and summary of the costs by facility type is provided in **Table 22**.



Table 21. High-Level Cost Estimate of the Active Transportation Network by Phase and Jurisdiction

Municipality	By Phase				By Jurisdictional Cost		
	Short-Term (0-5 Years)	Medium-Term (6-15 Years)	Long-Term (16-25 Years)	Total	Dufferin County Total	Local Municipality Total	Total
Amaranth	\$ 5,845,000	\$ 2,921,000	\$ 5,985,000	\$14,751,000	\$ 8,405,000	\$ 6,346,000	\$ 14,751,000
East Garafraxa	\$ 3,050,000	\$ 3,024,000	\$ 2,331,000	\$ 8,405,000	\$ 6,515,000	\$ 1,890,000	\$ 8,405,000
Grand Valley	\$ 5,899,000	\$ 1,160,000	\$ 470,000	\$ 7,529,000	\$ 7,162,000	\$ 367,000	\$ 7,529,000
Melancthon	\$ -	\$ 9,443,000	\$ 4,878,000	\$ 4,321,000	\$ 10,645,000	\$ 3,676,000	\$ 14,321,000
Mono	\$ 6,624,000	\$ 1,078,000	\$ 1,067,000	\$ 8,769,000	\$ 3,231,000	\$ 5,538,000	\$ 8,769,000
Mulmur	\$ 306,000	\$ 35,000	\$ 5,026,000	\$ 5,367,000	\$ 5,026,000	\$ 341,000	\$ 5,367,000
Orangeville	\$ 2,175,000	\$ 1,582,000	\$ 2,658,000	\$ 6,415,000	\$ 610,000	\$ 5,805,000	\$ 6,415,000
Shelburne	\$ 263,000	\$ 2,539,000	\$ -	\$ 2,802,000	\$ 212,000	\$ 2,590,000	\$ 2,802,000
Total	\$ 24,162,000	\$ 21,782,000	\$ 22,415,000	\$ 68,359,000	\$ 41,806,000	\$ 26,553,000	\$ 68,359,000



Table 22. High-Level Cost Estimate of the Active Transportation Network by Facility Type

Municipality	Off-Road Route ²		Buffered Paved ³ Shoulder		Paved Shoulder ⁴		Bike Lane ⁵		Signed Route ⁶		On-Road Route ⁷		Total	
	KM	\$	KM	\$	KM	\$	KM	\$	KM	\$	KM	\$	KM	\$
Amaranth	2.3	504,000	15.0	4,592,000	57.6	9,440,000	0.0	0	17.6	215,000	0.0	0	92.4	14,751,000
East Garafraxa	0.0	0	19.8	6,073,000	14.2	2,331,000	0.0	0	0.0	0	0.0	0	34.1	8,404,000
Grand Valley	4.4	980,000	20.0	6,112,000	1.1	182,000	0.0	0	20.9	255,000	0.0	0	46.4	7,529,000
Melancthon	14.5	3,209,000	6.4	1,947,000	55.5	9,102,000	0.0	0	5.2	64,000	0.0	0	81.5	14,322,000
Mono	9.0	1,998,000	0.9	266,000	36.4	5,966,000	0.0	0	44.1	539,000	0.0	0	90.4	8,769,000
Mulmur	0.0	0	15.0	4,582,000	2.7	444,000	0.0	0	27.8	340,000	0.0	0	45.5	5,366,000
Orangeville	22.1	4,911,000	1.1	352,000	5.0	814,000	8.6	334,000	0.4	5,000	0.0	0	37.2	6,416,000
Shelburne	7.2	1,609,000	0.0	0	2.0	336,000	2.5	96,000	0.0	0	2.3	763,000	14.1	2,804,000
Total	59.5	13,211,000	78.2	23,924,000	174.5	28,615,000	11.0	430,000	116.0	1,418,000	2.3	763,000	441.5	68,361,000

Notes:

1. The totals may not match with the Table 21 costing table due to rounding of the costs to nearest 1,000 in this table.
2. Off- road routes are new granular surfaced off-road multi-use trail outside road right-of-way in rural/urban setting. Typically, 3.0 m wide in complex site conditions (includes cost of clearing and grubbing). Price depends on scale and complexity of project. Price may vary between \$195,000 and \$249,000 per KM. The cost in the estimates is assumed @\$222,000 per KM.
3. Buffered Paved shoulder are in conjunction with the existing road reconstruction or resurfacing project. 1.5 metre paved shoulder + 0.5-1.0 metre paved buffer on both sides of the road. Assumes cycling project pays for additional granular base, asphalt, painted edge lines and signs (buffer zone framed by white edge lines). Price may vary between \$275,000 and \$340,000 per KM. The cost in the estimates is assumed @\$306,000 per KM.
4. Paved shoulder is 1.5 metre wide, paved on both sides of the roadway. Assumes cycling project pays for additional granular base, asphalt, and painted lines. Price may vary between \$115,000 and \$215,000 per KM depending on the work needed to improve the platform. The cost in the estimates is assumed @\$164,000 per KM.
5. Bike lanes are primarily implemented through adding pavement markings or adding pavement markings through a road diet (no reconstruction required). The cost in the estimates is assumed @\$39,000 per KM.
6. Signed route includes signs and painted edge line (100 mm solid white line). The cost in the estimates is assumed @\$12,200 per KM.
7. On-road route is a two-way Active Transportation Multi-use path within the road right-of-way. Typically, 3.0 m wide hard surface pathway (asphalt) within the road right-of-way (no utility relocations). Price depends on the scale and complexity of project and if existing sidewalk is being removed (i.e., crushing of existing sidewalk and compacting for trail base). Price may vary between \$275,000 and \$375,000 per KM. The cost in the estimates is assumed @\$325,000 per KM.



7.3.2 ROAD NETWORK

This section of the TMP provides high-level cost estimates for the roads identified in the preferred alternative. The costs will require confirmation as the projects approach implementation through detailed design of the facilities. The road cost estimates assume:

- Widen from two to four lanes: \$4.25 million per kilometre;
- Reconstruct and strengthen two-lane road to accommodate more vehicle traffic: \$4.60 million per kilometre; and
- Construct new two-lane road: \$3.90 million per kilometre.

The construction costs assume are for road works within the right-of-way, including excavation and preparation, construction, construction management, and active transportation facilities, and include HST. Excluded from this are any land acquisition costs. The estimated costing for proposed roads segments using the preferred alternative is provided in **Table 23**. The exact cost of construction of all roads will be determined in detailed design.



Table 23. Estimated Costing for Proposed Road Improvements of Preferred Alternative

ID	Description	Road	Segment	Segment Length (km)	Cost Per Kilometre (\$) Including HST	Costing (\$)
County Initiatives						
1	Widening	County Road 109	Highway 10 to County Road 11	9.03	4,250,000	38,369,000
2	Widening	County Road 109	County Road 11 to County Road 12	2.76	4,250,000	11,730,000
3	Widening	County Road 109	County Road 12 to County Road 25	9.31	4,250,000	39,567,500
4	Widening	County Road 16	Highway 10 to Mono-Amaranth Townline Road	2.76	4,250,000	11,738,500
5	Widening	County Road 7	Highway 10 to Side Road 5	1.03	4,250,000	4,364,750
6	New 2-Lane	Amaranth East Luther Townline	County Road 109 to County Road 10	5.62	3,900,000	21,933,600
Subtotal (County Only)				30.51		127,703,350
Provincial Initiatives						
7	Shelburne By-pass			To be determined		



ID	Description	Road	Segment	Segment Length (km)	Cost Per Kilometre (\$) Including HST	Costing (\$)
8	Widening	Highway 9	Highway 10 to County Road 18	9.23	4,250,000	39,240,250
9	Widening	Highway 10	Highway 89 to Mono Centre Road	10.14	4,250,000	43,103,500
Subtotal (Provincial Only)				19.37		82,343,750
Total (County plus Provincial)				49.88		210,047,100



7.4 FUNDING

It is acknowledged that the recommended capital projects in the TMP will require significant ongoing investment. At the Federal, Provincial, County and Municipal level there are additional funding opportunities beyond the annual capital budget process to support future projects.

The following sections outline the proposed funding options which are available for the various modes. The County should continue to monitor and explore funding programs made available by all levels of government on a regular basis.

7.4.1 ACTIVE TRANSPORTATION FUNDING

It is recommended that the County seek a diverse range of funding sources to support the implementation of the AT network highlighted in this plan. External funding sources are an effective way to reduce the County's costs while being an opportunity to develop and enhance partnerships with the local municipalities and other stakeholders. The funding opportunities in this section are subject to change and should be reviewed again prior to applying. The suggested funding opportunities the County should pursue to support the AT Network includes:

Funding opportunities	Additional details
Federal Active Transportation Fund	For additional details regarding the Active Transportation Fund refer to: https://www.infrastructure.gc.ca/trans/index-eng.html
Canada Community-Building Fund / Provincial Gas Tax	For the federal Canada Community-Building Fund program please refer to: https://www.infrastructure.gc.ca/plan/gtf-fte-eng.html For the provincial program refer to: https://www.ontario.ca/document/gasoline-tax



Funding opportunities	Additional details
Federation of Canadian Municipalities Green Municipal Fund	For additional details regarding the Green Municipal Fund and potential funding alternatives refer to: https://greenmunicipalfund.ca/
Ontario Trillium Foundation	For details regarding potential funding alternatives refer to: https://otf.ca/
Ontario Rural Economic Development Program	For details refer to: https://www.ontario.ca/page/rural-economic-development-program
Service Club Support	Lions, Rotary and Optimist clubs who often assist with highly visible projects at the community level.
Corporate Environmental Funds (Shell, TD, MEC)	For example, refer to: Shell Canada’s Social Investment Program: https://www.shell.ca/en_ca/sustainability/communities/funding-guidelines-process.html ; or TD’s Friends of the Environment Foundation Grant: https://www.td.com/ca/en/about-td/ready-commitment/funding/fef-grant
Private Citizen Donation / Bequeaths	Can also include tax receipts for donors where appropriate.



7.4.2 ROADS FUNDING

FEDERAL FUNDING STRATEGIES

The \$53-billion 2014 New Building Canada Plan (NBCP) was established by the Government of Canada to fund projects from 2014 to 2024. The New Building Canada Fund (NBCF) is a part of the NBCP that distributes \$14 billion to support projects that promote economic growth, job creation, and productivity. The 2014 NBCF comprises of two major components, which consists of:

- A \$4-billion National Infrastructure Component (NIC): The NIC distributes fundings for projects of national significance, projects that benefits the broader public, and that feed into the long-term economic growth.
- A \$10-billion Provincial-Territorial Infrastructure Component (PTIC): The PTIC supports infrastructure projects that have national, regional, and local significance and is beneficial to economic growth, a cleaner environment, and building stronger communities. The PTIC comprises two subcomponents:
 - National and Regional Projects (PTIC-NRP): Provides projects that are nationally and regionally significant and are typically considered medium to large scale.
 - Small Communities Fund (PTIC-SCF): \$1 billion is allocated to projects in communities that consist of 100,000 residents or less.

The County of Dufferin should continue to monitor for updates involving the New Building Canada Plan after the funding period has ended in the year 2024 to be informed if the program has been renewed. The funding opportunities in this section are subject to change and should be reviewed again prior to applying.

The Federal government has a permanent source of funding called the Canada Community-Building Fund (CCBF) that is provided up front, twice-a-year to provinces and territories, who then distributes the funding to municipalities to support local infrastructure priorities. From the year 2023-24, Ontario has been allocated \$890,735,000 for funding under this initiative. Eligible recipients for the Canada Community-Building Fund in Ontario includes local governments (municipalities and designated First Nations with local government status), Government of Ontario (if providing core municipal services in unincorporated areas), and non-municipal entities



(only with local government support or in unincorporated areas with Government of Ontario support).

PROVINCIAL FUNDING STRATEGIES

The Ontario Provincial Government provides an Infrastructure Ontario's Loan Program that provides long-term financing to eligible public sector clients that helps renew infrastructure and delivers improved infrastructure to residents. Infrastructure Ontario (IO) promotes the loan program as being beneficial for:

- Affordable rates;
- Access to capital market financing without any fees or commissions;
- Longer load terms designed to match the life of an asset;
- No need to refinance over the life of the loan; and,
- Online application with access to dedicated and experienced staff.

IO loans are intended to be utilized as a capital investment on projects related to roads, bridges, and other projects that would improve mobility for all transportation users.

Development Charges

Other funding sources that can cover the cost of proposed local infrastructure can come from development charges that are imposed on new developments. In 2022, Dufferin County completed the Development Charges Background Study, which will be used to inform the development charges. Portions of the cost of roads will be funded via development charge mechanisms with the exception of new roads that are constructed as a part of Draft Plan of Subdivision.

Transit Funding

The Federal Government launched a funding program called the Rural Transit Solutions Fund in the beginning of 2021. The purpose of the fund is to support Canadians living in rural and remote areas to allow for easier access and to create better connectivity to other nearby communities. The Rural Transit Solutions Fund is the first federal fund that focuses on the development of transit in rural communities, which would allocate \$250 million in federal funding for 5 years. The Fund would help develop transit solutions to improve the way people get to work, school, appointments, and other activities.



Applicants that are eligible can apply for grants of up to \$50,000 to support project planning, as well as up to \$3 million to cover part of the capital costs.

There are no plans or commitments for County-funded transit at the writing of this TMP. The County can consider external and internal opportunities for funding and when to introduce County-supported transit.

7.5 MONITORING STRATEGY

The County could consider tracking progress of the implementation of transportation studies, initiatives, physical projects as well as the impact those have, to ensure there is a more balanced transportation modal split at peak hours. It is important to monitor the performance of the TMP to be able to validate the transportation projects that are constructed and to analyze where modifications in the TMP are needed. It is essential to have a monitoring plan in place to measure the variety of multi-modal facilities, services, and performances shown in **Table 24**.

Table 24. Multi-modal data collection framework with key indicators

Indicator	Measure	Data Source	Frequency
Walking and Cycling	Total kilometres of on/off road cycling facilities (such as bike lanes, cycle tracks, off-road trails, and paved shoulders)	County and Town/Township	At least every four years
	Total kilometres of new sidewalks	County and Town/Township	At least every four years
	Number of crosswalks or intersection improvements	County and Town/Township	At least every four years



Indicator	Measure	Data Source	Frequency
Road Network	Volume to capacity ratios on north-south and east-west screen lines during the p.m. peak period	County and Town/Townships automated traffic counts	At least every four years
	Total lane kilometres of new roads	County and Town/Township	At least every four years
	Total lane kilometres of repaved or newly treated roads	County and Town/Township	At least every four years
Carpooling	Modal share of auto passengers during the p.m. peak period	TTS	At least every four years
Safety	Number of collisions (motorists)	Police collision reports	Yearly
Vehicle Registration	Number of registered vehicles per 1,000 inhabitants	Number Plate registration	Yearly