WELLINGTON COUNTY

ROAD Master Action Plan | December 2021

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County of Wellington

Road Master Action Plan

December 2021 - 20-3297

Table of Contents

Figures

Tables

Appendices

1.0 Introduction

1.1 Study Purpose

The purpose of the Road Master Action Plan (RMAP) is to provide long-term guidance on transportation in the County by identifying future policy direction and transportation infrastructure needs on the County transportation network. This is largely based on the need to accommodate future population and employment growth into 2041, changing travel behaviours and immediate traffic issues related to safety, speeding and efficiency.

The objectives of the study were to:

1. Identify long-term County road network needs to support area growth.
2. Provide input into other County plans and studies that will help make decisions on how to pay for improvements to the County road network.
3. Identify and address concerns with the County roads through rural and urban areas, including safety and speed.
4. Identify opportunities to better connect the County to neighbouring municipalities and the broader region through an integrated transportation planning approach.

1.1.1 Municipal Class Environmental Assessment Process

The RMAP was completed in accordance with the requirements of Phase 1 and 2 of the Municipal Class Environmental Assessment (MCEA) process for master plans.

The MCEA is a streamlined environmental assessment process for municipal infrastructure projects with a predictable set of impacts involving municipal roads, water and wastewater. The MCEA process is regulated under the Ontario Environmental Assessment Act.

There are five phases under the MCEA process:

1. Identify the problem or opportunity
2. Identify the alternative solutions
3. Examine the alternative designs for the preferred solution
4. Prepare the Environmental Study Report
5. Implementation

The MCEA process also requires public consultation throughout the project. There were various opportunities for the public to provide feedback for the RMAP to meet the consultation requirements. The RMAP consultation included a public meeting, two surveys, and a Social Pinpoint mapping activity.

1.2 Consultation and Engagement

The engagement process was designed to provide opportunities for the public, stakeholders, and Indigenous communities to voice concerns and feedback to help create an RMAP that is informed and inclusive. The consultation for the RMAP is mandatory under the MCEA process in accordance with the master planning process for MCEAs. In order to meet consultation requirements, various opportunities for public and stakeholder engagement were available. The consultation presented key information for the public and stakeholders to provide meaningful feedback for the RMAP. The feedback collected was used to shape the direction of the RMAP.

Due to the COVID-19 pandemic, the public engagements were conducted virtually to adhere to local public health guidelines. The first round of public engagement occurred from January to February 2021 and involved an online survey and a Social Pinpoint mapping activity. The second round of public engagement occurred from June to August 2021 and involved a virtual public meeting and an online survey.

Public meetings and opportunities for input were available at the Roads Committee meetings where all RMAP reports and presentations were provided to the committee and subsequently County Council. The project webpage provided the study documentation for public and stakeholder review and comment.

1.2.1 Online Survey #1: Vision and Goals

The first online survey received 103 total responses. The survey was hosted on the County's project webpage and focused on the Vision and Goals for the RMAP project.

The survey results indicated that health, environment, sustainability, inclusivity, safety, and proactive planning are key issues that should be addressed for all modes of transportation. The online survey summary can be found in Appendix A.

1.2.2 Social Pinpoint Mapping Activity

The Social Pinpoint page received 3,967 visits and 601 total comments. Social Pinpoint is an online engagement platform that offers a mapping tool. This tool provides the opportunity for the public to drop markers onto specific locations within a map of the study area and leave comments. The public was asked to leave markers and comments based on five themes: general issues or concerns, intersection improvements, opportunities for improvement, safety issues, and speeding issues.

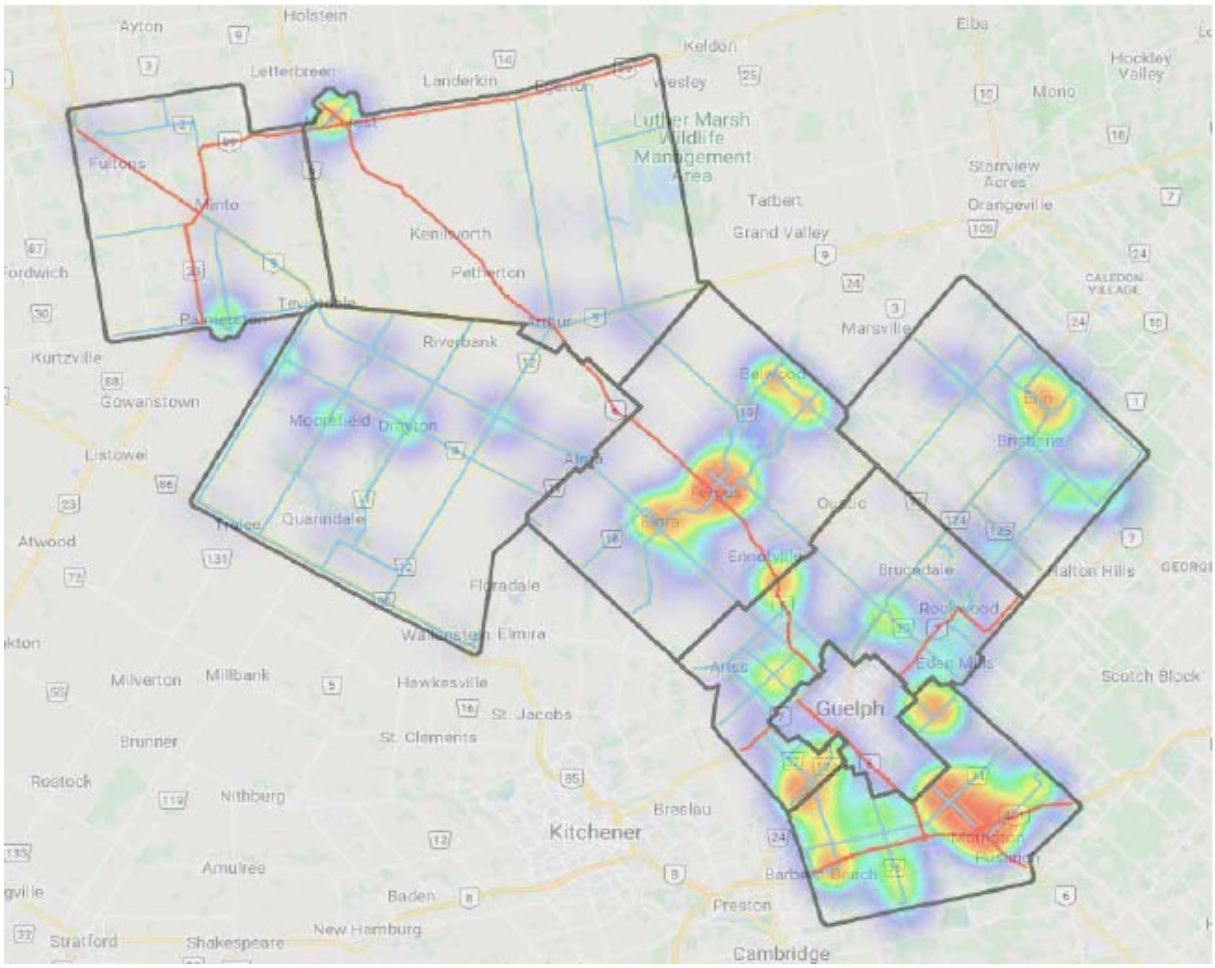


Figure 1: Heat Map of Comments Received from the Social Pinpoint Activity

The areas that received the most comments are the following:

- In Mount Forest, around the intersection of Highway 6 and Wellington Road 6 (Sligo Road);

- In Fergus, clustered around Highway 6, along Wellington Road 18/St. Andrews Street, Wellington Road 19 and Wellington Road 13;
- In Aberfoyle and Morriston, along Wellington Road 46;
- Southwest of the County, along Wellington Road 32; and
- In Erin, along Wellington Road 124 (Main Street).

The Social Pinpoint mapping activity summary can be found in **Appendix A.**

1.2.3 Public Meeting

The public meeting had a total of 75 attendees. The virtual event was hosted on Zoom on June 17th, 2021 from 7:00 pm to 8:30 pm. The meeting was held virtually to comply with the local public health guidelines during the COVID-19 pandemic. The purpose of the public meeting was to present the purpose of the RMAP, project timeline, vision, goals, current movement on County Roads, key issues, evaluation criteria, areas of concern, and by-pass evaluation. The event included a presentation, a question-and-answer session, and an activity session in a series of breakout rooms.

The breakout room activity session was conducted on the MURAL platform, which provided a virtual whiteboard for participants to engage collaboratively. The activity solicited feedback on the five evaluation criteria: transportation, natural environment, cultural environment, socio-economic environment, and cost. The public meeting summary can be found in **Appendix A.**

1.2.4 Online Survey

The online survey received 306 total responses. The survey was hosted on SurveyMonkey. The survey focused on receiving key input on decisions for the RMAP:

- What are the issues that matter in making a decision that will feed into the evaluation of possible solutions for the future County roadway network identified in the RMAP?
- What are the alternative solutions to address each of the long-term congestion issues identified to be solved through this Plan, and what does the evaluation tell us about which ones are recommended?

The survey questions were tailored to ask for input on the evaluation criteria for transportation, natural environment, cultural environment, socio-economic environment, and cost. Additionally, respondents provided input on the preliminary evaluation of the recommended long-term road network solutions.

The survey results indicated that the RMAP should support the environment, local recreational activities, the safety of children, and the cultural and Indigenous history of Wellington, in particular with respect to the design of new infrastructure that would have environmental impacts on watercourses and vegetation. The majority of the respondents were satisfied with the existing evaluation criteria. The area-specific preliminary results were divided between “agree” and “don’t know/unsure” for the level of agreement with the recommended solutions. The results also indicate that respondents strongly disagree with the recommended solution for By-Pass Routes in the area of Fergus and Elora, with a desire to see a further study conducted before any recommendations are made that would impact the safety and quality of life for residents in areas along the By-pass routes. In particular, concerns revolved around:

- Disruption to local ecosystem;
- Impact on wildlife (Canadian geese, Blue Heron, etc.) and fishing habitats (and ecotourism);
- Constructing a by-pass through an established neighbourhood and the impact to property values;
- Increased noise levels and traffic on residential neighbourhoods;
- Greater safety risks for local residents and children (particularly at the local school);
- Removal of mature trees for construction; and
- Respect of the history and heritage of the community (i.e. Pierpoint Settlement and Pierpoint Park).

There were also comments related to the consideration for using the existing bridge (one concession away on 2nd Line), rather than constructing a new bridge and making better use of this existing bridge.

The low level of support for the By-pass reflects several separate issues:

- Impacts of increased auto and truck traffic on WR 7/17 and the village of Alma;
- Impacts and cost of WR 7 widening of the bridge crossing the Grand River; and
- Impacts of connecting WR 29 across the Grand River on the natural environment and on the community in the Anderson Street corridor.

1.2.5 Technical Advisory Group (TAG Meetings)

A Technical Advisory Group (TAG) was established at the outset of the RMAP project process. The role of this group was to advise on the study scope and provide technical advice and recommendations throughout the project to guide the development of the RMAP. Meetings with the TAG were scheduled to occur at three key project milestone stages. The TAG consisted of representatives from all the local municipalities, Wellington Ontario Provincial Police (OPP), the City of Guelph, and the Ministry of Transportation Ontario (MTO) to provide diverse and balanced technical expertise and perspectives.

1.2.6 Roads Committee Meetings

The Roads Committee is the body that is responsible for reviewing road-related policy, development, and the adoption of recommendations in the County. As part of the RMAP consultation process, the Roads Committee was engaged throughout the project, and provided with regular updates at each phase of the assignment, seeking direction at key milestones and approval of a number of RMAP recommendations. Nine presentations were made to the Roads Committee at various points throughout the project to ensure that there was alignment and for review of the technical work.

1.2.7 General Input

Internal and external stakeholders, interest group representatives, and Indigenous groups were notified about the status of the project throughout the Municipal Class Environment Assessment requirements. The stakeholders represent different interests, organizations, and community groups. While, the Indigenous groups include the Mississaugas of the Credit and the Six Nations of the Grand River Territory.

After the circulation of the Notice of Commencement, individual meetings (up to six) were available to be scheduled if requested or necessary. The first meeting arranged

was with the Aberfoyle Traffic Study Stakeholders, which focused on the traffic study in January 2021.

In addition, the Pierpoint Neighbourhood Resident's Group Delegation presented at the November 9th 2021 Roads Committee meeting. The group had concerns about the proposed designation of Anderson Street as a truck route and the bridge crossing of Grand River at Wellington Road 29. Five issues were discussed at the presentation:

- Pedestrian safety - John Black School;
- Natural Environment - park, ecosystem, fly-fishing reserve;
- Traffic - noise, health;
- Planning - cost, justification; and
- Cultural heritage - Richard Pierpoint.

1.3 Vision and Goals

A Vision statement for the RMAP is presented below, which represents the desired transportation future in Wellington County. This was used to steer the direction of the various policies and recommendations in the plan.

1.3.1 Vision

To connect people and goods across the County safely, conveniently, efficiently and sustainably

The Vision is supported by a series of Goals, which are high-level outcomes that each recommended action and strategy from the RMAP will work towards. Each of the Goals are illustrated below:

1.3.2 Goals

1. **Create a Transportation Network with a Focus on Safety**
   The movement of people and goods in Wellington County will be safe for users of all modes. All maintenance, repairs, rehabilitation and expansion of the County transportation network will prioritize safety and functionality.

2. **Provide Sustainable and Equitable Mobility Options that Connect Communities**
   The County will continue to find ways to improve/enhance mobility options, including active transportation and transit, to provide sustainable and equitable

access of goods and service, employment and education and recreational opportunities between urban hamlets and other key destinations in the County.

3. **Be Proactive in Planning for Future Expansion of the County Road Network based on Complete Streets Principles while Considering the Quality of Life of Residents**
   The County will be proactive in expanding the capacity of County roads to accommodate anticipated growth in traffic, to minimize peak period delays where warranted, based on Complete Streets principles and while considering the residents' quality of life. Complete Streets is a framework which aligns the role and function of the facility, including its ability to accommodate a wide range of users and modes as appropriate, with its design. This could include access and use by cars, trucks, bicycles, pedestrians and transit. Some aspects of the Complete Streets principles will need to be co-ordinated, implemented, funded and maintained by the local municipality. During this planning process, the local residents' quality of life will be considered as part of determining the appropriate design of the road network.
4. **Make Investment Decisions that are Environmentally Responsible.**
   The County will approach the development of the transportation network in a manner that promotes environmental responsibility. Decisions regarding planning and future construction will employ standards of sustainability, will consider options to accommodate sustainable modes (e.g. transit and cycling) or the use of lower carbon vehicles, and reduce the need to travel long-distances to access goods and services.
5. **Support Economic Development**
   The County's transportation network will support tourism activities, the efficient movement of goods, and provide access to employment and education opportunities for all residents.
6. **Be Fiscally-Responsible When Making Investment Decisions**
   The decision to maintain or expand the County's transportation network will be fiscally-responsible, and consider funding opportunities, lifecycle costing and ability to cost-effectively achieve strategic priorities when prioritizing transportation investments.
7. **Develop Transparent Policy Tools that Guide Investment Decisions in the Transportation Network**

The County will develop open and transparent policy tools and frameworks to guide decision-making to address immediate operational concerns and long-term investment needs of the County's transportation network. This will improve accountability of decisions and priorities made.

8. **Create a Culture of Collaboration with Municipal Stakeholders where the County Transportation Network Intersects with Areas of Local Importance**
   The County will collaborate with local municipal stakeholders to develop a transportation network that recognizes the different priorities of roads that traverse built-up communities and the need for an effective inter-municipal transportation system focused on long-distance movement of people and goods. When partnering with other jurisdictions, local municipalities and community partners, success will be measured by the effectiveness of collaboration efforts (i.e. was the action item successful in achieving the vision for all partners?).

The draft Vision and Goals were presented to the TAG, Roads Committee, and Council and to the public during the initial round of engagement and received support. Additional details on the development of a Vision and Goals are included in **Appendix B**.

2.0 Study Context

The section of the report sets the context for the RMAP, including the land use, population and transportation networks that connect the County.

2.1 County Structure and Area

The County of Wellington is located northwest of the Greater Toronto Area. Other significant communities close to Wellington County include the Counties of Grey and Bruce to the north, Dufferin County and Peel Region to the east, Halton Region and the City of Hamilton to the south, and the Region of Waterloo and Counties of Huron and Perth to the west. The City of Guelph is a separate municipality found within the County boundaries (**Figure 2**).

The County has an existing population of 96,000 and 40,100 employees, spread over a large geographic area encompassing 2,569 square kilometres (Statistics Canada, 2016). The population and employment are anticipated to grow to 140,000 and 61,000 respectively by 2041.

Wellington County is made up of seven local municipalities including Township of Centre Wellington, Town of Erin, Township of Guelph/Eramosa, Township of Mapleton, Town of Minto, Township of Puslinch, and Township of Wellington North. Population and employment opportunities are largely condensed in Centre Wellington, however, the two biggest employers (TG Minto and MSW) are located in North Wellington and the Town of Minto.

Table 1 illustrates the role of the County, each of the local municipalities and the Ministry of Transportation with regards to the transportation network. The RMAP focuses only on the areas that the County is responsible for.

Table 1: Levels of Government Responsibilities

Type	Local Municipalities	Wellington County	Ministry of Transportation
Provincial Highways	No	No	Yes
County Roads	No	Yes	No
Local Roads	Yes	No	No
Pedestrian Network	Yes	Yes*	No
Bicycle Network	Yes	Yes	No
Multi-Use Trails	Yes	Yes	No
Transit	No	Yes	No
Goods Movement (long haul, local delivery, and local service)	Yes	Yes	Yes
Parking and Curb Management	Yes	No	No

*County is responsible for pedestrians using trails and shoulders on County roads. Sidewalks on County roads are the responsibility of the local municipality.

2.2 Policy Framework

The Province of Ontario, Wellington County, and local municipalities have created various plans and policies that impact the local transportation system. Provincial and County level plans dictate development and guide future transportation network plans. These plans need to be considered when developing corresponding local plans. The following documents from each level of government were reviewed during the development of the Wellington County Road Master Action Plan.

2.2.1 Province of Ontario

2.2.1.1 Growth Plan for the Greater Golden Horseshoe (2017)

The Growth Plan for the Greater Golden Horseshoe dictates the growth and development of Wellington County from a provincial perspective.

Figure 2: County of Wellington Map

2.2.2 Wellington County

2.2.2.1 Wellington County Strategic Action Plan (2019)

The Plan was developed by County senior staff and elected municipal officials to provide direction to strengthen the County's corporate culture, collaborative nature, cohesiveness and decision-making processes. The plan includes strong corporate values and strategies to capitalize on potential opportunities in the future. Many of these have relevance to how transportation decisions are made.

2.2.2.2 Wellington County Official Plan (2019)

The Official Plan sets direction over the next 20 years for the physical development of the County, its local municipalities and the long-term protection of County resources. The plan also includes policy direction for the County's transportation network. Part 12 of the plan focuses on transportation, which provides policy and guidance on decision-making for pedestrian facilities, cycling, public transit, roadways, utility lines, and airports. The County aims to cooperate with surrounding jurisdictions to enhance the transportation network.

2.2.2.3 Wellington Active Transportation Master Plan (2012)

The Active Transportation Plan identifies important policies and values that are focused on the implementation of bicycle networks on both local and County roads.

2.2.2.4 Wellington County Asset Management Plan (2013)

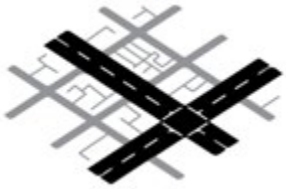
The County's Asset Management is an integrated approach to provide services to the community at Council approved levels in a sustainable manner. The plan uses life cycle best practice principles to facilitate long-term financial planning to reduce risk and to achieve the best value from corporate asset investment. The plan includes principles for the transportation network, including how to preserve and expand assets.
Through the review of these plans and policies, as well as existing travel demand on the County road network, key considerations for the RMAP emerged.

3.0 Existing Conditions

3.1 Roadway Network

The road network in the County of Wellington includes Provincial highways, County arterial and collector roadways, and Town and Township collector and local roadways. This hierarchy helps to determine the use and purpose of a roadway, giving direction on the speed limit, capacity, and typical volumes for that roadway type. The County's Official Plan provides guidance on the classification of roadways. Characteristics of each roadway type are detailed in **Table 2.**

Table 2: Roadway Characteristics

Type	Highways and Arterial Roadways	Collector Roadways	Local Roadways
Graphic Representation			
Jurisdiction	Provincial highways, County roads	County roads, Town and Township roads	Town and Township roads
Traffic Volume	High volumes	Moderate to high volumes	Low volumes
Average Speed (km/h)	80 to 100	60 to 80	40 to 60
Function	Serve as major connecting links for inter-urban traffic.	Provide access between local and arterial roads and circulate traffic within a neighbourhood.	Provide access to individual properties by connecting them to collector roads. Not intended to act as through routes.

Type	Highways and Arterial Roadways	Collector Roadways	Local Roadways
Dedicated Pedestrian and Bikeway Facilities	N/A	Urban collector roads will be served by sidewalks on at least one side*	Local urban roads will be served by sidewalks on at least one side*
Road Right-of-Way (m)	N/A	30 metres for County roads outside urban centres 20 metres for County roads inside urban centres	20 metres
Transit	Design can accommodate large transit buses	Design can accommodate large transit buses	All roads do are not designed for large transit buses
Parking	No parking	Can accommodate parking on one side inside urban centres	Can accommodate parking on one or both sides

*Towns and Townships are responsible for sidewalks.

The County of Wellington contains a road network that is 3,162 kilometres in length under the jurisdiction of three different levels of government.

- The Ministry of Transportation owns and maintains 203 km of provincial and freeway highway network in Wellington County;
- Wellington County owns and maintains 706 km of major arterial roads, including County Roads; and
- Local municipalities own and maintain 2,253 km of other publicly-owned roads in the County.

County roads are mostly rural in nature, with the exception of select urban cross sections through urban or village centres.

In general, County roads consist of 2 lane cross sections, with exceptions being Wellington Road 46 between Wellington Road 34 and Highway 401 (4 and 5 lanes) and select roadway selections on Wellington Road 7, 124, and 125 where passing lanes exist.

The existing roadway network within the County of Wellington is illustrated in **Figure 3.** An illustration of the number of lanes on County roads is included in **Figure 4**. Posted speed limits on County roads are depicted in **Figure 5**.

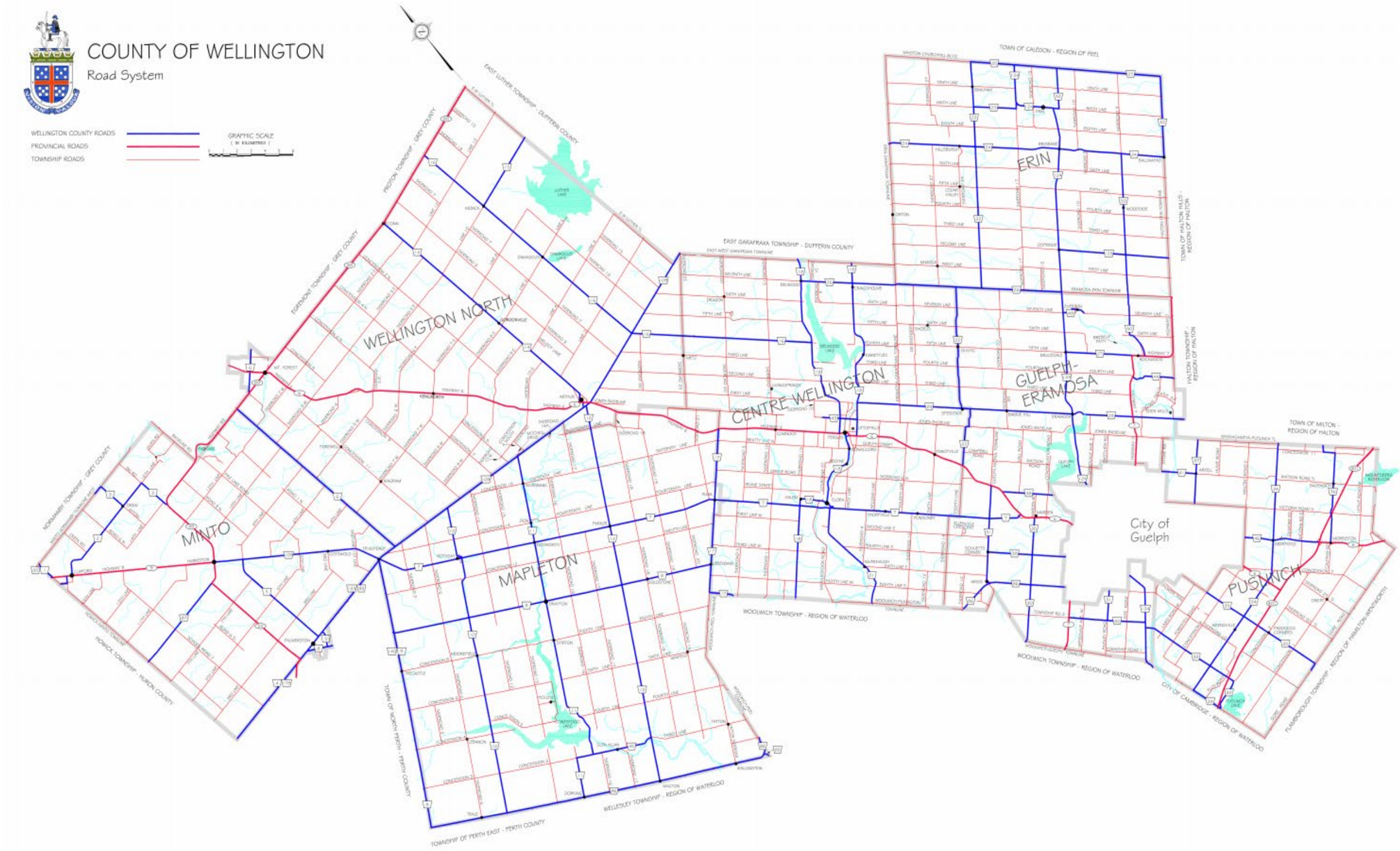


Figure 3: Existing Roadway Jurisdiction and Hierarchy

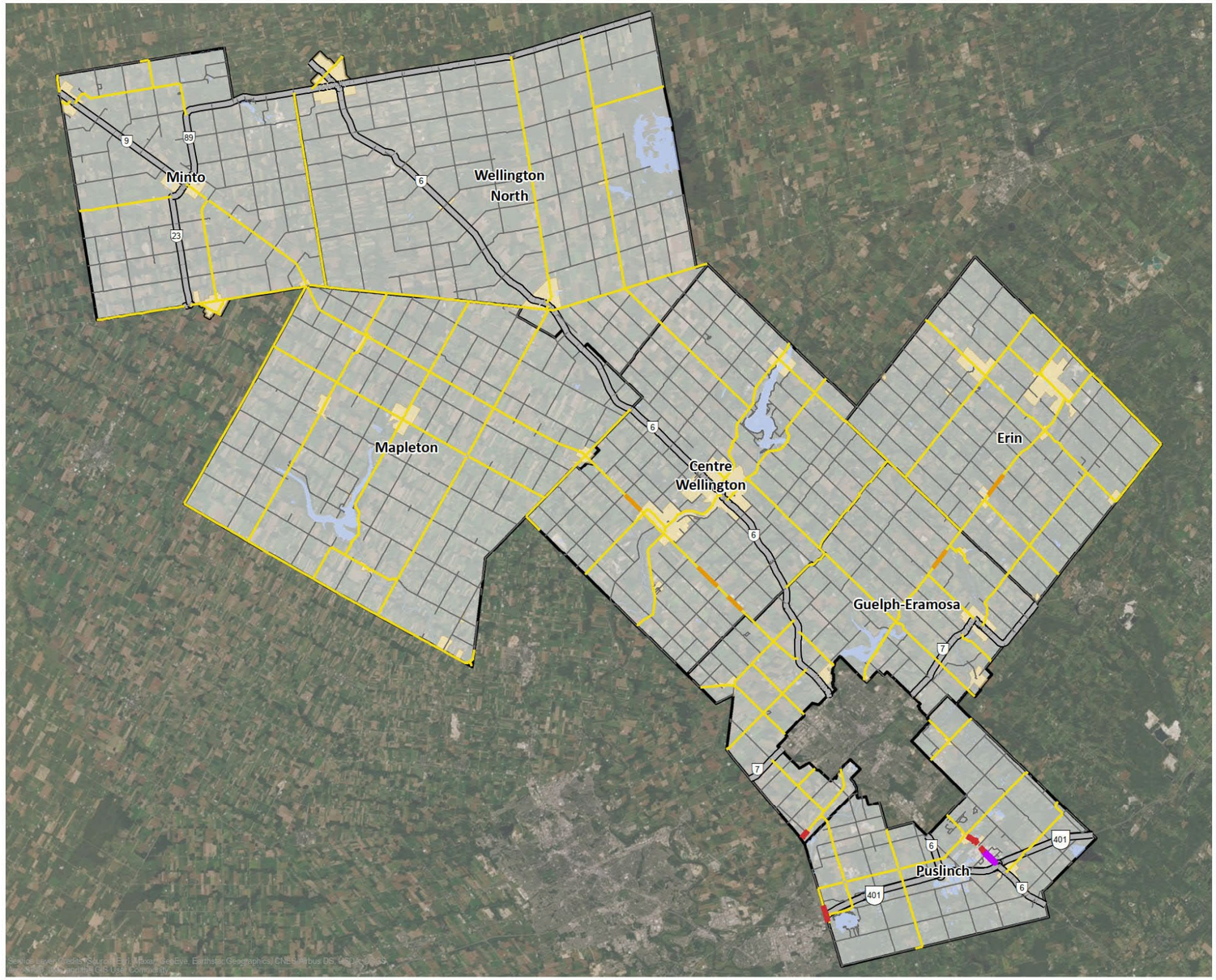
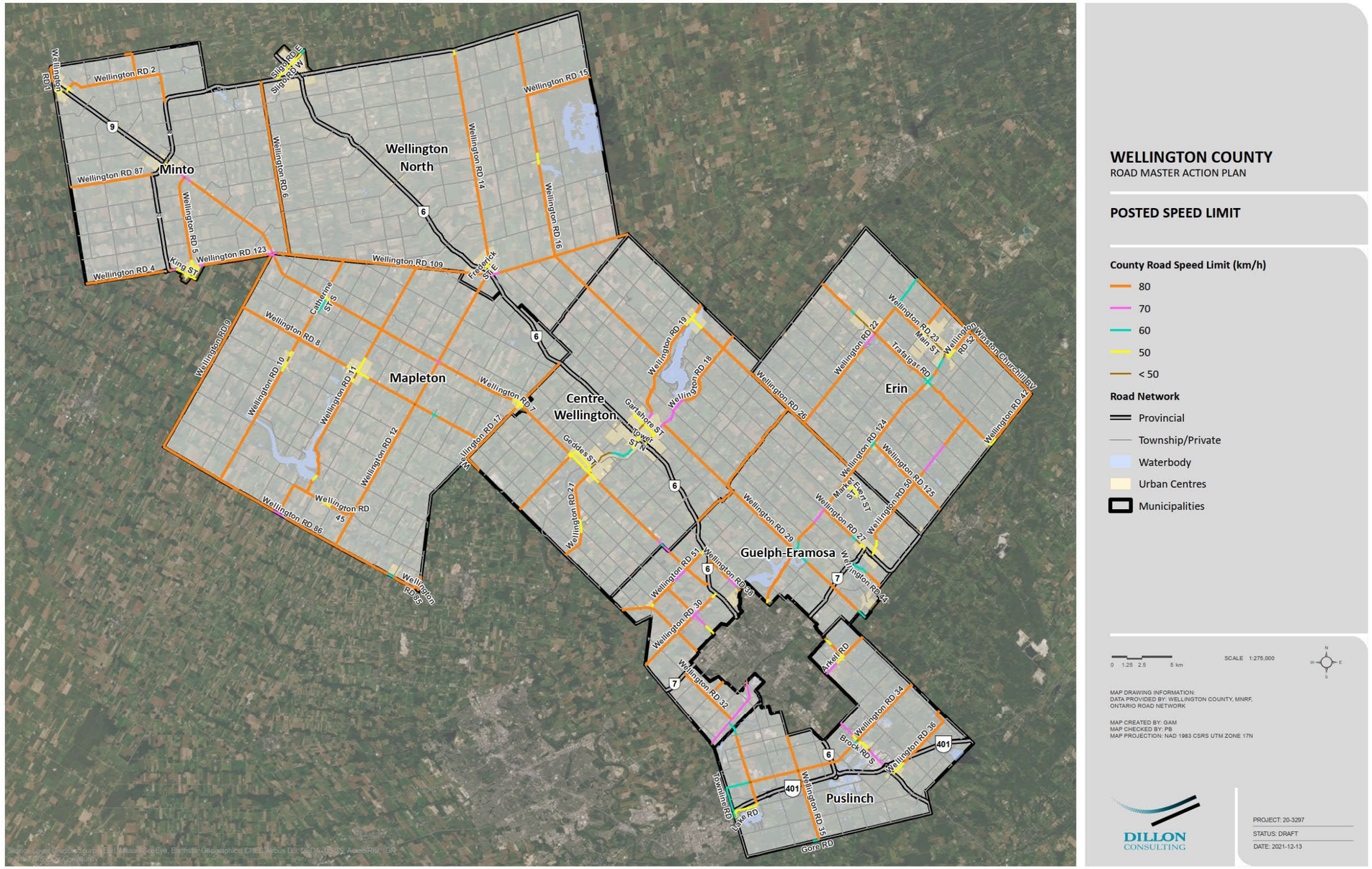


Figure 4: Existing Roadway Numbers of Lanes



WELLINGTON COUNTY
ROAD MASTER ACTION PLAN

POSTED SPEED LIMIT

County Road Speed Limit (km/h)
- 80
- 70
- 60
- 50
- < 50

Road Network
- Provincial
- Township/Private
- Waterbody
- Urban Centres
- Municipalities

0 1.25 2.5 5 km

SCALE 1:275,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY: WELLINGTON COUNTY, MNRF, ONTARIO ROAD NETWORK

MAP CREATED BY: GAM
MAP CHECKED BY: PB
MAP PROJECTION: NAD 1983 CSRS UTM ZONE 17N

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PROJECT: 20-3297
STATUS: DRAFT
DATE: 2021-12-13

Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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Figure 5: Existing Roadway Posted Speed Limits

3.2 Active Transportation

Active transportation (AT) such as walking and cycling is an important part of the County's transportation system. Studies such as "Wellington County's Active Transportation Plan" and the "Township of Centre Wellington Trails Master Plan" continue to guide the planning, design and implementation of active transportation routes and infrastructure.

The following types of routes and infrastructure exist within the County of Wellington to serve active transportation users:

- Off-road trails (outside of road ROW) in rural and urban areas, which can accommodate both pedestrians and cyclists. These include:
  - Single track walking and hiking trails;
  - Single track hiking and cycling trails;
  - Multi-Use Paths (MUP) for both pedestrians and cyclists;
- Off-Road multi-use trails (within road ROW) typically in urban areas, which can accommodate both pedestrians and cyclists; and
- On-Road signed routes which include:
  - Signed cycling routes on low volume urban roads where sidewalks exist for pedestrians;
  - Signed cycling routes on low volume urban roads where sidewalks do not exist and pedestrians share the road with motor vehicles and cyclists;
  - Signed cycling routes on low volume rural roads where pedestrians walk on road shoulders and cyclists share the road with motorists;
  - Paved shoulders in rural areas accommodate pedestrians and cyclists; and
  - Bicycle lanes (typically in urban areas with higher volume roads) with accompanying sidewalks for pedestrians.

A summary of the Active Transportation infrastructure within the County of Wellington is included in **Table 3.**

Table 3: Network Summary – Active Transportation Facilities*

Facility	Existing Length (km)
Multi-Use Trail (Spine Off-Road Route)	93.0
Secondary Off-Road Route	136.8
Signed Route	0.5
Signed Route with Sharrows	0
Paved Shoulder	27.0
Bike Lane	0
Total	**257.3**

**Sourced from the 2012 County of Wellington Active Transportation Master Plan*

The ATP has identified the following issues within the existing transportation network:

- Trail use conflict amongst users (i.e. cyclists, dogs, runners);
- Lack of signage;
- Poorly transitioned jurisdictional changes between municipal-owned and County-owned active transportation facilities;
- Disconnected network;
- Poorly maintained and unsafe trail conditions; and
- Lack of lighting.

The ATP has proposed that the County of Wellington aim to provide a continuous and connected active transportation network, which includes safe recreational and utilitarian routes to build upon, connect and support the existing and planned local municipal routes and facilities.

The existing and proposed active transportation facilities, identified in the ATP, are illustrated in **Figure 6**.

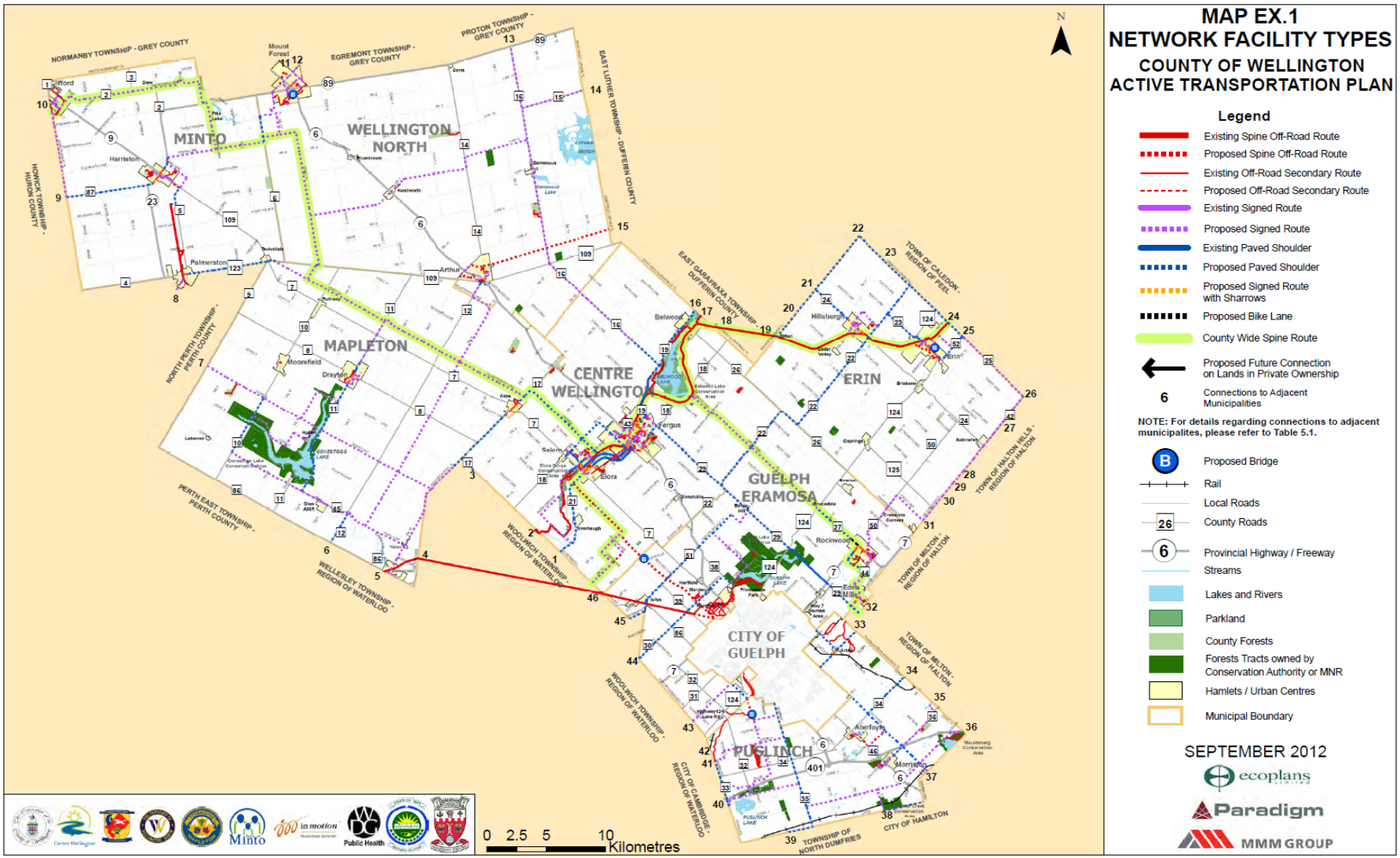


Figure 6: Active Transportation Network

3.3 Public Transit

Wellington County provides an On Demand public transit service called Ride Well, which offers curb-to-curb service to any address within the boundaries of Wellington County and to/from the City of Guelph as long as trips start or end in the County. The service is a pilot under the Ministry of Transportation Community Transportation Grant Program, expected to end in 2025. Prior to this point, a decision will need to be made about the sustainability of the program should provincial funding not be continued.

On Demand Transit is a shared-ride demand-responsive public transit service, which does not follow a fixed-route or schedule. Instead, passengers must pre-book trips and vehicles are routed dynamically to the passenger's pick-up and drop-off point. Modern On Demand services utilize mobile app technology, which allows customers to plan, book, track and pay for their ride in real-time, all while optimizing trips to increase the number of shared rides that can be accommodated without sacrificing service quality. The purpose of Ride Well is to provide an affordable mobility option for everyone in the County and has never been intended to generate a noticeable shift in the mode share for private vehicles.

The service is contracted to an On Demand technology provider to manage the mobile booking and scheduling platform and to operate the service. Trips can be booked via smartphone app and webpage anytime of the day, or over the phone Monday to Friday between the hours of 8:30 am - 4:30 pm. The service is provided using one to three non-accessible sedans that seat up to three passengers. Trips that require an accessible vehicle must be booked via phone and are contracted to a local taxi company who uses an accessible taxi to deliver the service (Fergus-Elora Taxi). Ride Well runs Monday to Friday, from 6:00 am to 7:00 pm, with no service on weekends and Statutory Holidays.

Currently, there are 877 customers registered for the service. This represents about 1% of all eligible Wellington residents (over the age of 13). Ride Well currently achieves approximately 25 rides per day, or 0.98 rides per service hour.

Transit in rural communities such as Wellington County are typically in place to provide mobility for individuals that do not have access to a private automobile or cannot drive. Given the low density environment and need for long-distance trips, it is difficult to provide a high level of service that will result in a shift in modes. Therefore, while the

level of daily ridership in the County is low, it is similar to other large County-wide rural transit systems.

3.4 Goods Movement

The movement of commercial goods and other freight within and through Wellington County is a key component of maintaining the economic health of the county. The on-road movement of these goods is reliant on a connected, convenient, and flowing network of major roadways (County Roads) for larger trucks.

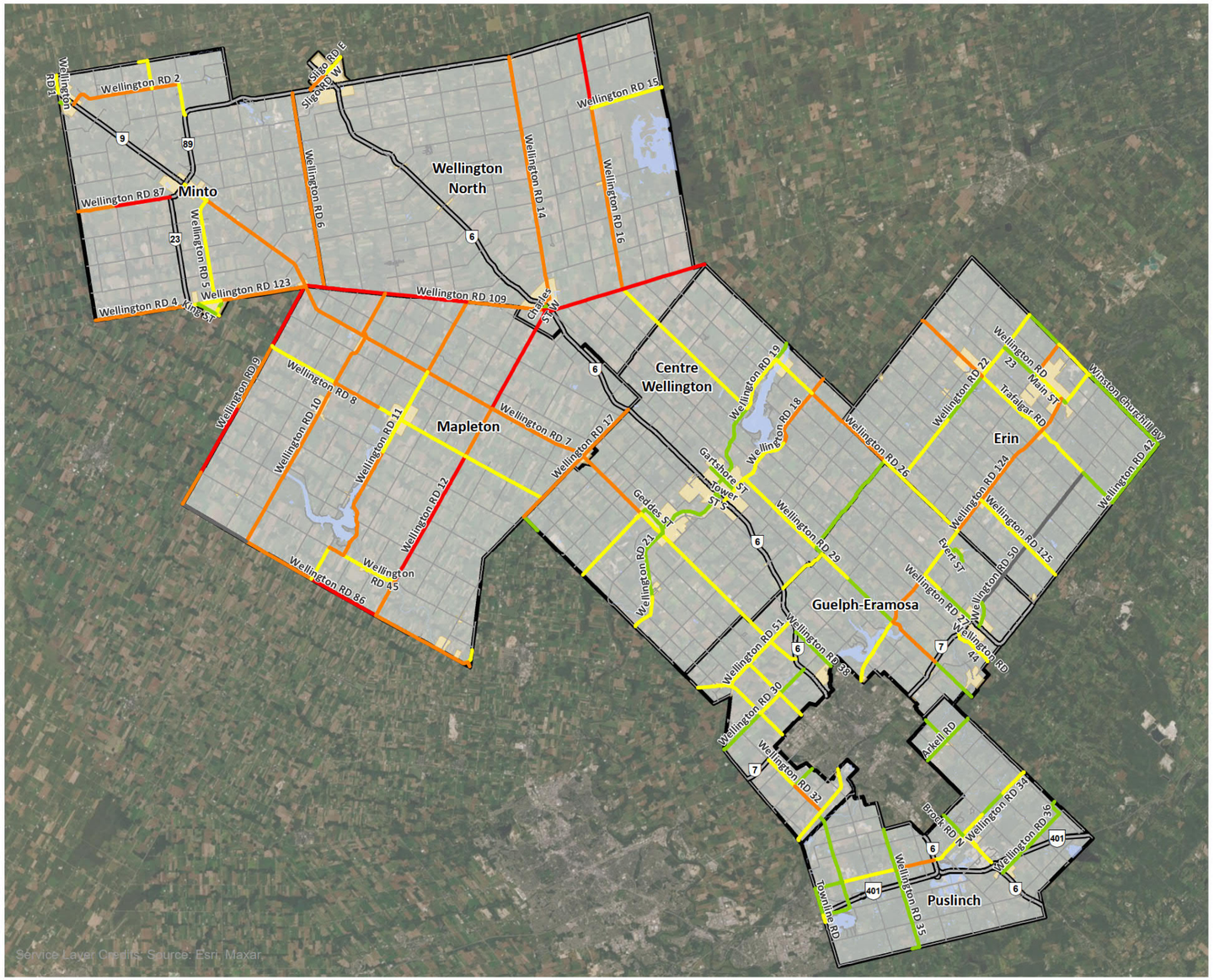
All of Wellington County's roads serve as routes for the delivery of goods to and from endpoints. Typical truck percentages from current data on County roads are illustrated in **Figure 7**.

3.5 Travel Patterns

3.5.1 Travel Mode Choice

The daily traveller mode choice in Wellington County has remained relatively stable over the past decade (2006 – 2016) according to data collected as part of the Transportation Tomorrow Survey (TTS). **Table 4** and **Table 5** provide a breakdown of the internal (trips within the County and the City of Guelph) mode share and overall mode share respectively. The largest growth in preferred mode type was seen in the automobile and transit modes. Conversely, the use of active modes (cycle/walk) has seen a slight decrease.

It should be noted that the mode share displayed in the tables below also reflect internal trips in the City of Guelph, given its location within the centre of Wellington County. The higher share of trips from transit and cycling/walking is primarily within Guelph, while automobile driver and passenger trips exclusively from Wellington County would be higher due to the lack of other mobility options and the long-distance nature of many trips.



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WELLINGTON COUNTY
ROAD MASTER ACTION PLAN

TRUCK TRAFFIC

County Road Truck Percentage
- No Data
- 0.1% - 2.0%
- 2.1% - 5.0%
- 5.1% - 10.0%
- >10.1%

Road Network
- Provincial
- Township/Private
- Waterbody
- Urban Centres
- Municipalities

Traffic data is sourced from County of Wellington Traffic Data

0 1.25 2.5 5 km

SCALE 1:275,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY: WELLINGTON COUNTY, MNRF, DILLON CONSULTING

MAP CREATED BY: GAM
MAP CHECKED BY: KM
MAP PROJECTION: NAD 1983 CSRS UTM ZONE 17N

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PROJECT: 20-3297
STATUS: DRAFT
DATE: 2021-12-14

Figure 7: Truck Percentages on County Roads

Table 4: Wellington Travel Mode Share: Internal Trips (Wellington to Wellington) [1]

Mode/Year	2006	2011	2016
Automobile Driver	72.3%	74.5%	73.8%
Automobile Passenger	15.4%	15.3%	15.3%
Transit	6.7%	6.3%	7.3%
Cycling / Walking	5.3%	3.7%	3.5%
Other	0.4%	0.2%	0.2%

Source: 2006, 2011 & 2016 Transportation Tomorrow Survey (TTS)

[1] Includes City of Guelph trips

Active transportation and transit mode shares (primarily Guelph Transit) are higher for internal trips (i.e., trips that start and end in Wellington County, including the City of Guelph) due to trip length and service connectivity. When all trips (to internal and external destinations) are considered, including inter-regional trips, the automobile driver mode is consequently higher.

Table 5: Wellington Travel Mode Share: Originating in Wellington [1]

Mode/Year	2006	2011	2016
Automobile Driver	75.3%	76.1%	76.6%
Automobile Passenger	15.4%	15.8%	14.9%
Transit	5.5%	5.5%	5.9%
Cycling / Walking	3.5%	2.5%	2.4%
Other	0.3%	0.2%	0.2%

Source: 2006, 2011 & 2016 Transportation Tomorrow Survey (TTS)

[1] Includes City of Guelph trips

3.5.2 Population

Population data from the 2011 and 2016 Statistics Canada census were used to identify areas of growth within the County of Wellington. Growth is delineated according to towns/townships (i.e., census subdivisions) within the County. A comparison of population in 2011 and 2016 is presented in **Table 6**. All towns/townships experienced population growth, ranging from a 2.5% increase to an 8.7% increase. Overall, the population in Wellington County increased by 5.6% from 2011 to 2016 for a total population of 96,000 in 2016.

Table 6: Wellington Adjusted Census Population (includes net Census undercount) [1]

Location	2011	2016	Difference	% Change
Centre Wellington	27,790	30,210	2,420	8.7%
Town of Erin	11,890	12,350	460	3.8%
Guelph/Eramosa	12,890	13,210	320	2.5%
Mapleton	10,400	10,890	490	4.7%
Town of Minto	8,680	8,990	310	3.6%
Puslinch	7,320	7,860	540	7.4%
Wellington North	11,950	12,490	540	4.5%
County Total	90,900	96,000	5,100	5.6%

Source: 2011 & 2016 Census Population Data

[1] The Adjusted Population is the Published Census Population plus 4.1% to account for the estimated net Census undercount. The Adjusted Population is used in the Growth Plan for the Greater Golden Horseshoe, Official Plans and Development Charge studies.

3.5.3 Primary Trip Markets

Place of Work data from the 2011 and 2016 Statistics Canada census were used to identify regional travel patterns from and within the County of Wellington. The resulting data represents commuting patterns within the County. A comparison of average daily commuter travel volumes in 2011 and 2016 is presented in **Table 7**. In general, patterns have remained generally stable from 2011 to 2016. All destinations experienced a slight increase in trips with the exception of Toronto which experienced no growth.

Internal trips (i.e., trips that begin and end within Wellington County (including Guelph) and trips to Waterloo Region incurred the largest increase.

Table 7: Destinations for Daily Trips Originating in Wellington County

Place of Work	2011	2016	Difference
Dufferin County	710	800	90
Halton Region	3,620	4,455	835
Hamilton	785	970	185
Peel Region	4,805	5,740	935
Toronto	2,295	2,285	-10
Waterloo Region	9,705	11,025	1,320
York Region	235	385	150
Wellington County (internal)	63,585	67,720	4,135

Source: 2011 & 2016 Census Place of Work Data

The destination and proportion of all daily trips originating from Wellington County based on the 2016 census data is illustrated in **Figure 8.** As shown, approximately 73% of trips originating in Wellington County/City of Guelph are internal trips, destined for end points located elsewhere within the County and the City of Guelph.

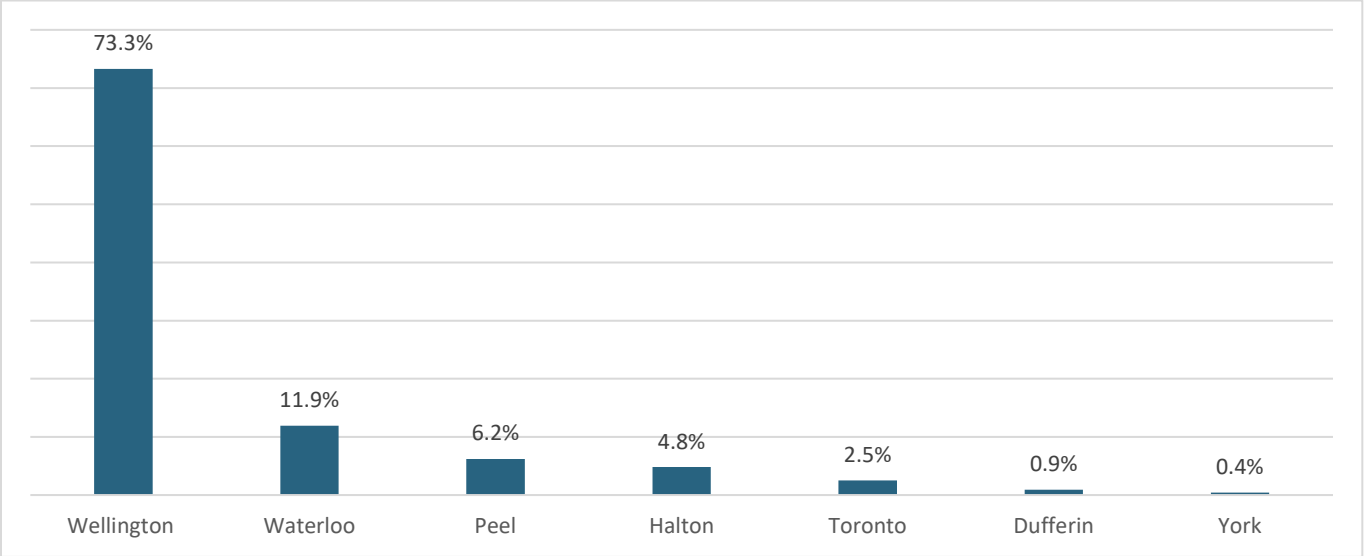

Figure 8: Destinations for Daily Trips Originating in Wellington County

The destination and proportion of internal trips within Wellington County/City of Guelph-based on the 2016 census data is shown in **Figure 9**. The large majority of internal trips are destined to Guelph.

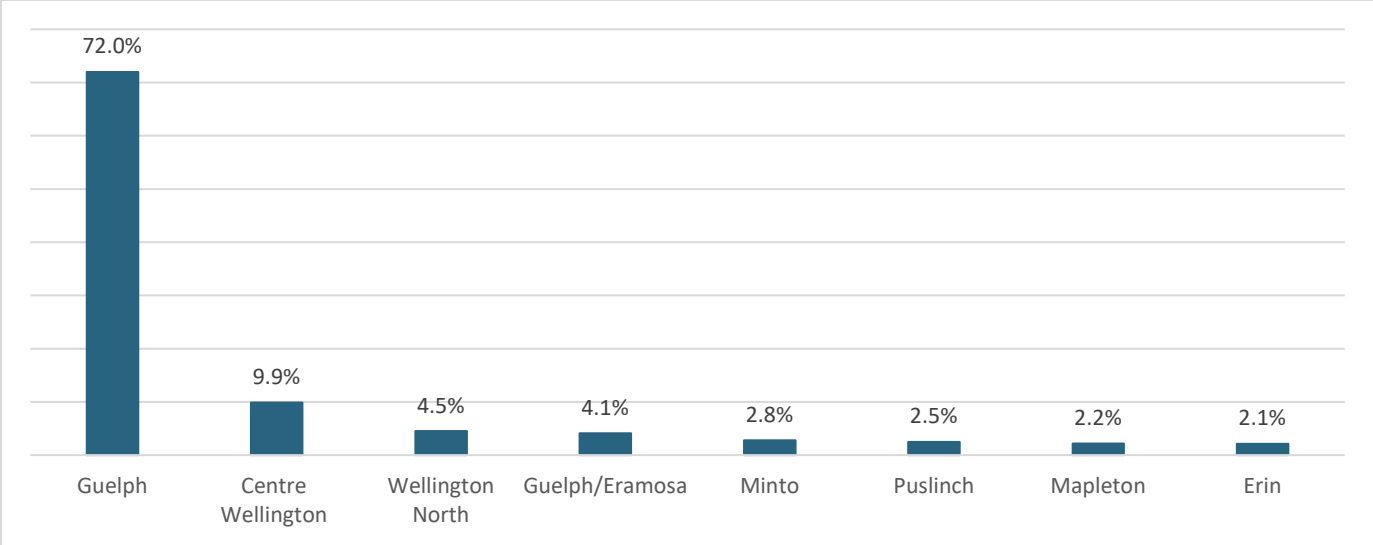

Figure 9: Destinations for Daily Internal Trips in Wellington County

3.6 Performance Assessment

The existing PM Peak Hour volumes for each County traffic count station were derived from the existing Average Annual Daily Traffic (AADT) volumes based on the following assumptions:

- Design Hour Volume (DHV) [1] of 14% was applied to the AADT to obtain PM peak hour demands for roadways with rural or rural highway classifications;
- Design Hour Volume (DHV) of 10% was applied to the AADT to obtain PM peak hour demands for roadways with an urban classification; and
- A peak directional split of 55% was assumed to obtain directional PM peak hour demands.[2]

[1] The Design Hour Volume is the 30th highest hour vehicular volume experienced in a one-year period, used for determining the benchmark volume to be assessed during capacity analysis.). In urban areas the 30th highest hour will be lower as a % of the daily volume than in a rural setting. The DHV was based on review of Automatic Traffic Recorder (ATR) data. The decision to use 14% or 10% was based on location specific ATR data. The general rule of thumb is that the design hour is typically 8-12% of daily volume depending on the peaking characteristics of the road. A higher percentage reflects an area where midday volumes are typically low. While a lower percentage reflects more consistent use over the course of the day.

[2] The directional split was based on the review of ATR data. The general rule of thumb is that peak hour, peak direction represents 55-65% of the two-way, hourly volume. A lower percentage is conservatively low in terms of identifying capacity issues.

Existing Annual Average Daily Traffic (AADT) on County roads is illustrated in **Figure 10**.

Traffic conditions on County roads are assessed by their Volume-to-Capacity (V/C) ratio and the associated Level of Service (LOS). Volume-to-Capacity ratio is defined as the ratio traffic volume on a road segment and the capacity or number of vehicles that the road segment can carry. LOS is a qualitative measure that describes the operating conditions within an intersection, and the perception of those conditions (congestion and delay) experienced by road users by assigning a value between A and F. These values are described in **Table 8** below.

A capacity analysis was completed using existing travel demands to identify existing capacity constraints.

The preliminary assessment of the County roads was completed based upon the industry accepted planning capacities (and consistent with those used in the City of Guelph's strategic travel demand model) of:

- 700 vehicles per hour per lane for arterial roads in an urban condition;
- 900 vehicles per hour per lane for arterial roads in a rural condition; and
- 1,200 vehicles per hour per lane for arterial roads with a higher speed environment similar to a rural highway condition.

Table 8 displays the thresholds for V/C ratios and the LOS with a general description of the corresponding traffic condition.

Table 8: Volume-to-Capacity (V/C) Ratios and Level of Service (LOS) Thresholds

V/C Ratio	LOS	General Traffic Condition
0.00 – 0.25	A	Excellent to Good
0.25 – 0.50	B	Excellent to Good
0.50 – 0.70	C	Excellent to Good
0.70 – 0.85	D	Fair
0.85 – 1.00	E	Poor – Mitigation and Monitoring Required
>1.00	F	Failure – Significant Mitigation Required

Significant delays (unstable traffic flow and longer travel times) occur when traffic volume exceeds the capacity of the road (V/C ratio over 1.0), and significant mitigation is required. Moderate delays (unreliable travel times due to traffic volume approaching the capacity of the road) are seen when the V/C is between 0.85 and 1.0. Under these conditions minor mitigation is required and the situation should be monitored. It is generally accepted that the goal of most communities is to maintain LOS (A to D) on their road networks, address LOS E conditions on their roads and avoid any LOS F conditions in the long term through capacity enhancements.

The County of Wellington's existing V/C ratios during the PM peak hour is shown in **Figure 11**.

Based on the above analysis, the following County roads are experiencing existing peak period delays:

- **Wellington Road 7** - Currently operating at LOS (E) and approaching capacity between Elora/Salem and the Highway 6 junction;
- **Wellington Road 32** - Operates at capacity between Wellington Road 124 and Highway 7. Mitigation will be required to alleviate congestion concerns;
- **Wellington Road 124** - Currently operating at or above capacity between the Region of Waterloo boundary limits and the City of Guelph boundary limits;
- **Wellington Road 18** – Approaching capacity between Highway 6 and Second Line; and
- **Wellington Road 86** – Approaching capacity between Wellington Road 12 and Wellington Road 85.

WELLINGTON COUNTY
ROAD MASTER ACTION PLAN

EXISTING ANNUAL AVERAGE DAILY TRAFIC

Annual Average Daily Traffic (AADT)
- 0 - 5,000
- 5,000 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 30,000

Road Network
- Provincial
- Township/Private
- Waterbody
- Urban Centres
- Municipalities

Annual Average Daily Traffic (AADT) data is sourced from Wellington County Traffic Counting Stations

0 1.25 2.5 5 km
SCALE 1:275,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY: WELLINGTON COUNTY, MNRF, DILLON CONSULTING

MAP CREATED BY: GAM
MAP CHECKED BY: PB
MAP PROJECTION: NAD 1983 CSRS UTM ZONE 17N

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PROJECT: 20-3297
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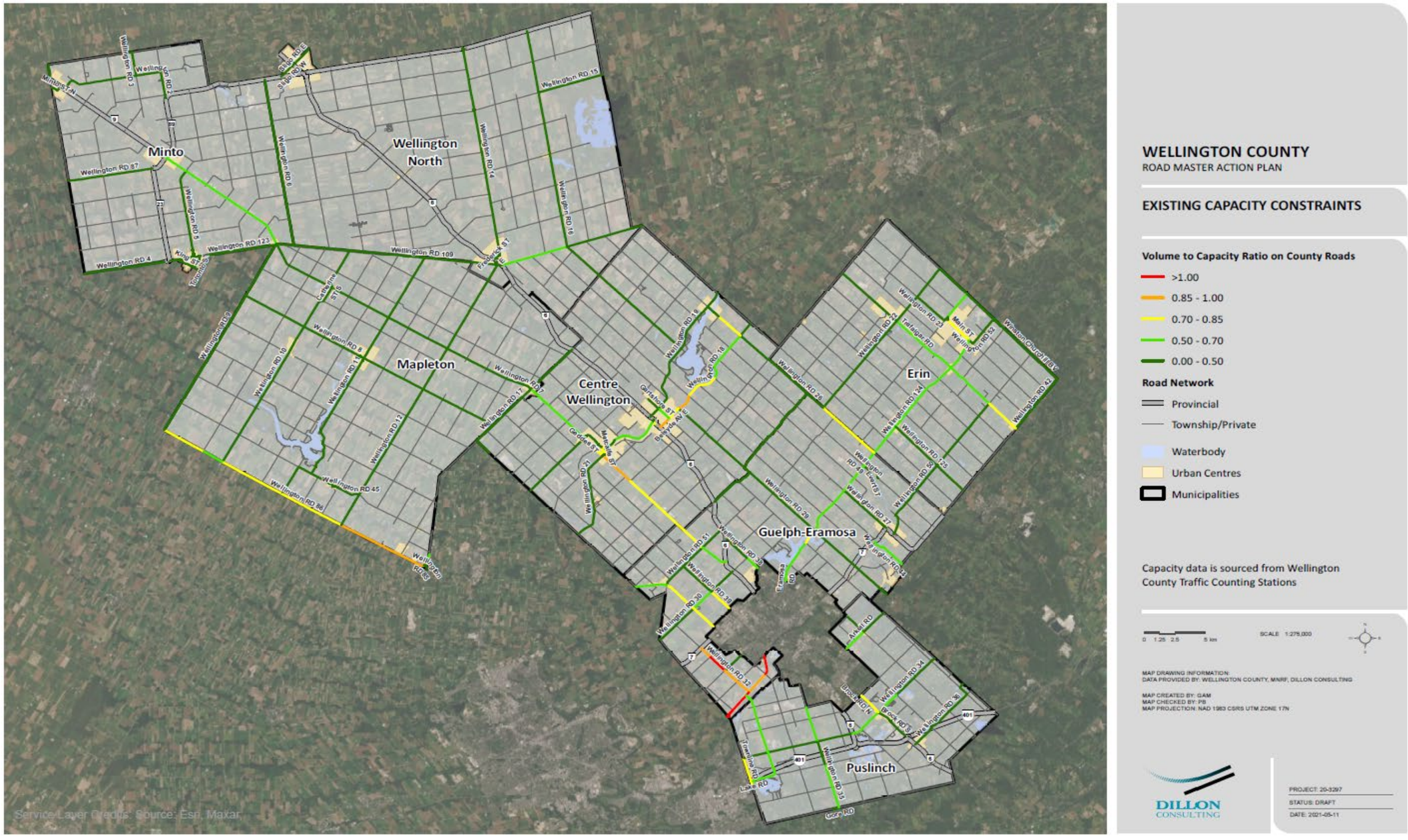
Figure 10: Existing Annual Average Traffic (AADT) on County Roads



WELLINGTON COUNTY
ROAD MASTER ACTION PLAN

EXISTING CAPACITY CONSTRAINTS

Volume to Capacity Ratio on County Roads

- >1.00
- 0.85 - 1.00
- 0.70 - 0.85
- 0.50 - 0.70
- 0.00 - 0.50

Road Network

- Provincial
- Township/Private
- Waterbody
- Urban Centres
- Municipalities

Capacity data is sourced from Wellington County Traffic Counting Stations

0 1.25 2.5 5 km

SCALE 1:275,000

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DATA PROVIDED BY: WELLINGTON COUNTY, MNRF, DILLON CONSULTING

MAP CREATED BY: GAM
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Figure 11: Existing Volume-to-Capacity

4.0 Future Conditions

The following sections describe short-term and long-term needs and opportunities as they align with the Vision and Goals of the RMAP.

4.1 Forecasted 2041 Transportation Demand

4.1.1 Population and Employment Growth

The County of Wellington Official Plan includes growth forecasts for Wellington County with a projected residential population of 140,000 and an employment level of 61,000 by 2041. Population and employment growth forecasts are summarized in **Table 9**.

Table 9: County of Wellington Population and Employment

Horizon Year	Population (Persons)	Employment (Jobs)
2016	96,000	40,100
2021	103,800	44,800
2026	112,900	49,800
2031	122,000	54,000
2036	132,000	57,000
2041	140,000	61,000

The population and employment forecasts for the County of Wellington indicate significant growth in the period from 2016 to 2041. The population and employment are expected to grow by 46% and 52% respectively during this 25-year period as shown in **Table 10.**

Table 10: Population and Employment Growth

Demographic Area	2016	2041	Growth
Population	96,000	140,000	46%
Employment	40,100	61,000	52%

These population and employment forecasts were used as input into the transportation model.

4.1.2 Methodology and Approach

The following section summarizes the modelling methodology and approach taken to identify future travel demand. Full details about the modelling methodology and approach can be found in **Appendix C.**

The 2041 traffic demand forecasts were developed using a similar methodology adopted from the 2018 Wellington County Development Charges Update. The steps taken include:

Step 1: Existing Traffic Data

Existing Average Annual Daily Traffic volumes (AADT) was used as the basis, grounding the projections in reality.

Step 2: Add in Background Traffic Growth

An allowance for growth in Background traffic was added to existing data.

Step 3: Add in Development Related Traffic Growth

Projection of development-related traffic growth (municipal area population and employment forecasts to 2041, plus specific known secondary plans).

Step 4: Sum the Above Values to Estimate Future Traffic Demand (2041)

4.1.2.1 Background Traffic Growth

Background traffic growth accounts for future growth in traffic that is exclusive of any growth related to population and employment development within the County of Wellington. The Wellington County historical AADT data was used to determine, through linear projection, the historical daily traffic growth rate to the current year.

The latest counts available are from 2019, and as such, 2019 was assumed as the base year. Counts from the previous eight years (dating back to 2011) were used to determine annual compound growth rates at each individual counting station. As a worst-case scenario, a nominal Compound Annual Growth Rate (CAGR) of 0.4% was assumed to account for background growth within the County. It should be noted that background traffic growth accounts for heavy vehicles.

4.1.2.2 Trip Generation

Future trip generation forecasts were derived from development forecast data provided by Watson & Associates Limited in the "Wellington County Population, Household and Employment Forecast Update, 2011 to 2041". This data provides estimates on the number of units, type and location of anticipated developments for urban areas and hamlets within Wellington County.

Anticipated daily vehicular trip generation for housing and employment growth was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The trip generation rates were determined based on the type of dwelling units specified in the Watson & Associates report, which included single family and semi-detached houses, townhouses and apartments.

In addition, the future trip generation forecasts for the Clair-Maltby Secondary Plan area within the City of Guelph and the Waterloo East Side Lands in the Region of Waterloo were added as site specific activity in localized areas (i.e., WR 46 and WR 124).

4.1.2.3 Trip Distribution

The distribution of trips was based on data provided in the "2016 Census Place of Work Data", taken from the Statistics Canada website. Using this data, an origin-destination matrix was derived, depicting patterns internal to and external from Wellington County. Using these travel patterns, trip distribution factors were calculated and applied to trip generation numbers for each urban area and hamlet to determine the daily development generated traffic volume growth between each origin-destination pair.

4.1.2.4 Trip Assignment

Future daily trips were manually assigned to the County road network based on a review of the most direct, and time efficient route available between the various zones.

4.1.3 Capacity Analysis

A capacity analysis was completed using existing and forecasted future travel demands to identify capacity constraints and the resulting roadway improvement requirements necessary to support population and employment growth. The 2041 PM Peak Hour volumes for each County traffic count station were derived from the forecasted AADT volumes based on the same DHV and directional splits assumptions as the existing conditions.

A summary of these projected travel demands is provided in **Appendix C** for all corridors. The Wellington County Traffic Counting Stations map is included in **Appendix C.** Roadway sections that are expected to operate over capacity for the 2041 horizon year have been identified by red text.

The preliminary future assessment of roadway improvement requirements was completed based upon the planning capacities identified in **Section 3.6**.

4.1.4 Road Network Performance

The updated travel demand forecasting model was used to measure the generalized traffic Volume-to-Capacity (V/C) conditions on the County's road network for the future horizon 2041 PM peak hour.

Future 2041 Annual Average Daily Traffic (AADT) on County roads is illustrated in **Figure 12** while the County of Wellington's projected V/C ratios during the 2041 PM peak hour are shown in **Figure 13**.

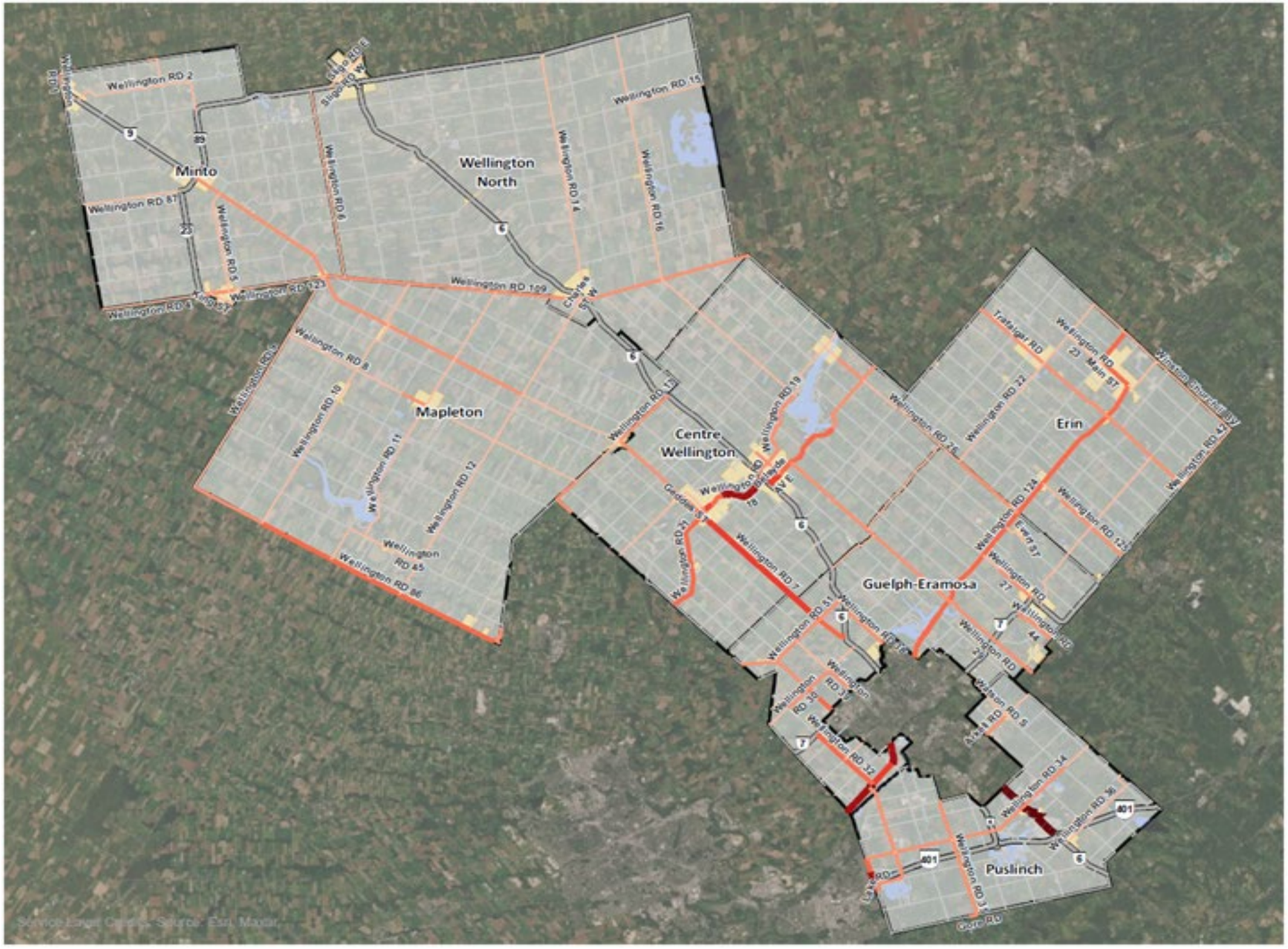
The following is a summary of observations pertaining to the County's arterial/collector road network Level of Service (LOS).

A. Exceed Practical Capacity by 2041 (Significant Delay)

- **Wellington Road 7** is projected to be well over capacity by the 2041 horizon year between Elora/Salem and the Highway 6 junction. This section of roadway is expected to experience Level of Service F
- **Wellington Road 18** is anticipated to exceed capacity between Wellington Road 21 (Elora) and Wellington Road 43 (Fergus) by the 2041 horizon year. Wellington Road 18 between Elora and Fergus will experience Level of Service F
- **Wellington Road 32** is projected to exceed capacity between Wellington Road 124 and Highway 7 by the 2041 horizon year, with Level of Service F
- **Wellington Road 46** between Maltby Road and Wellington Road 34 is projected to be above capacity by the 2041 horizon year. This section of roadway is expected to experience Level of Service F
- **Wellington Road 124** is expected to exceed capacity between the Region of Waterloo boundary limits and the City of Guelph boundary limits by the 2041 horizon year

B. Approach Practical Capacity by 2041 (Moderate Delay)

- **Wellington Road 21** is projected to approach capacity between Wellington Road 7 (Elora) and the Region of Waterloo boundary limits. This section will experience Level of Service E
- **Wellington Road 86** is expected to approach capacity between Wellington Road 10 and Wallenstein. This section will experience Level of Service E.



WELLINGTON COUNTY
ROAD MASTER ACTION PLAN

FUTURE ANNUAL AVERAGE DAILY TRAFIC (2041)

Annual Average Daily Traffic (AADT)
- 0 - 5,000
- 5,000 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 30,000
- 30,000 - 100,000

Road Network
- Provincial
- Township/Private
- Waterbody
- Urban Centres
- Municipalities

Annual Average Daily Traffic (AADT) data is sourced from Wellington County Traffic Counting Stations

MAP DRAWING INFORMATION
DATA PROVIDED BY: WELLINGTON COUNTY, MNRF, DILLON CONSULTING

MAP CREATED BY: GAM
MAP CHECKED BY: KM
MAP PROJECTION: NAD 1983 CSRS UTM ZONE 17N

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Figure 12: Future 2041 AADT

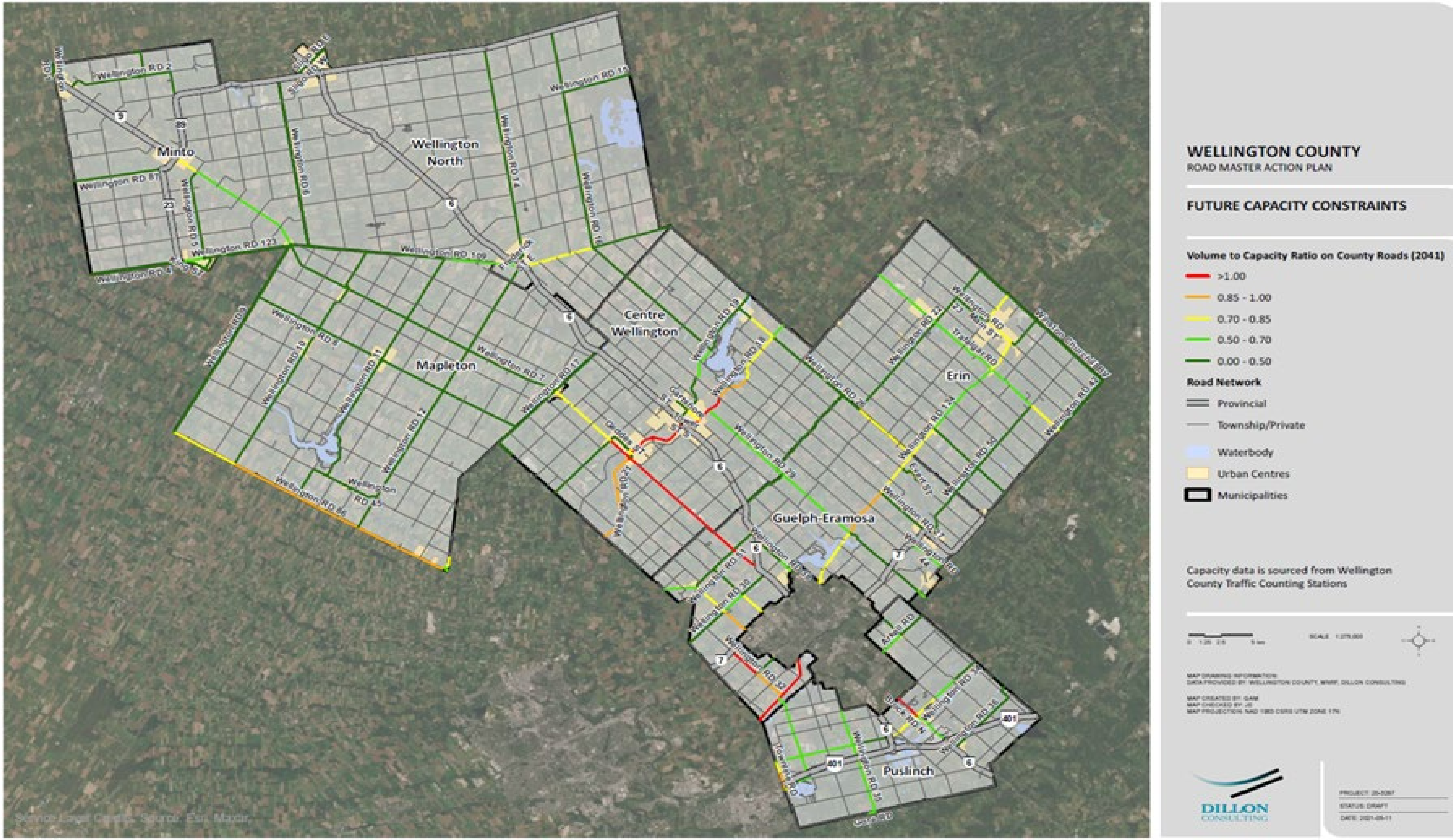

Figure 13: Future 2041 V/C

5.0 Problem Identification

5.1 Context

The identification of long-term network requirements is a critical element of the plan but there are also ongoing operational concerns on County roads at the local level. In its current state, the transportation network for Wellington County has a number of urgent, on the ground issues that are affecting its daily operations. Issues that must be resolved include speeding and associated safety risks in urban areas, as well as intersection performance.

The changing role and function of County roads in both rural and urban areas is one example of an operational concern. According to the County's Official Plan, the primary role of County roads is to facilitate high volumes of automobile and goods movement. They are also designed for safety, efficiency and convenience, to move people and goods at reasonable high speeds. Given the long distances between urban communities, most sections have gravel shoulders which do not accommodate pedestrians and cyclists.

As County roads go through urban communities and main streets, their role splits into two functions:

- Inter-regional travel (for residents that are passing through the urban community); and
- Local access to residential and commercial/employment areas (for residents that live in the urban community or are accessing the main street).

Where speed limits are reduced along residential and main street sections of County roads, many drivers who have driven long, higher speed stretches of the same road through rural areas do not slow down. This creates potential road safety issues, particularly in sections of the road through established residential and main street areas that have limited right-of-way and do not have the space to accommodate wide sidewalks, protected space for cycling and public outdoor space to enhance the charm of character and economic health of traditional main streets.

As the population of the County continues to grow, travel demand on County roads will increase, creating more friction to mobility where County roads transition to residential roads and main streets. Finding opportunities to enhance the vitality and charm of urban areas, while maintaining appropriate traffic flow on County roads was a key objective of the plan.

Other key issues and opportunities that the RMAP assessed when developing the plan include:

- Strategic Capacity:
  - Do we have enough lane capacity to meet future needs?
- Local Capacity:
  - Are there intersections that create local bottlenecks?
- Safety:
  - Do the collision records indicate the need for any design or operational changes?
- Asset Management:
  - Do the forecasted demands, County growth patterns, or network roles indicate a need to change the road surface?
  - What are appropriate levels of service for asset management planning?
- Compatibility with Urban Development:
  - Are by-passes recommended to separate County road "through traffic" functions from user demands in urban areas, accounting for the impact of by-passes on the natural and social environment as well as economic development of local businesses?
  - Are vehicular speeds and driver behaviours being appropriately managed in urban areas?
- Active Transportation:
  - Do the road corridors provide opportunities for walking and cycling infrastructure, respectively, in urban areas?
- Equity:
  - Does the transportation system provide adequate mobility options for persons that do not have access to an automobile?
- Environmental Sustainability:
  - How will the County continue to reduce its Greenhouse Gas emission targets with growth demand for automobile travel?

5.2 Problem and Opportunity Statement

Based on the Vision and Goals of the RMAP, community needs and network constraints, the following are the problem and opportunities identified in the RMAP:

1. Address the future (2041) capacity constraints on portions of Wellington Roads 7, 18, 21, 32, 46, 86, and 124.
2. Improve connectivity of the active transportation network.
3. Identify opportunities to improve equitable mobility through expansion of transit.
4. Reduce Greenhouse Gas emissions.
5. Address short-term safety and speeding issues.

6.0 Long-Term Network Improvements

6.1 Corridor-Specific Problem Statements

The capacity constraints noted above are illustrated in **Figure 14** and detailed further below.

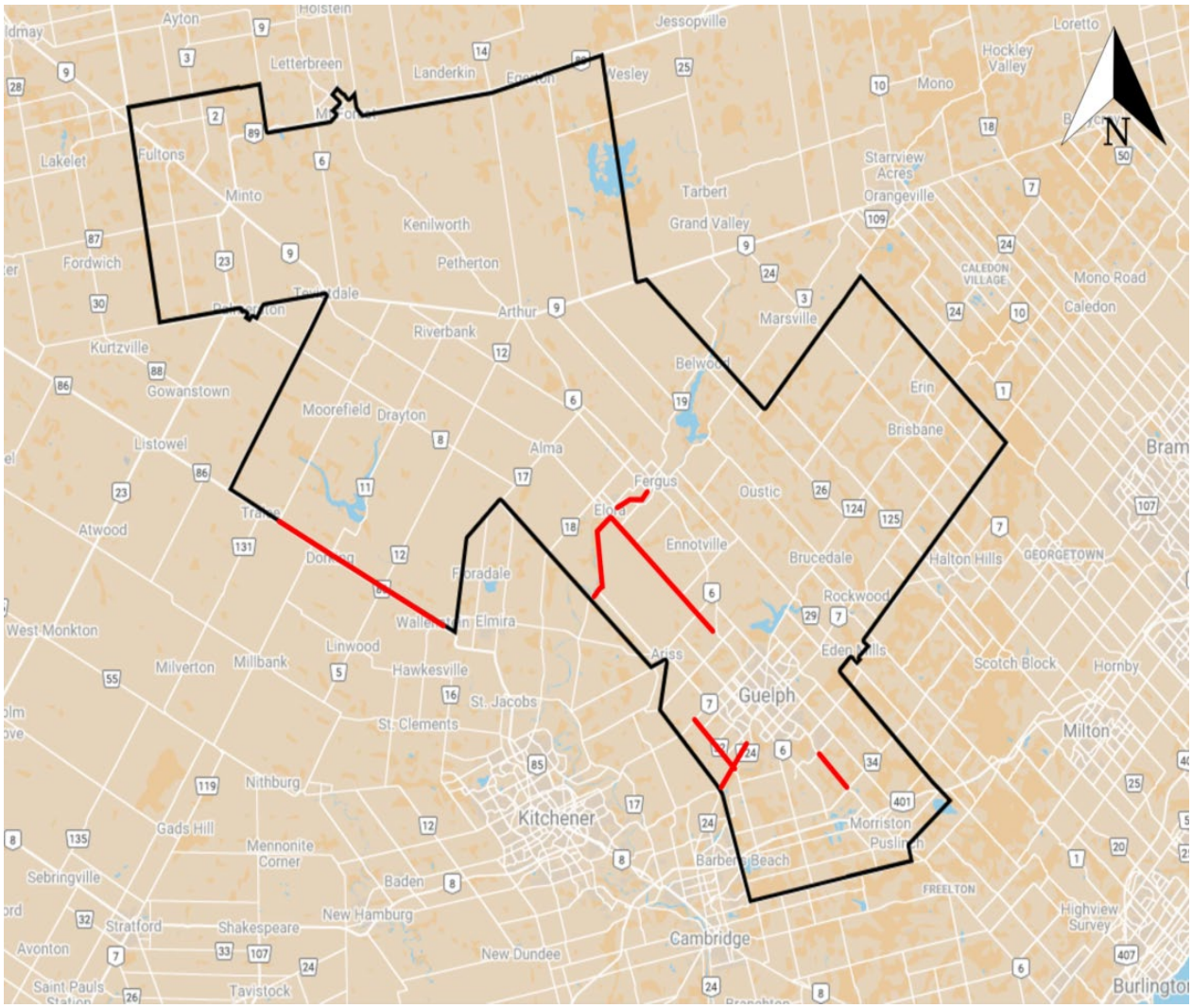

Figure 14: 2041 County Road Segments with Capacity Issues

While some of these County road segments are already near or at capacity, population and employment growth in and just outside the County are contributing to the added traffic and resulting need to identify a solution to future congestion and delays. The result of doing nothing would mean:

1. Delays to travelers – Results in decreased mobility; increased driver frustration and vehicle operating costs (e.g., fuel); increased travel time and increased speeding on other roads to make up for lost time; delays to emergency services.
2. Diversion of vehicles to local roads – Local roads are not designed for high volume of vehicles. This can result in safety issues for vehicles and residents and increased maintenance/improvement costs.
3. Increased out of way travel – Results in increased driver frustration and vehicle operating costs (e.g., fuel); increased vehicle emissions and increased time for travellers, goods movement, and emergency services.

All of the challenges above impact not only personal vehicle travel, but also trucks (for goods movement) and emergency services vehicles. The identified problem corridors are described in the following sections.

6.1.1 Wellington Road 7 between Elora/Salem and the Highway 6 Junction

Wellington Road 7 between Elora/Salem and the Highway 6 Junction is projected to be well over capacity by the 2041 horizon year (significant delay). Volume-to-Capacity ratios are expected to range from 1.25 to 1.69 along the corridor. Future capacity constraints on this section of roadway were previously identified in the 2002 to 2017 Development Charge (DC) Studies. **Figure 15** presents the corridor.

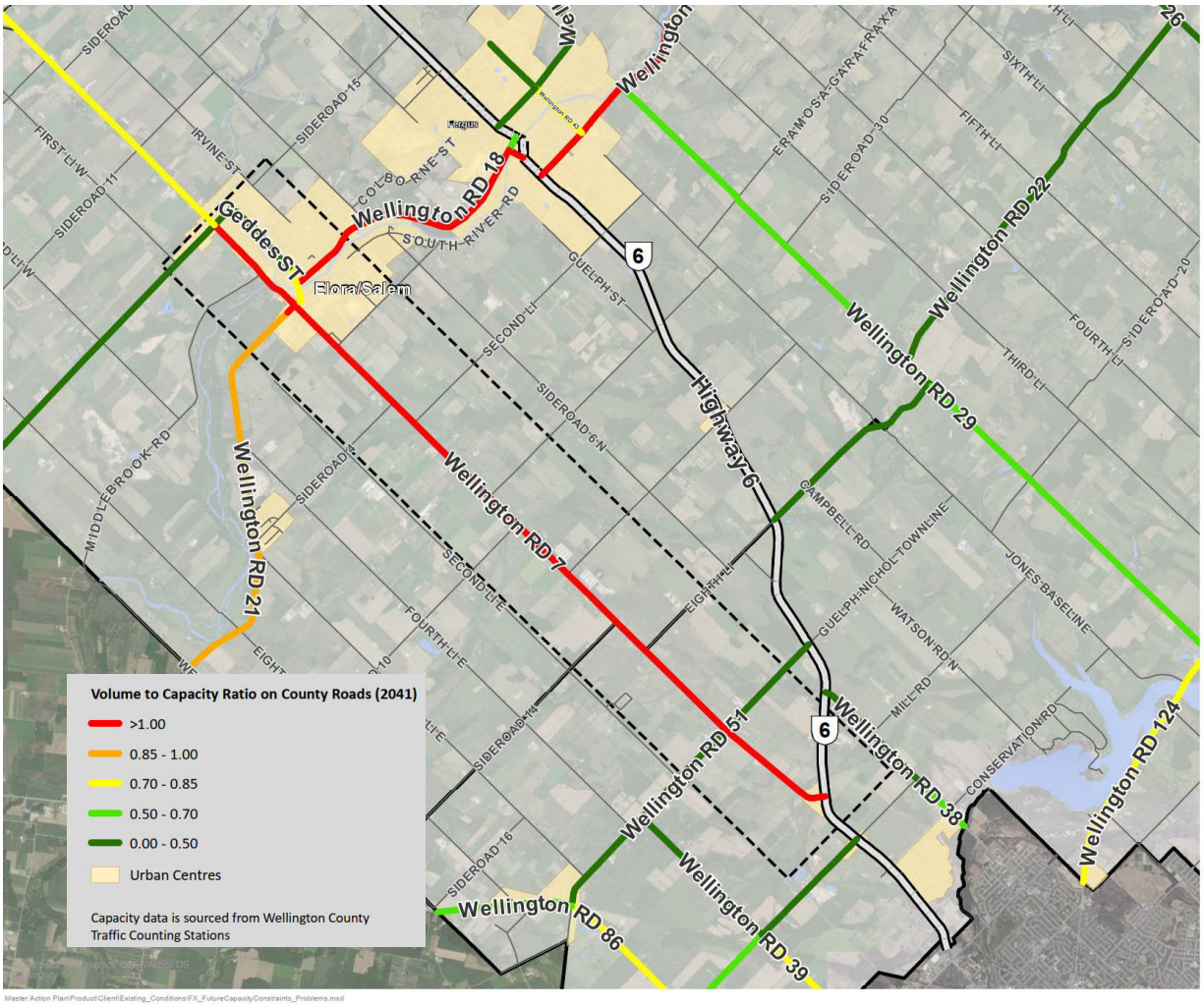

Figure 15: Wellington Road 7 between Elora/Salem and the Highway 6 Junction

6.1.2 Wellington Road 18 between Welling Road 21 (Elora) and Wellington Road 42 (Fergus)

Wellington Road 18 between WR 21 (Elora) and WR 43 (Fergus) is projected to be well over capacity by the 2041 horizon year (significant delay). Volume-to-Capacity ratios are expected to range between 1.69 and 1.81. Future capacity constraints on this section of roadway were previously identified in the 2007 to 2017 DC Studies. **Figure 16** presents the corridor.

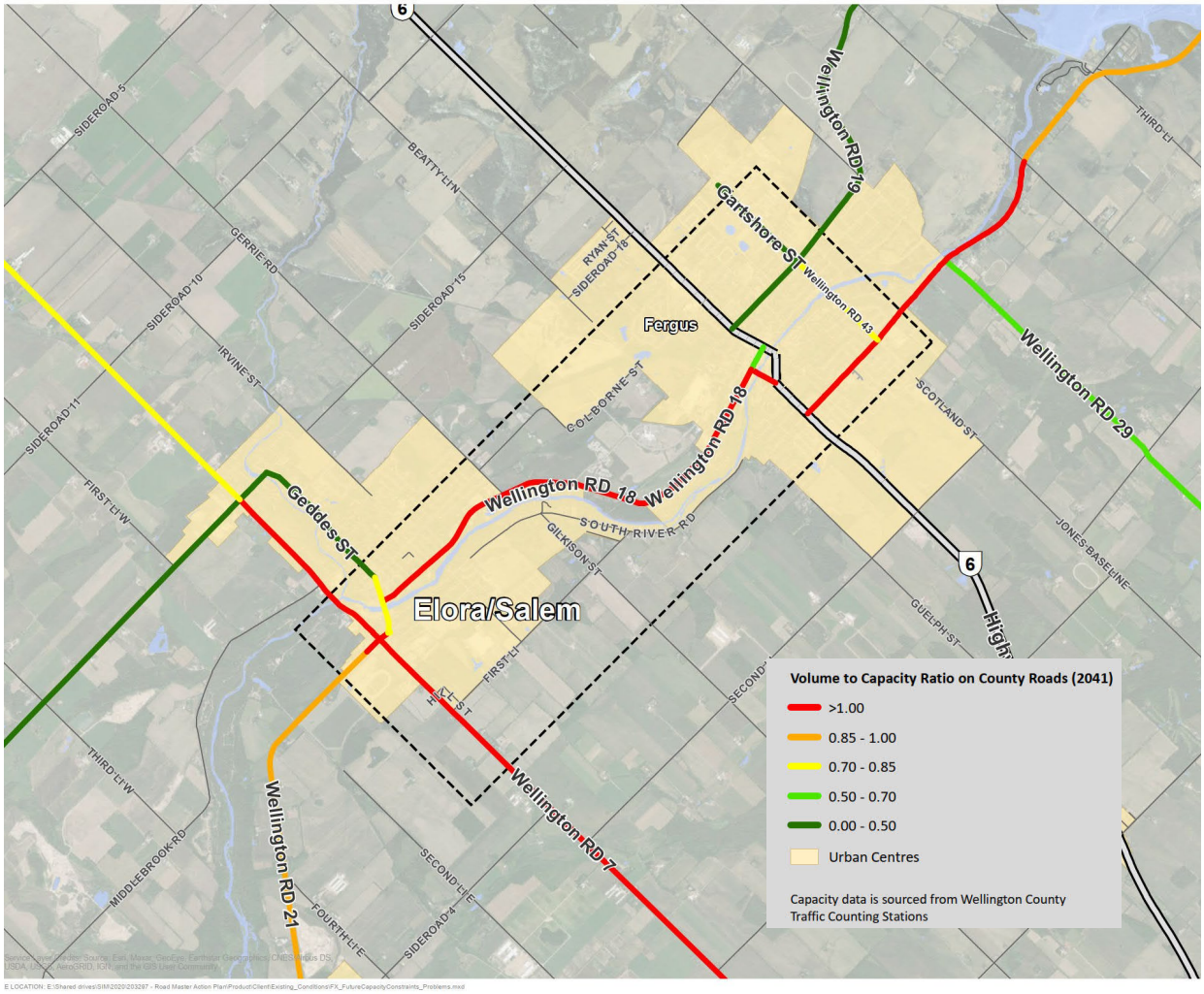

Figure 16: Wellington Road 18 between Welling Road 21 (Elora) and Wellington Road 42 (Fergus)

6.1.3 Wellington Road 32 between Wellington Road 124 and Highway 7

Wellington Road 32 between Wellington Road 124 and Highway 7 is projected to be over capacity by the 2041 horizon year. Volume-to-Capacity ratios are expected to range from 0.99 to 1.28. The critical link identified is south of Speedvale Road, adjacent to Mosborough Market. Capacity constraints on this section of roadway were previously identified in the 2017 DC Study. **Figure 17** presents the corridor.

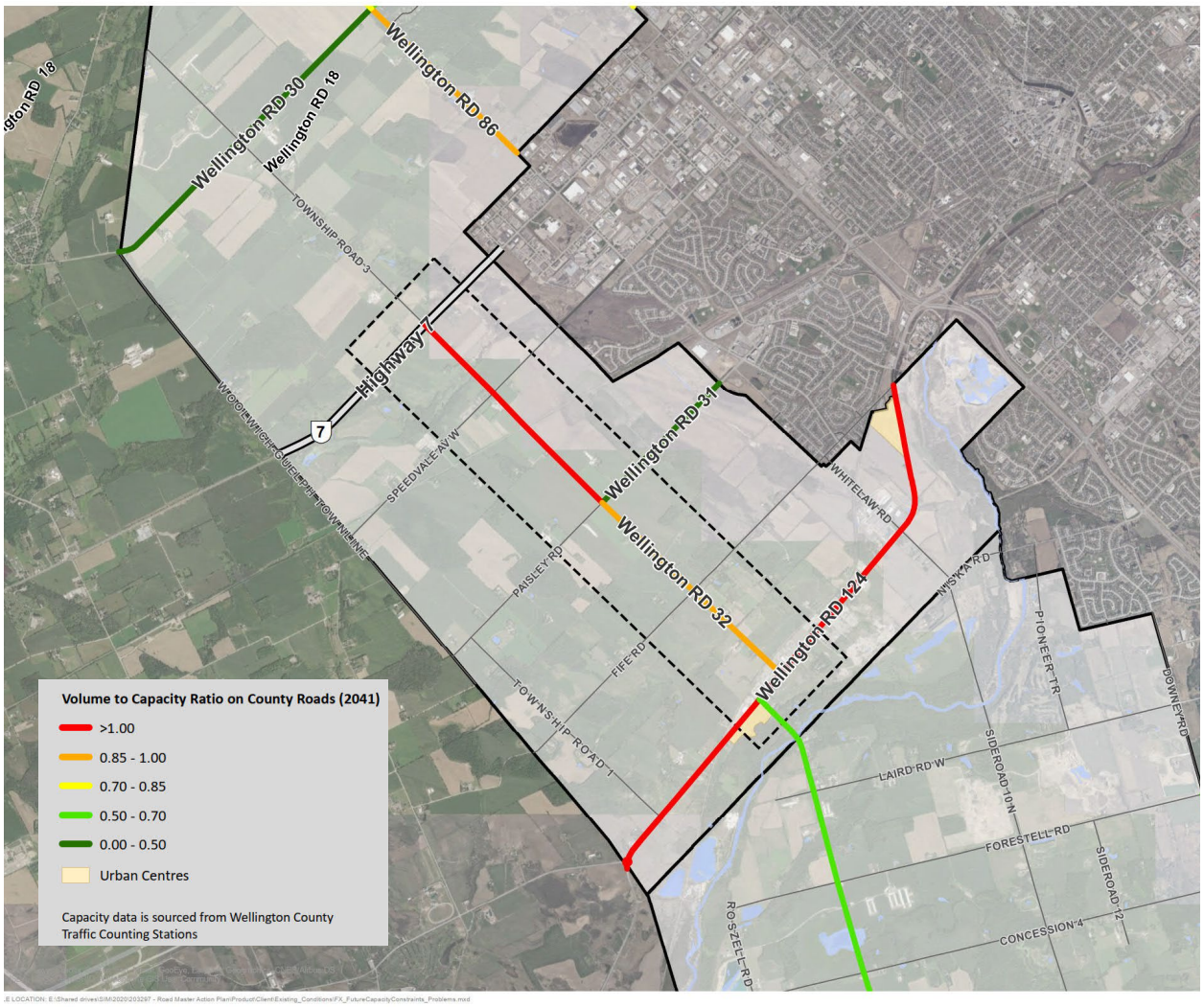

Figure 17: Wellington Road 32 between Wellington Road 124 and Highway 7

6.1.4 Wellington Road 46 between Maltby Road and Wellington Road 34

Wellington Road 46 between Maltby Road and Wellington Road 34 is projected to be over capacity by the 2041 horizon year. This section of roadway is expected to experience a Volume-to-Capacity ratio of 1.28. Capacity constraints in this location were previously identified in the 2002 to 2017 DC Studies and are consistent with findings of Gordon Street/WR 46 EA (2000) and the 2005 Guelph Wellington Transportation Study. **Figure 18** presents the corridor.

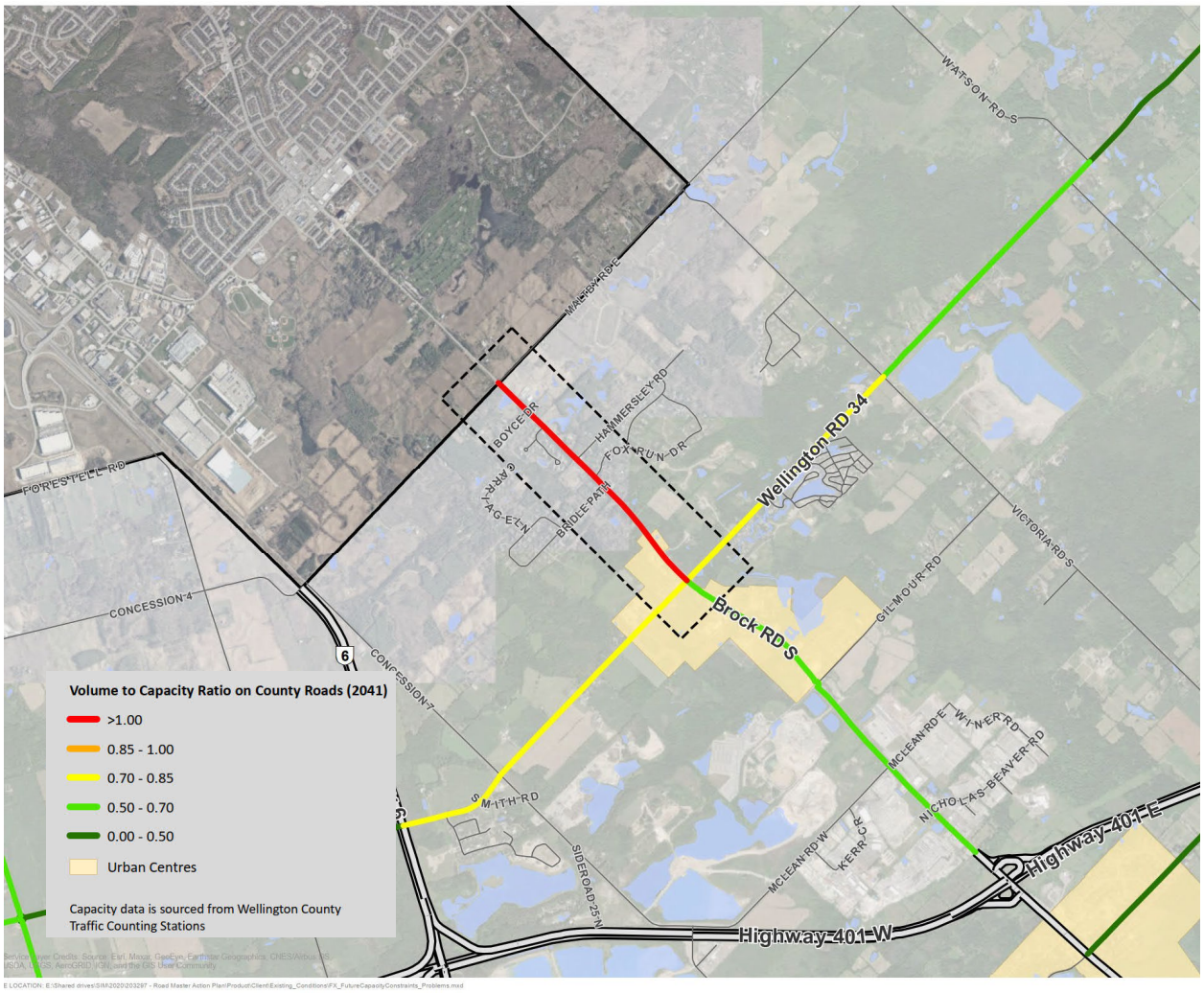

Figure 18: Wellington Road 46 between Maltby Road and Wellington Road 34

6.1.5 Wellington Road 124 between the Region of Waterloo Boundary Limits and the City of Guelph Boundary Limits

Wellington Road 124 is projected to be well over capacity by the 2041 horizon year between the Region of Waterloo boundary limits and the City of Guelph boundary limits. This is consistent with the findings of the Wellington Road 124 EA (2019) and the 2005 Guelph Wellington Transportation Study. **Figure 19** presents the corridor.

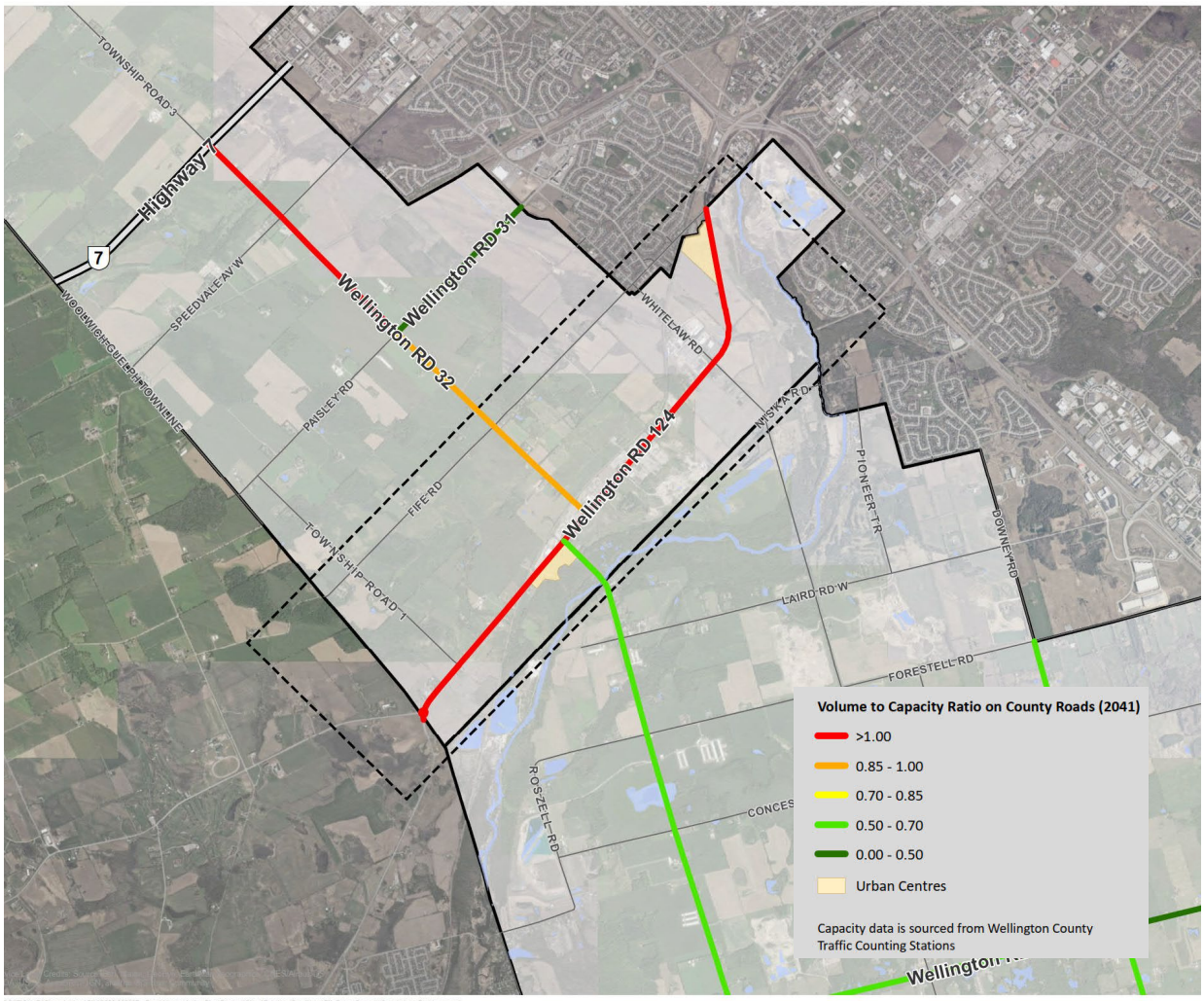

Figure 19: Wellington Road 124 between the Region of Waterloo Boundary Limits and the City of Guelph Boundary Limits

6.1.6 Wellington Road 21 between Wellington Road 7 (Elora) and the Region of Waterloo

Wellington Road 21 between Wellington Road 7 (Elora) and the Region of Waterloo boundary is projected to reach capacity by the 2041 horizon year. Volume-to-Capacity ratios are expected to range from 0.88 to 1.08. Capacity constraints on this section of roadway were previously identified in the 2007 to 2017 DC Studies. **Figure 20** presents the corridor.

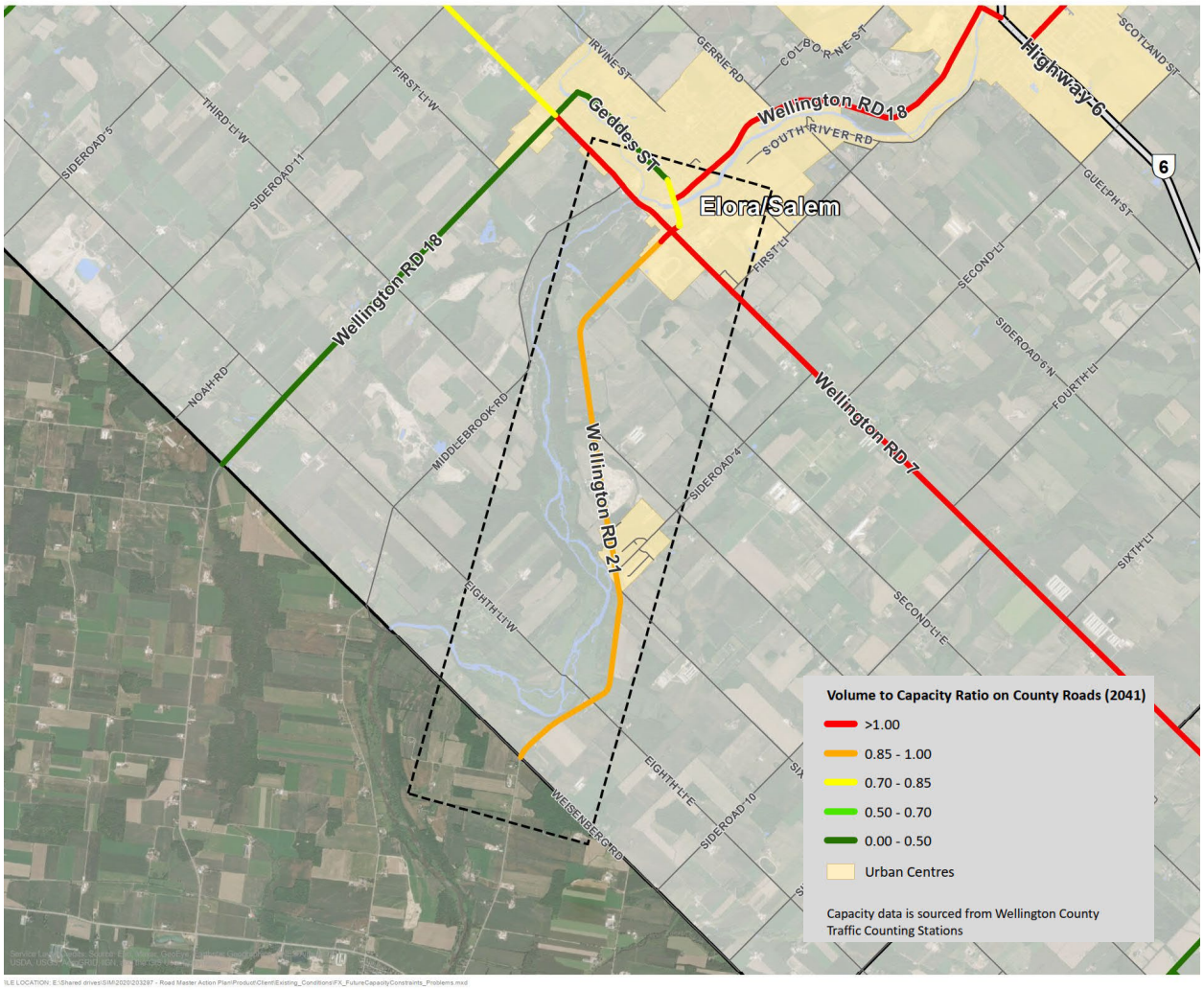

Figure 20: Wellington Road 21 between Wellington Road 7 (Elora) and the Region of Waterloo

6.1.7 Wellington Road 86 between Wellington Road 10 and Wellington Road 85

Wellington Road 86 between Wellington Road 10 and Wellington Road 85 is projected to approach capacity by the 2041 horizon year. **Figure 21** presents the corridor.

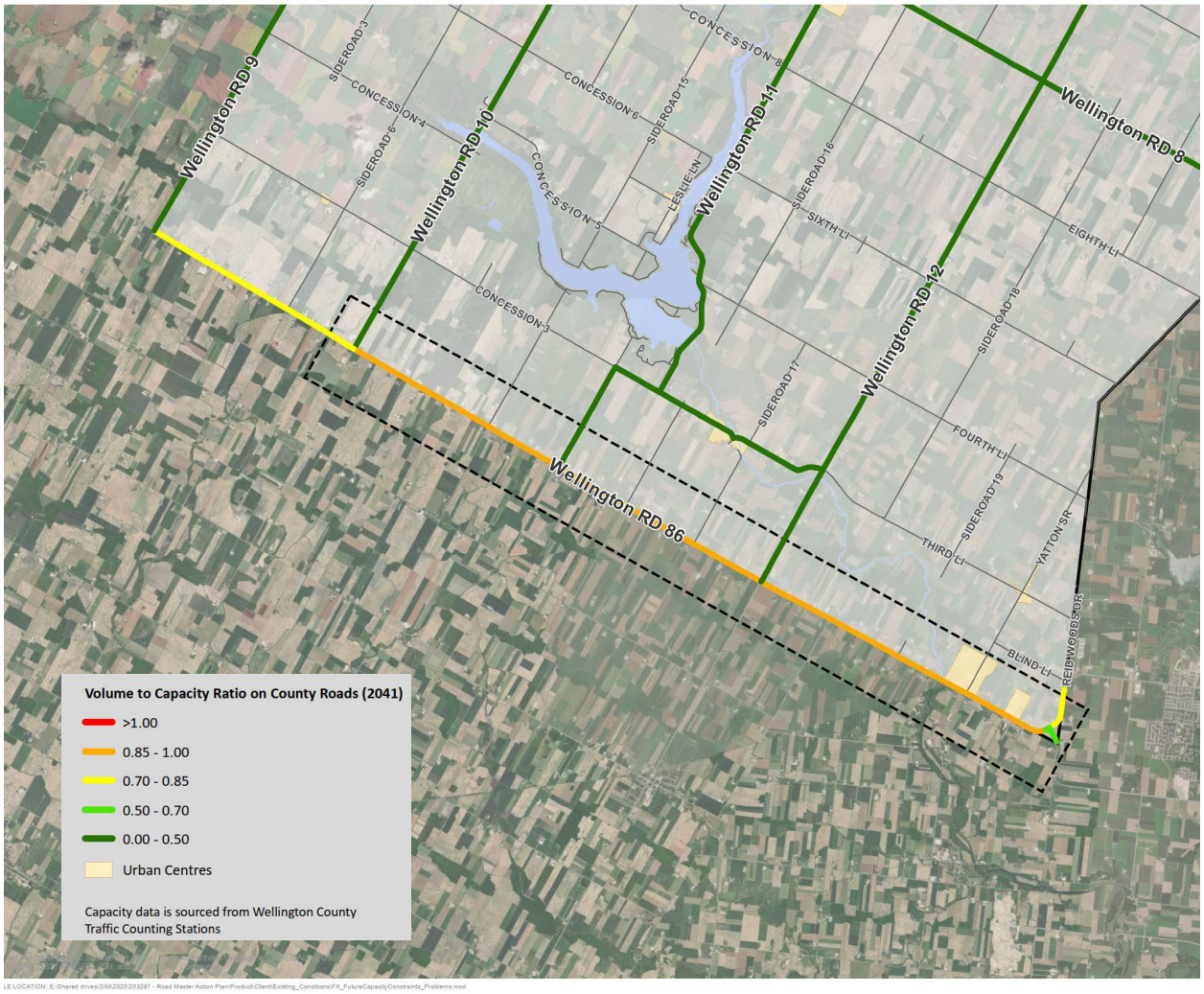

Figure 21: Wellington Road 86 between Wellington Road 10 and Wellington Road 85

6.1.8 Fergus and Elora Area Capacity

Fergus and Elora have been identified as candidate locations for a potential by-pass. Significant east-west travel exists along Wellington Road 18 between Fergus and Elora. In the north-south direction of travel, Highway 6 experiences high volumes through Fergus. Trips are already diverting within the network, putting pressure on Wellington Road 7. Transportation issues for both communities are summarized below:

Fergus

- Truck traffic;
- Safety / speed;
- Noise; and
- Capacity issue on Highway 6 through Fergus, and Wellington Road 18 (between Wellington Road 21 and Wellington Road 43).

Elora

- Truck traffic;
- Noise; and
- Capacity issue on Wellington Road 18 and Wellington Road 21 to the west, and Wellington Road 7 (Salem to Highway 6 junction).

Community Issue Identified:

- The volume of traffic versus capacity of the road;
- Vehicle distribution in the community (% heavy vehicles);
- Safety/speed; and
- Number of sensitive land uses.

Other Considerations:

- Opportunities for alternative capacity that would effectively serve travel demand (minimize out of way travel); and
- Non-transportation impacts (natural environment, socio-economic, cultural heritage, and cost).

6.2 Alternatives

In response to the travel demand, traffic growth and associated LOS deficiencies forecast in Wellington by 2041, three alternative transportation strategies were considered to address identified issues. These strategies are described **Table 11**.

Table 11: Overview of Alternative Solutions to Address Future Capacity Constraints

Overview	Travel Demand Management (TDM)	Transportation System Management (TSM)	Increase the Supply of Transportation Infrastructure
Solutions Description	• Modify travel behaviour • Reduce vehicle use (shift to other modes)	• Optimize infrastructure to improve performance • Improve the quality of the roadway (e.g., road design elements, road surface, pave shoulders) • Use of technology (e.g., traffic signal coordination) • Add turning lanes	• Expand existing infrastructure (e.g., widen roads) • Add new infrastructure (e.g., create new road)
Anticipated Effectiveness at Addressing Capacity Issues	**Low** • A substantial investment in active transportation infrastructure and transit service as well as a substantial shift in citizen mindset is required will achieve a substantial mode shift within a corridor, or at a system wide level. • Providing transit service in the County is an issue of social equity and access. • Active modes are unlikely to represent a significant share of travel in the County.	**Medium** • Operational improvements can be used to maximize the efficiency of a specific piece of infrastructure. • Improvements are typically most impactful over short sections of road or at specific intersections. • Past experience suggests that such improvements can achieve in the order of a 10% increase in efficiency and the benefit of this capacity uptake is usually localized.	**High** • Infrastructure expansion or extension provides connected and continuous benefits to the vehicle network not only over the length of the affected corridor, but also across the system. • New infrastructure provides opportunities to design and accommodate non-vehicular activity within the same right-of-way.

Given the largely auto-oriented nature of the County, "Increase the Supply of Transportation Infrastructure" has the highest potential to address roadway capacity issues noted in **Section 5.3**.

Each of these strategies were considered to address the capacity deficiencies noted in the 2041 horizon.

6.2.1 Wellington Road 7 between Elora/Salem and the Highway 6 Junction

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** - No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including widening/formalizing the shoulders, and localized intersection improvements;
- **Expand Wellington Road 7** – Road widening and bridge widening, add 1 lane per direction (including bridge widening);
- **Add / Improve Other Transportation Corridors** – Opportunities to add/improve parallel capacity:
    - **Improvement to Second Line east of Fergus** - This is a continuous north-south, rural municipal road from Wellington Road 109 in the north and just west of Arthur to the Eramosa-Garafraxa Townline south of the Grand River. This alternative would require significant road upgrades over a 15-20 km distance, including the reconstruction of the river crossing, as well as improvements to and extension of the Eramosa-Garafraxa Townline. The alternative is some 3 km east of the east side of Fergus developed area, meaning the use of this as an alternative to the Wellington Road 7 would require significant out of way travel, making its effectiveness as an alternative to Wellington Road 7 limited.
    - **New crossing and connection of Wellington Road 29 to Wellington Road 19** (using corridor east of existing residential are in undeveloped lands and with new connection to Highway 6 south of Fergus) – This alternative requires a new crossing of the Grand River and new linkages back to Highway 6. Being on the

east side of Fergus makes it less attractive than westerly options as the flow out of Fergus is to/from west and south.

- **Widening of Gartshore Street/Scotland Street/Jones Baseline through Fergus with improved/widened connection via Wellington Road 22 to Highway 6** – Scotland Street (part section of Wellington Road 43) and Gartshore Street are busy arterial streets, with some sections that are not under the jurisdiction of the County. Their role and function are not compatible with the type and nature of future regional traffic growth in the Wellington Road 7 corridor. In addition to widening the design elements would need to be upgraded, which would not be compatible with the adjacent land use.
- **New crossing of the Grand River connecting Bridge Street to Irvine Street** – Bridge Street and Irvine Street are busy arterial streets, not under the jurisdiction of the County. Their role and function are not compatible with the type and nature of future regional traffic growth in the Wellington Road 7 corridor. In addition to a connection, the design elements would need to be upgraded significantly, which would not be compatible with the adjacent land use.
- **Improvement/widening of 8th Line East** – 8th Line is not a Wellington County Road. Using 8th Line as an alternative would require a significant upgrade to 8th Line to accommodate County traffic. Use of 8th Line as an alternative to Wellington Road 7 would result in out of way travel as it joins up with Wellington Road 86 on the west side of Guelph. Trips destined to Guelph would have to backtrack east to access the Guelph downtown. This alternative would also have impacts on the community of Ariss.

6.2.2 Wellington Road 18 between Wellington Road 21 (Elora) and Wellington Road 43 (Fergus)

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** – No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including but

not limited to introduction of new turning lanes, repurposing of pavement, and removal of on-street parking;

- **Expand Wellington Road 18 Infrastructure** – Add 1 lane per direction between Elora and Fergus, add 1 lane per direction between Highway 6 and Wellington Road 43; and
- **Add / Improve Other Transportation Corridors** – Improvements to existing north/south and east-west corridors to act as by-pass to address Highway 6 constraint could result in volume diversion from and improved operating condition on Wellington Road 18.

6.2.3 Wellington Road 32 between Wellington Road 124 and Highway 7

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** – No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** – Implement strategies within existing corridor to maximize operating efficiency of the right-of-way,, including widening/formalizing the shoulders, and localized intersection improvements;
- **Expand Wellington Road 32 Infrastructure** – Road widening, add 1 lane per direction; and
- **Add Capacity to Parallel Roadways** – Opportunities to add/improve parallel capacity are limited, and were, therefore, not carried through to the evaluation.

6.2.4 Wellington Road 46 between Maltby Road and Wellington Road 34

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** - No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including improving cycling and pedestrian access with bike lanes and wider sidewalks;

- **Expand Wellington Road 46 Infrastructure** – Add 1 lane per direction (two to four) between Maltby Road and Wellington Road 34; and
- **Add Capacity and/or Improve Parallel Infrastructure** – Potential improvements to parallel roads not under County jurisdiction (MTO, Puslinch).

The Gordon Street/Wellington Road 46 Class EA was completed in December, 2000. The recommended design alternative includes the following key elements:

- Widen road to have two lanes per direction;
- Add a 4 metre wide two way left-turn lane where necessary; and
- Add 3 metre wide multi-use-paths on both sides.

Based on the completed EA, this is the preferred solution to be carried in the RMAP recommended plan.

6.2.5 Wellington Road 124 between the Region of Waterloo Boundary Limits and the City of Guelph Boundary Limits

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** - No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including provision of a 3-lane cross section (center left turn lane) to improve safety and maximize travel lane efficiency;
- **Improve geometry through key intersections**;
- **Expand Wellington Road 124 Infrastructure** – Road widening, add 1 lane per direction; and
- **Add/Improve Parallel Transportation Infrastructure** – Opportunities to add / improve the capacity of parallel routes is limited, therefore, this strategy was not carried through to the evaluation.

The Wellington Road 124 - Guelph-Eramosa Township Road 1 to Fife Road Class EA was initiated in 2018 and completed in December 2019. The Recommended Design Alternative includes the following key elements:

- New roundabouts at the intersections of WR 124 and WR 32 North and WR 32S (i.e., two roundabouts);
- All other existing intersections will remain the same with modifications to turn lanes as required;
- A twenty (20) metre wide right-of-way (except in areas where additional property is required for turn lanes or roundabouts);
- Required road widenings for the three and four lane sections and roundabout construction, will be to the south, holding the existing north edge of pavement such that the construction will not require any modifications or relocations to the existing Hydro One towers and transmission lines;
- A minimum of two (2) lanes of through traffic;
- Additional two-way centre left turn lane to address the multiple driveway accesses between:
  - Fife Road and 350 metres east of Fife Road;
  - Whitelaw Road to WR 32 North;
  - WR 32S to CN Rail crossing;
- Four (4) lanes between the two roundabouts at WR 32 North and WR 32 South;
- Rural cross section with paved shoulders, with the exception of at intersections and at the approaches to and between the two roundabouts at WR 32 North and WR 32 South where an urban cross section with a 0.5 m rollover curb will be installed with a paved area behind the curb;
- The paved shoulder and paved area behind the curb and gutter can accommodate disabled vehicles, cyclists and pedestrians;
- A raised median between the two roundabouts; and
- Storm sewers installed in the urban cross section areas.

Based on the completed and approved EA, this is the preferred solution to be carried in the RMAP recommended plan.

6.2.6 Wellington Road 21 between Wellington Road 7 (Elora) and the Region of Waterloo

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** - No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including urbanizing corridor to support cycling and pedestrian access. Develop strategy (signage) to promote alternative use of existing parallel facility (Wellington Road 18);
- **Expand Wellington Road 21 Infrastructure** – Road widening, add 1 lane per direction; and
- **Add/Improve Parallel Infrastructure** – With the potential of the Wellington Road 7 widening and the consideration of improvements in the Elora/Fergus are to act as a by-pass, there are potential benefits to Wellington Road 21. The primary demands in this corridor are trips seeking alternative north-south capacity to the Wellington Road 7 and Highway 6 constraints through out of way travel. As capacity is improved in the congested corridors, trips will potentially divert from Wellington Road 21 to use the improved north-south capacity. Although potentially impactful to the Wellington Road 21 corridor, the by-pass impacts cannot be evaluated as an alternative until a more detailed study identifies the specifics of what the preferred by-pass option is. Therefore, this option was not carried through to the evaluation.

6.2.7 Wellington Road 86 between Wellington Road 10 and Wellington Road 85

Based on the problem statement for the identified corridor, the following opportunities and alternatives are identified, in the context of the mitigation strategies:

- **Implement Traffic Demand Management (TDM)** - No strategies were identified to significantly change model behaviour; therefore, this strategy was not carried through to the evaluation;
- **Implement Traffic Systems Management (TSM)** - Implement strategies within existing corridor to maximize operating efficiency of the right-of-way, including widen/formalize shoulders and provide dedicated left turn lanes on Wellington Road 86 through the Hamlet of Dorking;

- **Expand Wellington Road 86 Infrastructure** – Road widening, add 1 lane per direction; and
- **Add/Improve Parallel Transportation Infrastructure** – Opportunities to add/improve parallel capacity are limited. Therefore it was not carried through to the evaluation.

6.3 Evaluation Framework

The strategies and specific infrastructure improvements were evaluated to confirm the preferred initiative for addressing and mitigating the problem statement for each corridor. Seven factors were selected which were used for each evaluation. Within each of these factor groups are sub-criteria, described as sub-factors, which define the measure and the relative differences of magnitude of impact or benefit. The evaluation criteria were selected to align with the project vision and goals. The factor groups and sub-factors used in the qualitative assessment are identified in **Table 12.**

Table 12: Evaluation Criteria

Factor/ Criteria Group	Support Project Vision and Goals	Sub Factor/Criteria
Transportation	• Create a Transportation Network with a Focus on Safety • Provide Sustainable and Equitable Mobility Options that Connect Communities • Be Proactive in Planning for Future Expansion of the County Road Network based on Complete Streets Principles	• Network Connectivity to Provincial Roads • Network Connectivity/Service to Regional Area • Network Connectivity/Service to Local Area • Maintain/Enhance Capacity of network • Safety - Collision Potential • Support Movement of Goods • Noise Impacts • Support Active Transportation • Residences Directly Impacted
Natural Environment	• Make Investment Decisions that are Environmentally Responsible	• Natural Hazard Areas Impacted • Air Quality (Sensitive Receptors) • Climate Change – Reduce GHG • Species at Risk/Habitat Impacted • Water Courses Crossed • Woodlands and Woodlots Impacted • Wildlife Habitats and Movement/Corridor Crossings • Wetlands Impacted • Provincially/Regionally Significant Wetland Impacted

Factor/ Criteria Group	Support Project Vision and Goals	Sub Factor/Criteria
Cultural Environment	• Create a Culture of Collaboration with Municipal Stakeholders where the County Transportation Network Intersects with Areas of Local Importance • Develop Transparent Policy Tools that Guide Investment Decisions in the Transportation Network	• Heritage Property or Buildings Impacted • Impact to Heritage Landscape Features (fence rows, tree lines, etc.) • Cemeteries Impacted • Sites of Archaeological Potential • Utility Corridors Impacted • Potential for Ride Well (transit) and business partnership • Compatibility with Provincial, County, and City policies and GRCA framework standards
Socio-Economic Environment	• Support Economic Development	• Farming Activity Impacted • Businesses Impacted • Existing Businesses and Industry and Opportunities for New Businesses and Industry – Access • Opportunity for Communities to Draw New Businesses • Support/Improve Tourism
Cost	• Be Fiscally-Responsible When Making in Investment Decisions	• Capital Cost • Operational and Maintenance Costs • Funding opportunities through grant

6.4 Evaluation and Recommended Solutions

Each of the alternatives were evaluated using the above noted criteria, with a preferred solution identified as a result of the evaluation.

6.4.1 Wellington Road 7 between Elora/Salem and the Highway 6 Junction

The results of the alternative evaluation are summarized in **Table 13.**

Table 13: Wellington Road 7 – Alternate Strategy Evaluation

Criteria Group	TSM	Widen Existing	Improve 2nd Line	New Crossing / Improve WR 29	Improve Gartshore , Scotland, Jones	New Crossing, Improve Bridge, Irvine	Improve 8th Line East
Transportation	Good	Very Good	Good	Good	Good	Poor	Good
Natural Environment	Very Good	Very Good	Very Good	Poor	Very Good	Very Good	Very Good
Cultural Environment	Very Good	Very Good	Very Good	Good	Very Good	Very Good	Very Good
Socio – Economic Environment	Good	Very Good	Good	Good	Good	Good	Good
Cost	Very Good	Good	Good	Poor	Poor	Poor	Good

Overall, the “Widen Existing” received the best ranking:

Transportation: Widen existing infrastructure scored “very good” in the transportation criteria group. Widening the existing corridor will help to create a transportation network that is safe for all road users. This alternative will include paved shoulders for vulnerable road users. Increased capacity along Wellington Road 7 will alleviate collision potential. Widening will also improve travel efficiency for short and medium length trips; especially between Elora and Guelph. These improvements will ensure that the corridor will operate under capacity.

Natural Environment: Widen existing infrastructure scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, and woodlots are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: Widening the existing infrastructure also scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and minimal impact to heritage landscape features. No utility corridors are affected by the widening. The alternative is also compatible with existing policies and standards.

Socio-Economic Environment: Widen the existing infrastructure scored "very good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. Improved capacity along the corridor is likely to provide opportunities for new and existing businesses as well as increased tourism potential.

Cost: Widen existing infrastructure only scored "good" with respect to the cost criteria. This solution will have a moderate cost to implement and will incur moderate operational and maintenance costs. Funding opportunities do not exist to support the cost.

6.4.1.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative solution is to expand Wellington Road 7 infrastructure including widening the existing bridge and provide an additional 1 lane per direction between Salem and the Highway 6 junction.

Note that an additional technical study is required to review the impacts of the use of Wellington Road 7 as part of a community by-pass (in conjunction with Wellington Road 17 or Side Road 5).

6.4.2 Wellington Road 18 between Wellington Road 21 (Elora) and Wellington Road 43 (Fergus)

The results of the alternative evaluation are summarized in **Table 14.**

Table 14: Wellington Road 18 – Alternative Strategy Evaluation

Criteria Group	TSM	Widen Existing	Improve Parallel Infrastructure
Transportation	Good	Very Good	Very Good
Natural Environment	Very Good	Very Good	Very Good
Cultural Environment	Very Good	Very Good	Very Good
Socio – Economic Environment	Good	Poor	Good
Cost	Very Good	Good	Poor

Overall**,** the "TSM" alternative received the best ranking:

Transportation: TSM scored "good" in the transportation criteria group. This solution is expected to yield minor improvements in safety and travel efficiency. Expanding infrastructure scored "very good" in the transportation criteria group. Widening the existing corridor will help to create improved safety for all road users. Increased capacity will also improve travel efficiency for short and medium length trips; especially between Elora and Fergus.

Natural Environment: TSM scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, and woodlots are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: TSM and widening the existing infrastructure scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and minimal impact to heritage landscape features. No utility corridors are affected by the widening. The alternative is also compatible with existing policies and standards. Wellington Road 18 is a possible transit corridor and so a potential partnership with Ride Well exists.

Socio-Economic: TSM scored "good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. Improved capacity along the corridor is likely to provide opportunities for new and existing businesses as well as increase tourism potential.

Cost: TSM scored "very good" according the cost criteria. TSM has low cost to implement and incurs minimal operational and maintenance costs. Funding opportunities under the Capital plan exist to cover the cost of the improvements. Expanding existing infrastructure scored "good" with respect to the cost criteria. This solution will have a moderate cost to implement and will incur moderate operational and maintenance costs. Funding opportunities do not currently exist to support the cost of widening.

6.4.2.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative calls for a solution that combines TSM and an expansion of Wellington Road 18 infrastructure. While widening the existing infrastructure was the preferred solutions between Kertland Street and Canrobert Street and between Highway 6 and Scotland Street, widening in constrained sections of Wellington Road 18 would result in significant impacts. Therefore, TSM is the recommended solution to improve Wellington Road 18 between Metcalfe Street and Kertland Street as existing infrastructure along the corridor in this area prevents any widening or expansion. TSM should be employed between Metcalfe Street and Kertland Street by restricting parking and providing a centre left turn lane.

6.4.3 Wellington Road 32 between Wellington Road 124 and Highway 7

The results of the alternative evaluation are summarized in **Table 15.**

Table 15: Wellington Road 32 – Alternative Strategy Evaluation

Criteria Group	TSM	Widen Existing
Transportation	Good	Very Good
Natural Environment	Very Good	Very Good
Cultural Environment	Very Good	Very Good
Socio – Economic Environment	Good	Very Good
Cost	Very Good	Good

Overall, the "TSM" alternative received the best ranking:

Transportation: TSM scored "good" in the transportation criteria group. Paving/widening the shoulders will improve the safety of vulnerable road users. The addition of localized auxiliary left turn lanes will improve access to businesses and residences. TSM will yield minor improvements in travel efficiency between Wellington Road 124 and Highway 7.

Natural Environment: The TSM solution scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, woodlots, and natural areas are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: TSM and widening the existing infrastructure scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and minimal impact to heritage landscape features. No utility corridors are affected by the widening. The alternative is also compatible with existing policies and standards.

Socio-Economic: The TSM alternative scored "good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. TSM measures are unlikely to provide significantly increased opportunities for new and existing businesses.

Cost: TSM scored "very good" with respect to the cost criteria. This solution will have a low cost to implement and will incur minimal operational and maintenance costs. Funding opportunities exist under the Capital Plan to support the cost.

6.4.3.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative solution is to employ TSM in the form of paving/widening shoulders. Localized improvements, such as the provision of auxiliary turn lanes, are also recommended. This section of roadway should continue to be monitored for any operational concerns.

6.4.4 Wellington Road 46 between Maltby Road and Wellington Road 34

The results of the alternative evaluation are summarized in **Table 16.**

Table 16: Wellington Road 46 – Alternative Strategy Evaluation

Criteria Group	TSM	Widen Existing	Improve Parallel Infrastructure
Transportation	Good	Very Good	Good
Natural Environment	Very Good	Very Good	Very Good
Cultural Environment	Very Good	Very Good	Good
Socio – Economic Environment	Good	Very Good	Very Good
Cost	Very Good	Good	Poor

Overall, the "Widen Existing" alternative received the best ranking:

Transportation: Widen existing infrastructure scored "very good" in the transportation criteria group. Widening the existing corridor will help to create a transportation network that has a focus on safety. Increased capacity along Wellington Road 46 will alleviate collision potential. Increased capacity will also improve travel efficiency between Highway 401 and Guelph. Widening will ensure that corridor will operate safely and efficiently.

Natural Environment: Widening existing infrastructure solution scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, woodlots, and natural areas are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality

levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: Widening the existing infrastructure also scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and minimal impact to heritage landscape features. No utility corridors are affected by the widening. The alternative is also compatible with existing policies and standards.

Socio-Economic: Widening existing infrastructure alternative scored "very good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. Improved capacity along the corridor is likely to provide opportunities for new and existing businesses (i.e. improved access) as well as increased tourism potential.

Cost: Widening existing infrastructure scored "good" with respect to the cost criteria. The preferred solution will have a moderate cost to implement and will incur moderate operational and maintenance costs. Funding opportunities do not currently exist to support the cost.

6.4.4.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative is to expand Wellington Road 46 infrastructure and provide one additional lane per direction between Maltby Road and Wellington Road 34.

The evaluation completed confirms the Environmental Assessment that undertook a more detailed analysis as required by the MCEA Process. The preferred solution is consistent with the recommendations from the approved Gordon Street/Wellington Road 46 Environmental Assessment.

6.4.5 Wellington Road 124 between the Region of Waterloo Boundary Limits and the City of Guelph Boundary Limits

An evaluation was not completed as the current Environmental Assessment has undertaken more detailed analysis as required by the MCEA Process. The preferred solution will be as per recommendations from approved Wellington Road 124 EA.

6.4.6 Wellington Road 21 between Wellington Road 7 (Elora) and the Region of Waterloo

The results of the alternative evaluation are summarized in **Table 17.**

Table 17: Wellington Road 21 – Alternative Strategy Evaluation

Criteria Group	TSM	Widen Existing
Transportation	Good	Very Good
Natural Environment	Very Good	Very Good
Cultural Environment	Very Good	Very Good
Socio – Economic Environment	Good	Very Good
Cost	Very Good	Good

Overall, the "TSM" alternative received the best ranking:

Transportation: TSM scored "good" in the transportation criteria group. Paving/widening the shoulders will improve the safety of vulnerable road users. TSM will yield minor improvements in travel efficiency between Elora and the Region of Waterloo. Improvements ensure that corridor will operate under capacity.

Natural Environment: The TSM solution scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, woodlots, and natural areas are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: TSM and widening the existing infrastructure scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and minimal impact to heritage landscape features. No utility corridors are affected by the widening. The alternative is also compatible with existing policies and standards.

Socio-Economic: While widening the existing infrastructure scored "very good", the TSM alternative scored "good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. TSM measures are unlikely to provided significantly increased opportunities for new and existing businesses.

Cost: TSM scored "very good" with respect to the cost criteria. The preferred solution will have a low cost to implement and will incur minimal operational and maintenance costs. Funding opportunities exist under the Capital Plan to support the cost.

6.4.6.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative solution is to employ TSM in the form of paving/widening shoulders. This section of roadway should continue to be monitored for any operational concerns.

6.4.7 Wellington Road 86 between Wellington Road 10 and Wellington Road 85

The results of the alternative evaluation are summarized in **Table 18.**

Table 18: Wellington Road 86 – Alternative Strategy Evaluation

Criteria Group	TSM	Widen Existing
Transportation	Good	Very Good
Natural Environment	Very Good	Very Good
Cultural Environment	Very Good	Very Good
Socio – Economic Environment	Good	Very Good
Cost	Very Good	Poor

Overall, the "TSM" alternative received the best ranking:

Transportation: TSM scored "good" in the transportation criteria group. Paving/widening the shoulders will improve the safety of vulnerable road users. The addition of auxiliary left turn lanes in the Hamlet of Dorking will improve access to residences. TSM will yield minor improvements in travel efficiency between Wallenstein and Listowel. Improvements ensure that corridor will operate under capacity.

Natural Environment: The TSM solution scored "very good" with respect to natural environment criteria. Impacts to wetlands, woodlands, woodlots, and natural areas are minimal. A small number of minor water courses are crossed. No wildlife habitats are crossed and there is no impact to protected species. Air quality levels will remain within acceptable levels under this solution and GHG emissions are expected to reduce with improved travel efficiency.

Cultural Environment: TSM on Wellington Road 86 also scored "very good" according to the cultural environment criteria. No cemeteries or known archaeological sites are impacted. There is no impact to heritage properties or buildings and only minimal impact to heritage landscape features. No utility corridors are affected by the improvements. The alternative is also compatible with existing policies and standards.

Socio-Economic: The TSM alternative scored "good" in the socio-economic environment criteria group. A low number of farms and small businesses are impacted. TSM measures are unlikely to provided significantly increased opportunities for new and existing businesses. There is little potential for increases in tourism.

Cost: TSM scored "very good" with respect to the cost criteria. This solution will have a low cost to implement and will incur minimal operational and maintenance costs. Funding opportunities exist under the Capital Plan to support the cost.

6.4.7.1 Recommended Solution

Based on the evaluation criteria, the recommended alternative solution is to employ TSM in the form of paving/widening shoulders. The provision of auxiliary left turn lanes through the Hamlet of Dorking, are also recommended. This section of roadway should continue to be monitored for any operational concerns.

6.4.8 Alternatives for Fergus/Elora Capacity Issues

The determination of a solution to the Fergus/Elora capacity issues requires a system wide review. Several opportunities exist to address different localized issues.

Potential opportunities for improvements have been grouped together into five alternative solutions. These solutions are illustrated in **Figure 22**. Descriptions of these alternatives are provided as follows:

A. Alternative 1: Wellington Road 17/Wellington Road 7 By-Pass

Alternative Solution 1 calls for Wellington Road 17/Wellington Road 7 to be used as a by-pass route. Consistent with the Wellington Road 7 corridor needs assessment, a widening of Wellington Road 7 would be required (including improvements to the bridge structure). This potentially resolves the traffic volume and truck issues on Highway 6. However, capacity issues on Wellington Road 18 are likely to remain.

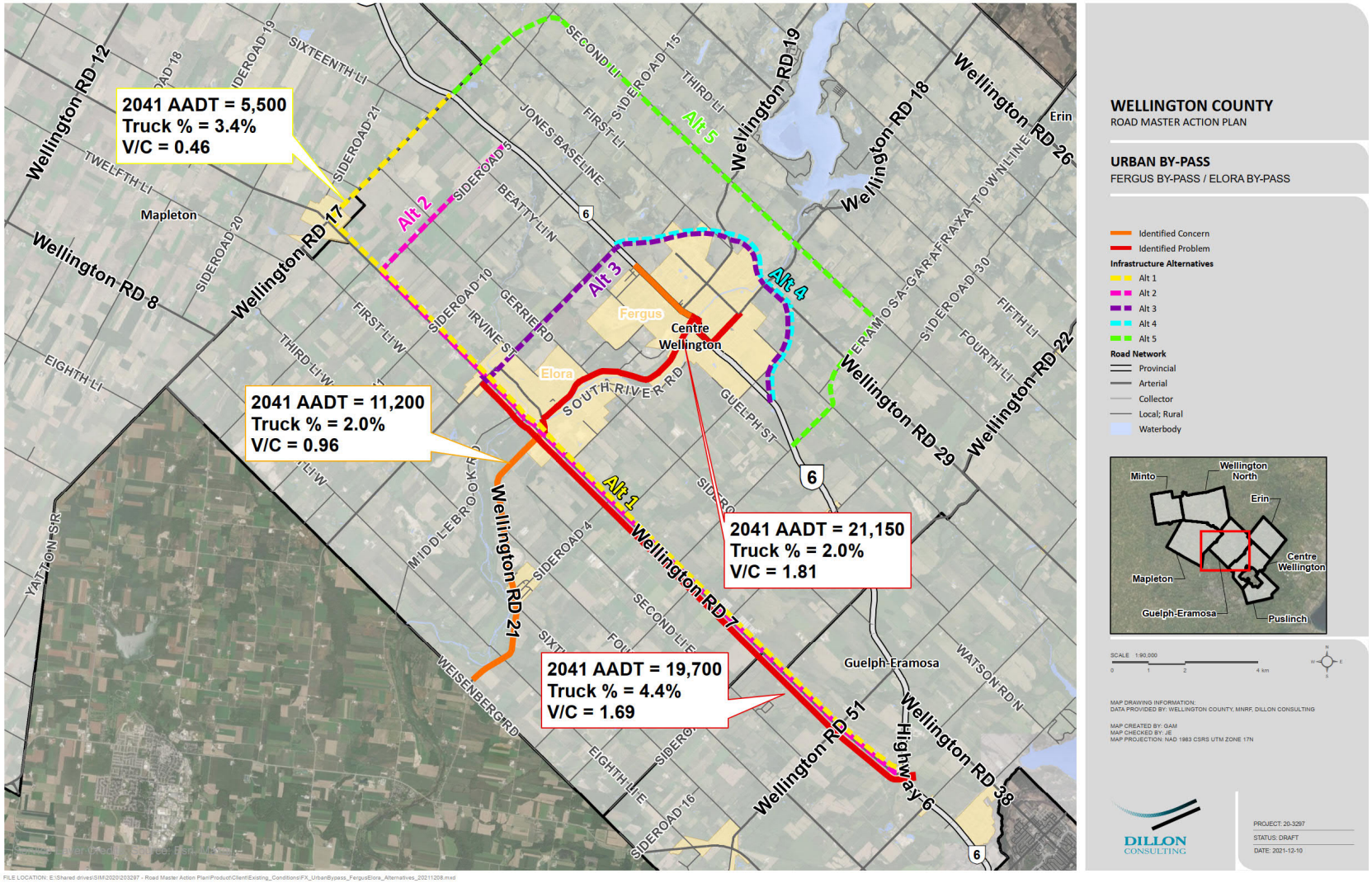

Figure 22: Fergus and Elora By-Pass – Alternate Solutions

B. Alternative 2: Side Road 5/Wellington Road 7 By-Pass

Alternative Solution 2 calls for Side Road 5/Wellington Road 7 to be used as a by-pass route. Consistent with the Wellington Road 7 corridor needs assessment, a widening of Wellington Road 7 would be required (including improvements to the bridge structure). This potentially resolves the traffic volume and truck issues on Highway 6, while avoiding the hamlet of Alma. However, capacity issues on Wellington Road 18 remain.

C. Alternative 3: Wellington Road 29/Side Road 15

A by-pass using Wellington Road 29 and Side Road 15 will resolve capacity constraints on Wellington Road 18 and potentially and partially relieve the traffic volume and truck issues on Highway 6. A new crossing of the Grand River is required (i.e., Wellington Road 29 extension to connect with Side Road 15 via easterly corridor east of the existing residential neighbourhood through undeveloped land). Due to the nature of the alignment to the east and resultant out of way travel, truck issues are likely to persist on Highway 6.

This alternative could be implemented in stages as Side Road 15 addresses east-west issues while Wellington Road 29 addresses north-south issues. Side Road 15 could potentially act as a diversion route for the north south travel instead of Wellington Road 7. This would place strain on the Wellington Road 7 corridor.

D. Alternative 4: Easterly Highway 6 By-Pass

A new by-pass route to the east of Fergus would resolve some capacity constraints on Highway 6 through Fergus. It requires the construction of a new crossing over the Grand River (i.e., Wellington Road 29 extension to connect to Highway 6 at Side Road 15). However, truck issues are likely to remain on Highway 6.

E. Alternative 5: 2nd Line/Eramosa-Garafraxa Townline

This route as an alternative by-pass of Fergus would require significant road upgrades over a 15-20 km distance, including the reconstruction of the river crossing, as well as improvements to and extension of the Eramosa-Garafraxa Townline.

Summary

The need for a by-pass is predominantly based on community identified issues from a transportation perceptive, i.e. the impacts of automobile volume and truck activity. More specific detail is required related to capacity constraints (i.e., volume of traffic versus capacity of road), vehicle distribution (% heavy vehicles), safety/speed issues, and sensitive land uses is required for a broader study area to evaluate the problem and performance of identified alternatives.

Other considerations include the identification of opportunities for alternative capacity that would effectively serve travel demand (minimize out of way travel). Non-transportation impacts (natural environment, socio-economic, heritage, cultural, cost, etc.) should also be taken into account.

The specific nature of these criteria from a broader network perspective are not available. More detail is required to adequately assess these alternatives.

Recommendation

Based on this assessment it is recommended that a detailed Area Wide Feasibility Study be undertaken by the County in coordination with the Ministry of Transportation for Ontario (MTO), the Township of Mapleton, Guelph Eramosa Township and Township of Centre Wellington to confirm area needs and the alternatives required to mitigate east-west and north-south issues.

In the interim, until such time as the Area Wide Feasibility Study is completed, for the purposes of long-term infrastructure and budget planning, the individual corridor needs and recommendations should continue to be adopted:

- Implement Wellington Road 17/Wellington Road 7 alternative truck route signage (recently implemented);
- Widen Wellington Road 7 to 2 lanes in each direction including bridge widening between Salem and Highway 6 per Wellington Road 7 finding;
- Implement TSM and widening plan for the appropriate sections of Wellington Road 18 (between Kertland Street and Canrobert Street and between Highway 6 and Scotland Street) per Wellington Road 18 finding; and

- Protect opportunity to extend Wellington Road 29 across the Grand River and East By-Pass on undeveloped lands to the east of the existing residential lands to connect with Side Road 15.

7.0 Active Transportation

The County of Wellington Active Transportation Plan (ATP) was reviewed to identify any modifications that should be made to better align with the long-term recommended County road improvement identified in **Section 5.0** above. Alignment with short-term operational, speed management and safety improvements are also identified in **Section 11.0** of this report.

Three key goals of the RMAP are to focus on safety, provide sustainable and equitable mobility options and create complete streets. The ATP identifies a number of improvements to the active transportation network, including cycling on County roads. The proposed widening of the County road network identified in **Section 6.0** of this report provides an opportunity to further extend the active transportation network when each of the roadway improvements are implemented. This is particularly important as many of these corridors will experience higher traffic volumes that will result from continued population and employment growth.

Goal 1: Create a Transportation Network with a Focus on Safety

Goal 2: Provide Sustainable and Equitable Mobility Options that Connect Communities

Goal 3: Be Proactive in Planning for Future Expansion of the County Road Network based on Complete Streets Principles

For each of the recommended road improvements, it is recommended that any gravel shoulders are paved during construction. While shoulders are intended to accommodate emergency vehicles and provide refuge for passenger vehicles during mechanical or other user emergencies, shoulders can provide sufficient operating space for non-motorized vehicles. Paved shoulder width of 2.5 m to 3.0 m with clearly delineated edge of travelled lane markings can address the 1.5 m to 2.0 m bike lane noted in the ATP on roads with posted speed limits between 60 km/h and 80 km/h.

It is noted that such bike accessible provisions will also accommodate other travel modes found in the rural communities in Wellington such as pedestrians, farm equipment, and horse and buggy.

Appropriate signage should be added to designate the road as part of the Active Transportation network. This may require further extending the paved shoulder outside the limits of the proposed road widening project to connect to the other existing or planned active transportation corridors in the network.

A review of each of the long-term roadway improvements and specific recommendations regarding Active Transportation on each of these road segments are noted below.

1. **Wellington Road 7 between Elora/Salem and the Highway 6 Junction**
   The ATP does not propose active transportation infrastructure along this corridor. The capital cost for the recommended corridor improvement includes the provision of a paved shoulder (2.5 m). The paved shoulder provides for bike accessibility and other rural mode accessibility in addition to the typical safety function of the roadway shoulder.
2. **Wellington Road 18 between Wellington Road 21 (Elora) and Wellington Road 43 (Fergus)**
   The County recently approved for the Township to implement a signed bicycle route on this corridor to create a loop with the Township's corridor on South River Road. The ATP has not proposed specific active transportation infrastructure for this corridor; however, the roadway does have an existing paved shoulder that could be used by cyclists. It is recommended that the future roadway improvement should continue to include designated active mode space, with appropriate transitions in place between the four and two lane sections of the road. This will help maintain safe cycling access on the corridor.
3. **Wellington Road 21 between Wellington Road 7 (Elora) and Region of Waterloo**
   The Transportation Systems Management (TSM) improvements recommended for this corridor to maximize the strategic capacity includes the provision of 2.5 m paved shoulders. This aligns with recommendations for the Wellington Road 21 in the ATP.

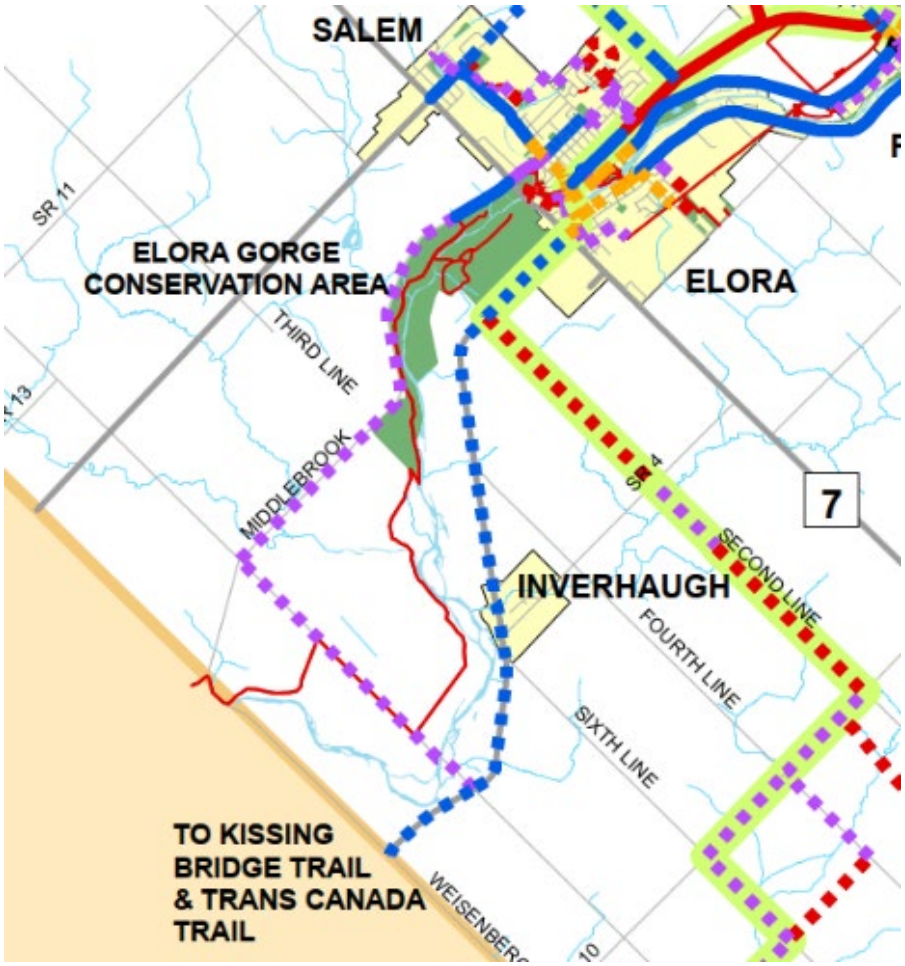

Figure 23: Paved Shoulders Proposed on Wellington Road 21 in ATP

4. **Wellington Road 32 between Wellington Road 124 and Highway 7**
   The ATP does not propose active transportation infrastructure for this area. However, the implementation of paved shoulders, along with the introduction of auxiliary lanes, is being recommended as part of the Transportation Systems Management (TSM) strategy to address future capacity issues in this corridor. With this improvement, this corridor can be designated as part of the active transportation network. This would connect to the off road signed route south of Wellington Road 124 connecting into the broader parts of the active transportation network and provide opportunities to connect these existing and future elements to the Highway 7 corridor. Timing for shoulder paving is provided within the implementation section of this report.

5. **Wellington Road 124 between Region of Waterloo boundary limits and City of Guelph boundary limits**
   The ATP has not proposed active transportation infrastructure for this area. The recommended design from the approved Wellington Road 124 EA includes the provision of 2.5 m paved shoulders on both sides the roadway. This provides for bike accessibility and connects into the active transportation network on the west side of the City of Guelph.
6. **Wellington Road 86 between Wellington Road 10 and Wellington Road 85**
   The ATP has not proposed active transportation infrastructure for this area. However, the implementation of paved shoulders (2.5 m), along with the introduction of auxiliary lanes, is being recommended as part of the Transportation Systems Management (TSM) strategy to address future capacity issues in this corridor. Once built, this section will provide bike accessibility along WR 86 to connect with other adjacent active transportation network elements (i.e., bike accessible shoulder on Wellington Road 12 and future proposed signed route on Yatton Side Road). Timing for shoulder paving is provided within the implementation section of this report.
7. **Wellington Road 46 between Maltby Road and Wellington Road 34**
   The ATP has not proposed active transportation infrastructure for this section of Wellington Road 46 north of Aberfoyle. The future widening should include the provision of 2.5m paved shoulders through this rural section of roadway. Providing wider and better quality paved shoulders will improve the cycling access between Aberfoyle and the south end of Guelph. Approximate timing for road widening, including paved shoulders, to address future capacity issues is provided within the implementation section of this report.

8.0 Transit Solutions

One of the key problem statements in the RMAP is to identify opportunities to improve equitable mobility through transit.

While car ownership is high in rural areas, not everyone in the County has access to a vehicle and/or can attain a driver's license. These transportation disadvantaged individuals include the elderly, children, individuals with a lower income, and people with disabilities. In Wellington County, the elderly (18.4%) and children (17.6%) make up about a third of the population, while just under 9% of people residing in Wellington County live in poverty. Based on these findings, there is an obvious need for a safe and equitable solution for these transportation disadvantaged individuals.

The operation of transit services in Wellington County to address this need is a value-based decision. Transit in rural communities is difficult to operate and typically requires larger municipal investment per trip than transit in urban areas. The level of service provided is also likely not going to change travel behaviour and reduce the number of auto trips significantly. Its primary function is to support the mobility needs of residents that do not have access to a private vehicle or cannot drive.

In a growing community such as Wellington County, the need for this type of mobility will continue to increase with population and employment growth. Over the next 20 years:

- There will be more newcomers to the County that may have come from locations where transit services are more common;
- The population will continue to age, and there will be more seniors that will lose their license or feel uncomfortable driving in inclement weather or at night;
- There will be more employers looking to attract labour, but will have difficulties attracting workers that don't have access to a vehicle;
- There will be more youth that are delaying getting their driver's license and are seeking mobility options that reduce their environmental footprint;
- Technology will continue to evolve and will open up new shared-ride mobility options for residents that live in rural environments.

Funding for the current Ride Well service will expire in 2025. This provides the County another three years to test the concept and assess its effectiveness. Once this grant expires, the County will also be eligible for Provincial Gas Tax, which is dedicated to transit services. This will help to offset some of the municipal contribution.

The Federal Government is also investing in rural transit, dedicating $250 million to communities across Canada to support capital transit needs. This suggests that there is a shift from all governments recognizing the need for transit services in rural areas to support equitable and sustainable mobility. This is a key goal in the Wellington County RMAP, and therefore, it is recommended that the County continue to operate the Ride Well service and seek funding opportunities to sustain and grow the service over the long-term.

The following section identifies potential improvements in the transit network to achieve the RMAP goal of equitable mobility, while also achieving the goal of fiscal responsibility. A more detailed summary of the transit analysis is included in **Appendix D.**

8.1 Growth in Demand

Ride Well is operating below this threshold, in part due to the introduction of the service just before the COVID-19 pandemic and the service model which provides transit access to every resident in the County, and not just those living in the urban communities.

Recovery from the COVID-19 pandemic and population and employment growth is anticipated to grow demand for transit services. Rural transit services that service large geographic areas typically achieve 0.26 transit boardings per capita, or 2.21 boarding per vehicle hour of service[3]. It is anticipated that ridership could grow from 25 daily trips to between 87 and 159 daily trips by 2041. This will require an investment in service.

[3] Source: Peer Review conducted of other rural transit services in Ontario – Data from the 2019 Ontario Transit Fact Book.

8.2 Service Options

There were several service models that were considered when assessing the future of transit in Wellington County. These include:

8.2.1 Continued On Demand Service

Continuing to operate a Dedicated On Demand service that is currently in place is aligned with the RMAP Goal 2: Provide Sustainable and Equitable Mobility Options that Connect Communities. The model provides access to transit to every resident in the County, and not just those that live in the urban hamlet areas.

The model also offers a relatively simple way to "right size" the fleet and service offerings based on resident demands. For example, at present, only two to four vehicles are in operation on a given day, but should demand increase, the platform is already in place to onboard an additional operator and vehicle to respond to the need.

8.2.2 Partner with Ridesharing and Taxis

Another alternative is to leverage partnerships with ridesharing companies or local taxi operators. In this model, drivers are paid per trip and are not dedicated to the service. Since they are not employed by Wellington County, they would have the right to accept a trip or reject it, based on when the driver is working and if the trip would generate enough income to make it worth their while.

This model is most effective when ridership demand is very low, however, becomes less reliable for short-distance trips located far from urban centres where most drivers reside. This would require a driver to drive a long-distance, and only get paid for a short-distance fare, which may not be acceptable, or the County to pay for non-revenue travel time (when the driver is heading to pick-up the passenger), which can lead to very high costs. Therefore, areas in northern Wellington County may not be suitable for this model.

Ride Well currently uses this model when an accessible vehicle is required. In this instance, Fergus-Elora Taxi is called and they are paid for the trip instead of by the hour. This includes payment of non-revenue service to pick-up the passenger.

8.2.3 Implement a Fixed Route Service

Another alternative model is to create a new conventional, fixed-route transit service along key corridors in Wellington. These services typically use larger vehicles and follow a fixed-route and schedule, connecting points where there is higher ridership potential. The Highway 6 corridor is already serviced by the existing Guelph Owen Sound Transportation (GOST) service between Mount Forest and the City of Guelph and Elliott Bus lines provide fixed-route services between Fergus and Guelph. This model is best suited for areas that have higher density of ridership with stops on roads that have pedestrian infrastructure (e.g. sidewalks and paved surfaces at bus stops).

If this model were to be pursued, it is recommended that the service would focus on long distance trips, connecting communities within Wellington County where ridership was over 4-5 boardings per revenue vehicle hour. Typically, fixed-route services in rural areas use small accessible cutaway buses that seat 10-12 passengers, with the ability to accommodate a wheelchair or scooter.

The benefit of this model is that it could easily complement the existing On Demand service model.

8.2.4 Continue Ongoing Partnerships with Community Care

In this model, Community Care and social services agencies are provided with funding from the County to support existing community transportation services for their members. Trips are delivered either by paid drivers using accessible vehicles or volunteer drivers using their own vehicles. Typically, service is limited to residents registered for the community care or social service agency. The County of Wellington currently funds transportation services through these agencies. While this is effective, service is not open to all residents in the community that may need a ride. There are also challenges attracting volunteer drivers as the population continues to grow and age. This service model is most suited to provide trips for persons with disabilities or seniors that may require an extra level of care (e.g. bring the passenger to the door of their destination and help them with parcels). Wellington County would not operate the service, but would contribute funding.

8.2.5 Evaluation

There is no 'one-size-fits-all' service model that is applicable to Wellington County. Each of the above noted service options are better suited for different geographic areas, different trip purposes and different ridership demands. The ideal characteristics of each service model in a rural environment such as Wellington County are summarized below in **Table 19**. The alignment of each service model to the relevant goals of the RMAP are illustrated in **Table 20**.

Table 19: Ideal Characteristics of Each Transit Service Model

Characteristics	Dedicated On Demand Service	Non-Dedicated On Demand Service	Dedicated Fixed-Route Service	Community Care Partnerships
Geography Serviced	Suitable for any geographic areas within the County	Suitable to urban areas within close proximity to the City of Guelph.	Suitable within larger urban hamlets or connecting multiple urban areas together that have higher ridership demand.	Suitable for any geographic areas within the County
Typical Ridership per Hour	1-2 boardings per hour	1-1.5 boarding per hour	Over 3 boardings per hour	1-1.5 boardings per hour
Population Serviced	All Individuals	All Individuals	Not ideal for persons with disabilities due to the challenge of accessing accessible stops	Seniors and persons with disabilities

Table 20: Alignment of Transit Service Options to RMAP Goals

RMAP Goal	Dedicated On Demand Service	Non-Dedicated On Demand Service	Dedicated Fixed-Route Service	Community Care Partnerships
Goal 1: Create a Transportation Network with a Focus on Safety	Passengers picked up at curb – Ideal where there are no sidewalks.	Passengers picked up at curb – Ideal where there are no sidewalks.	Passengers picked up at stop. Not ideal on rural roads with no pedestrian infrastructure.	Passengers picked up at door – Ideal for vulnerable population.
Goal 2: Provide Sustainable and Equitable Mobility Options that Connect Communities	Equity: Achieves goal of providing every resident with an equal opportunity to access transit. Sustainable: The service model is easily scalable and can be designed to be very responsive to growing or changing demand.	Equity: Residents in the north may not get the same level of service as residents to the south. Sustainable: The service model is easily scalable near larger urban centres and can be designed to be very responsive to growing or changing demand. The model is not as sustainable in communities further from large population centres.	Equity: Only provides transit service to residents that live in close proximity to a stop (urban hamlets of the County). Sustainable: Not easily scalable, and due larger vehicles used and need to service the entire corridor.	Equity: Only eligible for seniors and persons with disabilities. Sustainable: Expanding the number of volunteer drivers is difficult.

RMAP Goal	Dedicated On Demand Service	Non-Dedicated On Demand Service	Dedicated Fixed-Route Service	Community Care Partnerships
Goal 4: Make Investment Decisions that are Environmentally Responsible	Second highest potential for ridesharing if fleet is constrained.	Lowest potential for ridesharing due to larger number of drivers.	Highest potential for ridesharing, but larger vehicle required which may emit more GHGs.	Lowest potential for ridesharing as passengers typically transported individually.
Goal 5: Support Economic Development	Since transit vehicles are spread throughout the County, the level of service (e.g. frequency) to support employment areas may be limited.	May provide a higher level of service due to vehicle availability, but at a higher cost to the County.	Can target scheduled service to employment areas, but only accessible for residents living on the fixed-route corridor.	Limited as the model only services seniors and persons with disabilities, with limited options for work trips.
Goal 6: Be Fiscally-Responsible When Making in Investment Decisions	When transit use is low, this model is likely one of the most fiscally sustainable options. When transit usage increases along a corridor (3-4 boardings an hour), a fixed-route transit service is more productive and efficient.	When transit use is very low, this model is likely the most fiscally sustainable as the County only pays for trips provided.	When transit use is high, this model is the most financially sustainable.	This model uses subsidizes other provincial and grant funding provided to agencies, therefore investment from County is minimal.

8.3 Recommendations

As illustrated above, each of the service models has the ability to align to each of the relevant RMAP Goals, but only if implemented in the appropriate context. For example, a fixed-route transit service does not achieve the Goal of equity as it is not feasible or sustainable to provide fixed-route services throughout the entire County. However, fixed-route transit services can be more cost effective if implemented along a higher density corridor.

It is recommended that the County continue to operate the Ride Well service as the most cost-effective model to achieve the goal of sustainable equity. To achieve the goal of equity, the following actions should be taken:

- Increase the number of vehicles to the service and expand service hours as both ridership and population continue to grow. The objective is to reduce average wait times to less than 2 hours from when a passenger books a ride to the vehicle pick up.
- Reduce passenger fares to make the service more affordable and to increase ridership. This should provide fare reductions for passengers that travel long distances (providing a $20 maximum), passengers that travel in groups, or passengers that travel frequently.
- Explore potential partnerships with the Ride Well app that would allow trips to be booked on both dedicated Ride Well vehicles, fixed-route vehicles and non-dedicated vehicles. Small discounts for shared-ride non-dedicated services could be considered, particularly during periods when Ride Well is not operating.
- Continue Coordination with Community Care Agencies to meet the mobility requirements for their clients, while also reducing the County's financial contribution.

Opportunities to make the service more cost-effective (and increase travel options) include:

- Seek Federal and provincial funding opportunities to support ongoing operation of transit service. This should include Provincial Gas Tax and the Federal Rural Transit Solutions Fund.

- Work with On Demand Technology Provider to Integrate Ride Well with the GOST service from Owen Sound and the Denny Bus Line Service. This will allow Ride Well vehicles to focus on shorter distance On Demand trips.
- Establish Fixed-route Corridor Service on the Highway 6 corridor between Mount Forest and Guelph to complement the GOST and Elliott Bus Line Service. This should occur as On Demand ridership along this corridor continues to grow and exceed 3-4 boardings per vehicle hour. Further integrate the Ride Well service to act as a feeder service to this corridor.
- Assess the potential to purchase accessible vehicles through capital funding grants, which can be leased to the operator to drive and maintain. This would reduce wear-and-tear on the operator's personal vehicle, which could potentially reduce or maintain operating costs. The potential to purchase accessible electric mini-vans should also be explored as the technology becomes available through a grant program. This will further lower operating costs with rising fuel prices.
- Work with the City of Guelph and the Region of Waterloo to explore a fixed-route service between downtown Guelph and downtown Kitchener. The opportunity for Ride Well to connect to this service and add ridership should also be explored. Investigate further opportunities to connect with surrounding municipalities through inter-community transit routes.

9.0 Climate Change

The County of Wellington produces approximately 1.2 million tonnes of CO_2 (carbon dioxide equivalent) per year of greenhouse gas emissions from transportation, buildings, agriculture and solid waste. The County has committed to lead the community on climate change action by integrating climate change into decision-making to deliver superior public service for healthy and safe communities and resilient ecosystems.

The County's Climate Mitigation Plan focuses on climate change mitigation, specifically the reduction of greenhouse gas emissions. The benefits of mitigating greenhouse gas emissions go beyond reducing the magnitude and rate of climate change. Other areas of the community where benefits can be realized include:

- Health and Wellness - Improving air quality and access to nutritious local food;
- Affordability and Accessibility - Addressing barriers to home efficiency improvement to lower energy bills;
- Economic Development - Increasing opportunity for job growth related to home energy efficiency retrofits and opportunities for new business ventures; and
- Local Environment - Improving the resilience and sustainability of local natural systems through tree planting, restoration and impact abatement.

Transportation accounts for the largest portion (70%) of greenhouse gas emissions from fossil fuels in the community. Targets have been set to reduce emissions by 6% from 2017 levels by 2030, and by 80% by 2050. From a transportation perspective the following objectives have been identified:

- **Objective 1 - Develop strategies to transition light duty vehicles to electric.**
  Switching from gasoline to zero-emission vehicles (ZEV) is a powerful solution to reduce emissions from transportation in rural settings. ZEV will require infrastructure at home and throughout the County to keep the community moving.
- **Objective 2 - Develop strategies and policies to reduce dependency on the automobile.**
  Transitioning away from vehicle use in urban areas will require new approaches to planning and building design to improve connections between homes, shopping, work and amenities.

- **Objective 3 - Develop strategies to support options for commuters to reduce greenhouse gases.**
  Improved access to broadband and shared transportation reduce vehicle use and drive down greenhouse gas emissions.
- **Objective 4 - Develop strategies to reduce emissions from heavy duty vehicles and equipment.**
  Technologies to employ alternative fuels to diesel continue to develop. Access to alternative fuel stations is fundamental to support the switch to cleaner fuels for heavy vehicles and equipment.
- **Objective 5 - Plan for future transportation needs.**
  Transportation demand will increase with growing population and business. Future transportation investments and strategies need to avoid and, where possible, reduce greenhouse gas emissions. This will require any future updates to the RMAP to align with the County's Climate Change Mitigation Plan.

9.1 Implications from the Long-term Road Network

The recommended road program noted in **Section 6.3** will improve the reliability, efficiency, and safety of auto travel in the County. While this will result in some improvements to GHG emission rates, will not significantly affect the reduction of the forecast GHG emissions and achieve the GHG reduction target noted by the County.

With regard to Objective 2, **Section 8.0** of the RMAP identifies opportunities to enhance transit options while **Section 7.0** builds on the County's Active Transportation Plan and identifies further opportunities to expand the active transportation network. While these are important recommendations to improve access to sustainable transportation modes and increase equitable mobility, auto and vehicle use is expected to maintain its current share of use in terms of travel in the County. This suggests that other initiatives to reduce GHG levels attributable to the transportation system will need to be advanced and implemented.

For Objective 3, improved broadband will certainly reduce the number of trips required as many services and goods can be accessed online. Opportunities to improved shared-transportation are included in **Section 8.0** of the RMAP, discussing the role that transit and ridesharing has in increasing vehicle occupancy. Various TDM measures such as

carpooling can also increase vehicle occupancy, but this is only effective to higher density communities where there is greater opportunity to find a carpool match.

Of the remaining objectives, the ones that focus on alternative fuels and power sources for both personal vehicles and vehicles used for goods movement and servicing have the potential to gain the most traction. The following is a summary of the GHG assessment for baseline and future scenarios for Wellington County, and potential next steps for ZEV implementation.

9.2 Greenhouse Gas Emissions from Transportation

9.2.1 Data Background and Assumptions

This assessment establishes baseline (year 2019) greenhouse gas (GHG) emissions from transportation in Wellington County and provides GHG estimates for a future (year 2041) 'do nothing' scenario, and a future scenario with ZEV adoption.

Wellington County traffic data was used, including existing and future vehicle kilometers travelled (VKT) and percent travel by trucks to inform the GHG emission estimates. Data for future conditions does not account for the construction of new road segments (i.e., all estimates for travel are based on annual average daily traffic for current roads).

U.S. EPA emission factors for passenger vehicles[4], and the Environmental Defense Fund's emission factors for trucks[5] (heavy-duty vehicles) were used in the analysis.

The selected emission factors for passenger vehicles of 251 grams of carbon dioxide equivalents (CO_2) per kilometer (km) (404 g CO_2 per mile) and 1,056 CO_2 per km (1,700 g CO_2 per mile) were conservative values chosen from the above noted references.

[4] U.S. EPA (2018). Greenhouse Gas Emissions from a Typical Passenger Vehicle. Retrieved October 14, 2021 from: United States Environmental Protection Agency

[5] Environmental Defense Fund (2019). The Green Freight Handbook.

ZEV adoption estimates and projections were based on new motor vehicle registrations for Ontario, published by Statistics Canada[6]. Projections to the year 2041 include a future 'do nothing' scenario with limited investment in ZEV and a future scenario where an increased adoption of ZEV technology is estimated, with ranges of low-ZEV adoption and high-ZEV adoption provided for both scenarios.

ZEV entry into the Canadian market was limited in 2011, with the first models being delivered to consumers late that year (e.g., Nissan Leaf, Chevrolet Volt)[7] [8]. 2012 represented the first full calendar year of ZEV being widely available on the Canadian market. The year 2016 saw the release of more mass-market ZEV such as the Tesla Model 3 and the Chevrolet Bolt, pointing to another culture shift in increased ZEV interest and availability[9]. Additionally, between 2016 and 2019 there were fluctuating changes in purchase incentives offered by the Ontario and federal government[10] [11].

Adoption rates for ZEVs were estimated as follows:

- ZEV permeation in the 'do nothing' future scenario is based on average data from 2012 to 2020; and
- ZEV permeation in the ZEV adoption future scenario is based on 2016-2020 data.

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[6] Statistics Canada (2021a). Table 20-10-0021-01 New motor vehicle registrations. Retrieved October 15, 2021 from: Statistics Canada Website

[7] General Motors (2010). Chevrolet Volt Canadian Launch Markets Revealed. Retrieved October 19, 2021 from: Archive Today Website

[8] GreenCarReports.com (2011). First 2011 Nissan Leaf Electric Car Delivered to Canada. Retrieved October 19, 2021 from: Green Car Reports Website

[9] CNN Business (2019). Electric cars have been around since before the US Civil War. Retrieved October 19, 2021 from: CNN Business Web

[10] The Canadian Press (2018). End of Ontario electric vehicle rebate program expected to hit sales. Retrieved October 19, 2021 from: National Post Website

[11] Government of Ontario (2018). Ontario Introducing New Incentives to Switch to Electric Vehicles. Retrieved October 19, 2021 from: News Ontario Website

ZEV classification includes battery electric vehicles and plug-in hybrid electric vehicles, in accordance with the Statistics Canada definition. The assessment does not account for the Government of Canada's current commitment to have 100% of light-duty vehicle sales be ZEV by 2035[12], as vehicle sales do not directly represent vehicle composition on the road at a point in time.

Wellington County has a current population of approximately 103,800 residents, managing 706 km of mixed-use roadways which see an estimated 3.3 million VKT daily (~33 VKT per person). Current ZEV use in Wellington County is assumed to align with 2020 ZEV registration rates for new vehicles in Ontario (1.75%)[13]. A summary of GHG emission estimates for the baseline scenario is provided in **Table 21.**

Table 21: Baseline Scenario Emission Estimates

Description	Trucks	Passenger Vehicles	Estimated Number of ZEVs	Total
Daily VKT	152,506	3,117,493	55,550	3,325,549
Estimated GHG Emissions (tonnes CO_2e/year)	58,800	285,648	0	344,448

9.2.2 Future 'Do Nothing' Scenario

In the future 'do nothing' scenario, Wellington County is assumed to grow without significant investment in ZEV or charging infrastructure. In this scenario, it is assumed that ZEV uptake will continue to rise at a low rate of uptake as individual residents invest in personal home chargers, or make use of public/private charging infrastructure outside of the County. Under this future 'do nothing' scenario, it is estimated that ZEV permeation will increase by 0.5% to 1% annually (based on early ZEV adoption rates for Ontario), with an estimated 12% to 22% of travel being completed by ZEV in 2041. A

[12] Government of Canada (2021). Canada's Zero-Emission Vehicle (ZEV) sales targets. Retrieved October 15, 2021 from: Government of Canada Website

[13] See Statistics Canada (2021a)

summary of GHG emission estimates for the future 'no nothing' scenarios are provided in **Table 22** and **Table 23.**

Table 22: Future 'Do Nothing' Scenario Emission Estimates for Low Zero Emission Vehicle Adoptions

Description	Trucks	Passenger Vehicles	Estimated Number of ZEVs	Total
Daily VKT	181,635	3,430,268	478,899	4,090,803
Estimated GHG Emissions (tonnes CO_2e/year)	70,032	314,307	0	384,338

*LZA – Low ZEV Adoption (0.5% annual increase)

Table 23: Future 'Do Nothing' Scenario Emission Estimates for High Zero Emission Vehicle Adoptions

Description	Trucks	Passenger Vehicles	Estimated Number of ZEVs	Total
Daily VKT	181,635	3,019,805	889,362	4,090,803
Estimated GHG Emissions (tonnes CO_2e/year)	70,032	279,697	0	346,728

**HZA – High ZEV Adoption (1% annual increase)

9.2.3 Future Scenario with ZEV Adoption

Wellington County introduced the first electric vehicle charging stations in 2017 with the support of provincial funding. The County continues to pursue further investment in charging infrastructure to improve the ZEV charging network across the County and the Province and is pursuing funding through the federal government's Federation of Canadian Municipalities Green Municipal Fund. As the County has demonstrated interest in pursuing investment in ZEV technology and charging infrastructure, it is demonstrating a commitment to promoting ZEV adoption among residents. In the future condition with ZEV adoption, it is estimated that ZEV permeation will increase by 1% to 2% annually (based on 2016 to 2020 adoption rates in Ontario), corresponding to 22% to 42% of travel being completed by ZEV in 2041. A summary of GHG emission

estimates for the future scenario with ZEV adoption is provided in **Table 24** and **Table 25.**

Table 24: Future Scenario with ZEV Adoption for Low Zero Emission Vehicle Adoptions

Description	Trucks	Passenger Vehicles	Estimated Number of ZEVs	Total
Daily VKT	181,635	3,430,268	889,362	4,090,803
Estimated GHG Emissions (tonnes CO_2e/year)	70,032	201,478	0	346,728

*LZA – Low ZEV Adoption (1% annual increase)

Table 25: Future Scenario with ZEV Adoption for High Zero Emission Vehicle Adoptions

Description	Trucks	Passenger Vehicles	Estimated Number of ZEVs	Total
Daily VKT	181,635	3,019,805	1,710,287	4,090,803
Estimated GHG Emissions (tonnes CO_2e/year)	70,032	201,478	0	271,509

**HZA – High ZEV Adoption (2% annual increase)

9.2.4 GHG Summary for Future Scenario and Local Context

Wellington County is expecting to see a 23% increase in total VKT by 2041 from current travel estimates. In the future scenario with ZEV adoption, despite this 23% increase in total VKT, GHG emissions may be reduced by up to 21% from the baseline scenario with high ZEV adoption. This reduction demonstrates the importance of ZEV in achieving overall climate goals. The future condition without ZEV investment is estimated to see a 1% to 12% increase in GHG emissions from the baseline scenario.

The future scenario with ZEV adoption is based on ZEV incentives currently in place in Ontario. Typically urban population centres with high population density show higher rates of ZEV adoption. In 2020, approximately 2.5% of new vehicle registrations in both

Toronto and Ottawa were ZEVs[14]. British Columbia has the leading municipalities, with Victoria and Vancouver registering over 10% ZEV registration[15].

9.3 Opportunities for Wellington County

9.3.1 ZEV Adoption

The following provide a list of actions that the County can explore to help move towards a higher rate of ZEV adoption between now and 2041.

1. **Start with the County's Fleet –** The County can start the transition by focusing on assets they have the most control over, such as the County's fleet (maintenance vehicles, snow plows, and the contracted Ride Well service). These are some of the most high-mileage vehicles, and transitioning to an electric fleet can yield the greatest cut in emissions and other adverse environmental impacts. This does not need to move into ZEV right away, but can also consider low carbon fuels, hybrid vehicles or other options that reduce GHG emissions. Understanding the available technology and what is suitable in a large rural environment for each of the County's fleet will be the first step in a green fleet strategy. The County can see this as an experiment and testing to find out the best way to build a strong green fleet network.
2. **Financial and Regulatory Incentives** - ZEV often come with a high upfront purchase cost, which is one of the major barriers that discourage users from switching. Working with private sectors and exploring the opportunities for a rental and lease program can also encourage more drivers to participate in the program. Currently the federal government offers up to $5,000 in ZEV subsidies, and previous provincial governments have introduced ZEV incentives at the provincial level, similar to offerings in British Columbia and Quebec. The County should provide a clear

[14] Statistics Canada (2021b) Zero-emission vehicles in Ontario, third quarter of 2020. Retrieved October 21, 2021 from: Statistics Canada Website

[15] Statistics Canada (2021c) Zero-emission vehicles in British Columbia, third quarter of 2020. Retrieved October 21, 2021 from: Statistics Canada Website

summary of available provincial and federal subsidies on its website, including links to the appropriate external webpages with complete details.

3. **Seek Funding** - The provincial and federal governments have funding opportunities to support increased permeation of ZEV across Ontario and Canada. For example, The City of Guelph and the University of Guelph are investing approximately $225,000 under two projects jointly funded with Natural Resources Canada's Zero-Emission Vehicle Infrastructure Program to install forty level two ZEV charging stations around the City of Guelph, including directly on campus[16][17]. The federal government, through its Rural Transit Solutions Fund, is also providing up to 80% funding for capital investment in transit, which could include the purchase of electric vehicles.
4. **Planning and Development (roads management/maintenance):** With the rising adoption rate of ZEV, there will be a fundamental shift in how the planning and development teams manage road assets. Parking lots need to be redesigned to add in ZEV infrastructure such as charging stations. Street parking also needs to be retrofitted to accommodate charging infrastructures. The County can work with its local municipal counterparts to develop new policies and by-laws to include ZEV in the development approval process.
5. **Provide Incentives –** Incentives can come in many forms. The following are some to consider:
    - Expand the Charging Infrastructure: Build public ZEV infrastructures, encourage stakeholders (businesses, companies, homeowners) to invest in charging infrastructure networks (home/workplace charging, public charging etc.).
    - Financial Incentives: Consider offering priority parking for ZEV at County-owned lots, consider offering free charging at the initial stage of the transition to increase ZEV uptake.

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[16] Natural Resources Canada (2020). New Electric Vehicle Connectors Coming to Guelph. Retrieved October 15, 2021 from: Government of Canada Website

[17] Natural Resources Canada (2020). New Electric Vehicle Chargers Coming to the University of Guelph/ Retrieved October 15, 2021 from: Government of Canada Website

- Equity and Inclusion: Provide incentives for low-income families, where subsidies are provided for low-income families to purchase new or used ZEV.

6. **Improve ZEV's Infrastructures and Build Charging Network –** One of the primary concerns with ZEV is the range and ability to charge whenever needed. Making the ZEV network and associated infrastructure available is key to addressing and reducing "range anxiety":
   - Make charging stations widely available (at businesses' parking lots, public parking lots, on-street parking, etc.).
   - Deploy the appropriate charger at the right location (the speed of the charger matters, ideally fast chargers should also be widely available, while level 2 chargers can be installed at malls, business parking lots, etc.). The charging stations should be located close to the main roads, and the pricing should be affordable.
   - Make information on public charging stations available to commonly-used maps app such as Google maps. For example, Guelph Hydro shares information on installing an electric charging station at different types of residences and provides a link to Electric Mobility Canada's charging maps and apps to inform residents of their charging and alternative fuel options both at home and around the country.
   - Assess the capability of the existing power grid to accommodate an increase in power consumption within the County as ZEV adoption increases. Both power generation and distribution utilities may need to be upgraded to support the heavy demand being placed on local voltage transformers and the power sources. The County's current considerations to manage the expected increased electricity demands include investment in solar power charging and other small-scale hydro production should be reviewed on an ongoing basis[18] .
   - Collaborate with local businesses, workplaces, and places of interest to purchase and install charging stations at their parking lots; provide financial incentives to encourage individual businesses in participating the program.

[18] County of Wellington (2021). County Introduces Three Electric Vehicle Charging Stations. Retrieved October 15, 2021 from: Wellington County Website

7. **Increase Public Awareness of ZEV –** Beyond ZEV and the required infrastructure, it is important to market and educate consumers of the advantages of a ZEV environment, from a personal and community perspective:
   - Run public awareness campaigns to promote the benefits of ZEV and outlining all the benefits and incentives residents and users can receive (environmental benefits, social benefits, financial benefits, benefits to businesses, health benefits, and overall lower cost in the long term).
   - Promote to business the improved opportunities to increased revenues and reduced costs for the fleet.
   - Demonstrate the County's determination and plan/timeline to electrify the County's public fleet.

9.3.2 Other Actions to Reduce Climate Change

While the actions taken to increase ZEV use in the County have the highest impact on climate change, there are other actions the County can take to reduce greenhouse gas emissions. These include:

1. **Improve Transit Service:** Actions identified in **Section 8.0** to increase vehicle occupancy on Ride Well (particularly by integrating with existing fixed-route services) will reduce single-occupant vehicle travel. It is also recommended that the County encourage and support potential implementation of Centre Wellington's efforts regarding transit service for their community and further suggest the scope of work includes assessing options to increase ridership and reduce automobile demand on within Elora and Fergus and along the Highway 6 corridor.
2. **TDM Strategies** – TDM strategies target the modification of travel behaviour to reduce the use of single occupant vehicles by increasing the vehicle occupancy or shifting people to other modes. TDM encourages the movement of people, not vehicles within the network. Initiatives include: carpooling, modifying peak period of travel, use of road space/restriction on vehicles movements (High Occupancy Lanes); telecommunications strategies; active modes use strategies; increasing public transit use; road pricing; and parking strategies. They can be achieved through incentivizing or penalizing specific actions. For example, parking strategies can be used as an incentive (preferred HOV parking) and a deterrent (increase parking cost) to single occupant vehicle use. A study is required to review the potential to consider

incentivizing and prioritizing high occupancy vehicles both in terms of adoption and on roadways and mode shifts within the network. When the most compatible and efficient TSM strategies have been identified for the County, the policies and infrastructure needs to support these strategies can be assessed (HOV lanes, in-road bicycle tracks).

3. **Road Construction**: Continue to investigate and adopt low greenhouse gas road construction and maintenance techniques and construction materials (e.g. increased percentage of recycled asphalt) in all roads infrastructure design and construction.
4. **Marketing and Communications**: Encourage shift to more sustainable modes through marketing and engagement opportunities, in partnership with local municipalities where possible.
5. **Climate Change Adaption Plan:** Assess future Roads projects regarding climate change impacts including greenhouse gas emissions (during construction, maintenance and ongoing infrastructure users (e.g. vehicles)) and resiliency. Undertake a climate change adaptation plan and include an assessment of the risk and vulnerability of existing County roads infrastructure based on future climate scenarios (e.g. increased extreme flooding, ice, heat events). Incorporate findings in long term budget planning and future transportation planning.

10.0 Recommended Policy Framework

Updates to the policy framework were developed to better align transportation decisions with the Vision and Goals of the RMAP. This includes policies and tools that create a more transparent and collaborative process in identifying problems and opportunities, assessing impacts and identifying and evaluating effective solutions.

Goal 7: Develop Transparent Policy Tools that Guide Investment Decisions in the Transportation Network

Goal 8: Create a Culture of Collaboration with Municipal Stakeholders where the County Transportation Network Intersects with Areas of Local Importance

10.1 Data Driven Safety Strategy

A Data Driven Safety Strategy was also developed as part of the RMAP. The Strategy identifies a transparent process for responding to a safety concern raised by a member of the public for roadways or intersections under County jurisdiction. The process is illustrated in **Figure 24**.

The goal of the process is to determine whether a problem exists, to pinpoint it based on the location, and to determine and implement a set of appropriate mitigation measures and/or safety improvements.

The strategy is built on best practices both locally and nationally and aligns with the County's Vision and Goals concerning the management and implementation of transportation infrastructure and services. The resulting process is a proven, data-driven approach, to be used to deliver a consistent and robust road safety analysis for Wellington County.

The Data-Driven Safety Strategy is included in **Appendix E.**

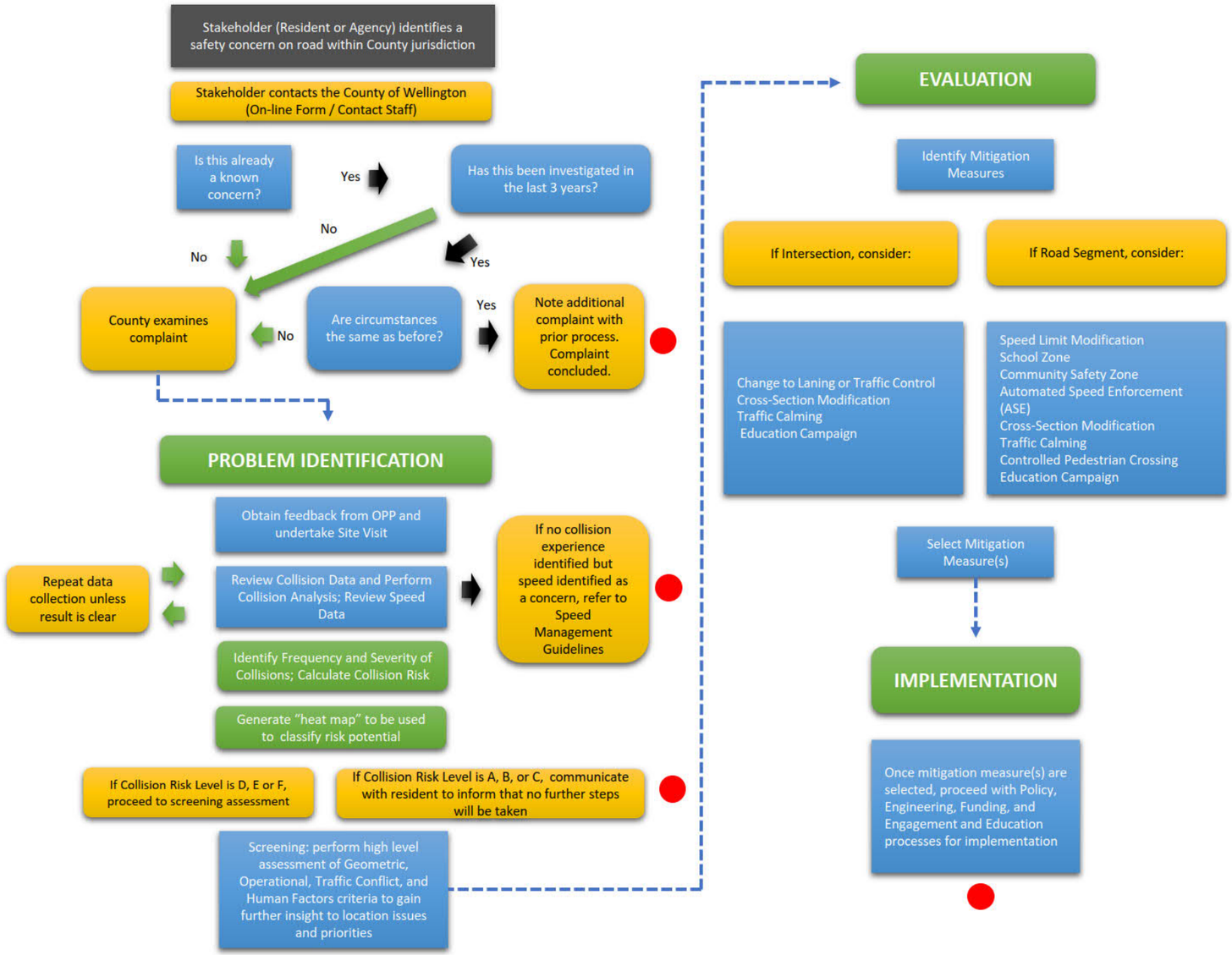

Figure 24: Road Safety Process

10.2 Speed Management Guidelines

Speed Management Guidelines were developed to define a planning process for responding to speed mitigation requests in the County. The full Speed Management Guidelines are included in **Appendix F**.

The guideline:

- Provides direction on the appropriateness of posted speed limits across Wellington County, in consideration of the local environment and operating characteristics;
- Defines a process for undertaking a warrant for speed mitigation measures at locations identified by an area's stakeholders;
- Defines a process for assessing the feasibility of introducing speed mitigation measures and deciding on corridors, where warranted and how to develop a final solution; and
- Outlines a process to obtain the necessary approvals to implement the required speed mitigation measures.

The process identified for managing requests for speed mitigation and speed management is illustrated in **Figure 25**. This includes working with stakeholder and the Ontario Provincial Police (OPP) to identify the issue and assessing potential solutions.

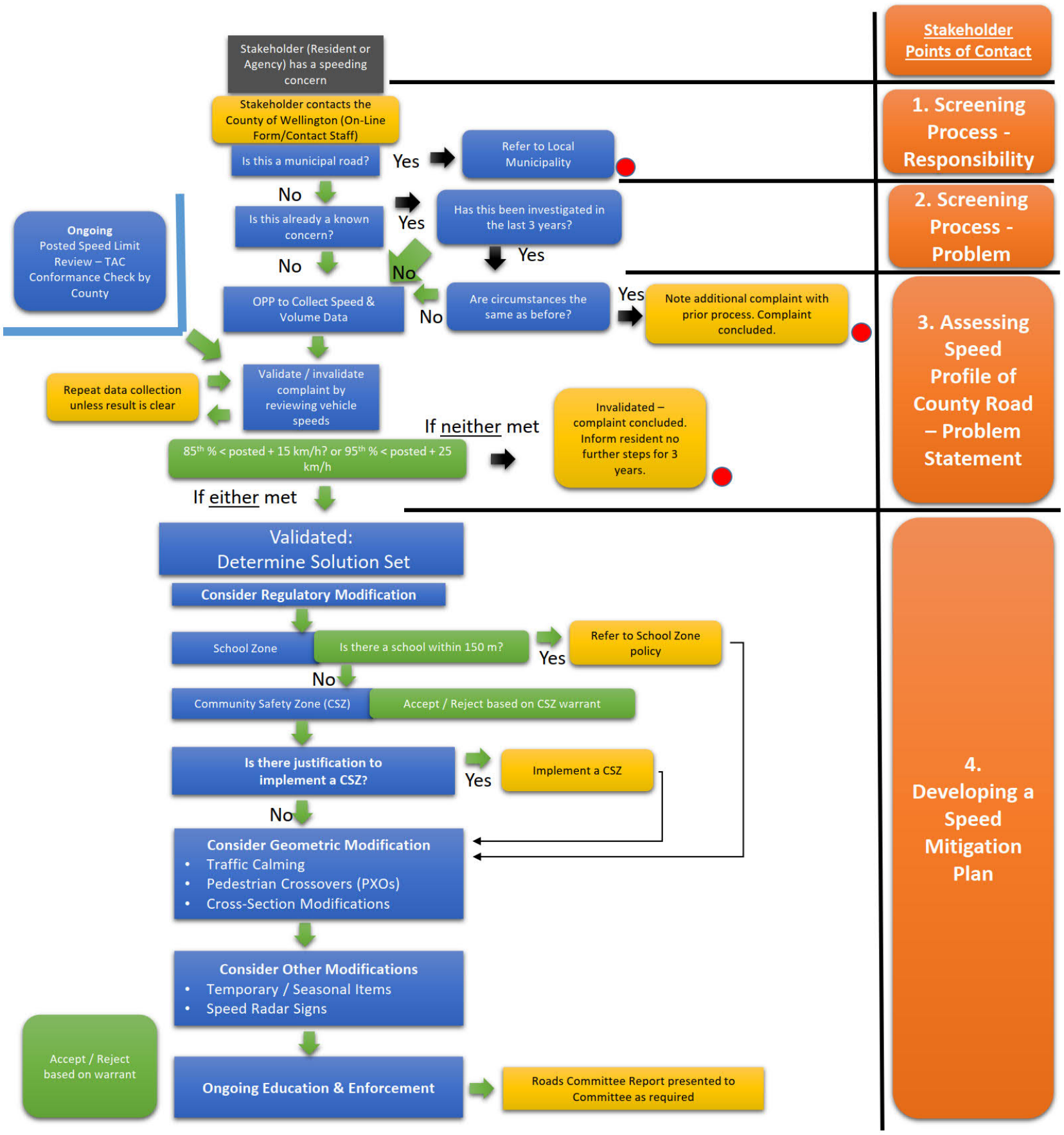

Figure 25: Coordinated Planning Process for Responding to Speed Management Requests

Potential mitigation to reduce speeds and implement a Speed Management Plan falls into three categories: Enforcement (Regulatory), Engineering (Geometric) and Education. The specific action plans or options in each of these categories are as follows:

Regulatory Modifications

1. Speed Limit Modification
2. School Zone
3. Community Safety Zone
4. Automated Speed Enforcement (ASE)

Geometric Modifications

1. Cross-Section Modification
2. Traffic Calming
3. Controlled Pedestrian Crossing

Other Modifications

1. Speed Radar Signage
2. Seasonal/Temporary Modifications

Educational Campaigns

Some of the lower-cost improvements such as the introduction of pavement markings, signage and/or speed display boards may be able to be implemented at a Speed Management Team and/or Roads staff level, while any regulatory improvements such as posted speed limit change, the introduction of community safety zones and school zones would need to be approved via a By-law Amendment at County Council. The same would be applicable for any geometric improvements which would include the need for a contract and tender to be awarded for the design and construction of any corridor improvements or physical traffic calming (such as medians, curb extensions, etc.). Temporary/seasonal improvements may also be appropriate in some cases.

The guidelines include a recommended scoring system which also reference when a Community Safety Zone should be introduced.

Once target locations and mitigation solution sets are approved, the next steps in the process should be as follows:

- Design project(s) and allocate appropriate funding sources and/or pursue grants or private funding;
- Develop implementation schedule, assign tasks and incorporate costs into operational capital budgets;
- Finalize safety targets or other goals;
- Identify measures of effectiveness and develop an evaluation plan;
- Implement and complete evaluation; and
- Communicate results to stakeholders, internal and external.

10.3 Traffic Impact Study Guidelines

A Traffic Impact Study (TIS) is a vital part of the development review and approval process. It is required to identify the impacts that a new development will have on the surrounding transportation network. The TIS considers how these transportation impacts can be mitigated and addressed. It identifies mitigation measures required to alleviate any potential concerns such as congestion and safety. These measures can include infrastructure improvements, upgrade of traffic control devices, and implementation of active transportation facilities. Additionally, a TIS can assist in identifying financial responsibility and timing for the transportation system improvements.

Traffic Impact Study Guidelines have been developed for the County of Wellington and are included in **Appendix G**.

The guidelines were developed to meet the following objectives:

- Provide land owners, development companies, and consultants with a standard approach to preparing a traffic impact study that meets the requirements of the County;
- Ensure consistency in the studies that are prepared for the County. This facilitates faster review times and reduces potential costs and delays to proponents;
- Afford decision makers the basis to assess the implications of the development on the transportation system; and

- Provide a basis for assessing existing and future transportation system deficiencies which will require mitigation.

Traffic impact studies vary in scope and size based on the type and scale of the proposed development. The level of analysis, assessment and reporting will depend on site-specific matters and should take into account previous traffic studies. Updates to previous traffic impact studies may be acceptable depending on the changes to previous development proposals, current traffic data, and other factors affecting the County road network.

Following the updated guidelines, a traffic impact study typically should follow the format and content structure outlined below:

Step 1: Description of Development Proposal/Plan:

A general overview of the development including the land use type, size of the buildings, nearby existing traffic network, and various other traffic characteristics.

Step 2: Define Study Area:

A description of the existing transportation system using a combination of maps and figures.

Step 3: Existing Conditions:

An assessment and field investigation of the existing conditions in the study area.

Step 4: Study Horizons:

Define the study horizons and horizon years based on the scale of the development.

Step 5: Background Traffic Growth:

Develop an estimate of the traffic growth for the study area in consultation with the County staff.

Step 6: Development Related Traffic:

Examine trip generation, mode split, trip distribution, and trip assignment assumptions in accordance with industry standards and accepted practices.

Step 7: Summary of Traffic Demand Estimates:

A summary of traffic demands and traffic forecasts in consideration of background growth.

Step 8: Evaluation of Impacts:

An assessment of how the site generated traffic will impact nearby traffic flow and intersections.

Step 9: Access Analysis:

Focus on evaluating the turn lane requirements, sight distance, and intersection control to determine development's impacts on the local traffic network.

Step 10: Safety Review:

Identify potential safety and operational issues through analyzing typical safety-related factors, collision prone locations, and other safety concerns.

Step 11: Findings and Recommendations:

A summary of key findings based on the traffic analysis plus an implementation strategy plan and a preliminary cost estimate.

Step 12: Reporting:

Document the above findings, results, and recommendations alongside with appropriate maps, tables, exhibits, and graphs in a clear and organized report.

10.4 Official Plan Policy

Existing transportation policies in the County's Official Plan were reviewed and updates were recommended to better align with the Vision, Goals and direction identified in the RMAP.

The Official Plan policies are an important tool to assist Wellington County in achieving the vision and objectives set out in the Official Plan. The transportation policies guide the development of the transportation network to ensure safety and convenience for the movement of people and goods throughout the county. By following these policies, Wellington County can safely and efficiently plan transportation systems and

infrastructure for all modes including, walking, cycling, public transit, trucks, and cars. Ultimately, these goals assist in accommodating future growth and development expected in the years to come. The recommended Official Plan transportation policies is included in **Appendix H.**

10.5 Roadway Hierarchy

The role and function of the major roads in the County network were reviewed to determine if that role and function aligned with jurisdictional authority identified in **Table 2** in **Section 3.1.**

Based on the roadway characteristics and a review of the current condition of the road network, no changes to the current roadway hierarchy are recommended. The road classification will remain as is.

However, it is noted that there are several roadways and areas that have been identified as part of future studies. The Fergus/Elora By-Pass study area is the most significant area where existing Town, Township, and County Roads have been identified as candidates to serve as part of a by-pass, which would potentially have them acting as provincial facilities. There are also areas in planned development areas (e.g. the Puslinch industrial lands area south of Maltby Road and east of Highway 6), where changing provincial infrastructure may have an impact on how local roads serve development, which may require the Township and County to review the role and jurisdiction of the local road.

These studies are outside the scope of the RMAP but will have bearing on the role and function of major roadways. Future RMAP updates should monitor and assess the impacts of these studies.

10.6 Level of Service Conditions Criteria

The County has put in place Level of Service (LOS) condition criteria for its County road network. The criteria provides a framework for the road surface condition assessment of County roads, and provides guidance on actions taken to resurface or rehabilitate roads. The current LOS condition criteria at the County is based on the County's 2013 Asset Management Plan, and includes three rating categories: good, fair and poor. The plan reported that 85% of the road surface condition was good (greater than 75 PCI), 8% was

fair (70 to 75 PCI and requiring capital investment within 5 years), and 7% was poor (less than 70 P C I and needing immediate attention).

A review of the LOS condition criteria was conducted as part of the RMAP and presented in **Appendix I**. The objective was to review the LOS condition criteria used in the 2013 County of Wellington Asset Management Plan and recommend updates that reflect current performance and proposed LOS targets that align with the new asset management regulation (O.Reg. 588/17). These updates should be applied to both existing and recommended roadway expansions identified in the RMAP.

10.6.1 Review of Current Level of Service and Best Practices

Since the 2013 Asset Management Plan was created, the County has made advances to improving the road conditions in Wellington County. For example, the County is currently updating (2021) a road needs study with existing road surface condition information. There is a plan to update this on a three-year cycle.

In addition, the County's Strategic Asset Management Policy (T R-19-05) was adopted in 2019 as required by O.Reg. 588/17. The new asset management regulation (O.Reg. 588/17 Asset Management Planning for Municipal Infrastructure) identifies levels of service as a requirement for reporting on the current service provided as well as the target level in the future. Levels of Service description is required from the customer LOS as well as the technical LOS perspective, as well as the reporting on performance of the assets.

Similar communities were selected to compare how they are addressing level of service for roads. The review of best practices for LOS identified opportunities to advance asset management principles and align future asset management plans with LOS condition requirements of O.Reg. 588/17.

At this time there is limited information available from comparator municipalities on how condition LOS is being reported and what proposed LOS are being set. As municipalities in Ontario advance their asset management practices to align with O.Reg. 588/17, this information will become more readily available.

10.6.2 Recommendations

Based on the review, the following recommendations reflect current performance and proposed LOS targets that align with the new asset management regulation (O.Reg. 588/17):

1. **Consider Current Condition of Road in Modelling:** Any roads that currently have PCI < 50 should be assessed with a lower capacity in network modelling and identified as a constraint until the condition of the road is improved.
2. **Condition Rating Categories:** Expand the number of condition categories (to 5) to assist in lifecycle planning and project prioritization. NOTE: A five point scale is used in the current draft 2021 AMP. Other local municipalities are proposing to use the same five point scale.
3. **Minimum LOS Reporting (**O.Reg. **588/17):** Meet the minimum LOS reporting requirements as required by O.Reg. 588/17 for scope and quality.
4. **Importance of Roads within the Network:** Consider the importance of roads within the network in prioritizing lifecycle activities. Report on the average condition of each category of importance, as well as the overall average of paved and unpaved as per Recommendation 1.
5. **Traffic Usage of the Road:** Consider traffic usage of the roadway in establishing the target LOS for each section of the network and incorporate traffic usage in the prioritization of lifecycle activities to meet the LOS.
6. **Surface Type (Paved vs Gravel):** Consider the option of converting surface type for road sections to gravel for roads that are near the end of their useful life when the road has lower traffic usage, even as a temporary measure until funding can be secured for road rebuild. **Consider Climate Change Impacts on the Roads:** Consider climate change impacts on the road network, both in terms of short-term impacts on LOS (e.g. when flooding occurs) and long-term impacts on road condition LOS (e.g. increasing free thaw cycles).

10.7 Urban Area By-Pass - Approach

The need and implementation of a by-pass of an urban area should be treated the same as any other transportation corridor. A study should be required in the form of an area specific master plan or a Municipal Class EA where alternative methods and alternative design concepts would be fully explored (i.e., impacts and costs).

The process for identifying when such a study is required should include but not be limited to the following steps:

Step 1: Identify the Problem:

This could be related to capacity, speeding or roadway safety. Thresholds for determining what constitutes acceptable performance in each case should come from the County guideline where available.

Step 2: Assessment of the Significance of the Problem:

Follow the County's Speed Management Guidelines and Data-Driven Safety Strategy where applicable. Collect data related to traffic volumes, collisions and speeding, then assess whether issues are related to local, regional, or provincial activity.

Step 3: Identify Potential Mitigation:

Assess whether local mitigation or broader system mitigation is required and the efficiency of the local mitigation in addressing the problem. If local measures are not successful in mitigating transportation issues, broader scope feasibility studies will be needed to identify whether feasible alternative network infrastructure solutions exist.

The general goal of a feasibility study is to objectively and rationally determine strengths and weaknesses of a potential undertaking and identify the resources that would be required to carry it out. A feasibility study should include information relating to high level impacts to the environmental and social/economic network, as well as identify whether the proposed subject of the study is legally and technically feasible and has potential for a successful outcome. The purpose of the feasibility study is to identify feasible alternatives to the undertaking so the proponent can proceed with an Environmental Assessment.

As with development applications and speed and safety reviews, assessments related to By-Pass Reviews should be included and referenced. The assessments should be data driven and identify the process outlined above.

11.0 Short-Term Operational and Safety Improvements

A key component of the RMAP was to test the effectiveness of some of the revised policy documents that were identified in **Section 10** to address speeding, safety and traffic operations on a number of County road segments and intersections. The analysis of these and recommended solutions are identified below.

11.1 Roadway Safety and Speed Management

Speeding is a complex issue characterized by driver behaviour, the conflict between resident and driver attitudes, the impact of vehicle types, and the influence of posted speed and roadway design on local environments. Speed management requires a process by which problems and outcomes are defined and assessed.

The County identified 16 corridors where speeding concerns were previously identified by County staff, local and County councillors as well as through the initial round of engagement using the Social Pinpoint exercise (see **Appendix A**). Each of the corridors under the study is listed in **Table 26** and illustrated in **Figure 26.** Full details of this assessment can be found in the Speed Management Corridors Review included in **Appendix J**.

Table 26: Speed Management Review Corridors

No.	Corridor	Limits
1	Wellington Road 124	6th Line to 10th Line (through both Brisbane & Erin)
2	Wellington Road 7	Side Road 11 to Wellington Road 18
3	Wellington Road 86	Eighth Line to 5697 Wellington Road 86
4	Wellington Road 19	Wellington Road 16 to 8746 Wellington Road 19
5	Wellington Road 26	Wellington Road 19 to Side Road 9
6	Wellington Road 50	Highway 7 to Wellington Road 24
7	Wellington Road 124	Guelph to Watson Parkway
8	Wellington Road 29	Side Road 10 to 300 metres north of Wellington Road 124
9	Wellington Road 42	Trafalgar Road (Wellington Road 24) to Winston Churchill Boulevard

No.	Corridor	Limits
10	Wellington Road 24	Wellington Road 22 to Side Road 27 through Hillsburgh
11	Wellington Road 41	City of Guelph Boundary to Wellington Road 37 (Arkell Road)
12	Wellington Road 36	Highway 6 to Ochs Drive
13	Wellington Road 32	Wellington Road 33 to Concession 2
14	Wellington Road 18	Highway 6 to Scotland Avenue
15	Wellington Road 6	Grey County Limit to Highway 6
16	Wellington Road 11	Wellington Road 8 to Concession Road 8

The purpose of the review was to determine if posted speed limits need to be adjusted and/or if any further speed mitigation needs to be planned, considered or implemented along these select corridors. These were reviewed against the Speed Management Guidelines developed as part of the RMAP, as noted in **Section 10.2** of this report.

Addressing speeding concerns is an important step to creating a safer and more convenient transportation system. By identifying the reason behind speeding issues, different solutions can be proposed to ensure efficient traffic flow and safety for all road users.

Speed limits are typically set based on the functional role and geometric design of a roadway. Speeding is not just defined as exceeding the posted speed limit; it also includes driving too fast for the current conditions. The physical environment of a street can vary by time of day and time of year, resulting in different visibility conditions, vehicle type composition, and increased exposure to non-vehicle activity. Understanding these factors assist in developing measures to mitigate speed.

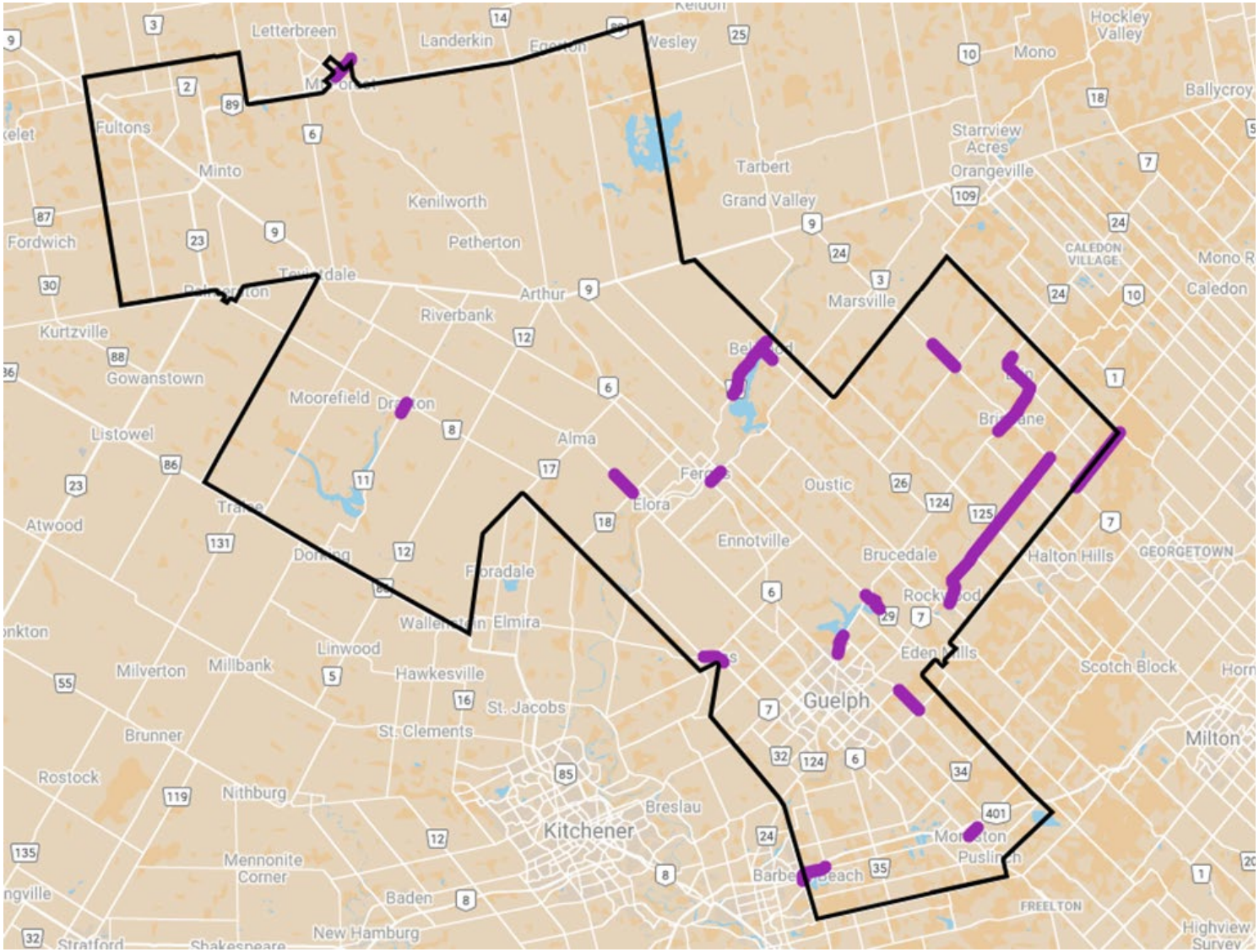

Figure 26: Speed Management Review Corridors

The County has several possible measures at its disposal to mitigate speed, including:

- **Regulatory Changes**
  - **Speed Limit Modification** - Any change to the posted speed limit sign of a roadway and applicable by-laws.
  - **School Zone** - A roadway section with a lowered maximum speed zone in effect either on a 24-hour a day basis or during every school day at designated times. School Zones are located in the vicinity (within 150 m) of a school (usually 40 km/h in urban areas, 60 km/h in rural areas).
  - **Community Safety Zone** - Sections of roadways, designated through by-laws where, in the County's Council's view, public safety is of special concern.
  - **Automated Speed Enforcement** - An automated system that uses a camera and a speed measurement device to enforce speed limits. An ASE system captures and records images of vehicles speeding within School Zones and/or Community Safety Zones with tickets being issued to the registered owner of the vehicle.
- **Geometric Modifications**
  - **Cross-Section Modification** - Includes widening the street platform or reallocating space within the road.
  - **Traffic Calming** - Physical measures intended to reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non-motorized street users.
  - **Controlled Pedestrian Crossing** - Designated places for pedestrians to safely cross the road, including regulatory control devices such as signage, pavement markings, and flashing lights that can give pedestrians the right-of-way.
- **Temporary Measures**
  - **Speed Display Signage** - An electronic sign that measures and displays back the current operating speed to the driver.
  - **Seasonal/Temporary Modifications** - Physical measures that are installed on a temporary, or seasonal basis.
- **Education and Enforcement**
  - **Education -** Measures include events, programs, or media campaigns to try and raise awareness of road safety issues and modify driver behaviour accordingly.
  - **Enforcement** - Measures where the Wellington County OPP would be present to monitor traffic movements and speeds at a specific intersection or corridor.

Table 27 provides a summary of the preliminary technically preferred solutions identified along each of the segments identified by Wellington County.

As outlined in the approach to the Speed Management Guidelines, the technically preferred solution will be presented to Roads Committee and Council for consultation. Staff will then proceed with a recommended plan on the direction of Council.

Table 27: Speed Management Corridor Review - Summary

Corridor	Problem Statements	Technical Finding – Speed Limit Review	Regulatory Modification	Physical Modification	Education / Enforcement	Do Nothing	Summary of Recommendations
Wellington Road 124 from 6th Line to 10th Line (through Brisbane & Erin, including Main Street)	1. Average and 85th percentile speeds are found to be well above the posted speed limits. 2. Limits of urban cross-sections do not adequately match some of the surrounding land-uses in some areas. 3. The posted speed limit changes at locations and in ways that do not always match where either the surrounding land uses or road cross-sections change.	Decrease / Retain / Increase	Yes	Yes	No	No	1. Several changes to posted speed limits (increases, decreases and transition adjustments) should be considered 2. Introduce a flashing 60 km/h school zone fronting Brisbane Public School 3. Considerations for additional PXOs within Erin 4. Introduction of traffic calming (curb extensions) through Erin 5. Urbanization of some sections of the corridor both north and south of Erin
Wellington Road 7 from Side Road 11 to First Line	1. Southbound traffic on Wellington Road 7 approaching Wellington Road 18 enters the more developed (urban areas) on a downgrade. 2. The majority of the Wellington Road 7 corridor features a more rural cross-section (gravel shoulders and no sidewalks) but is largely urban on the east side of the corridor. 3. Generally, both the average speed and 85th percentile speed are noted to be well above the posted 50 km/h speed limit.	Increase	Yes	Yes	Yes	No	1. Changes to posted speed limit along the entire corridor (50 km/h to 60 km/h) should be considered 2. Speed reader signs facing traffic entering the recommended 60 km/h zone from both the north and south 3. Urbanization of the entire corridor within the recommended 60 km/h zone 4. Continued enforcement from the Wellington County OPP
Wellington Road 86 from Eight Line to 5697 Wellington Road 86	1. High speeds on the corridor with the corridor constructed to a high design standard. 2. A small pocket of large single-family homes on both sides of the corridor to the southeast of Wellington Road 51.	Retain	No	No	Yes	Yes	1. Retain the existing posted speed limit (80 km/h) 2. Continued enforcement from the Wellington County OPP
Wellington Road 19 from Wellington Road 16 to 8746 Wellington Road 19	1. Both the average and 85th percentile speeds are measured to be higher than the posted speed both within and outside of Belwood. 2. There may be some demand for active transportation (walking, cycling) along the Wellington Road 19 corridor due to the presence of the retirement community and campgrounds near 5th Line.	Retain / Increase	Yes	Yes	No	No	1. Changes to posted speed limits (50 km/h to 60 km/h) through Belwood should be considered 2. Speed reader signs facing traffic entering Belwood 3. Urbanization of corridor through Belwood 4. Consideration for a multi-use pathway near campgrounds

Corridor	Problem Statements	Technical Finding – Speed Limit Review	Regulatory Modification	Physical Modification	Education / Enforcement	Do Nothing	Summary of Recommendations
Wellington Road 26 (North/South Broadway Street) from Wellington Road 19 to Side Road 9	1. High speeds measured well above the posted speed limits. 2. Relatively steep downgrades approaching the Grand River from both sides. 3. Posted speed limit change occurs in the vicinity of Side Road 9. However, the road cross-section and adjacent environment remain the same. 4. Limited urban context along the cross-section, such as curbs, sidewalks, etc.	Retain / Increase	Yes	Yes	Yes	No	1. Changes to posted speed limit south of Grand River (50 km/h to 60 km/h) should be considered 2. Retain the existing posted speed limit (50 km/h) from Grand River to Wellington Road 19. 3. Add a second speed display signs facing northbound traffic 4. Consider urbanizing the full limits of the corridor
Wellington Road 50 from Highway 7 (Main Street South) to Wellington Road 24 (Trafalgar Road)	1. Where the posted speed limit presently changes from 80 km/h to 50 km/h to the east of Rockwood, the cross-section and surrounding land use remain the same. 2. On Wellington Road 50 between 3rd Line and 5th Line, the posted speed limit is lower (70 km/h), while the surrounding blocks in terms of context, cross-section and surrounding land uses are nearly identical and have a posted speed limit of 80 km/h.	Decrease / Retain / Increase	Yes	No	No	Yes	1. Retention of existing posted speed limit within Rockwood (50 km/h) 2. Changes to posted speed limit east of railway (50 km/h & 80 km/h to 70 km/h) should be considered 3. Changes to posted speed limit between 3rd Line and 5th Line (70 km/h to 80 km/h) should be considered 4. Review advisory speed sign tabs at horizontal curves east of railway
Wellington Road 124 from City of Guelph boundary to Watson Road North	1. Average and 85th Percentile speeds are measured well above the posted speed limit of 50 km/h. 2. Once within the City of Guelph boundaries, the surrounding context becomes urban (both cross-section and surrounding land use found on both sides of the corridor).	Increase	Yes	Yes	No	No	1. Changes to posted speed limit (50 km/h to 70 km/h) should be considered 2. Consider urbanizing limits of the corridor
Wellington Road 29 from Side Road 10 to 300 metres north of Wellington Road 124	1. Average and 85th percentile speeds are notably higher than the posted speed limit of 60 km/h. 2. A small number of residential properties along Wellington Road 29 both north and south of Wellington Road 124. 3. Relatively tight horizontal curves along Wellington Road 29 to the south of Wellington Road 124.	Increase	Yes	No	Yes	No	1. Changes to posted speed limit (60 km/h to 70 km/h) should be considered 2. Add speed display signs facing horizontal curves 3. Review advisory speed sign tabs on horizontal curves

Corridor	Problem Statements	Technical Finding – Speed Limit Review	Regulatory Modification	Physical Modification	Education / Enforcement	Do Nothing	Summary of Recommendations
Wellington Road 42 from Wellington Road 24 (Trafalgar Road) to Wellington Road 25 (Winston Churchill Boulevard)	1. At both locations where speed and volume data were collected, the average and 85th percentile speeds are measured to be much higher than the posted speed limit. 2. Within Ballinfad, the Wellington Road 42 corridor is constructed to a rural cross-section, even though there are urban land uses (single-family residential homes) on either side of the corridor.	Increase	Yes	Yes	Yes	No	1. Changes to posted speed limit (50 km/h to 60 km/h) within Ballinfad should be considered 2. Consider urbanizing some portions of the corridor
Wellington Road 24 (Trafalgar Road) from Wellington Road 22 to Side Road 27 through Hillsburgh	1. Relatively steep grade entering Hillsburgh from the north. 2. Average and 85th percentile speeds are measured well above the posted speed limit of 40 km/h. 3. Presence of Ross R. MacKay Public School along Wellington Road 24.	Increase	Yes	No	Yes	No	1. Changes to posted speed limit (40 km/h to 50 km/h) within Hillsburgh should be considered 2. Changes to posted speed limit (40 km/h to 60 km/h) north of Hillsburgh should be considered 3. Introduction of a flashing 40 km/h school zone fronting Ross. R. MacKay Public School 4. Introduce CSZ through downtown Hillsburgh 5. Introduce ASE focusing on southbound traffic entering downtown Hillsburgh from the north 6. Add PXO near Ross. R. MacKay Public School 7. Review opportunities for a PXO in downtown Hillsburgh
Wellington Road 41 (Watson Road South) from City of Guelph Boundary to Wellington Road 37 (Arkell Road)	1. Wellington Road 41 has some vertical curves when travelling north. 2. At the northern limits, the corridor enters a partially built-out neighbourhood with large single-family residential properties found on both sides of the corridor. 3. Relatively high demand for on-street parking (paved shoulder) on the east side of Wellington Road 41 fronting the Smith Property Loop Hiking Trail.	Decrease / Retain / Increase	Yes	Yes	No	No	1. Increases to the posted speed limit (50 km/h to 60 km/h) closer to Guelph boundary should be considered 2. Reductions to the posted speed limit (80 km/h to 70 km/h) to the north of Arkell should be considered 3. Retention of the existing posted speed limit (50 km /h) within Arkell 4. Consider adjusting road cross-section between Eramosa Rive and Guelph boundary

Corridor	Problem Statements	Technical Finding – Speed Limit Review	Regulatory Modification	Physical Modification	Education / Enforcement	Do Nothing	Summary of Recommendations
Wellington Road 36 (Badenoch Street) from Highway 6 to Ochs Drive	1. Average and 85th percentile speeds are measured to be much higher than the posted speed limit of 50 km/h. 2. The portion of Wellington Road 36 between Back Street and Ochs Drive features large single-family residential properties on both sides of the roadway but features a rural cross-section.	Retain / Increase	Yes	Yes	No	No	1. Retain the existing posted speed limit (50 km/h) between Highway 6 and 40 metres east of Back Street 2. Increase the posted speed limit (50 km/h to 60 km/h) should be considered from 40 metres east of Back Street to 150 metres east of Ochs Drive 3. Consider adjusting the posted speed limit transition between the recommended 60 km/h and existing 80 km/h should be located 150 metres east of Ochs Drive 4. Consider urbanizing corridor between Back Street and Ochs Drive
Wellington Road 32 (Lake Road) from Wellington Road 33 (Townline Road) to Concession 2	1. Average and 85th Percentile speeds are measured to be much higher than the posted speed limit of 50 km/h. 2. No amenities for pedestrians.	Increase	Yes	Yes	No	No	1. Increase posted speed limit (50 km/h to 70 km/h) on the west portion of Wellington Road 32 should be considered 2. Increase posted speed limit (50 km/h to 60 km/h) on the east portion of Wellington Road 32 should be considered 3. Review opportunities for a PXO at McClintock Drive/Butler Avenue 4. Consider urbanizing the east portion of the corridor
Wellington Road 18 (Belsyde Avenue East) from Highway 6 (Tower Street South) to Wellington Road 43 (Scotland Avenue)	1. Busy urban corridor within Fergus, with it being likely that there are a higher number of trucks found on the corridor given its arterial nature. 2. Several schools (one elementary, one secondary) along the corridor.	Retain	Yes	No	Yes	Yes	1. Retain the existing posted speed limit (50 km/h) 2. Introduce a 40 km/h when flashing school zone 3. Consider introducing ASE within the 40 km/h when flashing school zone

Corridor	Problem Statements	Technical Finding – Speed Limit Review	Regulatory Modification	Physical Modification	Education / Enforcement	Do Nothing	Summary of Recommendations
Wellington Road 6 (Sligo Road) from Grey County Limit to Highway 6 (Main Street North)	1. Based on the available data, 85th percentile speeds are measured to be well over the posted speed limit of 50 km/h. 2. Varying degrees of urbanization along the corridor with levels of urban cross-sections provided along the corridor. 3. Rural cross-section of corridor found directly in front of Wellington Heights High School.	Retain / Increase	Yes	Yes	No	No	1. Retain posted speed limit (50 km/h) from Highway 6 east to across from the high school 2. Increase the posted speed limit (50 km/h and 60 km/h to 70 km/h) should be considered from the high school to the Wellington County /-Grey County boundary 3. Urbanize the portion of the corridor in front of the high school 4. Add signage (chevrons, speed advisory signage) at the horizontal curve found near the county line
Wellington Road 11 (Wellington Street South) from Wellington Road 8 (Main Street) to Concession Road 8	1. Operating speeds measured above the posted speed limit. 2. Long stretch of downhill when travelling north towards downtown Drayton. 3. Presence of Drayton Heights Public School along the corridor.	Retain	Yes	Yes	Yes	No	1. Adjust the transition point between the existing 50 km/h and 80 km/h zones should be considered so it occurs closer to the urban/rural split 2. Replace the existing 40 km/h with a 40 km/h when flashing school zone 3. Consider introducing speed display boards facing northbound traffic to the north of Drayton Heights Public School 4. Consider introducing ASE within the 40 km/h when flashing school zone 5. Consider the need for a PXO at Andrews Drive 6. Consider modifying the road cross-section to “tighten” the travel lanes and road up

11.1.1 Modifications to Active Transportation Network

Table 28 presents the active transportation components that align with the roadway safety and speed management recommendations.

Table 28: Roadway Safety and Speed Management Recommendations

Corridor	Alignment with ATP
Wellington Road 124 from 6th Line to 10th Line (through Brisbane and Erin, including Main Street)	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 7 from Side Road 11 to First Line	The ATP has not proposed active transportation infrastructure for this area. The inclusion of gravel shoulders in the cross-section should remain when road widening is completed.
Wellington Road 86 from Eight Line to 5697 Wellington Road 86	The ATP has not proposed active transportation infrastructure for this area.
Wellington Road 19 from Wellington Road 16 to 8746 Wellington Road 19	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 26 (North/South Broadway Street) from Wellington Road 19 to Side Road 9	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 50 from Highway 7 (Main Street South) to Wellington Road 24 (Trafalgar Road)	Maintain signed route, if already implemented, when changing speed limits.
Wellington Road 124 from City of Guelph boundary to Watson Road North	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 29 from Side Road 10 to 300 metres north of Wellington Road 124	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 42 from Wellington Road 24 (Trafalgar Road) to Wellington Road 25 (Winston Churchill Boulevard)	Maintain signed route, if already implemented, when changing speed limits.
Wellington Road 24 (Trafalgar Road) from Wellington Road 22 to Side Road 27 through Hillsburgh	Maintain a signed route with sharrows, if already implemented, on the south side of Wellington Road 24.

Corridor	Alignment with ATP
Wellington Road 41 (Watson Road South) from City of Guelph Boundary to Wellington Road 37 (Arkell Road)	Add paved shoulders when modifying the road cross-section.
Wellington Road 36 (Badenoch Street) from Highway 6 to Ochs Drive	It is suggested that a cycling facility assessment be completed ahead of urbanization.
Wellington Road 32 (Lake Road) from Wellington Road 33 (Townline Road) to Concession 2	Maintain signed route, if already implemented, when urbanizing corridor.
Wellington Road 18 (Belsyde Avenue East) from Highway 6 (Tower Street South) to Wellington Road 43 (Scotland Avenue)	The ATP has not proposed active transportation infrastructure for this area.
Wellington Road 6 (Sligo Road) from Grey County Limit to Highway 6 (Main Street North)	Maintain signed route, if already implemented, when urbanizing corridor.
Wellington Road 11 (Wellington Street South) from Wellington Road 8 (Main Street) to Concession Road 8	Maintain signed route with sharrows north end of Wellington Road 12, if already implemented, when modifying cross-section. Additional modifications would be limited to pavement marking.

11.2 Intersection Assessment

County roads can also experience operational and safety issues at the intersection level. These can be due to traffic volumes or turning movements, vehicle types, sightlines and/or the physical geometry of the intersection.

County staff identified a total of 22 County road intersections to be reviewed and evaluated for existing performance as well as any operational or safety concerns.

The intersections were selected based on input from staff, Councillors and public consultation from the initial RMAP engagement exercise. The locations of these intersections are identified in **Figure 27.**

11.2.1 Intersection Performance

The Level of Service (LOS) for each intersection were data was available was assessed as a way to measure average delay per vehicle. There are six levels of service defined. Each level has a letter identification from A to F, with LOS (A) representing the best operating conditions and LOS (F) representing the worst. **Table 29** summarizes the LOS criteria for signalized and stop controlled intersections as per the Highway Capacity Manual[19].

Table 29: Intersection Level-of-Service Criteria

LOS	Signalized Intersection [1]	Unsignalized Intersection [2]	Description
A	≤ 10 sec	≤ 10 sec	EXCELLENT – Little or no delay, free flow
B	10 – 20 sec	10 – 15 sec	VERY GOOD – Short delays, stable flow
C	20 – 35 sec	15 – 25 sec	GOOD – Average delays, stable flow
D	35 – 55 sec	25 – 35 sec	FAIR – Long delays, approaching unstable flow
E	55 – 80 sec	35 – 50 sec	POOR – Very long delays, unstable flow
F	>80 sec	>50 sec	FAILURE – Extreme delays, forced flow

[1] Highway Capacity Manual, Chapter 16: Signalized Intersections.

[2] Highway Capacity Manual, Chapter 17: Unsignalized Intersections.

The results of the capacity analysis are presented in **Table 29** and indicate that all intersections are operating with an acceptable level of service with minimal delays.

[19] The Highway Capacity Manual is a document produced to….

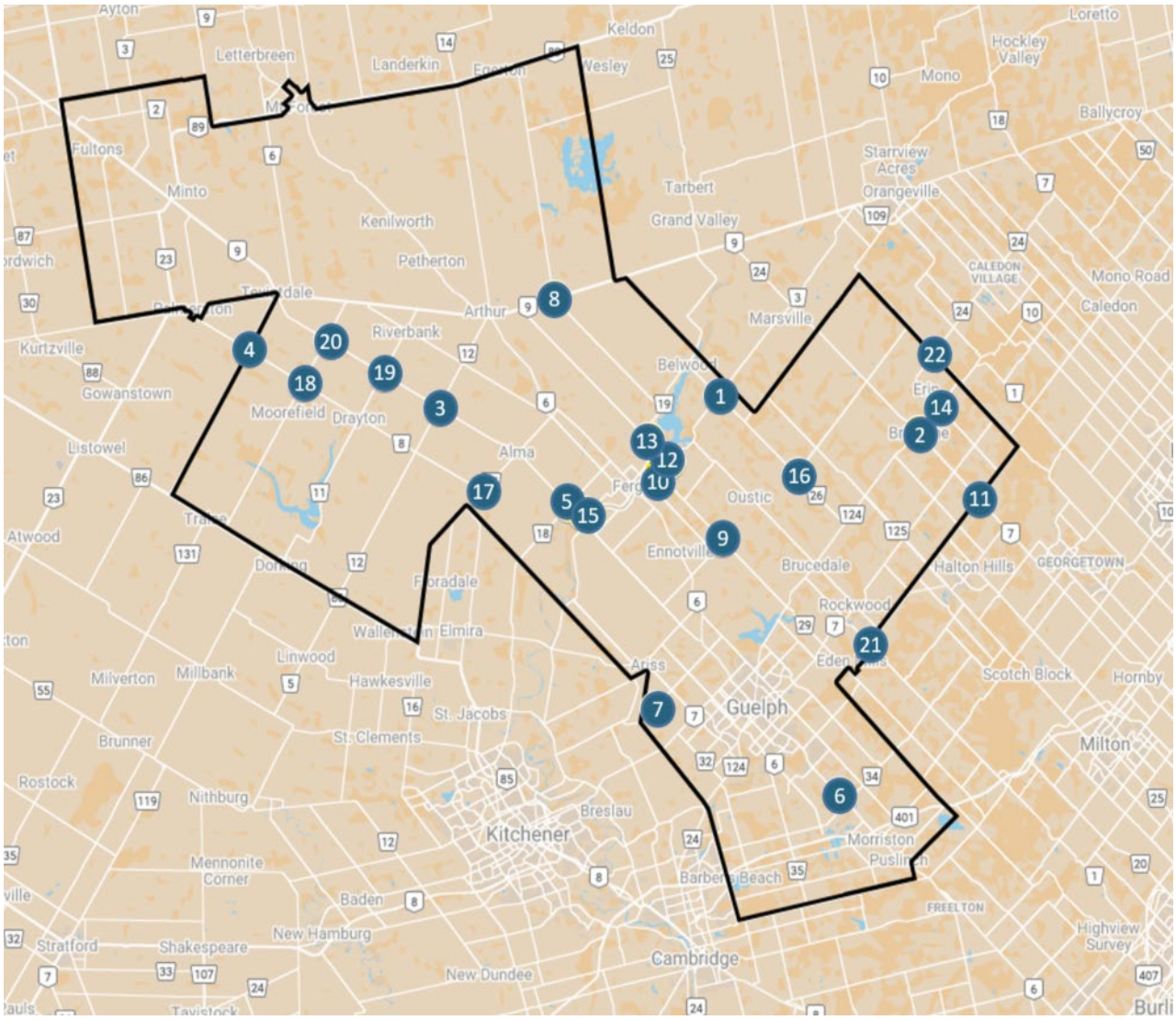

Figure 27: Intersection Assessment Locations

Future traffic volumes at an intersection level were estimated based on a percentage increase of link volumes near each intersection. Existing and future (2041) intersection conditions (on an existing network) were evaluated based on Level of Service and delay. Results are presented in **Table 30** and **Figure 28**. All intersections are currently and are projected to operate with an acceptable level of service with minimal delays.

Table 30: Future Conditions Summary

No.	Major Road	Minor Road	Control Type	Existing LOS	Existing Delay(s)	2041 LOS	2041 Delay(s)
1	Wellington Road 18	Wellington Road 26	Signalized	A	6.3	B	11.6
3	Wellington Road 7	Wellington Road 12	Signalized	A	7.0	A	8.8
4	Wellington Road 8	Wellington Road 9	Signalized	A	5.5	A	5.7
5	Wellington Road 7	Wellington Road 18	Signalized	B	17.5	B	18.9
7	Wellington Road 30	Township Road 3	Unsignalized	A	6.1	A	6.2
9	Wellington Road 22	Wellington Road 29	Unsignalized	A	3.4	A	3.5
10	Wellington Road 18	Wellington Road 29	Unsignalized	A	3.6	B	10.5
11	Wellington Road 24	Wellington Road 42	Unsignalized	A	4.9	A	5.9
12	Wellington Road 18	Second Line	Unsignalized	A	4.6	A	5.2
13	Wellington Road 19	Second Line	Unsignalized	A	9.3	B	10.5
19	Wellington Road 7	Wellington Road 11	Unsignalized	A	5.6	A	6.3
21	Wellington Road 44	Eramosa-Milton Townline	Unsignalized	B	13.6	C	16.2
22	Wellington Road 25	Wellington Road 124	Unsignalized	A	7.5	B	11.5

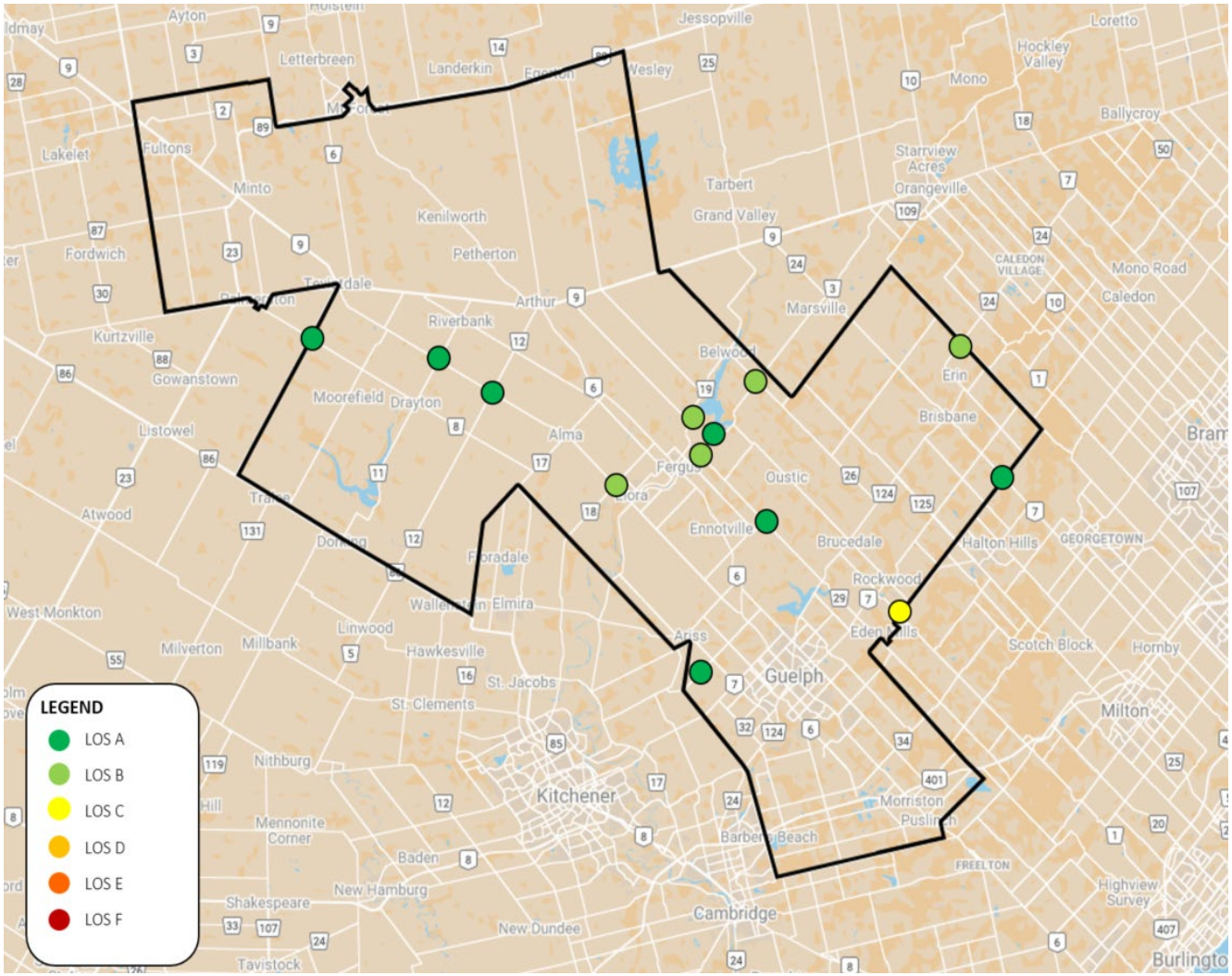

Figure 28: Future Intersection Performance

11.2.2 Geometric and Safety Review

A more detailed review of each intersection was also conducted from an operational and safety perspective, following the process and methodology outlined in the County's Data Driven Safety Strategy (**Section 10.2**), which is aligned with the Transportation Association of Canada's (TAC) Guide to In-Service Road Safety Reviews (2004). This included a review of the geometric, operational and collision records at each of the 22 locations.

This is illustrated in **Table 31**, including the preferred solution for each location. For intersections where traffic operational issues were identified, the study team considered implementation of either traffic signals or a roundabout, with the preferred solution taking into consideration factors such as construction cost, property impacts and ability to address other safety issues. For locations where alignment or sight distances were the predominant issues, considered solutions included the addition of traffic control, roundabouts and realignment of the intersection approaches. More detailed information regarding the identified issues and the evaluation processes is provided for each intersection in **Appendix K.**

The intersection of Wellington Road 46 at both Fox Run and Bridle Path was brought forward for review but insufficient information was available to provide a recommended improvement. On-going monitoring of collision, speed and traffic volume data has been recommended to inform future reviews

Table 31: Locations and Identified Safety and Operations Concerns

No.	Major Road	Minor Road	Traffic Operations	Upward Trend in Collisions	Speed	Geometry	Sight Distance	Recommended Solution
1	WR 18	WR 26	Yes	No	Yes	No	No	1. Install single lane roundabout
2	WR 124	WR 24	No	Yes	Yes	No	Yes	1. Conduct movement study 2. Adjust traffic signal timing 3. Review snow clearing operations
3	WR 7	WR 12	Yes	Yes	No	No	No	1. Install single lane roundabout
4	WR 8	WR 9	No	Yes	No	Yes	No	1. Install single lane roundabout
5	WR 7	WR 18	Yes	No	No	No	No	1. Install single lane roundabout
6	WR 46	Fox Run/ Bridle Path	No	No	No	No	No	1. No data to warrant improvements
7	WR 30	Township Road 3	No	Yes	Yes	Yes	No	1. Install single lane roundabout 2. Installation of guiderail to also be considered

No.	Major Road	Minor Road	Traffic Operations	Upward Trend in Collisions	Speed	Geometry	Sight Distance	Recommended Solution
8	WR 16	WR 109	No	Yes	Yes	Yes	No	1. Realign approximately 400 m of WR 16 in proximity to the intersection
9	WR 22	WR 29	No	Yes	Yes	Yes	Yes	1. Adjust vertical profile WR 22 or realign WR 29 2. In the interim, install all-way stop control and advanced signage to address sight distance issues
10	WR 18	WR 29	Yes	No	No	No	Yes	1. Install traffic signals 2. Add left turn lane along WR 18 3. Install guiderail
11	WR 24	WR 42	Yes	No	No	No	Yes	1. Install traffic signals 2. Add left turn lanes along WR 24
12	WR 18	2 Line	No	Yes	No	Yes	Yes	1. Install single lane roundabout

No.	Major Road	Minor Road	Traffic Operations	Upward Trend in Collisions	Speed	Geometry	Sight Distance	Recommended Solution
13	WR 19	2 Line	No	Yes	No	No	Yes	1. Install single lane roundabout 2. Installation of guiderail to also be considered
14	WR 52	Ninth Line	No	No	No	Yes	Yes	1. Remove right turn channel and painted island 2. Convert to all-way stop control
15	WR 18 (Geddes Street)	David Street	No	Yes	No	No	Yes	1. Convert intersection to all-way stop control
16	WR 22 (East)	WR 26	No	Yes	Yes	No	No	1. Add northbound right and southbound left auxiliary lanes
17	WR 8	WR 17	Yes	Yes	Yes	No	Yes	2. Install traffic signals 3. Add an eastbound left turn lane and westbound right turn lane along WR 8

No.	Major Road	Minor Road	Traffic Operations	Upward Trend in Collisions	Speed	Geometry	Sight Distance	Recommended Solution
18	WR 8	WR 10	No	Yes	No	Yes	Yes	1. In the interim, convert intersection to all-way stop control with advanced signage and an overhead beacon 2. Ultimate correction of vertical profile
19	WR 7	WR 11	Yes	Yes	Yes	Yes	No	1. Install traffic signals
20	WR 7	WR 10	No	No	No	Yes	Yes	1. Convert intersection to all-way stop control with advanced signage 2. Increase curb radii and replace pedestrian pads in each quadrant
21	WR 44	Eramosa-Milton Townline	No	Yes	No	No	Yes	1. Add enhanced pavement markings and signage 2. Add left turn lanes 3. Install guiderail
22	WR 25	WR 124	Yes	No	Yes	No	No	1. Install traffic signals 2. Add left turn lanes along WR 124 3. Regrade ditches

11.2.3 Modifications to Active Transportation Network

The County of Wellington Active Transportation Plan was also reviewed to identify any potential modifications to the existing or planned active transportation network for each of the 22 intersections. **Table 32** presents the active transportation components that align with the short-term intersection improvements.

Table 32: Short-term Intersection Improvements

#	Major Road	Minor Road	Alignment with ATP
1	WR 18	WR 26	The ATP has not proposed active transportation infrastructure for this area
2	WR 124	WR 24	The ATP has not proposed active transportation infrastructure for this area
3	WR 7	WR 12	Include signed route on WR 12, if already implemented, during construction of roundabout
4	WR 8	WR 9	The ATP has not proposed active transportation infrastructure for this area
5	WR 7	WR 18	Include paved shoulders on WR 18 during construction of roundabout
6	WR 46	Fox Run Bridle Path	The ATP has not proposed active transportation infrastructure for this area
7	WR 30	Township Road 3	Include paved shoulders on WR 30 during roundabout construction
8	WR 16	WR 109	Maintain signed route on WR 16, if already implemented, during re-alignment construction
9	WR 22	WR 29	Include paved shoulders on WR 29 and WR 22 (east) during realignment construction
10	WR 18	WR 29	Include paved shoulders on WR 18 and WR 29 during intersection improvements
11	WR 24	WR 42	Include paved shoulders on WR 42 during intersection improvements
12	WR 18	2 Line	The ATP has not proposed active transportation infrastructure for this area
13	WR 19	2 Line	Existing paved shoulders on WR 19 should remain to connect to Spine Off-Road Route to south
14	WR 52	Ninth Line	Include paved shoulders on WR 52 and Ninth Line in the conversion to all-way stop

#	Major Road	Minor Road	Alignment with ATP
15	WR 18 (Geddes Street)	David Street	Maintain signed route with sharrows on WR 18 and signed route on WR 18, if already implemented, when converting to all stop-way control
16	WR 22 (East)	WR 26	Include paved shoulders on WR 26 and WR 22 during intersection improvements
17	WR 8	WR 17	Include paved shoulders on WR 17 during intersection improvements
18	WR 8	WR 10	The ATP has not proposed active transportation infrastructure for this area
19	WR 7	WR 11	Maintain Signed Route on WR 11, if already implemented, during intersection improvements
20	WR 7	WR 10	The ATP has not proposed active transportation infrastructure for this area
21	WR 44	Eramosa-Milton Townline	The ATP has not proposed active transportation infrastructure for this area
22	WR 25	WR 124	Include paved shoulders on WR 25 during intersection improvements

11.3 Wellington Road 46 – Strategic Traffic Analysis

A review of the existing and future traffic conditions (i.e., capacity and performance) on Wellington Road 46 (WR 46) was also completed as part of the RMAP to assess the potential effects of a proposed 'road diet' through the community of Aberfoyle within Wellington County.

The proposed road diet on Wellington Road 46 through Aberfoyle would see a conversion of the existing four-lane cross-section, two travel lanes in each direction between Wellington Road 34 and Gilmour Road, to a single travel lane in each direction **Figure 29.**

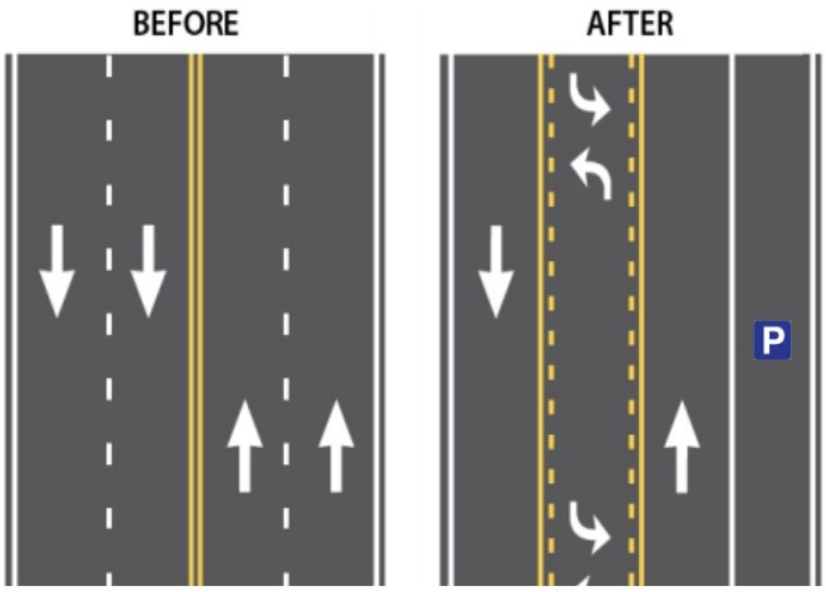

Figure 29: Aberfoyle Road Diet

11.3.1 Approach

Observed volumes from 2017 to 2018 were used to identify existing conditions. The estimated link volumes were then compared to planning level lane capacities to identify the capacity performance of the different sections of Wellington Road 46.

Future conditions (2041) were established using a County-wide strategic forecasting tool that accounts for background growth, area population and employment growth, and available local secondary plans in the County (see **Section 4.4** for methodology). Link volumes are estimated for Wellington Road 46 and compared to the planning level lane capacities.

Having established the forecast conditions for Wellington Road 46 specifically, a review of the strategic corridor capacity is undertaken. This includes reviewing the conditions on adjacent and parallel facilities. As part of this analysis, the City of Guelph's strategic travel demand model (VISUM) was used to assess the travel markets within the corridor. The market review allows an assessment of the potential diversion of traffic if capacity conditions were to change on Wellington Road 46 (i.e. if the capacity were reduced through the application of a road diet).

11.3.2 Assessment

A detailed technical analysis was undertaken, which is documented in **Appendix L**. Some of the most relevant highlights are provided below.

11.3.2.1 Existing Conditions

Table 33 summarizes the existing conditions on Wellington Road 46. Under existing conditions, Wellington Road 46 has sufficient capacity to carry the existing demand between Wellington Road 34 and Highway 401. However, between Maltby Road to Wellington Road 34, where the cross section of Wellington Road 46 is reduced to two-lanes, volumes are approaching levels where the flow is unstable and minor incidents can cause delays.

11.3.2.2 Future Conditions

Table 34 summarizes the existing conditions on Wellington Road 46. Under total future volume conditions, Wellington Road 46 has sufficient capacity to carry the forecast existing demand between Wellington Road 34 and Highway 401. However, there is a significant capacity deficiency (V/C ratio of 1.28) between Maltby Road to Wellington Road 34, where the cross section of Wellington Road 46 is reduced to two-lanes.

Table 33: Existing Conditions: Wellington Road 46

Section	Number of Travel Lanes (2-way)	Lane Capacity (veh/hr)	Directional Capacity (veh/hr)	Existing AADT	DHV (%)	Directional Split (%)	PM Peak Hour	V/C Ratio
Maltby Road to County Road 34	2	1,200	1,200	19,381	9%	55%	960	0.80
County Road 34 to McLean Road	4	1,200	2,400	19,392	8.5%	60%	990	0.41
McLean Road to Highway 401	4	1,200	2,400	23,560	7.5%	55%	970	0.40

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Table 34: 2041 Total Future Volume Conditions: Wellington Road 46

Section	Number of Travel Lanes (2-way)	Lane Capacity (veh/hr)	Directional Capacity (veh/hr)	Existing AADT	DHV (%)	Directional Split (%)	PM Peak Hour	V/C Ratio
Maltby Road to County Road 34	2	1,200	1,200	31,149	9%	55%	1,540	1.28
County Road 34 to McLean Road	4	1,200	2,400	30,525	8.5%	60%	1,550	0.65
McLean Road to Highway 401	4	1,200	2,400	35,068	7.5%	55%	1,440	0.60

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

11.3.2.3 Strategic Review

Reductions in capacity (i.e. the road diet) on Wellington Road 46 between Wellington Road 34 and Gilmour Road will extend the identified capacity constraint further south to Gilmour Road. Under such capacity constraints, it is likely that traffic would divert from Wellington Road 46 to parallel routes. To achieve satisfactory capacity conditions, approximately 550 - 700 peak hour vehicles would need to divert from Wellington Road 46.

Table 35 and **Table 36** summarize the screenline results for the PM peak hour for the existing and total future volume conditions respectively.

Table 35: Aberfoyle Screenline Results: Existing Conditions

Roadway Name	Direction	Capacity # of Lanes	Capacity Per Lane	Capacity Total	PM Peak Hour Volume	PM Peak Hour V/C
Hanlon Expressway (Highway 6)	NB	2	1,500	3,000	1,170	0.39
Concession Road 7	NB	1	1,000	1,000	120	0.12
Wellington Road 46	NB	2	1,200	2,400	990	0.41
Victoria Road	NB	1	800	800	140	0.18
Total	NB	6	N/A	7,200	2,420	0.34

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Table 36: Aberfoyle Screenline Results: 2041 Total Future Volume Conditions

Roadway Name	Direction	Capacity # of Lanes	Capacity Per Lane	Capacity Total	PM Peak Hour Volume	PM Peak Hour V/C
Hanlon Expressway (Highway 6)	NB	2	1,800	3,600	1,880	0.52
Concession Road 7	NB	1	1,000	1,000	60	0.06
Wellington Road 46	NB	2	1,200	2,400	1,550	0.65
Victoria Road	NB	1	1,000	1,000	460	0.46
Total	**NB**	**6**	**N/A**	**8,000**	**3,950**	**0.49**

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Overall, there is a significant amount of available capacity across the Aberfoyle screenline in both the existing (V/C ratio of 0.34) and total future volume (V/C ratio of 0.49) scenarios. Even when the capacity is reduced on Wellington Road 46 to simulate the proposed road diet condition, the capacity across the Aberfoyle screenline is still well within the 'Good' range (V/C ratio of 0.58), as illustrated in **Table 37.**

Table 37: Aberfoyle Screenline Results: Total Future Volumes – Road Diet

Roadway Name	Direction	Capacity # of Lanes	Capacity Per Lane	Capacity Total	PM Peak Hour Volume	PM Peak Hour V/C
Hanlon Expressway (Highway 6)	NB	2	1,800	3,600	1,880	0.52
Concession Road 7	NB	1	1,000	1,000	60	0.06
Wellington Road 46	NB	1	1,200	1,200	1,550	1.29
Victoria Road	NB	1	1,000	1,000	460	0.46
Total	**NB**	**5**	**N/A**	**6,800**	**3,950**	**0.58**

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

However, the use of Concession Road 7 and Victoria Road as alternative roadways to Wellington Road 46 to travel between Guelph and Highway 401/Highway 6 would increase travel on McLean Road and Gilmour Road in order for vehicles to connect to Concession Road 7 and Victoria Road respectively. Increasing commuter travel volumes on McLean Road and Gilmour Road is not desirable given their current roles and functions, and based on their surrounding land uses (industrial and residential respectively).

Assuming that additional commuter traffic on McLean Road and Gilmour Road (diverted trips) is undesirable, the Hanlon Expressway is the most appropriate alternative to absorb the diverted traffic resulting from the proposed vehicle capacity reduction (road diet) on Wellington Road 46. Therefore, an assessment that exclusively considers the Hanlon Expressway and Wellington Road 46 within the total future volume road diet scenario was undertaken. The Aberfoyle screenline is forecast to have a V/C ratio of 0.71 (as illustrated in Table 8) which is in the "Approaching Capacity" range. A screenline V/C ratio of 0.71 would indicate that both the Hanlon Expressway and Wellington Road 46 could experience some period of unstable flow during portions of the peak hour.

The Ontario Ministry of Transportation (MTO) is moving forward with a Preliminary Design Review and Detailed Design under the Class Environmental Assessment (EA) for improvements to Highway 6 (from Highway 401 to Maltby Road) and Highway 401 (Wellington Road 36 to Wellington Road 35). As part of this review analysis did consider these future improvements and their impacts on area flows. It was concluded that while there will be some diversion away from WR 46 as a result of the planned improvements by the Ministry, specifically the Morriston By-Pass, it is not significant enough to suggest that lane/capacity reductions on WR 46 will result in satisfactory operating conditions. There is no appreciable benefit of the by-pass to trips that already prefer to use the Wellington Road 46 route over Hanlon Expressway to facilitate their trip (i.e., trips to and from the east on Highway 401).

11.3.3 Conclusions and Recommendations

Based on the foregoing analysis, the following conclusions are reached:

- Wellington Road 46 is operating within capacity for the existing conditions.
- By 2041, the two-lane section of Wellington Road is forecast to experience significant congestion between Maltby Road and County Road 34.
- A reduction in capacity of the section of Wellington Road 46 between Gilmour Road and Wellington Road 34 would result in significant capacity constraints. Approximately 550-700 peak hour vehicles would need to divert to result in adequate operating conditions on Wellington Road 46
- The broader strategic corridor network has capacity to absorb the 550-700 peak hour peak hour vehicles, but diversion of this magnitude is not forecast to occur due to origin-destination of trips and associated travel time and distance increases.
- While the Morriston By-Pass is likely to result in some reduction in volume in the Wellington Road 46 corridor, it will not be significant enough to justify reduced capacity on Wellington Road 46.
- While Hanlon Expressway is the more appropriate road for the trips to divert to and is forecast to have the available capacity, the assessment of the travel market for Wellington Road 46 shows using this route would result in increases in travel distance and travel time. It is more likely that trips would use the Victoria Road via Gilmour Road to bypass the constrained sections of Wellington Road 46.
- Any reduction in capacity (i.e., implementation of a road diet) on Wellington Road 46 through Aberfoyle will result in a significant increase on non-County roadways (Gilmour Road and Victoria Road). The design and environment for these roads is not suited to accommodate the changed role and function.
- Overall, a road diet through the community of Aberfoyle within Wellington County could be accommodated from a strategic capacity perspective but the commensurate impacts on the adjacent municipal network is not desirable from an operational and road safety perspective.
- A future review and study is required once future infrastructure and service is implemented (Ministry of Transportation improvements to the Hanlon Expressway, including a new interchange and Morriston By-Pass; All-day, two-way rail service on Kitchener line). This study could take the form of an area specific Master Plan or a

Municipal Class EA where alternative methods and alternative design concepts would be fully explored (i.e., impacts and costs).

12.0 Implementation and Priority Plan

The RMAP identifies a number of policies, processes and infrastructure and service improvements to improve mobility in the County to the year 2041. Recommendations are intended to be implemented over time in a fiscally-responsible manner, recognizing constraints on budgets and staff time, and future opportunities (e.g. availability of funding).

The plan is also intended to provide direction, and additional actions, analysis, engagement and approvals will need to be taken to implement a number of the recommendations in the plan.

Timing of recommendations may also be subject to change, as the environment in which the transportation system operates are influenced by changing social, economic, technological and political conditions that may change the rate of growth and mobility patterns of Wellington County residents. Alignment of project timing with asset management pavement lifecycle needs is another factor to consider to implement projects in cost effective manner. As such, it is recommended that the RMAP is reviewed and updated regularly, with the goal of every five to ten years.

The following section identifies key next steps required for implementation, separated into short-term (0-5 years), medium-term (6-10 years) and long-term (11-20 years) horizons.

Short-term actions set the stage for future opportunities and address immediate safety or capacity issues, which medium and long-term actions are prioritized base on availability of funding and resources, and growth in population and employment.

12.1 Policy Framework

Recommended changes and additions to the policy framework should all be completed in the short-term horizon. The Speed Management Guidelines, Data-Driven Safety Strategy and Traffic Impact Study Guidelines have already been adopted by County Council during the RMAP process.

12.2 Roadway and Active Transportation Network

The strategic network solutions recommended in **Section 6.0** of the RMAP were reviewed in consideration for the magnitude and nature of the problem. Priority was given to those locations where the Volume-to-Capacity issue was more urgent, where safety issues had been identified, if budget has been allocated to the improvement, and the need for equity in the system. Improvements to the Active Transportation network in **Section 7.0** associated with each of the road improvements should be completed at the same time as the roadway construction. This is presented in **Table 38**.

Table 38: Strategic Infrastructure Priorities

Project	Limits	Improvements	Years
Wellington Road 18	Between WR 21 (Elora) and WR 43 (Fergus)	TSM and Expansion of Infrastructure - restricted parking and centre left turn lane between Metcalfe Street and Kertland Street, additional lane per direction between Kertland Street and Canrobert Street, additional lane per direction between Highway 6 and WR 43	6-10
Wellington Road 32	Between WR 124 and Highway 7	TSM - paving/widening shoulders, provision of auxiliary left turn lanes where necessary	10-20
Wellington Road 7	Between Elora/Salem and the Highway 6 Junction	Expand Infrastructure - additional lane per direction for road and bridge	10-20
Wellington Road 46	Between Maltby Road and WR 34	Expand Infrastructure - additional lane per direction	10-20
Wellington Road 21	Between WR 7 (Elora) and Region of Waterloo	TSM - paving/widening shoulders	10-20
Wellington Road 124	Between Region of Waterloo boundary limits and City of Guelph boundary limits	Improvements will be as per recommendations from approved WR 124 EA	0 to 5

Project	Limits	Improvements	Years
Wellington Road 86	Between WR 10 and WR 85	TSM - paving/widening shoulders, provision of auxiliary left turn lanes through Hamlet of Dorking	10 to 20

12.3 Short-term Operational Issues

In addition to addressing network capacity issues, the current study also reviewed the need for safety and operational improvements at 22 key intersections within the network.

It should be noted that the recommendations identified **Section 11.2** will each require further review by County staff and approval by County Council.

The prioritization of projects was based on the percentage of annual vehicles involved in collisions and weighted by the proportion of collisions that resulted in personal injury for each intersection. Where collision data resulted in two intersections being ranked similarly, the intersection with greater operational issues was prioritized. Projects in the current budget can be found in **Table 39**. While, projects not in the current budget are available in **Table 40**. Intersection prioritization is identified in this table (column labeled "Priority"). It is recommended that this prioritization be further reviewed by County staff.

For the purpose of funding these capital improvements, the combined capital cost of all 22 recommended intersection improvements was estimated to be $19.2 million. Assuming this cost is spread over a ten year budget forecast period, the annual budget of $1.92 million could be allocated over a 10 year budget forecast to address each of the 22 intersections.

To prioritize timing for construction, projects were grouped considering priority and estimated project value such that the total annual cost approximated the $1.92 million per year target. Priority and proposed timing for construction are identified in **Table 39** and **Table 40**. An actual year of implementation is dependent on availability of funding and the solution and cost of each intersection proposed by County staff.

Table 39: Estimated Capital Costs, for Projects in Current Budget

Location No.	Intersection Location	Estimated Capital Cost	Current Budget Year
15	Wellington Road 18 (Geddes Street) at David Street[20]	$5,000	2021
11	Wellington Road 24 at Wellington Road 42	$540,000	2022
1	Wellington Road 18 at Wellington Road 26[21]	$1,640,000	2024
4	Wellington Road 8 at Wellington Road 9[22]	$1,640,000	2025
3	Wellington Road 7 at Wellington Road 12[23]	$1,640,000	2027

Table 40: Estimated Capital Costs, Priority, and Proposed Implementation Year for Projects Not in Current Capital Budget.

Location No.	Intersection Location	Estimated Capital Cost	Priority	Proposed Implementation Year
2	Wellington Road 124 at Wellington Road 24	$0[24]		2023
18	Wellington Road 8 at Wellington Road 10	$1,268,000	1	2023
8	Wellington Road 16 at Wellington Road 109	$1,680,000	2	2024
19	Wellington Road 7 at Wellington Road 11	$210,000	4	2024

[20] Permanent Four Way Stop Control implemented in 2021.
[21] Temporary signals installed in 2021 as interim measure.
[22] Temporary signals installed in 2021 as interim measure.
[23] Temporary signals installed in 2021 as interim measure.
[24] Operating budget required to conduct a signal timing review.

Location No.	Intersection Location	Estimated Capital Cost	Priority	Proposed Implementation Year
10	Wellington Road 18 at Wellington Road 29	$385,000	5	2025
20	Wellington Road 7 at Wellington Road 10	$20,000	11	2026
7	Wellington Road 30 at Township Road 3	$1,640,000	3	2027
17	Wellington Road 8 at Wellington Road 17	$700,000	6	2028
12	Wellington Road 18 at 2 Line	$1,640,000	8	2029
13	Wellington Road 19 at 2 Line	$1,640,000	9	2030
22	Wellington Road 25 at Wellington Road 124	$540,000	10	2030
9	Wellington Road 22 at Wellington Road 29	$1,680,000	15	2031
16	Wellington Road 22 (East) at Wellington Road 26	$330,000	12	2031
5	Wellington Road 7 at Wellington Road 18	$1,640,000	14	2032
14	Wellington Road 52 at Ninth Line	$40,000	15	2032
21	Wellington Road 44 at Eramosa-Milton Townline	$280,000	13	2032

12.4 Transit (Ride Well)

The RMAP identifies a number of recommendations to continue to improve and expand the Ride Well service to improve mobility options for residents and meet the needs of future population growth. The recommendations in the plan identified below, including high levels costs. All of the recommendations noted above should continue to seek funding from Federal and Provincial governments to off-set capital and operating costs of the transit service.

12.4.1 Short Term (0 to 5 Years)

The following actions are recommended over the short-term.

- Work with On Demand Technology Provider to Integrate Ride Well with the GOST service from Owen Sound and the Denny Bus Line Service;
- Expand service hours and add vehicles as ridership grows to reduce overall notice required to book a trip;
- Set a maximum cap on fares to make the service more affordable, particularly for frequent and long-distance trips;
- Assess the potential to purchase accessible vehicles through capital funding grants, which can be leased to the operator to drive and maintain; and
- This would reduce wear-and-tear on the operator's personal vehicle, which could potentially reduce or maintain operating costs. The potential to purchase accessible electric mini-vans should also be explored as the technology becomes available through a grant program. This will further lower operating costs with rising fuel prices.

12.4.2 Long Term (6 to 20 Years)

The following actions are recommended over the medium- to long-term:

- Establish Fixed-route Corridor Service on Highway 6;
- By 2041, the Highway 6 corridor between Mount Forest and Guelph is anticipated to have enough demand to warrant a fixed-route service operating 2 round trips per day;
- Further Integrate On Demand Service Fixed-Route services;

- Continue to expand the On Demand service model based on ridership demand and continue to integrate the On Demand service model with any fixed-route services for long-distance trips;
- Expand On Demand Service and Initiate Partnership with Non-Dedicated Providers;
- Explore potential integration opportunities with the Ride Well app that would allow trips to be booked on dedicated Ride Well vehicles, fixed-route vehicles and non-dedicated vehicles. Small subsidies for shared-ride non-dedicated services should be focused during periods when Ride Well is not in operation;
- Continue Coordination with Community Care Agencies;
- Continue to develop partnerships with local organizations, such as Community Care to meet the mobility requirements for their clients, while also reducing the County's financial contribution;
- Provide Link to Region of Waterloo; and
- Work with the City of Guelph and the Region of Waterloo to explore a fixed-route service between downtown Guelph and downtown Kitchener. The opportunity for Ride Well to connect to this service and add ridership should also be explored. Investigate further opportunities to connect with surrounding municipalities through inter-community transit routes.

12.5 Capital Cost

Based on the recommended solutions and identified priorities, the capital plan has been developed to address the plan objectives. **Table 41**, **Table 42** and **Table 43** provides summaries of the projected capital costs.

Table 41: Short-Term Capital Cost Estimates (0 to 5 years)

Project	Description	Costs
Wellington Road 124	Improvements will be as per recommendations from approved WR 124 EA between Region of Waterloo boundary limits and City of Guelph boundary limits	$15,800,000
Operational Improvements	Annual project expense for Intersection improvements and speed management initiatives[1]	$10,600,000
Transit	Purchase three to four accessible Ride Well vehicles when the grant funding ends in 2025 and lease to operator to lower the operating rate (assumed 80% covered through Grant Funding)[2]	$48,000
Planning Studies	1. WR 46 Area Study ($50,000) 2. WR 46 EA Study ($500,000) 3. Fergus/Elora Area Study/By-Pass Feasibility Study ($100,000)	$650,000
Total	**Estimated total of short-term costs**	**$ 27,098,000**

[1] Assumed an average of $1.92 million in capital costs per year for intersection improvements, and $200,000 per year for speed management improvements.

[2] Assumed $60,000 per vehicle, with 80% recovered through funding.

Table 42: Mid-Term Capital Cost Estimates (6 to 10)

Project	Description	Costs
Wellington Road 18	TSM and Expansion of Infrastructure between WR 21 (Elora) and WR 43 (Fergus)	$17,500,000
Operational Improvements	Annual project expense for Intersection improvements and speed management initiatives[1]	$10,600,000
Transit	Purchase one accessible cutaway bus to operate on the Highway 6 corridor and add one additional accessible mini-vans for the On Demand service (assumed 80% covered through Grant Funding) [2]	$42,000
Planning Studies	1. Feasibility Study ($100,000) 2. Wellington Road 7 EA ($500,000)	$600,000
Total	**Estimated total of mid-term costs**	**$28,742,000**

[1] 1 Assumed an average of $1.92 million in capital costs per year for intersection improvements and $200,000 per year for speed management improvements.

[2] Assumed $60,000 per each accessible mini-van and $150,000 for an accessible cutaway bus, with 80% recovered through funding. Budget does not include replacement vehicles.

Table 43: Long-Term Capital Cost Estimates (over 10 years)

Project	Description	Costs
Wellington Road 7	Expand Infrastructure between Salem and the Highway 6 Junction (total of 15.9 km of widening, intersection improvements and bridge replacement)	$77,800,000
Wellington Road 21	TSM between WR 7 (Elora) and Region of Waterloo	$3,700,000
Wellington Road 32	TSM - Paving/widening shoulders, provision of auxiliary left turn lanes where necessary between WR 124 and Highway 7	$2,800,000
Wellington Road 46	Expand Infrastructure between Maltby Road and WR 34 (total of 2.1 km of widening and addition of paved shoulders and auxiliary lanes)	$9,800,000
Wellington Road 86	TSM between WR 10 and WR 85 (addition of 18.8 km of paved shoulders and intersection improvements)	$8,800,000
Operational Improvements	Annual project expense for Intersection improvements and speed management initiatives	$2,000,000 [1]
Transit	Purchase one to two additional accessible mini-vans for the On Demand service (assumed 80% covered through Grant Funding)	$24,000 [2]
Planning Studies	1. Studies (Local area transportation studies, update to Active Transportation Plan, Transit Master Plan) – 3 x $100,000 2. Update to the RMAP – 1 x $300,000	$600,000
Total	**Estimated total of long-term costs**	**$ 105,524,000**
	TOTAL	**$161,364,000**

[1] Assumed $200,000 per year for speed management improvements.

[2] Assumed $60,000 per each accessible mini-van, with 80% recovered through funding. Budget does not include replacement vehicles.

12.6 Review of Development Charges Eligible Items

12.6.1 Development Charges for Roads

Development Charges (DC) are a tool for municipalities to ensure that "growth pays for growth". This means that developments that result in growth in the municipality should cover those costs associated with extending municipal services to accommodate this new growth. The most recent Development Charges Background Study Update was completed in 2018. The current by-law will expire on June 1, 2022 unless it is repealed by Council at an earlier date.

Eligible DC items include:

- Expansion of arterial roads;
- Traffic and transit control systems, signals and intersection improvements on area municipal roads;
- Streetlights;
- Transportation related pedestrian and cycling facilities;
- Transit expansion vehicles, ITS and on-street infrastructure; and
- Future studies.

Details on the DC eligible items from the RMAP, future studies, process considerations, and conclusions can be found in **Appendix M**.

12.7 Updated Schedules

There are no updates to the schedules required for road widening improvements.

12.8 Monitoring Plan

The RMAP is intended to be reviewed every five years and updated if necessary. It also addresses only the Phases 1 and 2 requirements of the Municipal Class EA planning process for specific road extension, widening and intersection improvements, providing an assessment of the problem or opportunity and assessment of alternative planning solutions. It is not intended to address planning and design details that will be further addressed in Phases 3 and 4 of the complete process.

Many of the RMAP policy recommendations will be incorporated into the Official Plan (e.g., requirements for expansion, functional classification, design elements for category and functionality of road), and will be implemented through processing of land use applications under the Planning Act. The County may also choose to implement the recommended projects in a different order or phasing than has been suggested in the RMAP to accommodate Council priorities, the need to coordinate with other infrastructure works (i.e.: sewer work), planned developments in the area, or other considerations beyond the scope of this project to consider. The RMAP should also be monitored by maintaining the traffic demand forecasting tool, including continued participation in the Transportation Tomorrow Survey. Future RMAP updates may contain recommendations on new industry and community changes with respect to technology, traffic calming, and truck route management. **Table 44** provides a summary of some of the monitoring plan components and responsibilities.

Table 44: Monitoring Plan

Task	Frequency	Department Responsible
Review annual traffic count program at key screenlines and on key roadways. Establish strategic locations within the count program for more frequent data collection and review.	Annual	Engineering
Review annual traffic count program at selected key intersections and routes. Establish strategic locations within the count program for more frequent data collection and review.	Annual	Engineering
Monitor trends and technologies in traffic operations and management	As required	Engineering
Monitor private sector initiatives in implementing traffic demand management measures	As required	Engineering, Planning
Review status and progress towards achieving transportation system performance targets, including GHG emissions	As required	Engineering, Planning
Research and monitor status of transportation related provincial initiatives, policies and funding programs	As required	Engineering, Planning, Treasury
Assess population growth and land use changes within the community	5-year	Planning

Task	Frequency	Department Responsible
Reassess, amend or update components of the Transportation Master Plan	5-year	Engineering
Maintain guidelines for the preparation of transportation impact studies	As required	Engineering, Planning
Maintain/Update design guidelines to reflect complete street principles for urban and rural conditions	As required	Engineering, Planning
Review speed and safety issue in accordance with Speed Management and Safety Guidelines	Annual	Engineering
Update DC Background Study	As required	Engineering, Treasury

Appendix A

Engagement Summary

Appendix B

Vision and Goals

Appendix C

Modelling Approach and Results

Appendix D

Ride Well Transit Analysis

Appendix E

Data-Driven Safety Strategy

Appendix F

Speed Management Guidelines

Appendix G

Traffic Impact Study Guidelines

Appendix H

Recommended Official Plan Transportation Policies

Appendix I

Level of Service Condition Criteria

Appendix J

Speed Management Corridors Review

Appendix K

Intersection Assessment

Appendix L

Wellington Road 46 – Strategic Traffic Analysis

Appendix M

Development Charges

Appendix N

Community Safety Zones