Appendices

Appendix A

Community Growth Plan (GSP and Curtis Planning, February 2018)

WELLINGTON NORTH COMMUNITY GROWTH PLAN

FINAL REPORT

Township of Wellington North

Final – February 2018

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Final – February 2018

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A special thank you to the residents, business owners, public agency representatives and others who participated in the consultation program to contribute to shaping this *Community Growth Plan* for Wellington North.

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1. INTRODUCTION

GSP Group Inc. and Curtis Planning have been retained by the Township of Wellington North to complete a *Community Growth Plan*, also referred to as a *Growth Management Strategy*.

This Plan is intended to provide direction for policy development and decision-making regarding land development and growth-related investments and initiatives, to contribute to planning for positive growth and change in Wellington North, by assisting the Township to:

- Initiate community preparedness and readiness for investment and development;
- Align land uses, infrastructure, transportation and community services;
- Facilitate consultation and consensus-building on the future vision of the Township;
- Provide an inventory and status of available lands and infrastructure capacities; and,
- Support County planning initiatives with local information and direction to assist in meeting Provincial conformity requirements under the *Planning Act*, and the direction provided in the *Growth Plan for the Greater Golden Horseshoe*.

While the Plan is comprehensive in nature, its purpose is to outline recommendations for the direction and management of potential future urban growth, which will occur primarily in the urban areas of Arthur and Mount Forest.

The Plan also recognizes that Township-wide opportunities should continue to be supported to promote rural economic development, tourism, recreation, protection of agricultural lands and natural environment conservation, as well as continued community improvement in the rural settlement areas of Conn, Damascus, Kenilworth and Riverstown.

This Plan also builds on and promotes a continued and strengthened community partnership, and the Township's leadership role in engaging and working with the community, public and private partners, stakeholders and investors, to shape the future of Wellington North. Community and stakeholder consultation is a key part of the process of developing the *Community Growth Plan*, and will continue to be a core element of the continued success and evolution of Wellington North.

Development of the Plan involved extensive community engagement and collaboration. At the outset of this initiative, a Steering Committee of residents, stakeholders, Township Council and County Planning staff was formed. The Committee met at key points in the process to provide input and feedback on the research, and to discuss ideas and strategies to guide planning for the future in Wellington North. The development and refinement of the *Community Growth Plan* has been informed and guided by input from this Committee.

To engage the community and stakeholders more broadly, workshops and themed focus groups were held in Arthur and Mount Forest, and an online survey was launched in September 2017. The consultation sessions were initiated through presentations, maps, handouts and other materials provided to residents and stakeholders to establish the project purpose and goals, identify the range of topics and key issues being considered, and to stimulate discussion and feedback.

Figure 1: Community Growth Plan Study Elements



A Working Group of Township staff and County Planning staff was also created and met periodically to coordinate the study process and consultation, gather and review technical information, and to provide input and feedback on the reports, presentations, maps and other documents created by the consultants.

A complete summary of the research, consultation and analysis undertaken in support of the *Community Growth Plan* development is provided in the *Background Report* available as a separate document. The *Background Report* provides important context for the *Community Growth Plan*, and discusses the implications of trends, growth projections, demographic shifts and other factors influencing planning for community growth. The *Final Report* builds on the background information, emerging themes and growth scenarios that were identified and explored through the earlier phases of the study process.

2. VISION & GOALS

The Community Vision and Goals are intended to describe the overall community planning and growth management direction for Wellington North, and to capture the core themes that emerged from the input received. These statements also help to provide a consistent, long-term framework through which future planning decisions and investments are considered and evaluated towards a desired common outcome, and to articulate and embed key growth management concepts, ideas and terminology that link to related Provincial and County planning policies and directions and related Township strategies and initiatives. As recommended by the Steering Committee for the *Community Growth Plan*, the following Vision and Goals were approved by Wellington North Council on January 8, 2018.

Recommendation #1: Community Vision

Wellington North is a **place for everyone** where a **high quality of life** is supported and defined by:

- A **sense of community** with active volunteers, local leaders, government and service providers working together to support capacity building, engagement, participation and well-being;
- A **range of housing, jobs** and **services** that **meet local needs**, focused within Arthur and Mount Forest as **complete communities** and service centres;
- A **strong** and **diverse economy** that has grown within **settlement areas** and in **agricultural, rural** and related business sectors;
- **Healthy** natural, social and built **environments** that promote **conservation** of land and resources, community **wellness**, **safety**, **inclusiveness** and a range of **recreation** opportunities;
- **Infrastructure, facilities** and **services** that are **cost-effective**, optimally used, technologically advanced, **environmentally responsible** and resilient;
- Connected **transportation routes and options** that safely and efficiently move people and goods, offering **choice** and **convenience** for all;
- **Small town atmosphere** and **rural landscape character** with a rich cultural and built **heritage** that is recognized and celebrated.

Recommendation #2: Growth Management Goals

Direct / Focus Development

1. To direct and focus development to the urban areas of Arthur and Mount Forest as the primary centres and complete communities with a mix of land uses, housing, jobs and services.

2. To protect prime agricultural land and rural resources for farming and rural economic development.

3. To improve walking, cycling and other options as convenient, safe and efficient modes of transportation.

Orderly, Appropriate and Compact Development

4. To plan for and promote orderly, compact development within the urban areas, based on phasing to align with planning for infrastructure, transportation, facilities and services.

5. To prioritize appropriate, context-sensitive intensification within the urban areas and optimize the efficient use of existing infrastructure and services.

6. To promote inclusive development through integrated land use, infrastructure and transportation planning and community design.

To Have Growth Pay for Itself

7. To fund and recover growth-related capital costs for infrastructure, transportation, facilities and services via Development Charges.

8. To incentivize and reduce costs for priority development, including: downtown revitalization, special needs housing, on-farm businesses, education/training facilities, and local transit services.

9. To plan for and invest in infrastructure, facilities and services that are cost-effective, environmentally responsible, resilient to climate change and sustainable over the long term.

3. STRATEGIES & INITIATIVES

In Wellington County, provincial and regional planning direction for accommodating population and employment growth and related development is provided by the *Provincial Policy Statement (PPS)*, the *Growth Plan for the Greater Golden Horseshoe (Growth Plan)* and the *County of Wellington Official Plan (County Plan)*.

Under the *Planning Act*, municipalities are required to be consistent with the *PPS* and, within the *Greater Golden Horseshoe (GGH)* area, are required to conform to the *Growth Plan*. The *PPS* and *Growth Plan* apply to County and local land use decision-making on applications for development, and municipalities are required by legislation to amend their official plans to address *Growth Plan* requirements.

The *County Plan* establishes the upper-tier, regional-level policy framework and implementation of the *PPS* and the *Growth Plan*. In the Township, the *County Plan* also serves as the local Official Plan for Wellington North.

Key policy directions from these documents and implications for directing and managing growth in Wellington North are summarized in the *Background Report*.

This section of the *Community Growth Plan* recommends strategies and initiatives related to growth management, based on the policy directions of the Province and the County, the findings of the background research and consultation, and the themes identified in Sections 1 and 2. Reference should be made to the *Background Report* for further context and discussion regarding each topic area.

Note: The County is required to initiate a municipal comprehensive review (MCR) to develop a new *County Plan*, or an amendment to the current *County Plan*, to comprehensively apply the policies and schedules of the *Growth Plan*, by July 1, 2022. Recommendations that would require further review through a MCR of the *County Plan* to implement the *Growth Plan* are denoted by *MCR throughout this report.

3.1 Growth Forecasts and Locations

As required by the *Growth Plan*, the *County Plan* allocates population and employment to each local municipality based on the *Growth Plan's* total population and employment growth forecast for Wellington County. Table 1 identifies the population and employment forecasts identified for Wellington North.

Table 1: Wellington North Growth Forecasts

Township of Wellington North			
	2016	**2036**	**2041**
Population	12,490	17,085	17,685
Households	4,635	6,330	6,590
Employment	7,070	9,320	9,440

SOURCE: COUNTY OF WELLINGTON OPA 99, TABLE 2.

Population and Housing Forecasts

In keeping with the direction of the *PPS* and *Growth Plan*, and the policies of the *County Plan*, the majority of future population and housing growth in the Township is directed to the serviced urban areas of Arthur and Mount Forest. Table 2 identifies the population and household growth forecasts for the two primary urban areas in the Township, as established in the *County Plan*.

Table 2: Wellington North Growth Forecasts by Area

Township of Wellington North			
	2016	**2036**	**2041**
Arthur			
Population	2,725	3,700	3,670
Households	1,005	1,370	1,370
Mount Forest			
Population	5,190	8,550	9,230
Households	2,150	3,365	3,625
Outside Urban Centres			
Population	4,575	4,835	4,785
Households	1,480	1,595	1,595

SOURCE: COUNTY OF WELLINGTON OPA 99, TABLE 2.

The forecasts direct the most population and housing growth to Mount Forest as the largest urban area with the greatest servicing capacity available for future development. Of the Township's total population growth, 65% is expected to be accommodated in Mount Forest. This would increase Mount Forest's population by 78% to the year 2041, for an average annual growth rate of 3.1%. Comparatively, Mount Forest's average annual growth rate for the period of 2011 to 2016 was 1.6%. Achieving the 2041 population growth forecast in Mount Forest will require a significant, sustained increase in housing development activity. Recent development activity and applications suggest that such an increase is possible.

The forecast population growth in Arthur reflects a 35% population increase, or 1.8% annually on average from 2016 to 2036, and 18% of the total Township-wide population

forecast to the year 2041. After 2036, the forecast reflects no further residential growth, which would result in a small decline in Arthur's population. While this has been attributed to servicing factors, a desire to direct a greater share of the forecast population growth to Arthur was expressed by some through the consultation process. It was also noted that Arthur's location closer to other urban centres may lead to greater housing demands and a faster rate of growth. Although wastewater treatment servicing capacity is a constraint to growth in Arthur, the Township is making investments to increase the available servicing capacity for development through phased improvements to the Arthur Wastewater Treatment Plant.

Available residential lands are generally sufficient to address future needs based on the population and housing growth forecasts; however, potential additional intensification, integration of a greater housing mix on available residential lands, and the positioning of greenfield development opportunities in opportune locations would optimize the land supply towards achieving the current and future targets.

To further direct and clarify the intent of the growth forecasts and how they are to be applied and used in decision-making at the County and local level, the *Growth Plan* directs that:

a) Municipalities may plan for development beyond the 2041 planning horizon, for:
   - Strategic Growth Areas that are delineated in official plans and subject to minimum density targets for these areas, integrated planning for infrastructure and facilities to meet related servicing capacity needs, contextually appropriate built form, and that will support complete community development;
   - Infrastructure, public service facilities and the long-term protection of employment areas, provided lands are not designated for urban development beyond what is needed for the 2041 planning horizon.

b) Outside of a municipal comprehensive review (MCR), the forecasts are not to be applied on a site-specific scale as the basis for approving or refusing development proposals that would otherwise conform with the *Growth Plan*.

c) Upper- and single-tier municipalities in the outer ring (e.g. the County) will determine if they have excess lands:
   - Excess lands are defined as lands within settlement areas, outside of built-up areas, that have been designated for development in an official plan but are in excess of what is needed to accommodate forecasted growth to the year 2041;
   - Excess lands will be determined through a land needs assessment to be completed in accordance with a methodology to be established by the Province;

- As of the date of this report, a draft land needs methodology has been issued by the Province for consultation, and the methodology indicates that it is to be used to determine the quantity and type (residential or employment), but not the location, of excess land.

The balance of the population growth is expected to be distributed among the rural settlement areas, as larger lot development on private services within the existing settlement area limits. Outside of settlement areas, population growth in the rural area of the Township will be primarily limited to that which can be accommodated within the existing housing stock, accessory dwellings on existing agricultural and rural properties, and new dwellings on vacant lots of record.

Provincial planning policies limit lot creation in the rural area to protect the agricultural land base and farm operations, and to focus residential development in areas where full municipal water and wastewater services are available. In 2018, the Province issued an Agricultural Land Base Map which identifies nearly all the land outside of the settlement areas in Wellington North as prime agricultural areas, where new lot creation is not permitted for residential development. While this mapping may be refined through a municipal comprehensive review of the *County Plan*, it is anticipated that residential development will be very limited outside of settlement areas in the Township over the long-term. Moreover, the *County Plan* already designates most of the rural part of the Township as prime agricultural and restricts non-farm lot creation in these areas.

Employment Forecast

Wellington North has experienced strong employment growth and has a high ratio of employment to population at approximately 1 job for every 1.75 persons, and is well-positioned to continue to be a destination for a range of employment opportunities through intensification of existing businesses and new business development.

The employment growth forecasts in the County Official Plan are identified for the Township as a whole. It is expected that this growth in employment will occur throughout the Township, with urban employment located in serviced industrial, commercial and institutional developments focused within Arthur and Mount Forest. In the rural area, agricultural and related sectors, on-farm business and continued rural economic development opportunities also contribute to local job growth.

Population-related employment (PRE), including population-serving jobs and work-at-home employment, are expected to increase with the growth of the population, while employment-land employment (ELE) and industry-specific employment growth is more closely linked to other factors such as location, labour force, transportation, infrastructure, technology, market conditions and broader trends and influences.

As summarized in the *Background Report*, several potential opportunities and constraints related to continued employment growth have been identified through the research and consultation. The County and Township have also identified key industry sectors through the Wellington County Economic Development Strategic Plan (2012) and opportunities emerging from the Business Retention and Expansion Project (2014), where efforts to promote continued business and employment growth should be focused. Land is available for residential, industrial, commercial and institutional development to accommodate future growth in a range of sectors, and continued growth in agricultural and other rural employment is also anticipated.

Recommendation #3: Growth Forecasts & Locations

Growth Forecasts

1. The 2036 and 2041 population, housing and employment growth forecasts for the Township of Wellington North, as established in the County Official Plan, should continue to be used for planning purposes to determine urban land requirements (see Table 1 on page 6 of this report).

2. The growth forecasts for Wellington North and the distribution of the population and housing forecasts within the Township should be revisited and updated through future reviews of the County Official Plan, to align the forecasts with local growth patterns and infrastructure plans. *MCR

Location / Distribution of Growth

3. The current hierarchy of settlement areas in Wellington North as established in the *County Plan*, which focuses urban growth and development within the urban centres, and provides for limited growth and development on private services in the Hamlet areas, should be maintained.

Urban Centres:	Hamlets:
Arthur	Conn
Mount Forest	Damascus
	Kenilworth
	Riverstown

4. If continued monitoring of the Arthur wastewater treatment capacity utilization and/or average per capita flows demonstrates a sustained increase in available capacity that can be relied upon for planning purposes, and a commitment is made by the Township to complete Phase 2 of the treatment plant expansion with a planned completion date between the years 2031 to 2036, the forecast population and housing distribution among Arthur and Mount Forest should be adjusted to align with the related infrastructure capacities and investments (see Table 3). *MCR

Table 3: Wellington North Growth Forecasts by Area
Adjusted Forecasts to Align with Arthur Servicing Plans
(see Recommendation #4)

Township of Wellington North			
	2016	**2036**	**2041**
Arthur			
Population	2,725	4,115	4,460*
Households	1,005	1,525	1,665*
Mount Forest			
Population	5,190	8,135*	8,440*
Households	2,150	3,200*	3,330*
Outside Urban Centres			
Population	4,575	4,835	4,785
Households	1,480	1,595	1,595
***Adjusted forecasts based on Phase 2 Arthur Wastewater Treatment Facility Expansion.**			

3.2 Intensification and Greenfield Density Targets

As required by the *Growth Plan*, the *County Plan* establishes intensification and greenfield density targets for the Township. These targets are intended to focus growth and development within the existing built-up area of urban centres, and to ensure outward growth in greenfields is compact, so that:

- Infrastructure can be provided and used more efficiently;
- Transportation choices including walking, cycling and transit systems are supported;
- Urban expansion needs are deferred and minimized; and,

- Vibrant, mixed use, complete communities with a range of housing types and diversity of jobs are created.

Intensification

All municipalities in the GGH are required to develop an intensification strategy to achieve the applicable intensification targets, which have increased in the new *Growth Plan*. Figure 2 on page 12 summarizes the goals and illustrates the various forms of intensification.

The *Growth Plan* intensification target is a measurement of the proportion of all new residential units that are to be located within the delineated built-up area of larger settlement areas. Arthur and Mount Forest have delineated built-boundaries, which were determined by the Province as part of the *2006 Growth Plan* and have not changed since that time.

The rural settlement areas in the Township have undelineated built-boundaries, and therefore the development of the remaining lands within these smaller settlement areas is not counted towards the achievement of the intensification target.

When the *County Official Plan* was amended to conform to the *2006 Growth Plan*, an intensification target of 20% was established, and will continue to apply until the completion of the next County MCR (by mid-year 2022). This target was authorized by the Province as an alternative to the 40% intensification target identified for the GGH in the *2006 Growth Plan*.

Effectively, this means that planning and servicing policies and related decision-making should be based on at least 20 out of every 100 new dwelling units in the Township being located within the built-up areas of Arthur and Mount Forest. At this intensification rate, by 2041 a total of 391 new residential units would be required to be accommodated on lands within these built-up areas.

The *2017 Growth Plan* identifies a new intensification target of 50% for the period from the completion of the next County MCR (mid-year 2022) to the year 2031, and 60% from the year 2031 to 2041. As permitted under the *Growth Plan*, alternative targets may be approved by the Province, subject to meeting specified criteria. Figure 3 on page 13 illustrates the expected phasing in of increased intensification targets over time as directed by the *Growth Plan*.

As summarized in the *Background Report*, alternative scenarios have been tested to evaluate the impacts of applying the current intensification target of 20% across the entire planning period to the year 2041 (Scenario 1), increasing the intensification target to an alternative target as part of the next County MCR (Scenario 2), and fully adopting the *Growth Plan* intensification targets of 50% from mid-year 2022 to 2031, and 60% from 2031 to 2041

(Scenario 3). Based on input from the community and an analysis of the available land inventory data and intensification potential in Arthur and Mount Forest, it was concluded that the existing intensification target is achievable and that an increased target could be achieved over time, but the full *Growth Plan* targets are not reasonably achievable. A balanced option (Scenario 2) has also been assessed that would increase the overall intensification with more gradual increments targeting 30% and 40% by 2022 and 2031, respectively. This aligns with the intent of the *Growth Plan* by increasing intensification over time while also respecting the character and scale of the existing communities, a goal expressed by the participants in the consultation program. Figure 4 on page 13 illustrates the comparative impact of the alternative intensification scenarios.

Figure 2: Goals and Forms of Intensification

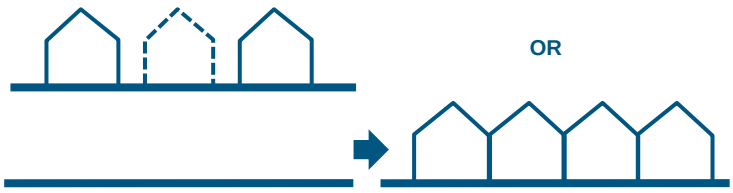
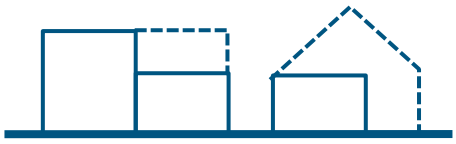
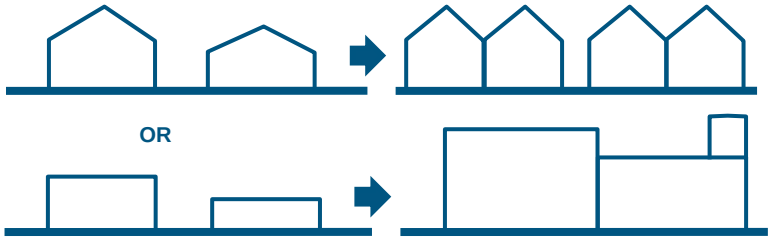
Intensification Goals	
• Encourage intensification generally to achieve the desired urban structure; • Identify the appropriate type and scale of development and transition of built form to adjacent areas; • Identify strategic growth areas to support achievement of the intensification target and recognize them as a key focus for development; • Ensure lands are zoned and development is designed in a manner that supports the achievement of complete communities; • Prioritize planning and investment in infrastructure and public service facilities that will support intensification; and, • Be implemented through official plan policies and designations, updated zoning and other supporting documents (*Growth Plan, s.2.2.2*).	
Forms of Intensification	
1. Infilling and development of existing vacant lands in the built-up area	
2. Building expansion or conversion	
3. Redevelopment	

Figure 3: Phasing in of Intensification Targets

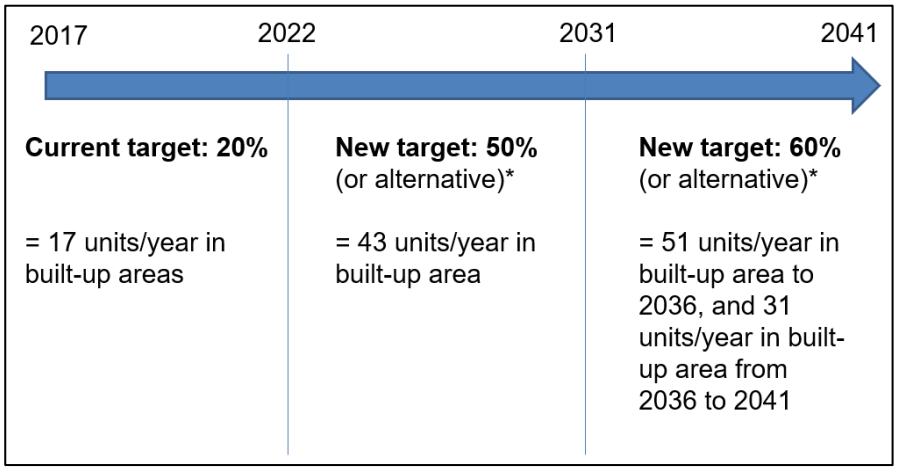
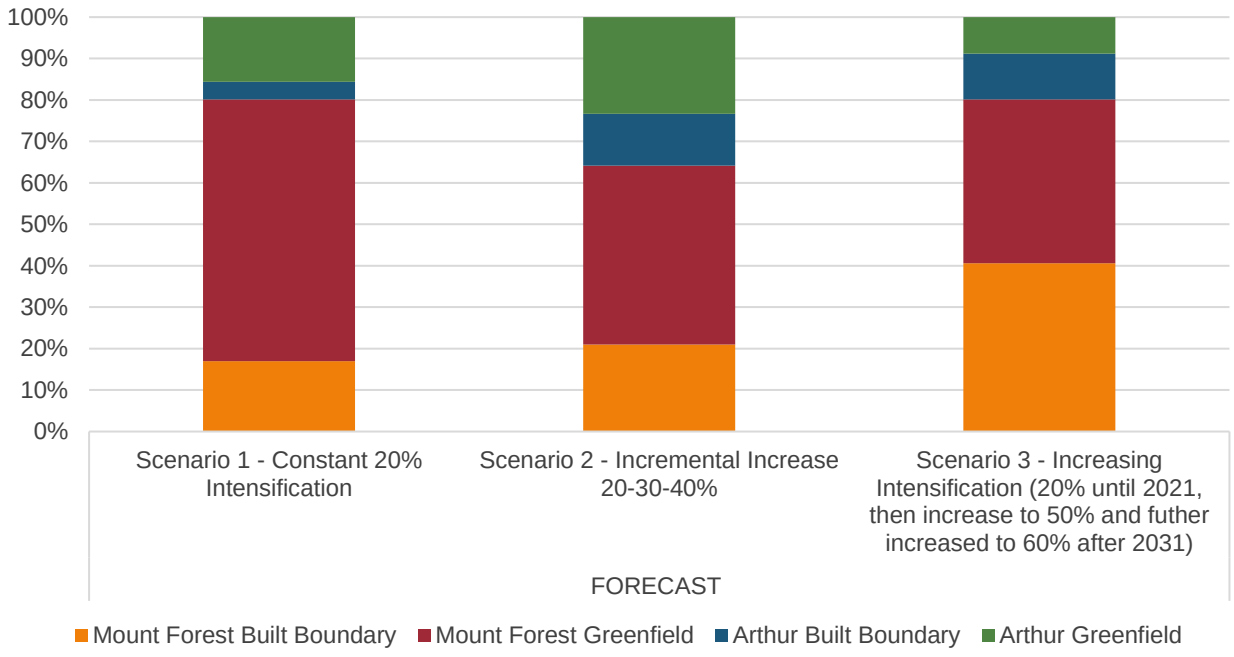


Figure 4: Distribution of Forecast Housing Growth Using Different Intensification Targets, Wellington North



Scenario 1 maintains the existing intensification target and provides for the same level of intensification as is currently planned for in Arthur and Mount Forest, and would not contribute to achieving an increased target across the County pursuant to the *Growth Plan*. Although this scenario is achievable, it does not contribute to nor encourage development to further intensify over time and would not increase the expected overall level of intensification to the year 2041. Conversely, Scenario 3 would require a level of intensification that is not achievable based on the amount and distribution of developable lands and intensification potential in the built boundary, even with a significant increase in the level of intensification within Arthur and Mount Forest.

The *Growth Plan* directs that alternative targets can be requested through a MCR where it can be demonstrated that the targets cannot be achieved and that the alternative target will:

a) Maintain or improve the minimum intensification target in the Official Plan that is approved and in effect;
b) Be appropriate given the size of the delineated built-up area;
c) Account for existing infrastructure, public services facilities, and capital planning;
d) Account for existing planning approvals and other related planning studies;
e) Consider the actual rate of intensification being achieved annually across the upper- or single tier municipality;
f) Support diversification of the total range and mix of housing options in delineated built-up areas to the horizon of this Plan, while considering anticipated demand;
g) Account for lands where development is prohibited or severely restricted; and,
h) Support the achievement of complete communities. (Section 2.2.2.5)

Scenario 2 provides a balanced option with a target of 30% intensification after 2021 and 40% after 2031. These targets remain lower than the *Growth Plan* targets but would satisfy the requirement to increase the current target.

Table 4 compares the residential land inventory available and the forecasted growth distribution in each area under all three Scenarios. When compared to the Land Inventory information collected through the *Background Report*, the number of units required in the built boundary for Scenario 2 at 30% and 40% is better aligned with the available and potential supply of intensification units. There is less discrepancy between the available and the forecasted housing growth, so the targets are more achievable; however, additional intensification would still be required through a greater mix of unit types and/or further intensification or redevelopment of potential intensification sites.

In Scenario 2, it has been assumed that Phase 2 of the Arthur Wastewater Treatment Plant will be approved and implemented to increase the share of total residential growth in Arthur, which would also increase the intensification potential in Arthur.

Table 4: Intensification Scenarios

		Residential Units			
	Area	Avail. Supply	Scenario 1*	Scenario 2*	Scenario 3*
Mount Forest	Mount Forest Built Boundary	217	313	387	747
	Mount Forest Greenfield	1,036	1,162	793	728
Arthur	Arthur Built Boundary	203	78	231	203
	Arthur Greenfield	235	287	429	162
Rural Areas	Rural Areas and Hamlets	93	115	115	115
TOTAL	Built Boundary	420	391	618	950
	Greenfield	1,271	1,449	1,222	890
	Rural/Hamlet	115**	115	115	115

*Scenario 1 – Maintain existing intensification target (20%) to the year 2041
*Scenario 2 – Increasing intensification at alternative increments (20% until 2021, then increase to 30% and further increased to 40% after 2031)
*Scenario 3 - Increasing Intensification (20% until 2021, then increase to 50% and further increased to 60% after 2031)
**The actual supply of available units identified in land inventory is 93; however, it was assumed that additional severances and second units would be introduced over time to increase this number to 115, which matches the forecast.

Factors for determining appropriate or primary areas of intensification and growth include:

- Areas that have or are planned to be provided with adequate servicing;
- Access to major transportation routes;
- Access to public facilities (including recreation facilities, parks, libraries, schools etc.); and,
- Access to local and affordable food.

All of these elements, together with increased growth of a variety of housing and employment types will contribute to the creation and expansion of complete communities.

Greenfield Density Target

Designated Greenfield Areas (DGAs) are those lands within settlement areas that are designated for urban land uses and that are outside of the delineated built-up area. In Wellington North, development that is located within the urban limits of Arthur and Mount Forest, outside of their respective built-boundaries, is classified as greenfield development.

Based on the new policy direction introduced by the *2017 Growth Plan*, the DGA in the Township also includes the four hamlets, since these settlement areas do not have delineated built-boundaries but rather have undelineated built-boundaries. In the previous, *2006 Growth Plan*, settlement areas with undelineated built-boundaries were considered as part of the built-up area, and therefore development within the hamlet areas contributed

towards meeting the intensification target. This change has implications for the Township's achievement of the intensification and greenfield density targets.

All municipalities in the GGH are required to set and monitor the achievement of a greenfield density target. Greenfield density is measured as the total number of residents and jobs within the greenfield area, divided by the total greenfield land area, and is expressed as residents and jobs per hectare. Certain lands that are undevelopable, such as natural heritage and hazards lands, are excluded from the land area.

The current density target for Wellington North's DGA is 40 residents and jobs per hectare, as identified in the County Official Plan. This target, and how it is measured, will continue to apply until after the completion of the next County MCR (by mid-year 2022), through which justification must be provided to maintain the current target, or to increase this target. Similar to the intensification target, the *Growth Plan* has increased the greenfield density target, from 50 to 80 people and jobs per hectare for the GGH and permits an alternative target in Outer Ring municipalities subject to meeting specified criteria.

The *Growth Plan* directs that DGAs will be planned, designated, zoned and designed in a manner that:

- Contributes to creating complete communities;
- Supports active transportation; and,
- Encourages the integration and sustained vitality of transit services (*Growth Plan, s.2.2.7.1 (a-c)*).

Figure 5 illustrates the concept of the urban structure comprised of built-up area and DGA, and how the greenfield density target is measured.

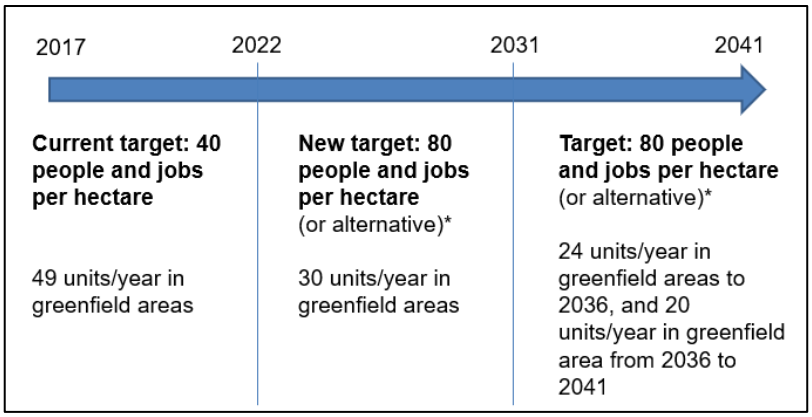
Figure 5: Greenfield Density Targets



Greenfield Density Target:
Number of people and jobs to be accommodated per hectare of land in the Greenfield Area

Figure 6 illustrates the expected phasing in of increased DGA density targets over time as directed by the *Growth Plan*.

Figure 6: Phasing in of Designated Greenfield Area Density Targets



As summarized in the *Background Report*, the land inventory in Arthur and Mount Forest has been quantified and assessed, and existing densities in both communities have been calculated and reviewed, to evaluate the suitability of the current DGA density target and whether this target should be increased over time.

The amount of land that would be required in the DGA under each of three alternative scenarios was also determined, aligned with the intensification scenarios, to evaluate the impacts of maintaining the current greenfield density target of 40 residents and jobs per hectare (Scenario 1), increasing the alternative target to 50 people and jobs per hectare as part of the next County MCR (by mid-year 2022) and maintaining that target to the year 2041 (Scenario 2), and using the *Growth Plan* greenfield density target of 80 people and jobs per hectare from the year 2022 to the year 2041 (Scenario 3). Table 5 summarizes the results of this analysis for Arthur and Mount Forest.

Table 5: Greenfield Housing Units and Residential Land Needs Using Different Greenfield Density Targets, Wellington North

Arthur	**Scenario 1** (40 people and jobs / ha)	**Scenario 2** (50 people and jobs / ha after next MCR)	**Scenario 3** (80 people and jobs / ha after next MCR)
Greenfield units	287	429	162
Greenfield land need (ha)	18	22	5
Mount Forest			
Greenfield units	1,162	793	728
Greenfield land need (ha)	73	43	30

NOTE: The above analysis did not factor in the offsetting impact of existing low density development in parts of the existing DGAs of Arthur and Mount Forest, nor the impact of including the four hamlet areas as part of the DGA.

Through the consultation program, there was general community support for a balance of intensification and greenfield development, and for more compact development based on providing a greater range of housing types and densities, including more multi-unit housing including ground-related dwellings (townhouses, semi-detached) and apartments.

To re-evaluate the current greenfield density target of 40 people and jobs per hectare for Wellington North, the following factors were reviewed and considered:

- The amount, location and surrounding land use context of land available for residential and non-residential development in the DGAs of Arthur and Mount Forest, net of permitted take-outs identified in the *Growth Plan* (land designated as Industrial, Greenlands and Future Development were excluded);
- The impact of including existing, low density development and committed development approvals in the DGAs of Arthur and Mount Forest when measuring the greenfield density across the DGA;
- Existing and future housing mix and potential to incorporate more higher density, multi-unit dwelling types;
- The impact of including the hamlet areas as part of the DGA when measuring the greenfield density across the DGA; and,
- Available servicing capacity and staging/phasing of development considerations – if targets are increased, they should be phased in over time based on the current land inventory and committed development, and to allow time for market demands to shift to higher density housing types.

The results of the above analysis are briefly summarized as follows, providing supporting rationale for maintaining an alternative greenfield density target for forecast growth to the year 2041 for Wellington North:

- Approximately 25% of the existing DGA in Arthur and Mount Forest contains existing land uses, predominantly low density residential, yielding an existing density of 25 people and jobs per hectare in the developed portion of the DGA;
- Registered and committed (draft approved) development in the DGA in Arthur and Mount Forest will occupy approximately 8% of the DGA in Arthur and Mount Forest and will yield a density of 40 people and jobs per hectare in the committed, vacant portion of the DGA;
- Only 3 vacant, uncommitted sites designated for residential development in the DGA are 5 hectares or greater in land area (5.1 ha, 12.9 ha and 27 ha), with several smaller properties comprising the balance of the DGA land inventory;

- Most vacant residential lands in the DGA are within or adjoining existing low density residential neighbourhoods, and are located at the periphery of the settlement areas;
- The land within the 4 hamlets is 40% of the total net DGA, has an estimated existing density of 5 people and jobs per hectare, has limited opportunity for new development, and requires larger lot sizes for private individual servicing systems;
- If the hamlet areas are included in the greenfield area for purposes of calculating the density target, the existing, developed portion of the DGA of all settlement areas in the Township has a combined existing density of 11 people and jobs per hectare;
- Assuming that new development to the year 2022 will meet the existing density target of 40 people and jobs per hectare, and excluding the 4 hamlets from the calculation of the greenfield density target, achieving a density target of 65 people and jobs per hectare by the year 2041 measured across the DGA of Arthur and Mount Forest would require new development to meet average densities exceeding 250 people and jobs per hectare for the period 2022 to 2031, and 500 people and jobs per hectare for the period 2031 to 2041;
- If future greenfield development is predominantly ground-related medium density housing (e.g. townhomes) with an increasing proportion of low-rise apartments (2-4 storeys) and fewer single detached dwellings, averaging 50 people and jobs per hectare for new development during the period 2022 to 2031 and 60 people and jobs per hectare for new development during the period 2032 to 2041, the current density target of 40 people and jobs per hectare measured across the DGA of Arthur and Mount Forest can be achieved by the year 2041, as shown in Table 6.

Table 6: Analysis of Recommended Greenfield Density Targets, Wellington North

Period	Forecast		Density Target for New Development (people and jobs / ha)	Land Area Required (ha)	Total DGA Density (people and jobs / ha)
	New Greenfield Units	Population and Jobs Estimate			
2016-2021	200	521	40	13.0	**28**
2022-2031	637	1,749	50	34.9	**36**
2032-2041	385	1,054	60	17.6	**40**
Totals	**1,222**	**3,324**	-	**65.6**	-

Assumptions:
Average Household Size: 2.7 persons per unit (Arthur) and 2.4 persons per unit (Mount Forest)
Work-at-Home Ratio: 0.0858
Employment Density on Commercial Lands: 40 jobs / hectare
Net DGA Land Area:

Land Use Designation	Land Area in Arthur (ha)	Land Area in Mount Forest (ha)
Total DGA (all designations)	392.03	228.67
Greenlands	10.68	3.31
Core Greenlands	33.95	27.72
Future Development	113.26	106.20
Industrial	118.54	55.70
Net DGA	**115.6**	**35.74**

Recommendation #4: Intensification and Greenfield Density Targets & Strategies

Current and Future Targets

1. The recommended alternative intensification and greenfield density targets should be considered for Wellington North (see Table 7 on page 21). *MCR

2. Density targets for employment areas should be identified as part of the County Employment Strategy required under the *Growth Plan*. For Wellington North, an employment density target of 30 jobs per hectare should be considered and analyzed further based on a reasonable increase to existing employment area densities, along with policies and permitted uses to encourage intensification of jobs within existing employment areas through business expansion, and to encourage higher density employment types in new employment areas. *MCR

Intensification Strategy and Greenfield Development Opportunities

3. The Intensification Strategy for Wellington North should include consideration of a range of tools and approaches (see Figure 7 on pages 21-22).

4. Consider Medium and High Density Residential designations in the Official Plan, with minimum and maximum density provisions to promote a broader range of housing and designate appropriate locations for this type of development (refer to the land inventory information in the *Background Report* for further information on potential locations).

5. Consider the re-designation of Future Development land in east Arthur (area "F" on the *Background Report* maps), for Residential and Commercial development to improve connectivity of existing and planned residential development to the north to County Road 109, through re-positioning of other vacant residential land in this area of Arthur if needed.

6. Consider the re-designation of land surrounding the high school in Mount Forest for residential development, including a mix of housing unit types, through re-positioning of greenfield land designated for residential and employment purposes. *MCR

Table 7: Recommended Alternative Intensification and Greenfield Density Targets, Wellington North

Targets		2017-2021	2022-2031	2032-2041
Intensification	Current Target	20%		
	Growth Plan Targets	40%	50%	60%
	Recommended Targets	**20%**	**30%**	**40%**
Greenfield Density (people + jobs per hectare)	Current Target	40		
	Growth Plan Targets	50	80*	
	Recommended Targets	**40**	**40***	
	Urban Area DGA Total			
	(New DGA Development)		(50*)	(60*)

*Excluding employment areas, as per the *Growth Plan, 2017*.
Note: the recommended greenfield density targets assume that lands designated as Future Development and Hamlet are excluded from the calculation. This should be reviewed further in consultation with the Province to clarify if settlement areas with undelineated built-boundaries are to be excluded from the greenfield density calculation.

Figure 7: Intensification Strategy

Official Plan

- Designate downtown Arthur and Mount Forest as priority locations for intensification and redevelopment with provisions to allow for free-standing residential as a permitted use in the CBD designation, subject to appropriate criteria to maintain a balance and mix of commercial, residential and other supporting land uses in the downtown areas;
- Consider re-framing the Residential Transition Area designation as a Mixed-Use designation with less non-residential range and consider applying it to areas adjoining the CBD in Arthur in addition to Mount Forest;
- Consider potential re-designation of the Mount Forest Fairgrounds to permit redevelopment for medium density residential uses, including a community park / open space to support the redevelopment and to provide access to parkland amenities for the surrounding area and the community more broadly;
- Develop a phasing/staging of development plan and servicing allocation policies that reserve adequate servicing capacity for lands within the built-up areas to achieve the intensification target, and that may prioritize higher density, multi-unit housing developments and housing that meets specified needs (e.g. affordable, rental, etc.), and to direct the orderly progression and timing of development aligned with related infrastructure capacities and improvements.

Zoning By-law
• Amend zoning provisions to expand opportunities for second units within existing dwellings, including single detached, semi-detached and townhouse dwellings, with appropriate standards for parking, and, where a second unit is not provided within the dwelling, provide for a second unit within a residential accessory building, in accordance with the Planning Act and the policies of the County Plan; • Consider increasing the maximum building height within the downtown area of Mount Forest to 15 metres in the Zoning By-law, to permit up to 5-storey mixed-use or residential buildings, updated parking provisions, and consider provisions for a discounted payment in lieu of a portion of required parking spaces where the available land is insufficient to provide the required off-street parking. The current maximum building height of 12 metres for downtown Arthur is appropriate, although specific properties could be considered for increased building heights, where appropriate.
Community Improvement Plan & Design Guidelines
• Continue to incentivize and invest in improvements and redevelopment within the downtown as intensification areas, through the CIP Programs; • Prepare and adopt design guidelines for intensification and medium and high density residential and mixed use developments, to identify appropriate design measures for the integration of these developments with the surrounding area.
Planned Development
• Where possible, revisit committed development plans within the built-up area to incorporate a greater range of housing types at higher densities.

3.3 Housing Strategy

A high priority emerging from the research and consultation is the need for an overall housing strategy, building on earlier research and analysis that has been completed at the County level, to address housing needs in Wellington North. Several key opportunities and challenges have been identified as it relates to current and future housing needs:

- Outward growth pressures from larger centres and communities that are closer to the GTA, and related impacts on demand levels and housing prices;
- Opportunity to address the lack of available housing supply in Arthur with planned servicing improvements, where it is anticipated that there is a pent-up demand that could trigger rapid growth when new housing becomes available;

- Demands for a greater range of housing options with variety in dwelling types, sizes, tenure, prices, and ages of households, to meet the needs of the current and future population at every stage in life and including employees of local businesses and industries as part of addressing a growing labour shortage;
- A shortage of available rental housing and housing that meets the needs of people in the full range of income levels and those with fixed incomes;
- Attractiveness of the area and opportunities for more seniors housing and assisted living / care facilities, with good access to health care and other supporting services and amenities available locally;
- Opportunity to update zoning provisions for second units / accessory dwellings to create more housing within the existing housing stock.

The *Guelph Wellington Housing and Homelessness Plan (2012)* provides key data at the regional level, and insight for the housing characteristics and needs within specific areas of the County, and provides a summary of housing needs and demands.

This study should be considered in the context of developing a housing strategy under the *2017 Growth Plan*. The *Growth Plan* directs upper-tier municipalities to develop a housing strategy in consultation with the lower-tier municipalities, to:

- Support the identification and achievement of the intensification and greenfield density targets; and,
- Establish affordable housing targets, implementation tools, and direction for updating Official Plan policies and zoning by-laws.

This would also provide an opportunity to consider the recent amendments to the *Planning Act* that establish new tools for municipalities to implement inclusionary zoning to increase access to affordable housing, and how that could be implemented in the County and the Township, when the related regulations are available under the *Act*.

Recommendation #5: Housing Strategy

1. Participate with the County to develop a *Housing Strategy* as set out in the *Growth Plan*, which should recommend an affordable housing target for Wellington North and related strategies, tools and policies to meet identified housing needs. *MCR

2. Housing strategies for Wellington North should:

    - Align with and support the Intensification Strategy and further support the achievement of the recommended intensification and greenfield density targets (see Recommendation #4); and

    - Incentivize, and reduce barriers to increasing the supply of rental housing through:

        - Flexible policies and zoning for residential and mixed use redevelopment in the downtown areas;

        - Zoning provisions for second units, and a broader range of housing types and densities;

        - Consideration of incentives and programs for purpose-built rental housing that will meet local needs, such as reduced fees and charges, prioritization of servicing allocation, relief from parking standards and/or discounts to payments required in lieu of parking and/or in-lieu of parkland dedications;

        - Designating lands, and/or consideration of opportunities on publicly-owned properties for housing that meets local needs;

        - Provide direction for the use of available tools under the Planning Act and other enabling legislation to support the supply of, and access to, appropriate affordable housing (e.g. inclusionary zoning); and,

        - Consider submitting an Expression of Interest to participate in the *Fair Housing Plan Development Charges Rebate Program*.

3.4 Employment Strategy

The *Growth Plan* defines Employment Areas as areas designated in an official plan for clusters of business and economic activities, including but not limited to manufacturing, warehousing, offices, and associated retail and ancillary facilities. It requires upper-tier municipalities to develop an employment strategy to determine appropriate minimum density targets that reflect the current and anticipated type and scale of employment that characterize the employment areas.

Several key opportunities and challenges have been identified related to current and future employment in the Township and that provide important context for the development of an Employment Strategy:

Provincial and County Directions

- The *Growth Plan* requires the County to designate and protect employment areas, and the conversion of lands from employment (including industrial, highway commercial and rural employment areas designated in the *County Plan*) to non-employment land may only be permitted through a MCR;
- The *County Plan* seeks to provide for an appropriate mix and range of economic development opportunities and employment uses.

Employment, Tourism and Economic Development Trends and Factors

- The largest employment sectors in the Township are manufacturing, construction, agriculture/forestry/fishing/hunting, retail, and health care and social assistance[1], with industrial facilities and operations representing the largest share of employment;
- Shifting demographics and labour force development and retention are key factors:
  - With the aging work force, increasing immigration is expected to play a vital role in offsetting the decreasing labour force as the workforce ages;
  - Some local employers have identified that filling available jobs is a challenge;
  - Education and training opportunities and other services and facilities are important to support local labour force development and attraction / retention;
- Other factors and trends include commuting patterns (see Figures 8 and 9 on page 28), labour force demographics, technology changes, and market conditions at the local, regional, provincial, national and global scales;

[1] Statistics Canada, 2011 National Household Survey.

- The main employment generator in the rural areas will be resource-based industries such as agriculture, aggregate operations, forestry and supporting businesses;
- There may be opportunity for more on-farm businesses in the rural and agricultural areas to support employment growth throughout the community;
- Home based business opportunities are also encouraged in the *County Plan* which directs these businesses towards a service-based market rather than a retail market;
- The area is relatively inexpensive compared to other areas closer to Toronto;
- Start-up/incubator type facilities may help to add variety in the types of jobs available in the area and could fill some of the empty retail space along the main streets;
- Tourism and business would benefit from the development of more overnight accommodations.

Employment Growth Forecast

- The Township is expected to grow by 2,370 jobs within the forecast horizon from 7,070 jobs in 2016 to 9,440 jobs in 2041, including:
  - *Population-Related Employment (PRE)*: jobs in population-servicing businesses such as retail stores, banks and restaurants, institutional facilities and services such as schools and local government offices, and work-at-home employment;
  - *Employment Land Employment (ELE)*: employment that may be unrelated to the growth of the local population as determined by market, location or other factors, such as industrial or resource-based growth;
  - *Rural Area Employment (RAE)*: jobs in agriculture, on-farm and related businesses, resource-based and other rural-related employment;
  - *No Fixed Workplace Address (NFWA)*: jobs with no usual place of work, such as construction and transportation-related employment.
- Most of the forecast employment growth is expected to be located in the serviced urban centres of Arthur and Mount Forest, including PRE growth of 1,400 jobs and ELE growth of 365 jobs, to the year 2041;
- A limited amount of forecast employment growth is expected in the hamlet areas, including PRE growth of 68 jobs and ELE growth of 50 jobs, to 2041;
- In the rural area, future ELE growth on rural employment lands is forecast to be 46 jobs, and the forecast growth in RAE is 92 jobs to 2041;

- The balance of the employment growth forecast, approximately 413 jobs, is expected to be in the NFWA category;

Employment Densities

- The current greenfield density target of 40 residents and jobs per hectare will continue to apply with respect to Employment Areas, until a new employment density target is established through the Employment Strategy required to be completed by the County as part of a MCR to implement the *Growth Plan*;

- Employment densities are expected to remain relatively low over the forecast period to 2041:

    - Existing employment density is estimated to be less than 20 jobs per hectare for the combined area of developed industrial, commercial and recreational land in the urban centres, including Arthur (10-15 jobs per hectare) and Mount Forest (15 to 20 jobs per hectare), based on available employment data for existing employers in each community and the calculated land area of occupied industrial, commercial and institutional lands in both settlement areas;

    - The density of employment can vary significantly from higher density employment such as offices to lower density employment where larger building and land areas are required such as warehousing operations;

    - Future employment growth in the Township is expected to be predominantly low density in the range of 20 to 30 jobs per hectare in employment areas, and 40 to 50 jobs per hectare in commercial, institutional and mixed-use areas;

Land Supply and Locations for Future Employment Growth

- An inventory and mapping of vacant non-residential lands is provided in the *Background Report*, and includes 148 hectares of land designated for industrial and commercial purposes in Arthur and Mount Forest;

- Existing industries and lands designated for additional industrial growth are located along the north and westerly limits of Arthur and in the north part of Mount Forest;

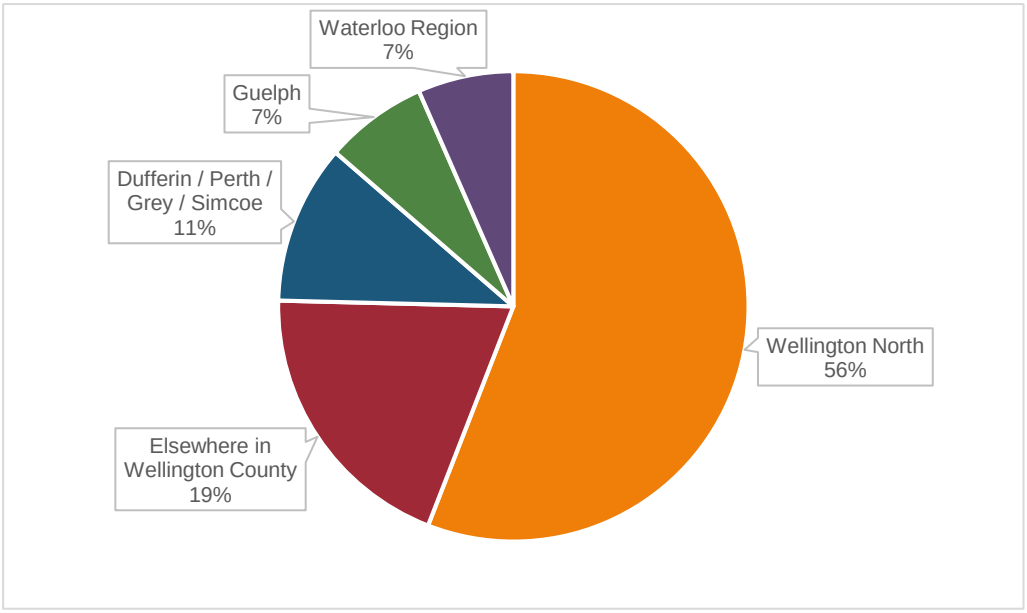
- To the south-east of Mount Forest along Highway 6, within and adjacent to Riverstown, there are two existing industries and some vacant land in the hamlet area that is suitably sized and located for future dry industrial development, some of which is also zoned for rural industrial land uses;

- In 2017, there were some vacancies in the commercial core areas of Arthur and Mount Forest, and there are opportunities for new, and intensification of existing,

population-related employment to further expand on the mix of retail, restaurants, offices, financial and other services within the downtown areas;

Figure 8: Employment by Place of Residence, Wellington North, 2016

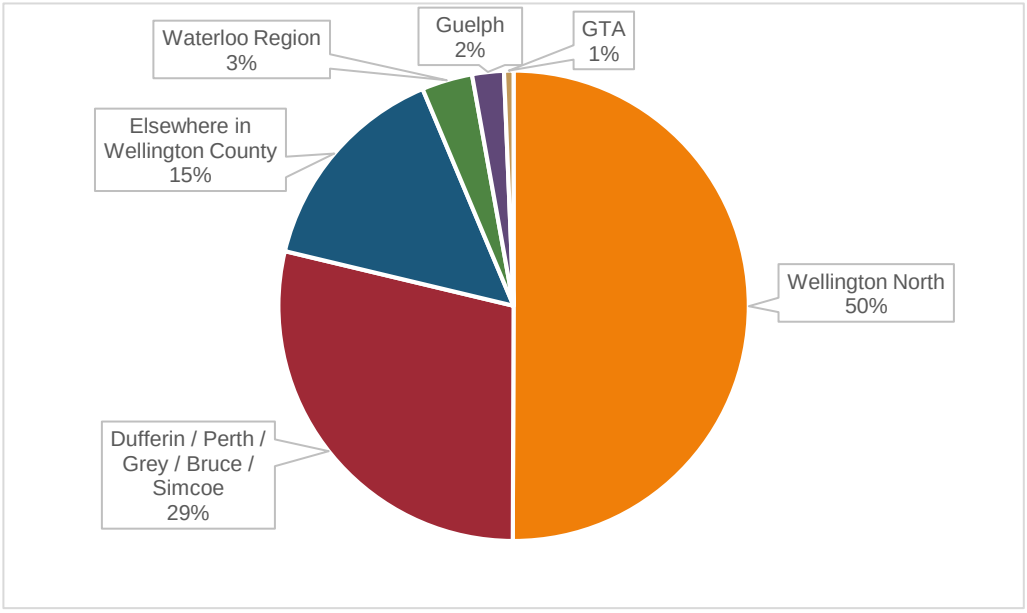
(This chart illustrates where residents of Wellington North commute to for work)



SOURCE: Statistics Canada 2016 Census

Figure 9: Employment by Place of Work, Wellington North, 2016

(This chart illustrates where people commute from to work at jobs in Wellington North)



SOURCE: Statistics Canada 2016 Census

- There are limited commercial land opportunities for new, larger format retail stores, service- and automobile-oriented businesses on urban land along arterial roads;
- There are no lands designated specifically for institutional land uses in the Township, and the *County Plan* permits these uses to be integrated into residential and commercial areas except for large institutions that have significant impacts may require a specific land use designation.

Employment Land Needs

- Future employment land needs have been estimated based on the 2041 employment growth, as follows:
  - A grand total of 32 to 64 hectares of urban land to accommodate PRE and ELE employment growth in Arthur and Mount Forest, including industrial, commercial and institutional employment growth, comprised of:
    - A total of 9 to 18 hectares of urban land for ELE employment growth;
    - A total of 23 to 46 hectares of urban land for PRE employment growth (commercial and institutional portion, excluding work-at-home employment);
  - Assumptions:
    - Future employment density range of 20 jobs per hectare and the current greenfield density target of 40 (people and) jobs per hectare;
    - Some future employment will be accommodated in the hamlets and rural area (as summarized on page 26);
    - PRE forecast used for calculating land needs limited to commercial and institutional employment (excludes work-at-home employment);
    - Excludes NFWA employment.
- The current inventory of 33 hectares of vacant industrial land in Arthur and 109 hectares of vacant industrial land in Mount Forest, for a total of 142 hectares of vacant industrial land, far exceeds the land needs for the 2041 ELE growth forecast;
- The current inventory of 0.8 hectare of vacant commercial land in Arthur and 5.2 hectares of vacant commercial land in Mount Forest, for a total of 6 hectares, is insufficient to meet the PRE growth forecast to the year 2041, which requires an additional 17 to 40 hectares of land for commercial and institutional development;
- The shortfall of land designated for commercial and institutional development could be addressed through the re-designation of some of the surplus industrial land inventory and through mixed-use opportunities and intensification.

Recommendation #6: Employment Strategy

1. Develop an *Employment Strategy* as set out in the *Growth Plan*, which should recommend an employment density target for Wellington North and related strategies, tools and policies to meet identified employment needs. An employment density of 30 jobs per hectare should be considered as an initial target, for further review and analysis. *MCR

2. Employment strategies and policies for Wellington North should:
   - Continue to protect a sufficient land base within the employment areas in the Township to accommodate the 2041 employment growth forecast and in consideration of longer term opportunities;
   - Help to maintain and continue to diversify the employment and economic base of the Township and attract and retain a range of traditional and emerging business sectors, with a focus on the key sectors identified through the County Economic Development Strategy and the Business Retention and Expansion Project;
   - Establish land use permissions and zoning that provide for workforce training, entrepreneurship and business development opportunities, such as compatible home- and farm-based businesses, accommodations, and facilities, services and resources that support incubator functions (e.g. makerspaces), to promote labour force development and retention;
   - Encourage mixed use buildings in the downtown areas and identify other potential areas for integrated institutional, commercial and residential development and live-work opportunities;
   - Official Plan policies and zoning should be updated based on the Province's *Guidelines for Permitted Uses in Prime Agricultural Areas*, which provides direction for permitting agriculture-related and on-farm diversified land uses in these areas;
   - Contribute to defining needs and planning for infrastructure, transportation, services and technologies to support existing and new industries and employment land development;
   - Consider programs, incentives and guidelines to promote and incentivize the development of employment lands;

- Provide direction for the intensification and expansion of existing industries and businesses in the Township;
- Ensure policies and zoning provide for appropriate separation between industrial and other facilities and sensitive land uses and avoid land use patterns that may result in land use conflicts or that could negatively impact the viability of existing and future employment areas, industries and farm operations;
- Consider tourism and recreational opportunities in the Township and related economic development and employment growth opportunities.

3. Designate additional land for commercial (including neighbourhood and community commercial and mixed use) and institutional development, and develop policies that provide for the intensification of commercial, institutional and mixed use areas, to address the shortfall of urban land available for population-related employment to meet the 2041 employment growth forecast, including the consideration of re-designating some industrial land to provide land for commercial, institutional and other land uses (see Recommendation #4) and based on optimizing the location of employment land aligned with supporting infrastructure and transportation access.

3.4 Transportation Strategy

As summarized in the *Background Report*, key factors that will continue to enhance growth opportunities in Wellington North include the level of access available to Provincial and regional transportation networks and connections with other growing communities that provide a series of nodes of development in the area.

Transportation within the urban centres, throughout the Township and connected with surrounding areas is primarily by private automobile. There are no existing public transit services within the Township, and transit is limited to private and volunteer-based transportation services as well as student transportation for elementary and secondary schools. On- and off-road pedestrian and cycling pathways and routes provide active transportation opportunities, primarily within Arthur and Mount Forest. A segment of the growing Mennonite population in the Township relies upon horse-drawn vehicles.

Current planning policies emphasize alignment of land use and transportation, transit-oriented development and promoting alternatives, including active transportation. Through the consultation program for the *Community Growth Plan*, a community desire was expressed for more transportation options/alternatives, particularly within and between Mount Forest and Arthur, which could build on existing local business approaches and partnerships. With anticipated future growth, there is an opportunity to align land use and transportation planning to support the development of viable transportation options and reduce car dependency.

The following points summarize key information, opportunities and challenges that provide important context for the development of a Transportation Strategy for Wellington North:

Transportation and Regional Location Context as Future Growth Factors

- The existing road network in the Township includes:
  - Provincial Highways 6 and 89 as the primary arterial roads, providing north-south and east-west transportation connections through the Township and with the surrounding areas:
    - These arterial roads typically carry the highest traffic volumes and also serve as the local main streets of Arthur (Highway 6) and Mount Forest (Highways 6 and 89);
    - A Connecting Link Agreement between the Township and the Ministry of Transportation Ontario (MTO) establishes local responsibilities and controls for access, maintenance and improvements for portions of the Provincial Highways through the built-up areas of Arthur and Mount Forest;
  - Wellington County Roads 6, 14, 15, 16 and 109 provide additional through-traffic arterial road functions and regional connections;
    - These roads are under the jurisdiction of the County including ownership, access control and maintenance;
  - Township Roads that provide arterial, collector and local road functions;
    - These roads have a total length of 331 kilometres[2] and represent 65% of the total value of all Township-owned assets and have the greatest annual funding deficit in relation to future repair and replacement needs;[3]
    - In Arthur and Mount Forest, the local streets provide access to residential, commercial, industrial and institutional properties and areas;

[2] Township of Wellington North Winter Road Maintenance Information, October 3, 2016.
[3] Township of Wellington North Asset Management Plan, 2013.

- The Wellington County Economic Development Strategic Plan ("Strategic Plan") from 2012 attributes growth in the County to be in part the result of growing and shifting populations in neighbouring communities with contributing population coming from Guelph, Kitchener-Waterloo and to a lesser extent from the Greater Toronto and Hamilton Area (Strategic Plan, s.2.1);

- Several communities near Wellington North experienced steady population growth over the 2011 to 2016 census period, including Shelburne, Fergus and Grand Valley;

- In 2016, nearly 90% of Wellington North residents who commuted for work travelled by car, truck or van, and 10% by active transport (walking, cycling);[4]

Transit Services

- There are no existing public transit systems in Wellington North;

- Student transportation services provide bussing to local schools;

- Private bus lines provide service connections to and from Toronto through several communities including Arthur and further west to Harriston, and taxi services complete this connection from Harriston to Mount Forest;

Active Transportation

- The *Wellington County Active Transportation Plan* ("County ATP") identifies existing and planned on- and off-road cycling and trail routes;

- Existing trails in the urban centres include the Conestogo River Trail, the West Luther Trail and the Historic Walking Tour in Arthur, and the Saugeen Trail in Mount Forest;

- Proposed off-road trail routes identified in the County ATP are shown along the former rail corridors in Arthur and Mount Forest, and extending west of Highway 6 along the south side of the Saugeen River in Mount Forest, with additional smaller trail loops also proposed;

- On-road routes are shown along several County and local roads to create a connected and integrated trail system and to link with planned trails outside of the communities to destinations beyond;

- Existing trails and cycling routes in the Township are primarily recreational in nature and appears to serve limited active transportation functions;

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[4] Statistics Canada, 2016 Census.

- Sidewalks, where provided, are generally on one side of local streets in both urban centres;
- Safe access to schools could be improved by adding more sidewalks.

Recommendation #7: Transportation Strategy

1. Develop a County-level and locally-integrated, comprehensive *Transportation Master Plan* to:
    - Review the future feasibility of local and regional transit services and potential partnership models and working with health service providers;
    - Identify growth-related transportation improvements and funding sources including opportunities for active transportation (e.g. bicycle lanes, multi-use trails and pedestrian pathways);
    - Establish a "complete streets" policy and guidelines, and identify potential locations to improve existing and develop new public streets that provide safe and comfortable access for pedestrians, cyclists, transit users and the mobility-impaired, for all ages, abilities and modes of travel, appropriate to the specific location;
    - Review potential future truck traffic by-pass options for Arthur and Mount Forest (e.g. Wells Street in Arthur, Sideroad 3 in Mount Forest);
    - Develop a parking plan for the Arthur and Mount Forest downtown areas to support future intensification of these areas;
    - Consider the current and future role and opportunity for ride-sharing programs and other transportation services (e.g. rural uber).
2. Continue to plan for and implement on-road and trails-related pedestrian and cycling infrastructure to support well-connected, safe, convenient active transportation choices, including implementation of the *County ATP*, and to maximize safe access to schools.
3. Continue to work with local, inter-municipal and regional providers of public or privately-operated transit services to support seniors' mobility and other high needs groups.

4. For new commercial development and other facilities and services that are accessible to the public, address the access and parking needs of horse-drawn vehicles, where required.

3.5 Infrastructure Strategy

Accommodating the future growth forecasts for Wellington North and achieving related targets will require continued planning for and investment in related infrastructure, including municipal water and municipal wastewater services in Arthur and Mount Forest, storm sewers and stormwater management facilities, and utilities including hydro, gas and telecommunications services.

Provincial plans and policies and the *County Plan* direct that the majority of growth and development be located where it can be serviced by existing or planned municipal water and wastewater systems. Through planning for intensification and greenfield development in serviced urban areas, development that optimizes the efficient use of this infrastructure should be prioritized and balanced with the construction of new infrastructure. Future infrastructure planning is required to be undertaken on a watershed- and asset management basis, through servicing master plans and environmental assessments, and low-impact development standards should be used, with the goal of securing long-term sustainability and creating resiliency to climate change and other impacts.

The Township provides full municipal water and wastewater services in Arthur and Mount Forest, and portions of these communities are also serviced by storm sewers and stormwater management facilities. The preferred or required method of servicing should continue to be municipal water and wastewater services in these communities, while privately serviced development in the hamlets and rural areas will be more limited.

Infrastructure planning through updates to existing servicing master plans and through new studies, initiatives and projects will be a significant component of the Township's growth planning. The following points summarize key information from the *Background Report* that provides context for aligning infrastructure, growth management and land use planning through the development of an overall Infrastructure Strategy:

Municipal Water and Wastewater Services

- The *County Plan* directs that the Township has the responsibility for ensuring there is adequate municipal water and sewage service capacity to provide for residential and economic development in Wellington North;

- The *County Plan* does not permit development on individual on-site servicing in urban centres which have municipal services, except to provide continued use of developed lots on individual sites, to allow small scale use on an existing lot where servicing is not reasonably anticipated, and to recognize previous development approvals where on-site services are appropriate. In hamlet and rural areas, the norm is expected to remain as individual on-site services.

- Mapping provided in the *Background Report* illustrates the locations of existing watermains, sanitary sewers, wastewater treatment facilities, and storm sewers, as well as existing environmental features and hazard lands in Arthur and Mount Forest;

- The *Arthur Master Servicing Plan (2012)* provides information and direction regarding the water and wastewater servicing systems in Arthur:

    - The existing water system in Arthur is considered sufficient to meet water supply needs for residential and non-residential growth to the year 2031, and additional capacity may be needed for longer-term growth;

    - Monitor water usage and secure additional water supply capacity as a contingency if any of the existing supply wells were compromised and for future growth needs;

    - The existing water towers have adequate capacity to address fire flow requirements for the immediate future, and additional storage capacity should be constructed prior to 2031 and consider the potential retirement of existing towers as well as an extended operating range into the northerly future development lands, as well as location alternatives;

    - Sufficient fire flow is provided throughout the watermain distribution network;

    - Replace older cast iron watermains, loop dead-end mains and extend trunk mains;

    - The existing Water Pollution Control Plan (WPCP) in Arthur requires upgrades to provide the required capacity for additional growth;

    - An upgrade and expansion to the Frederick Street SPS is also required;

    - The existing sanitary sewer collection system generally has sufficient available capacity for accommodating the 2031;

    - Upgrades and extensions are required for some existing sewers that may approach sewer capacity with future development;

    - Undertake flow monitoring and inspections to confirm design flows and identify inflow and infiltration (I/I) into the system;

- SPS capacities are identified as adequate to address future requirements; however, it was noted that 3 bypasses of the Frederick Street SPS occurred between 2006 and 2009, prior to some improvements made in 2010, and that this situation should continue to be monitored and any further bypasses documented;

- The *Mount Forest Master Servicing Plan Update (2011)* provides information and direction regarding the water and wastewater servicing systems in Mount Forest:

  - The existing water system is supplied by four municipal wells and distributed via a watermain distribution network pressurized by an elevated storage facility and booster pumping station;

  - Some areas of the community are not serviced by the municipal water system, and some areas are not serviced by municipal sanitary sewers;

  - The firm capacity of the existing wells was determined to be sufficient for future growth needs for approximatley 23 years (to the year 2034), and beyond if the actual capacities of the wells is increased to the rated capacities;

  - An additional well supply is identified as a longer-term requirement;

  - A need for additional water storage and conveyance capacity was identified for fire protection requirements and future growth capacity needs, including construction of a second storage structure as an elevated tank and related watermains to service the north area, as well as investigations of replacing existing undersized watermains (and cast iron watermains over the long-term), looping the system and eliminating dead ends in the distribution network;

  - Sanitary servicing in Mount Forest is provided by a piped collection network of gravity sewers and forcemains with four sewage pumping stations and a treatment plant which discharges to the South Saugeen River;

  - The system services existing residential and Industrial, Commercial and Institutional (ICI) lands in Mount Forest;

  - There is adequate capacity in the existing gravity trunk sewers to accommodate 50 years of growth-related sanitary flows;

  - A new SPS will be required to service lands in the north possibly including the adjoining lands in West Grey, and a new SPS will also be required to service lands south of the South Saugeen River;

  - It may be necessary to increase the size of sewers from Industrial Drive to the Durham Street SPS;

- Two alternate sewer routes are identified for servicing future development along the London Road corridor;

Stormwater Management

- Parts of Arthur and Mount Forest are serviced by existing municipal storm sewers and stormwater management facilities;
- Grading, drainage and stormwater management requirements are generally determined through the development review and engineering design process;
- An overall Stormwater Management Master Plan and/or community-based master plans should be considered;

Utilities

- Hydro services in Arthur and Mount Forest are provided by Wellington North Power, and Hydro One is the service provider for the rural areas;
- Energy-related recommendations are provided in the Township's *Energy Conservation and Demand Management Plan (2014)*. The availability and capacity of energy generation and electricity supply and distribution, conservation and efficiency will continue to be important factors in relation to servicing future growth and working towards setting and contributing to meeting targets for reducing greenhouse gas emissions as required by the Province;
- Natural gas services are available in both Arthur and Mount Forest and are supplied by Union Gas;
- There are several telecommunications providers that offer telephone and internet services within the Township including high-speed connections;
- Technological infrastructure could be updated to attract more people and provide better services to current residents (e.g. fiberoptics in Arthur);
- Planning for the provision and enhancement of the full range of utility and service needs of current and future residents and the business community and coordination with service providers will continue to be an important part of the planning and land development process.

Servicing Costs

- The Township's *2013 Development Charges (DC) Study* identifies the following capital costs for the recommended infrastructure investments from the servicing master plans

(note: the cost figures reflect estimates prepared at the date of the studies and should be indexed / updated accordingly at the time of budgeting / capital planning):

- A new water tower for Arthur in 2025 at a total estimated gross capital cost of $1,731,000;
- Watermains/improvements in Arthur along Wells Street (Domville Street to Eliza Street) in 2020 at an estimated capital cost of $676,000 and along McCauley Street (Wells Street to Eliza Street) in 2025 at an estimated cost of $510,000;
- Re-rating of the Arthur WPCP, including lagoon expansion, at an estimated capital cost of $9,676,000;
    - An Environmental Assessment (EA) has since been completed for a phased re-rating of the plant, with estimated capital costs of $4.8 million for Phase 1 and a range of $8.1 million to $13.2 million for Phase 2[5];
- For the Mount Forest, the *DC Study* identifies the estimated capital costs for sanitary pumping station and forcemain improvements or expansions including:
    - The Murphy Lands/Bristol Street/Bentley Street SPS in 2016 for $555,700, the Coral Lea Drive SPS and forcemain in 2018 for $1,441,000
    - The trunk sanitary sewerage forecemain / SPS (Queen Street West) for $462,000 in 2023;
    - Cost estimates for new sanitary sewers along London Road and Birmingham Street and/or Sligo Road (two alternatives) are provided in the 2011 Servicing Master Plan Update and included in the DC Study capital forecast as $467,000 for Sligo Road (Church Street to London Road), $692,000 for London Road (Sligo Road to Wellington Street), and $375,000 for Birmingham Street (London Road westerly);
- The *DC Study* identifies a total gross capital cost of $2,387,500 for Mount Forest water distribution improvements and extensions from 2017 to 2012 and $1,950,000 for a new elevated water storage tank;
    - Cost estimates for these works are also identified in the 2011 report and include $555,000 to correct existing water distribution system problems, and $2,955,000 for water storage and related watermain upgrades and extensions;

[5] XCG Consultants Inc., Arthur Wastewater Treatment Plan Class Environmental Assessment Environmental Study Report, 2016.

Recommendation #8: Infrastructure Strategy

1. Update the *Master Servicing Plans* for Arthur (2012) and Mount Forest (2011), the Township's Asset Management Plan (2013) and Development Charges Background Study (2013), to:
   - Align with the growth forecasts, targets and directions of the *Community Growth Plan;*
   - In conjunction with the timing of the *County MCR*, address Provincial *Growth Plan* policy direction for watershed- and asset-management based infrastructure planning, long-term sustainability and building resiliency to climate change impacts; *MCR
   - Provide direction to optimize the efficient use of existing infrastructure, including strategies for Inflow and Infiltration (I & I) reductions and water conservation measures;
   - Integrate *Low Impact Development (LID)* and green infrastructure with planning policies, servicing plans, and development standards;
   - Define growth-related infrastructure costs and funding sources / cost recovery from future development.
2. Adopt a phasing / staging of development plan and servicing allocation policies to direct the orderly development of land in Arthur and Mount Forest aligned with infrastructure capacities and planned investments. A preliminary draft staging plan is appended to this report.
3. Continue to plan for the implementation of the Phase 1 and 2 Wastewater Treatment Plant Improvements in Arthur and cost recovery of the growth-related share of these investments through Development Charges.
4. Work with the conservation authorities to develop watershed / sub-watershed plans as a basis for Township-wide and community-based *Stormwater Management Master Plans* and infrastructure planning, pursuant to the *Growth Plan*, the *County Plan* and *Source Protection Plans*, and incorporate the cost of future facilities that are not local services as part of the capital forecasts and Development Charges.

5. Develop a local or County-level and locally-integrated *Community Energy Plan*, building on the Township's *Energy Conservation and Demand Management Plan (2014)* and addressing the *Growth Plan* direction to build resilience, reduce greenhouse gas emissions, and contribute towards the achievement of low-carbon communities.

3.6 Community Facilities and Services Strategy

Along with growth and development, community facilities and services in the Township will continue to be focused within Arthur and Mount Forest. As summarized in the *Background Report*, both communities currently offer a range of facilities and services, including:

- Child care and school facilities, including public and catholic elementary schools, and a secondary school in Mount Forest;
- Libraries;
- Seniors housing and assisted living facilities;
- Health care facilities including a hospital and a health clinic in Mount Forest and a medical centre in Arthur, and dental facilities and other health services in both communities;
- Emergency services including EMS provide by Guelph-Wellington Emergency Medical Service, police services provided by the OPP with a detachment in Mount Forest, and Wellington North Fire Services with a fire station in each community;
- A range of recreation facilities including the Arthur & Area Community Centre and Mount Forest & District Sports Complex, parks, trails, curling clubs and outdoor pools in both urban centres; and,
- Service clubs, youth and seniors organizations and places of worship.

Several key community strengths and assets were identified through the *Community Growth Plan* consultations, which highlighted the importance of community facilities and services and related attributes, including:

- Hospitals/Health Care services
- New Schools
- Small town family friendly community/ sense of community
- Fiber optic connectivity, availability of Hydro
- Strong Community/Volunteers
- Strong presence of parks and recreation facilities in Mount Forest and Arthur

- Many natural amenities and features that are unique to the area
- Quality of Life
- Mennonite community shops locally.

Identified areas for improvement and potential future opportunities related to community services include:

- New commercial/retail options, areas for new retail sectors
- Hotel accommodations to support larger events held at the community centre
- Schooling options, satellite locations for post-secondary education and/or connection of agricultural and related services and employment opportunities
- Using existing built heritage as a resource
- On farm business / other agricultural centric support
- Bus routes from Guelph Transit, transit between communities
- Increased co-op programs to showcase jobs available locally
- Attract spin off jobs through the industrial and agricultural sectors
- Educate local youth about local employment opportunities
- Promote and enhance year-round recreation opportunities
- Need for additional childcare services to meet the needs of young families moving into the community
- More doctors are needed as well as home care for seniors and mental health services throughout the Township.

Planning for the continued provision of these facilities and services and addressing the needs of future growth are integral to establishing the urban centres, and the Township as a whole, as complete communities. Continued population and employment growth in the Township will increase demands for a range of community facilities and services, and also provides opportunities for diversified, new or improved facilities and services contributing to complete community development. The aging demographic trend is also expected to influence future facility and service needs.

The key priorities identified in the Township's *Strategic Plan* include a completing a *Recreation Master Plan* and conducting a Township-wide *Community Service Review*. In 2017, the Township initiated the preparation of a *Recreation Master Plan*. This will be an important strategy to guide the Township's investments, initiatives and community engagement to meet current and future community recreation needs. The recommendations of the *Recreation Master Plan* should be considered through the Township's next *Development Charges Study* and By-law to recover the growth-related capital costs of capital projects and improvement that will contribute to meeting the needs of future growth, to the extent permitted by the Development Charges Act.

Future community facility and service needs should continue to be determined and further recommended through the Township's other related initiatives and in consultation with community partners and service providers, such as the School Boards, Health Service Providers, Conservation Authorities, emergency services, housing providers, the County, surrounding municipalities, and other levels of government.

Recommendation #9: Community Facilities & Services Strategy

1. Complete the development, and plan for the implementation of, the *Wellington North Recreation Master Plan* to define service levels for parks and recreation facilities, future community needs, and investment priorities. Capital costs for future parks and recreation projects that will contribute to meeting the needs of future growth should be identified in the *Development Charges Study* to recover growth-related costs to the extent permitted by the legislation.
2. Continue to work with the School Boards to:
   - Provide growth-related forecasts and information regarding land development plans and proposals to monitor and evaluate future school accommodation needs, including expansion opportunities within existing school sites;
   - Integrate planning for parks, recreation facilities and schools, and coordinate community access to and use of school facilities;
   - Maximize safe access to schools and transportation efficiency;
3. Conduct a Township-wide *Community Service Review* and continue to plan for and work with service providers for health care, emergency services, housing, employment, childcare, youth, seniors, education, recreation, libraries and related organizations and volunteer groups to support the integrated planning for community facilities and services, including growth-related capacity needs and to support complete community development.

3.7 Environment & Heritage Conservation Strategy

The natural and cultural heritage of Wellington North are defining features of the area that are valued by residents and visitors. Long-term conservation of natural and cultural heritage resources will continue to be an important part of planning for community well-being and

character, environmental sustainability, small town feel, maintaining connections with nature and the past, as well as tourism opportunities

To conserve natural features and areas and their ecological functions, and to establish requirements to minimize and mitigate negative impacts of development, a Natural Heritage System (NHS) has been designated in the *County Plan* as Core Greenlands and Greenlands, with related policies to protect environmental features and areas such as wetlands, woodlands, valleylands, water resources and habitats.

The Township is at the headwaters and drainage divide of three watersheds: the Saugeen Valley Watershed in the north, the Grand River Watershed in the south-east, and the Maitland Valley Watershed in the west. The Luther Marsh, a large provincially significant wetland complex, is located in the easterly part of the Township and is conserved as a Wildlife Management Area by the Grand River Conservation Authority.

In the urban centres, the Conestogo River flows through the south part of Arthur and the South Saugeen River through the south part of Mount Forest. The health of these river systems is fundamental to servicing future growth and assimilating the wastewater generated from urban development, receiving stormwater runoff, and also provide important natural corridors and recreational amenities.

The *Growth Plan* directs to municipalities to integrate climate change considerations into planning and managing growth, towards the goal of developing more resilient communities and infrastructure that are adaptive to the impacts of a changing climate and moving towards low-carbon communities, with the long-term goal of net-zero communities, by incorporating approaches to reduce greenhouse gas emissions.

Cultural heritage resources should also be conserved with new development to maintain and enhance community identity and character, tourism opportunities, and to recognize historically significant buildings, structures, landscapes and events. Through the *Community Growth Plan* consultations, it was also noted that there may be an opportunity for rebranding of the community to attract a broader demographic to the area.

Recommendation #10: Environment & Heritage Conservation Strategy

1. Further develop and refine the proposed *Natural Heritage System for the Greater Golden* Horseshoe as it applies to the County and Wellington North, including linkages in the urban areas with a focus on sustaining and improving the health of the river systems, through the *County Natural Heritage Study*. *MCR
2. Integrate climate change considerations and a watershed-based planning approach with infrastructure planning (see also Recommendation #8).
3. Develop urban forest policies and identify and adopt best practices and municipal by-laws and other tools and programs such as the *Wellington County Green Legacy Program* to preserve, and where possible expand, tree canopy cover in the urban areas and across the Township.
4. Amend the Township's *Zoning By-law* to implement the requirements of the applicable *Source Protection Plans* to protect municipal drinking water sources.
5. Continue to require land use compatibility and avoidance/mitigation or risks associated with natural and human-made hazards (e.g. flooding, noise, odour, etc.).
6. Design guidelines for intensification and new development areas should address protection of heritage resources and integration of context-sensitive development.
7. Continue to work with the *Wellington North Cultural Roundtable* to implement, review, update and monitor the success of the *Municipal Cultural Plan.*
8. Continue to identify and protect cultural heritage resources and landscapes with new development and through local, inter-municipal and regional initiatives.
9. Continue to develop and support tourism and related marketing including cultural heritage, recreation/sport, outdoor-adventure, cycling, eco-tourism, and other opportunities, and regional integration with Guelph-Wellington tourism and RTO4.

Devemopment Stages
Arthur

Wellington North
Growth Management Study



- Built Boundary
- Stage 1
- Stage 2
- Stage 3
- Stage 4
- Urban Area Boundary
- Central Business District

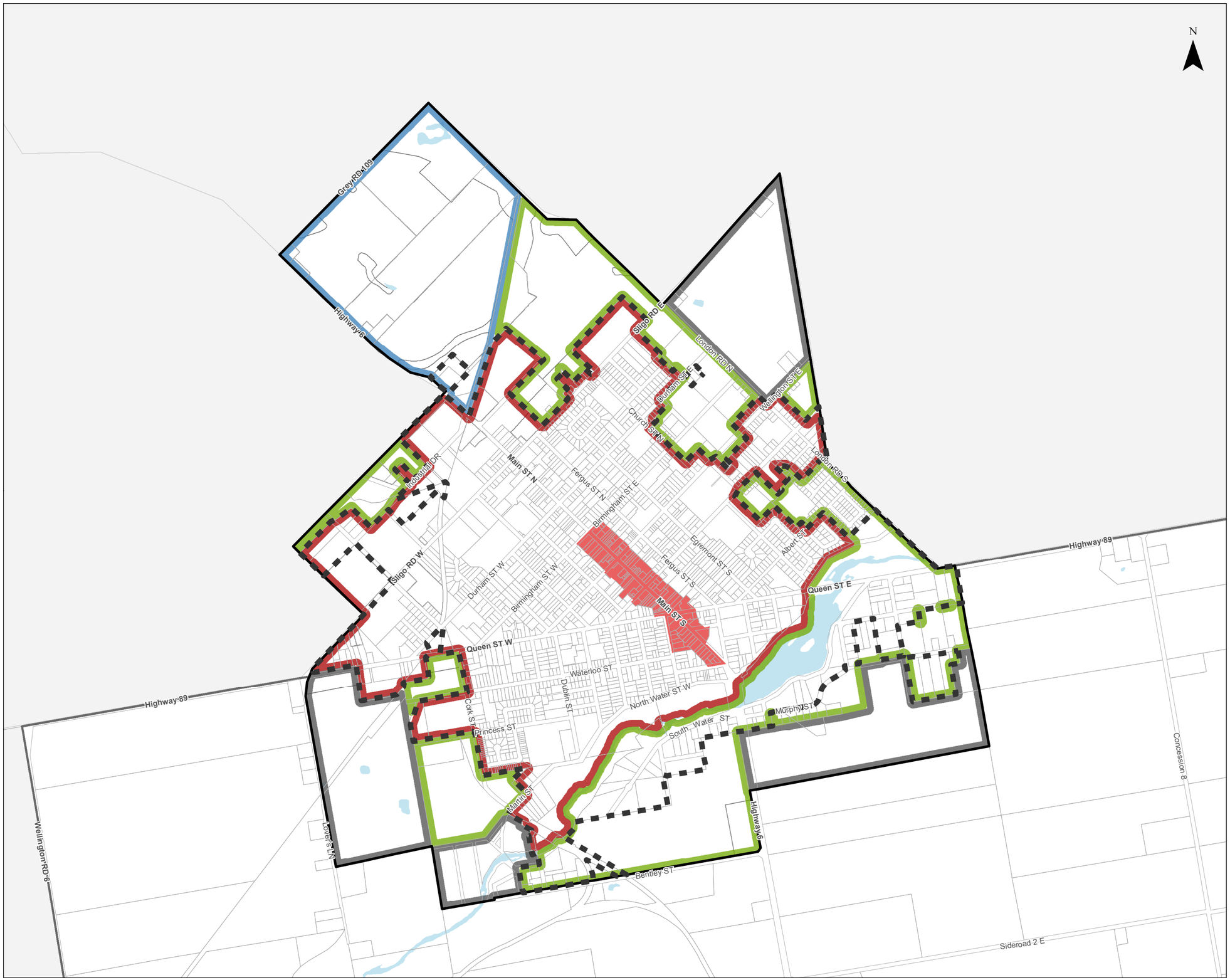
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GSP group

Devemopment Stages
Mount Forest

Wellington North
Growth Management Study

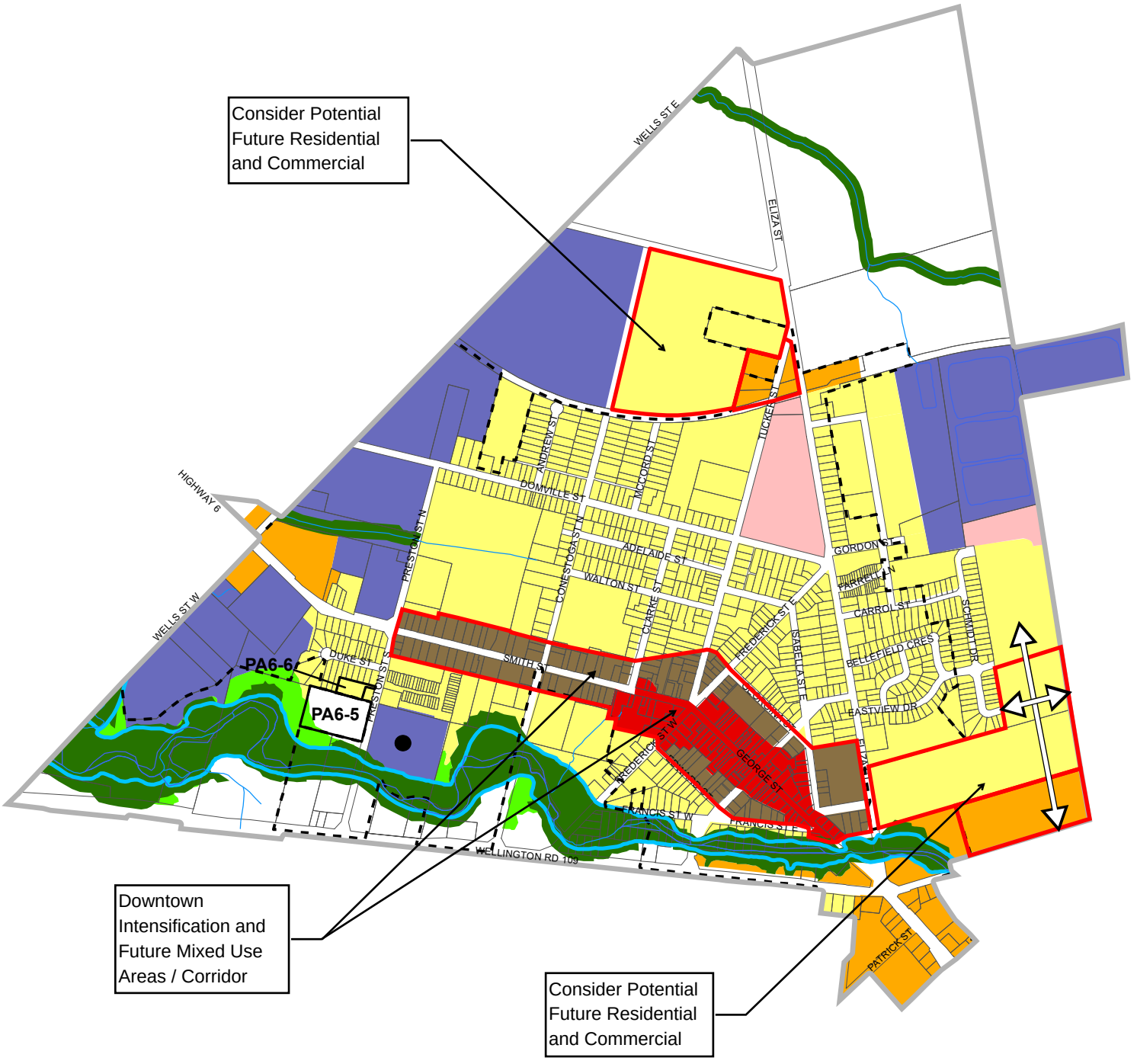


- Built Boundary
- Stage 1
- Stage 2
- Stage 3
- Stage 4
- Urban Area Boundary
- Central Business District

0 500 1,000 Meters

Map produced using information under licence with Wellington County (2017),

GSP group



Legend :

- Residential
- Commercial
- Industrial
- Central Business District
- Core Greenlands
- Greenlands
- Recreation
- Future Development
- Lakes, Rivers, Streams
- Regulatory Floodline
- PA — Policy Area
- Waste Water Facility
- Built Boundary

ARTHUR
Township of Wellington North

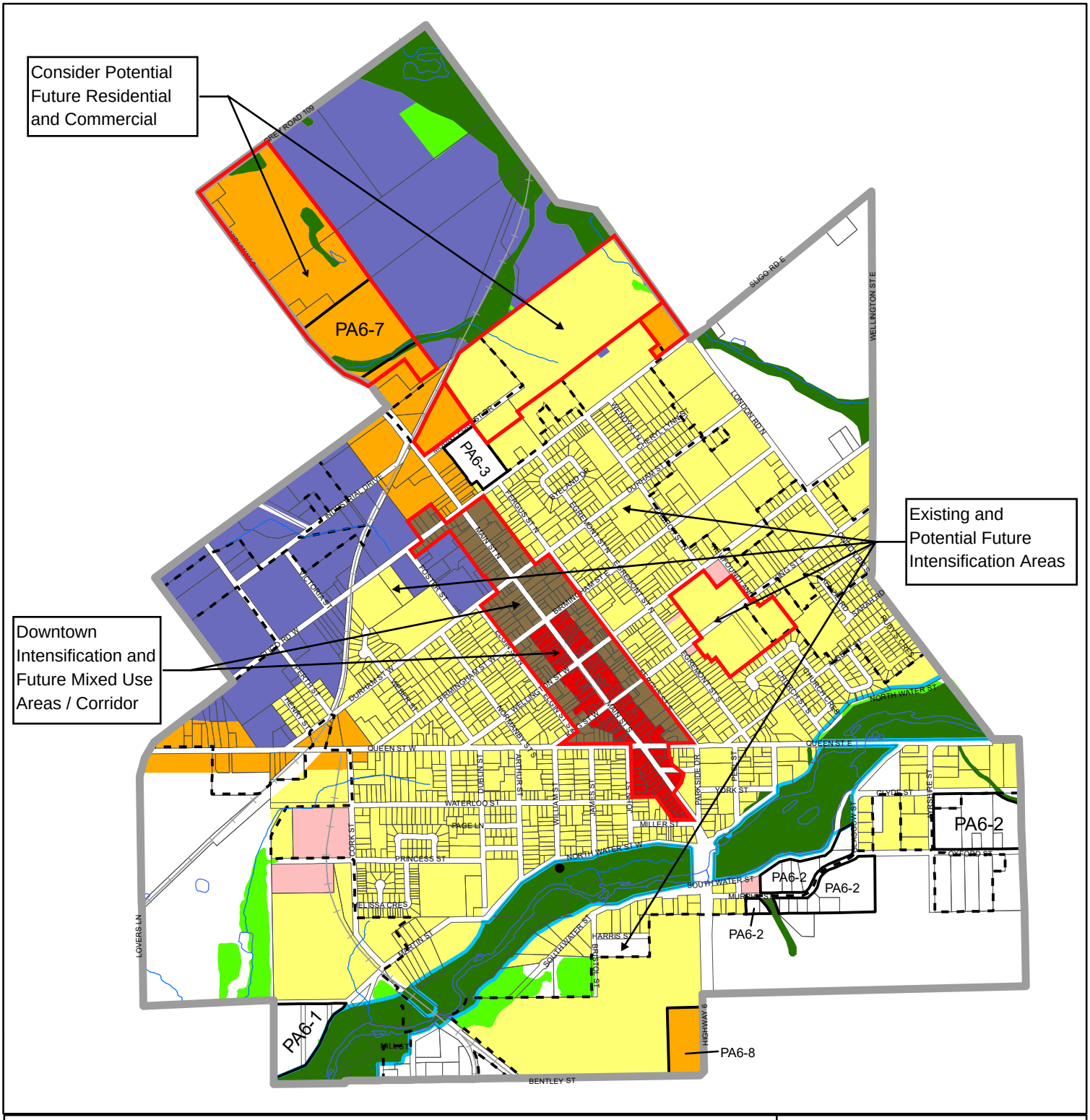
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Date Printed: March 3, 2016.

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Legend

- Residential
- Central Business District
- Commercial
- Industrial
- Recreational
- Residential Transition Area
- Core Greenlands
- Greenlands
- Regulatory Floodline
- PA — Policy Area
- Lakes, Rivers, Streams
- Railways
- Built Boundary
- Waste Water Facitlity
- Future Development

MOUNT FOREST

Township of Wellington North

Schedule A6-1

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Metres

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Updated: March 3, 2016.
Date Printed: March 3, 2016.

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Appendix B

Municipal Comprehensive Review (Watson & Associates Economists, Ltd, June 16, 2021 and as amended January 31, 2022)







Watson & Associates ECONOMISTS LTD.

PLANWELL

Phase 1 MCR Report: Urban Structure and Growth Allocations

County of Wellington

Final Report (as amended January 31, 2022)

Watson & Associates Economists Ltd.
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June 16, 2021







Watson & Associates ECONOMISTS LTD.

Phase 1 MCR Report: Urban Structure and Growth Allocations

County of Wellington

Addendum Report

Date: January 31, 2022

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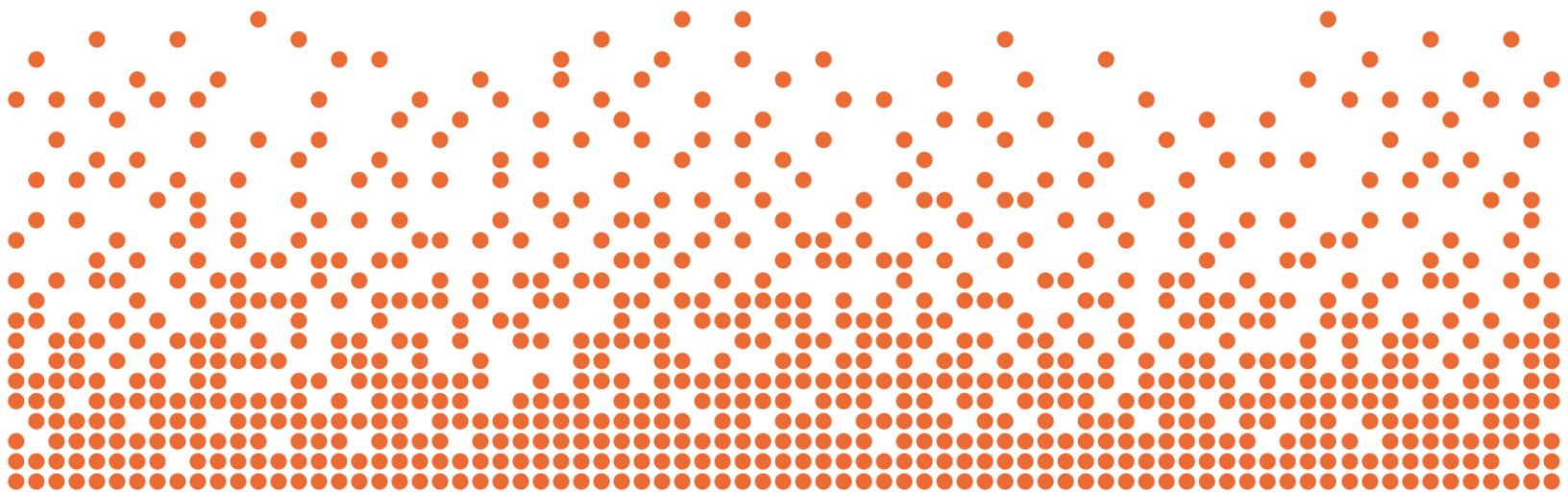
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Chapter 1
Introduction

1. Introduction

1.1 Overview of Changes to County of Wellington Municipal Comprehensive Review (M.C.R.) Phase 1 Urban Structure and Growth Allocations

In June 2021, the County released a draft report of the Wellington M.C.R. Phase 1: Urban Structure and Growth Allocations (dated June 16, 2021) for public comment. The key findings of the M.C.R. Phase 1 Report were also presented as part of a virtual Public Information Centre (P.I.C.) held on June 23, 2021. Based on our review of the comments received, in collaboration with County of Wellington staff, report modifications to the M.C.R. Phase 1 technical analysis were made by Watson & Associates Economists Ltd. (Watson). In addition, the population and employment growth allocations were reviewed based on the initial draft findings of the Wellington County M.C.R. Municipal Servicing Analysis Study (water/wastewater servicing) currently underway by WSP.[1] The purpose of this Addendum Report is to summarize the updated technical analysis undertaken following the release of the draft report in June 2021. This addendum report includes an update of key figures and appendices provided in the previous Phase 1 draft report.

It is important to note that no changes were made to the County-wide population, housing and employment forecast to 2051. The County is forecast to reach a population of 160,000 and an employment base of 70,000 by 2051. The County-wide population and employment forecast is discussed in Chapter 3 of the Wellington M.C.R. Phase 1 Report. As discussed in that report, the long-term population and employment growth forecast for the County of Wellington, as set out in Schedule 3 of the Growth Plan, 2019, has been comprehensively evaluated. The review considered the context of historical growth trends, the broader growth outlook for the G.G.H., and the influence of regional growth drivers on the share of G.G.H. growth allocated to the County of Wellington.

[1] Technical Draft Memo: County of Wellington Municipal Comprehensive Review Municipal Servicing Analysis, prepared by WSP, October 14, 2021.

Based on a further review of potential growth options in the rural area of the County,[2] a reduction has been made to the population and housing growth within the Rural Area, with a greater allocation to the Urban Area. This adjustment impacts the rural and urban growth allocations for the Township of Mapleton and the Town of Minto. Overall, the urban population growth forecast at the County-wide level increased by 1,100 persons based on adjustments that were made to the rural and urban allocations to Mapleton and Minto.

Based on discussions with Township of Mapleton staff, a minor modification of approximately 200 employees was made to the growth allocation by Urban and Rural Area. The modification included a reduction in the employment growth allocated to the Rural Employment Areas and a corresponding increase in the growth allocation to the Urban Employment Areas. At a County-wide level, the modification is considered minimal with no change in the percentage of employment growth by Urban and Rural Area.

In the past, the Area Municipalities in the northern portion[3] of the County have represented a smaller share of the County's population growth. The coronavirus disease (COVID-19) pandemic has accelerated labour force and housing demand relative to trends observed over the past decade, driven by the rise of telework and the associated outward growth pressures to the Outer Ring of the Greater Golden Horseshoe (G.G.H.) region. Based on comments relating to this trend, Watson reviewed the population and housing growth allocation to the Area Municipalities in the northern portion of the County. This review considered the growth allocations to the Urban Centres, including the annual population and housing growth to 2051. Water and wastewater servicing potential, as well as known servicing constraints to the County's Urban Centres were also reviewed based on the draft findings of the Wellington County M.C.R. Municipal Servicing Analysis Study. The Municipal Servicing Analysis Study identifies the approximate wastewater servicing capacity remaining by Urban Centre and notes limitations with respect to wastewater servicing capacity in Wellington North, specifically within Arthur due to assimilative capacity.

Based on a further review of demand and servicing factors, Watson has increased the 2051 population allocation to the Township of Mapleton by 5% (approximately 700) to

[2] Based on discussions and analysis prepared by the County of Wellington.
[3] Includes Mapleton, Minto, and Wellington North.

accommodate further growth within the Drayton and Moorefield Urban Centres. As a result of this change, the Township of Mapleton's annual population growth rate over the forecast horizon has been increased from 0.8% to 1.0% and provides a growth rate more closer to other Area Municipalities in the northern area of the County (as a comparison, annual growth population rates to 2051 of Minto and Wellington North are at 1.5%).

Watson reduced the population allocation of the Township of Centre Wellington by approximately 1%, modestly impacting the forecast growth to the Fergus Urban Centre (approximately 700).

This Addendum Report includes the following components:

- Updated housing, population and employment growth forecast allocations to the Rural and Urban Areas, as well as by Area Municipality; and
- Updated detailed growth forecasting appendices.

Chapter 2
Growth Allocations

2. Population and Housing Growth Allocations – Urban and Rural Systems

This section of the Addendum updates pages 4-3 to 4-26 in Chapter 4 of the Wellington M.C.R. Phase 1: Urban Structure and Growth Allocations. Key changes are summarized below:

- Population and Housing Growth Allocations by Area Municipality, 2016 to 2051:
  - Township of Centre Wellington; and
  - Township of Mapleton.
- Population and Housing Growth Allocations by Urban Centre and Remaining Rural Area, 2016 to 2051
  - Township of Centre Wellington (Fergus and Elora Urban Centres);
  - Township of Mapleton (Rural Area, Drayton Urban Centre and Moorefield Urban Centre); and
  - Town of Minto (Rural Area and Palmerston Urban Centre).

Updated forecasts by Area Municipality and Urban Centre are provided in Appendix A in this Addendum which replaces Appendix E in the M.C.R. Phase 1 Report.

2.1 Population and Housing Growth Allocations by Area Municipality, 2016 to 2051

Figures 1 through to 6 provide a summary of the population and housing forecast to 2051 by Area Municipality. Further details are provided in Appendix A. While population and employment growth rates vary significantly by geographic area, each of the Area Municipalities share a number of relatively common attributes with respect to long-term residential development and demographic trends, including:

- All Area Municipalities are expected to experience housing growth over the long-term forecast period;
- Average annual new housing construction is anticipated to increase from levels experienced over the past five years for all Urban Centres that are not constrained by the availability of urban land or water/wastewater servicing requirements;

- Future housing growth will be dominated by low-density housing forms; however, increasing market opportunities will exist for medium-density and high-density housing; and
- Average persons per unit (P.P.U.) levels are forecast to experience a slight decline over the forecast horizon. In addition to demographic trends, both the rate and type of Census families and Census non-families will have a significant influence on projected P.P.U. levels.

As identified above, various factors were considered in allocating population and housing growth by Urban Centre and remaining Rural Area. In addition to the above considerations, a number of assumptions were made with respect to the residential growth potential of each Urban Centre within the County, based on discussions with the County and the County of Wellington M.C.R. technical working group (Technical Resource Team).

Key observations regarding the revised housing and population growth allocations have been organized below by Area Municipality. As previously mentioned, further details with respect to the population and housing by Area Municipality are provided in Appendix A.

Centre Wellington

- As of 2021, 81% of the Centre Wellington population is located within the Municipality's Urban System, while 19% is located within the Rural System. Centre Wellington's population base compared to the other Area Municipalities is more oriented towards the County's Urban System.
- As summarized in Figures 1 and 2, Centre Wellington is anticipated to accommodate nearly half (44%) the County's population growth over the forecast horizon. This is consistent with population and housing trends observed over the past several decades.
- As summarized in Figure 3, Centre Wellington's population is anticipated to grow at an annual rate of 2.0% over the next 35 years (2016 to 2051), which is higher than the annual population growth rate experienced over the most recent 20-year Census period (2006 to 2016) of 1.3% annually.
- As summarized in Figure 4, Centre Wellington is anticipated to add 11,260 housing units over the 2016 to 2051 period, representing approximately 322 units

annually, which is almost double the annual housing units added over the 2006 and 2016 period (174 units per year).

- It is anticipated that Centre Wellington will accommodate a wide range of housing structure types compared to historical trends; however, the largest portion of housing growth is anticipated in low-density housing forms as summarized in the Phase 1 M.C.R. Report (page 4-12). This is consistent with upcoming development in the Township's active development pipeline (registered/unbuilt and proposed).
- The majority of future development in Centre Wellington is anticipated to be accommodated within the Fergus and Elora/Salem Urban Centres, as will be discussed later in this Chapter.

Erin

- As of 2021, 64% of the Town of Erin population is located within the Urban System, while 36% is located within the Rural System. As summarized in Figures 1 and 2, Erin is anticipated to accommodate nearly one-quarter (22%) of the County's population growth over the forecast horizon.
- Population growth within Erin is anticipated to be significantly higher than historical trends, given anticipated investments and expansions in municipal water and wastewater servicing in Erin Village and Hillsburgh. As summarized in Figure 3, Erin is anticipated to achieve a higher rate of population growth (2.3% annually) compared to other Area Municipalities. As a comparison, the annual population growth rate in Erin over the 2006 to 2016 period was approximately 0.8% annually.
- As summarized in Figure 4, Erin is anticipated to add 5,090 housing units over the 2016 to 2051 period or approximately 145 units annually, which is significantly higher than the housing units added over the 2006 to 2016 period of approximately 30 units annually.
- The majority of future urban development in the Town of Erin is anticipated to be accommodated within the Erin Village and Hillsburgh Urban Centres, as will be discussed later in this Chapter.

Guelph-Eramosa

- As of 2021, 38% of the Guelph-Eramosa population is located within the Township's Urban System, while 62% is located within the Rural System. As

summarized in Figures 1 and 2, Guelph-Eramosa is anticipated to accommodate a small share (2%) of the County's population growth over the forecast horizon.

- Post-2021, it is anticipated that growth within Guelph-Eramosa will slow due to limitations regarding municipal servicing within the Urban Centre of Rockwood.
- As a result of these limitations for future growth within the Urban Centre of Rockwood, the annual population growth rate of Guelph-Eramosa is anticipated to increase at a rate of 0.3%, which is lower than the growth rate observed over the most recent 20-year Census period of 1.1% annually.
- Due to growth constraints within the Urban Centre of Rockwood, a large portion of future development in Guelph-Eramosa is anticipated to occur outside Rockwood and in rural settlements.

Puslinch

- The existing (2021) population base of Puslinch is entirely accommodated within the Rural System with 10% of the population base concentrated within the two Secondary Urban Centres (Morriston and Aberfoyle). As discussed in the M.C.R. Phase 1 Report (Chapter 2), these Secondary Urban Centres serve as important community service hubs to the Township and County.
- As summarized in Figures 1 and 2, Puslinch is anticipated to accommodate a small share (4%) of the County's population growth over the forecast horizon since Puslinch lacks Primary Urban Centres which offer full municipal servicing (water/wastewater servicing).
- The annual population growth rate of Puslinch is anticipated to increase at an annual rate of 0.8%, which is lower than the growth rate observed over the most recent 20-year Census period of 1.5% annually.
- As summarized in Figure 4, it is anticipated that Puslinch will add 840 housing units over the 2016 to 2051 period, or 24 units annually over the forecast horizon, which is lower than the annual housing growth observed over the most recent 20-year Census period of 36 units annually.
- Given the limited opportunities within the Secondary Urban Centres of Aberfoyle and Morriston, a portion of the growth within Puslinch will be accommodated through severances in the Rural Area.

Wellington North

- As of 2021, 65% of the Wellington North population is located within the Township's Urban System, while 35% is located within the Rural System. As summarized in Figures 1 and 2, Wellington North is anticipated to accommodate 12% of the County's population growth over the forecast horizon.
- As summarized in Figure 3, the annual population growth rate of Wellington North is anticipated to increase at a rate of 1.5%, which is significantly higher than the growth rate observed over the most recent 20-year Census period of 0.3% annually.
- As summarized in Figure 4, it is anticipated that Wellington North will add 3,000 housing units (86 units annually) to its housing base over the forecast horizon, which is more than double the annual housing growth over the most recent 20-year Census period of 28 units annually.
- It is anticipated that the majority of future development within Wellington North will be accommodated in the Urban Centres of Arthur and Mount Forest, as will be discussed later in this Chapter.

Minto

- Minto's existing population base, as of 2021, comprises 66% of the population within the Urban System and 34% of the population in the Rural System.
- As summarized in Figures 1 and 2, Minto is anticipated to accommodate 9% of the County's population growth over the forecast horizon.
- The annual population growth rate in Minto is anticipated to increase at a rate of 1.5% which is significantly higher than the growth rate observed over the most recent 20-year Census period of 0.5% annually.
- As summarized in Figure 4, it is anticipated that Minto will add 2,210 housing units (63 units annually) over the forecast horizon, which is close to three times the annual amount of housing growth experienced over the most recent 20-year Census period (23 housing units annually).
- As discussed in Chapter 4 of the M.C.R. Phase 1 Report, Minto has experienced an increase in the share of County-wide residential building permit activity (new units only) over the past few years compared to previous periods.
- It is anticipated that the majority of the future urban development within Minto will be accommodated within the Urban Centre of Palmerston and to a lesser extent

the Urban Centres of Harriston and Clifford, as will be discussed later in this Chapter.

Mapleton

- As of 2021, 26% of the Mapleton population is located within the Township's Urban System, while 74% is located within the Rural System. Compared to the other Area Municipalities, Mapleton's existing population base is more oriented towards the Rural System.
- As summarized in Figures 1 and 2, Minto is anticipated to accommodate 7% of the County's population growth over the forecast horizon.
- Mapleton's annual population growth rate is anticipated to increase at annual population growth rate of 1% which is a comparable annual population growth rate observed over the most recent 20-year Census period.
- It is important to recognize that Mapleton has accommodated a large share (approximately 46%) of recent housing activity within the Rural Area over the 2006 to 2019 period.[4] Going forward, and consistent with provincial policy direction, the County is directing future growth to its Primary Urban Centres.
- As summarized in Figure 4, it is anticipated that Mapleton will add 1,700 housing unit over the forecast horizon, or 48 units annually, which is well above annual housing growth levels experienced over the most recent 20-year Census period (31 units annually).
- As discussed in Chapter 4 of the Phase 1 M.C.R. Report, Mapleton has maintained its share of County-wide residential building permit activity (new units only) over the past decade.
- It is anticipated that future urban development in Mapleton will be accommodated within the Urban Centre of Drayton and to a lesser extent the Urban Centre of Moorefield, as will be discussed later in this Chapter.

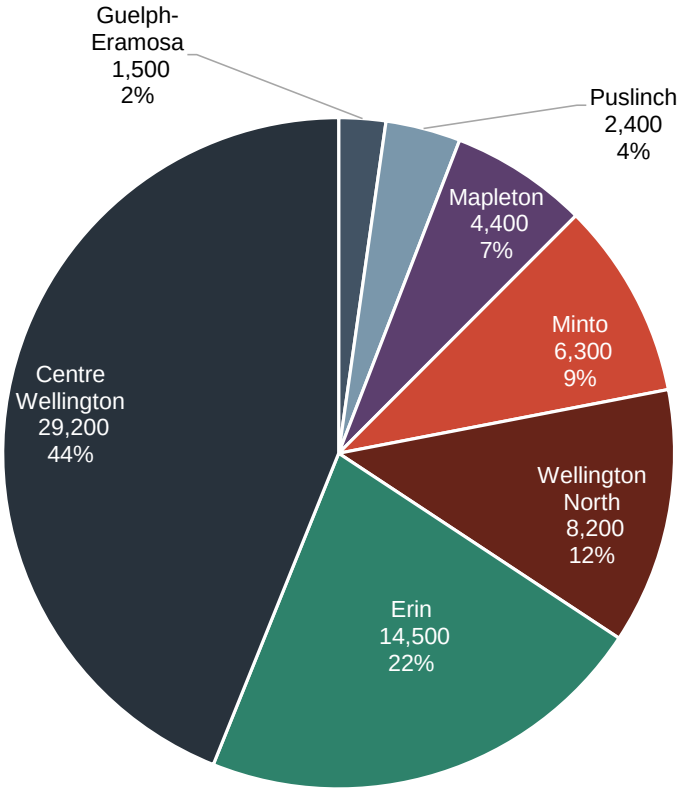
[4] As determined through recent residential building permit activity (new units only).

Figure 1
County of Wellington
Population Forecast by Area Municipality

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	29,000	11,800	13,200	10,800	8,900	12,300	7,600	93,600
2051	58,200	26,300	14,700	15,200	15,200	20,500	10,000	160,000
Population Growth								
2016 - 2051	29,200	14,500	1,500	4,400	6,300	8,200	2,400	66,400

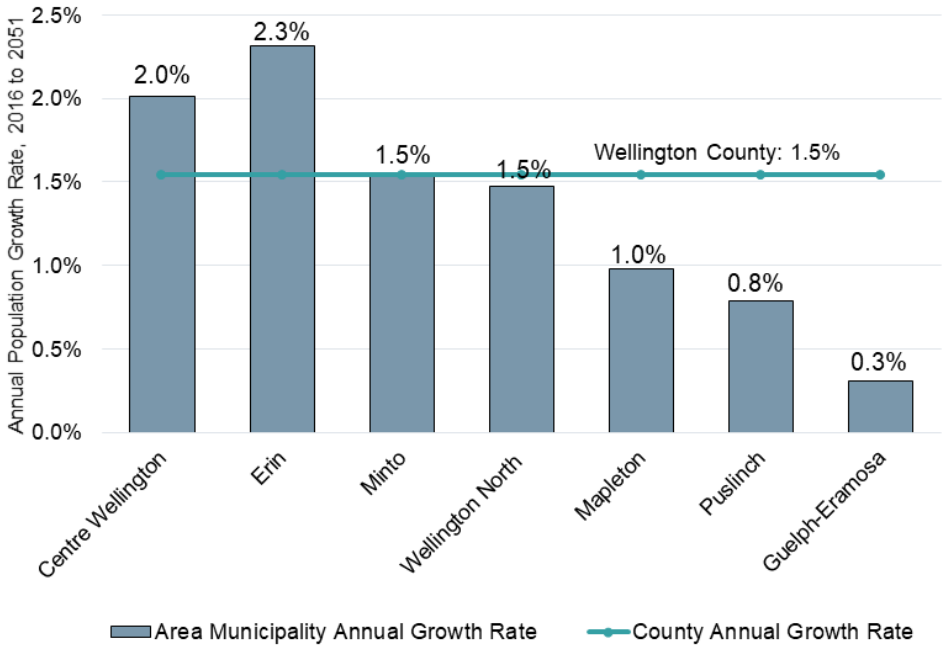
Note: May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure 2
County of Wellington
Population Growth Allocation, 2016 to 2051
by Area Municipality



Source: Watson & Associates Economists Ltd.

Figure 3
County of Wellington
Annual Population Growth Rate, 2016 to 2051
By Area Municipality



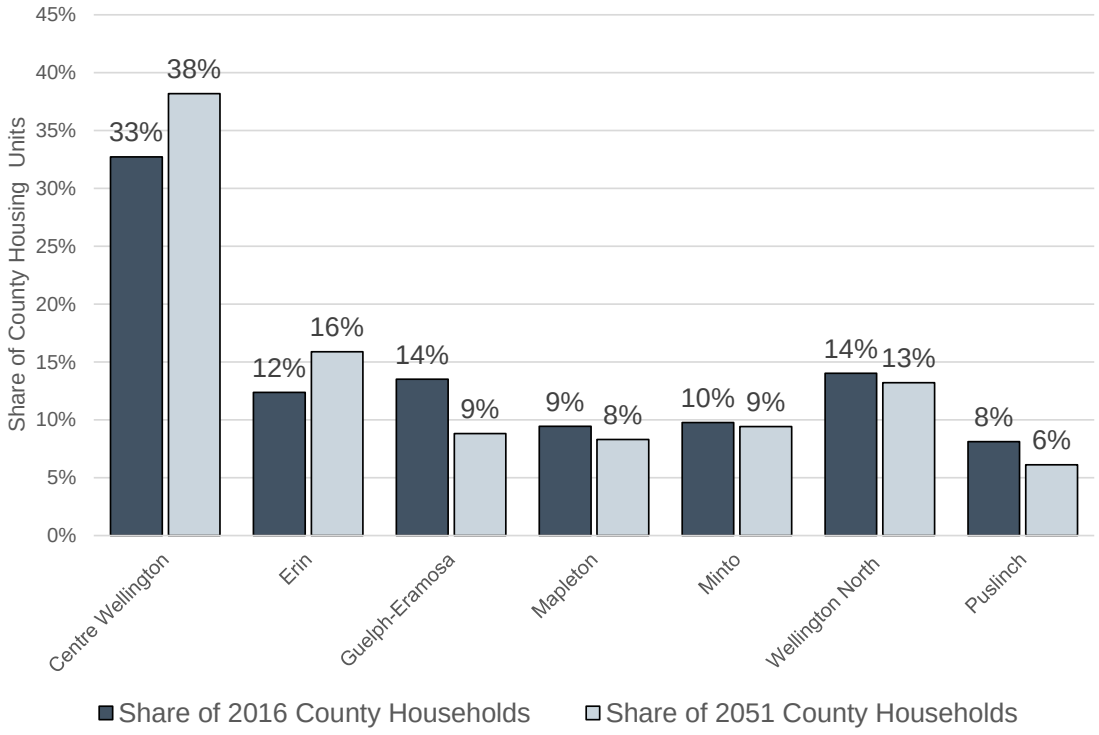
Source: Watson & Associates Economists Ltd.

Figure 4
County of Wellington
Housing Forecast by Area Municipality

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,870	4,110	4,490	3,140	3,250	4,660	2,700	33,220
2051	22,130	9,200	5,110	4,820	5,460	7,660	3,550	57,930
Housing Growth								
2016 - 2051	11,260	5,090	620	1,680	2,210	3,000	850	24,710

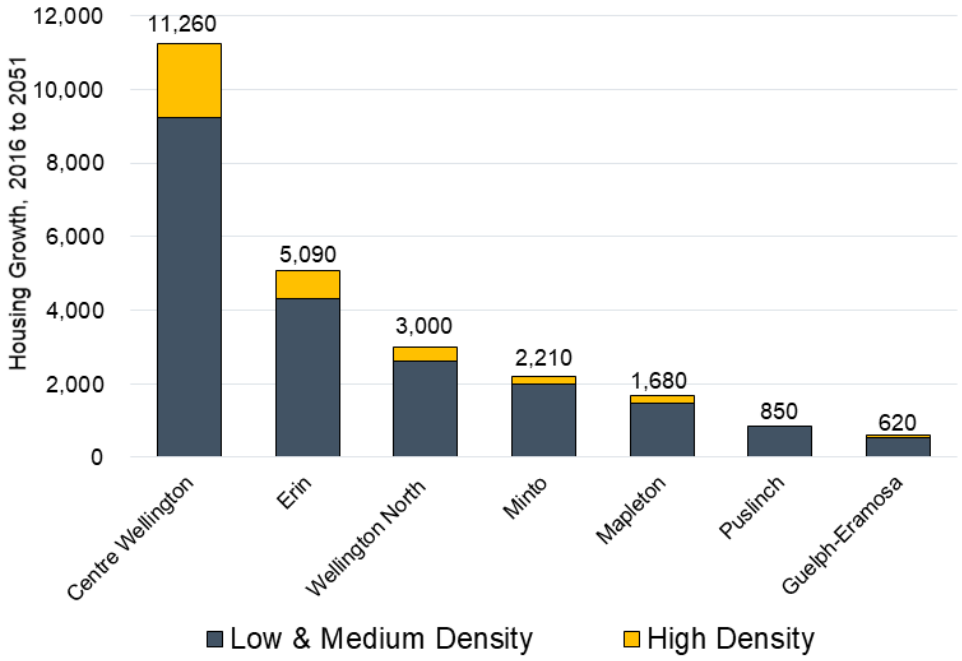
Note: Above figure includes "other" dwellings of approximately 540 units.
Source: Watson & Associates Economists Ltd.

Figure 5
County of Wellington
Share of County Housing Units in 2016 and 2051
By Area Municipality



Source: Watson & Associates Economists Ltd.

Figure 6
Wellington County
Housing Growth by Area Municipality, 2016 to 2051

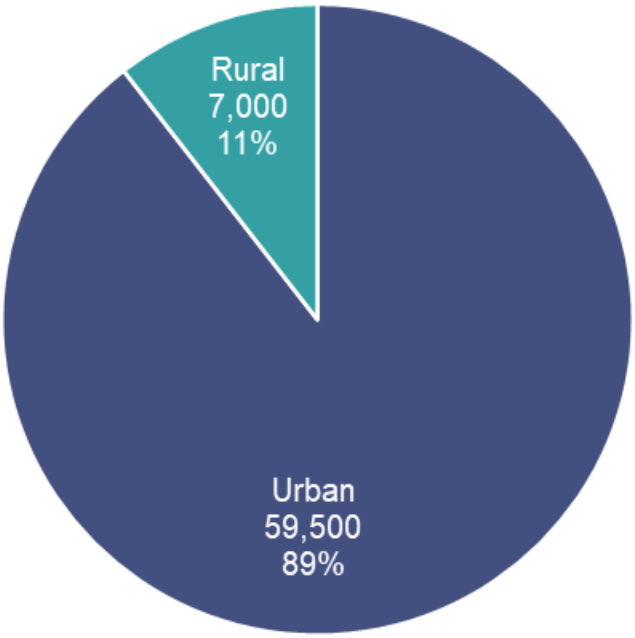


Source: Watson & Associates Economists Ltd.

2.2 Population and Housing Growth Allocations by Urban Centre and Remaining Rural Area, 2016 to 2051

As discussed in the County of Wellington M.C.R. Phase 1 Report, most of the County's population and housing growth is directed to Primary Urban Centres with full municipal servicing. As summarized in Figure 7, 89% of population growth is anticipated to be accommodated within the County's Urban System and 11% of population growth is to be accommodated within the County's Rural System. It is anticipated that the County will shift more towards a population increasingly concentrated within the Urban System, expanding the County's Urban System population base share of 51% in 2016 to 68% by 2051.

Figure 7
Wellington County
Population Growth by Urban and Rural Area,
2016 to 2051



Source: Watson & Associates Economists Ltd.

Urban Centre population and housing forecasts have been updated for each Primary and Secondary Urban Centre in the County. Details are provided in Appendix A. It is important to note that the growth forecasts by interim period (i.e., time periods between 2021 and 2051) are to be used as guidance for planning purposes at the local municipal level. Area Municipalities may choose to make further refinements by period (i.e., time periods between 2021 and 2051) to reflect changes in local conditions, phasing of growth and municipal servicing.

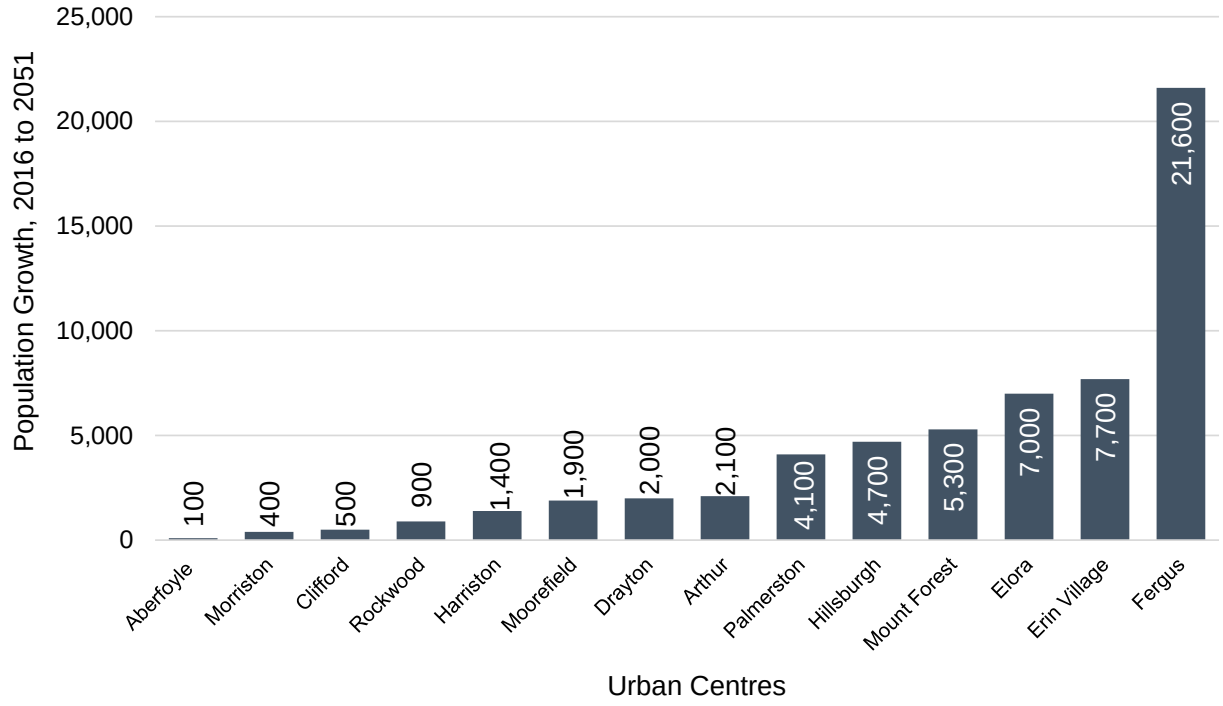
Figure 8 summarizes the population growth forecast of the Primary and Secondary Urban Centres over the 2016 and 2051 horizon, while Figure 9 provides the annual population growth rates by Primary and Secondary Urban Centre in the County. Key observations include the following:

- Fergus is anticipated to accommodate a population growth increment of 21,600 persons over the forecast period, or 617 persons annually. The population

growth of Fergus represents one-third of the County's population growth over the forecast horizon and an annual population growth rate of 2.6%.

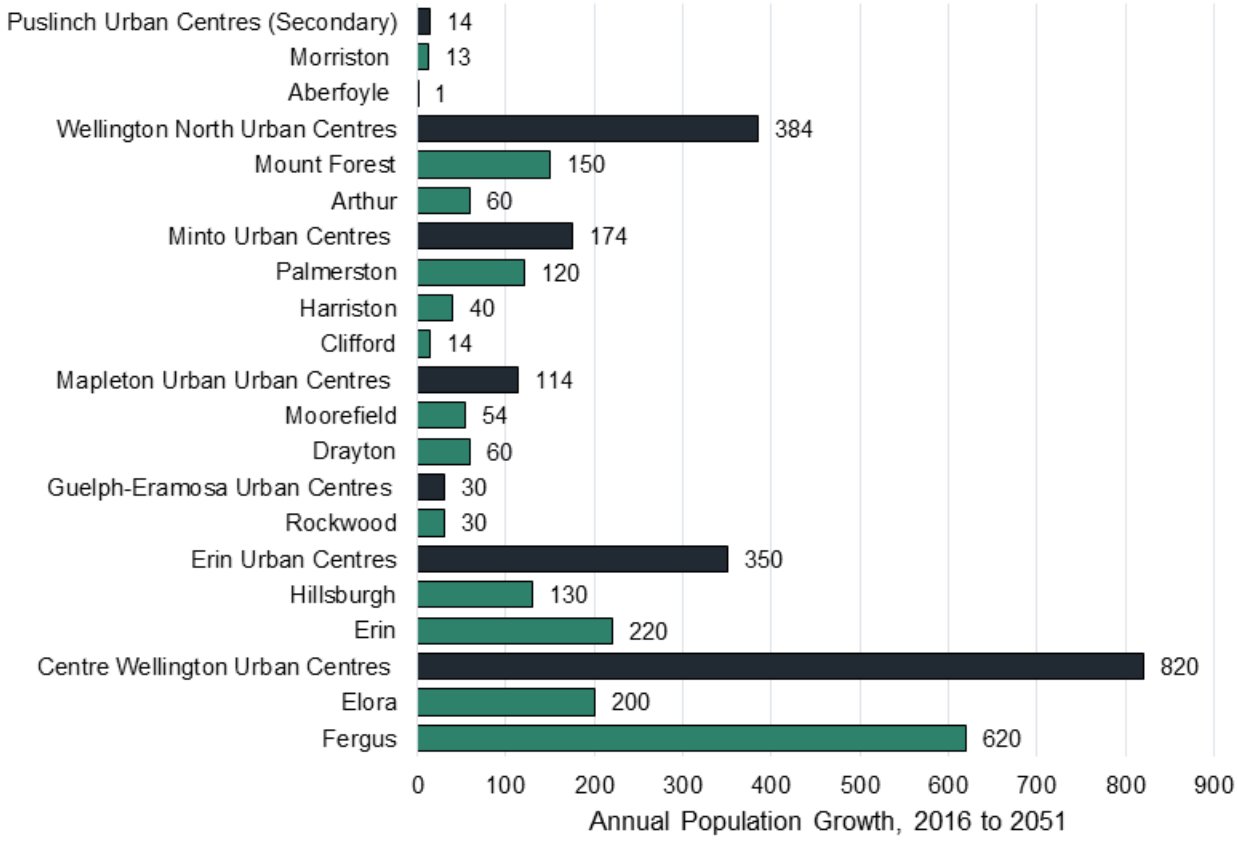
- Elora is anticipated to accommodate a population growth increment of 7,000 over the forecast period, or 200 persons annually. The annual population growth rate is forecast at 2.0%.
- Erin Village and Hillsburgh are anticipated to accommodate an additional 7,700 and 4,700 persons, respectively, over the forecast period. The annual population growth rates of Hillsburgh and Erin Village are the highest amongst the County's Primary Urban Centres at 4.3% and 3.7%, respectively.
- Mount Forest and Palmerston are anticipated to accommodate the largest share of population growth within the northern portion of the County, accommodating 150 and 117 persons, respectively, on an annual basis over the forecast period.
- The Urban Centres of Drayton, Moorefield, and Arthur are anticipated to each accommodate population growth of between 50 and 60 persons annually over the forecast horizon.
- Harriston is anticipated to accommodate population growth of 40 persons annually over the forecast horizon.
- The Urban Centres of Aberfoyle, Morriston, Clifford and Rockwood are anticipated to accommodate a modest share of the County's population growth relative to the other Urban Centres over the long-term planning horizon.

Figure 8
Wellington County
Population Growth by Urban Centre, 2016 to 2051



Source: Watson & Associates Economists Ltd.

Figure 9
Wellington County
Annual Population Growth by Urban Centre, 2016 to 2051



Source: Watson & Associates Economists Ltd.

2.3 Employment Growth Allocations

No changes were made to overall employment growth by Area Municipalities. A minor change (an adjustment of 200 employees) was made to the employment growth allocation within the Rural and Urban areas of the Township of Mapleton. The change involves a reduction in Rural Employment Area growth of 200 employees and a corresponding increase in Urban Employment Area growth of 200 employees over the 2051 forecast horizon. The change at the County-wide level is considered minor and has no impact on the percentages of employment growth allocation by Urban and Rural Systems. Appendix B includes updated employment growth allocation tables.

Appendices

Appendix A
Growth Allocations: Population Growth to 2051

APPENDIX A-1: POPULATION AND HOUSING FORECAST

A-1, Table 1
County of Wellington
Population and Housing Forecast
2016 to 2051

Year		Population (Including Census undercount)[1]	Housing Units					Persons Per Unit (P.P.U.) with undercount
			Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	
Historical	*Mid-2001*	84,600	23,915	1,150	2,260	420	27,745	3.05
	Mid-2006	88,500	25,795	1,075	2,570	575	30,015	2.95
	Mid-2011	89,100	26,200	1,230	2,565	965	30,960	2.88
	Mid-2016	93,500	28,275	1,385	3,000	535	33,195	2.82
Forecast	*Mid-2021*	100,800	30,223	1,884	3,417	535	36,059	2.80
	Mid-2026	111,300	33,092	2,381	3,876	535	39,884	2.79
	Mid-2031	122,000	36,047	2,893	4,349	535	43,824	2.78
	Mid-2036	132,200	38,616	3,554	4,789	535	47,494	2.78
	Mid-2041	142,000	40,897	4,256	5,316	535	51,004	2.78
	Mid-2046	151,100	42,982	5,021	5,941	535	54,479	2.77
	Mid-2051	160,000	44,877	5,847	6,665	535	57,924	2.76
Growth	**2001 - 2016**	8,900	4,360	235	740	115	5,450	
	2016 - 2041	48,500	12,622	2,871	2,316	0	17,809	
	2016 - 2051	66,500	16,602	4,462	3,665	0	24,729	
	Annual Growth, 2001 - 2016	0.7%	1.1%	1.2%	1.9%	1.6%	1.2%	
	Annual Growth, 2016 - 2041	1.7%	1.5%	4.6%	2.3%	0.0%	1.7%	
	Annual Growth, 2016 - 2051	1.5%	1.3%	4.2%	2.3%	0.0%	1.6%	

Source: Watson & Associates Economists Ltd., 2020.
Note: Figures may not add precisely due to rounding.
[1] Population undercount estimated at 3%.
[2] Includes all single and semi-detached homes as well as “other” detached homes as per Statistics Canada.
[3] Includes all townhouses and apartments in duplex.
[4] Includes all apartments with less than or greater than five storeys

A-1, Table 2a
County of Wellington
Population, Housing and Employment, 2016 to 2051

Area Municipality	Forecast Period	Total Population with Undercount[1]	Total Residential Units	Persons Per Units (PPU)	Total Urban Settlement Population	Total Urban Settlement Area Residential Units	Total Employment (including NPOW)	Employment Activity Rate[1]
Centre Wellington	2016	29,000	10,870	2.67	21,800	8,350	10,460	36.1%
	2021	34,100	12,810	2.66	26,900	10,270	12,280	36.0%
	2031	42,500	15,770	2.69	35,000	13,140	16,240	38.2%
	2041	52,300	19,360	2.70	44,700	16,650	21,280	40.7%
	2051	58,200	22,130	2.63	50,400	19,350	25,080	43.1%
	2016 - 2051	29,200	11,260		28,600	11,000	14,620	7%
Erin	2016	11,800	4,120	2.86	4,400	1,570	2,980	25.3%
	2021	12,000	4,230	2.84	4,500	1,610	3,140	26.2%
	2031	16,700	5,970	2.80	8,600	3,120	4,090	24.5%
	2041	20,200	7,280	2.77	11,500	4,250	5,290	26.2%
	2051	26,300	9,200	2.86	16,800	5,950	6,210	23.6%
	2016 - 2051	14,500	5,080		12,400	4,380	3,230	-2%
Guelph-Eramosa	2016	13,200	4,500	2.93	4,900	1,730	5,720	43.3%
	2021	13,600	4,650	2.92	5,200	1,880	5,990	44.0%
	2031	14,100	4,870	2.90	5,600	2,060	6,180	43.8%
	2041	14,600	5,020	2.91	5,900	2,160	6,330	43.4%
	2051	14,700	5,110	2.88	5,800	2,180	6,790	46.2%
	2016 - 2051	1,500	610		900	450	1,070	3%
Puslinch	2016	7,600	2,710	2.80	0	0	5,630	74.1%
	2021	7,900	2,850	2.77	0	0	5,820	73.7%
	2031	8,400	3,020	2.78	0	0	6,310	75.1%
	2041	9,700	3,450	2.81	0	0	6,990	72.1%
	2051	10,000	3,560	2.81	0	0	7,920	79.2%
	2016 - 2051	2,400	850		0	0	2,290	5%

Source: Watson & Associates Economists Ltd.

[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.

[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

A-1, Table 2b
County of Wellington
Population, Housing and Employment, 2016 to 2051

Area Municipality	Forecast Period	Total Population with Undercount[1]	Total Residential Units	Persons Per Units (PPU)	Total Urban Settlement Population	Total Urban Settlement Area Residential Units	Total Employment (including NPOW)	Employment Activity Rate[1]
Mapleton	2016	10,800	3,150	3.43	2,800	980	4,060	37.6%
	2021	11,100	3,260	3.40	2,900	1,020	4,430	39.9%
	2031	12,400	3,780	3.28	4,100	1,460	5,240	42.3%
	2041	14,100	4,380	3.22	5,700	2,050	6,190	43.9%
	2051	15,200	4,820	3.15	6,800	2,460	7,000	46.1%
	2016 - 2051	4,400	1,670		4,000	1,480	2,940	8%
Minto	2016	8,900	3,260	2.73	5,800	2,220	4,030	45.3%
	2021	9,300	3,400	2.74	6,100	2,360	4,170	44.8%
	2031	11,900	4,280	2.78	8,600	3,070	4,750	39.9%
	2041	13,400	4,820	2.78	10,000	3,520	5,530	41.3%
	2051	15,200	5,460	2.78	11,800	4,070	6,510	42.8%
	2016 - 2051	6,300	2,200		6,000	1,850	2,480	-2%
Wellington North	2016	12,300	4,670	2.63	7,800	3,210	7,080	57.6%
	2021	12,700	4,860	2.61	8,200	3,370	7,270	57.2%
	2031	16,100	6,130	2.63	11,500	4,590	8,340	51.8%
	2041	17,700	6,700	2.64	13,000	5,100	9,450	53.4%
	2051	20,500	7,660	2.68	15,400	5,940	10,500	51.2%
	2016 - 2051	8,200	2,990		7,600	2,730	3,420	-6%
County of Wellington	2016	93,600	33,280	2.81	47,500	18,060	39,960	42.7%
	2021	100,700	36,060	2.79	53,800	20,510	43,100	42.8%
	2031	122,100	43,820	2.79	73,400	27,440	51,150	41.9%
	2041	142,000	51,010	2.78	90,800	33,730	61,060	43.0%
	2051	160,100	57,940	2.76	107,000	39,950	70,010	43.7%
	2016 - 2051	66,500	24,660		59,500	21,890	30,050	1%

Source: Watson & Associates Economists Ltd.

[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.

[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

A-1, Table 3a
County of Wellington
Housing Forecast by Municipality, 2016 to 2051

Area Municipality	Forecast Period	Singles/Semi-Detached	Townhomes	Apartments	Others	Total Residential Units
Centre Wellington	2016	8,500	680	1,530	160	10,870
	2021	9,740	1,030	1,880	160	12,810
	2031	11,900	1,360	2,350	160	15,770
	2041	14,340	2,160	2,700	160	19,360
	2051	15,260	3,150	3,560	160	22,130
	2016 - 2051	6,760	2,470	2,030	0	11,260
Erin	2016	3,810	40	120	150	4,120
	2021	3,910	40	130	150	4,230
	2031	5,240	340	240	150	5,970
	2041	5,920	550	660	150	7,280
	2051	7,440	730	880	150	9,200
	2016 - 2051	3,630	690	760	0	5,080
Guelph-Eramosa	2016	4,100	240	130	30	4,500
	2021	4,240	250	130	30	4,650
	2031	4,440	260	140	30	4,870
	2041	4,570	270	150	30	5,020
	2051	4,600	280	200	30	5,110
	2016 - 2051	500	40	70	0	610
Puslinch	2016	2,560	40	20	90	2,710
	2021	2,700	40	20	90	2,850
	2031	2,870	40	20	90	3,020
	2041	3,300	40	20	90	3,450
	2051	3,410	40	20	90	3,560
	2016 - 2051	850	0	0	0	850

Note: May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.
[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.
[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

A-1, Table 3b (Continued)
County of Wellington
Housing Forecast by Municipality, 2016 to 2051

Area Municipality	Forecast Period	Singles/Semi-Detached	Townhomes	Apartments	Others	Total Residential Units
Mapleton	2016	2,920	50	110	70	3,150
	2021	3,020	50	120	70	3,260
	2031	3,380	150	180	70	3,780
	2041	3,820	240	250	70	4,380
	2051	4,090	340	320	70	4,820
	2016 - 2051	1,170	290	210	0	1,670
Minto	2016	2,760	110	370	20	3,260
	2021	2,830	150	400	20	3,400
	2031	3,570	240	450	20	4,280
	2041	3,920	370	510	20	4,820
	2051	4,330	520	590	20	5,460
	2016 - 2051	1,570	410	220	0	2,200
Wellington North	2016	3,660	260	730	20	4,670
	2021	3,780	330	730	20	4,860
	2031	4,640	500	970	20	6,130
	2041	5,020	630	1,030	20	6,700
	2051	5,760	790	1,090	20	7,660
	2016 - 2051	2,100	530	360	0	2,990
County of Wellington	2016	28,310	1,420	3,010	540	33,280
	2021	30,220	1,890	3,410	540	36,060
	2031	36,040	2,890	4,350	540	43,820
	2041	40,890	4,260	5,320	540	51,010
	2051	44,890	5,850	6,660	540	57,940
	2016 - 2051	16,580	4,430	3,650	0	24,660

Note: May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.
[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.
[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

APPENDIX A-2: DETAILED POPULATION AND HOUSING FORECASTS BY AREA MUNICIPALITY

A-2, Table 1
Township of Centre Wellington
Population and Housing Forecast, 2016 to 2051

Centre Wellington								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	28,200	29,000	8,500	680	1,530	160	10,870	2.668
2021	33,100	34,100	9,740	1,030	1,880	160	12,810	2.662
2026	37,200	38,300	10,840	1,290	2,080	160	14,370	2.665
2031	41,200	42,500	11,900	1,360	2,350	160	15,770	2.695
2036	46,000	47,400	13,160	1,730	2,520	160	17,570	2.698
2041	50,800	52,300	14,340	2,160	2,700	160	19,360	2.701
2046	53,000	54,600	14,650	2,610	3,180	160	20,600	2.650
2051	56,500	58,200	15,260	3,150	3,560	160	22,130	2.630
2016 - 2041	22,600	23,300	5,840	1,480	1,170	-	8,490	
2016 - 2051	28,300	29,200	6,760	2,470	2,030	-	11,260	

A-2, Table 2
Town of Erin
Population and Housing Forecast, 2016 to 2051

Erin								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	11,400	11,800	3,810	40	120	150	4,120	2.864
2021	11,700	12,000	3,910	40	130	150	4,230	2.837
2026	13,200	13,600	4,370	70	180	150	4,770	2.851
2031	16,200	16,700	5,240	340	240	150	5,970	2.797
2036	17,900	18,400	5,590	450	430	150	6,620	2.779
2041	19,600	20,200	5,920	550	660	150	7,280	2.775
2046	22,700	23,300	6,760	590	680	150	8,180	2.848
2051	25,500	26,300	7,440	730	880	150	9,200	2.859
2016 - 2041	8,200	8,400	2,110	510	540	-	3,160	
2016 - 2051	14,100	14,500	3,630	690	760	-	5,080	

A-2, Table 3
Township of Guelph-Eramosa
Population and Housing Forecast, 2016 to 2051

Guelph/Eramosa								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	12,900	13,200	4,100	240	130	30	4,500	2.933
2021	13,200	13,600	4,240	250	130	30	4,650	2.925
2026	13,600	14,000	4,380	250	140	30	4,800	2.917
2031	13,700	14,100	4,440	260	140	30	4,870	2.895
2036	13,900	14,300	4,500	270	150	30	4,950	2.889
2041	14,200	14,600	4,570	270	150	30	5,020	2.908
2046	14,200	14,600	4,570	280	180	30	5,060	2.885
2051	14,300	14,700	4,600	280	200	30	5,110	2.877
2016 - 2041	1,300	1,400	470	30	20	-	520	
2016 - 2051	1,400	1,500	500	40	70	-	610	

A-2, Table 4
Township of Mapleton
Population and Housing Forecast, 2016 to 2051

Mapleton								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	10,500	10,800	2,920	50	110	70	3,150	3.429
2021	10,800	11,100	3,020	50	120	70	3,260	3.405
2026	11,400	11,800	3,200	110	150	70	3,530	3.343
2031	12,000	12,400	3,380	150	180	70	3,780	3.280
2036	12,500	12,900	3,540	150	200	70	3,960	3.258
2041	13,700	14,100	3,820	240	250	70	4,380	3.219
2046	14,200	14,600	3,950	330	260	70	4,610	3.167
2051	14,700	15,200	4,090	340	320	70	4,820	3.154
2016 - 2041	3,200	3,300	900	190	140	-	1,230	
2016 - 2051	4,200	4,400	1,170	290	210	-	1,670	

A-2, Table 5
Town of Minto
Population and Housing Forecast, 2016 to 2051

Minto								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	8,700	8,900	2,760	110	370	20	3,260	2.730
2021	9,000	9,300	2,830	150	400	20	3,400	2.735
2026	10,300	10,600	3,210	200	420	20	3,850	2.753
2031	11,500	11,900	3,570	240	450	20	4,280	2.780
2036	12,600	12,900	3,840	310	480	20	4,650	2.774
2041	13,000	13,400	3,920	370	510	20	4,820	2.780
2046	13,800	14,200	4,110	440	550	20	5,120	2.773
2051	14,800	15,200	4,330	520	590	20	5,460	2.784
2016 - 2041	4,300	4,500	1,160	260	140	-	1,560	
2016 - 2051	6,100	6,300	1,570	410	220	-	2,200	

A-2, Table 6
Township of Wellington North
Population and Housing Forecast, 2016 to 2051

Wellington North								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	11,900	12,300	3,660	260	730	20	4,670	2.634
2021	12,400	12,700	3,780	330	730	20	4,860	2.613
2026	14,200	14,700	4,260	420	880	20	5,580	2.634
2031	15,600	16,100	4,640	500	970	20	6,130	2.626
2036	16,900	17,400	4,960	610	990	20	6,580	2.644
2041	17,200	17,700	5,020	630	1,030	20	6,700	2.642
2046	19,100	19,600	5,520	760	1,080	20	7,380	2.656
2051	19,900	20,500	5,760	790	1,090	20	7,660	2.676
2016 - 2041	5,300	5,400	1,360	370	300	-	2,030	
2016 - 2051	8,000	8,200	2,100	530	360	-	2,990	

A-2, Table 7
Township of Puslinch
Population and Housing Forecast, 2016 to 2051

Puslinch								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	7,300	7,600	2,560	40	20	90	2,710	2.804
2021	7,700	7,900	2,700	40	20	90	2,850	2.772
2026	8,000	8,300	2,820	40	20	90	2,970	2.795
2031	8,100	8,400	2,870	40	20	90	3,020	2.781
2036	8,600	8,800	3,020	40	20	90	3,170	2.776
2041	9,400	9,700	3,300	40	20	90	3,450	2.812
2046	9,600	9,900	3,360	40	20	90	3,510	2.821
2051	9,700	10,000	3,410	40	20	90	3,560	2.809
2016 - 2041	2,100	2,100	740	-	-	-	740	
2016 - 2051	2,400	2,400	850	-	-	-	850	

Source: Watson & Associates Economists Ltd., 2020.
Note: Figures may not add precisely due to rounding.
[1] Population undercount estimated at 3%.
[2] Includes all single and semi-detached homes as well as “other” detached homes as per Statistics Canada.
[3] Includes all townhouses and apartments in duplex.
[4] Includes all apartments with less than or greater than five storeys.

A-2, Table 8
County of Wellington
Housing Forecast by Area Municipality, 2016 to 2051

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,870	4,110	4,490	3,140	3,250	4,660	2,700	33,220
2021	12,810	4,230	4,650	3,260	3,410	4,860	2,850	36,070
2026	14,380	4,770	4,800	3,540	3,850	5,580	2,970	39,890
2031	15,770	5,980	4,870	3,780	4,280	6,130	3,020	43,830
2036	17,570	6,630	4,950	3,960	4,640	6,590	3,170	47,510
2041	19,360	7,280	5,030	4,380	4,820	6,690	3,440	51,000
2046	20,600	8,180	5,060	4,600	5,190	7,380	3,510	54,520
2051	22,130	9,200	5,110	4,820	5,460	7,660	3,550	57,930
Share of 2016 County Households	33%	12%	14%	9%	10%	14%	8%	100%
Share of 2051 County Households	38%	16%	9%	8%	9%	13%	6%	100%
Housing Growth								
2016 - 2051	11,260	5,090	620	1,680	2,210	3,000	850	24,710
Annual Growth Rate, 2016 - 2051	2.1%	2.3%	0.4%	1.2%	1.5%	1.4%	0.8%	1.6%
Share of County Household Growth, 2016-2051	46%	21%	3%	7%	9%	12%	3%	100%

Note: Above figure includes "other" dwellings of approximately 540 units.
Source: Watson & Associates Economists Ltd.

A-2, Table 9

County of Wellington

Population Forecast by Area Municipality, 2016 to 2051

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	29,000	11,800	13,200	10,800	8,900	12,300	7,600	93,600
2021	34,100	12,000	13,600	11,100	9,300	12,700	7,900	100,700
2026	38,300	13,600	14,000	11,800	10,600	14,700	8,300	111,300
2031	42,500	16,700	14,100	12,400	11,900	16,100	8,400	122,100
2036	47,400	18,400	14,300	12,900	12,900	17,400	8,800	132,100
2041	52,300	20,200	14,600	14,100	13,400	17,700	9,700	142,000
2046	54,600	23,300	14,600	14,600	14,500	19,600	9,900	151,100
2051	58,200	26,300	14,700	15,200	15,200	20,500	10,000	160,000
Share of 2016 County Population	31%	13%	14%	12%	10%	13%	8%	100%
Share of 2051 County Population	36%	16%	9%	10%	10%	13%	6%	100%
Population Growth								
2016 - 2051	29,200	14,500	1,500	4,400	6,300	8,200	2,400	66,400
Annual Growth Rate, 2016 - 2051	2.0%	2.3%	0.3%	1.0%	1.5%	1.5%	0.8%	1.5%
Share of County Population Growth, 2016-2051	44%	22%	2%	7%	9%	12%	4%	100%

May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

APPENDIX A-3: POPULATION AND HOUSING FORECASTS BY URBAN SETTLEMENT AREA

A-3, Table 1
Township of Centre Wellington
Population and Housing Forecast, 2016 to 2051

Fergus							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	14,300	14,700	4,060	470	1,170	5,690	2.51
2021	18,500	19,100	5,100	790	1,410	7,310	2.53
2026	19,500	20,100	5,290	960	1,530	7,790	2.50
2031	22,900	23,600	6,200	1,010	1,770	8,980	2.55
2036	26,900	27,700	7,200	1,340	1,930	10,470	2.57
2041	30,700	31,600	8,220	1,520	2,100	11,840	2.59
2046	32,600	33,600	8,440	1,960	2,480	12,870	2.53
2051	35,300	36,300	8,850	2,430	2,785	14,060	2.51
2016 - 2041	16,400	16,900	4,160	1,050	930	6,150	
2016 - 2051	21,000	21,600	4,790	1,960	1,615	8,370	

Elora/Salem							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	6,900	7,100	2,090	210	370	2,660	2.59
2021	7,600	7,800	2,250	240	460	2,960	2.57
2026	10,500	10,900	3,120	340	550	4,000	2.63
2031	11,100	11,400	3,240	350	570	4,160	2.66
2036	11,800	12,100	3,450	390	590	4,430	2.66
2041	12,700	13,100	3,580	650	600	4,820	2.63
2046	12,900	13,300	3,630	650	700	4,990	2.60
2051	13,600	14,100	3,780	720	780	5,280	2.58
2016 - 2041	5,800	6,000	1,490	440	230	2,160	
2016 - 2051	6,700	7,000	1,690	510	410	2,620	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,000	7,200	2,350	0	0	2,350	2.99
2021	7,100	7,200	2,390	0	0	2,390	2.96
2026	7,100	7,300	2,430	0	0	2,430	2.94
2031	7,200	7,400	2,470	0	0	2,470	2.92
2036	7,300	7,500	2,510	0	0	2,510	2.91
2041	7,400	7,600	2,550	0	0	2,550	2.92
2046	7,500	7,700	2,590	0	0	2,590	2.90
2051	7,600	7,800	2,630	0	0	2,630	2.89
2016 - 2041	400	400	200	-	-	200	
2016 - 2051	600	600	280	-	-	280	

A-3, Table 2
Town of Erin
Population and Housing Forecast, 2016 to 2051

Erin (Village)							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	3,000	3,000	940	20	90	1,040	2.88
2021	3,000	3,100	950	20	100	1,070	2.80
2026	3,700	3,900	1,170	40	120	1,330	2.78
2031	5,600	5,800	1,680	220	180	2,080	2.69
2036	6,700	6,900	1,910	280	310	2,500	2.68
2041	7,700	7,900	2,040	340	530	2,910	2.65
2046	9,200	9,400	2,420	380	540	3,340	2.75
2051	10,400	10,700	2,740	440	590	3,770	2.76
2016 - 2041	4,700	4,900	1,100	320	440	1,870	
2016 - 2051	7,400	7,700	1,800	420	500	2,730	

Hillsburgh							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	1,400	1,400	490	10	30	530	2.64
2021	1,400	1,400	500	10	30	540	2.59
2026	1,900	1,900	630	30	60	720	2.64
2031	2,700	2,800	860	110	60	1,040	2.60
2036	3,100	3,100	910	160	110	1,190	2.61
2041	3,500	3,600	1,000	200	130	1,340	2.61
2046	4,800	4,900	1,380	210	140	1,720	2.79
2051	5,900	6,100	1,610	280	290	2,180	2.71
2016 - 2041	2,100	2,200	510	190	100	810	
2016 - 2051	4,500	4,700	1,120	270	260	1,650	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,100	7,300	2,380	10	0	2,390	2.97
2021	7,300	7,500	2,460	10	0	2,470	2.96
2026	7,600	7,800	2,570	10	0	2,580	2.95
2031	7,800	8,100	2,690	10	0	2,700	2.89
2036	8,100	8,400	2,780	10	0	2,790	2.90
2041	8,500	8,700	2,870	10	0	2,880	2.95
2046	8,700	9,000	2,960	10	0	2,970	2.93
2051	9,100	9,400	3,090	10	0	3,100	2.94
2016 - 2041	1,400	1,400	490	-	-	490	
2016 - 2051	2,000	2,100	710	-	-	710	

A-3, Table 3
Township of Guelph/Eramosa
Population and Housing Forecast, 2016 to 2051

Rockwood							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	4,700	4,900	1,440	210	90	1,740	2.70
2021	5,100	5,200	1,570	220	90	1,880	2.71
2026	5,400	5,600	1,690	230	90	2,010	2.69
2031	5,500	5,600	1,730	240	100	2,070	2.66
2036	5,600	5,700	1,760	240	100	2,100	2.67
2041	5,700	5,900	1,800	250	110	2,160	2.64
2046	5,700	5,800	1,780	250	130	2,160	2.64
2051	5,700	5,800	1,780	250	150	2,180	2.61
2016 - 2041	1,000	1,000	360	40	20	420	
2016 - 2051	1,000	900	340	40	60	280	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	8,100	8,300	2,660	30	40	2,730	2.97
2021	8,100	8,400	2,670	30	50	2,740	2.96
2026	8,200	8,500	2,690	30	50	2,760	2.97
2031	8,300	8,500	2,710	30	50	2,780	2.99
2036	8,400	8,600	2,740	30	50	2,810	2.99
2041	8,500	8,700	2,770	30	50	2,840	2.99
2046	8,500	8,800	2,800	30	50	2,870	2.96
2051	8,600	8,900	2,820	30	50	2,890	2.98
2016 - 2041	400	400	110	-	10	110	
2016 - 2051	500	600	160	-	10	160	

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A-3, Table 3
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A-3, Table 3
Township of Guelph/Eramosa
Population and Housing Forecast, 2016 to 2051

Rockwood							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	4,700	4,900	1,440	210	90	1,740	2.70
2021	5,100	5,200	1,570	220	90	1,880	2.71
2026	5,400	5,600	1,690	230	90	2,010	2.69
2031	5,500	5,600	1,730	240	100	2,070	2.66
2036	5,600	5,700	1,760	240	100	2,100	2.67
2041	5,700	5,800	1,780	250	110	2,140	2.66
2046	5,700	5,800	1,780	250	130	2,160	2.64
2051	5,700	5,800	1,780	250	150	2,180	2.61
2016 - 2041	1,000	900	340	40	20	400	
2016 - 2051	1,000	900	340	40	60	440	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	8,100	8,300	2,660	30	40	2,730	2.97
2021	8,100	8,400	2,670	30	50	2,740	2.96
2026	8,200	8,500	2,690	30	50	2,760	2.97
2031	8,300	8,500	2,710	30	50	2,780	2.99
2036	8,400	8,600	2,740	30	50	2,810	2.99
2041	8,500	8,700	2,770	30	50	2,840	2.99
2046	8,500	8,800	2,800	30	50	2,870	2.96
2051	8,600	8,900	2,820	30	50	2,890	2.98
2016 - 2041	400	400	110	-	10	110	
2016 - 2051	500	600	160	-	10	160	

A-3, Table 4
Township of Mapleton
Population and Housing Forecast, 2016 to 2051

Drayton							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,200	2,300	690	40	80	810	2.72
2021	2,300	2,400	720	40	90	850	2.71
2026	2,600	2,700	780	80	100	960	2.71
2031	2,900	3,000	880	110	120	1,110	2.61
2036	3,100	3,200	920	110	130	1,160	2.67
2041	3,700	3,800	1,070	170	160	1,400	2.64
2046	4,000	4,100	1,130	220	160	1,510	2.65
2051	4,200	4,300	1,160	230	190	1,580	2.66
2016 - 2041	1,500	1,500	380	130	80	590	
2016 - 2051	2,000	2,000	470	190	110	770	

Moorefield							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	500	600	140	10	30	170	2.94
2021	500	600	140	10	30	180	2.78
2026	800	800	190	30	50	270	2.96
2031	1,000	1,100	260	40	60	360	2.78
2036	1,400	1,400	360	40	70	470	2.98
2041	1,900	1,900	490	70	90	660	2.88
2046	2,100	2,200	540	110	100	740	2.84
2051	2,500	2,500	640	110	120	880	2.84
2016 - 2041	1,400	1,300	350	60	60	490	
2016 - 2051	2,000	1,900	500	100	90	710	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,800	8,000	2,090	0	0	2,090	3.73
2021	7,900	8,200	2,160	0	0	2,160	3.66
2026	8,100	8,300	2,240	0	0	2,240	3.62
2031	8,100	8,300	2,250	0	0	2,250	3.60
2036	8,100	8,300	2,260	0	0	2,260	3.58
2041	8,100	8,300	2,270	0	0	2,270	3.57
2046	8,100	8,300	2,280	0	0	2,280	3.55
2051	8,100	8,300	2,290	0	0	2,290	3.54
2016 - 2041	300	300	180	-	-	180	
2016 - 2051	300	300	200	-	-	200	

A-3, Table 5
Town of Minto
Population and Housing Forecast, 2016 to 2051

Clifford

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	830	860	280	30	40	350	2.37
2021	910	940	300	30	50	380	2.39
2026	990	1,010	310	40	60	410	2.41
2031	1,060	1,090	320	50	70	440	2.41
2036	1,130	1,170	330	60	80	470	2.40
2041	1,210	1,250	340	70	90	500	2.42
2046	1,280	1,320	350	80	110	530	2.42
2051	1,360	1,400	360	90	120	560	2.43
2016 - 2041	380	390	60	40	50	150	
2016 - 2051	530	540	80	60	80	210	

Harriston

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,100	2,100	610	10	160	780	2.69
2021	2,200	2,200	620	30	170	830	2.65
2026	2,500	2,600	720	50	170	940	2.66
2031	2,700	2,800	750	70	180	1,010	2.67
2036	2,900	3,000	800	100	190	1,090	2.66
2041	3,000	3,100	810	130	200	1,140	2.63
2046	3,200	3,300	860	140	210	1,210	2.64
2051	3,400	3,500	890	180	220	1,280	2.66
2016 - 2041	900	1,000	200	120	40	360	
2016 - 2051	1,300	1,400	280	170	60	500	

Palmerston

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,700	2,800	870	70	170	1,100	2.45
2021	2,900	2,900	890	90	180	1,160	2.50
2026	3,700	3,800	1,140	110	180	1,430	2.59
2031	4,600	4,800	1,430	130	190	1,750	2.63
2036	5,300	5,400	1,620	150	200	1,970	2.69
2041	5,500	5,600	1,650	170	220	2,040	2.70
2046	6,200	6,400	1,840	220	240	2,290	2.71
2051	6,700	6,900	1,950	250	260	2,460	2.72
2016 - 2041	2,800	2,800	780	100	50	940	
2016 - 2051	4,000	4,100	1,080	180	90	1,360	

Rural

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	3,000	3,100	1,010	0	0	1,010	2.97
2021	3,100	3,200	1,030	0	0	1,030	3.01
2026	3,100	3,200	1,050	0	0	1,050	2.95
2031	3,200	3,300	1,070	0	0	1,070	2.99
2036	3,200	3,300	1,100	0	0	1,100	2.91
2041	3,300	3,400	1,120	0	0	1,120	2.95
2046	3,300	3,400	1,130	0	0	1,130	2.92
2051	3,400	3,500	1,140	0	0	1,140	2.98
2016 - 2041	300	300	110	-	-	110	
2016 - 2051	400	400	130	-	-	130	

A-3, Table 6

Township of Wellington North

Population and Housing Forecast, 2016 to 2051

Arthur							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,500	2,600	740	100	170	1,010	2.48
2021	2,600	2,700	750	120	170	1,040	2.50
2026	3,400	3,500	940	140	240	1,320	2.58
2031	3,800	3,900	1,060	170	260	1,490	2.55
2036	4,100	4,200	1,110	200	280	1,590	2.58
2041	4,200	4,400	1,140	200	310	1,650	2.55
2046	4,500	4,700	1,200	240	330	1,770	2.54
2051	4,700	4,800	1,240	250	340	1,830	2.57
2016 - 2041	1,700	1,800	400	100	140	640	
2016 - 2051	2,200	2,200	500	150	170	820	

Mount Forest							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	5,100	5,200	1,500	160	560	2,220	2.30
2021	5,400	5,500	1,560	210	560	2,330	2.32
2026	6,500	6,700	1,840	270	640	2,750	2.36
2031	7,400	7,600	2,060	330	710	3,100	2.39
2036	8,200	8,500	2,290	410	710	3,410	2.40
2041	8,300	8,600	2,300	430	720	3,450	2.41
2046	9,700	10,000	2,670	530	740	3,940	2.46
2051	10,200	10,500	2,820	540	750	4,110	2.48
2016 - 2041	3,200	3,400	800	270	160	1,230	
2016 - 2051	5,100	5,300	1,320	380	190	1,890	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	4,300	4,400	1,430	0	0	1,430	3.01
2021	4,400	4,500	1,470	0	0	1,470	2.99
2026	4,400	4,500	1,480	0	0	1,480	2.97
2031	4,500	4,600	1,520	0	0	1,520	2.96
2036	4,600	4,700	1,570	0	0	1,570	2.93
2041	4,600	4,800	1,570	0	0	1,570	2.93
2046	4,800	5,000	1,650	0	0	1,650	2.91
2051	5,000	5,100	1,700	0	0	1,700	2.94
2016 - 2041	300	400	140	-	-	140	
2016 - 2051	700	700	270	-	-	270	

A-3, Table 7
Township of Puslinch
Population and Housing Forecast, 2016 to 2051

Aberfoyle							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	300	300	140	20	10	170	2.07
2021	300	300	140	20	10	170	2.08
2026	300	400	140	20	10	170	2.08
2031	300	400	140	20	10	170	2.08
2036	300	400	150	20	10	180	2.09
2041	400	400	150	20	10	180	2.09
2046	400	400	150	20	10	180	2.10
2051	400	400	150	20	10	180	2.10
2016 - 2041	100	100	10	-	-	10	
2016 - 2051	100	100	10	-	-	10	

Morriston							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	500	500	140	0	20	160	3.13
2021	500	500	140	0	20	160	3.13
2026	600	600	180	0	20	200	3.00
2031	600	600	190	0	20	210	2.86
2036	700	700	220	0	20	240	2.92
2041	800	900	260	0	20	280	2.86
2046	900	900	270	0	20	290	3.10
2051	900	900	280	0	20	300	3.00
2016 - 2041	300	400	120	-	-	120	
2016 - 2051	400	400	140	-	-	140	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	6,600	6,700	2,270	20	0	2,280	2.89
2021	6,900	7,100	2,420	20	0	2,440	2.83
2026	7,100	7,300	2,490	20	0	2,510	2.83
2031	7,200	7,400	2,540	20	0	2,560	2.81
2036	7,500	7,800	2,660	20	0	2,680	2.80
2041	8,300	8,500	2,890	20	0	2,910	2.85
2046	8,400	8,600	2,940	20	0	2,960	2.84
2051	8,500	8,700	2,970	20	0	2,990	2.84
2016 - 2041	1,700	1,800	620	-	-	630	
2016 - 2051	1,900	2,000	700	-	-	710	

Note: Urban Centres in Puslinch are not summarized at the County-Wide level as Urban Settlement Areas. Aberfoyle and Morriston are grouped as “Rural” at the County-Wide level.

Appendix B
Growth Allocations: Employment Growth to 2051

B-1, Table 1
Township of Centre Wellington
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	2,540	6,520	9,060	55	590	645	9,705	93%	7%
	2011	2,570	6,875	9,445	55	730	785	10,230	92%	8%
	2016	2,230	7,610	9,840	55	560	615	10,455	94%	6%
Forecast	2021	2,510	9,070	11,580	55	600	655	12,235	95%	5%
	2026	2,810	10,540	13,350	55	590	645	13,995	95%	5%
	2031	3,410	12,115	15,525	55	650	705	16,230	96%	4%
	2036	4,010	13,795	17,805	55	660	715	18,520	96%	4%
	2041	4,810	15,740	20,550	55	670	725	21,275	97%	3%
	2046	5,410	17,130	22,540	55	680	735	23,275	97%	3%
	2051	5,910	18,420	24,330	55	690	745	25,075	97%	3%
Incremental	2016 - 2021	280	1,460	1,740	0	40	40	1,780	98%	2%
	2016 - 2026	580	2,930	3,510	0	30	30	3,540	99%	1%
	2016 - 2031	1,180	4,505	5,685	0	90	90	5,775	98%	2%
	2016 - 2036	1,780	6,185	7,965	0	100	100	8,065	99%	1%
	2016 - 2041	2,580	8,130	10,710	0	110	110	10,820	99%	1%
	2016 - 2046	3,180	9,520	12,700	0	120	120	12,820	99%	1%
	2016 - 2051	3,680	10,810	14,490	0	130	130	14,620	99%	1%

B-1, Table 2
Town of Erin
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	780	1,570	2,350	0	620	620	2,970	79%	21%
	2011	880	1,560	2,440	0	590	590	3,030	81%	19%
	2016	900	1,345	2,245	0	730	730	2,975	75%	25%
Forecast	2021	950	1,445	2,395	0	735	735	3,130	77%	23%
	2026	1,050	1,705	2,755	0	740	740	3,495	79%	21%
	2031	1,150	2,190	3,340	0	745	745	4,085	82%	18%
	2036	1,270	2,730	4,000	0	750	750	4,750	84%	16%
	2041	1,380	3,150	4,530	0	755	755	5,285	86%	14%
	2046	1,490	3,665	5,155	0	760	760	5,915	87%	13%
	2051	1,700	3,735	5,435	0	770	770	6,205	88%	12%
Incremental	2016 - 2021	50	100	150	0	5	5	155	97%	3%
	2016 - 2026	150	360	510	0	10	10	520	98%	2%
	2016 - 2031	250	845	1,095	0	15	15	1,110	99%	1%
	2016 - 2036	370	1,385	1,755	0	20	20	1,775	99%	1%
	2016 - 2041	480	1,805	2,285	0	25	25	2,310	99%	1%
	2016 - 2046	590	2,320	2,910	0	30	30	2,940	99%	1%
	2016 - 2051	800	2,390	3,190	0	40	40	3,230	99%	1%

B-1, Table 3
Township of Guelph/Eramosa
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	0	1,200	1,200	1,380	2,060	3,440	4,640	26%	74%
	2011	0	1,300	1,300	1,000	2,170	3,170	4,470	29%	71%
	2016	0	1,600	1,600	1,580	2,540	4,120	5,720	28%	72%
Forecast	2021	0	1,650	1,650	1,780	2,555	4,335	5,985	28%	72%
	2026	0	1,680	1,680	1,810	2,590	4,400	6,080	28%	72%
	2031	0	1,710	1,710	1,840	2,625	4,465	6,175	28%	72%
	2036	0	1,720	1,720	1,880	2,650	4,530	6,250	28%	72%
	2041	0	1,740	1,740	1,920	2,670	4,590	6,330	27%	73%
	2046	0	1,750	1,750	2,070	2,780	4,850	6,600	27%	73%
	2051	0	1,780	1,780	2,190	2,820	5,010	6,790	26%	74%
Incremental	2016 - 2021	0	50	50	200	15	215	265	19%	81%
	2016 - 2026	0	80	80	230	50	280	360	22%	78%
	2016 - 2031	0	110	110	260	85	345	455	24%	76%
	2016 - 2036	0	120	120	300	110	410	530	23%	77%
	2016 - 2041	0	140	140	340	130	470	610	23%	77%
	2016 - 2046	0	150	150	490	240	730	880	17%	83%
	2016 - 2051	0	180	180	610	280	890	1,070	17%	83%

B-1, Table 4
Township of Mapleton
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	390	1,620	2,010	280	1,410	1,690	3,700	54%	46%
	2011	480	1,700	2,180	340	1,530	1,870	4,050	54%	46%
	2016	500	1,490	1,990	350	1,720	2,070	4,060	49%	51%
Forecast	2021	510	1,740	2,250	400	1,780	2,180	4,430	51%	49%
	2026	710	1,825	2,535	420	1,830	2,250	4,785	53%	47%
	2031	790	2,145	2,935	450	1,850	2,300	5,235	56%	44%
	2036	870	2,475	3,345	480	1,860	2,340	5,685	59%	41%
	2041	960	2,875	3,835	490	1,860	2,350	6,185	62%	38%
	2046	1,200	2,970	4,170	510	1,900	2,410	6,580	63%	37%
	2051	1,410	3,130	4,540	520	1,940	2,460	7,000	65%	35%
Incremental	2016 - 2021	10	250	260	50	60	110	370	70%	30%
	2016 - 2026	210	335	545	70	110	180	725	75%	25%
	2016 - 2031	290	655	945	100	130	230	1,175	80%	20%
	2016 - 2036	370	985	1,355	130	140	270	1,625	83%	17%
	2016 - 2041	460	1,385	1,845	140	140	280	2,125	87%	13%
	2016 - 2046	700	1,480	2,180	160	180	340	2,520	87%	13%
	2016 - 2051	910	1,640	2,550	170	220	390	2,940	87%	13%

B-1, Table 5
Town of Minto
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	690	1,920	2,610	0	790	790	3,400	77%	23%
	2011	890	1,930	2,820	0	780	780	3,600	78%	22%
	2016	1,150	1,970	3,120	0	910	910	4,030	77%	23%
Forecast	2021	1,160	2,085	3,245	0	920	920	4,165	78%	22%
	2026	1,300	2,220	3,520	0	925	925	4,445	79%	21%
	2031	1,460	2,350	3,810	0	935	935	4,745	80%	20%
	2036	1,640	2,560	4,200	0	945	945	5,145	82%	18%
	2041	1,790	2,775	4,565	0	955	955	5,520	83%	17%
	2046	2,000	3,035	5,035	0	965	965	6,000	84%	16%
	2051	2,210	3,315	5,525	0	975	975	6,500	85%	15%
Incremental	2016 - 2021	10	115	125	0	10	10	135	93%	7%
	2016 - 2026	150	250	400	0	15	15	415	96%	4%
	2016 - 2031	310	380	690	0	25	25	715	97%	3%
	2016 - 2036	490	590	1,080	0	35	35	1,115	97%	3%
	2016 - 2041	640	805	1,445	0	45	45	1,490	97%	3%
	2016 - 2046	850	1,065	1,915	0	55	55	1,970	97%	3%
	2016 - 2051	1,060	1,345	2,405	0	65	65	2,470	97%	3%

B-1, Table 6
Township of Wellington North
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	2,500	2,760	5,260	465	380	845	6,105	86%	14%
	2011	2,000	2,835	4,835	470	655	1,125	5,960	81%	19%
	2016	2,210	3,555	5,765	475	830	1,305	7,070	82%	18%
Forecast	2021	2,320	3,580	5,900	475	890	1,365	7,265	81%	19%
	2026	2,420	3,885	6,305	480	920	1,400	7,705	82%	18%
	2031	2,720	4,185	6,905	490	940	1,430	8,335	83%	17%
	2036	3,020	4,445	7,465	510	960	1,470	8,935	84%	16%
	2041	3,170	4,765	7,935	525	980	1,505	9,440	84%	16%
	2046	3,320	5,155	8,475	525	1,000	1,525	10,000	85%	15%
	2051	3,470	5,460	8,930	550	1,020	1,570	10,500	85%	15%
Incremental	2016 - 2021	110	25	135	0	60	60	195	69%	31%
	2016 - 2026	210	330	540	5	90	95	635	85%	15%
	2016 - 2031	510	630	1,140	15	110	125	1,265	90%	10%
	2016 - 2036	810	890	1,700	35	130	165	1,865	91%	9%
	2016 - 2041	960	1,210	2,170	50	150	200	2,370	92%	8%
	2016 - 2046	1,110	1,600	2,710	50	170	220	2,930	92%	8%
	2016 - 2051	1,260	1,905	3,165	75	190	265	3,430	92%	8%

B-1, Table 7
Township of Puslinch
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	0	0	0	2,130	1,850	3,980	3,980	0%	100%
	2011	0	0	0	1,770	1,630	3,400	3,400	0%	100%
	2016	0	0	0	2,400	3,225	5,625	5,625	0%	100%
Forecast	2021	0	0	0	2,430	3,385	5,815	5,815	0%	100%
	2026	0	0	0	2,650	3,410	6,060	6,060	0%	100%
	2031	0	0	0	2,870	3,435	6,305	6,305	0%	100%
	2036	0	0	0	3,130	3,465	6,595	6,595	0%	100%
	2041	0	0	0	3,510	3,480	6,990	6,990	0%	100%
	2046	0	0	0	3,900	3,505	7,405	7,405	0%	100%
	2051	0	0	0	4,390	3,530	7,920	7,920	0%	100%
Incremental	2016 - 2021	0	0	0	30	160	190	190	0%	100%
	2016 - 2026	0	0	0	250	185	435	435	0%	100%
	2016 - 2031	0	0	0	470	210	680	680	0%	100%
	2016 - 2036	0	0	0	730	240	970	970	0%	100%
	2016 - 2041	0	0	0	1,110	255	1,365	1,365	0%	100%
	2016 - 2046	0	0	0	1,500	280	1,780	1,780	0%	100%
	2016 - 2051	0	0	0	1,990	305	2,295	2,295	0%	100%

B-1, Table 8

County of Wellington

Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas[1]			Rural Area[2]			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	6,900	15,600	22,500	4,300	7,700	12,000	34,500	65%	35%
	2011	6,800	16,200	23,000	3,600	8,100	11,700	34,700	66%	34%
	2016	7,000	17,600	24,600	4,900	10,500	15,400	39,900	62%	38%
Forecast	2021	7,500	19,600	27,000	5,100	10,900	16,000	43,000	63%	37%
	2026	8,300	21,900	30,100	5,400	11,000	16,400	46,600	65%	35%
	2031	9,500	24,700	34,200	5,700	11,200	16,900	51,100	67%	33%
	2036	10,800	27,700	38,500	6,100	11,300	17,300	55,900	69%	31%
	2041	12,100	31,000	43,200	6,500	11,400	17,900	61,000	71%	29%
	2046	13,400	33,700	47,100	7,100	11,600	18,700	65,800	72%	28%
	2051	14,700	35,800	50,500	7,700	11,700	19,500	70,000	72%	28%
Incremental	2016 - 2021	500	2,000	2,500	300	400	600	3,100	81%	19%
	2016 - 2026	1,300	4,300	5,600	600	500	1,000	6,600	85%	15%
	2016 - 2031	2,500	7,100	9,700	800	700	1,500	11,200	87%	13%
	2016 - 2036	3,800	10,200	14,000	1,200	800	2,000	15,900	88%	12%
	2016 - 2041	5,100	13,500	18,600	1,600	900	2,500	21,100	88%	12%
	2016 - 2046	6,400	16,100	22,600	2,200	1,100	3,300	25,800	88%	12%
	2016 - 2051	7,700	18,300	26,000	2,800	1,200	4,100	30,100	86%	14%

Source: Watson & Associates Economists Ltd.

Notes: Figures have been rounded and may not up precisely at the area municipal level.

Employment Land Employment is defined as employment within "industrial-type" buildings.

"Other Rural" includes employment within a rural area outside a Rural Employment Area and include agriculture, commercial/institutional and mixed industrial/agriculture employment.

[1]Urban Settlement Areas include: Erin Village, Hillsburgh, Fergus, Elora-Salem, Mount Forest, Arthur, Rockwood, Drayton, Moorefield, Harriston, Palmerston, Clifford.

[2]All employment outside of urban settlement areas.

B-2, Table 1
County of Wellington
Employment Forecast, 2016 to 2051

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,500	3,000	5,700	4,100	4,000	7,100	5,600	40,000
2021	12,200	3,100	6,000	4,400	4,200	7,300	5,800	43,000
2026	14,000	3,500	6,100	4,800	4,400	7,700	6,100	46,600
2031	16,200	4,100	6,200	5,200	4,700	8,300	6,300	51,000
2036	18,500	4,800	6,300	5,700	5,100	8,900	6,600	55,900
2041	21,300	5,300	6,300	6,200	5,500	9,400	7,000	61,000
2046	23,300	5,900	6,600	6,600	6,000	10,000	7,400	65,800
2051	25,100	6,200	6,800	7,000	6,500	10,500	7,900	70,000
Share of 2016 County Employment	26%	8%	14%	10%	10%	18%	14%	100%
Share of 2051 County Employment	36%	9%	10%	10%	9%	15%	11%	100%
Employment Growth								
2016 - 2051	14,600	3,200	1,100	2,900	2,500	3,400	2,300	30,000
Annual Growth Rate, 2016 - 2051	2.5%	2.1%	0.5%	1.5%	1.4%	1.1%	1.0%	1.6%
Share of County Employment Growth, 2016-2051	49%	11%	4%	10%	8%	11%	8%	100%

Note: Figure has been rounded by Area Municipality.
Source: Watson & Associates Economists Ltd., 2021.







Watson & Associates ECONOMISTS LTD.

PLANWELL

Phase 1 MCR Report: Urban Structure and Growth Allocations

County of Wellington

Final Report (as amended January 31, 2022)

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June 16, 2021

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List of Acronyms and Abbreviations

A.P.T.G.	A Place to Grow
B.U.A.	Built-up Area
D.G.A.	Designated Greenfield Area
E.L.E.	Employment Lands Employment
G.G.H.	Greater Golden Horseshoe
G.T.A.	Greater Toronto Area
G.T.H.A.	Greater Toronto and Hamilton Area
L.N.A.	Land Needs Assessment
M.M.A.H.	Ministry of Municipal Affairs and Housing
M.C.R.	Municipal Comprehensive Review
N.A.I.C.S.	North American Industry Classification System
N.F.P.O.W.	No Fixed Place of Work
O.M.F.	Ontario Ministry of Finance
O.P.	Official Plan
P.P.S.	Provincial Policy Statement
P.P.U.	Persons Per Unit
P.R.E.	Population-Related Employment

List of Acronyms and Abbreviations (Cont'd)

U.G.C.	Urban Growth Centre
W.A.H.	Work at Home Employment



Executive Summary

Executive Summary

The County of Wellington has a history of proactively planning for growth. In 2017, the County completed major updates to its Official Plan (O.P.) to conform with the June 2013 consolidation of the provincial Growth Plan for the Greater Golden Horseshoe (G.G.H.), 2006. A key major update included Official Plan Amendment (O.P.A.) 99. O.P.A. 99 amended the County of Wellington's growth forecast by updating the population, household and employment forecast, including extending the forecast to 2036 and 2041.

As part of the Municipal Comprehensive Review (M.C.R.) and the O.P.'s five-year review process, the County is required to update the County's O.P. with the current version of the Growth Plan, 2019 (as amended, Office Consolidation 2020). The Growth Plan, 2019 requires municipalities to update their respective O.P. to a 2051 horizon, including a review and evaluation of the minimum greenfield density and intensification targets and forecasts contained in the Growth Plan.

The O.P. is a long-range document that is designed to manage planned change and the physical development of the County over the 2041 planning horizon. Wellington County is currently preparing a to revise its O.P. to describe the type of growth the community wants and where that growth should occur. The process of preparing revisions to the County's O.P. represents an M.C.R., in accordance with section 26 of the *Planning Act*. This process is required to bring the County's O.P. into conformity with the Growth Plan, 2019 (as amended), as well as to reflect current provincial policy direction and the County's strategic initiatives. Integral to the County's O.P. is a comprehensive review of how new development will be planned, phased, and accommodated to the year 2051. This analysis is critical to guiding the timing and quantum of future land needs, hard and soft infrastructure requirements and municipal finance impacts associated with new development.

Wellington County is currently undertaking the growth management technical requirements of its M.C.R. to provide strategic policy recommendations which support the development of updated policies to the County's O.P. The M.C.R. technical reporting has been organized into two reports:

- Phase 1 Report – Growth Forecasts and Growth Allocations; and
- Phase 2 Report – Land Needs Assessment and Policy Recommendations.

Key components of this Phase 1 report include:

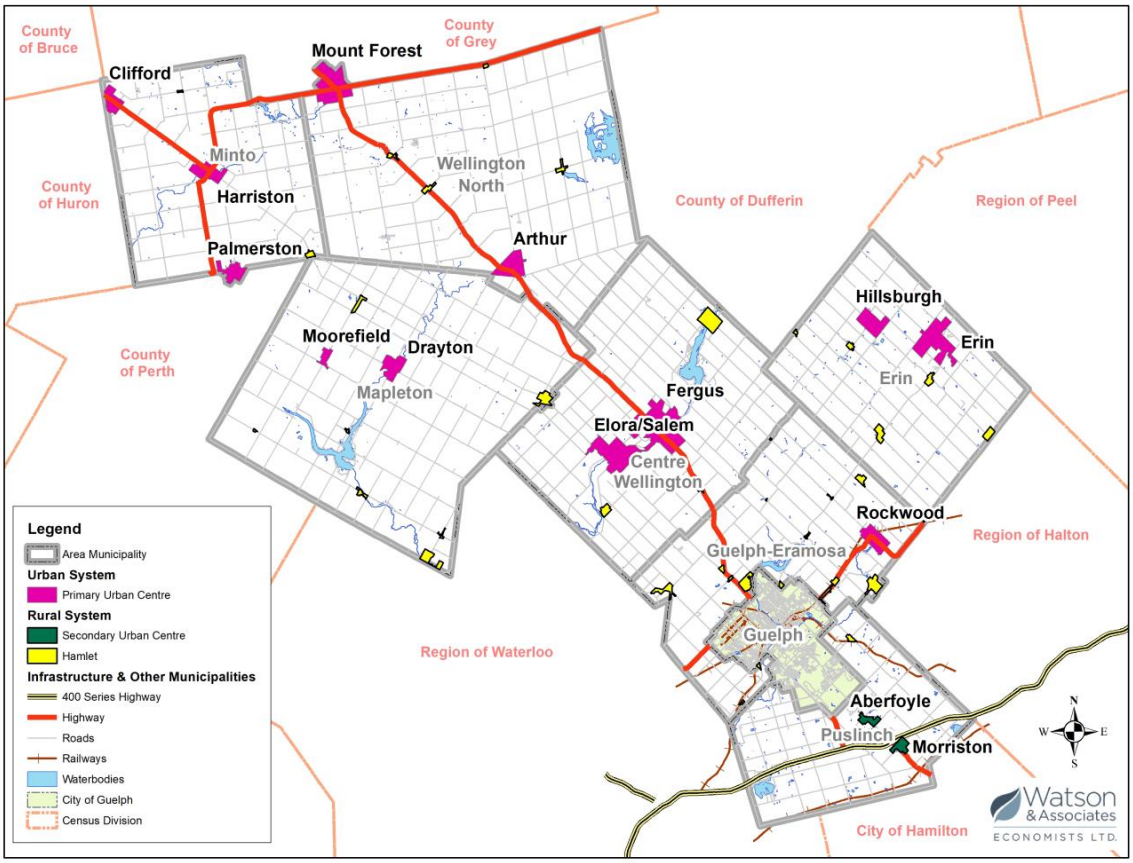
- A review of the Urban and Rural Systems, including settlement hierarchy;
- Long-term population, housing and employment forecasts to 2051;
- Allocations of population, housing and employment by Area Municipality and Urban Centre; and
- Conclusions and recommendations related to the County's proposed urban structure, County-wide growth forecasts and growth allocations by Area Municipality.

Wellington Rural and Urban Systems

Wellington County includes a blend of urban and rural communities. The Rural System includes lands that are protected from large-scale urban development. A key objective of the Rural System is to protect agriculture land, resources and the natural environment, while encouraging economic and cultural activities that support the health and prosperity of rural communities. The Urban System includes urban settlement areas (referred to as Urban Centres in the County of Wellington O.P.) that are to accommodate the majority of the future residential and non-residential development. A key objective of the Urban System is to direct growth where there is planned and existing infrastructure in a manner that supports principles of complete communities. Complete communities include a diverse mix of land uses that provide opportunities to live, shop and work in the same community.

A key distinction between the Rural System and the Urban System is the amount and type of growth to be allocated. The Growth Plan, 2019 requires the majority of the forecast growth to be allocated to the areas within municipally serviced (water/ wastewater) settlements. It is recommended that the County consider classifying hamlets within the Rural System. The County's Urban Centres with no municipal services (water/wastewater) are also recommended to be classified within the Rural System as Secondary Urban Centres. As such, the County's Urban Centres with full municipal services are recommended to be classified as Primary Urban Centres. Figure ES-1 provides an illustration of the proposed Urban System structure.

Figure ES-1
County of Wellington
Proposed Urban and Rural System



Wellington County Population Growth Outlook to 2051

It is important to recognize that future population and employment growth within the County of Wellington is strongly correlated with the growth outlook and competitiveness of the economy within the County and the surrounding region – which in this case is largely represented by the G.G.H. The G.G.H. represents the economic powerhouse of Ontario and the centre of much of the economic activity in Canada. It also represents a portion of the commuter-shed for the County of Wellington. Potential employment opportunities within the County and the surrounding commuter-shed represent the primary driver of net migration to this area.

The population of the G.G.H. is forecast to increase from 9.5 million in 2016 to 14.9 million in 2051. This represents a population increase of approximately 5.3 million people (153,000 annually), or 1.3% annually between 2016 and 2051. With respect to the region's economic potential, the G.G.H. employment base is forecast to increase from 4.6 million in 2016 to 7.0 million in 2051. This represents an employment increase of 2.4 million jobs (69,000 annually), or 1.2% annually between 2016 and 2051.

The G.G.H. is also economically diverse with most of the top 20 traded industry clusters throughout North America having a strong presence in this region. The industrial and office commercial real estate markets within the G.G.H. are significant, having the third and sixth largest inventories, respectively, in North America.

With a robust economy and diverse mix of export-based employment sectors, the G.G.H. is highly attractive on an international level to new businesses and investors. The G.G.H. also has a strong appeal given the area's regional infrastructure (i.e. Toronto Pearson International Airport, other regional airports, provincial highways, inter-modal facilities), access to labour force, post-secondary institutions and proximity to the U.S. border. In turn, this continues to support steady population and housing growth within the G.G.H., largely driven by international and inter-provincial net migration to this region.

The G.G.H. Outer Ring is projected to be the fastest growing region in Ontario over the next 30 years. As illustrated in Figure ES-1, due to its geographic location within the western region of the G.G.H. Outer Ring, Wellington County is forecast to experience significant outward growth pressure over the next several decades largely from the western and northern Greater Toronto and Hamilton Area (G.T.H.A.) upper-tier municipalities, which have historically been amongst the fastest growing municipalities in Ontario in recent decades.

The County's "small town" urban and rural landscapes form a large part of the foundation which creates the "quality of place" that continues to increasingly attract new residents to this area. For the County of Wellington, the coronavirus disease (COVID-19) pandemic has acted as a near-term driver of housing demand, led by increased opportunities for remote work and the reconsideration by some Ontario residents to trade "city lifestyles" for "smaller town living." It is recognized, however, that the longer-term population and employment growth potential for the County will be heavily dependent on sustained economic growth potential of the broader economic region. As

such, it is important not to overstate the near-term impacts of COVID-19 on housing demand in the County of Wellington over the long term.

Over the past two decades, the County has experienced steady employment growth across a broad range of sectors including manufacturing, construction, retail, transportation and warehousing, agriculture, and tourism. The County's employment base is also highly concentrated in the creative class economy, including people engaged in arts and culture, such as artists, actors, performers, writers and designers. The economic base is also highly oriented towards small businesses and home-based occupations. To varying degrees, the County's established employment sectors are all anticipated to experience employment growth consistent with the relatively strong long-term economic outlook for the broader economy.

As the employment base continues to grow within the County and the surrounding commuter-shed, the economy is also anticipated to diversify, generating a range of new live/work and commuting opportunities that increasingly focus on emerging knowledge-based employment sectors related to professional, technical and scientific services, other business services, health care and education and information technology.

As the local employment base and economy within the surrounding commuter-shed continue to grow, the County of Wellington will continue to be a desirable location for workers to live, leading to steady population growth across the County. Over the next 30 years, the County's local employment base is also anticipated to benefit from the regional economic expansion anticipated in neighbouring municipalities within the G.G.H. Outer Ring, particularly those that are located within the Toronto-Waterloo Innovation Corridor.[1] Raising the economic profile of the County of Wellington by leveraging the economic opportunities and strengths of the broader G.G.H. regional

[1] The Toronto-Waterloo Innovation Corridor, which includes the City of Guelph and Waterloo Region, has strong economic and employment growth potential based on its established presence as the largest technology cluster in Canada, critical mass of post-secondary institutions and incubators, access to skilled labour, and high quality of life. The Toronto-Waterloo Innovation Corridor is the second largest and second fastest growing market in North America related to technology talent, including over 200,000 tech workers and 15,000+ tech companies. The Toronto-Waterloo Innovation Corridor provides a key opportunity for Wellington County to leverage its growing local economy in the technology sector.

economy is recommended as a key long-term economic development strategy for the County.

ES-2
County of Wellington within the Context of the G.G.H.

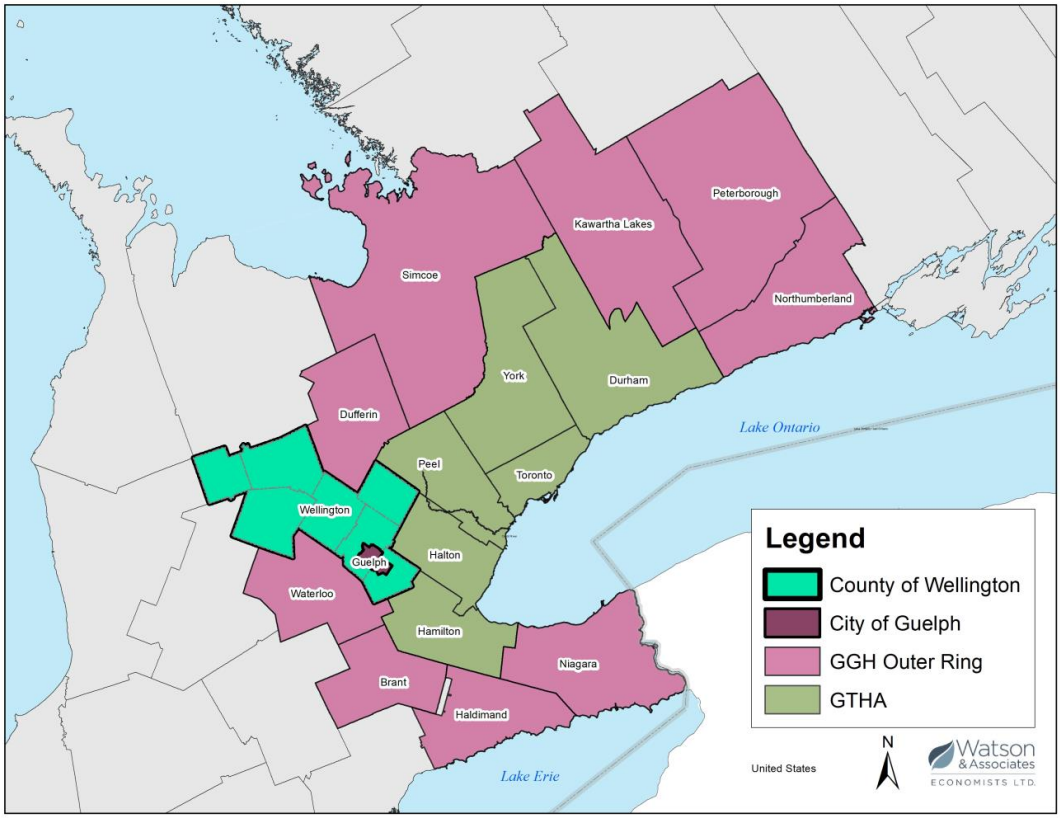
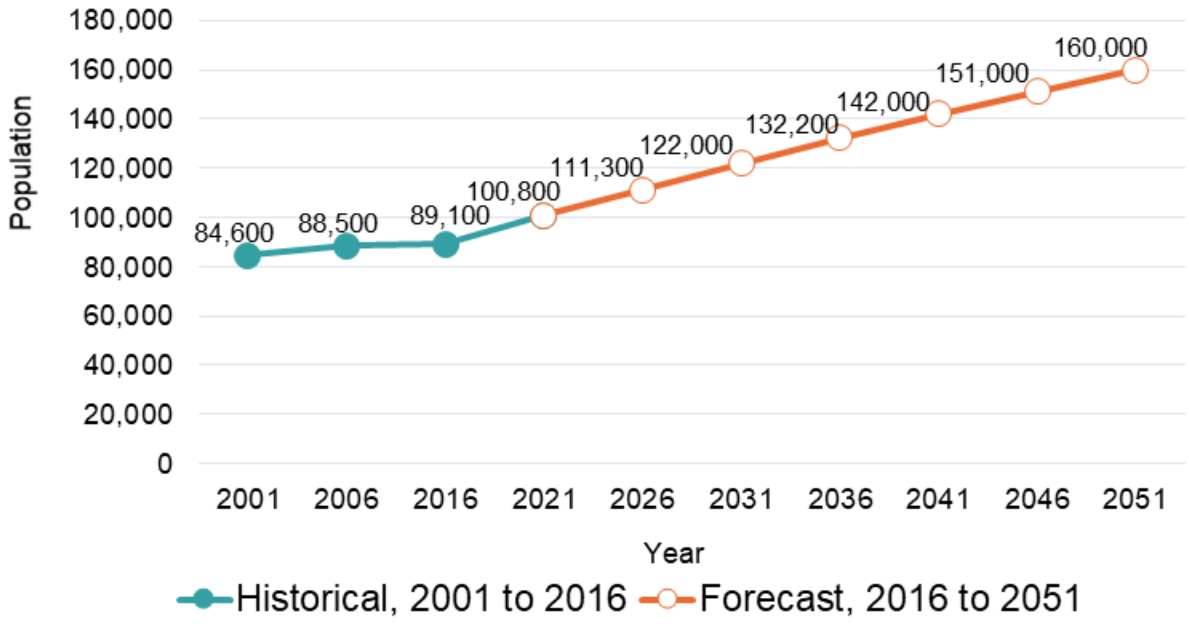


Figure ES-3 summarizes the County of Wellington's total population growth forecast over the 2016 to 2051 forecast period relative to historical population between 2001 and 2016. By 2051, the County's total population base is forecast to grow to approximately 160,000. This represents an increase of approximately 66,400 persons between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Based on the review of the County's long-term growth outlook provided in this report, the 2051 population and employment forecast, as set out in Schedule 3 of the Growth Plan, 2019, is the recommended long-term growth scenario for the County of Wellington. The Schedule 3 Growth Plan, 2019 forecast for Wellington County:

- Represents a reasonable increase in long-term population and employment growth relative to historical trends;

- Accurately identifies the anticipated influence of identified regional and local growth drivers on future development trends across the County; and
- Represents a reasonable increase in the share of total population and employment in the County of Wellington relative to the G.G.H. Outer Ring as a whole.

Figure ES-3
County of Wellington
Population Growth Forecast to 2051



Source: 2001 to 2016 derived from Statistics Canada Census. Forecast by Watson & Associates Economists Ltd.

To accommodate the long-term population forecast, the County will require an additional 22,000 new households to be constructed over the 2021 to 2051 planning horizon, or just over 700 new households annually. It is anticipated that a large component of housing growth will include low-density housing; however, increasing demand is also anticipated for medium-density and high-density housing forms to provide greater choice in housing options by type and tenure for a broad range of residents by age and income.

Addressing the interconnection between the County's competitive economic position and its longer-term housing needs by market segment is critical in realizing the County's future forecast population and employment growth potential, as well as the County's

ultimate goals related to prosperity, opportunity, and livability. This approach recognizes that the accommodation of skilled labour and the attraction of new businesses are inextricably linked and positively reinforce one another. To ensure that economic growth is not constrained by future labour shortages, effort will be required by Wellington County and its local municipalities to continue to explore ways to attract and accommodate new skilled and unskilled working residents to the County within a diverse range of housing options. Attraction efforts must also be linked to housing accommodation (both ownership and rental), infrastructure, municipal services, and amenities, as well as quality of life attributes that appeal to the younger mobile population, while not detracting from the County's attractiveness to older population segments.

Wellington County Population Growth Allocations, 2021 to 2051

Over the forecast horizon, it is anticipated that the County will become increasingly more urban. As of 2016, approximately 51% of the County's population is within the Urban System, while 49% of the County's population is within the Rural System. Looking forward, it is anticipated that by 2051, approximately 66% of the County's population base will be concentrated within the Urban System, which includes 12 Primary Urban Centres. It is anticipated that the Urban System within the County will accommodate an additional 58,300 persons by 2051. As a comparison, this growth increment is greater than the estimated Urban System population base as of 2016 (2016 population within the Urban System is estimated at 47,600). Phase 2 of the M.C.R. which is related to growth management and urban lands will explore requirements to accommodate future urban growth within the existing settlement boundaries of the Urban Centres.

As previously discussed, net migration, largely from the large urban centres within the western and northern G.T.H.A. municipalities and the western G.G.H. Outer Ring is anticipated to be the major driver of population growth for the County. Urban Centres with good access to the larger G.G.H. employment markets, such as Fergus, Elora and Erin Village, are anticipated to accommodate a large portion of the County's population growth. It is anticipated that these Urban Centres will also play a role in broadening the housing options available within the County with respect to housing structure type. Other Urban Centres are anticipated to accommodate more moderate levels of future population growth as these Urban Centres are also important community hubs for the County. All Urban Centres that do not have identified municipal servicing constraints

are anticipated to continue to accommodate urban development at higher levels than historically experienced in recent decades.

At the Area Municipal level, the Township of Centre Wellington and the Town of Erin, located in the southern portion of the County, are anticipated to accommodate a large portion of the County's population growth over the long-term planning horizon. The Township of Centre Wellington is anticipated to accommodate just under half the County's population growth (45%), while the Town of Erin is anticipated to accommodate just under a quarter of the County's population growth (22%).

With limited or no opportunities to accommodate residential growth in areas with full municipal services (water and wastewater), the Township of Guelph-Eramosa and the Township of Puslinch are anticipated to accommodate a lower share of population and housing growth relative to historical trends. Further, it is anticipated that Guelph-Eramosa and Puslinch will accommodate a large share of the County's rural population and housing growth.

The municipalities in the northern portion of the County, including Mapleton, Minto and Wellington North, are anticipated to accommodate 23% of the County's population growth. While potential urban land supply is currently designated to accommodate additional urban development within some of these northern municipalities, there are perceived limits from a real estate market perspective regarding the level of sustained urban development that these municipalities can accommodate over the long term.

Wellington County Employment Growth Outlook and Allocations to 2051

The County faces a number of opportunities and challenges with respect to employment growth in light of the evolving structural changes in the economy and disruptive factors which continue to influence the nature of the economy. One of these challenges relates to macro-economic trends over which the County has limited control. This includes the relative strength of the global economy, international trade policy and the competitiveness of the Canadian economic base relative to other established and emerging global markets.

In contrast to the above, the County of Wellington has considerable control and ability to position itself in a positive manner when considering the County's regional competitive ranking. This requires the County to continue marketing itself as a hub for innovation, equipped with the human capital that is required to encourage on-going innovation,

entrepreneurship, small business development and local investment retention. A major factor for the future competitiveness of the County's economic base relates to the structure, quality and "readiness" of its Employment Areas.

Over the next several decades the County's employment base is anticipated to steadily grow across a broad range of export-based and population serving employment sectors. The County, however, will be competing to attract and retain these sectors with other municipalities across the G.G.H. and beyond. The County of Wellington has a diverse and growing economic base with a strong employment base in both the Rural System and the Urban System. Over the long term, the County is expected to accommodate balanced growth between residential and non-residential development and provide increasing local job opportunities for the residents of Wellington. By 2051, the County's employment base is forecast to reach approximately 70,000, in accordance with Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 30,100 jobs from 2016, or an annual employment growth rate of 1.7%.

Over the 2020 to 2051 period, employment within Urban Employment Areas is anticipated to account for 32% of total employment and accommodate a diverse range of industrial sectors, and new and expanding businesses. Urban Community Areas are anticipated to account for the largest share of the County's employment growth at 53% driven largely by work at home employment, commercial services, tourism services and institutional uses.

The County's Rural System is anticipated to remain a large component of the County's employment base. It is anticipated that growth within the Rural System will be supported by an expanding agriculture base, opportunities for on-farm diversification, recreation activities and small-scale rural employment lands employment (E.L.E.) uses.

Achieving the County-wide employment forecast and allocations by Area Municipality will also require significant investment and effort on behalf of both the public and private sectors to attract and accommodate new employers and facilitate the expansion of existing businesses across a broad range of established and emerging employment sectors.

Conclusions

Over the forecast horizon, it is anticipated that all Area Municipalities within Wellington County will continue to experience strong population, housing and employment growth.

As discussed in Chapter 3, it is anticipated that the outward growth trends from the G.T.H.A. to the G.T.A. Outer Ring will continue to place urban development pressures on Wellington County.

By 2051, the County of Wellington total population base is forecast to grow to approximately 160,000 persons as per Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 66,400 residents between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Accommodating forecast total population growth in the County of Wellington will require approximately 24,710 new households, or just over 710 new Census households annually from 2016 to 2051 (or 730 over the 2021 to 2051 period). In accordance with the comprehensive analysis provided as part of this report, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the County of Wellington. As such, a higher long-term population forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

The Urban Centres within the Township of Centre Wellington and the Town of Erin, are anticipated to accommodate a large portion of the County's population and employment growth over the long-term planning horizon, due to their proximity to the large employment markets of the G.G.H. These Urban Centres will play a role in broadening the housing options available within the County with respect to housing structure type. The remaining Area Municipalities are anticipated to add to their population and employment base at a rate generally higher than historical levels, where municipal water/wastewater servicing constraints have not been identified.

Over the forecast horizon, it is anticipated that the County will become increasingly more urban. As of 2016, approximately 51% of the County's population is within the Urban System, while 49% of the County's population is within the Rural System. Looking forward, it is anticipated that by 2051 approximately 66% of the County's population base will be concentrated within the Urban System which includes 12 Primary Urban Centres.[1] Similar to the population base, employment growth is also anticipated to become increasingly more urban. This is anticipated to place increasing

[1] Housing within the Urban System represents 54% of the County's housing and is anticipated to increase to 69% by 2051.

demands on the County for infrastructure and municipal services which are able to support a larger, more diverse urban population base.

Recommendations

The following Phase 1 M.C.R. recommendations are provided regarding the County's proposed urban structure, and its population, household and employment forecast to 2051.

Urban and Rural System

- The County should provide a distinction between the Urban System and the Rural System based on servicing (water and wastewater) and where the majority of the growth is to be allocated in accordance with the Growth Plan, 2019 policies. It is recommended that the Urban System be defined based on full servicing, while the remaining be classified as the Rural System.
- Urban Centres without full servicing, which includes Aberfoyle and Morriston, are recommended to be referred to as Secondary Urban Centres within the Rural System and identified as priority settlement areas within the Rural System given the importance of these settlement areas as community hubs.
- All Urban Centres (12 in total) with full municipal servicing are recommended to be referred to as Primary Urban Centres.
- The County should consider modifying the Employment Area definition in the County's O.P. to include only areas identified in the O.P. as Industrial and Rural Employment Areas (i.e., exclude Highway Commercial), lands identified in provincially policies for protection to non-employment uses.

County-Wide Forecast

- In accordance with the comprehensive analysis provided as part of this report, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the County of Wellington. As such, a higher long-term population forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

Growth Allocations to 2051

- It is recommended that the County adopt the growth allocations by Area Municipality to 2051. Area municipalities may elect to make further refinements to the rate of population and employment growth within the 2021 to 2051 planning horizon.
- It is further recommended that the County and Area Municipalities, which have an identified Urban System, plan for a steady shift in their population and employment base towards urban development.

While growth allocations have been provided by Urban Centre, these forecasts are provided for guidance and for planning purposes at the local municipal level. Area Municipalities may elect to make further refinements within their Urban System to reflect changes in local conditions, servicing and timing of development.

Next Steps

This report will form an important component in supporting the analysis in the Phase 2 Report which is scheduled for completion by Fall 2021. The Phase 2 Report - Land Needs Assessment & Policy Considerations will include the technical growth management requirements of the M.C.R. The Phase 2 Report will conclude the urban land requirements for the County's Urban System (Designated Greenfield Area (D.G.A.) Community Area and Urban Employment), as well as provide further recommendations in accommodating growth in the Urban and Rural System.

Key components of this Phase 2 report will include:

- A review of intensification opportunities and challenges in meeting the County's existing target of 20% of annual housing growth within the built-up area and a recommendation on the County's intensification target;
- An assessment of the D.G.A. density target of 40 people and jobs/gross ha and a recommendation on the County's target;
- An Employment Area density target for the O.P.;
- Land requirements for the D.G.A. Community Area and Employment Areas within the Urban System; and
- Planning policy considerations with respect to planning for growth and growth management.

Refer to January 31, 2022 Addendum Report for revisions to this Report.



Report

Chapter 1
Introduction

1. Introduction

1.1 Terms of Reference

The County of Wellington retained Watson & Associates Economists Ltd. (Watson) in late 2019 to prepare the growth management technical requirements of its Municipal Comprehensive Review (M.C.R.), and to provide the County with strategic policy recommendations to support the development of updated policies to the County's Official Plan (O.P.). The process of preparing an update to the County's O.P. represents an M.C.R. in accordance with section 26 of the *Planning Act,* R.S.O. 1990, c. P.13.

The M.C.R. technical reporting has been organized into two reports:

- Phase 1 Report – Growth Forecasts and Growth Allocations; and
- Phase 2 Report – Land Needs Assessment & Policy Considerations.

Key components of this Phase 1 report include:

- A review of the Urban and Rural System, including settlement hierarchy;
- Long-term population, housing and employment forecasts to 2051;
- Allocations of population, housing and employment by Area Municipality and Urban Centre; and
- Phase 1 Conclusions and recommendations.

Refer to January 31, 2022 Addendum Report for revisions to this Report.

1.2 What is a Municipal Comprehensive Review?

An M.C.R. is used to establish a long-term vision and planning framework for a municipality that fosters a sustainable approach to future residential growth and economic development. Typically, an M.C.R. examines future population and employment growth potential and corresponding urban land needs over a long-term planning horizon. For municipalities located within the Greater Golden Horseshoe (G.G.H.), the long-term planning horizon is the year 2051.

The Province has defined a process for bringing an O.P. up to date with key parts of the Growth Plan termed an M.C.R, which means:

> "A new official plan, or an official plan amendment, initiated by an upper- or single-tier municipality under section 26 of the *Planning Act* that comprehensively applies the policies and schedules of this Plan."

This process is specific to municipalities within the G.G.H. and is associated with its own deadline of July 1, 2022. The Growth Plan and related guidelines set out how to complete an M.C.R.

Major components of an M.C.R. include:

- Review and refinement of the population, housing and employment forecasts;
- Review of intensification and density targets;
- Completion of an urban land needs assessment which determines if and how much new land will be needed to accommodate growth; and
- A review of O.P. policies and designations, including a range of themes, such as:
    - Growth management;
    - Agricultural and rural areas;
    - Climate change;
    - Complete and healthy communities;
    - Consultation and coordination;
    - Housing;
    - Mineral aggregates;
    - Natural heritage and flooding;
    - Transportation; and
    - Water resources.

The results of the M.C.R. will assist staff in preparing amendments to the policies and maps in the County's O.P. for consideration by County Council. By completing the M.C.R., County staff will align the O.P. policies with the new Growth Plan, 2019.

1.3 Provincial Policy Context

1.3.1 Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (P.P.S., 2020) provides policy direction on matters of provincial interest relating to land-use planning and development. It is issued under the authority of section 3 of the *Planning Act* and requires that all planning decisions "shall be consistent with" the P.P.S., 2020 (*Planning Act*, R.S.O. 1990, c. P. 13 s. 3).

The PPS, 2020 came into effect on Mary 1, 2020.[1] Its purpose was to update the PPS, 2014 so that it worked together with changes to the provincial land-use planning system that occurred around the same time. This included changes to the *Planning Act* through Bill 108, the *More Homes, More Choice Act* (2019) and the on-going updates to the Growth Plan. Additional reasons for the update largely related to the need to increase urban housing supply, support the economy and job creation, and to reduce barriers and costs to the land-use planning system in order to provide greater predictability.

A significant change of the PPS, 2020 with regard to housing policy is the provision of a housing options approach to address an appropriate range and mix of housing, and to specifically meet market-based needs of current and future residents (policy 1.4.3). Providing for housing options adds broader considerations like ownership structures and housing program planning to built-form considerations. Housing options are defined as:

> "A range of housing types such as, but not limited to single detached, semi-detached, rowhouses, townhouses, stacked townhouses, multiplexes, additional residential units, tiny homes, multi-residential buildings and uses such as, but not limited to life lease housing, co-ownership housing, co-operative housing, community land trusts, affordable housing, housing for people with special needs, and housing related to employment, institutional or educational uses."

Throughout the P.P.S., 2020 there is strong encouragement to consider the market when addressing planning matters such as managing growth overall, identifying market-ready sites to improve economic development and competitiveness, and providing for a

[1] Provincial Policy Statement, 2020. Under the *Planning Act*. Ontario.

range and mix of housing options. Although this may assist with managing growth and development in a way that may more accurately reflect market realities, it could make it more challenging for municipalities to transition to other types of development forms that they have not historically had considerable success in implementing. As such, when discussing the outlook for the real estate market, it is important to discuss both existing conditions as well as the driving factors which are anticipated to encourage and disrupt housing market demand by structure type and built form. Furthermore, while market demand is important when considering long-range land-use planning, this demand must be broadly considered within the context of broad provincial interests, namely: ensuring the efficient use of land, resources, and infrastructure; providing a clean and healthy environment for current and future generations; and diversifying an economic base and supporting job creation.

Notable policies related to planning for Employment Areas in the updated P.P.S., 2020 include requiring municipalities to have enough urban land supply to meet projected needs for a planning horizon of 25 years, and include Employment Areas as areas that could be planned for beyond this horizon provided they are not designated beyond the planning horizon.

The P.P.S., 2020 recognizes the significant economic contribution of Employment Areas, and the importance of protecting and preserving them. It provides details on how municipalities should plan for employment. The P.P.S., 2020 policies suggest preparing and readying Employment Areas by identifying strategic sites, monitoring the availability and suitability of employment sites with a focus on market-ready sites, and actively seeking to address potential barriers to investment (policy 1.3.2). The policy further outlines that, during an O.P. review or update, planning authorities assess Employment Areas in local O.P.s to ensure the designation is appropriate for the planning function of the Employment Area (policy 1.3.2.2).

1.3.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019

The Growth Plan, 2019, which was created under the *Places to Grow Act, 2005*, was updated in May 2019 and amended in August 2020. It sets out where and how growth will occur across the G.G.H. to 2051 and that all planning decisions shall conform to it.

The Growth Plan, 2019 provides growth forecasts for single- and upper-tier municipalities and provides policy direction on a range of matters including land use,

infrastructure, and transportation. Relevant aspects of the Growth Plan, 2019 for this study include the following:

Managing and Directing Growth

- Growth will be directed to settlement areas and within settlement areas in areas with existing or planned public services facilities;
- Municipalities should develop as complete communities with a diverse mix of land uses, including employment and residential with convenient access to local stores, services and public service facilities;
- Municipalities should plan for a diverse range and mix of housing options, including second units and affordable housing, to accommodate people at all stages of life, and to accommodate the needs of all household sizes and incomes;
- Population and employment growth are to be accommodated by reducing dependence on the automobile through the development of mixed-use, pedestrian-friendly urban environments; and
- Municipalities should preserve lands within settlement areas in the vicinity of major highway interchanges, ports, rail yards and airports for manufacturing and associated retail, office and ancillary facilities where appropriate.

Minimum Intensification Targets[1]

- New minimum intensification targets, the minimum percentage of all residential development occurring annually within the delineated built-up area (B.U.A.), have been created for upper-tier and single-tier municipalities in the G.G.H. There are two geographic groups for intensification targets. The County of Wellington is in the lower intensification target group, which requires that by the time the next M.C.R. is approved and in effect, and for each year thereafter, the County maintain or improve upon the minimum intensification target contained in the O.P.
- It is important to note that all upper-tier and single-tier municipalities within the G.G.H. have the ability to apply for alternative intensification targets.

[1] Growth Plan for the Greater Golden Horseshoe, 2019, section 2.2.2.

Minimum Greenfield Density Targets[1]

- New minimum density targets have been created for the horizon of the Growth Plan, 2019 for G.G.H. upper-tier and single-tier municipalities and include two geographic groups. It is important to note that the greenfield density targets established in the Growth Plan, 2019 do not include employment lands.[2] The County of Wellington is in the lower density target group, which is required to plan to achieve within the horizon of this Plan a minimum density target that is not less than 40 residents and jobs combined per hectare.
- All upper-tier and single-tier municipalities have the ability to apply for alternative designated greenfield area (D.G.A.) density targets.

Employment[3]

- According to the Growth Plan, 2019, upper- and single-tier municipalities, in consultation with lower-tier municipalities, will each establish minimum density targets for all Employment Areas within the settlement area. The density targets are to reflect the current and anticipated type and scale of employment that characterizes the Employment Area to which the target applies. Further, the minimum employment density target reflects opportunities for the intensification of Employment Areas on sites that support active transportation and are served by existing or planned transit.[4]
- As part of the Growth Plan, 2019, the Province allows for employment land conversions outside of an M.C.R., while ensuring protections are in place to safeguard key Employment Areas as needed.
- The conversion of employment lands to a designation that permits non-employment is allowed outside of an M.C.R., provided that
    - there is a need;
    - maintain a significant number of jobs on those lands through the establishment of development criteria;
    - there are no adverse effects on the viability of an Employment Area or achievement of minimum intensification targets; and

[1] Growth Plan for the Greater Golden Horseshoe, 2019, section 2.2.4.
[2] Ibid., 2.2.7.
[3] Ibid., section 2.2.4.
[4] Ibid., section 2.2.5.

- there are existing or planned services in place.[1]

Settlement Area Boundary Adjustments and Expansions[2]

- The Growth Plan, 2019 places emphasis on a more outcome-focused approach to urban boundary expansions, rather than specifying types of studies required to justify the feasibility and location of expansions.
- Municipalities are allowed to undertake settlement area boundary expansions that are no larger than 40 ha (approximately 99 acres) outside of the M.C.R. process, subject to criteria.
- Settlement area boundary adjustments are also permitted outside of an M.C.R. provided that there is no net increase in land within settlement areas, subject to criteria.
- If applicable, municipalities within the G.G.H. Outer Ring are required to identify excess lands and prohibit development on such lands to the horizon of this Plan.

Amendment 1 to A Place to Grow

On August 28, 2020, the province released Amendment 1 to A Place to Grow: Growth Plan for the G.G.H., 2019 which has been incorporated into an Office Consolidation, August 2020 document. The Growth Plan, 2019 has been amended in conjunction with a revised outcome-based LNA methodology for the G.G.H. These documents are in effect as of August 28, 2020.

The population and employment growth forecast horizon set out in Schedule 3 of the Growth Plan 2019 and the applicable time horizon for land-use planning has now been extended to 2051. It is further noted that the recommended Schedule 3 growth forecasts are to be treated as minimums, with higher growth forecast alternatives permitted by upper- and single-tier municipalities through their respective MCR process.[3] If an alternative growth forecast that exceeds Schedule 3 of the Growth Plan, 2019 is utilized, the MCR must demonstrate that the alternate growth scenario meets the Growth Plan, 2019 policy objectives of accommodating a range of housing choices

[1] Growth Plan for the Greater Golden Horseshoe, 2019, section 2.2.5.10.
[2] Ibid., section 2.2.8.
[3] Growth Plan, Office Consolidation 2020, Policy 5.2.4, p. 56.

to meet market demand and the needs of current and future residents, as well as providing additional labour opportunities for the G.G.H. labour market.[1] It should be noted that higher forecasts established by upper- and single-tier municipalities through their M.C.R.s will not apply to provincial ministries and agencies.[2]

1.3.3 Land Needs Assessment Methodology for the Greater Golden Horseshoe

On June 16, 2020, the Minister released the proposed LNA in the G.G.H. for consultation. The Minister formally issued the final methodology on August 28, 2020 in accordance with policy 5.2.2.1 c) of the Growth Plan, 2019.[3] This methodology replaces the previous L.N.A. methodology for the G.G.H. that was issued on May 4, 2018. The revised L.N.A. methodology focuses on a more simplified and outcome-based approach in comparison to the 2018 L.N.A. methodology. Upper- and single-tier municipalities in the G.G.H. are required to use the methodology in combination with the policies of the Growth Plan, 2019, to assess the quantity of land required to accommodate forecast growth.

The L.N.A. methodology identifies that the results of an L.N.A. can only be implemented through an M.C.R. As previously identified, an M.C.R. is a new O.P, or an Official Plan Amendment (O.P.A.) initiated by an upper- or single-tier municipality under section 26 of the *Planning Act* that comprehensively applies the policies and schedules in the Growth Plan, 2019.

In accordance with the L.N.A. methodology, land needs are to be assessed across two different areas including Community Areas and Employment Areas, as defined below:

- **"Community Areas**: Areas where most of the housing required to accommodate the forecasted population will be located, as well as most population-related jobs, most office jobs and some employment land employment jobs. Community areas include *delineated built-up areas* and *designated greenfield areas*."

[1] A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Land Needs Assessment Methodology for the Greater Golden Horseshoe, p. 5.
[2] Growth Plan, 2019, Policy 5.2.4.8, p. 57.
[3] A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Land Needs Assessment Methodology for the Greater Golden Horseshoe (2020). Ontario. August 28, 2020.

- **"Employment Areas:** Areas where most of the employment land employment jobs are (i.e. employment in industrial-type buildings), as well as some office jobs and some population-related jobs, particularly those providing services to the employment area. Employment areas may be located in both *delineated built-up areas* and *designated greenfield areas*."[1]

1.4 County of Wellington Official Plan

The County of Wellington O.P. (adopted May 6, 1999, Office Consolidation revision January 8, 2021) is being reviewed as part of this M.C.R. process as it relates to growth management, growth forecasts, housing, and employment directions. In 2017, the County completed major updates to the O.P. to conform with the June 2013 consolidation of the provincial Growth Plan for the G.G.H., 2006. A key major update included Official Plan Amendment (O.P.A.) 99. O.P.A. 99 amended the County of Wellington's growth forecast by updating the population, household and employment forecast, including extending the forecast to 2036 and 2041. Other updated policies as part of O.P.A. 99 included policies for second units, to comply with changes to the *Planning Act*.

As part of the M.C.R. and the O.P.'s five-year review process, the County is required to update the County's O.P. with the current version of Growth Plan, 2019 (as amended, Office Consolidation 2020). As previously discussed, the Growth Plan, 2019 requires municipalities to update their respective O.P. to a 2051 horizon, including reviewing and evaluating the minimum density and intensification targets and forecasts contained in the Growth Plan as part of the M.C.R. process.

In the County of Wellington's O.P., Urban Centres are identified as the preferred growth areas with a full range of land-use opportunities. Residential uses of various types and densities, commercial, industrial, and institutional uses, as well as parks and open space uses, will be permitted where compatible and where services are available.[2] Other settlement areas include hamlets. Hamlets are identified as small settlement areas that are limited to small-scale development given the rural context and level of

[1] Land Needs Assessment Methodology for the Greater Golden Horseshoe (2020), p. 6, 7 and 15 to 18.
[2] County of Wellington Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 7.5, p. 73.

service available in hamlets. Further, it is noted in the O.P. that hamlets will typically accommodate low-density development with individual on-site services.[1]

The County O.P. defines two major housing density types: low density (single-detached, semi-detached and duplex) and medium density (townhouse, rows and apartments with a maximum density of 75 units per ha).[2] The County's O.P. generally does not permit high-density housing forms with a density greater than 75 units per ha.

With respect to directing employment growth, the County has four distinct major designations to accommodate growth. Non-residential designations include Highway Commercial; Industrial; Rural Employment; and Central Business District. Employment Areas are defined as areas designated as Highway Commercial, Industrial and Rural Employment.[3] Conversions of these uses to other uses not permitted are an Employment Area conversion. The Highway Commercial designation accommodates the majority of commercial services based outside the Central Business District. The purpose of the Highway Commercial designation is to accommodate larger retail uses that require large sites for parking and access to major roads. The Industrial designation is concentrated in the Urban Centre and has municipal servicing. The Industrial designation primarily accommodates industrial-type development and export-based activities. The Rural Employment designation accommodates industrial-type development outside Urban Centres and with on-site private servicing. Finally, the Central Business District is considered an important civic centre of the community and is intended to accommodate the most intensive development within the Urban Centre.[4]

Key growth management targets of the County's O.P. include the following:

- Strive to attain at least 16 units per gross hectare (6.5 units per gross acre) in newly developing subdivisions;[5]
- Require new developments to achieve densities which promote the overall greenfield density target of 40 persons and jobs per hectare;[6]

[1] County of Wellington Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 7.5, p. 73.
[2] Ibid., Policy 8.3.4 and Policy 8.3.5, p. 79 and p. 80.
[3] Ibid., Policy 4.2.2., p. 22.
[4] Ibid., Policy 8.4.4., p. 84.
[5] Ibid., Policy 4.4.4., p. 25.
[6] County of Wellington Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 4.4.4., p. 25.

- Target a minimum of 25% of new housing units in the County to be affordable (affordable is 10% below the average price in the market area);[1] and
- Ensure that by the year 2015 and for each year thereafter, a minimum of 20 percent of all residential development occurring annually will be within the B.U.A.[2]

By 2041, the County is anticipated to increase its share of the Urban System population from 51% in 2016 to 62% by 2041. The County's O.P. does not contain policies on targeting Employment Area density. As part of the M.C.R. Phase 2 Report, a density target for Urban Employment Areas will be identified that reflects the location conditions and anticipated outlook within the County.

[1] Ibid.
[2] Ibid.

Chapter 2
Urban and Rural System

2. County of Wellington Urban and Rural System

The County of Wellington includes a blend of urban and rural communities. This chapter provides an overview of the structural components of the Urban and Rural System, including an assessment of the existing County O.P. framework compared to the provincial Growth Plan, 2019 policy framework. In addition, this chapter provides policy recommendations in aligning the County's O.P. urban and rural system structural components with the Growth Plan, 2019.

2.1 Introduction

2.1.1 Background

The Growth Plan, 2019 requires municipalities, through the M.C.R. process, to develop a hierarchy of settlement areas that identifies where and how the municipality will grow over the 2051 planning horizon. Further, the Growth Plan, 2019 requires the majority of the growth to be directed to the Urban System, comprised of fully serviced (water/ wastewater servicing) settlement areas. In addition to an Urban System, the County of Wellington has a large Rural System, comprising a large geographical area of the County. The Rural System also includes a large portion of the County's population within rural settlement areas and several vibrant Employment Areas. The structural components of the Rural System are different than the Urban System with respect to function, role and scale.

2.2 Rural System

The Rural System includes lands that are protected from large-scale urban development. A key objective of the Rural System is to protect agriculture land, resources and the natural environment, while encouraging economic and cultural activities that support the health and prosperity of rural communities.

2.2.1 What is the Rural Area?

The Rural Area is generally the area within the municipality with no or partial municipal servicing (water/wastewater servicing). According to the Growth Plan, 2019, the Rural Area is comprised of rural settlement areas, rural lands and prime agricultural lands.[1]

Rural settlement areas include existing hamlets or similar existing small settlement areas that are long established in the O.P. These communities are typically serviced by individual, private, on-site water and/or private wastewater systems.[2] It is further noted that all settlement areas that are identified as hamlets in the Greenbelt Plan as rural settlements in the Oak Ridges Moraine Conservation Plan or as minor urban centres in the Niagara Escarpment Plan are considered rural settlement areas in meeting the Growth Plan, 2019 definition.[3] According to the Growth Plan, 2019, a limited amount of growth is allocated to rural settlement areas.[4]

Rural lands include non-prime agriculture lands (including rural residential lots) outside rural settlement areas. Rural lands accommodate uses that are not appropriate in settlement areas, including resource-based activities and recreational activities. Rural lands also include **Rural Employment Areas**,[5] which are defined as a cluster of industrial activities outside settlement areas, typically with partial or no services. Future Rural Employment Area growth is largely to be directed to existing designated Rural Employment Areas (as of June 16, 2006) or through expansions to accommodate existing business operations.[6]

Prime agriculture lands are where prime agricultural lands predominate. This includes areas of prime agricultural lands and associated Canada Land Inventory Class 4 through 7 lands and additional areas where there is a local concentration of farms and ongoing agriculture activities. Prime agricultural areas are to be identified by the Ontario Ministry of Agriculture, Food and Rural Affairs (O.M.A.F.R.A).[7]

[1] A Place to Grow, Growth Plan for the Greater Golden Horseshoe Region, 2019, Definitions, p. 81.
[2] Ibid.
[3] Ibid.
[4] Ibid., p. 13.
[5] Ibid., Policy 2.2.9., p. 27 and Definitions, p. 81.
[6] Ibid., Policy 2.2.9., p. 27.
[7] Ibid., Definitions, p. 79.

2.2.2 Structural Components of the Rural System

The following is a summary of the key structural components of the Rural System:

- **Rural settlement areas –** are hamlets and small-scale settlements that are to accommodate a limited amount of growth on land with private or partial servicing. According to the Growth Plan 2019, rural settlement areas should serve as community hubs where public service facilities are maintained and adapted to the needs of the surrounding community.[1]
- **Prime agriculture lands – lands** identified by the Ontario Ministry of Agriculture, Food and Rural Affairs (O.M.A.F.R.A.) where agricultural uses predominate. These lands are to be protected; however, diversification of on-farm uses (uses that are secondary to the principal agricultural use of the property) is encouraged.[2]
- **Rural Employment Areas –** are clusters of industrial activities outside settlement areas on non-serviced lands. Rural Employment Area growth is limited to existing designated lands (as of June 16, 2006) or through the expansion of existing business operations.
- **Other rural lands –** all other non-serviced lands. These lands are to accommodate a limited amount of growth. Growth on these lands is primarily limited to resource development, recreational-based and other economic activities not accommodated within settlement areas.

2.2.3 Rural System – County of Wellington O.P.

The existing County of Wellington O.P. defines the Rural System as "primarily natural resource land and some other uses typically found in non-urban areas."[3]

The Rural System includes:

- Prime agricultural areas;
- Secondary agricultural areas;
- Mineral aggregate areas;

[1] A Place to Grow, Growth Plan for the Greater Golden Horseshoe Region, 2019, Definitions, Policy 2.2.9, p. 27.
[2] Ibid., p. 78.
[3] Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 6.1, p. 61.

- Seasonal and recreational use areas;
- Rural housing;
- Rural Employment Areas;
- Waste management sites; and
- Special use areas.[1]

The County's 37 hamlets and two Urban Centres with no municipal services (Aberfoyle and Morriston) are classified in the County of Wellington O.P. as part of the Urban System. The current policies of the Rural System in the County O.P. represent narrower rural uses compared to policies in the provincial Growth Plan, 2019.

2.2.4 Proposed Changes to the County's Rural System O.P. Policies

A key distinction between the Rural System and the Urban System is the amount and type of growth to be allocated. The Growth Plan, 2019 requires the majority of the forecast growth be allocated to the areas with servicing (water/wastewater), i.e. Urban Centres. Growth within the Rural System is to be compatible with the rural setting and provide opportunities to support the rural base.

It is recommended that the County consider providing a distinction in the O.P. between the Rural System and the Urban System on the basis of servicing and the amount of growth to be accommodated within the Rural System. Further, the County's hamlets are an integral component of the County's rural area. While the settlement areas of Aberfoyle and Morriston meet the definition of rural settlement area according to the Growth Plan, 2019, the County should consider maintaining the status of these settlement areas as an Urban Centre. While opportunities to accommodate growth within Aberfoyle and Morriston are limited over the planning horizon, these settlement areas function as important community hubs in supporting the economic and social function of the Township of Puslinch. It is proposed that the County of Wellington classify Aberfoyle and Morriston as Secondary Urban Centres, within the Rural System. As a Secondary Urban Centre, these rural settlement areas will be considered a priority in maintaining their function as community hubs.

[1] Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 6.1, p. 61.

2.2.5 Proposed Rural System Components

The following are proposed Rural System components:

- Secondary Urban Centres (Aberfoyle and Morriston);
- Hamlets;
- Rural housing;
- Rural Employment Areas; and
- Other rural lands:
    - Prime agricultural areas;
    - Secondary agricultural areas;
    - Mineral aggregate areas;
    - Seasonal and recreational use areas;
    - Waste management sites; and
    - Special use areas.

As discussed later in this report, the majority of the County's growth over the 2016 to 2051 period is allocated to the Urban System. Approximately 12% of the County's population growth is allocated to the Rural System, which assumes small-scale development within the County's hamlets and the two Secondary Urban Centres, in addition to some growth through rural lot development (i.e. severances and development of vacant rural lots). With respect to employment growth, approximately 15% of the employment growth is allocated to the Rural System and assumes a large portion within Rural Employment Areas. Figures 2-1a and 2-1b provide maps of the proposed updates to the County's Rural System.

Figure 2-1a
County of Wellington
Proposed Rural System – Secondary Urban Centres and Hamlets

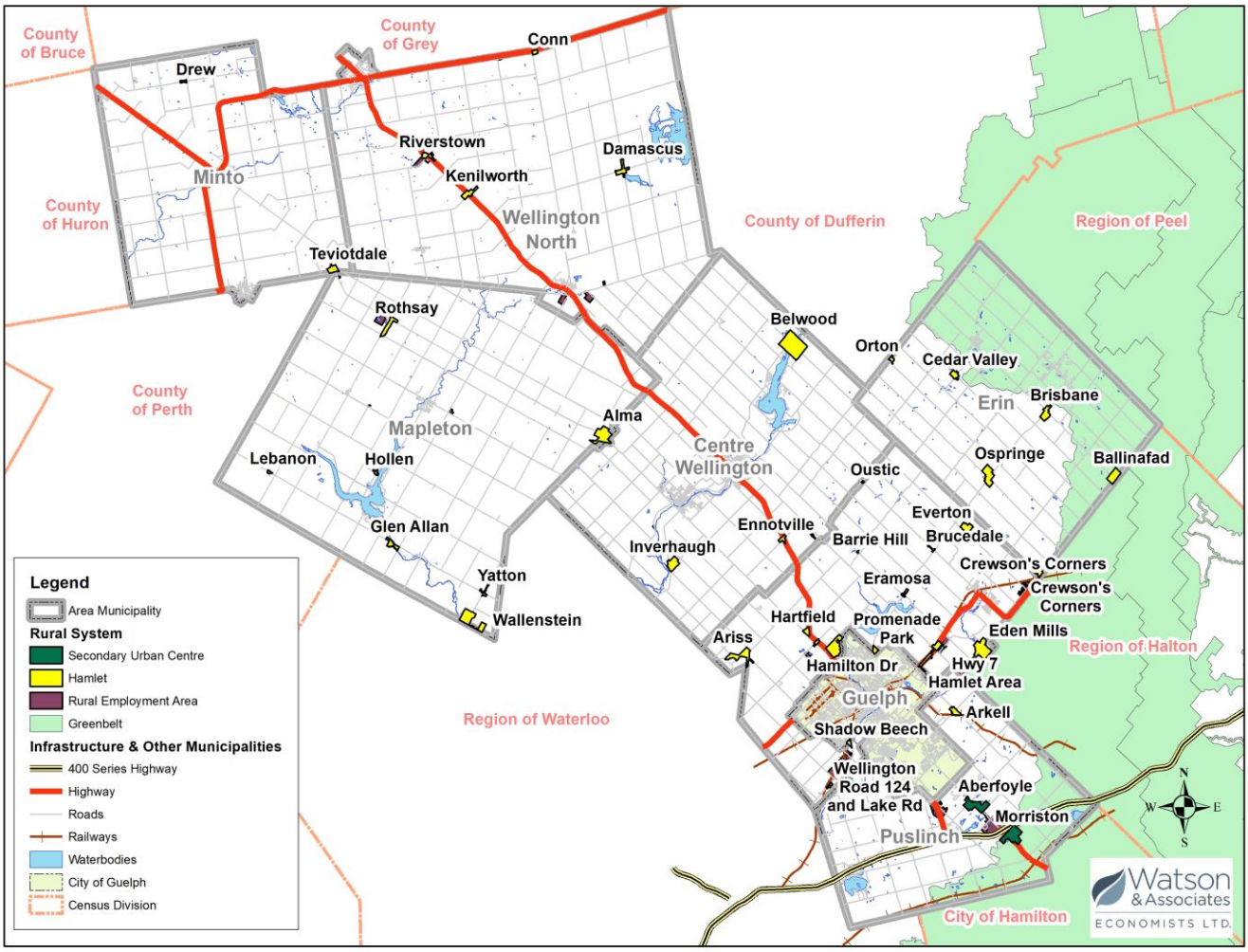
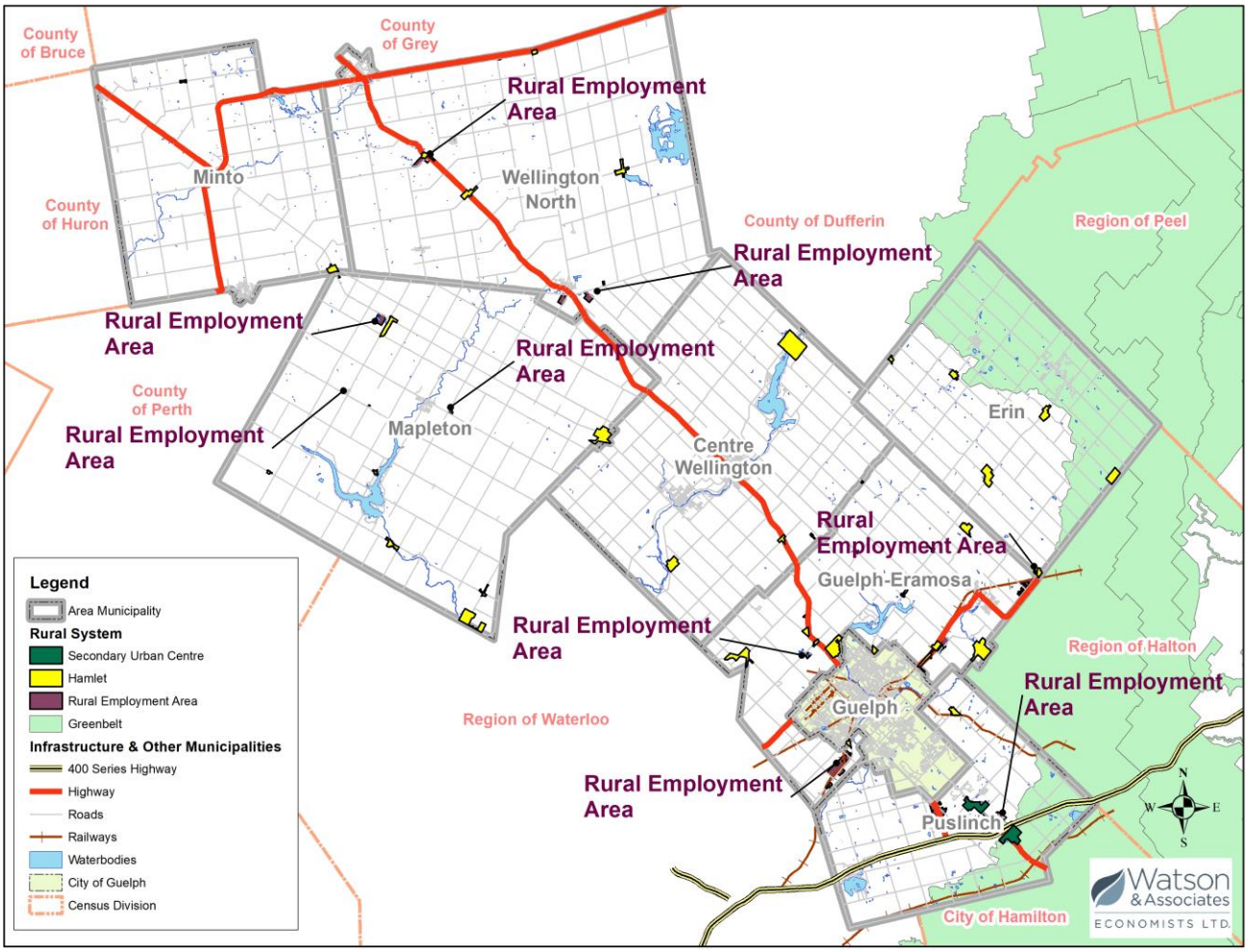


Figure 2-1b
County of Wellington
Proposed Rural System – Rural Employment Areas



2.3 Urban System

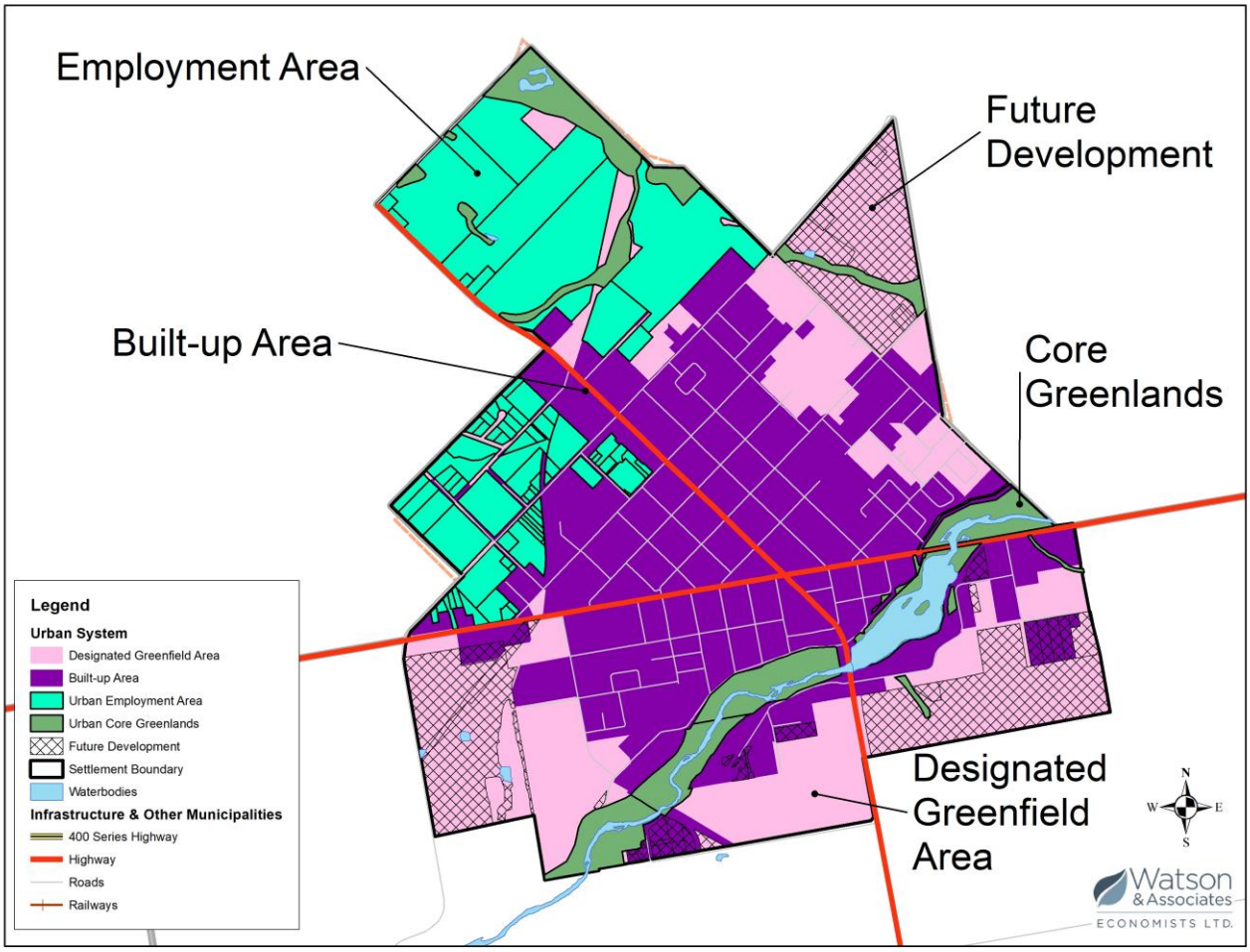
The Urban System includes urban settlement areas (referred to as Urban Centres in the County of Wellington O.P.) that are to accommodate the majority of the future residential and non-residential development. A key objective of the Urban System is to direct growth where there is planned and existing infrastructure in a manner that supports principles of complete communities. Complete communities include a diverse mix of land uses that provide opportunities to live, shop and work in the same community. According to the Growth Plan, 2019, the County of Wellington is required to also establish a hierarchy within the Urban System and within settlement areas.[1]

Within the Urban System, growth is to be prioritized within the B.U.A. The B.U.A. includes an area within a settlement that is municipally serviced (water and wastewater) and was delineated by the Province to represent the approximate area developed as of 2006. The County of Wellington has 12 Urban Centres with a delineated B.U.A. The portion of the urban settlement area (or Urban Centre) outside the B.U.A. is referred to as the D.G.A. Figure 2-2 illustrates the B.U.A. and D.G.A. of the Urban Centre of Mount Forest as an example.

Municipalities are required to explore opportunities to delineate strategic growth areas (S.G.A.s), areas that primarily prioritize intensification growth within the B.U.A. S.G.A.s can include major redevelopment areas, corridors with high-order transit, Major Transit Station Areas (M.T.S.A.s) and Urban Growth Centres (U.G.C.s) identified in the Growth Plan, 2019. Based on a review of the B.U.A.s of the 12 Urban Centres, the B.U.A.s of the County do not offer a large enough geographic area and scale to identify S.G.A.s. As such, it is recommended that County consider the entire B.U.A. as an S.G.A. for intensification.

[1] A Place to Grow, Growth Plan for the Greater Golden Horseshoe Region, 2019, Policy 2.2.1., p. 14.

Figure 2-2
Mount Forest Urban Centre
D.G.A. and B.U.A.



2.3.1 What is the Urban Area?

The urban area includes settlement areas that have full municipal servicing. These settlements have a B.U.A. where growth is to be prioritize first within the municipality. Urban areas have a mix of uses that support complete communities, including Urban Employment Areas. Urban areas outside of Urban Employment Areas are referred to as Community Areas.

Urban Centres include settlement areas with full municipal servicing.

2.3.2 What is an Employment Area?

Employment Areas are clusters of industrial or export-based employment. Employment Areas accommodate uses in a range of industrial sectors, as well as limited commercial uses (uses that complement the Employment Area). Employment Areas provide opportunities for economic activities that cannot be accommodated in other areas, given the potential for incompatibility of surrounding uses. Land uses such as major retail, large institutional uses (e.g. schools), and residential uses are considered sensitive uses and are not permitted within an Employment Area. The Growth Plan, 2019 requires upper- and single-tier municipalities, in consultation with lower-tier municipalities, to designate all Employment Areas in the O.P. and protect them for appropriate employment uses over the long term.[1]

Non-residential uses on lands not classified as Employment Areas are a part of the Community Area that supports the settlement area. Community Areas are the lands within the urban settlement area (Urban Centre) that exclude Employment Areas. Community Areas accommodate residential and non-residential uses that support the local residents.

2.3.3 Structural Components of the Urban System

The following is a summary of the key structural components of the Urban System:

- **Built-up Area (B.U.A.) –** are priority areas to accommodate urban growth.
- **Designated Greenfield Area (D.G.A.) –** are developing areas to accommodate the remaining urban growth not accommodated in the B.U.A.
- **Employment Areas –** are areas that are protected from sensitive uses and accommodate export-based or industrial employment.
- **Community Areas** – are areas that accommodate residential and employment outside Employment Areas, including major retail.
- **Major Retail** – are commercial uses that are part of the highest level of commercial hierarchy within the urban area. Major retail is often defined by size, however, it should also be defined based on function.

[1] A Place to Grow, Growth Plan for the Greater Golden Horseshoe Region, 2019, Policy 2.2.5., p. 19.

2.3.4 Urban System – County of Wellington O.P.

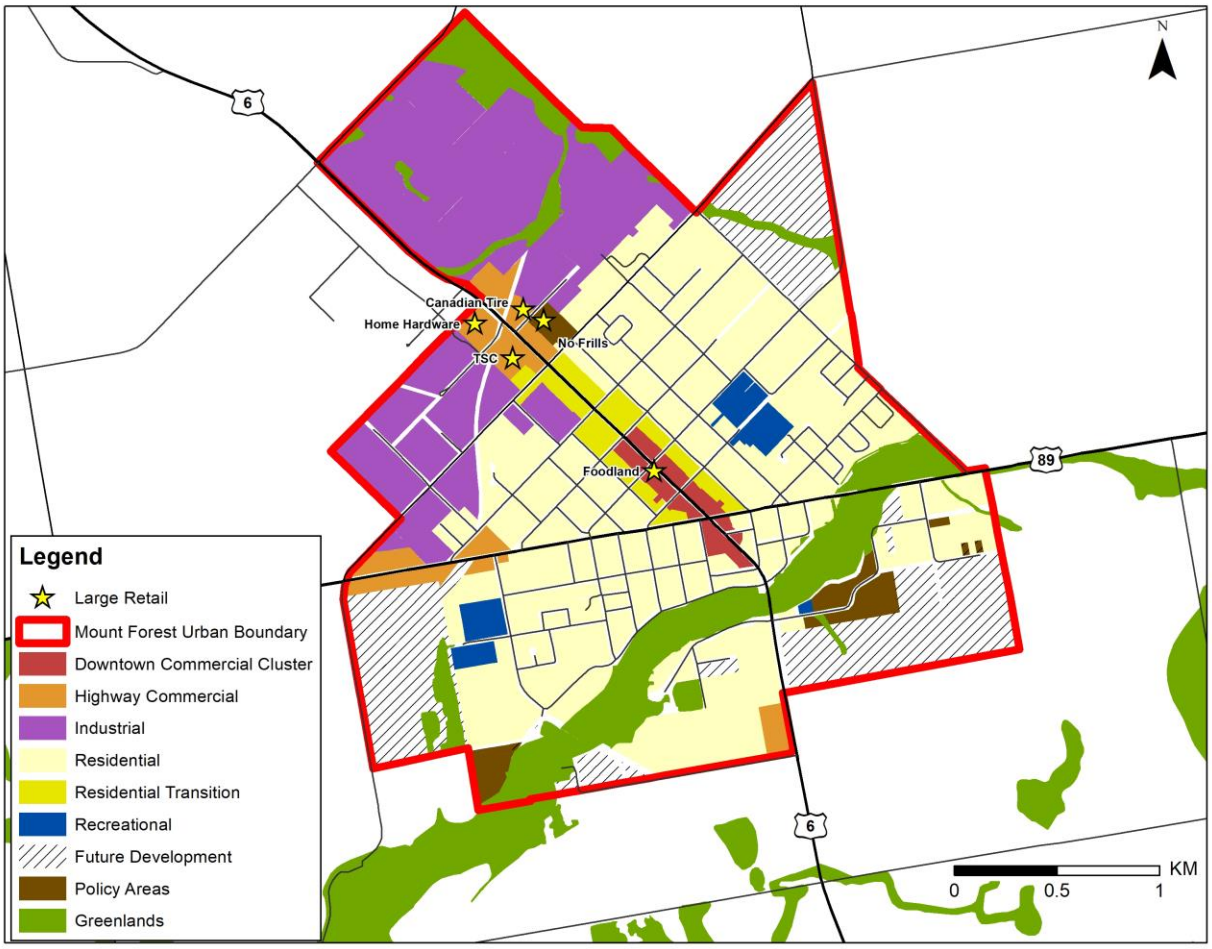
The existing County of Wellington O.P. defines the Urban System as "the larger urban places in Wellington, which are expected to accommodate the majority of growth over the planning period."[1] As previously discussed, the County's O.P. further notes that Urban Centres and hamlets are included in the Urban System.

Employment Areas are key structural components of the Urban System. According to the County O.P., Employment Areas are areas designated in the O.P. as Industrial, Highway Commercial and Rural Employment. The definition of Employment Areas is provided within the Employment Area conversion policy of the O.P.[2] The County of Wellington O.P. definition of Employment Areas includes a broader definition than the Growth Plan, 2019, by including Highway Commercial designation sites. Based on a review of the commercial structure within the County, the Highway Commercial designation accommodates the majority of major retail uses within the Urban Centres of the County of Wellington. Figure 2-3 illustrates the land-use designations and the location of large retail uses, using the Mount Forest Urban Centre as an example.

The County should consider changing the definition of Employment Areas to include only Industrial and Rural Employment designations, recognizing that the Highway Commercial designation accommodates major retail which is a sensitive use. Employment Areas are designated at an upper-tier/single-tier level reflecting the importance of the area in accommodating jobs at a regional level.

[1] Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 7.1, p. 72.
[2] Ibid., p. 22.

Figure 2-3
Mount Forest Urban Centre
Designations and Large Retail Uses



2.3.5 Proposed Changes to the County's Urban System O.P. Policies

As previously discussed, a key distinction between the Rural System and the Urban System is the amount and type of growth to be allocated. The Growth Plan, 2019 requires the majority of the forecast growth to be allocated to the areas within municipally serviced (water/wastewater) settlements. The County should consider classifying hamlets within the Rural System. The County's Urban Centres with no municipal services (water/wastewater) are also recommended to be classified within the Rural System as Secondary Urban Centres. As such, the County's Urban Centres with full municipal services should be classified as Primary Urban Centres. Figure 2-4 provides an illustration of the proposed Urban System structure.

The County should consider modifying the Employment Area definition in the County's O.P. to include only areas identified in the O.P. as Industrial and Rural Employment Areas.

2.3.6 Proposed Urban System Structure Components

The following are proposed Urban System Components:

- Primary Urban Centres;
- Urban Employment Areas (lands designated as industrial);
- D.G.A.; and
- B.U.A.

As discussed later in this report, the majority of the County's population growth (approximately 88%) over the 2016 to 2051 period is allocated to the Urban System. Further, approximately 85% of the County's employment growth is allocated to the Urban System and assumes a large portion within Urban Employment Areas. Figure 2-4 illustrates the proposed Urban System in the County, while Figure 2-5 illustrates the Urban and Rural System in the County.

Figure 2-4
County of Wellington
Proposed Urban System

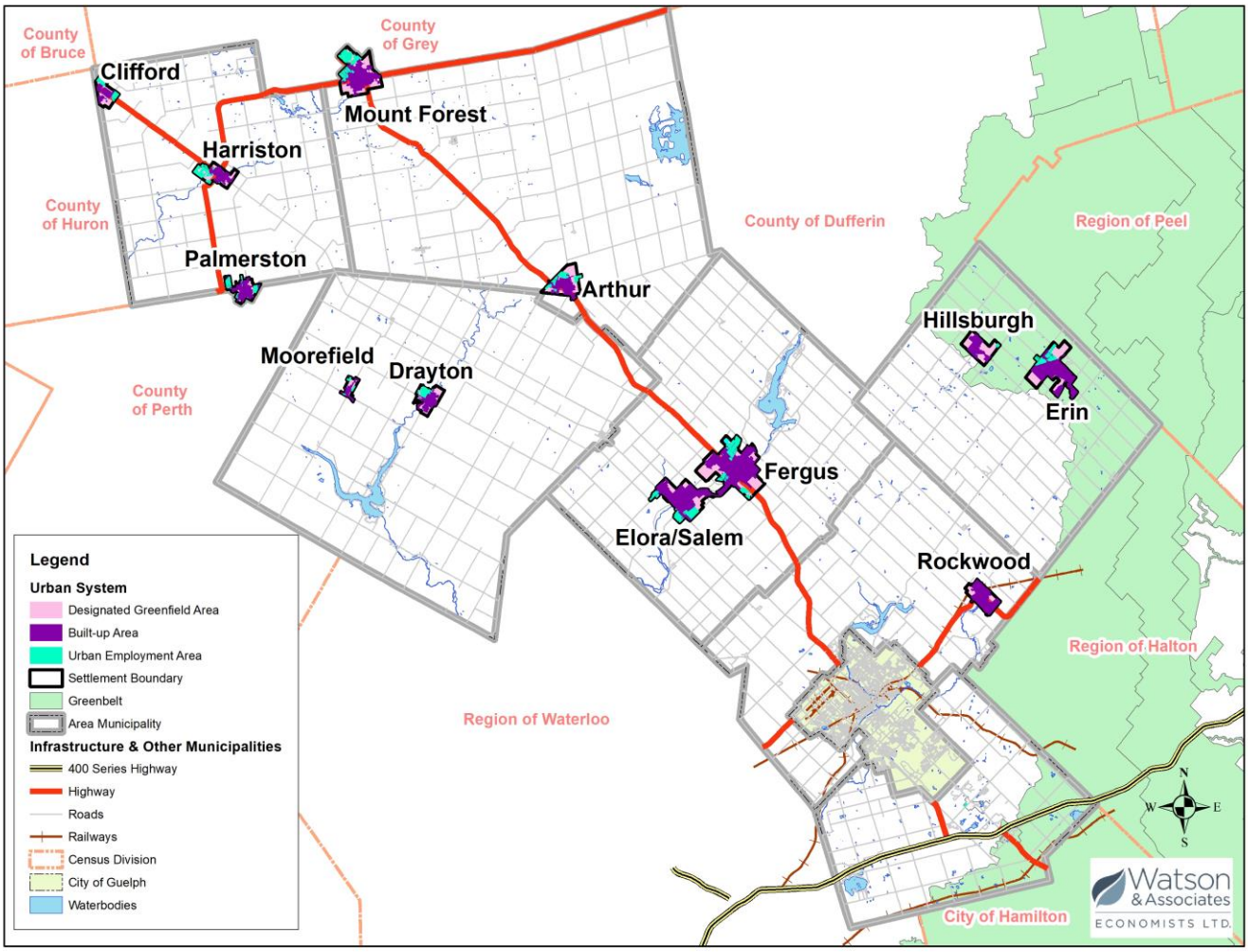
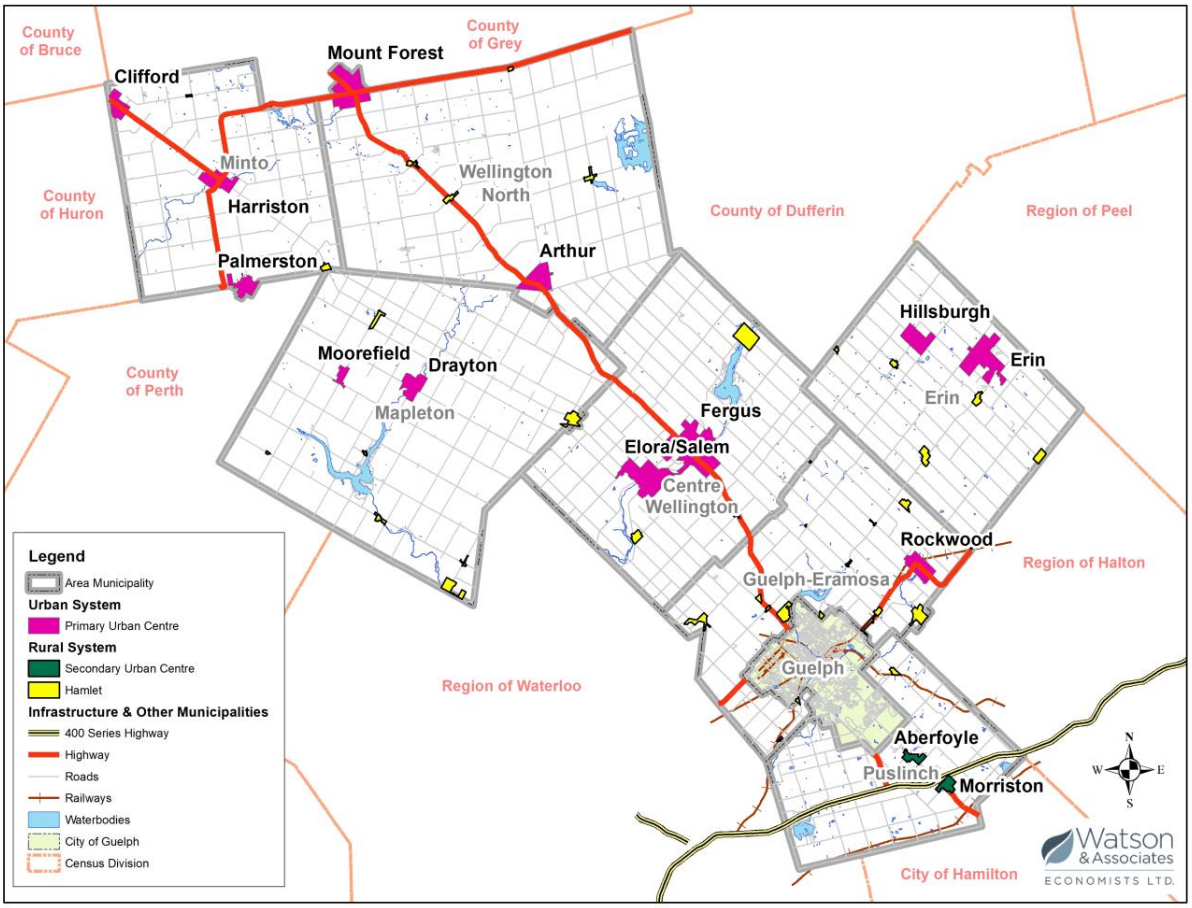


Figure 2-5
County of Wellington
Proposed Urban and Rural System[1]

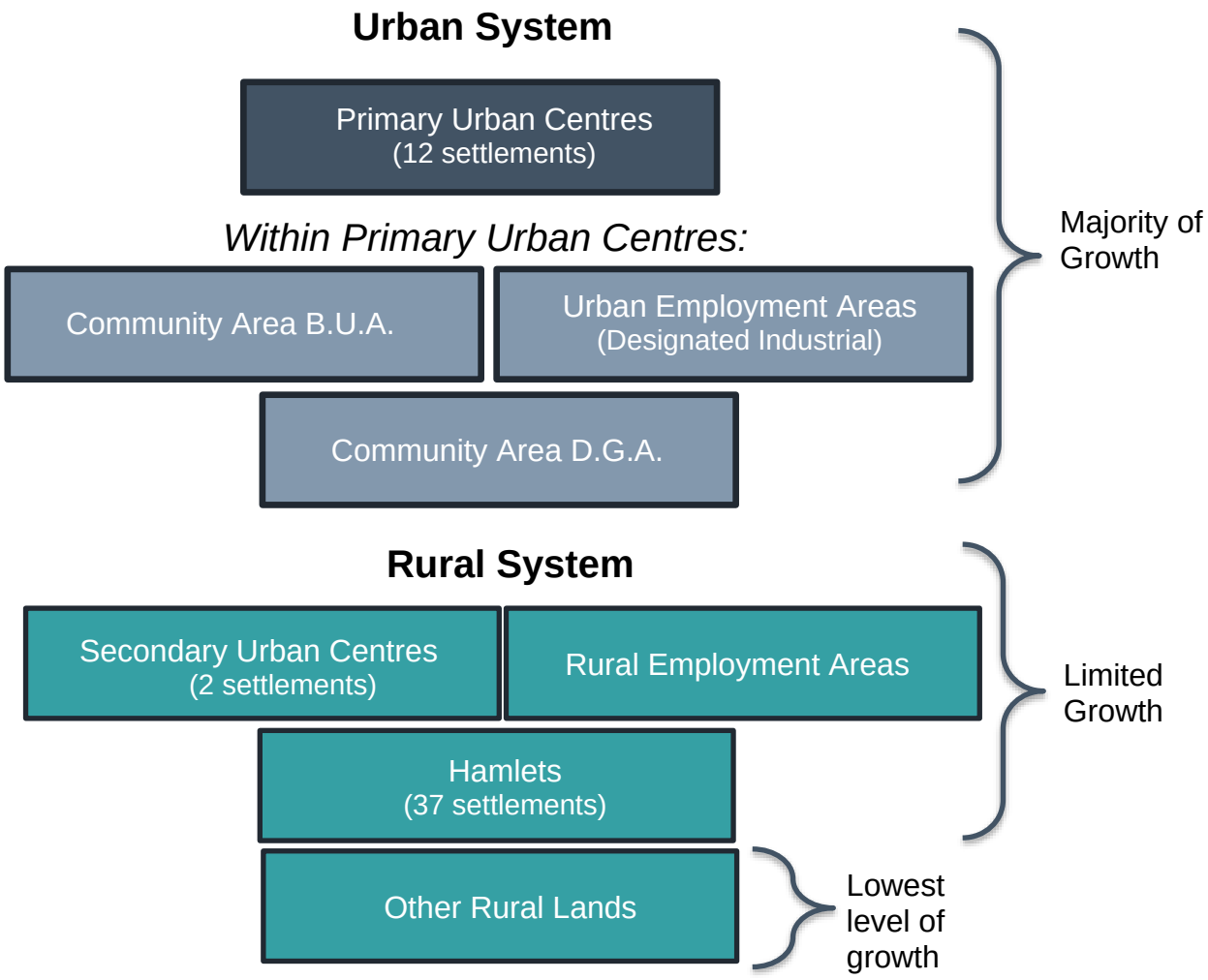


[1] Employment Areas are not shown on map. Employment Areas within the Primary Urban Centres are a part of the Urban System, while Employment Areas not within a Primary Urban Centre are within the Rural System.

2.4 Hierarchy of the County's Settlement Areas

Figure 2-6 provides a proposed hierarchy of the County's settlement area that follows the County's growth allocations by geographic location.

Figure 2-6
County of Wellington
Settlement Area and Structure Hierarchy



Chapter 3
Population and Housing Analysis

3. Population and Housing Analysis

This chapter provides an assessment of forecast population and housing growth trends for the County of Wellington to the year 2051 within the broader context of the G.G.H. An overview of historical population and housing trends as well as economic and demographic growth drivers is also included to provide context regarding the long-term growth outlook for the County. The allocation of population and housing by Area Municipality is discussed in Chapter 4 – Population and Housing Growth Allocations. The allocation of residential development by policy area location (D.G.A., B.U.A. and Rural Area) will be discussed in the M.C.R. Phase 2 Report – Urban Land Needs Assessment.

3.1 Introduction

3.1.1 What Drives Population and Employment Growth?

A broad range of considerations related to demographics, economics and socio-economics are anticipated to impact future population and employment growth trends throughout the County of Wellington over the 2016 to 2051 planning horizon. These factors will not only affect the rate and magnitude of growth but will also influence the form, density, and location of residential and non-residential development.

As a starting point, it is important to recognize that future population and employment growth within the County of Wellington is strongly correlated with the growth outlook and competitiveness of the economy within the County of Wellington and the surrounding region – which in this case is largely represented by the G.G.H. The G.G.H. represents the economic powerhouse of Ontario and the centre of much of the economic activity in Canada. It also represents a portion of the commuter-shed for the County of Wellington. Potential employment opportunities within the County of Wellington and surrounding commuter-shed represent the primary driver of net migration to this area.

The employment base within the County of Wellington and surrounding commuter-shed can be grouped into two broad categories – export-based sectors and community-based sectors. The latter primarily referring to local population serving employment. Export-based sectors are comprised of industries (i.e., economic clusters) which produce goods that reach markets outside the community (agriculture and primary resources, manufacturing, research and development as well as other knowledge-based

industries). Local industries also provide services to temporary and/or other residents of the municipality not captured by Census data as part of the permanent population base such as hotels, restaurants, tourism-related sectors, colleges and universities, as well as businesses related to financial, professional, scientific and technical services.

Economic growth in the regional export-based economy generates wealth and economic opportunities which, in turn, stimulates community-based or population-related employment sectors, including retail trade, accommodation and food and other service sectors. Economic development subsequently drives the need for labour force growth which is largely generated from positive net migration. Ultimately, population growth in the County of Wellington within the 0-64 age group, will continue to be largely driven by net migration associated with the working age population and their dependents (i.e., children, spouses not in the labour force, others). On the other hand, population growth of the County's 65+ population will continue to be largely driven by the aging of the County's existing population and, to a lesser extent the attractiveness and affordability of the County to new seniors. A more detailed discussion of the long-term economic, socio-economic and demographic drivers of long-term population and employment growth in Wellington County are provided in section 3.4.

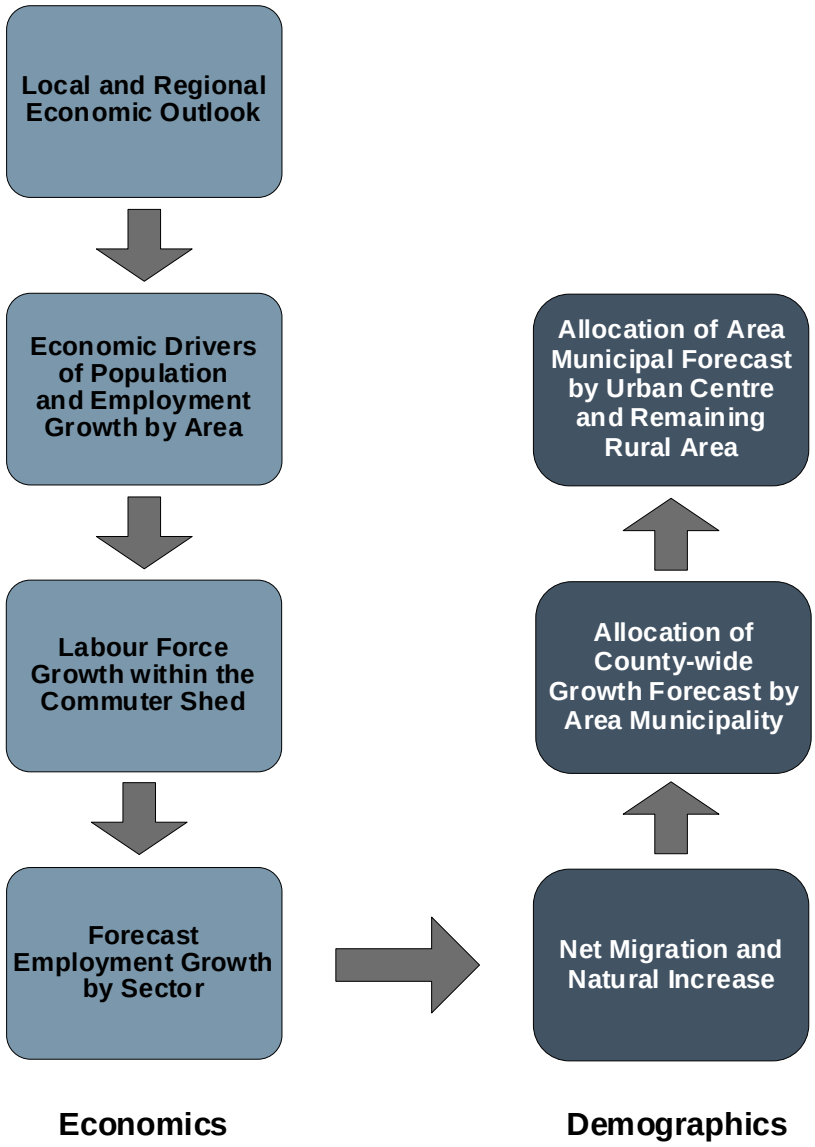
3.1.2 Population, Housing and Employment Forecasting Approach

The population, household and employment growth forecast provided herein has been developed in accordance with the provincial L.N.A. methodology. The provincial L.N.A. methodology requires a population forecast by age structure and a housing forecast to be completed by applying an age-specific household formation rate based on propensities to choose different types of dwellings. This approach is commonly referred to as the cohort-survival population forecast methodology.

The cohort-survival population forecast methodology uses, as its base, population age groups by sex, and ages each group over time, taking into consideration age-specific death rates and age-specific fertility rates for the female population in the appropriate years (to generate new births). To this total, an estimated rate of net migration is added (in-migration to the municipality, less out-migration, by age group). Forecast trends in population age structure provide important insights with respect to future housing needs based on forecast trends in average household occupancy.

Generally, households occupied by persons between the age of 30 and 64 have a higher average persons per unit (P.P.U.) compared to households occupied by younger and older adults (19 to 29 and 65+ age groups). This is important because, as the County's population ages over the forecast planning horizon, the County's average P.P.U. is anticipated to decline. Figure 3-1 summarizes the population, housing and employment forecast methodology.

Figure 3-1
Approach to Long-Term Population, Household and Employment Forecast



3.1.3 Housing Classification

Provided below is a summary of the housing structure types by density grouping include the housing analysis of this report. The housing structure types have been categorized to align with Statistics Canada housing data and is consistent with the provincial L.N.A. These density groupings are compared with the County of Wellington O.P. definitions[1] in Figure 3-2 and are summarized below:

- Low-density residential development includes single detached and semi-detached housing. These are housing units with no units below or above. The definition of low-density residential development in the County of Wellington O.P. also includes duplexes.
- Medium-density residential development includes ground-oriented townhouse units, also referred to as rows and apartments in duplexes (one of two dwellings, located one above the other). The definition of medium density residential development in the County of Wellington O.P. includes multiples, or all other housing types not classified as low density, however with a density maximum of 75 apartment units per hectare and 35 townhouse units per hectare.[2]
- High-density residential development includes low-rise and high-rise apartment buildings. These are units that are below and/or above a unit. It is important to note that a secondary units added to a single detached, semi-detached or townhouse housing unit is considered high density, reflecting the average occupancy of these units. The County of Wellington O.P. does not provide a definition of high-density residential development.

The Phase 2 Report will include a forecast of second units as part of the intensification analysis.

[1] The local O.P.s of the Township of Centre Wellington and the Town of Erin O.P. definitions of housing by type are similar to the County of Wellington O.P.
[2] County of Wellington, Official Plan, May 6, 1999 (Last Revision January 8, 2021), Policy 8.3.4 and Policy 8.3.5, p. 79 and p. 80.

Figure 3-2
Housing Structure Type Classification

Housing Structure Type	County of Wellington M.C.R. Forecasts, 2021	County of Wellington O.P.
Single-Detached and Semi-Detached	Low Density	Low Density
Duplex	Medium Density	Low Density
Townhouse/Row		Medium Density
Apartments	High Density	Medium Density (maximum 75 units per ha)
Secondary Units		Low Density

3.2 Review of Historical Census Population Growth Trends

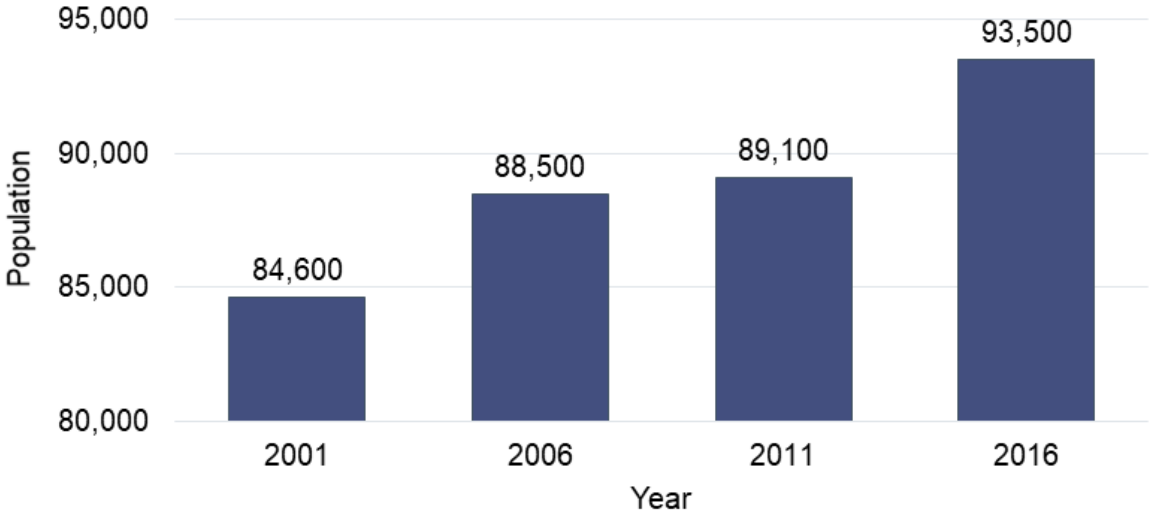
3.2.1 County of Wellington Population Growth, 2001 to 2016

Figure 3-3 summarizes historical population for the County of Wellington over the 15-year period from 2001 to 2016. As illustrated, the County's population base increased from 84,600 in 2001 to 93,500 in 2016. Over the past decade, the population base within the County has increased by 8,900 persons, or approximately 0.7% per year. As a comparison, the average annual growth rate within the G.G.H. was 1.3%.

Figure 3-4 identifies the municipalities within the G.G.H., but outside of the Greater Toronto and Hamilton Area (G.T.H.A.) that comprise the G.G.H. Outer Ring. Figure 3-5 summarizes the annual population growth rate of all upper-tier/single-tier municipalities within the Outer Ring of the G.G.H. Overall, this area had an average annual population growth rate of 1.0% over the 2001 to 2016 period. As summarized in Figure 3-4, within the G.G.H. Outer Ring, the City of Barrie, the County of Simcoe and the City of Guelph experienced the highest rate of annual population growth rate within the G.G.H. Outer Ring. The County of Wellington annual population growth rate was in the middle of the annual population growth range of the G.G.H. Outer Ring municipalities,

which ranged from 0.2% in the County of Haldimand to 2.0% in the City of Barrie. Over the 2001 to 2016 historical period, the County of Wellington represented 3% of the population growth within the G.G.H. Outer Ring.

Figure 3-3
County of Wellington
Historical Population, 2001 to 2016



Note: Population includes census undercount estimated at 3%.
Source: Derived from Statistics Canada, Census 2001 to 2016 by Watson & Associates Economists Ltd.

Figure 3-4
Greater Torontol and Hamilton Area (G.T.H.A.) and Greater Golden Horseshoe (G.G.H.) Outer Ring

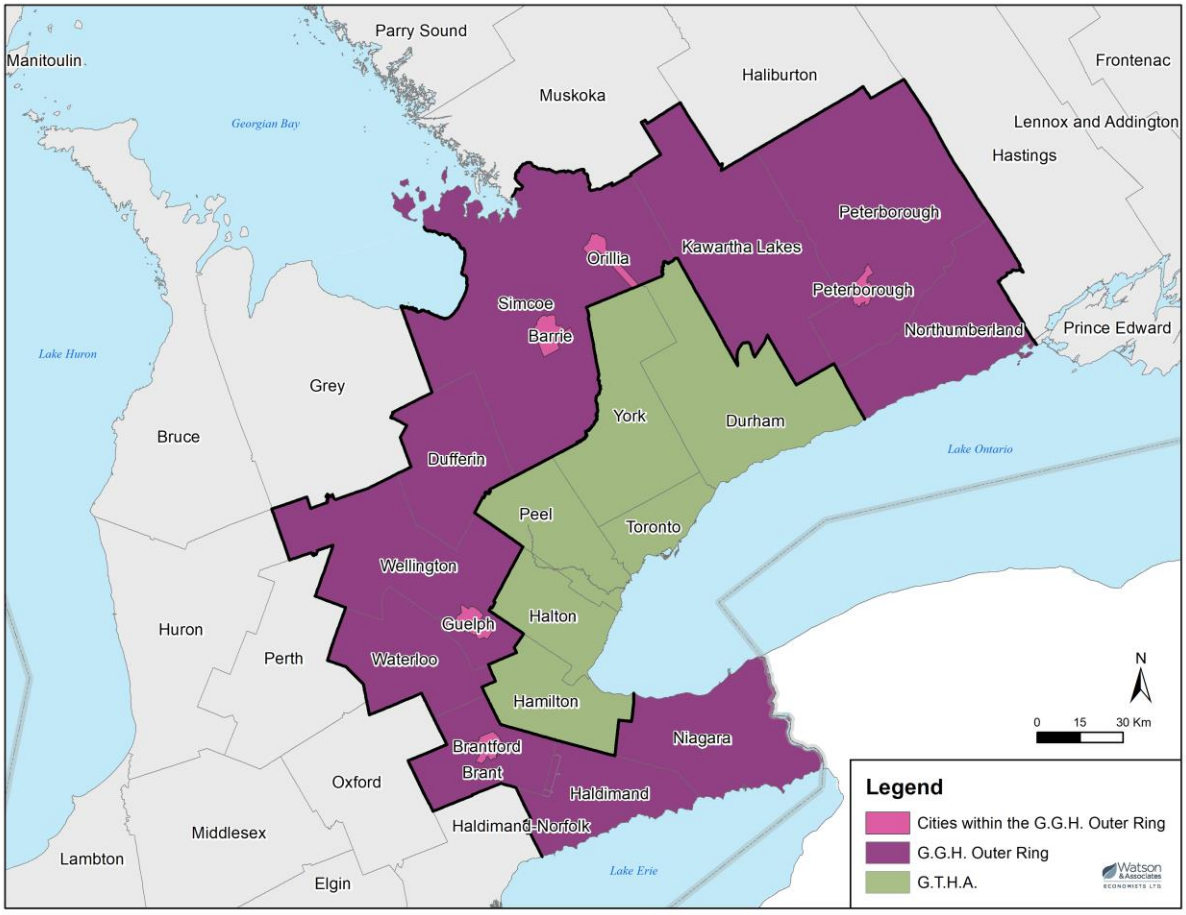
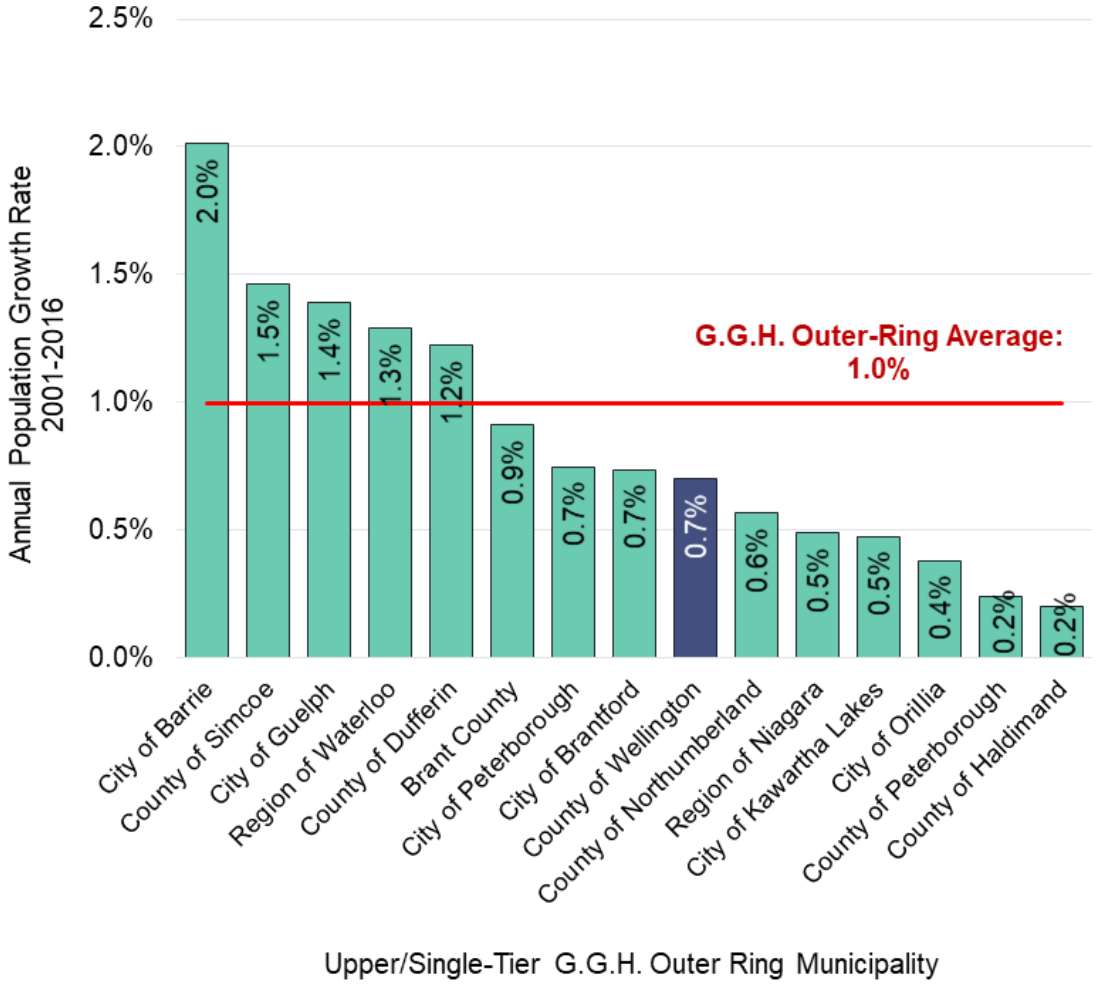


Figure 3-5
Outer Ring G.G.H.
Historical Population, 2001 to 2016



Source: Derived from Statistics Canada Demography Division data by Watson & Associates Economists Ltd., 2020.

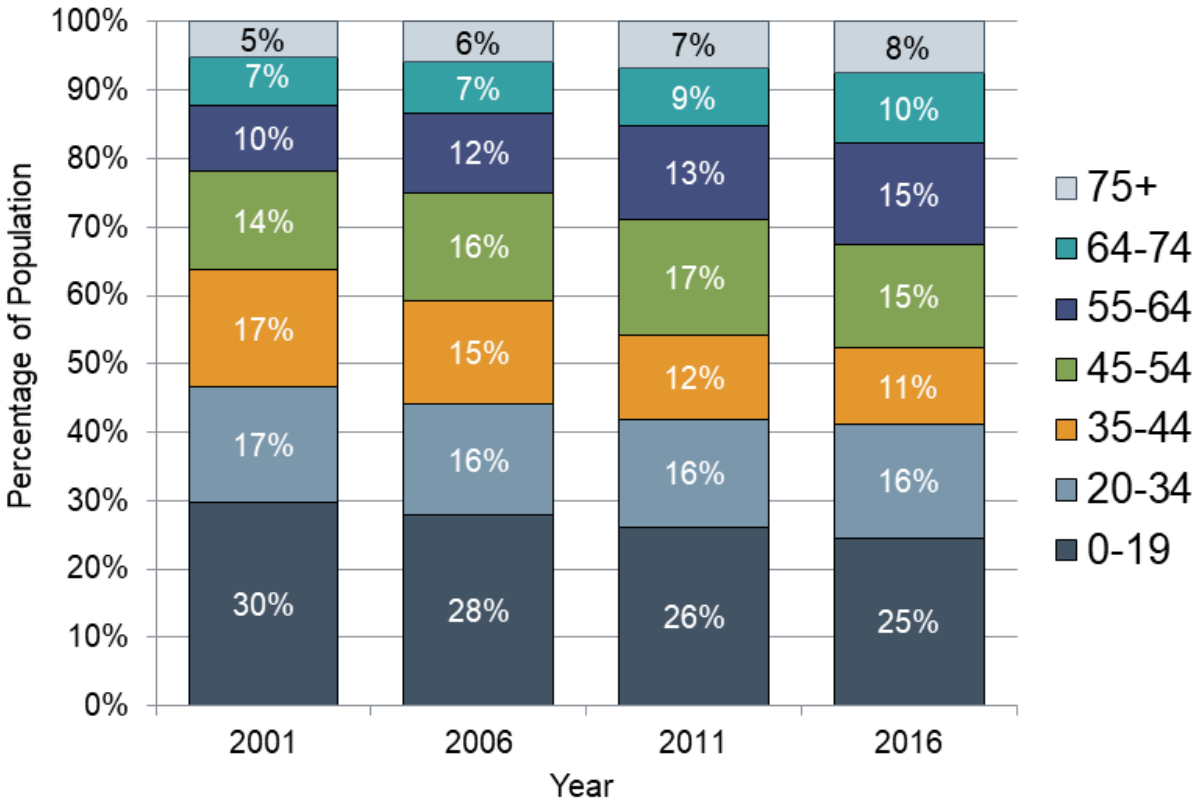
3.2.2 County of Wellington Population Growth, 2001 to 2016

Figure 3-6 summarizes historical trends in population structure by age major group over the 2001 through 2016 period. Key observations regarding the County of Wellington historical population by age include the following:

- In 2016, the 0-19 age group (youth population) in the County of Wellington accounted for 25% of the total population. Over the 2001 to 2016 period, the population in this age cohort decreased by 2,200, declining in population share from 30% to 25%;

- The County's young adult/adult population share (20-54 years of age) has declined over the same period, comprising approximately 48% of the population in 2016:
    - The 20-34 age cohort (young adults), which comprised an estimated 16% of the population in 2016, has slightly decreased in proportion from 17% in 2001;
    - The percentage of the 35-44 age group decreased from 17% in 2001 to 11% in 2016;
    - The percentage of adults 45-54 years old account for 15% of the 2016 population, up slightly from 14% in 2001;
- The County's 55-64 (i.e. empty nesters) and seniors' population share has increased significantly over the same period, specifically:
    - The 55-74 age group (empty nesters/younger seniors) increased by 8 percentage points between 2001 and 2016, from 17% to 25%;
    - The 75+ age group (older seniors) has increased moderately from 5% in 2001 to 8% in 2016. Looking forward, the share of the County's population in the 75+ age group is anticipated to increase significantly, driven by the aging of the Baby Boom population. This is anticipated to place increasing demand on the need for seniors' housing, affordable housing, as well as social services to support the County's growing population base of seniors.

Figure 3-6
County of Wellington
Population by Age Cohort, 2001 to 2016

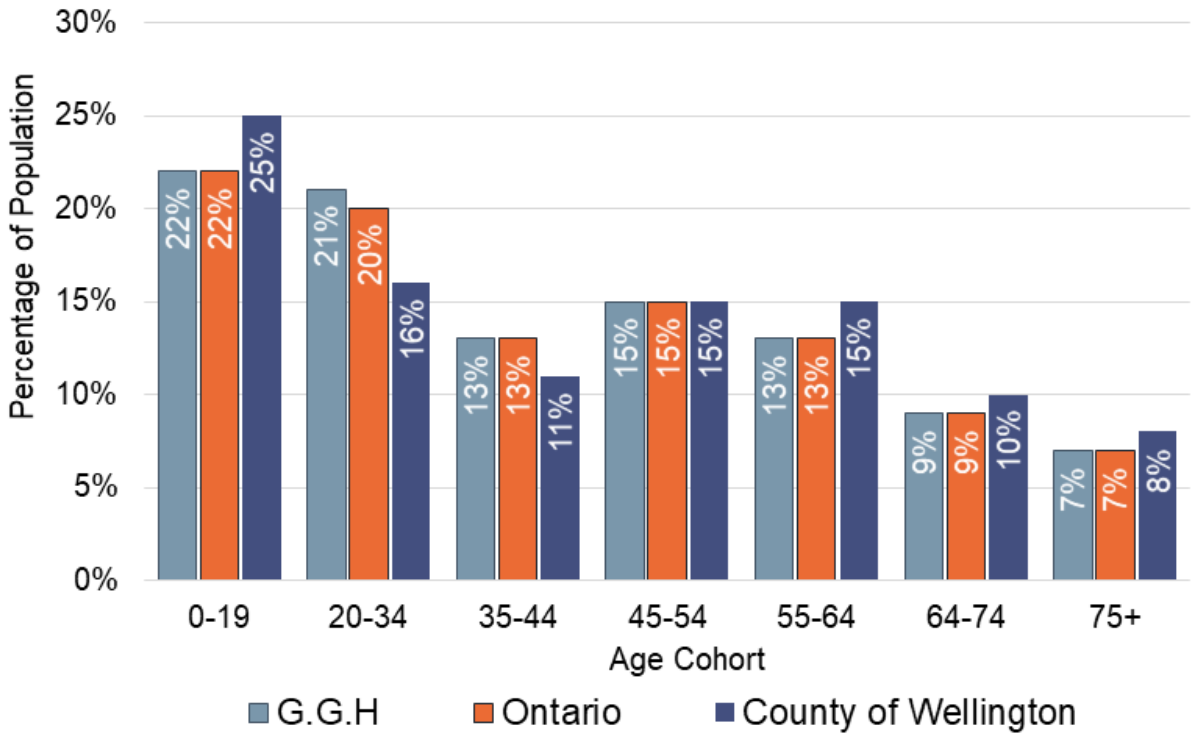


Source: 2001 to 2016 derived from Statistics Canada census by Watson & Associates Economists Ltd.
Note: Inludes census undercount of approximately 3%.

Figure 3-7 summarizes the 2016 population age structure in the County of Wellington compared to the G.G.H. and Province of Ontario as a whole. Key observations regarding the County of Wellington historical population by age in comparison to the G.G.H. and the province include:

- With the exception of the County's large youth population (ages 0 to 19), the County of Wellington 2016 age structure is older than that of the G.G.H. and provincial average;
- A slightly lower proportion of the population in the County of Wellington is concentrated in the 20-44 age group in comparison to the G.G.H. and Province of Ontario as a whole; and
- The County of Wellington has a higher proportion of adults over the age 55, when compared to the G.G.H. and Province of Ontario.

Figure 3-7
County of Wellington,
G.G.H. and Ontario Population by Age Cohort, 2016



Note: Population includes net Census undercount.
Source: Population by age derived from 2016 Statistics Canada Census and Annual Demographics Statistics data from Watson and Associates Economists Ltd, 2020.

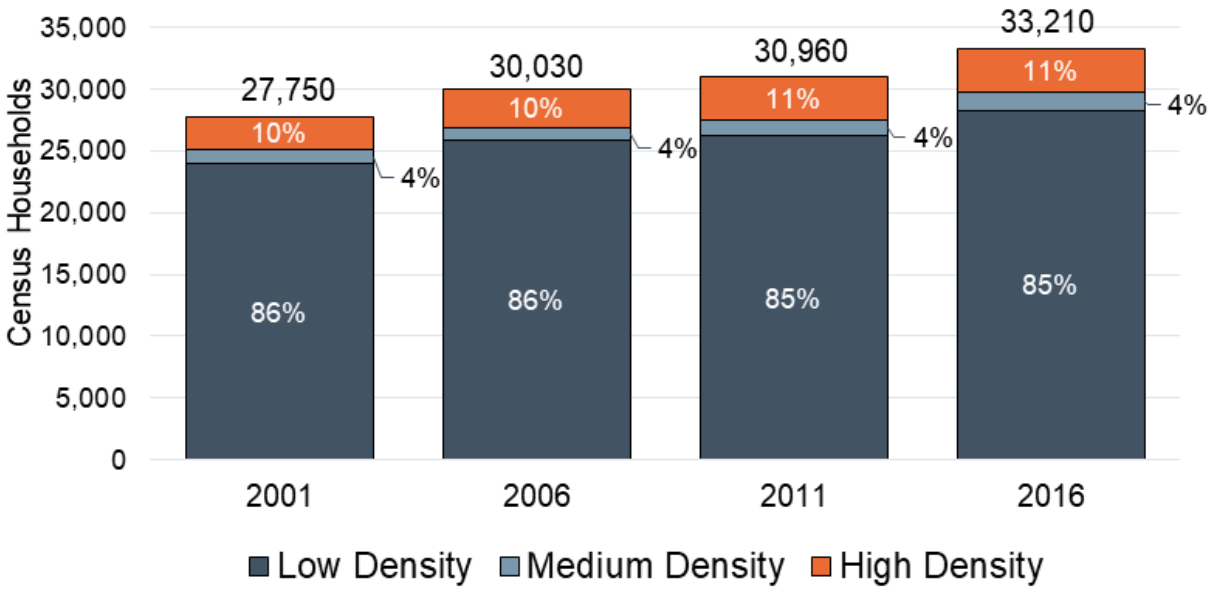
3.3 Review of Historical Census Housing Growth Trends

3.3.1 County of Wellington Housing Trends, 2001 to 2016

Similar to population growth trends, the County of Wellington has experienced a steady rate of housing growth over the past 15 years as measured by Statistics Canada Census data. During this historical period, the County's housing base has increased by approximately 5,460 households from 27,750 to 33,210, which represents an increase of approximately 360 Census housing units per year. Figure 3-8 and Figure 3-9 summarize housing growth by density type between 2001 and 2016. As previously discussed, low-density households largely include single and semi-detached units, townhouses and apartments in duplexes comprise medium-density households, while apartments are included in the high-density category. Historically, low-density housing

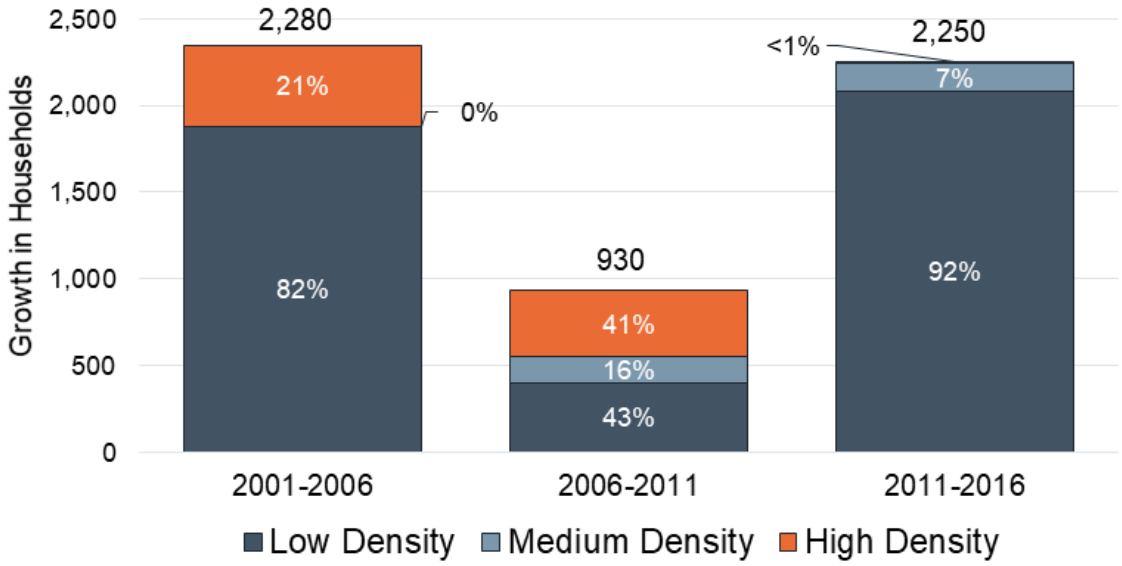
has made up the majority of new housing development over the past 15 years (at 80% of Census housing growth). Over the next 30 years, it is anticipated that housing development within the County will be increasingly concentrated in medium- and high-density forms, largely driven by needs related to housing affordability and the aging of the County's population base.

Figure 3-8
County of Wellington
Historical Number of Households, 2001 to 2016



Notes:
Low density includes single-detached and semi-detached.
Medium density includes townhouses/rows.
High density includes apartments.
Source: Derived from Statistics Canada, 2001 to 2016 Census by Watson & Associates Economists Ltd.

Figure 3-9
County of Wellington
Historical Share of Housing Growth by Type, 2001 to 2016



Notes:
Low density includes single-detached and semi-detached.
Medium density includes townhouses/rows.
High density includes apartments.
Source: Derived from Statistics Canada, 2001 to 2016 Census by Watson & Associates Economists Ltd.

3.3.2 Housing Occupancy Trends within the County of Wellington

3.3.2.1 Household Headship Rates

A household headship rate is defined as the ratio of primary household maintainers, or heads of households, by major population age group (i.e., cohort). Between 2001 and 2016, the County of Wellington's total headship rate increased modestly from 32.8% to 35.5% (refer to Appendix A for additional details). An understanding of historical headship rate trends is important because this information provides insights into household formation trends associated with population growth by age, family type and family structure. While major fluctuations in headship rates are not common over time, the ratio of household maintainers per capita varies by population age group. For example, a municipality with a higher percentage of seniors will typically have a higher household maintainer ratio per capita (i.e., headship rate) compared to a municipality with a younger population. This is because households occupied by seniors typically have fewer children than households occupied by adults under 65 years of age.

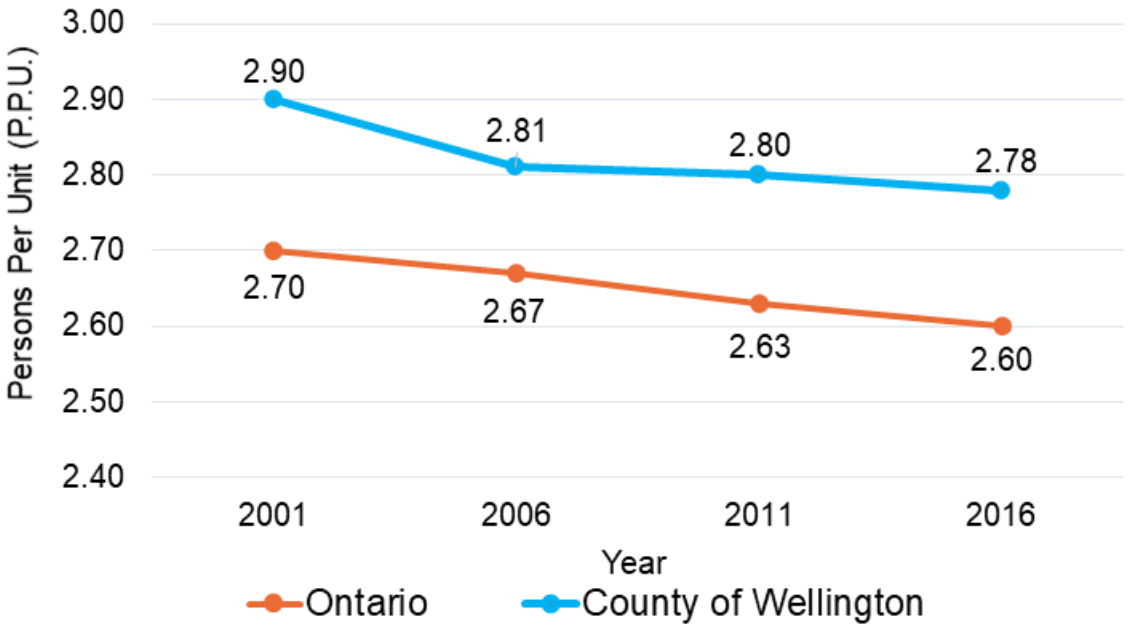
Accordingly, forecast trends in population age structure provide important insights into future headship rates and average persons per unit (P.P.U.) trends for the County of Wellington, which is further discussed below. It is important to note that headship rates by major age group are anticipated to remain relatively stable over the long-term forecast period.

3.3.2.2 County of Wellington P.P.U. Trends

Figure 3-10 summarizes trends in average housing occupancy for the County of Wellington and the Province of Ontario over the 2001 to 2016 period, expressed as the average number of P.P.U. Trends in household occupancy and age structure are a particularly important statistic for land-use planners, as these trends have broad implications for the amount and type of future housing needs associated with population growth as well as demands for public infrastructure, municipal services and schools. Key observations include the following:

- The average P.P.U. for the County of Wellington has steadily declined over the 2001 to 2016 period;
- Average housing occupancy levels for the province as a whole are lower relative to the County of Wellington; however, the rate of P.P.U. decline between 2001 and 2016 was higher within the County of Wellington;
- The recent trend toward greater stabilization in average household occupancy within the County of Wellington is largely believed to be a result of delays in adult children leaving home largely due to rising housing ownership and housing rental costs. An increase in multi-family (i.e. multi-generational) dwellings is also believed to be driving this trend. These trends have also been observed across many other G.G.H .municipalities, most notably the more populated, urbanized municipalities within the G.T.H.A.;
- Over the next 10 years average P.P.U. levels are anticipated to remain stable, largely driven by strong net migration levels associated with young families arriving in the County of Wellington; and
- The average P.P.U. for the County of Wellington is forecast to continue to decline over the longer term. This decline, however, is anticipated to occur at a much slower rate relative to historical trends primarily as a result of strong net migration associated with young adults anticipated over the forecast period (particularly over the next 10 years).

Figure 3-10
County of Wellington
Historical Persons Per Unit (P.P.U.) Trends, 2001 to 2016



Source: Statistics Canada Census data, 2001 to 2016.
Note: Population used to calculate persons per unit does not include the net Census undercount.

3.3.2.3 Housing Propensity by Structure Type, 2016

Figure 3-11 summarizes historical housing propensity (i.e. demand) trends by structure type for Census households (private dwellings occupied by usual residents) in the County of Wellington based on 2016 Statistics Canada Census data (additional details regarding forecast age-specific housing propensity as of 2051 is provided in Appendix B). Age-specific propensities measure housing demand by dwelling structure type, by age of household maintainer.

The socio-economic characteristics of the County's population related to income/ affordability, lifestyle, family size, lifestyle decisions, health and mobility vary by population age, which in turn, influences the demand for housing by structure type. As illustrated in Figure 3-11, propensities for low-density housing (single-detached and semi-detached) are high among all age groups over the age of 25. Propensities for high-density housing (apartments) are highest among the under 25 age group at 31%, followed by the over 75 age group.

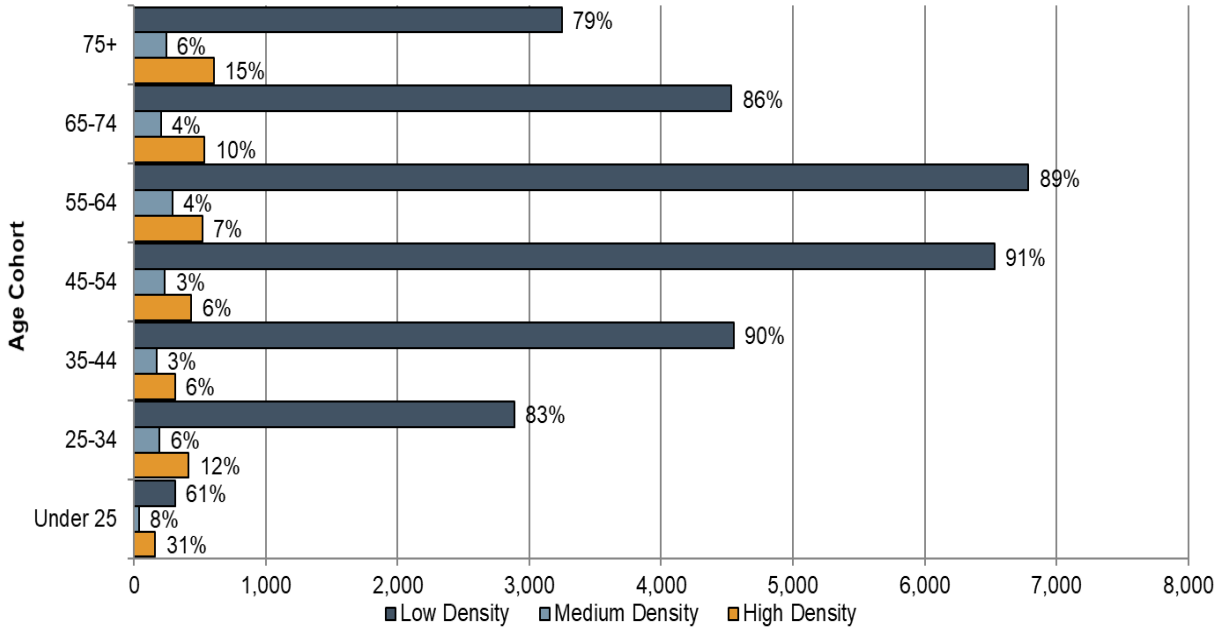
As previously mentioned, the County of Wellington population is aging and the 55+ age group has grown considerably over the past 15 years. Looking forward, the percentage of seniors, particularly the 75+ age group, within the County of Wellington is expected to increase in both percentage and absolute terms over the next several decades. As the average age of the County of Wellington population continues to increase, it is anticipated that the demand for higher density housing forms will also continue to steadily increase.

Within the 55+ age group, housing demand related to the 55-74 age group is anticipated to be relatively stronger for ground-oriented housing forms (i.e., single detached, semi-detached and townhouses) which provide proximity to urban amenities, municipal services and community infrastructure. With respect to the 75+ age group, the physical and socio-economic characteristics of this age group (on average) are considerably different than those of younger seniors, empty nesters and working adults with respect to income, mobility, and health. Typically, these socio-economic and physical characteristics represent a key driver behind the higher propensity from this age group for medium-and high-density housing forms (including seniors' housing) which are in proximity to urban amenities, health care services and other community facilities.

It is important to note that the growth in high density housing presented in this section relates to private dwellings occupied by usual residents and does not include the population living in collective dwellings. Over the next 30 years, the rate of population growth associated with collective dwellings is anticipated to steadily increase relative historical trends largely due to demand from the 75+ age group. The 75+ age group is anticipated to represents the fastest growing age group across the County of Wellington, placing demands on accommodations such as seniors' housing (including nursing homes, assisted living, and long-term care homes), which in many cases are not categorized by Statistics Canada as private dwellings occupied by usual residents.

The County of Wellington is also anticipated to accommodate a growing share of young adults and new families seeking competitively priced home ownership and rental opportunities. Accordingly, opportunities should be explored to provide a mix of future housing across a range of density types to accommodate those with varying levels of income (including affordable housing options) within D.G.A. as well as in B.U.A. across the County.

Figure 3-11
County of Wellington
Propensity by Structure Type, 2016



Source: Data from Statistics Canada Census 2016 by Watson & Associates Economists Ltd.

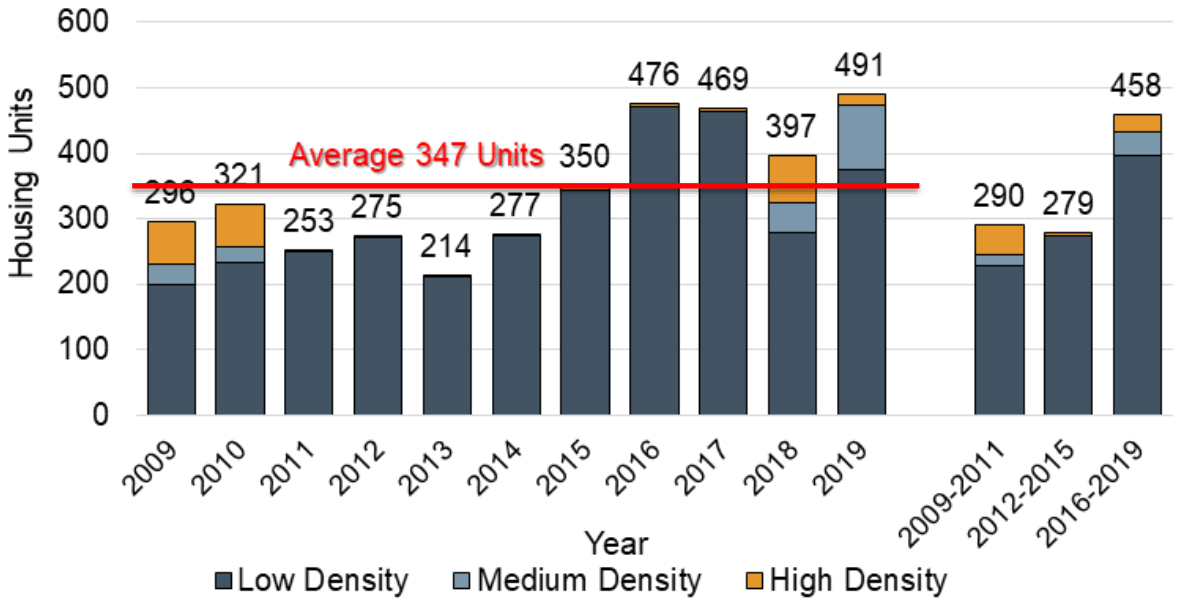
In addition to population age structure, there are a number of factors such as household income, housing affordability, lifestyle decisions, health, mobility, and planning policy, which also influence the form and type of housing units constructed across the County of Wellington. These additional factors make it difficult to accurately project housing propensity by type over both the short-term period and longer-term planning horizon as the impact of these other socio-economic variables cannot be easily isolated or tested in the County's housing forecast. It is also recognized that the housing propensity analysis summarized above in Figure 3-10 represents one historical information source in developing long-term assumptions regarding forecast housing growth by structure type but should also be supported by a thorough review of more recent and forward-looking data sources. In additional to a review of the housing propensity, the long-term housing forecast prepared for the County was based upon a review of wide range of other data sources, such as recent residential building permit activity/housing completions, market trends in housing prices relative to household income, active residential development applications and post-Censual migration trends within the County of Wellington.

3.3.3 Residential Development Activity by Unit Type, 2009 to 2019

Figure 3-12 summarizes total residential building permits by structure type from 2009 to 2019 for County of Wellington. Key observations include:

- The number of residential building permits (new units only) issued for County of Wellington between 2009 and 2019 has averaged 347 permits per year;
- The average number of residential building permits has increased since 2015, averaging 458 units annually over the 2016 to 2019 period; and
- The average number of building permits issued for high-density and medium-density housing units increased over the past two years, although still representing a small share of the residential permits issued.

Figure 3-12
County of Wellington
Residential Building Permit Activity by Housing Type (New Units Only),
2006 to 2019



Notes:
Low density includes single-detached and semi-detached.
Medium density includes townhouses and apartments in duplexes.
High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and secondary suites.

Source: 2009 to 2019 building permit data from Wellington County Planning Department, by Watson & Associates Economists Ltd.. 2020.

3.3.4 County of Wellington Housing Potential on Vacant Lands

The County's active development application data was reviewed to provide insight into the demand for residential housing units by structure and timing of development. Figure 3-13 provides a summary of the potential residential development on vacant lands within the County of Wellington. The potential housing supply includes potential housing development that have been approved (registered unbuilt/draft approved), development that is under review or proposed and remaining vacant lands with no applications. Throughout the County, low-density housing comprises a large share of the housing potential, approximately 69% of the housing unit potential, followed by medium-density housing at 21% and high-density housing at 10%.

With respect to housing potential that is approved and within active applications (under review), an indication of shorter-term housing demand, the County has approximately 8,040 units. Of these, approximately 66% is low density, followed by medium density at 22% and high density at 11%. Housing potential within the active development applications suggest a trend towards a wider range of housing types compared to historical trends.

Figure 3-13
County of Wellington
Housing Potential on Vacant Lands by Status, Mid-2019

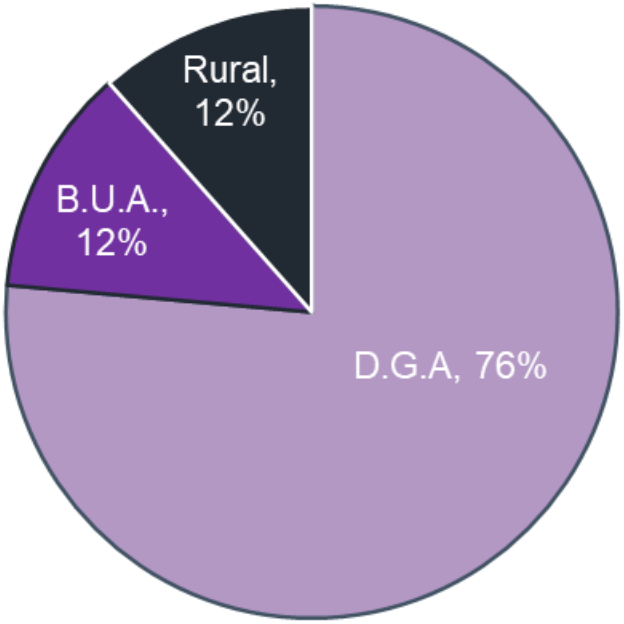
Total	Low Density	Medium Density	High Density	Total Units	
				Units	%
Registered Unbuilt	1,272	233	350	1,855	13%
Draft Approved/Provisional	2,695	1,090	168	3,953	28%
Application Under Review	1,376	458	397	2,231	16%
Sub-Total	5,343	1,781	915	8,039	56%
Other Remaining Vacant (no application)	4,595	1,167	540	6,302	44%
Total	9,938	2,948	1,455	14,341	100%
Share (%)	69%	21%	10%	100%	

Source: Based on County of Wellington GIS Data, July 2019.

Figure 3-14 provides a summary of housing potential on vacant lands by policy area (B.U.A., D.G.A. and Rural Area). As summarized, just over two-thirds of future housing supply potential is within the D.G.A. The B.U.A. represents approximately 12% of the housing unit potential, comprising 55% low density, followed by medium density at 23%

and high density at 10%. The Rural Area is estimated to comprise 12% of the housing potential within the County, or approximately 1,700 potential dwelling units. It is important to note that the housing potential within the Rural Area excludes a review of severance potential which is currently under review by the County of Wellington. Further details regarding housing potential by Area Municipality is provided in Chapter 4, Population and Housing Allocations by Area Municipality.

Figure 3-14
County of Wellington
Housing Potential on Vacant Lands by Policy Area,
Mid-2019



Source: Based on County of Wellington GIS Data, July 2019.

3.4 Population and Housing Growth Forecast to 2051

3.4.1 Population and Employment Growth Outlook for the Greater Golden Horseshoe, 2016 to 2051

As previously mentioned, a key driver of the County of Wellington's future economic potential is its geographic location within Ontario. The population of the G.G.H. is forecast to increase from 9.5 million in 2016 to 14.9 million in 2051. This represents a population increase of approximately 5.3 million people (153,000 annually), or 1.3%

annually between 2016 and 2051. With respect to the region's economic potential, the G.G.H. employment base is forecast to increase from 4.6 million in 2016 to 7.0 million in 2051. This represents an employment increase of 2.4 million jobs (69,000 annually), or 1.2% annually between 2016 and 2051.

The G.G.H. represents the economic powerhouse of Ontario and the centre of a large portion of the economic activity in Canada. The G.G.H. is also economically diverse with most of the top 20 traded industry clusters throughout North America having a strong presence in this region. The G.G.H. industrial and office commercial real estate markets within this region are significant, having the third and sixth largest inventories, respectively, in North America.

With a robust economy and diverse mix of export-based employment sectors, the G.G.H. is highly attractive on an international level to new businesses and investors. The G.G.H. also has a strong appeal given the area's regional infrastructure (i.e. Toronto Pearson International Airport, other regional airports, provincial highways, inter-modal facilities), access to labour force, post-secondary institutions and proximity to the US border. In turn, this continues to support steady population and housing growth within this region, largely driven by international and inter-provincial net migration to this region.

The G.G.H. Outer Ring is projected to be the fastest growing region in Ontario over the next 30 years. As illustrated in Figure 3-15, due to its geographic location within the western region of the G.G.H. Outer Ring, Wellington County is forecast to experience significant outward growth pressure over the next several decades largely from the west and north G.T.H.A. upper-tier municipalities, which have historically been amongst the fastest growing municipalities in Ontario in recent decades.

Figure 3-15
County of Wellington within the Context of the G.G.H.

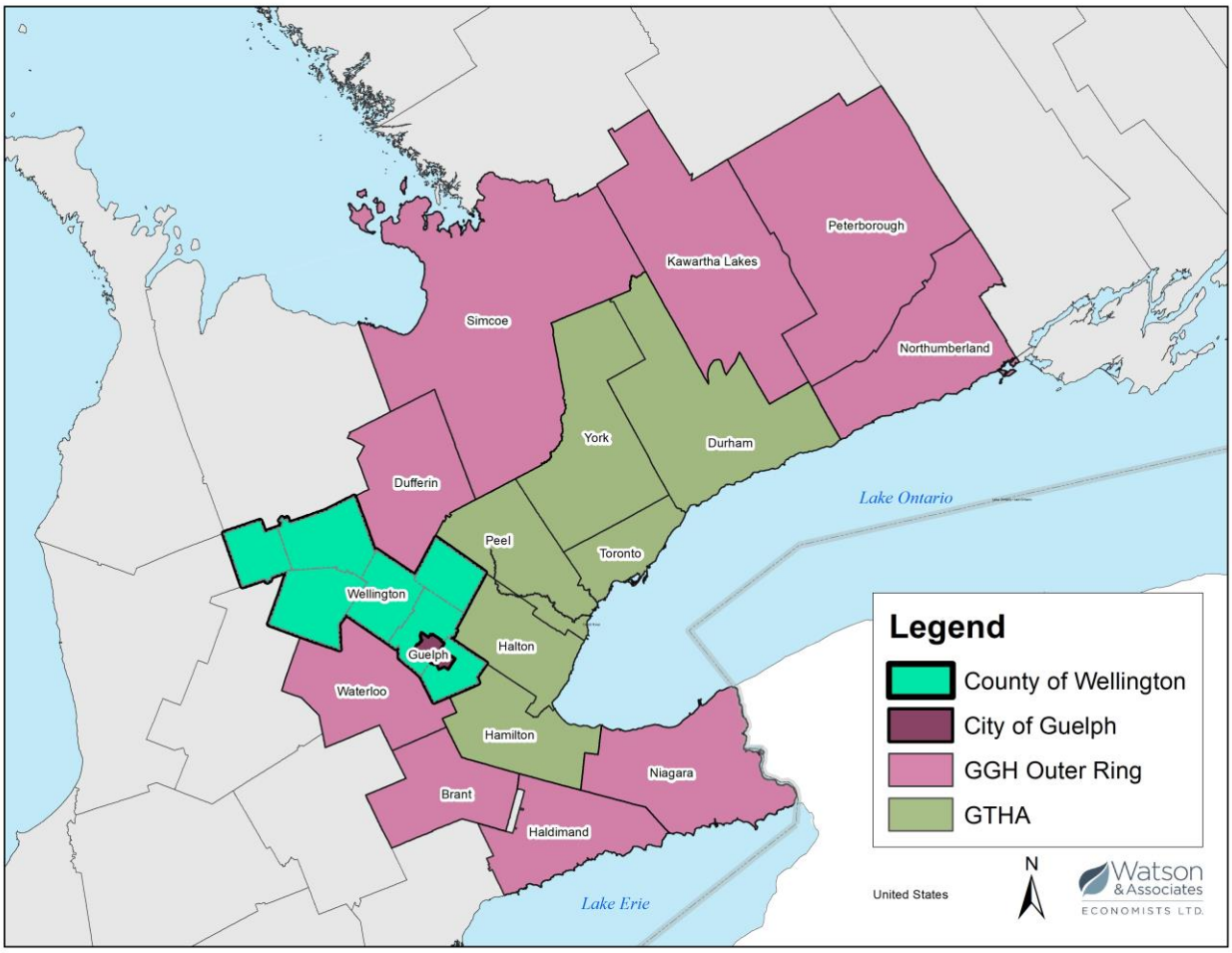


Figure 3-16 through Figure 3-18 summarize the historical and long-term population employment growth forecast for the G.G.H. between the G.T.H.A. and the G.G.H. Outer Ring. Figures 3-16 and 3-17 identify that the G.T.H.A. has historically experienced a higher rate of population and employment relative to the G.G.H. Outer Ring over the 2001 to 2016 period. Looking forward, the forecast annual population and employment growth rate of the G.G.H. Outer Ring is anticipated to increase significantly, driven by continued outward growth pressure from the G.T.H.A. and steady net migration. In fact, the forecast annual rate of employment growth in the G.G.H. Outer Ring is expected to exceed that of the G.T.H.A. between 2016 and 2051.

Figure 3-16
Historical and Forecast Population Growth for the G.G.H.
2001 to 2051

	Total Population			2001-2016		2016-2051	
Area	2001	2016	2051	Total Population Growth	Annual Population Growth Rate	Total Population Growth	Annual Population Growth Rate
G.T.H.A.	5,808,000	7,183,000	11,172,000	1,375,000	1.4%	3,989,000	1.3%
G.G.H. Outer-Ring	2,046,000	2,355,000	3,703,000	309,000	0.9%	1,348,000	1.3%
Total	**7,854,000**	**9,538,000**	**14,875,000**	**1,684,000**	**1.3%**	**5,337,000**	**1.3%**

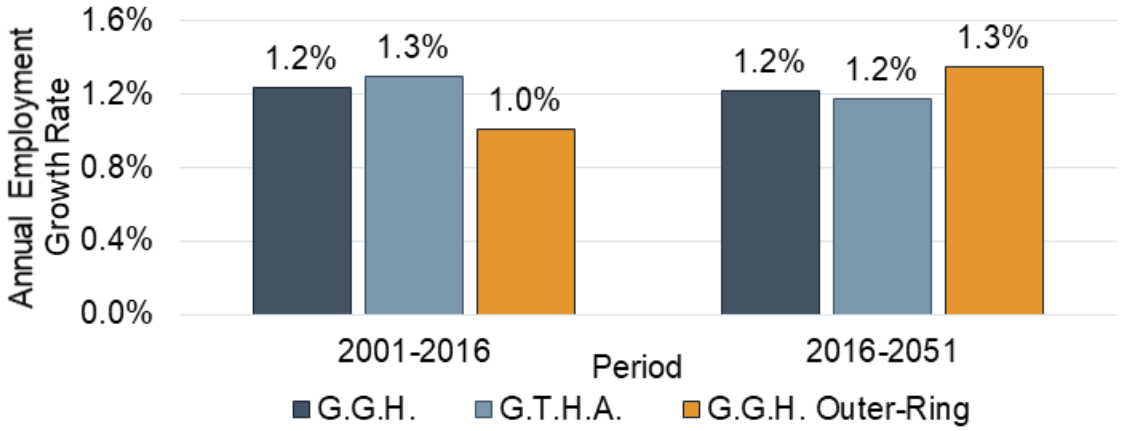
Source: 2001 to 2016 derived from Statistics Canada Census, 2001 and 2016. 2016 to 2051 derived from Growth Plan for the G.G.H., 2019, by Watson & Associates Economists Ltd., 2019.

Figure 3-17
Historical and Forecast Employment Growth for the G.G.H.
2001 to 2051

	Total Employment			2001-2016		2016-2051	
Area	2001	2016	2051	Total Employment Growth	Annual Employment Growth Rate	Total Employment Growth	Annual Employment Growth Rate
G.T.H.A.	2,938,000	3,564,000	5,360,000	626,000	1.3%	1,796,000	1.2%
G.G.H. Outer-Ring	890,000	1,034,000	1,650,000	144,000	1.0%	616,000	1.3%
Total	**3,828,000**	**4,598,000**	**7,010,000**	**770,000**	**1.2%**	**2,412,000**	**1.2%**

Source: 2001 to 2016 derived from Statistics Canada Census, 2001 and 2016. 2016 to 2051 derived from Growth Plan for the G.G.H., 2019, by Watson & Associates Economists Ltd., 2019.

Figure 3-18
Historical and Forecast Annual Employment Growth Rate for the G.G.H., 2001 to 2051



Source: 2001 to 2016 derived from Statistics Canada Census data. 2016 to 2051 derived G.G.H. Growth Forecasts to 2051 Technical Report, by Watson & Associates Economists Ltd., 2020.

3.4.2 Regional Economic Opportunities

As previously discussed in Chapter 2, Wellington County is characterized by a blend of expansive rural lands and vibrant Urban Centres. The County's "small town" urban and rural landscapes form a large part of the foundation which creates the "quality of place" that continues to increasingly attract new residents to this area. For the County of Wellington, COVID-19 has acted as a near-term driver of housing demand, led by increased opportunities for remote work and the reconsideration by some Ontario residents to trade "city lifestyles" for "smaller town living." It is recognized, however, that the longer-term population and employment growth potential for the County will be heavily dependent on sustained economic growth potential of the broader economic region. As such, it is important not to overstate the near-term impacts of COVID-19 on housing demand in the County of Wellington over the long term.

The existing employment base in the County of Wellington is concentrated in a number of export-based and community-based employment sectors. The County's employment base in particularly concentrated in manufacturing, construction, agriculture, retail and wholesale trade. Many of these sectors are also anticipated to represent the fastest growing segments of the regional economy, however it is also noted that at a number of emerging knowledge-based sectors are also anticipated to experience steady

employment growth over the next several decades. This is discussed further in Chapter 5.

Despite a relatively modest regional growth outlook for manufacturing employment, this sector continues to be a dominant component of the County's industry base. Looking forward, opportunities exist mainly for small to mid-sized firms that will benefit from the economic synergies offered between the County and the larger and growing employment markets within the City of Guelph, City of Waterloo, City of Kitchener, and City of Cambridge.

The County's employment base is also highly concentrated in the creative class economy, including people engaged in arts and culture as artists, actors, performers, writers and designers. The economic base is also highly oriented towards small businesses and home-based occupations. The County is also rich in architectural heritage with numerous historic homes, mills, barns, train stations, bridges, places of worship, and other buildings. The County offers a broad range of entertainment and dining options as well social events and festivals, which attract a growing number of people (both residents and visitors) to the County every year.

With an estimate of approximately 4,200 jobs related to the agricultural and primary sector as of 2019, the agricultural sector represents the County's fourth largest sector in terms of employment. Agri-business and food processing provide an opportunity to deepen agricultural activity and increase productivity of the industry by providing value-added products and services, which in turn also help drive the County's tourism sector. It is one of the key planning principles for the County to promote and protect the predominately agricultural character and economy of the County by ensuring the continued viability of agricultural resource areas, the agricultural industry, and agricultural communities in the County. The agriculture and agri-food system encompass several industries, including the farm input and service supplier industries, primary agriculture, food and beverage processing, food distribution, retail, wholesale, and food service industries, as well as other on-farm diversified uses.

Wellington County has also experienced steady employment growth in the transportation and warehousing sector over the past decade, most notably in the Township of Puslinch. Rising industrial land prices are anticipated to continue to shift the concentration of land expansive industrial uses within this sector from the G.T.H.A. to outer regions of the G.G.H. and beyond, including Wellington County.

As the employment base continues to grow within the County and surrounding commuter-shed, the economy is also anticipated to diversify generating a range of new live/work and commuting opportunities. As the local employment base and economy within the surrounding commuter-shed continues to grow, the County of Wellington will continue to be a desirable location for workers to live, leading to steady population growth across the County. Over the next 30 years, the County's local employment base is also anticipated to benefit from the regional economic expansion anticipated within neighbouring municipalities within the G.G.H. Outer Ring. Raising the economic profile of the County of Wellington by leveraging the economic opportunities and strengths of the broader G.G.H. regional economy should represent a key long-term economic development strategy for the County of Wellington.

3.4.3 Qualify of Life

Quality of life is a key factor influencing the residential location decisions of individuals and their families. It is also a factor considered by companies in relocation decisions. Typically, quality of life encompasses several sub-factors such as employment opportunities, cost of living, housing affordability, crime levels, quality of schools, transportation, recreational opportunities, climate, arts and culture, entertainment, amenities and population diversity. The importance of such factors, however, will vary considerably depending on life stage and individual preferences. Looking forward, these "soft" factors represent a key reason why the County's relative competitive position is likely to strengthen over time, in attracting new residents and business development over the long term.

3.4.4 County of Wellington Recommended Growth Forecast to 2051

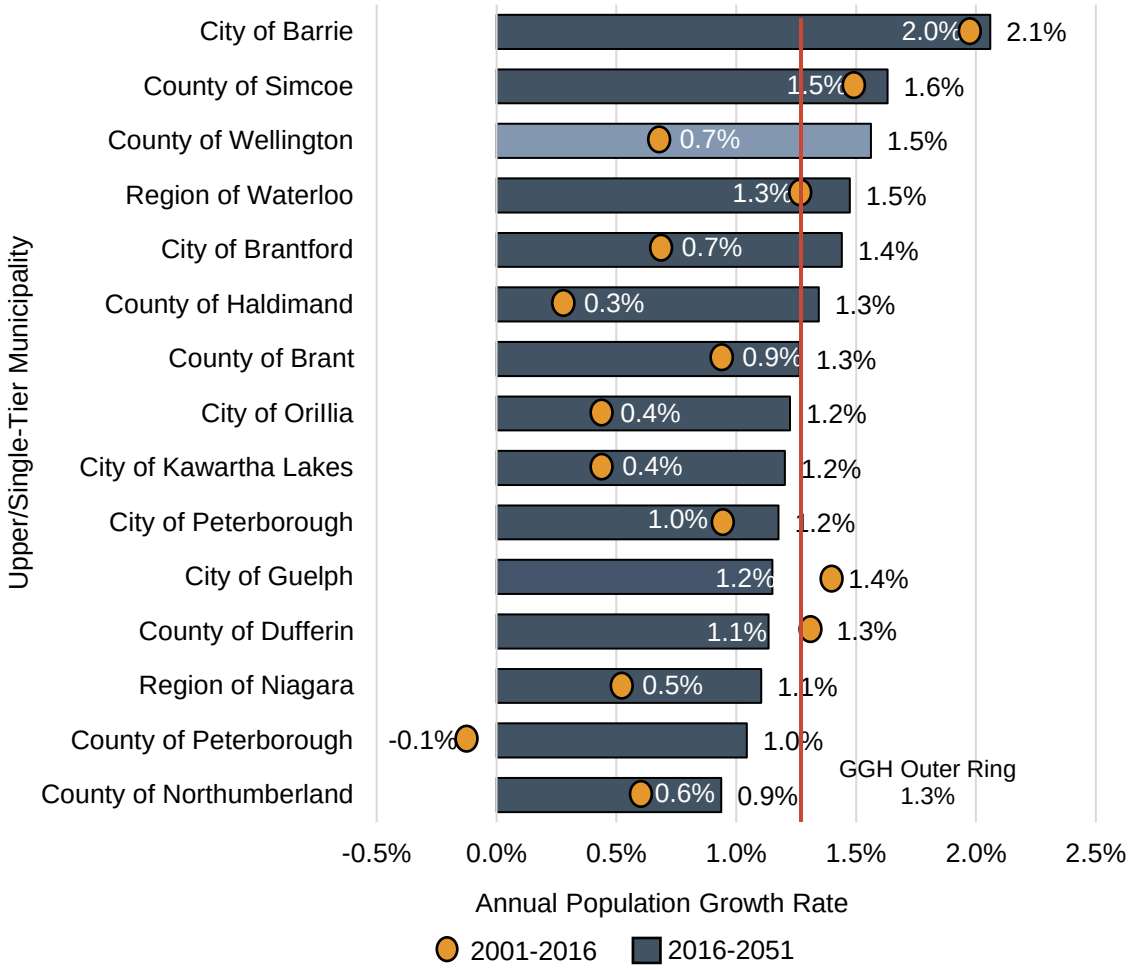
The long-term growth population and employment forecast for the County of Wellington, as set out in Schedule 3 of the Growth Plan, 2019, has been comprehensively evaluated herein within the context of historical growth trends, the broader growth outlook for the G.G.H., and the influence of regional growth drivers on the share of G.G.H. growth allocated to the County of Wellington. These factors are summarized below ot further rationalize the Growth Plan, 2019 long-term population and employment growth for the County of Wellington to the year 2051, as the recommended long-term growth scenario

As illustrated in Figure 3-19 and Figure 3-20, the population and employment base for the County of Wellington grew at an annual rate of 0.7% and 1.7%, respectively

between 2001 and 2016. Over the 2016 to 2051 forecast period, the rate of annual population growth within the County of Wellington is forecast to more than double. While the rate of forecast employment growth (2016 to 2051) is anticipated to remain relatively constant to historical trends (2001 to 2016), the County's annual level employment growth level in absolute terms is forecast to increase by approximately 45%. Further details regarding the County's long-term employment outlook are provided in Chapter 5.

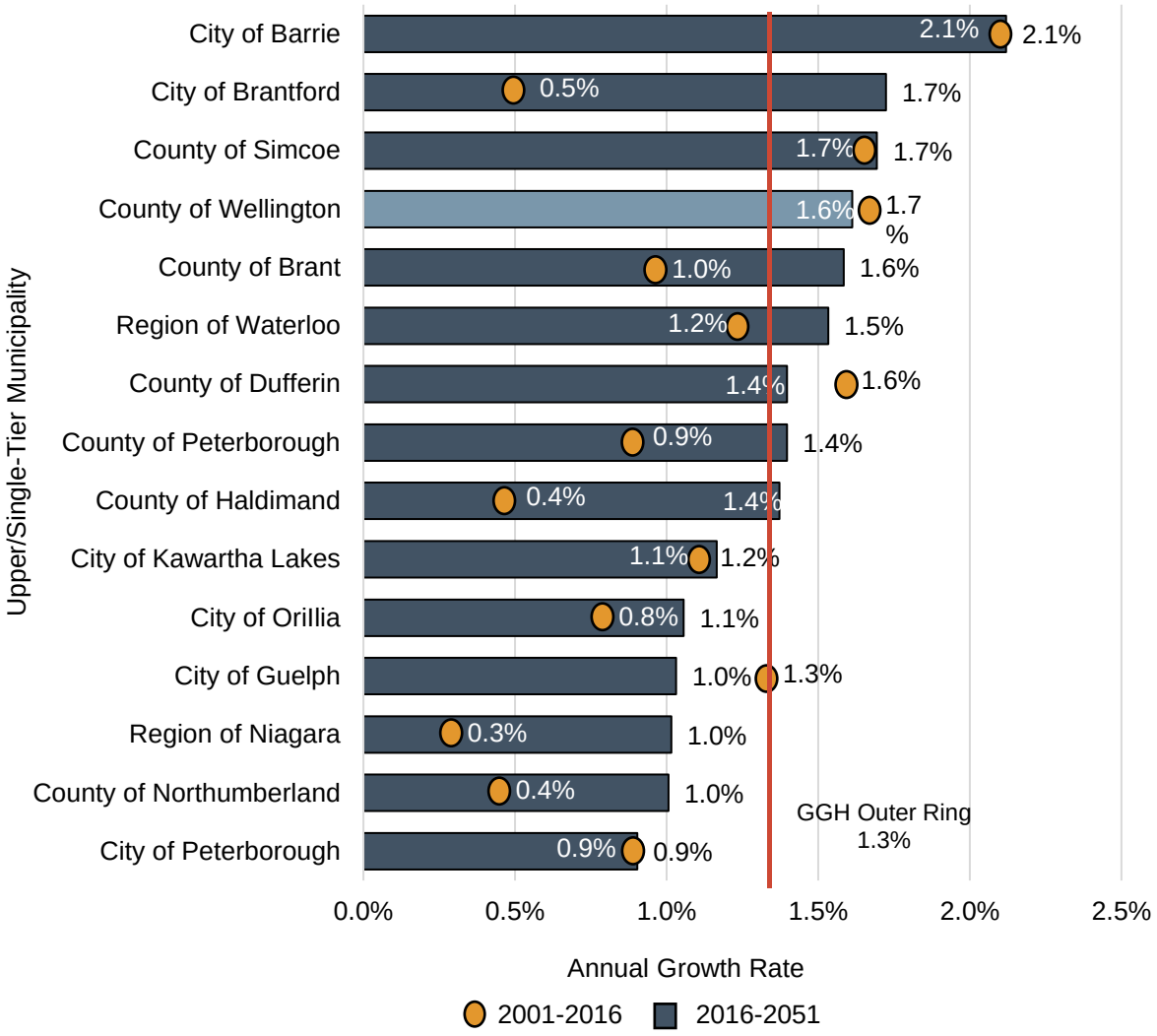
Relative to the rate of population and employment growth for the G.G.H. Outer Ring, and more specifically the neighbouring municipalities to the County of Wellington, the long-term growth outlook for the County, as outlined in the Growth Plan, 2019 is considered aspirational, but appropriate for the purposes of long-range planning.

Figure 3-19
G.G.H. Outer Ring, Annual Population Growth Rate by Municipality, 2016 to 2051
(Schedule 3)



Note: Population includes the net Census undercount.
Source: Derived from Greater Golden Horseshoe: Growth Forecasts to 2051 Technical Report, August 26, 2020, Hemson Consulting Ltd., by Watson & Associates Economists Ltd., 2020.

Figure 3-20
County of Wellington Share of G.G.H. Outer Ring
Employment, 2016 to 2051 (Schedule 3)

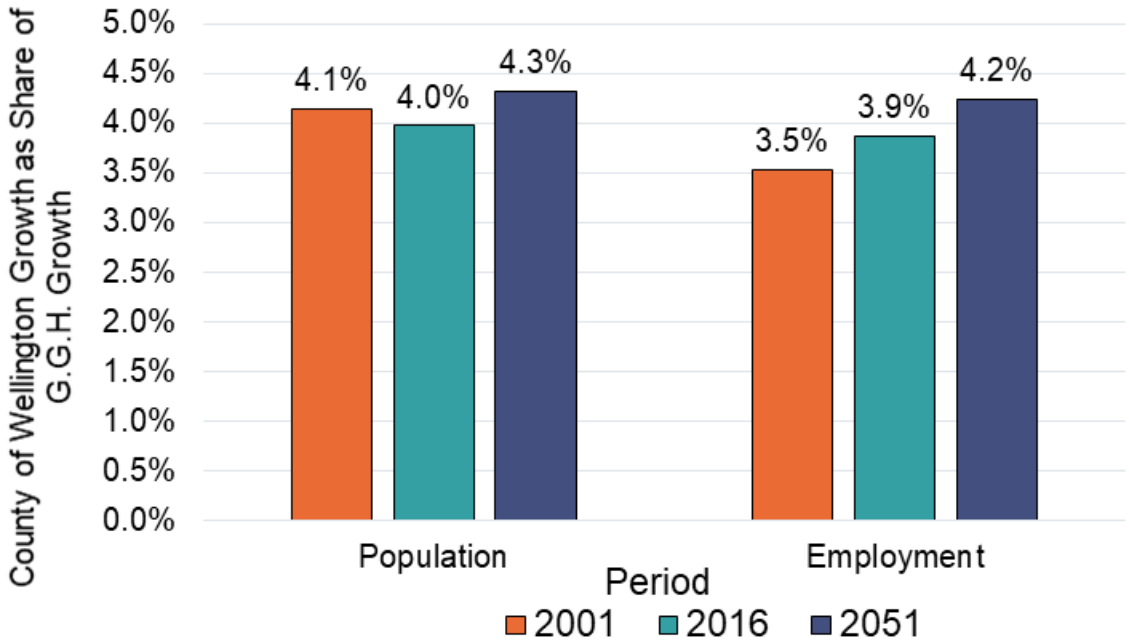


Source: Derived from Greater Golden Horseshoe: Growth Forecasts to 2051 Technical Report, August 26, 2020, Hemson Consulting Ltd., by Watson & Associates Economists Ltd., 2020.

As illustrated in Figure 3-21, the County of Wellington has historically accommodated a steady share of G.G.H. Outer Ring population and an increasing share of employment within the G.G.H. Outer Ring. Looking forward, the County of Wellington's population and employment base is forecast to grow at a faster rate relative to the G.G.H. Outer Ring as a whole. As such, the share of total G.G.H. Outer Ring population and

employment within the County of Wellington is forecast to slightly increase over the long-term planning horizon.

Figure 3-21
County of Wellington Share of G.G.H. Outer Ring
Population and Employment, 2001 to 2051 (Schedule 3)



Source: 2001 to 2016 derived from Statistics Canada Census, 2001 and 2016. 2016 to 2051 derived from Growth Plan for the G.G.H., 2019, by Watson & Associates Economists Ltd., 2020.

The Ontario Ministry of Finance (M.O.F.) population projections provide further insight into long-term population trends across Ontario and the G.G.H. In summary, recent population projection updates prepared by the M.O.F. continue to identify a shift in population growth across the G.G.H. from the G.T.H.A. to G.G.H. Outer Ring. The most recent M.O.F. population projections (Summer 2020) identify that the impacts of COVID-19 have potentially accelerated this shift in population growth from the G.T.H.A. to the G.G.H. Outer Ring; however, these impacts are anticipated to return to their longer-term pre-pandemic trendline by 2022.

When considering long-term population growth scenarios for the County of Wellington it is important to monitor long-term provincial growth forecasts prepared by the Ministry of Municipal Affairs and Housing (M.M.A.H.) and the M.O.F. for the G.G.H. as well as its sub-regional areas. While it is anticipated that long-term population growth rates within

the G.G.H. Outer Ring will continue to outpace the G.T.H.A., it is important to recognize that Wellington County is currently tracking slightly below Wellington County's Official Plan population forecast. It is noted that recent population estimates factor in a robust residential building permit activity during the post-2016 period.[1]

As previously mentioned, the County's population is getter older on average, driven by the aging of the Baby Boomers. As the County's population continues to age, net migration will become an increasing source of population growth. The aging of the population also places downward pressure on labour force participation rates and ultimately labour force growth over the long-term. As summarized in section 3.4.5, the level of annual net migration required to achieve the Growth Plan, 2019 population is significantly higher than historical trends achieved between 2001 and 2016. While it is reasonable to expect that forecast annual net migration levels in the County of Wellington will be higher relative to historical trends, achieving even higher levels of net migration than what has been identified to generate the County's 2051 population forecast is not considered to be a likely long-term scenario.

Based on the review of the County's long-term growth outlook provided in this Report, the 2051 population and employment forecast, as set out in Schedule 3 of the Growth Plan, 2019, is the recommended long-term growth scenario for the County of Wellington. The Schedule 3 Growth Plan, 2019 forecast for Wellington County:

- Represents a reasonable increase in long-term population and employment growth relative to historical trends;
- Accurately identifies the anticipated influence of identified regional and local growth drivers on future development trends across the County; and
- Represents a reasonable increase in the share of total population and employment in the County of Wellington relative to the G.G.H. Outer Ring as a whole.

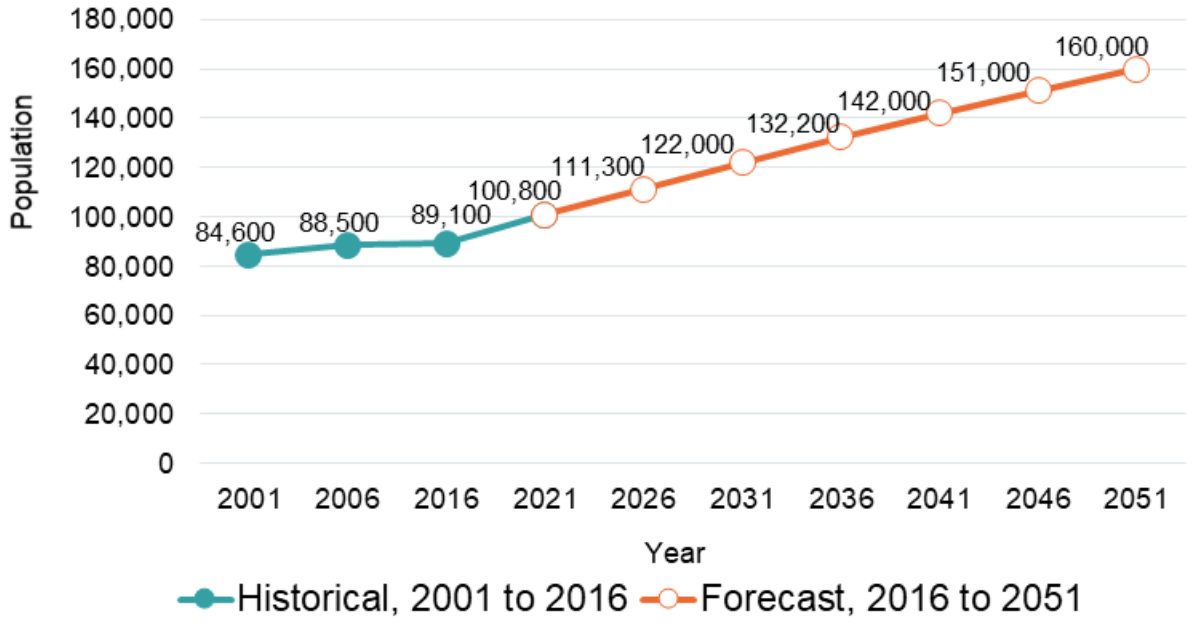
In accordance with the detailed review of the County's long-term population and employment growth outlook provided herein, a higher long-term population and employment forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

[1] Wellington County Population, Household and Employment Forecast Update, 2011 – 2041. Final. May 5, 2015.

3.4.5 County of Wellington Population Forecast to 2051

Figure 3-22 summarizes the County of Wellington total population growth forecast over the 2016 to 2051 forecast period relative to historical population between 2001 and 2016. By 2051, the County of Wellington total population base is forecast to grow to approximately 160,000. This represents an increase of approximately 66,400 persons between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period.

Figure 3-22
County of Wellington
Population Growth Forecast to 2051



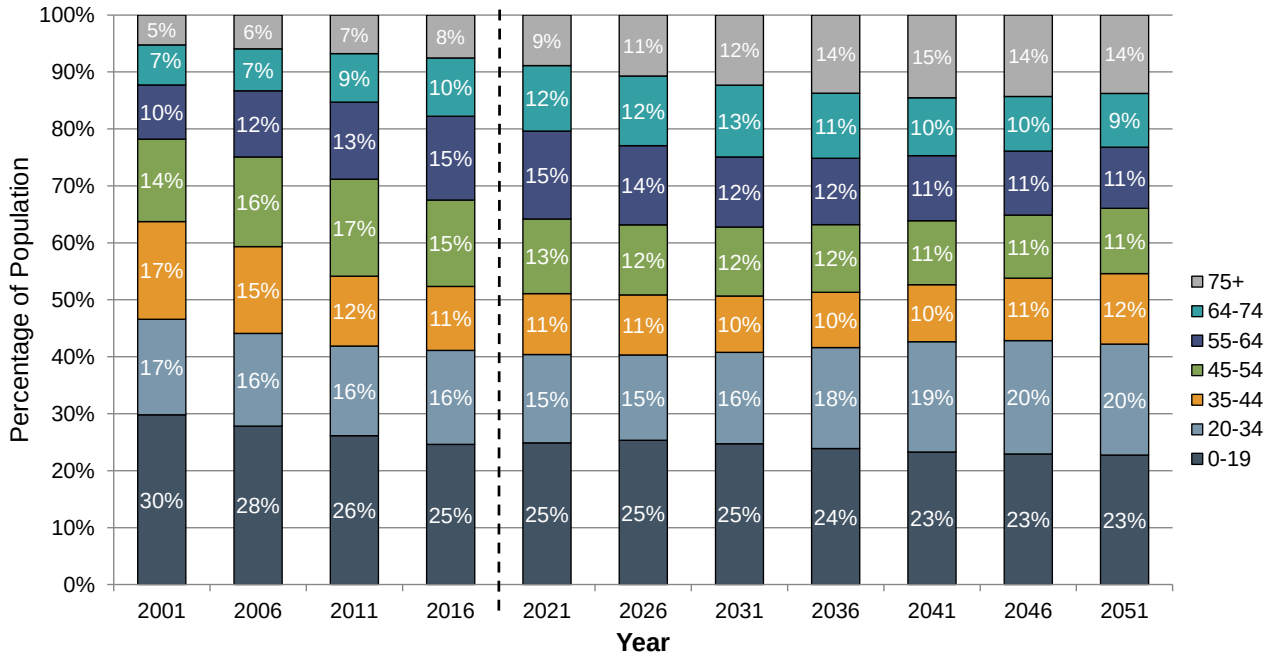
Source: 2001 to 2016 derived from Statistics Canada Census. Forecast by Watson & Associates Economists Ltd.

3.4.6 County of Wellington Total Population Growth by Major Age Group

Figure 3-23 summarizes the total population growth forecast for the County of Wellington by the percentage population by major age group. Additional details regarding the population forecast by age is provided in Appendix B. Key observations include:

- The percentage of the County of Wellington's youth (0-19) is forecast to gradually decline from 25% in 2016 to 23% in 2051;
- The 20-34 age cohort (young adults), which comprised 16% of the population in 2016, is forecast to increase in percentage share to 20% in 2051;
- The share of population in the 35-54 age group (adults) is forecast to decline from 26% to 23% over the same period;
- The percentage of empty nesters/younger seniors (age 55-74) is forecast to decline from 25% to 20%; and
- The percentage of population in the age 75+ age group (older seniors) is forecast to almost double from 8% in 2016 to 14% in 2051. As previously mentioned, this is anticipated to place increasing demand on the need for seniors' housing, affordable housing, as well as community and social services.

Figure 3-23
County of Wellington
Total Population by Major Age Group, 2016 to 2051



Source: Population forecast by age derived from 2006 to 2016 Statistics Canada census by Watson & Associates Economists Ltd. 2016 to 2041 population forecast by age prepared by Watson & Associates Economists Ltd., 2019.
Note: Population includes net Census undercount of 3%.

3.4.7 Planning for Existing and Future Generations within the County of Wellington

As previously identified, forecast trends in population age structure are important to address as these demographic trends will directly influence the rate of future population growth as well future housing needs, infrastructure requirements and community services across the County of Wellington. For most Canadian municipalities, including the County of Wellington, the influence of key demographic groups, including Generation Z, Millennials, and Baby Boomers, on the future of local real estate markets are particularly important to address. A brief summary of how these demographic groups are anticipated to shape future housing market demand across the County of Wellington is provided below.

3.4.7.1 Addressing the Future Housing Needs of Millennials and Generation Z

Millennials are typically defined as the segment of the population which reached adulthood during the 2000s. While there is no standard age group associated with the Millennial generation, persons born between 1980 and 1992 (currently 29 to 41 years of age in 2020) best fit the definition of this age group. Millennials represent a large cohort in Canada, rivaling the Baby Boomer generation in terms of size and impacts on the real estate market and labour force base. As of 2016, Millennials comprise approximately 18% of the County of Wellington population[1], slightly higher than the Ontario provincial average of 17%. Millennials as of 2016 within the neighbouring G.G.H. municipalities (City of Guelph, City of Hamilton, Region of Waterloo, County of Dufferin and Region of Halton) represent 14% to 20% of their respective municipalities' population base.[2]

Home ownership is considered important for the majority of Millennials. A recent Royal Lepage study found that nearly half of Canadians aged 25-35 owned their home, and that 68% who currently are not homeowners planned to purchase a home in the next five years, with 72% being confident in their financial outlook. Nearly two-thirds of this age group who are employed or seeking employment feel the ability to work remotely for an employer is important, and approximately half said this has increased their likeliness to move further from their place of work. In total, nearly two in five are considering a move to a less dense area due to the COVID-19 pandemic, while

[1] Statistics Canada, Census 2016, population by age.
[2] Ibid.

approximately half said COVID-19 did not impact their desire to move into less dense areas. Given an option, 45% indicated they would prefer living in a city, while 47% said they would choose small town or country living. The most attractive features of living in a city were walkability (21%) and access to events, attractions and other entertainment options (21%), followed by diversity of people and cultures (18%), and more employment opportunities (17%). The top reasons for wanting to move to a less dense area included access to more outdoor space (62%) and lower home prices (61%), followed by the affordability of larger properties (51%).[1]

Much of this demand for future home ownership appears to be the desire for additional floor space and a yard, in many cases to accommodate a growing family. Anticipated housing demand by the Millennial population is expected to drive future housing needs across Wellington County, largely in Urban Centres, which provide options for first time homebuyers as well as "move-up" buyers with growing families. With this in mind, housing demand is anticipated to be primarily strong for grade-related housing forms including single and semi-detached, townhouses, including back-to-back and stacked townhouses.

Generation Z, the cohort which directly follows the Millennial Generation is now entering the real estate and labour market. Demographers and researchers typically use the mid-1990s to mid-2000s as starting birth years to describe the Generation Z cohort. For the purposes of this study, we have assumed that those born between 1993 and 2005 (15 to 27 years of age as of 2020) comprise Generation Z. As of 2016, this population represented 17% of the County's population base, however at that time, this population base was primarily a youth population base (11 to 21 years of age) and not a major component of the housing market. Over the next several decades, Generation Z is also anticipated to place increased demand on medium and high-density ownership and rental housing.

It is also important to recognize the impact of Millennials and Generation Z on the nature of future employment growth, which will be increasingly driven by the knowledge-based economy. Compared to older age groups, Millennials and Generation Z have a higher average level of education attainment in Canada compared to older age groups. Millennials are considered the most educated generation, nearly 70% of Millennials have a post-secondary certificate, diploma and degree compared to the previous

[1] Royal Lepage, National Survey, 2013.

generation, Gen-X at approximately 55%.[1] This bodes well in accommodating labour within the knowledge-based economy, however has posed a challenge in accommodating employment in other sectors of the economy, including unskilled employment, as a greater share of the of the baby-boomer generation enters retirement. Generation Z will continue to serve as a catalyst for both growth and change related to future office, retail, institutional and industrial developments across the County of Wellington. The extent to which the County of Wellington can capitalize on potential demand from these demographic groups is subject to a number of economic and socio-economic variables (e.g. relative housing costs/affordability, local and regional employment opportunities, broadband infrastructure , lifestyle preferences, local amenities, community services and perceived quality of life).

3.4.7.2 Continuing to Plan for Older Generations

As previously discussed, the average age of the population base in the County of Wellington is getting older, due to the large concentration of Baby Boomers within the County. As of 2021 this age group is between 57 and 75 years of age. As of 2016 Baby Boomers comprised 27% of the County's population base, slightly higher than the Ontario provincial average of 25%.[2] As the County's Baby Boom population continues to age, the percentage of seniors, particularly older seniors (i.e. seniors 75 years of age and older) within the County is anticipated to steadily increase over the 2016 to 2051 forecast period. From 2001 to 2016, the County's 75+ population grew at an annual rate of 3.1%. Over the 2016 and 2051 period, the forecast population growth rate for the 75+ age group is forecast to increase to 3.3% annually. This demographic trend is anticipated to be largely driven by the aging of the County's existing population, as opposed to net-migration of older residents into the County. It is important to recognize that not only is the Baby Boom age group large in terms of its population share in the County of Wellington, it is also diverse with respect to age, income, health, mobility, and lifestyle/life stage.

When planning for the needs of older adults, it is important to consider these diverse physical and socio-economic characteristics relative to younger population age groups. On average, seniors, particularly those in the 75+ age group have less mobility, less

[1] Statistics Canada, Income Statistics Division and Analytical Studies Branch, Statistics Canada, Economic Well-being Across Generations of Young Canadians: Are Millennials Better or Worse Off?, *April 2019.*
[2] Statistics Canada, Census 2016, population by age.

disposable income and typically require increased health care compared to younger seniors (65-74 age group) and other segments of the younger working-age population. Typically, these characteristics associated with the 75+ age group drive their demand for relatively higher density housing forms (e.g. apartments and seniors' homes) that are in proximity to urban amenities (e.g. hospitals/health care facilities, amenities and other community services geared towards older seniors).

Considerable research has been undertaken over the past decade regarding the aging population and its impact on housing needs over the long term. The majority of literature and commentary regarding the housing needs of older Canadians suggests that a large percentage of seniors will "age in place"; that is, to continue to live in their current home and/or community for as long as possible even if their health changes. While there is strong rationale to support "aging in place" as a general concept, it is important to address the current characteristics of the County housing stock occupied by older adults (i.e. house size, built-form, location and amenities) against the socio-economic characteristics of older residents in the County (i.e. household income, housing affordability, mobility, health, etc.). These factors are also important to recognize when comparing housing preferences of Baby Boomers with previous generations. With this in mind, it is important to recognize that the concept of "aging in place" should emphasize the goal to age with some level of independence "within the community," as opposed to simply "aging at home." The overarching message around "aging in place" is that seniors require choice as well as access to services and amenities regarding their living arrangements. This could include creating new housing through infill or intensification of established areas which can facilitate "aging in place" by providing housing options which allow seniors to remain in their communities when responding to life changes.

3.4.7.3 Components of Total Population Growth

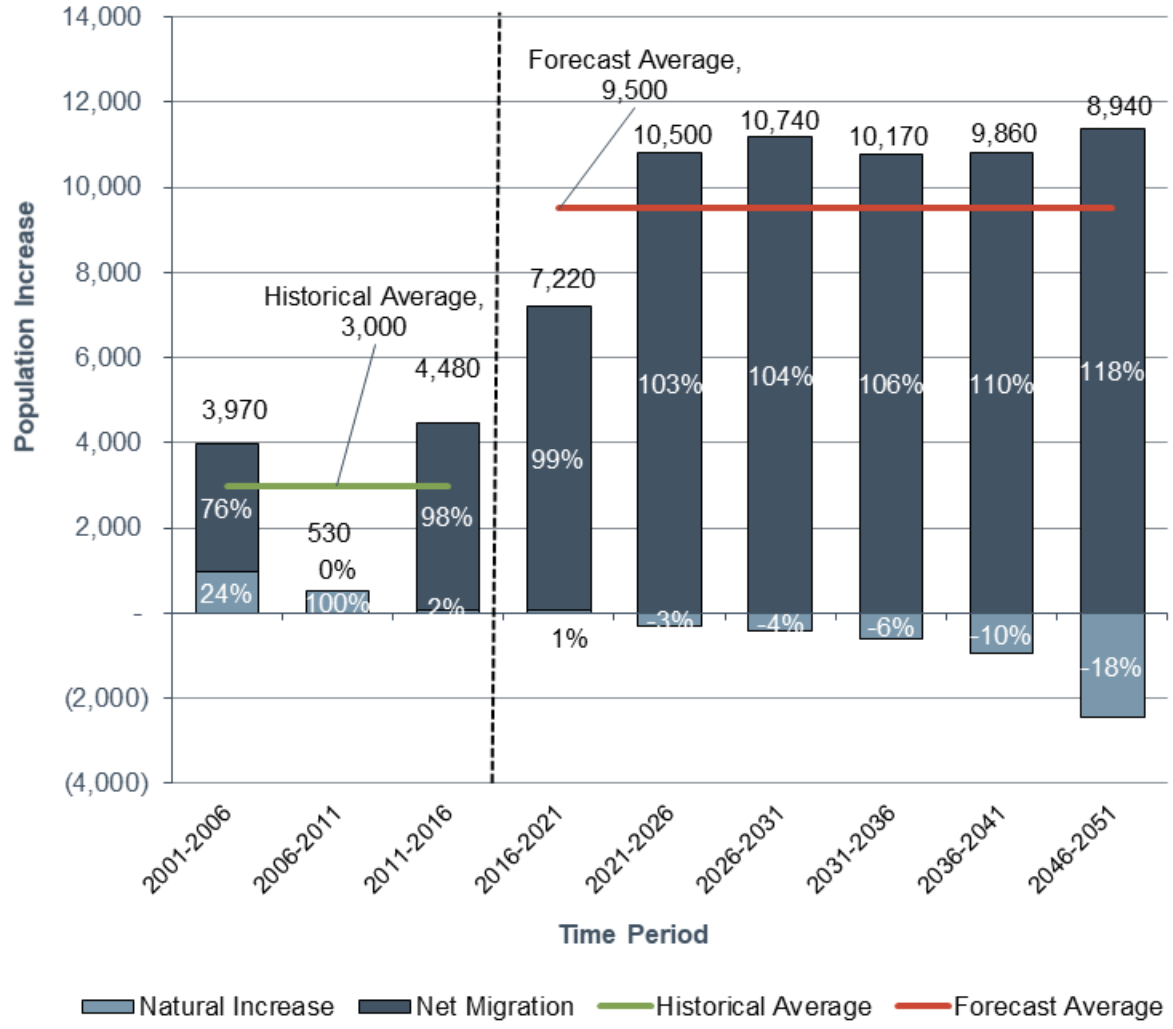
Figure 3-24 and Figure 3-25 summarize population growth in the County of Wellington by component, including net migration and natural increase (births less deaths). As previously mentioned, net migration is anticipated to represent the largest component of forecast population growth in the County of Wellington. This is a result of diminishing population growth from natural increase due to the aging of the population. Net migration can be broken into three broad categories, including:

- **International Net Migration –** represents international immigration less emigrants, plus net non-permanent residents. Over the last decade, this component of net migration is anticipated to represent a relatively small source of net migration for the County of Wellington;
- **Inter-provincial Net Migration –** is comprised of in-migration less out-migration from other Canadian Provinces/Territories. Historically this has also not been a major source of net-migration for the County of Wellington; and
- **Intra-provincial Net Migration –** Includes in-migration less out-migration from elsewhere within the Province of Ontario. This has been a significant source of net migration over the last decade for the County of Wellington.

Key observations with respect to the components of population growth in the County of Wellington include:

- Over the 2016 to 2051 period, population growth within the County of Wellington is anticipated to be driven from net migration;
- The County is forecast to accommodate just over 1,900 new net migrants per year (or 9,500 migrants every five years). Relative to historical trends, this represents a considerable increase in the average historical levels of net migration experienced between 2001 and 2016;
- As previously discussed, forecast net migration in the County of Wellington is anticipated to be largely driven by the long-term economic growth prospects in the regional economy and surrounding commuter-shed. Local housing growth opportunities targeted to a broad range of demographic groups (i.e. first-time homebuyers, families, empty nesters, and seniors) and the County's attractiveness as a place to work and live also represent key drivers of net future migration within the County; and
- The County is anticipated to experience relatively strong net migration across all major age groups.

Figure 3-24
County of Wellington
Historical and Forecast Population Growth Associated with Net Migration and Natural Increase, 2016 to 2051

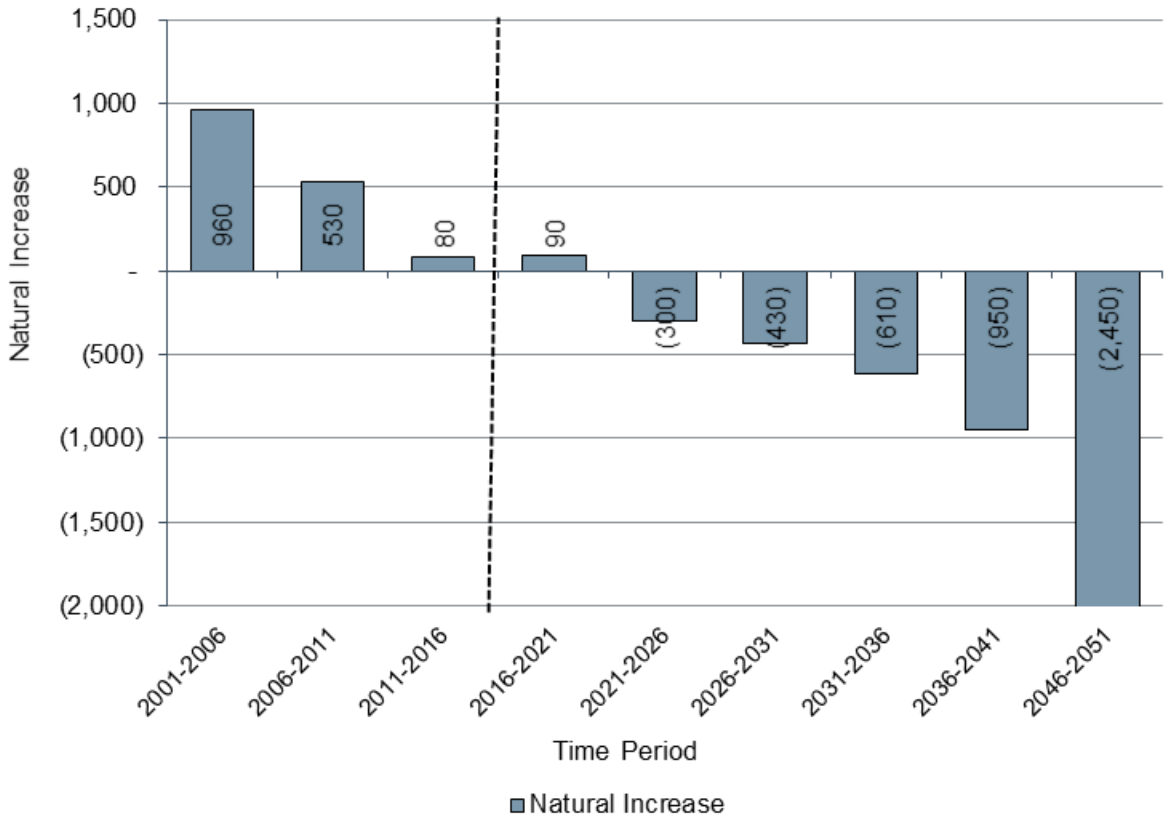


Source: Derived from Statistics Canada, Demography Division. 2001-2016 estimated by Watson & Associates Economists Ltd., 2019.
Note: Includes Census undercount of approximately 3%.

Figure 3-24 summarizes forecast population growth associated with natural increase for the County of Wellington relative to historical trends, while Figure 3-25 summarizes forecast population growth associated with net migration for the County. As previously discussed, historical population growth (2001 to 2016) associated with natural increase has been relatively weak in the County of Wellington, due to the aging of the population.

Over the forecast period, the share of population growth associated with natural increase is forecast to continue to decline, particularly during the post-2041 period.

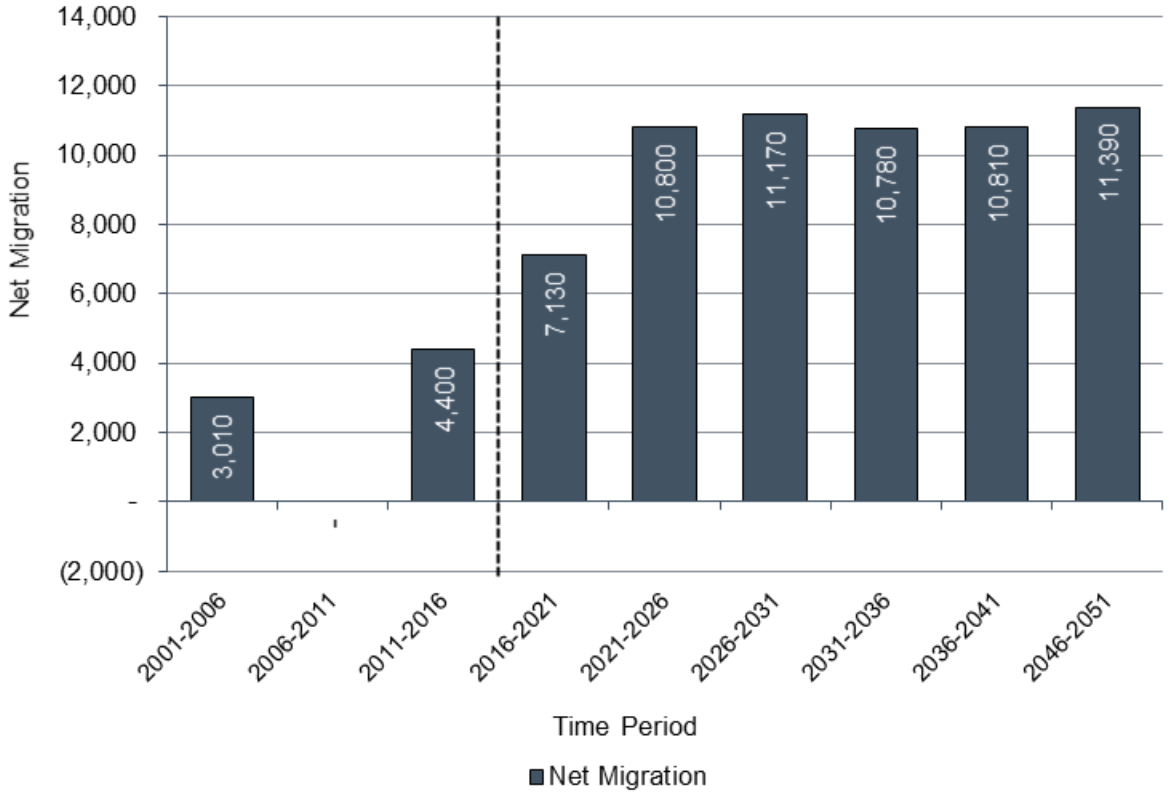
Figure 3-25
County of Wellington
Historical and Forecast Natural Increase, 2016 to 2051



Source: Derived from Statistics Canada, Demography Division. 2001-2016 estimated by Watson & Associates Economists Ltd., 2019.
Note: Includes Census undercount of approximately 3%.

As summarized in Figure 3-26, net migration is anticipated to increase significantly over the forecast period compared to historical trends over the past 15-years. Similar to recent historical trends, it is anticipated a large component of net migration will come from intra-provincial migration, primarily from larger Urban Centres within the west G.T.H.A.

Figure 3-26
County of Wellington
Historical and Forecast Net Migration Increase, 2016 to 2051



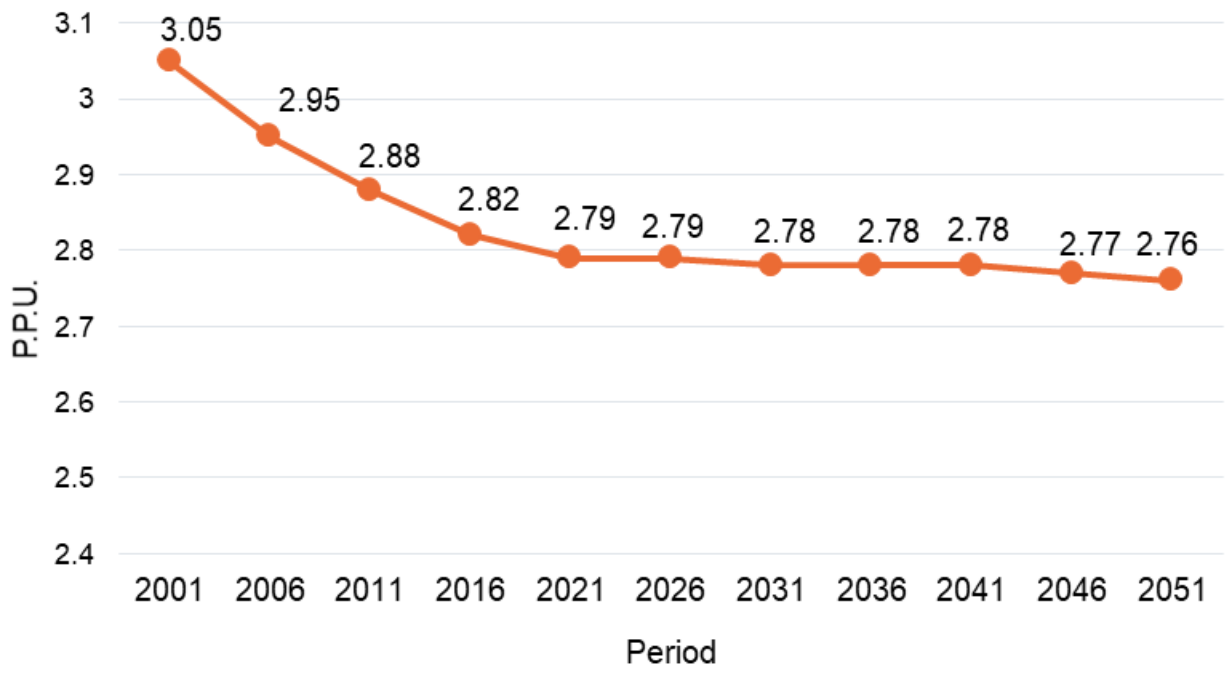
Source: Derived from Statistics Canada, Demography Division. 2001-2016 estimated by Watson & Associates Economists Ltd., 2019.
Note: Includes Census undercount of approximately 3%.

3.4.8 County of Wellington Housing Growth Forecast to 2051

3.4.8.1 Person Per Unit Forecast

Figure 3-27 summarizes anticipated long-term forecast average housing occupancy trends for the County of Wellington from 2016 to 2051 within the context of historical trends from 2001 to 2016. As previously discussed, this P.P.U. forecast is based on a headship rate analysis. Historically, average housing occupancy levels have been steadily declining in the County of Wellington. Over the forecast period, average household occupancy levels are expected to stabilize due to the significant increase in anticipated net migration associated with young adults and families.

Figure 3-27
County of Wellington
Historical and Forecast P.P.U., 2016 to 2051

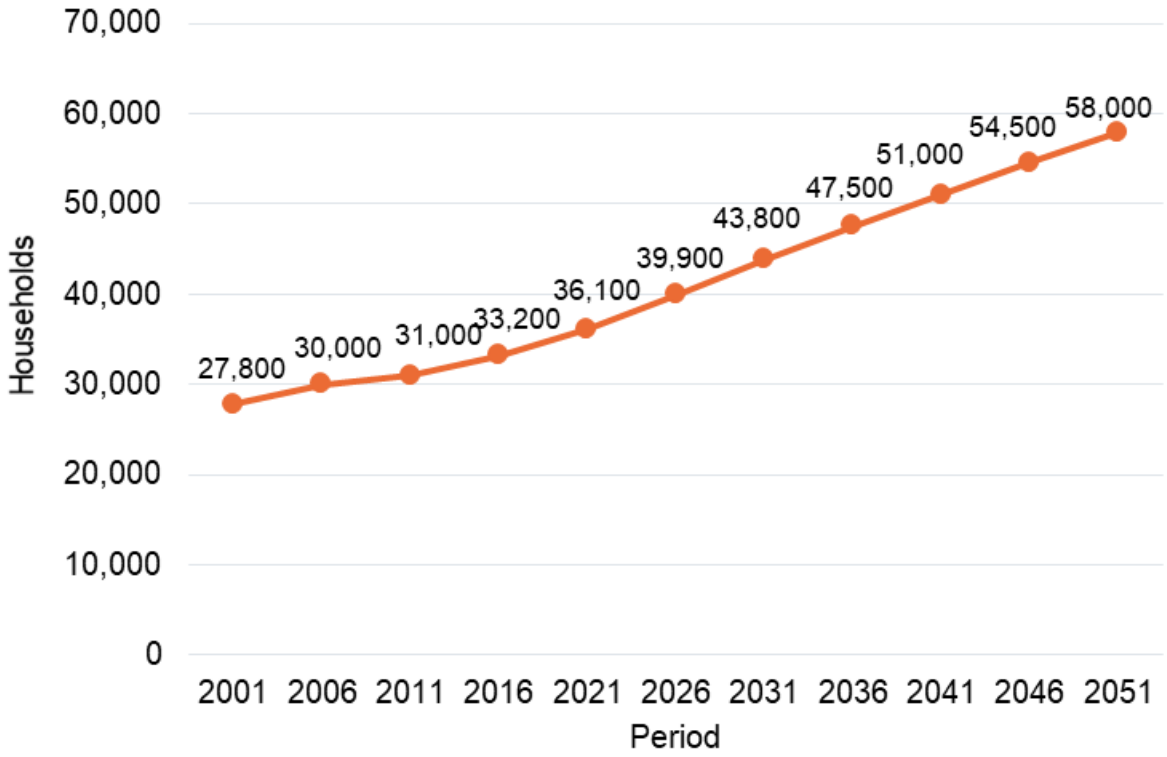


Source: 2001 to 2016 derived by Statistics Canada. 2021 to 2051 is a forecast by Watson & Associates Economists Ltd. Based on population with census undercount.

3.4.8.2 Household Forecast to 2051

Figure 3-28 summarizes the long-term total household forecast for the County of Wellington to 2051. As of 2016, the County's housing base was approximately 33,200 units. By 2051, the number of households in the County is anticipated to increase to approximately 57,900 total households. This represents an annual housing growth rate of approximately 1.6% over the 35-year forecast period. This represents a higher rate of forecast housing growth relative to the County's historical 15-year average annual housing growth rate (1.2% from 2001 to 2016). As previously discussed, recent residential building permit activity (new units only) has been relatively strong in recent years, generating an estimated increase of approximately 570 households per year between 2016 and 2021. Over the 2021 to 2051 forecast period, the County is forecast to average approximately 730 new housing units per year, which is just under 30% higher than the average level of new housing growth which is estimated the past five-years.

Figure 3-28
County of Wellington
Household Forecast, 2016 to 2051

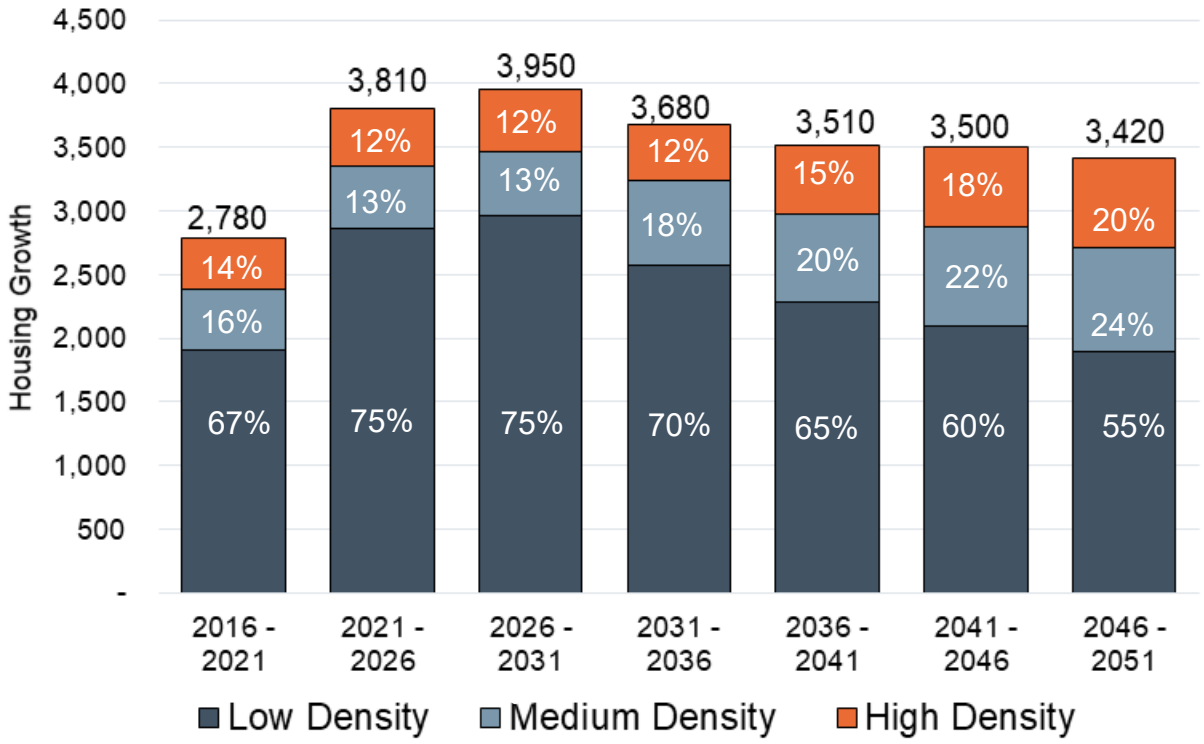


Source: 2001 to 2016 derived from Statistics Canada. 2021 to 2051 is a forecast by Watson & Associates Economists Ltd.

Figure 3-29 summarizes the long-term total household forecast for the County of Wellington in five-year increments from 2016 to 2051 and by housing type. It is anticipated that a large component of housing growth will include low-density housing development at 68%, followed by medium density at 18% and high density at 15%. As previously discussed within this chapter, the propensity analysis suggests that there is a preference for low-density housing developments. While there is strong demand for low-density housing within the County, increasing demand is also anticipated for medium- and high-density housing forms to provide greater choice in housing options by type and tenure for a broad range of residents by age and income. Figure 3-29 summarizes the County's incremental housing forecast by structure type from 2021 to 2051.

Addressing the interconnection between the County's competitive economic position and its longer-term housing needs by market segment is critical in realizing the County's future forecast population and employment growth potential as well as the County's ultimate goals related to prosperity, opportunity, and livability. This approach recognizes that the accommodation of skilled labour and the attraction of new businesses are inextricably linked and positively reinforce one another. To ensure that economic growth is not constrained by future labour shortages, effort will be required by Wellington County and its local municipalities to continue to explore ways to attract and accommodate new skilled and unskilled working residents to the County within a diverse range of housing options. Attraction efforts must also be linked to housing accommodation (both ownership and rental), infrastructure, municipal services, and amenities, as well as quality of life attributes that appeal to the younger mobile population, while not detracting from the County's attractiveness to older population segments.

Figure 3-29
County of Wellington
Household Forecast by Housing Type,
5-Year Growth Increment, 2016 to 2051



Source: Watson & Associates Economists Ltd.

Second unit potential is included in high-density housing category. The Phase 2 Report will include a forecast of second units as part of the intensification analysis.

3.5 Observations

It is recognized that future population and employment growth within the County of Wellington is strongly correlated with the growth outlook and competitiveness of the economy within the County of Wellington and the surrounding region – which in this case is largely represented by the G.G.H.

The G.G.H. Outer Ring is projected to be the fastest growing region in Ontario over the next 30 years. Due to its geographic location within the western region of the G.G.H.

Outer Ring, Wellington County is forecast to experience significant outward growth pressure over the next several decades largely from the west and north G.T.H.A. upper-tier municipalities, which have historically been amongst the fastest growing municipalities in Ontario in recent decades.

By 2051, the County of Wellington total population base is forecast to grow to approximately 160,000 persons as per Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 66,400 residents between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Accommodating forecast total population growth in the County of Wellington will require approximately 24,710 new households, or just over 710 new Census households annually over 2016 to 2051 (or 730 over the 2021 to 2051 period). In accordance with the comprehensive analysis provided as part of this Report, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the County of Wellington. As such, a higher long-term population forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

It is important to recognize that while the County's population base is growing it also is getting older. Between 2016 and 2051, the 75+ age group (older seniors) is forecast to represent the fastest growing population age group with an average annual population growth rate of 3.3%. With an aging population the region will be more reliant on net migration as a source of population as opposed to natural increase. With respect to future housing needs, strong population growth in the 75+ age group is anticipated to place increasing demand medium and high-density forms including seniors' housing and affordable housing options. The County of Wellington is also anticipated to accommodate a growing share of young adults and new families seeking competitively priced home ownership and rental opportunities. Population growth associated with young adults is anticipated to be primarily driven by net migration.

Chapter 4
Population and Housing Growth Allocations

4. Population and Housing Growth Allocations

This chapter provides a summary of the forecast population and housing allocations by Area Municipality within County of Wellington, as well as Urban Centres. Detailed tables on population and housing growth allocations are provided in Appendix E.

4.1 Introduction

4.1.1 Allocation Review

The population and housing allocations by Area Municipality were developed based on a detailed review of the following local supply and demand factors.

Local Supply Factors:

- Supply of potential future housing stock in the development process by housing structure type and approval status;
- Housing intensification opportunities;
- Current inventory of net vacant designated urban "greenfield" lands not currently in the development approvals process;
- Water and wastewater servicing capacity and potential solutions to overcome constraints (where identified); and
- Provincial policy direction regarding forecast residential growth by urban versus rural area.

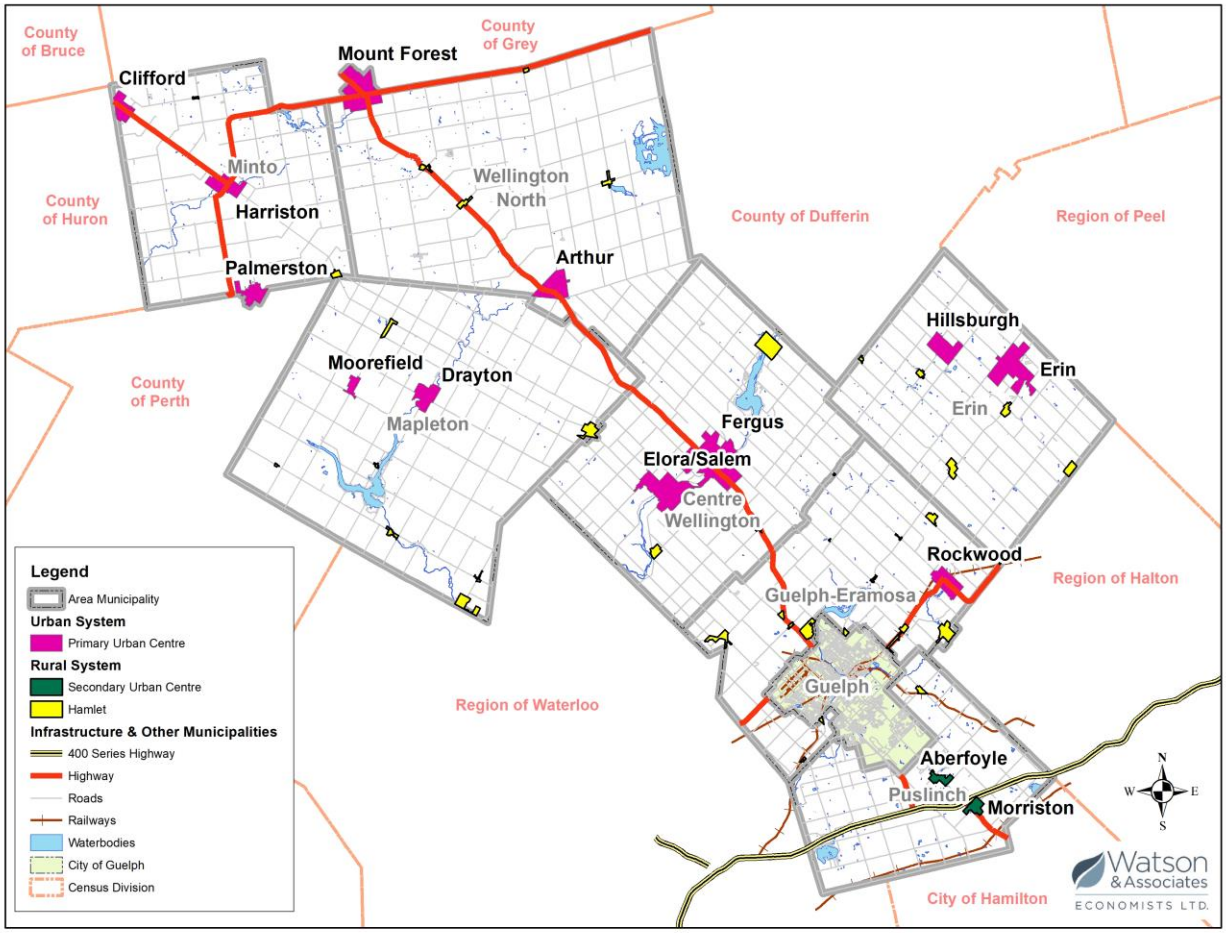
Demand Factors:

- Historical population and housing activity by structure type based on Statistics Canada (Census) data by Urban Centre and remaining rural area;
- A review of historical residential building permit activity (new units only) by structure type from 2009 to 2019 by Urban Centre and remaining rural area;
- The influence of population and employment growth within the surrounding market areas on the geographic distribution of growth and settlement patterns across the County;
- Market demand for housing intensification; and
- Appeal to families and empty nesters/seniors.

4.1.2 Location of Area Municipalities and Urban Centres

Figure 4-1 provides a map of the seven Area Municipalities within the County of Wellington. Within each of the Area Municipalities, each of the Primary and Secondary Urban Centres and hamlet areas has been illustrated.

Figure 4-1
County of Wellington
Map of Area Municipalities and Settlement Areas

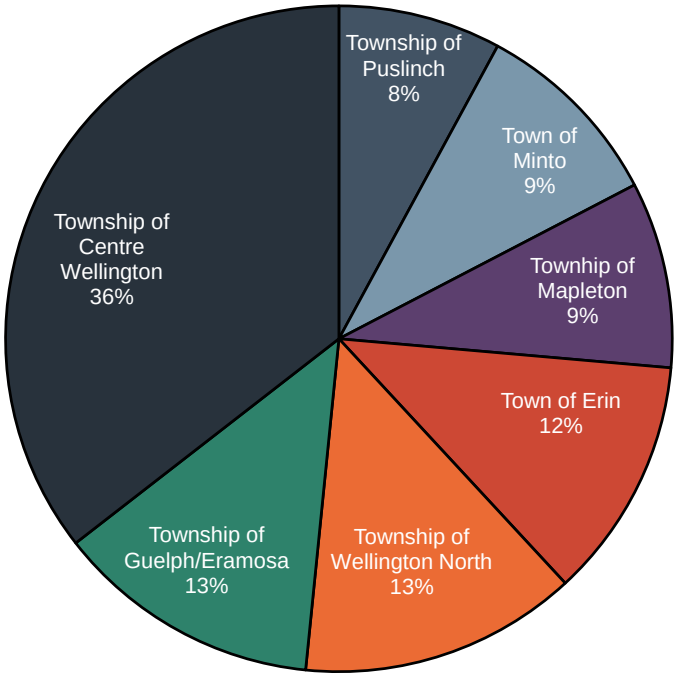


4.1.3 Existing Shares of Population Base by Area Municipality

As of 2021, the population base of the County of Wellington was estimated at 100,800. Of the County's 2021 population base, over a third (36%) of the County's population base is accommodated within the Township of Centre Wellington. Each of the remaining six Area Municipalities comprise between 8% to 13% of the County's

population base as of 2021. Further details on the population base for each Area Municipality is provided in Appendix E.

Figure 4-2
County of Wellington
Share of County's Population, 2021

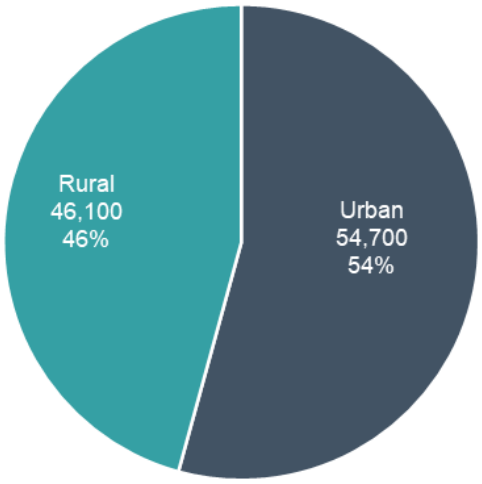


Source: Watson & Associates Economists Ltd.

4.1.4 Urban and Rural Population Estimates, 2021

As summarized in Figure 4-3, 54% of the County's population base is within the Urban System. Conversely, it is estimated that approximately 46% of the County's population base is within the Rural System which includes Secondary Urban Centres (Aberfoyle and Morriston), Hamlets and population within the remaining rural area.

Figure 4-3
County of Wellington
Rural and Urban Population, 2021



Source: Watson & Associates Economists Ltd.

4.2 Population Housing Growth Trends by Area Municipality

4.2.1 Share of County of Wellington Population Growth, 1996 to 2016

Figure 4-4 summarizes historical population growth within the County of Wellington by Area municipality over the Census periods between 1996 to 2016. Key observations include:

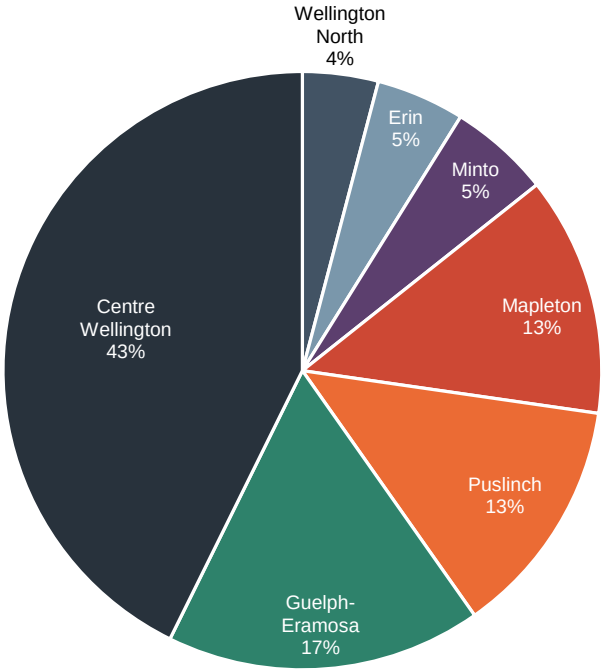
- The Township of Centre Wellington represented 43% of the County of Wellington's population growth. Growth within Centre Wellington was primarily concentrated in the urban centres of Elora and Fergus;
- The Township of Guelph/Eramosa comprised 17% of the County's population, growth during that period primarily concentrated within the Urban Centre of Rockwood;
- The Township of Puslinch and the Township of Mapleton each comprised approximately 13% of the County's population growth during this period; and
- The remaining Area Municipalities, Erin, Minto and Wellington North combined represented approximately 14% of the County's population growth. The low share of population growth within the Town of Erin has been largely due to

municipal servicing constraints. During this historical period, the Town of Erin experienced an annual population growth rate of 0.3%, compared to the County annual population growth rate of 0.9%.

With the exception of the Town of Erin, growth within the County over the past 20 years has largely been concentrated in Area Municipalities within the southern portion of the County. The Area Municipalities within the southern portion of the County include the Township of Centre Wellington, Town of Erin, Township of Puslinch and Township of Guelph-Eramosa. These Municipalities are in proximity to large employment markets within the G.G.H. and offer greater access to the G.T.H.A. The Area Municipalities within the southern portion of the County combined represented 77% of the County population growth and had an annual population growth rate of 1.1% during this period which is above the County-wide population growth rate of 0.9% during this period.

The Area Municipalities within the northern portion of the County include the Township of Wellington North, Town of Minto and Township of Mapleton. The Area Municipalities within the northern portion of the County combined represented 23% of the County population growth and had an annual population growth rate of 0.6% during this period which is below the County-wide population growth rate (0.9%).

Figure 4-4
County of Wellington
Share of 20-Year County Population Growth, 1996 to 2016



Source: Derived from Statistics Canada, Census 1996 to 2016 by Watson & Associates Economists Ltd.

4.2.2 Census Households by Area Municipality, 1996 to 2016

Figures 4-5 and 4-6 summarizes historical housing growth trends in the County of Wellington by Area Municipality over the past 20 years by Census period. Over the most recent 20-year census period, the County of Wellington added 376 households annually, representing a household growth rate of 1.3% as summarized in Figure 4-5. Figure 4-6 provides a comparison of the average annual household growth rate over the 1996 to 2006 period and over the 2006 to 2016 period by Area Municipality.

As summarized in Figure 4-5, Centre Wellington comprised just under half (46%) of the County's household growth, largely fueled by growth in the growth within developing communities in the D.G.A. of Fergus. Centre Wellington's 20-year average annual household growth over this period was approximately 1.9% and as summarized in Figure 4-6 was even higher over the 1996 to 2006 period at 2.6% annually. Centre Wellington added 174 households annually over the 20-year period. Over the 1996 to 2006 period, the Township added 214 household annually.

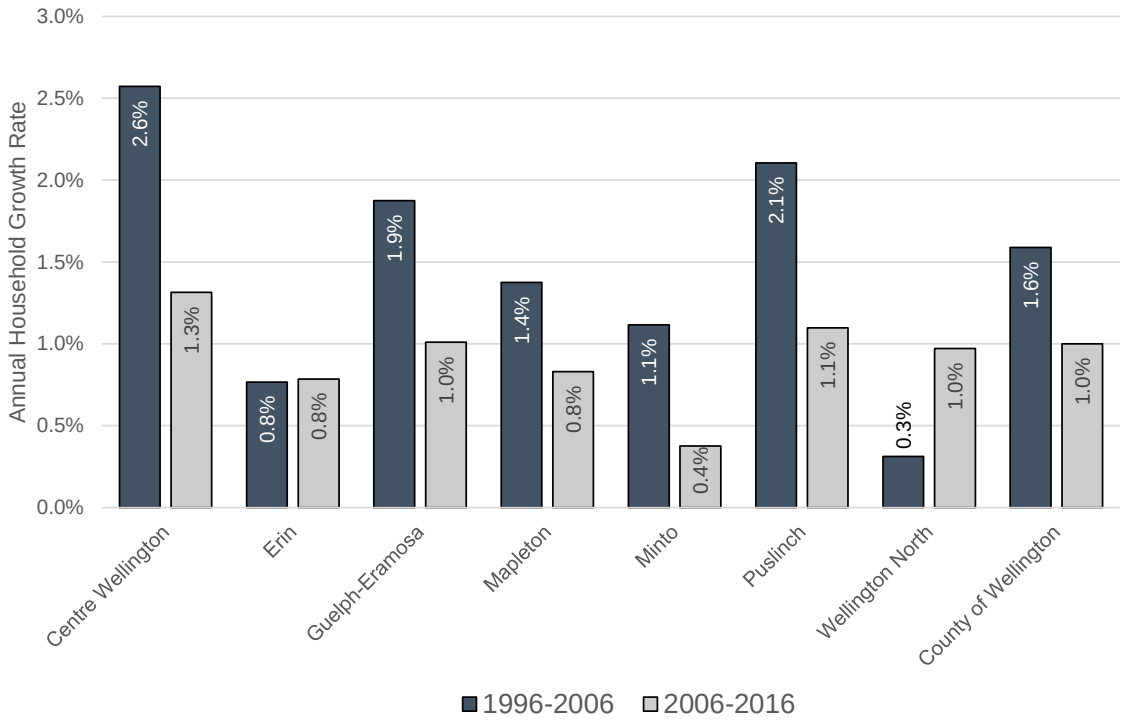
The Township of Guelph-Eramosa had a household growth rate of 1.4% over the 20-year period. Guelph-Eramosa represented 15% of the new households added to the County over the 20-year and added approximately 56 units annually. The remaining Area Municipalities (Erin, Mapleton, Minto, Wellington North and Puslinch) added more modest levels of households annually to the County over the 20-year historical Census period.

Figure 4-5
Wellington County
Historical Census Household Growth by Area Municipality, 1996 to 2016

Municipality	1996	2006	2016	1996-2016	20-Year Annual Units, 1996 to 2016	Share of County 20-Year Housing Growth	20-Year Annual Household Growth Rate (%)
Centre Wellington	7,400	9,540	10,870	3,470	174	46%	1.9%
Erin	3,530	3,810	4,120	590	30	8%	0.8%
Guelph-Eramosa	3,380	4,070	4,500	1,120	56	15%	1.4%
Mapleton	2,530	2,900	3,150	620	31	8%	1.1%
Minto	2,810	3,140	3,260	450	23	6%	0.7%
Puslinch	1,900	2,340	2,610	710	36	9%	1.6%
Wellington North	4,110	4,240	4,670	560	28	7%	0.6%
County of Wellington	**25,660**	**30,040**	**33,180**	**7,520**	**376**	**100%**	**1.3%**

Source: Derived from Statistics Canada, Census 2001 to 2016 by Watson & Associates Economists Ltd.

Figure 4-6
Wellington County
Annual Census Household Growth Rates by Area Municipality
1996 to 2006 and 2006 to 2016



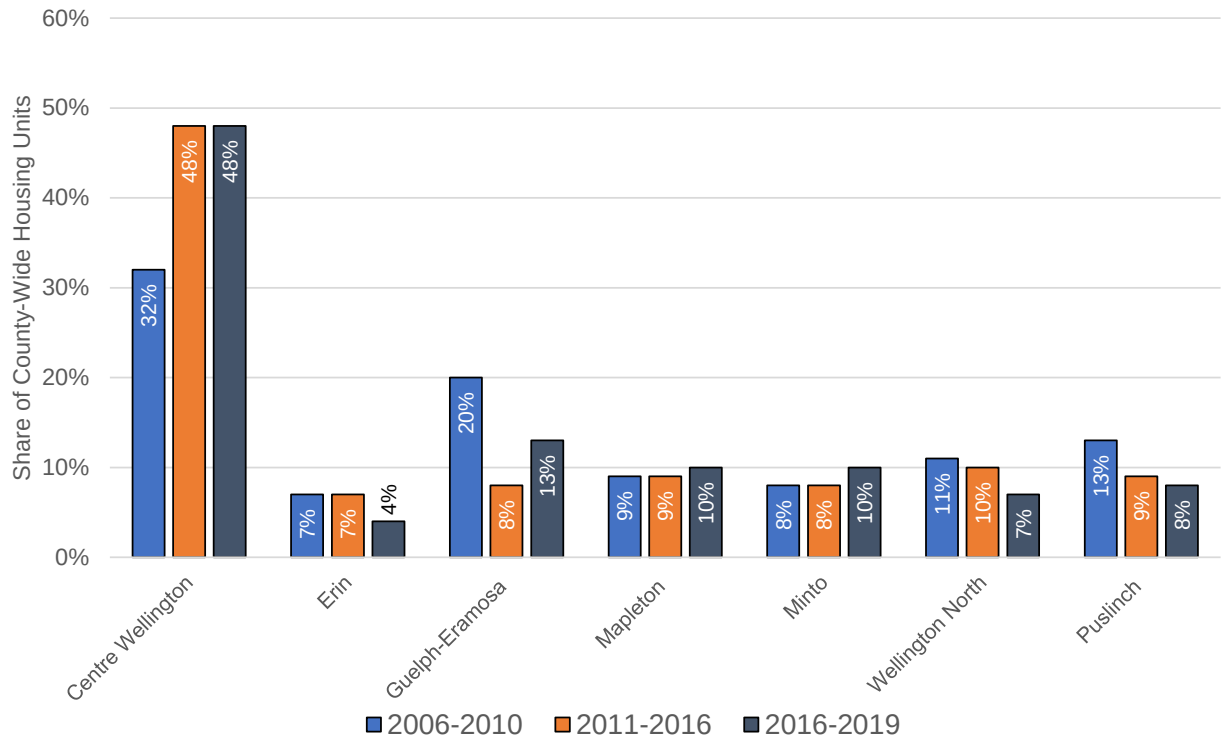
Source: Derived from Statistics Canada Census, 1996 to 2016 by Watson & Associates Economists Ltd.

4.2.3 Share of County Residential Development Activity by Area Municipality, 2009 to 2019

As previously discussed in Chapter 3, residential building permits (new units only) issued within the County over the past decade (2009 to 2019) contributed to the construction of just under 350 new residential dwellings annually. As summarized in Figure 4-7, nearly half (48%) of the building permit issued between 2006 and 2019 have occurred within the Township of Centre Wellington. Guelph-Eramosa represented the second largest share of new building permitted issued units at 13% over the last few years (2016 to 2019). The majority of the new permits issued within Guelph-Eramosa were for housing developments within the Rockwood Urban Centre. Each of the remaining Area Municipalities represented 10% or less of the County's residential building permit issued units over the past few years (2016 to 2019).

Over the forecast horizon, it is anticipated that the Town of Erin will increase its share of housing activity within the County, through an expansion the expansion of existing municipal water and and construction of a planned wastewater treatment plant.[1] It is anticipated that the Township of Guelph-Eramosa will represent a lower share of the County's housing construction activity given servicing capacity limitations within the Rockwood Urban Centre. Housing activity within Centre Wellington is anticipated to continue to represent a large share of the housing activity.

Figure 4-7
County of Wellington
Residential Building Permit Activity by Area Municipality
New Units Only, 2006 to 2019



Source: Derived from County of Wellington GIS Residential Inventory by Watson & Associates Economists Ltd.

[1] Based on review of the Town of Erin municipal servicing capacity reports prepared by Ainley & Associates Limited.

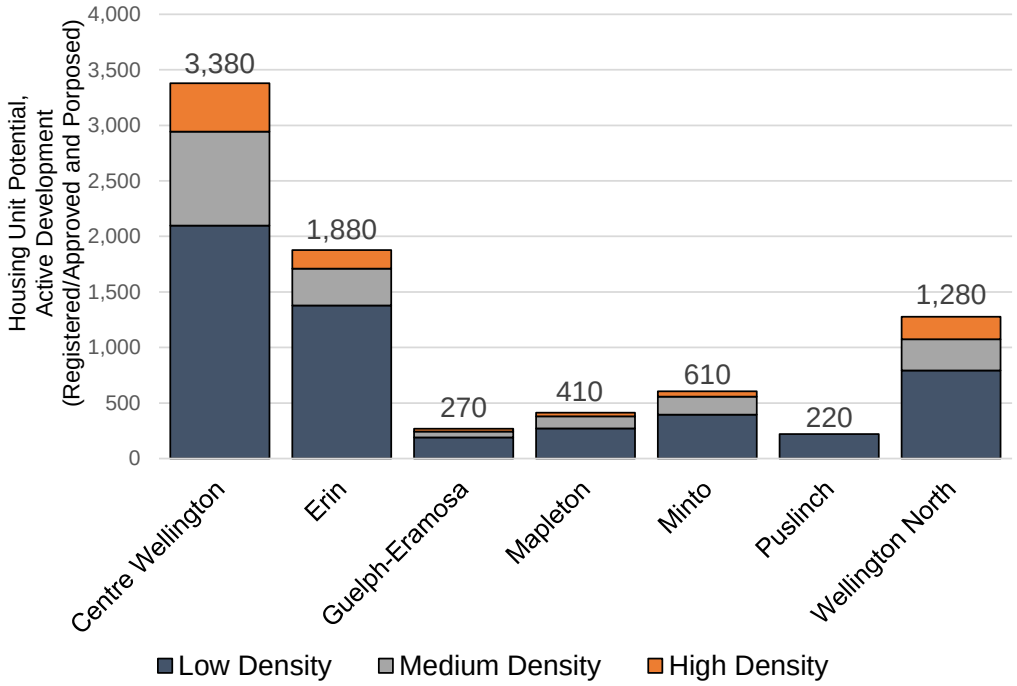
4.2.4 Residential Housing Potential on Vacant Lands by Area Municipality

The County's active residential development application data data was reviewed to provide insight into the demand for residential housing units by Area Municipality.

Figures 4-8a and 4-8b provides a summary of the potential housing units on vacant lands with approved and proposed development applications. It is estimated that approved applications (registered unbuilt/draft approved) have the potential to accommodate 5,800 housing units, the majority of those developments are concentrated in Centre Wellington followed by Wellington North. It is estimated that proposed developments have the potential to accommodate an additional 2,200 units, the majority of those units are concentrated in the Town of Erin, followed by Centre Wellington. Overall, Centre Wellington represents 43% of the housing unit potential with respect to active developments in the planning approvals process, followed by the Town of Erin at 23% and Wellington North at 16%. The remaining Area Municipalities represent 19% of the housing potential in active development applications.

See January 31, 2022 ADDENDUM REPORT for Revisions to this Report

Figure 4-8a
County of Wellington
Housing Potential on Vacant Lands
Registered Unbuilt/Draft Approved and Applications Under Review
by Area Municipality, As of Mid-2019



Source: Derived from County of Wellington GIS Residential Inventory by Watson & Associates Economists Ltd. Data is as of Mid-2019.

See January 31, 2022 ADDENDUM REPORT for Revisions to this Report

Figure 4-8b
County of Wellington
Housing Potential on Vacant Lands
Registered Unbuilt/Draft Approved and Applications Under Review
by Area Municipality, As of Mid-2019

Area Municipality	Low Density	Medium Density	High Density	Total Units	Low Density	Medium Density	High Density	Total Units	Low Density	Medium Density	High Density	Total Units	%
	Registered Unbuilt/Draft Approved				Application Under Review (Proposed)				Total Active Development Applications				
Centre Wellington	1,907	785	244	2,934	190	62	191	443	2,097	847	435	3,377	42%
Erin	243	19	10	272	1,134	314	156	1,604	1,377	333	166	1,876	23%
Guelph-Eramosa	157	0	0	157	34	51	26	111	191	51	26	268	3%
Mapleton	271	108	34	413	0	0	0	0	271	108	34	413	5%
Minto	394	139	50	583	0	23	0	23	394	162	50	606	8%
Puslinch	220	0	0	220	0	0	0	0	220	0	0	220	3%
Wellington North	775	272	180	1,226	18	8	24	50	793	280	204	1,276	16%
County of Wellington	3,967	1,323	518	5,808	1,376	458	397	2,231	5,343	1,781	915	8,039	100%
Housing Mix (%)	68%	23%	9%	100%	62%	21%	18%	100%	66%	22%	11%	100%	

Source: Derived from County of Wellington GIS Residential Inventory by Watson & Associates Economists Ltd.

In addition to an active development pipeline of approximately 8,040 potential housing units within the County, there is the potential for an additional 6,300 housing units on vacant lands within no active applications, as summarized in Figure 4-9. In total, the County of Wellington has the potential to accommodate 14,340 housing units on designated lands.

Figure 4-9
County of Wellington
Housing Potential on Vacant Lands, No Active Applications
by Area Municipality, As of Mid-2019

Area Municipality	Low Density	Medium Density	High Density	Total Units	%
	Vacant Lands with no Application				
Centre Wellington	1,333	313	212	1,859	29%
Erin	1,429	420	173	2,022	32%
Guelph-Eramosa	117	0	0	117	2%
Mapleton	520	124	57	701	11%
Minto	545	110	41	696	11%
Puslinch	186	0	0	186	3%
Wellington North	465	200	57	722	11%
County of Wellington	4,595	1,167	540	6,302	100%

Source: Derived from County of Wellington GIS Residential Inventory by Watson & Associates Economists Ltd.

4.3 Population and Housing Growth Allocations, 2016 to 2051

4.3.1 Population and Housing Growth Allocations by Area Municipality, 2016 to 2051

Figures 4-10 through to 4-15 provides a summary of the population and housing forecast to 2051 by Area Municipality. Further details are provided in Appendix E. While population and employment growth rates vary significantly by geographic area, each of the Area Municipalities share a number of relatively common attributes with respect to long-term residential development and demographic trends. These include:

- All Area Municipalities are expected to experience housing growth over the long-term forecast period;

- Average annual new housing construction is anticipated to increase from recent levels experienced over the past five years for all Urban Centres which are not constrained by land or water/wastewater servicing requirements;
- Future housing growth will be dominated by low-density housing forms; however, increasing market opportunities will exist for medium-density and high-density housing as the regional and provincial population base continues to age; and
- P.P.U. levels are forecast to experience a slight decline over the forecast horizon. In addition to demographic trends, both the rate and type of Census families and Census non-families will have a significant influence on projected P.P.U. levels.

As identified above, various factors were considered in allocating population and housing growth by Urban Centre and remaining rural area. In addition to the above considerations, a number of assumptions were made with respect to the residential growth potential of each Urban Centre within the County, based on discussions with County and the County of Wellington M.C.R. technical working group (Technical Resource Team).

Key observations on the housing and population growth allocation have been organized by Area Municipality. As previously mentioned, further details on the population and housing by Area Municipality is provided in Appendix E which includes details on the housing by structure type, existing population and housing base and forecast to 2051.

Centre Wellington

- Centre Wellington's existing population base as of 2021 comprises of 81% of the population within the Urban System and 19% of the population in the Rural System. Centre Wellington's population base compared to the other Area Municipalities is more oriented towards the County's Urban System.
- As summarized in Figure 4-11, Centre Wellington is anticipated to accommodate a nearly half (45%) of the population County population over the forecast horizon. This is consistent with population and housing trends observed.
- Centre Wellington is anticipated to grow at annual population rate of 2.0% over the next 35-years (2016 to 2051) which is higher than the annual growth rate experienced over the most recent 20-year Census period (2006 to 2016) annual growth rate of 1.3% annually.

- As summarized in Figure 4-13, Centre Wellington is anticipated to add 11,540 additional housing units over the 2016 to 2051 period, representing approximately 330 units annually, which is almost double the annual housing added over the 2006 and 2016 period (as previously summarized in Figure 4-5, the annual households added over the 2006 to 2016 period was 174 units).
- It is anticipated that Centre Wellington will accommodate a wide-range of housing by structure type compared to historical trends, however the largest portion of housing growth is anticipated in low-density housing forms as summarized in Figure 4-15. This is consistent with upcoming development in the Township's active development pipeline (registered/unbuilt and proposed), as previously discussed.
- The majority of future development in Centre Wellington is anticipated to be accommodated within the Fergus and Elora/Salem Urban Centres, as will be discussed later in this chapter.

Erin

- Erin's existing population base as of 2021 comprises of 64% of the population within the Urban System and 36% of the population in the Rural System.
- As summarized in Figure 4-11, Erin is anticipated to accommodate nearly a quarter (22%) of the population County's population growth over the forecast horizon.
- Population growth within Erin is anticipated to be significantly higher than historical trends given anticipated investments and expansions in municipal water and wastewater servicing in Erin Village and Hillsburgh. As summarized in Figure 4-12, Erin is anticipated to achieve a higher rate of population growth (2.3% annually) compared to other Area Municipalities. As a comparison, the annual population growth rate in Erin over the 2006 to 2016 was approximately 0.8% annually.
- As summarized in Figure 4-13, Erin is anticipated to add 5,090 additional housing units over the 2016 to 2051 period, approximately 145 units annually which is significantly higher than the housing units added over the 2006 to 2016 period of approximately 30 units annually.
- The majority of future urban development in the Town of Erin is anticipated to be accommodated within the Erin Village and Hillsburgh Urban Centres, as will be discussed later in this chapter.

Guelph-Eramosa

- The existing (2021) population of Guelph-Eramosa base comprises of 38% of the population within the Urban System and 62% of the population in the Rural System.
- As summarized in Figure 4-11, Guelph-Eramosa is anticipated to accommodate a small share (2%) of the population County's population growth over the forecast horizon. It is important to recognize that almost a third of the population growth during this period in Guelph-Eramosa has already occurred over the last five years (2016 to 2021).
- Post-2021, it is anticipated that growth within Guelph-Eramosa will slow due to limitations regarding municipal servicing within the Urban Centre of Rockwood.
- As a result of these limitations for future growth within the Urban Centre of Rockwood, the annual population growth rate of Guelph-Eramosa is anticipated to increase at a rate of 0.3%, which is lower than the growth rate observed over the most recent 20-year census period of 1.1% annually.
- Due to growth constraints within the Urban Centre of Rockwood, a large portion of future development in Guelph-Eramosa is anticipated to occur outside of Rockwood and in rural settlements.

Puslinch

- The existing (2021) population base of Puslinch existing is entirely accommodated within the Rural System with 10% of the population base concentrated within the two Secondary Urban Centres (Morriston and Aberfoyle). As previously notes, these Secondary Urban Centres serve as important community service hubs to the Township.
- As summarized in Figure 4-11, Puslinch is anticipated to accommodate a small share (4%) of the County's population growth over the forecast horizon since Puslinch lacks Primary Urban Centres which offer full municipal servicing (water/ wastewater servicing).
- The annual population growth rate of Puslinch is anticipated to grow at annual population growth rate of 0.8% which is lower than the growth rate observed over the most recent 20-year Census period of 1.5% annually.

- As summarized in Figure 4-13, it is anticipated that Puslinch will add 840 housing or 24 units annually over the forecast horizon which is lower than the annual housing growth over the most recent 20-year census period of 36 units annually.
- Given the limited opportunities within the Secondary Urban Centres of Aberfoyle and Morriston, a large portion of the growth within Puslinch will be accommodated through severances in the rural area.

Wellington North

- The existing (2021) population base of Wellington North comprises of 65% of the population within the Urban System and 35% of the population in the Rural System.
- As summarized in Figure 4-11, Wellington North is anticipated to accommodate 12% of the population County's population growth over the forecast horizon.
- The annual population growth rate of Wellington North is anticipated to grow at annual population growth rate of 1.5% which is significantly higher than the growth rate observed over the most recent 20-year Census period of 0.3% annually.
- As summarized in Figure 4-13, it is anticipated that Wellington North will add 3,000 housing units or 86 units annually over the forecast horizon, which is more than double the annual housing growth over the most recent 20-year census period of 28 units annually.
- As previously summarized (Figure 4-8a) Wellington North has a large supply of potential units (1,280 potential housing units) in the active residential development pipeline (approved and proposed) which suggests that the Townships has sufficient urban lands to accommodate the near-term population and housing.
- It is anticipated that the majority of future development within Wellington North will be accommodated in the Urban Centres of Arthur and Mount Forest, as will be discussed later in this Chapter.

Minto

- Minto's existing population base as of 2021 comprises of 66% of the population within the Urban System and 34% of the population in the Rural System.
- As summarized in Figure 4-11, Minto is anticipated to accommodate a 10% of the population County's population growth over the forecast horizon.

- The annual population growth rate of Minto is anticipated to grow at annual population growth rate of 1.5% which is significantly higher than the growth rate observed over the most recent 20-year Census period of 0.5% annually.
- As summarized in Figure 4-13, it is anticipated that Minto will add 2,210 housing units or 63 units annually over the forecast horizon, which is close to three times the annual amount of housing growth experienced over the most recent 20-year Census period (23 housing units annually).
- As previously summarized, Minto has experienced an increase in the share of County-wide residential building permit activity (new units only) over the past few years compared to previous periods.
- It is anticipated that the majority of the future urban development within Minto will be accommodate within the Urban Centre of Palmerston and to a lesser extent the Urban Centres of Harriston and Clifford, as will be discussed later in this chapter.

Mapleton

- The existing (2021) population base of Mapleton is comprises 26% of the population within the Urban System and 74% of the population in the Rural System. Compared to the other Area Municipalities, Mapleton's existing population base is more oriented towards the Rural System.
- As summarized in Figure 4-11, Minto is anticipated to accommodate a small share (5%) of the population County's population growth over the forecast horizon.
- The annual population growth rate of Mapleton is anticipated to grow at annual population growth rate of 0.8% which is slightly lower the growth rate observed over the most recent 20-year Census period of 1.0% annually.
- It is important to recognize that Mapleton has accommodated a large share of recent housing activity within the rural area, approximately 46% of its housing activity over the 2006 to 2019 period.[1] Going forward, and consistent with provincial policy direction, the County is directing future growth to its Primary Urban Centres.
- As summarized in Figure 4-13, it is anticipated that Mapleton will add 1,400 housing or 40 units annually over the forecast horizon which is well above

[1] As determined through recent residential building permit activity (new units only).

annual housing growth levels experienced over the most recent 20-year Census period (31 units annually).

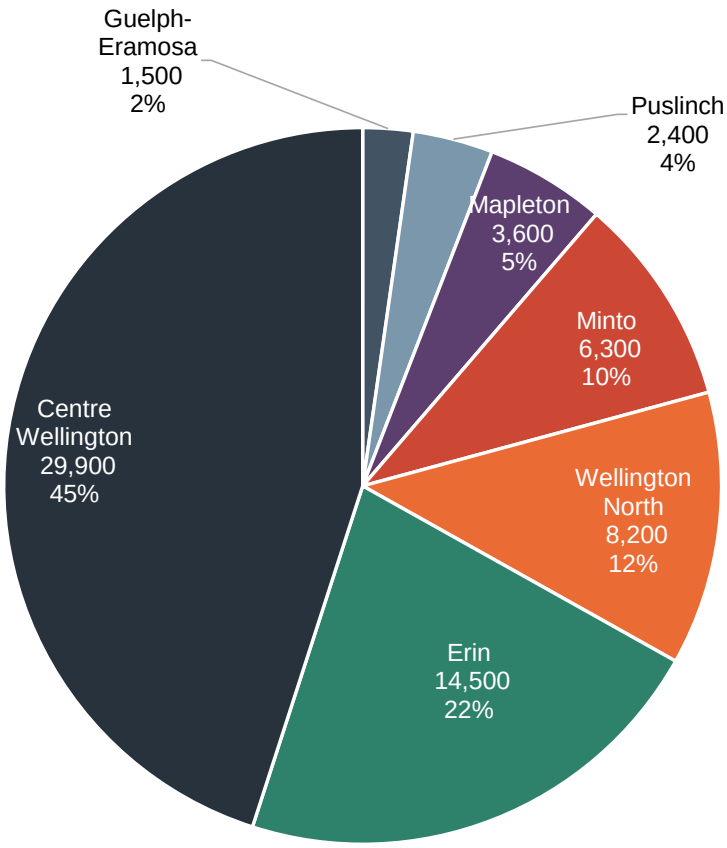
- As previously summarized, Mapleton has maintained its share of County-wide residential building permit activity (new units only) over the past decade.
- It is anticipated that future urban development in Mapleton will be accommodated within the Urban Centre of Drayton and to a lesser extent the Urban Centre of Moorefield, as will be discussed later in this chapter.

Figure 4-10
County of Wellington
Population Forecast by Area Municipality

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	29,000	11,800	13,200	10,800	8,900	12,300	7,600	93,600
2051	58,900	26,300	14,700	14,400	15,200	20,500	10,000	160,000
Population Growth								
2016 - 2051	29,900	14,500	1,500	3,600	6,300	8,200	2,400	66,400

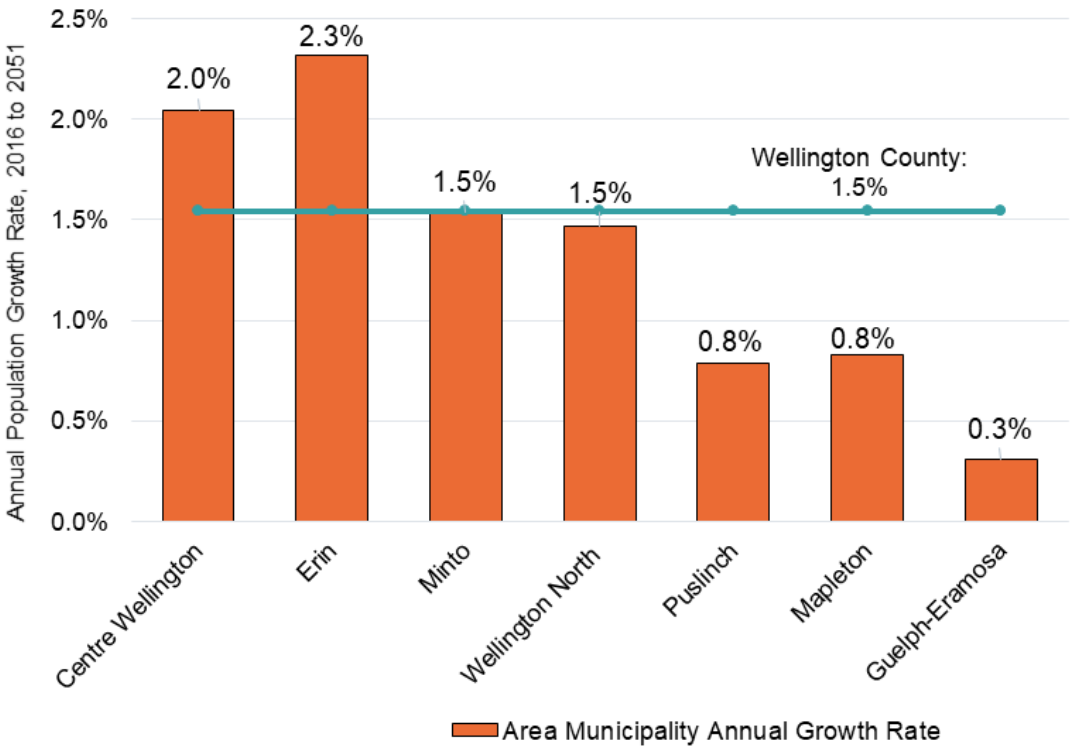
May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure 4-11
County of Wellington
Population Growth Allocation, 2016 to 2051
By Area Municipality



Source: Watson & Associates Economists Ltd.

Figure 4-12
County of Wellington
Annual Population Growth Rate, 2016 to 2051
By Area Municipality



Source: Watson & Associates Economists Ltd.

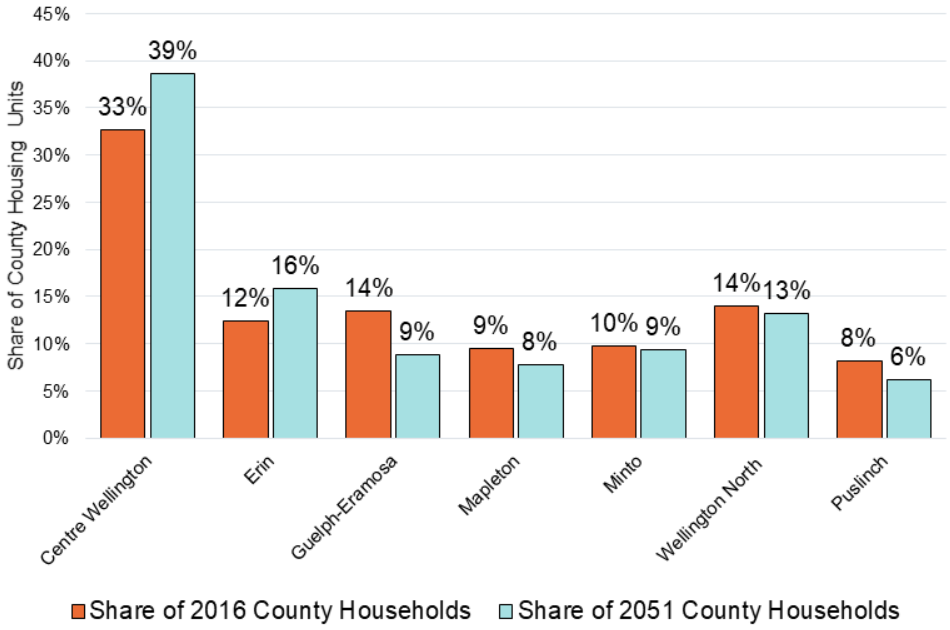
Figure 4-13
County of Wellington
Housing Forecast by Area Municipality

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,870	4,110	4,490	3,140	3,250	4,660	2,700	33,220
2051	22,410	9,200	5,110	4,540	5,460	7,660	3,550	57,930
Housing Growth								
2016 - 2051	11,540	5,090	620	1,400	2,210	3,000	850	24,710

Note: Above figure includes "other" dwellings of approximately 540 units.
Source: Watson & Associates Economists Ltd.

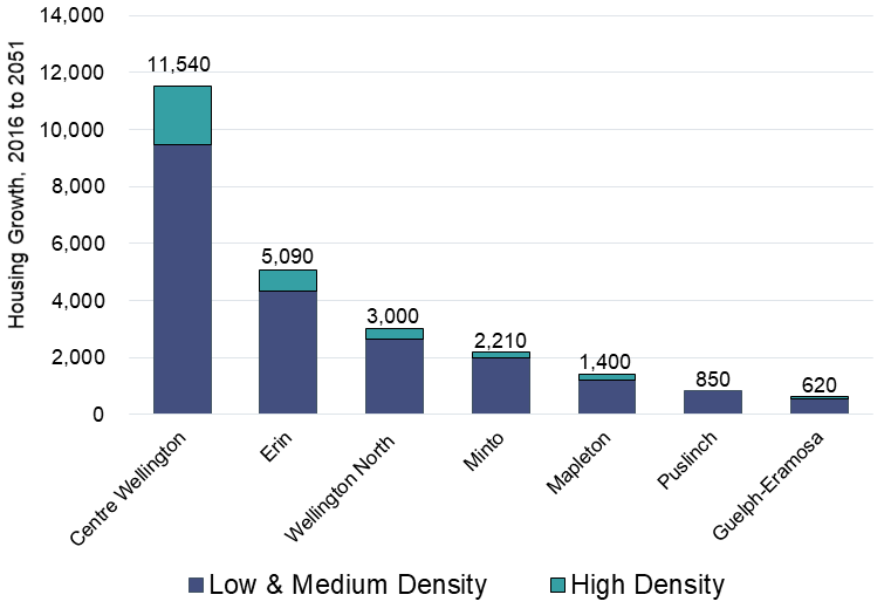
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Figure 4-14
County of Wellington
Share of County Housing Units in 2016 and 2051
By Area Municipality



Source: Watson & Associates Economists Ltd.

Figure 4-15
Wellington County
Housing Growth by Area Municipality, 2016 to 2051



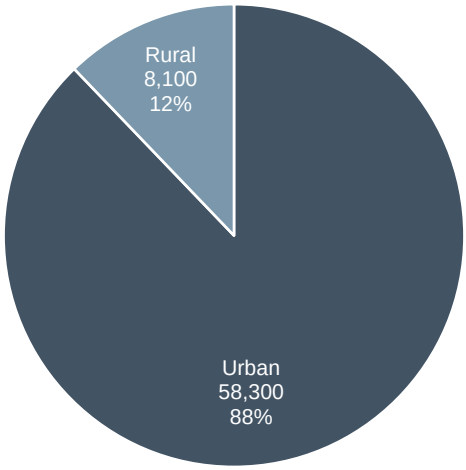
Source: Watson & Associates Economists Ltd.

4.3.2 Population and Housing Growth Allocations by Urban Centre and Remaining Rural Area, 2016 to 2051

4.3.2.1 Growth Allocation to County's Urban System and Rural System

As previously discussed, most of the County's population and housing growth is directed to Primary Urban Centres with full municipal servicing. As summarized in Figure 4-16, 88% of population growth is anticipated to be accommodated within the County's Urban System and 12% of population growth is to be accommodated within the County's Rural System. It is anticipated that the County will shift more towards a population increasingly concentrated within the Urban System, increasing the County's Urban System population base share of 51% in 2016 to 66% by 2051.

Figure 4-16
Wellington County
Population Growth by Urban and Rural Area,
2016 to 2051



Source: Watson & Associates Economists Ltd.

4.3.2.2 Urban Centre Growth Forecasts to 2051

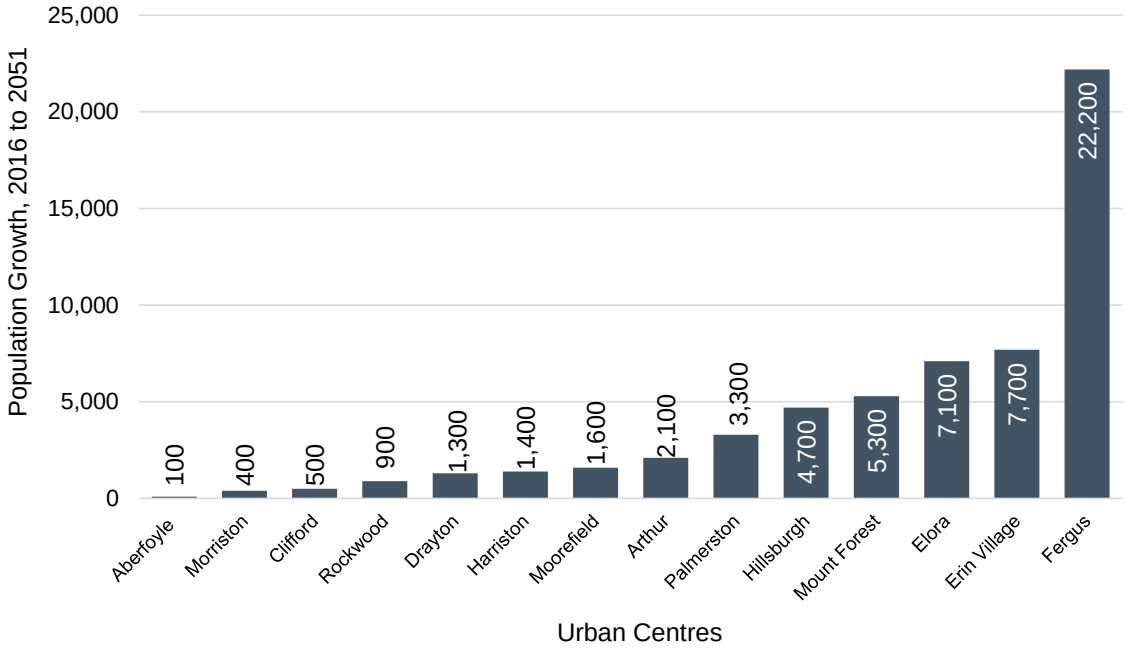
Urban Centre population and housing forecasts have been prepared for each Primary and Secondary Urban Centre in the County. Details are provided in Appendix E. It is important to note that the growth forecasts by Urban Centre are to be used as guidance for planning purposes at the local municipal level. Area Municipalities may elect to make further refinements within their Urban System to reflect changes in local conditions and servicing.

Figure 4-17 summarizes the population growth forecast of the Primary and Secondary Urban Centres over the 2016 and 2051 horizon, while Figure 4-18 provides the annual population growth rates by Primary and Secondary Urban Centre in the County. Key observations include:

- Fergus is anticipated to accommodate a population growth increment of 22,200 persons or 630 persons annually. The population growth of Fergus represents one third of the County's population growth over the forecast horizon and an annual population growth rate of 2.7%.
- Elora is anticipated to accommodate a population growth increment of 7,100 or 200 persons annually. The annual population growth rate is forecast at 2.0%.

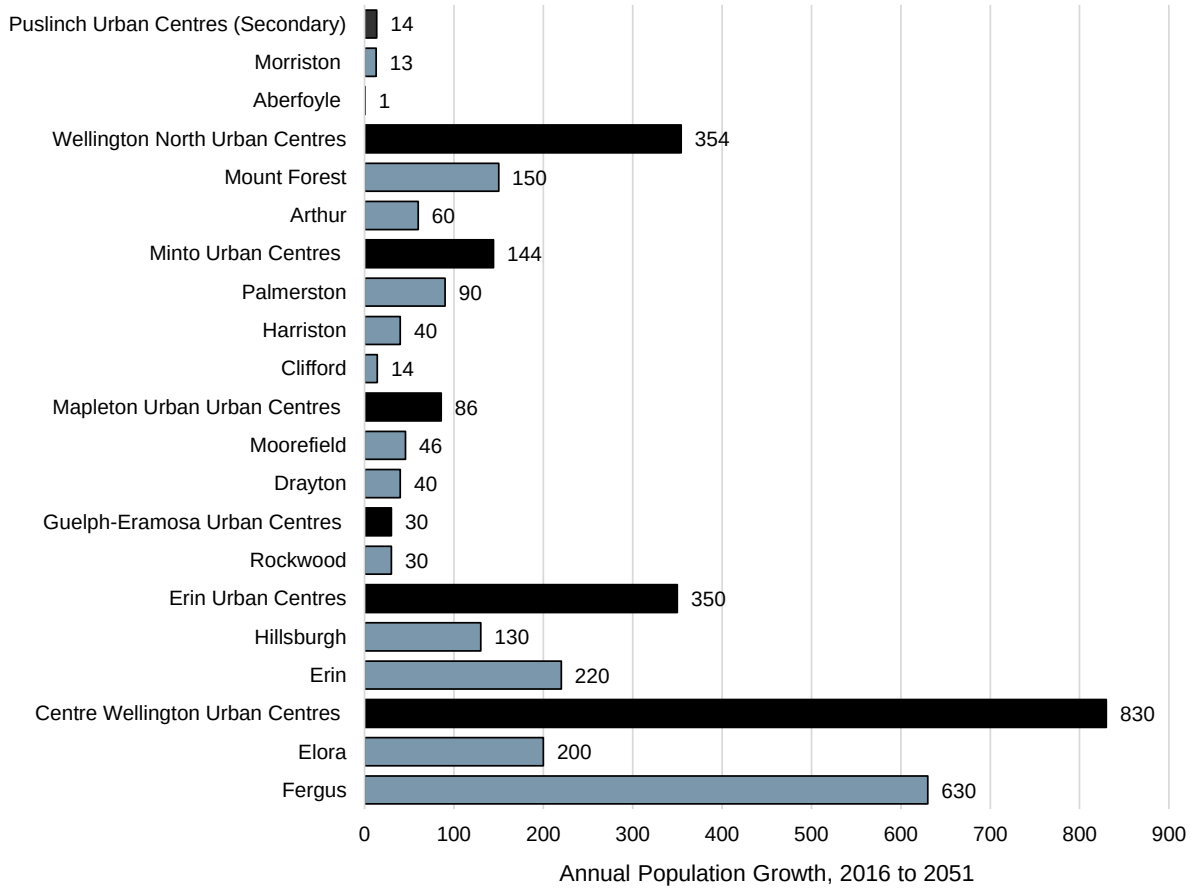
- Erin Village and Hillsburgh are anticipated to accommodate an additional 7,700 and 4,700 persons, respectively. The annual population growth rates of Hillsburgh and Erin Village are the highest amongst the County's Primary Urban Centres at 4.3% and 3.7%, respectively.
- Mount Forest and Palmerston are anticipated to accommodate the largest share of population growth within the northern portion of the County, accommodating on annual basis, 150 and 90 persons, respectively.
- The Urban Centres of Drayton, Harriston, Moorefield and Arthur are anticipated to each accommodate between 40 to 50 persons annually over the forecast horizon.
- The Urban Centres of Aberfoyle, Morriston, Clifford and Rockwood are anticipated to accommodate a modest share of the County's population growth relative to the other Urban Centres over the long-term planning horizon.

Figure 4-17
Wellington County
Population Growth by Urban Centre, 2016 to 2051



Source: Watson & Associates Economists Ltd.

Figure 4-18
Wellington County
Annual Population Growth by Urban Centre, 2016 to 2051



4.4 Observations

Over the forecast horizon it is anticipated that all Area Municipalities will continue to experience strong population and housing growth. As discussed in Chapter 3, it is anticipated that the outward growth pressure from the G.T.H.A. to the Outer Ring will continue over the forecast horizon. The Township of Centre Wellington and the Town of Erin Area, located in the southern portion of the County, are anticipated to accommodate a large portion of County's population growth over the long-term planning horizon. The Township of Centre Wellington is anticipated to accommodate just under half of the County's population growth (45%), while the Town of Erin is anticipated to accommodate just under a quarter of the County's population growth (22%).

With limited or no opportunities to accommodate residential growth on full municipal services (water and wastewater servicing), the Township of Guelph-Eramosa and the Township of Puslinch are anticipated to accommodate a lower share of population and housing growth relative to historical trends. Further, it is anticipated that Guelph-Eramosa and Puslinch will accommodate a large share of the County's rural population and housing growth.

The municipalities in the northern portion of the County, including Mapleton, Minto and Wellington North are anticipated to accommodate 23% of the County's population growth. While potential urban land supply is currently designated within some of these northern municipalities to accommodate additional urban development, there are perceived limits from a real estate market perspective regarding the level of sustained urban development that these municipalities can accommodate over the long-term.

Over the forecast horizon, it is anticipated that the County will become increasingly more urban. As of 2016, approximately 51% of the County's population is within the Urban System, while 49% of the County's population is within the Rural System. Looking forward, it is anticipated that by 2051, approximately 66% of the County's population based will be concentrated within the Urban System which includes 12 Primary Urban Centres. It is anticipated that the Urban System within the County will accommodate an additional 58,300 persons by 2051. As a comparison this growth increment is greater than the estimated Urban System population base as of 2016 (2016 population within the Urban System is estimated at 47,600). Phase 2 of the M.C.R. related to growth management and urban lands will explore requirements to accommodate future urban growth within the existing settlement boundaries of the Urban Centres.

As previously discussed, net migration is anticipated to be a major driver of population growth for the County. Urban Centres with good access to the larger G.G.H. employment markets, such as Fergus, Elora and Erin Village are anticipated to accommodate a large portion of the County's population growth. It is anticipated that these Urban Centres will also play a role in broadening the housing options available within the County with respect to housing structure type. Other Urban Centres are anticipated to accommodate more moderate levels of future population growth as these Urban Centres are also important community hubs for the County. All Urban Centres which do not have identified municipal servicing constraints are anticipated to continue

to accommodate urban development at higher levels than historically experienced in recent decades.

Chapter 5
Employment Growth Analysis

5. Employment Growth Analysis

This chapter provides an assessment of historical and forecast employment growth trends for the County of Wellington to the year 2051 within the broader context of the G.G.H. and the Province of Ontario based on recent Statistics Canada data as well as other available information sources. A commentary is also provided on key drivers and disruptors that are anticipated to impact employment and shape the development patterns of Commercial and Employment Areas of the County's Urban Centres. This review has been prepared to provide insight with respect to the County's long-term employment forecast to 2051 by employment category, and ultimately by location (urban employment area, urban community area, rural employment area and remaining rural area). Details on employment forecast allocation by Area Municipality is provided in Chapter 6. Employment Land needs will be discussed in the M.C.R. Phase 2 Report.

5.1 Introduction

5.1.1 Employment Categories

The long-term employment forecast prepared herein includes a breakdown of employment by category, including population-related employment (P.R.E.), employment lands employment (E.L.E.) and rural employment. These employment categories, as defined by the province, are generally based on built-form and land-use characteristics. The majority of the County's industrial sector employment is accommodated in industrial-type buildings, referred to as E.L.E. employment. The County's commercial and institutional sector employment is generally accommodated in commercial and institutional-type buildings, referred to as P.R.E. employment. Given the importance and relative magnitude of E.L.E. employment within the County's rural areas, this report further breaks down E.L.E., as Urban E.L.E. (employment within Primary Urban Centres) and Rural E.L.E. (employment outside Primary Urban Centres)

The following is a summary of the employment categories in accordance with the provincial L.N.A.

5.1.1.1 Population-Related Employment (P.R.E.)

P.R.E. includes employment in institutional and commercial sectors not accommodated within industrial-type buildings (E.L.E.). Commercial and institutional sector

employment in industrial-type buildings (e.g. retail tenant in a multi-tenant industrial building) represents a small share (less than 2%) of the County's E.L.E. employment. Work at home employment is also captured as P.R.E. within the County of Wellington. P.R.E. is located within the County's urban centres and rural settlements and is largely accommodated in the central business districts, commercial arterial corridors, neighbourhood plazas, institutional campuses and schools, and standalone institutional and retail buildings.

5.1.1.2 Urban Employment Lands Employment (E.L.E.)

Urban E.L.E. represents jobs accommodated in industrial-type buildings within Primary Urban Centres. This includes largely industrial-sector employment including manufacturing, wholesale trade, transportation and warehousing, construction and utilities as well as a limited amount of employment associated with office commercial and employment supportive uses. E.L.E. includes a very small portion of employment in the commercial and institutional sectors.

5.1.1.3 Rural Employment Lands Employment (E.L.E.)

Rural E.L.E. represents jobs accommodated in industrial-type buildings outside of Primary Urban Centres. This includes largely industrial-sector employment including manufacturing, wholesale trade, transportation and warehousing, construction and utilities as well as a limited amount of employment associated with office commercial and employment supportive uses. Rural E.L.E. is predominately comprised of industrial sector employment, with a negligible portion of commercial and institutional employment accommodated in rural industrial-type buildings, referred to as Rural E.L.E.

5.1.2 Employment Geographic Categories

The forecast to 2051 includes a further breakdown of employment with respect to the employment by geographic location.

5.1.2.1 Urban System

Within the County's Urban System, employment is grouped into two broad categories, Urban Employment Areas and Urban Community Areas. The Urban System accommodates 63% of the County's employment base. The categories by geographic location are provided below:

Urban Employment Areas

Urban Employment Areas include predominately E.L.E., employment in industrial-type buildings. Urban Employment Areas are clusters of industrial and export-based activities and identified in the County O.P. as lands designated as Industrial. These areas are to be protected from sensitive uses, such as residential, specific institutional uses (e.g. schools, daycares and places of worship) and major retail uses. While Urban Employment Areas are intended to serve industrial-type or export-based activities, Urban Employment Areas do permit some P.R.E. type uses, including employment in commercial and institutional-type buildings. The County of Wellington O.P. permits specific large commercial uses that are compatible with other uses in the Urban Employment Areas, including automotive and truck repair, heavy equipment rental or sales branch and wholesale outlets.[1] Office uses are also permitted in the County's Urban Employment Area subject to the zoning by-law.[2] While office uses are permitted in the County's Urban Employment Areas, office uses represent a very small share (less than 2%) of the employment base in the County's Employment Areas.

Typically, Urban Employment Areas include employment supportive uses that serve the Urban Employment Area, such as restaurants, gas stations, convention centres, hotels and fitness centres. According to the County O.P., only retail and food services (e.g. cafeteria) uses are permitted if an accessory to the use (subject to zoning bylaw).[3] While Urban Employment Areas in the County of Wellington do not permit a wide-range of employment supportive uses, a large portion of the County's Employment Areas are adjacent to the lands designated Highway Commercial which offer a wide range of commercial services. With a few exceptions, lands with direct access to arterials in the County's Urban Centres are generally designated as Highway Commercial or for other Community Area uses. Urban Employment Areas comprise 17% of the County's employment base as of 2021.

Urban Community Area

Urban Community Area includes all other lands not a part of the Urban Employment Area. Non-residential uses in the Urban Community Area include those that serve the local trading area of the Urban Centre, as well as visitors to the Urban Centres. All the

[1] County of Wellington Official Plan, Policy 8.7.3., p. 87.
[2] Ibid.
[3] Ibid.

Urban Centres in the County have a Central Business District, a key focal point of the community. The Central Business District represents the largest cluster of commerce activity in the Urban Centre. In addition, most of the Urban Centres have a cluster of commercial development on lands designed as Highway Commercial. Generally, the largest retail uses are located on lands designated as Highway Commercial. Urban Community Areas represents the largest share of the County's employment base at approximately 44% as of 2021.

5.1.2.2 Rural System

Within the County's Rural System, employment is grouped into two broad categories, Rural Employment Areas and Other Rural. The Rural System accommodates 37% of the County's employment as of 2021. The categories by geographic location are provided below.

Rural Employment Area

Rural Employment Areas include predominately E.L.E., employment in industrial-type buildings on lands with no municipal services (i.e. outside the Primary Urban Centres). Rural Employment Areas are clusters of industrial and export-based activities and identified in the County O.P. as lands designated as Rural Employment Areas. Rural Employment Areas represent an important component of the County's employment base, representing 12% of the County's employment as of 2021.

Other Rural Employment

Other Rural Employment includes all other lands outside Rural Employment Areas in the Rural System. Non-residential uses in this category include uses associated with primary sectors (e.g. agriculture, quarrying, etc.), commercial and institutional uses within Hamlets and a small base of industrial, commercial and institutional uses in the countryside. Other Rural Employment comprises approximately 25% of the County's employment base as of 2021.

5.2 Macro-Trends, Disruptors and Employment Outlook

The following section provides an overview of the macro-trends that are anticipated to influence employment over the long term. This review is provided to provide insight with

respect to the County's long-term employment land needs in accordance with employment growth anticipated for the County to the year 2051.

5.2.1 Global Economic Trends and International Trade

Following steady economic growth since the world economy rebounded from the 2008/2009 financial crisis, the world changed dramatically in 2020. The December 2019 outbreak of coronavirus disease (COVID-19) was officially declared a global pandemic by the World Health Organization (W.H.O.) on March 12, 2020 and has inflicted rising economic and human costs throughout the world. In response to the threat of further escalation associated with the spread of the virus, governments around the world have implemented quarantine and physical distancing practices in what has been referred to as the "Great Lockdown."

To date, the downward impact of these containment measures on global economic output, commodity prices, and consumer spending has been severe. Economic sectors such as travel and tourism, accommodation and food, retail and personal services, manufacturing, energy, and finance have been hit particularly hard. Furthermore, required modifications to social behavior (i.e. physical distancing) and increased work-at-home requirements resulting from government-induced containment measures and increased health risks have resulted in significant economic disruption largely related to changes in consumer demand and consumption patterns. Lastly, continued tensions and constraints related to international trade have also begun to raise further questions regarding the potential vulnerabilities of globalization and the structure of current global supply chains.

At present, the level of sustained economic impact related to this "exogenous shock" to the world and Canadian economy is largely unknown. While the prospects for a global recovery have improved in recent months, the pace of this global economic recovery has been uneven as largely due to the rate at which Countries have been able to vaccinate their residents.[1] Generally, it is clear that the longer COVID-19 persists on an international scale, the greater the severity of the current global downturn and prolonged disruption. In its latest World Economic Outlook, the International Monetary Fund (I.M.F.) baseline scenario estimates that the global economy contracted 3.5% in

[1] Global Government Forum. OECD Warns of Uneven Economic Recovery from COVID-19, Despite Global Growth. June 1, 2021.

2020 which represented a more significant economic contraction than what was experienced during the height of the 2008/2009 financial crisis.

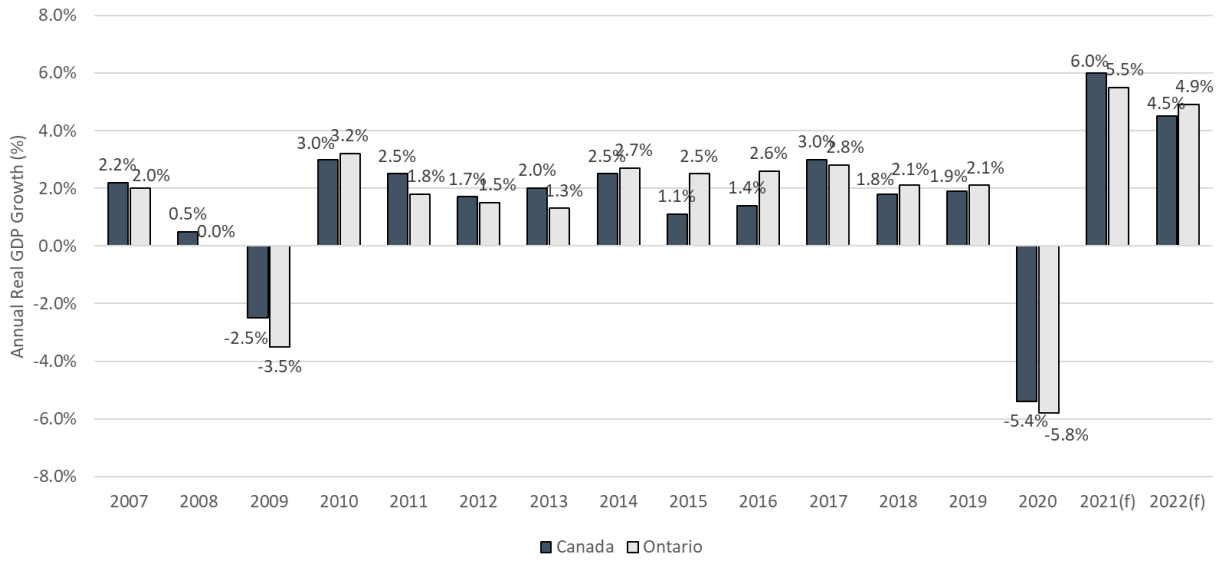
For Canada's largest trading partner, the United States (U.S.), real G.D.P. (gross domestic product) was estimated to contract by 3.4% in 2020 and is expected to rebound by 5.1% in 2021.[1] The recovery of the U.S. economy will largely depend on the U.S. administration's response to dealing with the virus domestically, in conjunction with their approach to on-going international trade and protectionist policies.

5.2.1.1 Provincial Context

Over the past decade, the Canadian and Ontario economies have experienced relatively strong economic growth, as illustrated in Figure 5-1. While the recent performance of the national and Ontario economies has remained relatively strong over the past several years through to early 2020, the COVID-19 pandemic poses significant risks to the national and provincial economies that are important to recognize. As illustrated in Figure 5-1, the Ontario economy is estimated to have contracted by 5.8% in 2020; growth is forecast to rebound by 5.5% in 2021. By 2022, BMO Capital Markets forecast the Ontario economy will continue its momentum, growing by 4.9%, while the overall Canadian economy is expected to grow by 4.5%.

[1] World Economic Outlook. International Monetary Fund. January 2021.

Figure 5-1
Ontario and Canada
Annual Real G.D.P. Growth
Historical (2007 to 2020) and Forecast (2021 to 2022)



Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, April 2021, by Watson & Associates Economists Ltd.
Note: 2020 (Ontario), 2021 and 2022 are forecast by BMO Capital Markets Economics.

Domestically, the Ontario housing market also continues to pose a risk to the overall provincial economy, which is important to recognize when considering forecast labour force and employment growth trends. The sharp rise in Ontario's housing prices, particularly in the G.T.H.A., has contributed to record consumer debt loads and eroded housing affordability.

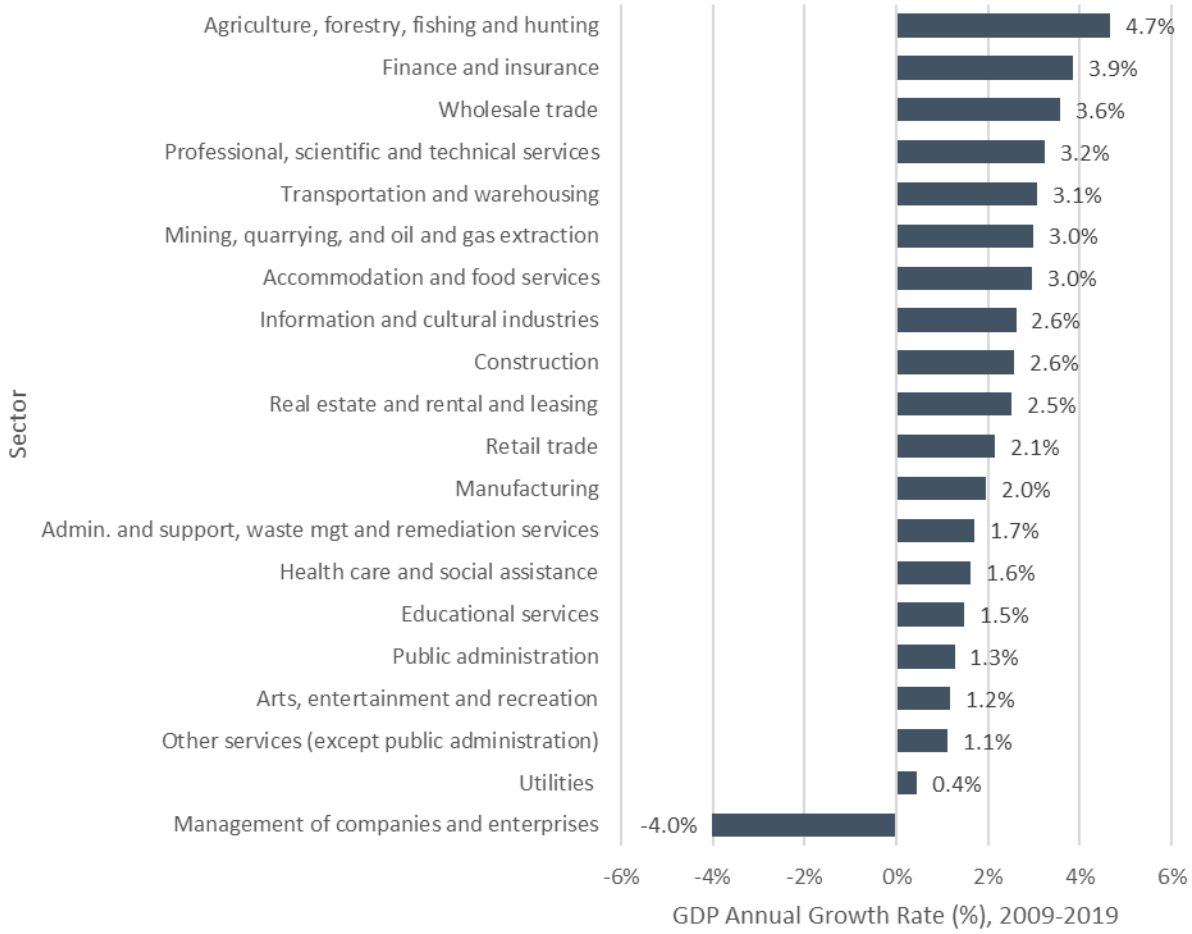
The Ontario economy is facing significant structural changes. Over the past several decades, the provincial economic base, as measured by G.D.P. output, has shifted from the goods-producing sector (i.e. manufacturing and primary resources) to the services-producing sector. Much of this shift has occurred during the past two decades, driven by G.D.P. declines in the manufacturing sector which were most significant immediately following the 2008/2009 global economic downturn. In contrast, service-based sectors such as financial and business services have seen significant increases over the past several years.

While the manufacturing sector remains vitally important to the provincial economy with respect to jobs and economic output, this sector is not anticipated to generate significant labour-force growth across the Province. In general, globalization has led to

increased outsourcing of production processes to overseas manufacturers. Looking forward, there will continue to be a manufacturing focus in Ontario; however, industrial processes are anticipated to become increasingly more capital/technology intensive and automated. The highly competitive nature of the manufacturing sector will require production to be increasingly cost effective and value-added oriented, which bodes well for firms that are specialized and capital/technology intensive.

As summarized in Figure 5-2, a range of commercial, institutional and industrial sectors have experienced an increase in G.D.P. in Ontario over the past decade. G.D.P. growth has been particularly strong in agriculture, forestry, fishing and hunting, finance and insurance, wholesale trade and professional, scientific and technical services. A number of knowledge-based sectors including information and cultural industries; and educational services have seen a notable increase in G.D.P. Within the industrial sector, transportation and warehousing, construction and manufacturing have experienced notable increases in G.D.P.

Figure 5-2
Ontario
Change in Provincial G.D.P. by Sector, 2009 to 2019



Note: Based on chained 2012 dollars.
Source: Derived from Statistics Canada GDP by industry data, Table 36-10-0402-02, by Watson & Associates Economists Ltd.

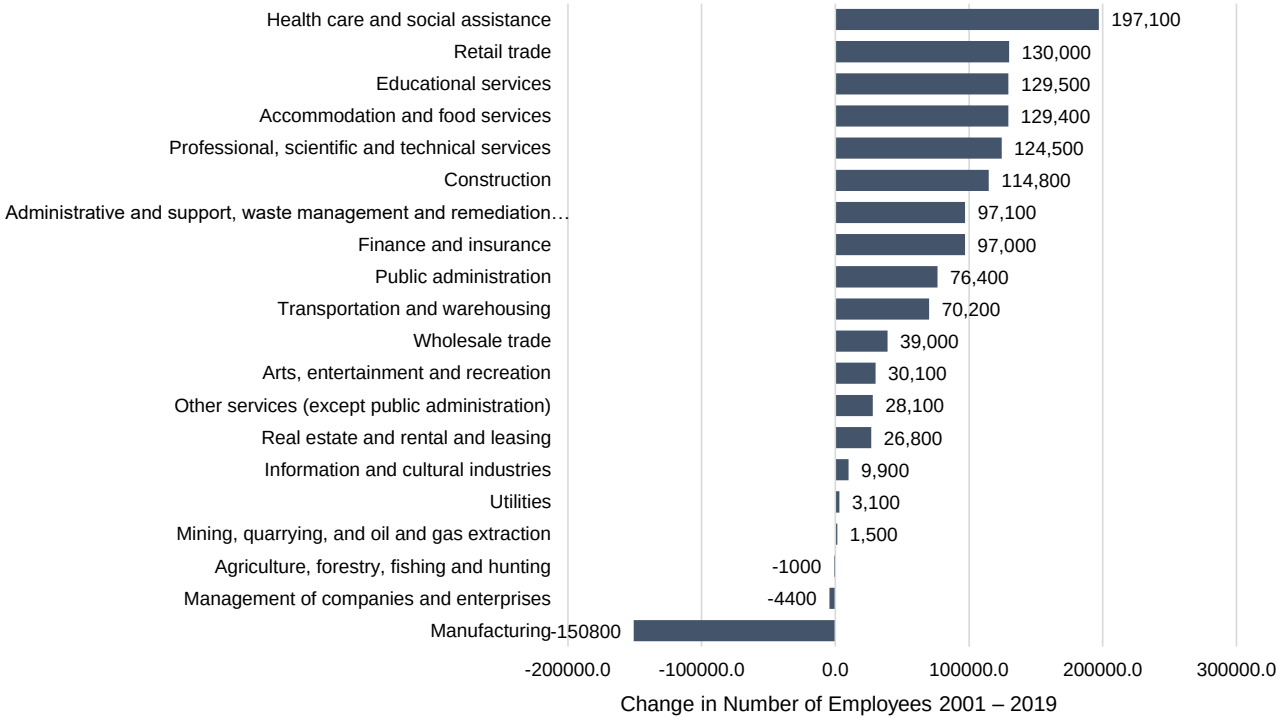
As previously mentioned in Chapter 3, a key driver of the future economic potential for the County of Wellington is its geographic location within Ontario. The County of Wellington is located within the G.G.H., one of the fastest growing regions in North America. In many respects, Wellington County's long-term population and employment growth potential is largely tied to the success of the G.G.H. as a whole.

5.2.1.2 G.G.H. Trends

As summarized in Figure 5-3, total employment has grown by 35% within the G.G.H. from 2001 to 2019. While this region has experienced a large increase in service and

knowledge-based sectors, manufacturing and primary sectors have shown a decrease in the number of jobs within this period, however, it is noted that the manufacturing sector has been experiencing a gradual recovery in recent years. With respect to employment, the sectors with the highest growth have been health care and social assistance, education, accommodation and food services, and retail trade.

Figure 5-3
G.G.H.
Change in Employment, 2001 to 2019



5.2.2 Outlook for Employment

Continued structural changes in the global economy and technological advancements will require municipalities to be increasingly responsive and adaptive to changing industry needs and disruptive economic forces. The following provides an overview of key industry and labour force trends that are expected to influence growth and development patterns in the County of Wellington over the coming decades.

5.2.2.1 E-Commerce as a Major Disruptor for the Retail and Logistics

E-commerce sales in Canada have grown at a rate that is five times the pace of overall growth in retail trade. The rise of e-commerce has reduced the demand for retail square footage, in particular retail space for the sale of goods-based retailers.[1]

Increasing growth in e-commerce is also having a significant impact on employment growth and land demand related to the logistics sector. Delivery expectations within this sector are increasing on an annual basis. As delivery times decrease, it is anticipated that demand for regional fulfilment centres will increase. Further, it is estimated that 25% to 30% of online merchandise is returned which is also driving the need for reverse logistics and return centres.

5.2.2.2 Potential Impacts of Technology on Commercial Services

Digital and mobile technologies are making it easier to access goods and services on-demand which has led to alternative platforms to purchase products and services. Among these platforms are those that support the sharing economy which provide opportunities for individuals to earn an income by leveraging under-utilized assets. These platforms are providing customers with an alternative to traditional buy/selling platforms, including those in the hospitality (e.g. hotels and taxis) and in office leasing (office sharing). Other alternative purchasing platforms are providing income earning opportunities for individuals to perform services of tasks that are typically not outsourced by households (e.g. assembling furniture, small household repairs, picking up food at fast food restaurants, meal preparation, grocery pick-up and delivery). It is anticipated that further advancements in the sharing economy will have increasingly negative impacts on the need for non-residential building space and continued growth in precarious employment.

5.2.2.3 Trends in Industrial Processing

As previously mentioned, globalization has led to increased outsourcing of production processes to overseas manufacturers. While there will continue to be a manufacturing focus in Ontario and the County of Wellington, the nature of traditional industrial

[1] Goods-based retailer refers to retail facilities that sell goods to be used or consumed at home, including food-oriented retail (supermarkets and convenience stores), beer, wine and liquor stores, pharmacies and personal care stores, home improvement stores and stores selling general merchandise, apparel and furniture.

processes is rapidly shifting, becoming more capital/technology intensive and automated, with lower labour requirements. The highly competitive nature of the manufacturing sector will require production to be increasingly cost effective and value-added oriented.

Emerging export-based subsectors have siting, space and built-form requirements that are significantly different from traditional manufacturing. This may include integrated operations combining office, research and development, warehousing and logistics, and on-site manufacturing in a campus-style setting. Anticipating and responding to the evolving needs of industry will be necessary for the County to better position itself for sustained growth, particularly in the advanced manufacturing sector and other emerging knowledge-based industries.

5.2.2.4 Trends in Work at Home and No Fixed Place of Work Employment

In 2006, 70% percent of the County of Wellington labour force base was defined as having a usual place of work, while the remaining 30% was categorized as work at home (W.A.H.) or having N.F.P.O.W. (i.e. off-site employment). In 2016, the percentage of the County of Wellington labour force defined as having a usual place of work was 80%.[1] As of 2021, it is estimated that usual place of work employment represents 75% of the County's employment base, while the remaining 25% of the employment includes W.A.H. employment and N.F.P.O.W.[2] The decrease in usual place of work employment compared to 2016 is largely due to steady growth in both W.A.H. and N.F.P.O.W. employment, which is anticipated to remain strong over the forecast, as discussed in further below.

Statistics Canada defines N.F.P.O.W. employees as "persons who do not go from home to the same workplace location at the beginning of each shift. Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc." Within the County of Wellington, the rising share of labour related to N.F.P.O.W. has been primarily driven by steady growth in the transportation and construction sectors which are typically characterized as having a higher percentage of off-site employees. Technological innovation and improved broadband regional telecommunications have been, and will continue to be, a key driver of economic

[1] Statistics Canada, Place of Work Employment, 2006 and 2016.
[2] Based on estimated by Watson & Assoicates Economists Ltd.

expansion in knowledge-based sectors as well as the steady rise of the gig economy. Looking forward, continued advances in technology and telecommunications (e.g. 5G technology) is anticipated to further enable remote work patterns and ultimately increase the relative share of off-site employees over the long term. Over the coming decades, W.A.H. and N.F.P.O.W. employment in the County of Wellington is expected to steadily increase as a result of these trends. Demographics and socio-economics also play a role in the future demand for off-site and work at home employment within an increasingly knowledge- and technology-driven economy. It is anticipated that many working residents in the County of Wellington, particularly younger adults as well as older adults (i.e. Baby Boomers) approaching retirement or semi-retirement will utilize technology to allow them to supplement their income in more flexible ways in contrast to traditional work patterns.

In addition to its broader impacts on the economy, COVID-19 is also anticipated to accelerate changes in work and commerce as a result of technological disruptions which were already in play prior to the pandemic. The impact of COVID-19 has required employees and employers with a usual place of work to transition and adapt to a work at home environment as lockdown provisions occurred. In addition to the broader theme of increasing full-time work at home and partial work from home trends, office-related work from home trends have been significantly accelerated by COVID-19. As such, enterprises will increasingly be required to rethink the way they conduct business with an increased emphasis on remote work enabled by technologies such as virtual private networks (VPNs), virtual meetings, cloud technology and other remote work collaboration tools. These trends are anticipated to have a direct influence on commercial and industrial real estate needs over both the near and longer term. In light of these anticipated trends, it is important that long-term employment and non-residential land needs forecasts adequately consider the manner in which these impacts are likely to impact the nature of employment and associated building space needs by type as well as by place of work.

5.3 Planning for Employment Sectors

As previously mentioned, structural changes in the economy are changing the character of economic activities in Employment Areas and impacting their built form and character. Recognizing these recent structural changes in the regional economy, there is a need for the County of Wellington to ensure that the amount, type, and location of

the County's established and planned Employment Areas are well aligned with anticipated market demand. This requires that traditional industrial sectors related to manufacturing, Goods Movement, construction and utilities are accommodated, while Employment Areas offer competitive attributes and supportive infrastructure, urban amenities, and synergies to attract the growing knowledge-based sector. These real estate trends which influence the planning of Employment Areas in today's economy, are explored below.

5.3.1 Planning for Industrial Sectors

As previously mentioned, recent industrial development activity across the G.G.H. and beyond has been driven by rising demand in the Goods Movement sector. Increased outsourcing of manufacturing production to emerging global markets continues to drive the need for new consolidated, land-extensive warehousing facilities to store and manage the distribution of goods produced locally as well as goods imported from abroad. This continues to drive demand for increasingly larger, more land-extensive warehousing facilities, generally in greenfield Employment Areas. Across North America, the Goods Movement industry is continuously evolving at a rapid pace. As previously mentioned, e-commerce and technological improvements represent the biggest drivers of change in the Goods Movement industry, driven by the rapid growth of mobile technology. Key considerations in planning for the Goods Movement sector include the following:

i. Just-in-time manufacturing will continue to be the industry norm, placing increasing emphasis on more frequent and smaller deliveries by truck transport, typically during the last mile. As the e-commerce market continues to expand, this component of the supply chain is becoming increasingly important to businesses as it has a direct influence on the customer experience. In addition to the need to provide timely, accurate service delivery, it is also critical for industry to ensure cost efficiency given that 30% to over 50% of total parcel delivery cost is associated with this leg of the supply chain.

ii. Automation of distribution centres allows for more vertical storage; however, the need for numerous loading bays will dictate land requirements, and the industry trend is for more and more bays at facilities. Using automated logistics solutions and robotic systems improves efficiency and reduces the requirement for daylight or height limits of warehouse space, thus allowing for more vertical storage.

Vertical storage and increased automation also reduce the distance inside warehouses, further speeding up the delivery process.

iii. Autonomous trucking technology is currently being tested worldwide. A key driver of this technology is the reduction of transportation costs (i.e. labour) combined with improved road safety. Although the full implementation of driverless trucks remains far ahead in the future, advances in technology have come quicker than expected. Autonomous trucking technology is likely to affect industrial real estate in several ways. Lower transportation costs are anticipated to drive the need for fewer, but larger, consolidated warehouses in locations where land costs are lower. Typically, the larger the property, the lower the average employment density.

iv. Locations close to multi-modal facilities continue to be very attractive with access to rail – this is generating increased demand for larger-scale logistics hubs. Core components of integrated intermodal terminals, often referred to as freight hubs or freight villages, include general warehousing/storage, distribution centres, transshipment facilities, vehicle maintenance/repair services, and transportation/ logistics uses.

5.3.2 Planning for Knowledge-Based Sectors

As previously noted, recent market demand on employment lands has been increasingly driven by growth in the knowledge-based or creative class economies, including employment sectors such as advanced manufacturing; professional, scientific and technical services; finance and insurance; real estate; information and culture; health care and social assistance, and education. As these sectors continue to grow, flex office and multi-purpose facilities encompassing office and non-office uses are becoming an increasingly dominant built form within Employment Areas.

Workers in knowledge-intensive industries are increasingly demanding accessible and dynamic work environments that promote interaction and innovation. This underscores "place making" as an increasingly recognized and important concept in creating diverse and vibrant workplaces, which in turn can help attract local population and job growth,

provided that other necessary infrastructure requirements are met.[1] This is particularly relevant in mixed-used environments which integrate office commercial, residential and other community uses with public open spaces.

Accommodating new development and expansions related to light industrial and office uses requires that Employment Areas are planned to accommodate a pedestrian-oriented environment with access to employment-supportive uses such as retail, food and personal services as well as recreational amenities and public spaces. At the same time, demand will continue to exist for industrial and commercial uses in suburban business park and industrial settings which offer ample land supply. For these Employment Areas, highway access and exposure/visibility and design are critical particularly for the corporate office component.

To address the broad needs of industry, a range of employment and commercial areas by site size, access, designation/zoning and surrounding land use should be considered including both urban and suburban locations. In many cases, new offices accommodated in Employment Areas integrate industrial, office and training facilities on site. Where feasible, prestige employment sites also provide significant land area to accommodate surface parking and, in some cases, future expansion potential. On average, employment density levels for integrated office/distribution and training facilities are much lower than standalone major office developments. Given the unique operational requirements of these facilities, such uses often cannot be accommodated in downtown or mixed-use office settings. In industrial/business parks, prestige office uses are often positioned at gateway locations (i.e. at major highway interchanges) with direct highway access/exposure as well as strong connectivity to arterial roads.

5.3.3 Planning for Employment Supportive Uses

As the regional economy continues to evolve, there are increasing pressures for Employment Areas to accommodate commercial service, retail and community/ institutional uses. Through land-use designations and zoning by-law provisions,

[1] Place-making is a process of creating unique, quality locations, places or spaces that possess a strong sense of place. With respect to places of work, the concept of placemaking is often encompasses the attraction knowledge-based workers and businesses with an emphasis on collaboration, connection, and innovation.

municipalities have responded by permitting a range of commercial, community and institutional uses within Employment Areas.

Typically, G.G.H. municipalities accommodate at least some commercial service (stand-alone or accessory) and limited retail activity (primarily as accessory) on employment lands that support and complement primary employment uses. To varying degrees, ancillary uses, such restaurants, entertainment facilities and personal services (e.g. dry cleaners and hairdressers) are permitted on employment lands with the intention to support and/or complement employment uses. Municipalities also typically accommodate select community/institutional uses such as recreation centres and emergency services facilities on employment lands.

Accommodating an adequate mix of supportive uses on employment lands, such as retail and personal services, can strengthen such areas by providing amenities and services to employees/employers. Accommodating too much non-employment supportive uses, however, can lead to land-use conflicts, influence land values, and eventually contribute to the erosion of employment lands.

While non-industrial uses can directly support the function of Employment Areas, large freestanding retail uses can potentially create negative impacts on the surrounding industrial or employment uses or impact the future prospects of the area for industrial development. Though large freestanding retail uses generate employment, they may also absorb large shares of land through their configuration or requirements (e.g. parking), draw considerable traffic from outside the immediate area (creating congestion in the industrial area), or affect the character of the Employment Area. As such, approaches should be developed to discourage major retail development in Employment Areas.

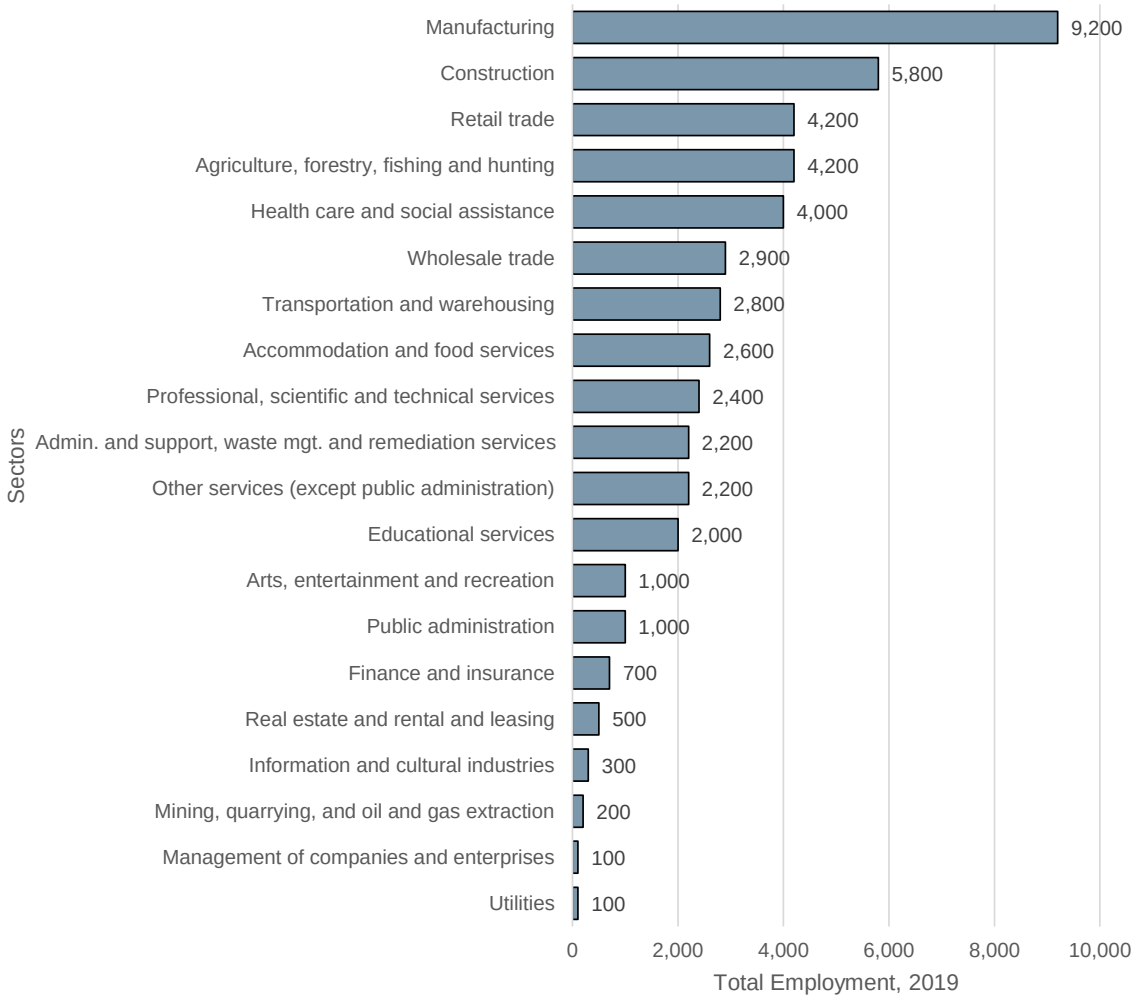
Under the Growth Plan, 2019, employment land protection policies have been strengthened with respect to prohibiting uses such as major retail in Employment Areas. As a result, the Growth Plan, 2019 provides that, for any major retail uses that are permitted in Employment Areas, a municipality should establish a size or scale threshold for such use. The definition of major retail and restrictions for retail on employment lands varies across the G.G.H.

5.4 County of Wellington Employment Trends

5.4.1 Employment Base by Sector, 2019

The County of Wellington has a diverse employment base, as illustrated in Figure 5-2. The largest sector in the County is manufacturing which accommodates 9,200 jobs or 19% of total employment, as illustrated in Figure 5-2. Other key sectors include construction; retail trade; agriculture, forestry, fishing and hunting; and health care.

Figure 5-2
County of Wellington
Employment by Sector, 2019



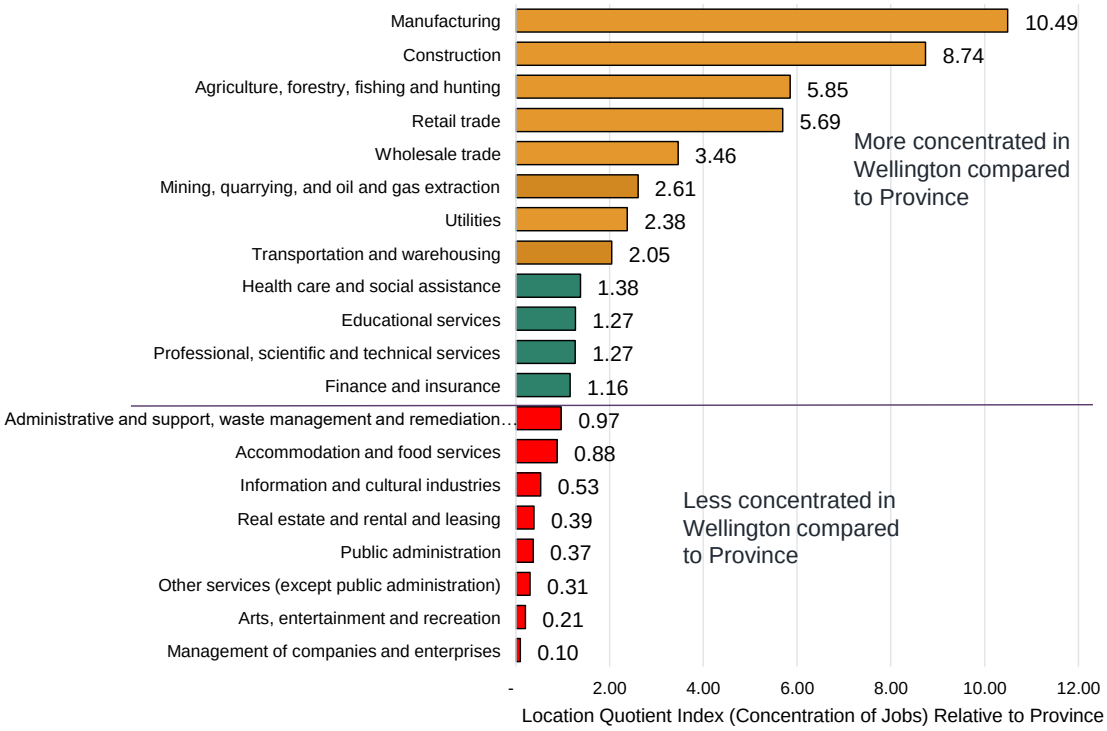
Source: Derived from O.M.A.F.R.A. EMSI Analyst data by Watson & Associates Economists Ltd.

Figure 5-3 summarizes the County's concentration of employment as a portion of its employment base relative to the province. The majority of the industrial sectors in the County are more concentrated within the County relative to the province. Sectors with a very high concentration of employment within the County relative to the province are identified in orange, while sectors with a slightly higher concentration are identified in green and sectors with a low concentration are identified in red.

Manufacturing within the County is estimated to be more than 10x more concentrated than the province, followed by construction; agriculture, forestry; retail trade; wholesale trade; mining, quarrying, oil and gas extraction; utilities; and transportation and warehousing. Compared to the province, the County has a slightly higher concentration in the following commercial and institutional sectors: health care and social assistance; education services; professional, scientific and technical services; and finance and insurance.

Employment sectors with a lower concentration of employment compared to the province include a mix of commercial and institutional sectors, including public administration, office type sectors and commercial service sectors that serve the local and regional population.

Figure 5-3
County of Wellington
Employment Base Relative to the Province of Ontario



Source: Derived from O.M.A.F.R.A. EMSI Analyst data by Watson & Associates Economists Ltd.

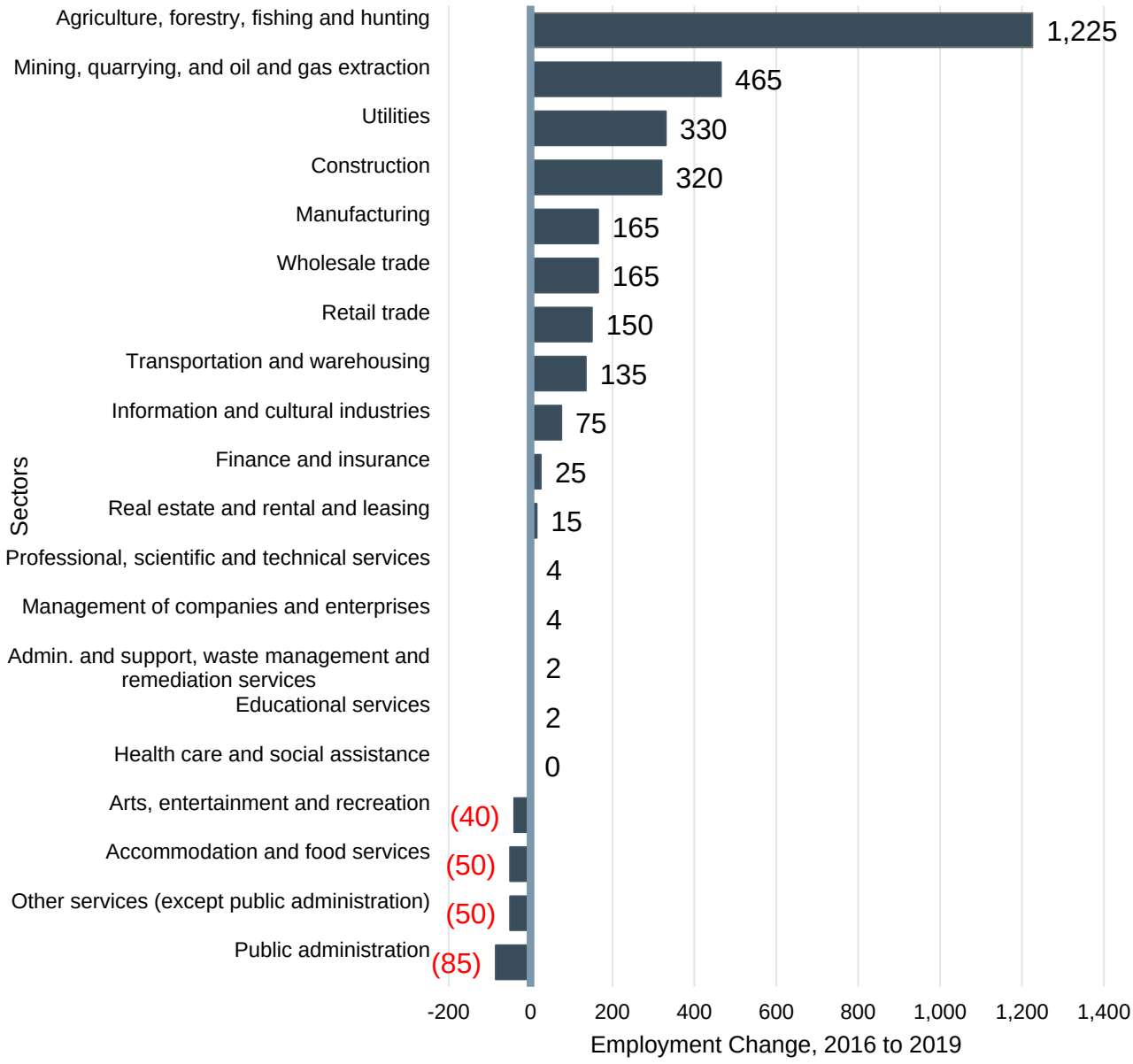
5.4.2 Change in Employment by Sector

In many respects, recent employment trends within County of Wellington are similar to the broader trends experienced across the G.G.H. and the Province as a whole. As summarized in Figure 5-4, over the 2016 to 2019 period, the County of Wellington added employment in several employment sectors, including primary sectors (agriculture, forestry, fishing and hunting; and mining, quarrying, and oil gas extraction), industrial sectors (utilities; construction; manufacturing; transportation and warehousing; and wholesale trade) and commercial sectors (retail trade; information and culture industries; and finance and insurance).[1] Most of these sectors, as previously discussed, already had a strong presence in the County. Over the forecast horizon, it is anticipated

[1] Based on OMAFRA EMSI Analyst data.

that a number of these sectors will continue to grow based on the macro-trends and employment outlook previously discussed.

Figure 5-4
County of Wellington
Change in Employment by Sector,
2016 to 2019



Source: Derived from O.M.A.F.R.A. EMSI Analyst data by Watson & Associates Economists Ltd.

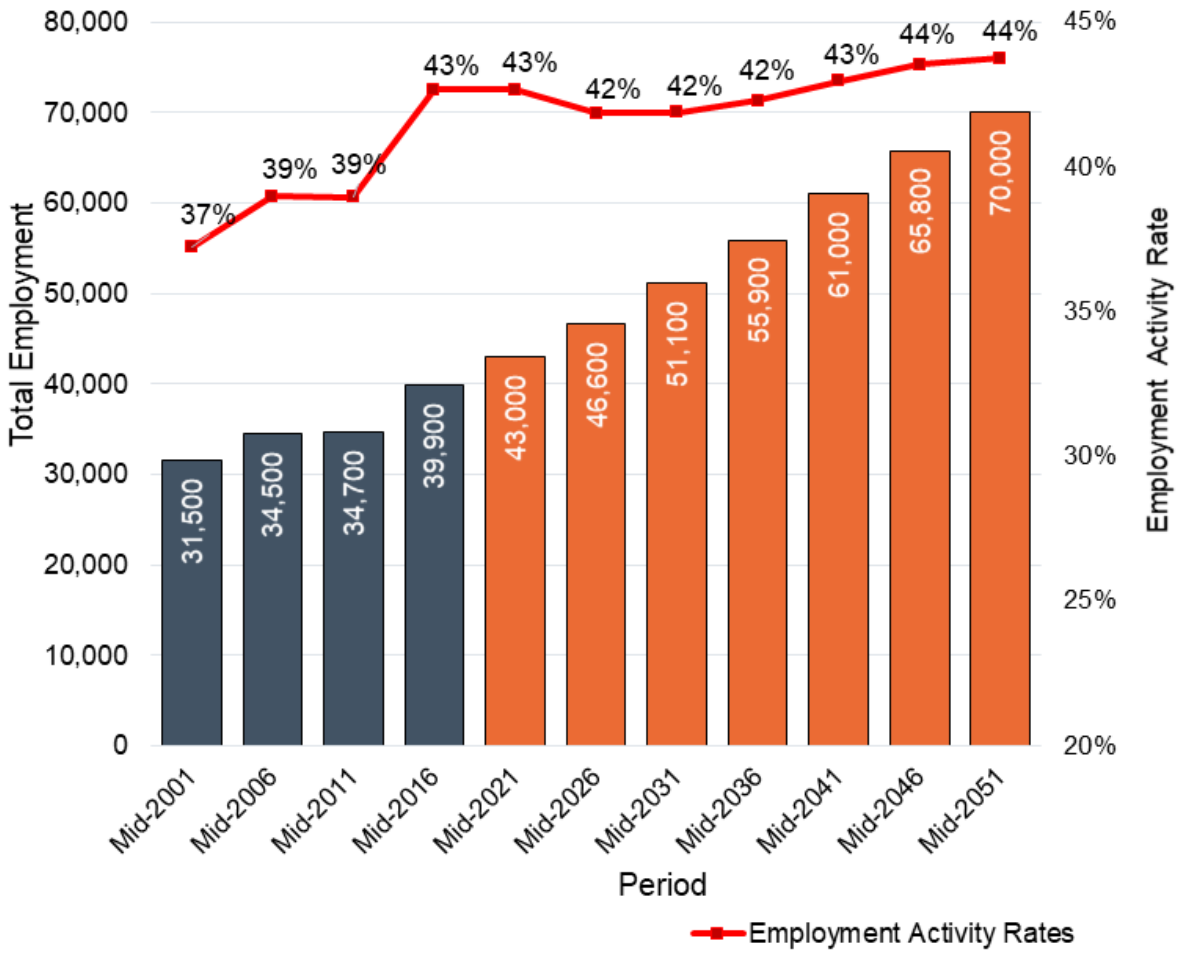
5.5 Employment Forecast to 2051 by Employment Category

5.5.1 County-Wide Employment Forecast to 2051

As summarized in Figure 5-5, the County's employment activity rate (ratio of jobs to population) has increased slightly since 2001. Over the long term, the County's employment activity rate is anticipated to an increase from approximately 43% in 2016 to 44% by 2051. This moderate increase is anticipated to be largely driven by opportunities within the County's export-based employment sectors (e.g. transportation, wholesale trade, construction, small-scale to mid-sized manufacturing and agri-business). There is also employment growth potential within population-related employment sectors such as retail, accommodation and food, professional, scientific and technical scientific services and health care. Growth within these population-related employment sectors are anticipated to be driven by population growth within the County's Primary Urban Centres.

A large percentage of forecast job growth is anticipated to be accommodated through home occupations, home-based businesses and off-site employment, accounting for approximately 30% of the employment growth over the 2016 to 2051 period. This employment generally does not directly generate significant additional demand for urban land.

Figure 5-5
County of Wellington
Employment Forecast and Employment Activity Rate, 2016 to 2051

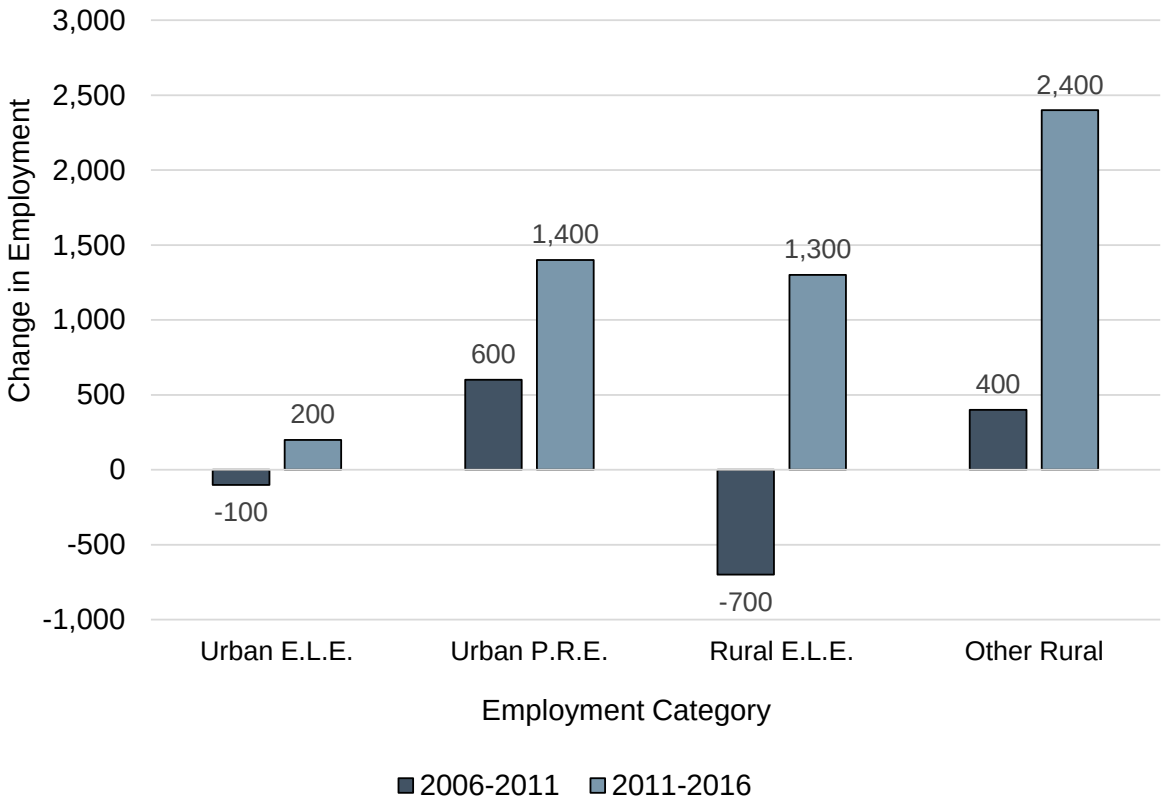


Source: Watson & Associates Economists Ltd.

5.5.2 *County-Wide Employment by Employment Category, 2006 to 2016*

Over the 2006 to 2016 period, as summarized in Figure 5-6, a large portion of the County's employment growth has been concentrated in the Rural System, approximately 62% of employment growth.

Figure 5-6
County of Wellington
Change in Employment by Category,
2006 to 2011 and 2011 to 2016



Source: Watson & Associates Economists Ltd.

As previously discussed, primary sector employment (e.g. agriculture and aggregate industries), is a major component of employment in the Rural System. Strong employment growth has also been recently experienced in Rural Employment Areas within Puslinch and Guelph/Eramosa. The Township of Puslinch, which is entirely within the Rural System, represents nearly half of the net rural employment growth (Rural E.L.E. and Other Rural) over the 2006 to 2016 period. Guelph/Eramosa, Mapleton and Wellington North, which have a large employment base within the Rural System, represent the remaining portion of the net employment growth in Rural E.L.E. and Other Rural. The rural employment base of the Rural System within the other Area Municipalities of the County either decreased or slightly increased over this period.

Within the Urban System, Urban P.R.E. accounted for the largest increase in employment over the 2006 to 2016 period, reflecting growth in a number of commercial and institutional sectors, in particular commercial services, retail trade and health care. Urban E.L.E. experienced a modest increase over the past five years. While E.L.E. growth over this period has been modest, it is estimated that Urban E.L.E. growth has significantly increased since 2016. As previously discussed, employment levels within a number of industrial sectors have increased over the 2016 to 2019 period. It is estimated that as of 2021, the urban E.L.E. accounts for 7,500 employees in the County, an increase of 500 employees since 2016 or annual growth of 100 employees annually.

5.5.3 County-Wide Employment by Employment Category Forecast to 2051

Figures 5-7 and 5-8 summarize the forecast by employment category (Urban P.R.E., Urban E.L.E., Rural E.L.E. and Other Rural). The following provides a summary with respect to the long-term employment outlook by employment category for the County from 2016 to 2051.

5.5.3.1 Urban P.R.E. Employment

Urban P.R.E. as previously discussed, includes employment in institutional and commercial sectors, primarily within Urban Centres, including retail, personal services, accommodation and food, health and social services, and education and other service sector.

- Urban P.R.E. growth over the 2016 to 2051 period is expected to add 520 employees annually, representing 60% of overall employment growth in the County. As a comparison, Urban P.R.E. added 200 employees annually over the 2006 to 2016 period.
- It is anticipated that e-commerce is anticipated to reduce the need for "bricks and mortar" retail over the long-term horizon. Despite this trend, it is important to recognize that the current commercial structure in the County's Urban Centres is primarily oriented towards local-serving P.R.E. uses (uses that serve the immediate needs of residents) and are not as susceptible to e-commerce. P.R.E. uses related to W.A.H. employment, tourism services, commercial services, local retail serving (e.g. grocery stores and pharmacy) and institutional

uses (e.g. medical/health care) are anticipated to comprised the bulk of the P.R.E. growth over the next 30 years.

- Currently, there are approximately 5 residents for every 1 P.R.E. Community Area job in Wellington County. Since 2006, this ratio has increased from 4 residents for every 1 P.R.E, which suggests that historical P.R.E. employment growth is not growing at the same pace as population growth.
- Over the forecast horizon, it is anticipated that the total P.R.E. resident ratio will decrease slightly to 4 residents per 1 P.R.E. Community Area job (same ratio as 2006), largely driven by strong growth related to W.A.H. employment.
- Urban P.R.E. employment includes W.A.H. employment which is anticipated to account for just under a quarter (22%) of the P.R.E. employment growth.

5.5.3.2 Urban E.L.E.

As previously discussed, Urban E.L.E. represents jobs accommodated in industrial-type buildings on lands designated as Industrial in the Primary Urban Centres. This includes largely industrial-sector employment including manufacturing, wholesale trade, transportation and warehousing, construction, and utilities, as well as a limited amount of employment associated with commercial- and employment-supportive uses.

- As previously identified, the manufacturing sector represents a large share of the employment base within the County (19% of employment in the County).[1] This sector has experienced steady growth over the past two decades largely fueled by small-scale manufacturing operations, as well as increase in employment at existing large-scale manufacturing operations. The automotive parts manufacturing facility, TG Minto for example (approximately 850 employees), has added a series of expansions that has resulted in a net increase in employment in the Palmerston Urban Centre.[2]
- The County has also experienced steady growth in industrial sector jobs on employment lands over the past two decades in sectors related to construction, wholesale trade, and transportation/warehousing.

[1] Based on O.M.A.F.R.A. EMSI Analyst data.
[2] TG Corporate website – media release: http://www.toyodagosei.com/News/1283/expansion-at-tg-minto-in-canada, accessed May 30, 2021.

- Looking forward over the next 30 years, the County is anticipated to accommodate steady Urban E.L.E. growth comprised of a diverse range of industrial sectors. It is anticipated that Urban E.L.E. will accommodate just over a quarter (26%) of the County's employment growth, or 210 employees annually, up from 49 employees annually over the 2006 of 2016 period.

5.5.3.3 Rural E.L.E.

Rural E.L.E. as previously discussed, consists of employment in industrial-type buildings within the Rural System. Rural E.L.E. includes dry industrial uses, uses that require no municipal services (water and wastewater servicing).

- Rural E.L.E. represents a large share of the County's employment base. Over the past decade Rural E.L.E. growth has been particularly strong, adding 120 employees annually and representing approximately 18% over the 2006 to 2016 period.
- Recent Rural E.L.E. growth has been concentrated in the Employment Areas of Puslinch and Guelph/Eramosa. These Employment Areas have added several new industrial operations, as well as expansion of existing facilities.
- Over the forecast horizon, growth in Rural E.L.E. is anticipated to include industrial employment in construction, select commercial uses (such as automotive/truck repair), logistics and warehousing, sectors that typically do not require water services or fire protection.
- It is anticipated that Rural E.L.E. will accommodate approximately 10% of the County's employment growth, or 90 employees annually. Rural E.L.E. is anticipated to continue to be concentrated within the Township of Puslinch and the Township of Guelph/Eramosa which offer convenient access to major highways.

5.5.3.4 Other Rural Employment

Other Rural Employment as previously discussed, consists of employment within the Rural System that is not located in a Rural Employment Area.

- Over the past decade, this category of employment has represented just over half (52%) of the County's employment growth over the 2006 to 2016 period.

- The primary sector which includes agriculture and aggregates industries has been a major driver of rural employment growth. Over the 2016 to 2019 period, the agriculture sector added approximately 1,300 jobs in the County, while Mining, quarrying, and oil and gas extraction (largely aggregates) added 500 jobs.
- Over the forecast horizon, it is anticipated that rural employment will continue to grow in rural-based sectors (primary sectors), as well as growth related to recreation and tourism.
- Value-added on-farm diversified uses, in particular are anticipated to be a key growing component of the County's rural W.A.H. and off-site employment base.
- Technological innovation and improved broadband regional telecommunications will provide more opportunities for rural residents to work form home.
- It is anticipated that Other Rural Employment will accommodate approximately 10% of the County's employment growth, or 40 employees annually.

Figure 5-7
County of Wellington
Employment Forecast by Employment Category,
2006 to 2016 and 2016 to 2051

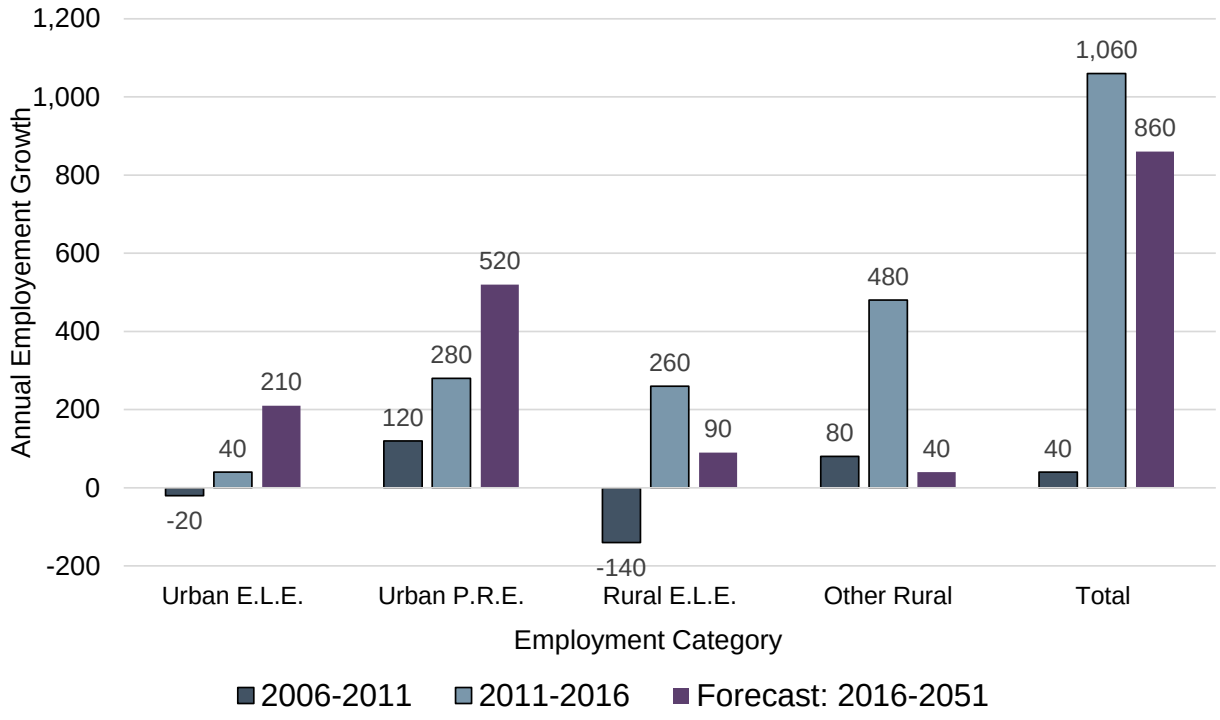
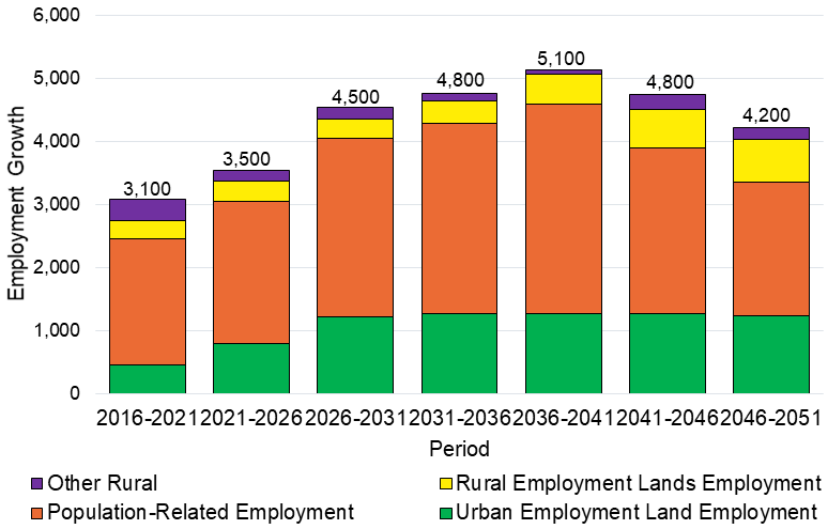


Figure 5-8
County of Wellington
Employment Forecast by Employment Category, 2016 to 2051



Source: Watson & Associates Economists Ltd.

5.6 Employment Growth Allocation by Geographic Policy Area

As previously discussed, employment growth by category is further allocated by geographic area which includes Employment Areas, Urban Community Areas, Rural Employment Areas and Remaining Rural Area.

Further details on the growth allocation by geographic policy will be discussed in the Phase 2 Report, including details on employment density, employment land absorption, profile of existing conditions of Employment Areas and the commercial base, as well as policy considerations. The following summary utilizes a 2020 to 2051 period, to align with the existing inventory of vacant non-residential lands, as part of the land needs analysis that will be completed in the Phase 2 Report.

5.6.1.1 Urban System

Overall, the Urban System is anticipated to accommodate 85% of the County's employment growth over the 2020 to 2051 forecast horizon.

Urban Employment Areas

Over the forecast period, it is anticipated that 100% of Urban E.L.E. will be accommodated in Urban Employment Area. P.R.E. uses are anticipated to comprise 20% of the employment growth accommodated in Urban Employment Areas, while E.L.E. is anticipated to represent 80% of the Urban Employment Area growth over the 2020 to 2051 period. P.R.E. employment uses accommodated in Urban Employment Areas are anticipated to comprised commercial uses that support the function of the Employment Area, as well as select commercial uses that are permitted in Employment Areas. Urban Employment Areas are anticipated to accommodate 32% of the County's employment growth (9,040 jobs) over the 2020 to 2051 horizon.

Urban Community Areas

Over the forecast it is anticipated that Urban Community Areas will accommodate 89% of the County's Urban P.R.E. forecast. The remaining 11% of Urban P.R.E. forecast is anticipated to be accommodated in Urban Employment Areas. Urban Community Areas are anticipated to accommodate 53% of the County's employment growth (14,960 jobs) over the 2020 to 2051 horizon.

5.6.1.2 Rural System

Overall, the Rural System is anticipated to accommodate 15% of the County's employment growth over the 2020 to 2051 forecast horizon.

Rural Employment Areas

Over the forecast it is anticipated that the majority of Rural E.L.E. will be accommodated in Rural Employment Areas (95%). A small portion (5%) of Rural E.L.E. is anticipated to be accommodated on small rural sites. It is anticipated that Rural Employment Areas will accommodate a small portion of P.R.E. (less than 200 employees). Rural Employment Areas are anticipated to accommodate 11% of the County's employment growth (2,980 jobs) over the 2020 to 2051 horizon.

Other Rural Employment

The remaining rural employment is forecast to accommodate 4% of the County's employment over the forecast horizon.

5.7 Observations

The County faces a number of opportunities and challenges with respect to employment growth in light of the evolving structural changes in the economy and disruptive factors which continue to influence the nature of the economy. One of these challenges relates to macro-economic trends over which the County has limited control. This includes the relative strength of the global economy, international trade policy and the competitiveness of the Canadian economic base relative to other established and emerging global markets.

In contrast to the above, the County of Wellington has considerable control and ability to position itself in a positive manner when considering the County's regional competitive ranking. This requires the County to continue marketing itself as a hub for innovation, equipped with the human capital that is required to encourage on-going innovation, entrepreneurship, small business development and local investment retention. A major factor for the future competitiveness of the County's economic base relates to the structure, quality and "readiness" of its Employment Areas.

Over the next several decades the County's employment base is anticipated to steadily grow across a broad range of export-based and population serving employment sectors. The County, however, will be competing to attract and retain these sectors with other municipalities across the G.G.H. and beyond. The County of Wellington has a diverse and growing economic base with a strong employment base in both the Rural System and the Urban System. Over the long term, the County is expected to accommodate balanced growth between residential and non-residential development and provide increasing local job opportunities for the residents of Wellington. By 2051, the County's employment base is forecast to reach approximately 70,000, in accordance with Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 30,100 jobs from 2016, or an annual employment growth rate of 1.7%.

Over the 2020 to 2051 period, employment within Urban Employment Areas is anticipated to account for 32% of total employment and accommodate a diverse range of industrial sectors, new and expanding businesses. Urban Community Areas are anticipated to account for the largest share of the County's employment growth at 53% driven largely by work at home employment, commercial services, tourism services and institutional uses.

The County's Rural System is anticipated to continue to remain a large component of the County's employment base. It is anticipated that growth within the Rural System will be supported by an expanding agriculture base, opportunities for on-farm diversification, recreation activities and small-scale Rural E.L.E. uses.

Chapter 6
Employment Growth Allocations

6. Employment Growth Allocations, 2016 to 2051

This chapter provides a summary of the forecast employment allocations by Area Municipality as well by as Urban Centre within County of Wellington. Detailed tables on employment growth allocations are provided in Appendix F.

6.1 Introduction

*6.1.1 **Allocation Review***

The employment growth forecast by Area Municipality has been prepared based on a review of the following:

Local Supply Factors:

- A survey of vacant and occupied commercial space within the County's Primary Urban Centres;[1]
- The availability and marketability (i.e. location, proximity to major highways, market character, etc.) of the County's supply of designated vacant serviced or serviceable employment lands; and
- Water and wastewater servicing capacity and potential solutions to overcome constraints (where identified).

Local Demand Factors:

- A review of historical and forecast employment growth rates within the Wellington County commuter-shed;
- Discussions with County staff regarding recent non-residential development trends and future employment prospects by Area Municipality;
- Review of recent business openings and closures information prepared by the County;
- Impacts of local population growth by Area Municipality on demands for P.R.E. employment;
- Review of Urban and Rural Employment Area absorption between 2011 and 2019; and

[1] Details to be provided in the Phase 2 Report.

- Recent non-residential building permit data by industrial, commercial and institutional (I.C.I.) sector by Area Municipality.

For each of the County's Area Municipalities employment is forecast to grow at a steady rate relatively to historical levels. This is partially driven by steady P.R.E. growth which is largely driven by strong local population growth. Accordingly, the largest share of P.R.E. has been allocated to Area Municipalities with the largest share of population growth.

6.1.2 Overview of Community Structure - Non-Residential Lands

Figure 6-1 provides a map of the seven Area Municipalities within the County of Wellington. Within each of the Area Municipalities, each of the Primary and Secondary Urban Centres and hamlet areas have been illustrated.

Figure 6-2 illustrates the County's non-residential land-use designations, using the Arthur Urban Centre and surrounding rural area as an example. Lands designated for non-residential uses, represent a core component of where employment growth is to be accommodated over the forecast horizon, including:

- Highway Commercial;
- Central Business District;
- Industrial (Urban Employment Area); and
- Rural Employment Area.

Chapter 5 (sub-section 5.1.1.) provides further details on the role, function and purpose of these designations. Work at home employment, rural employment outside Rural Employment Areas and non-residential development on residential lands (uses that are permitted) are anticipated to accommodate employment growth as well.

Figure 6-1
County of Wellington
Map of Area Municipalities and Settlement Areas

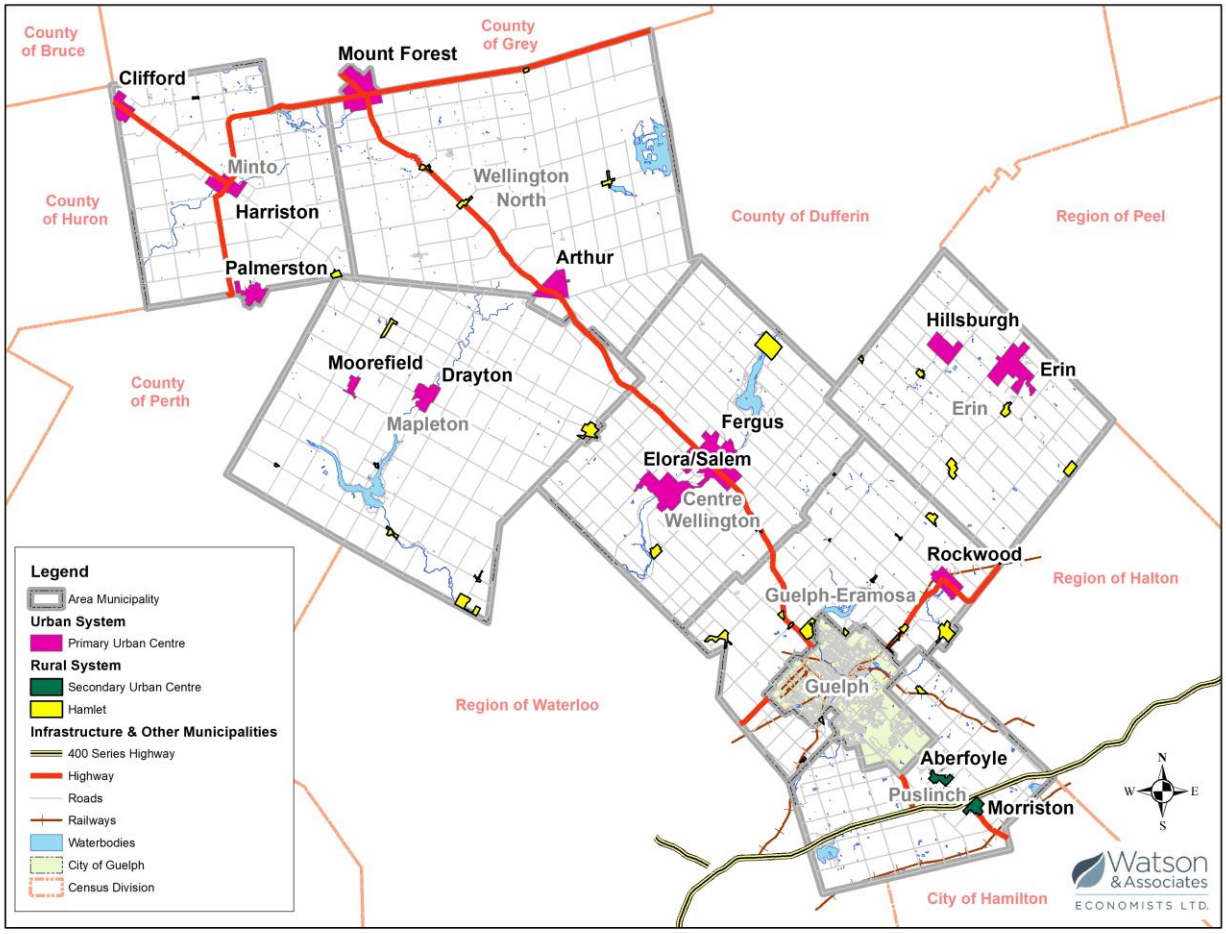
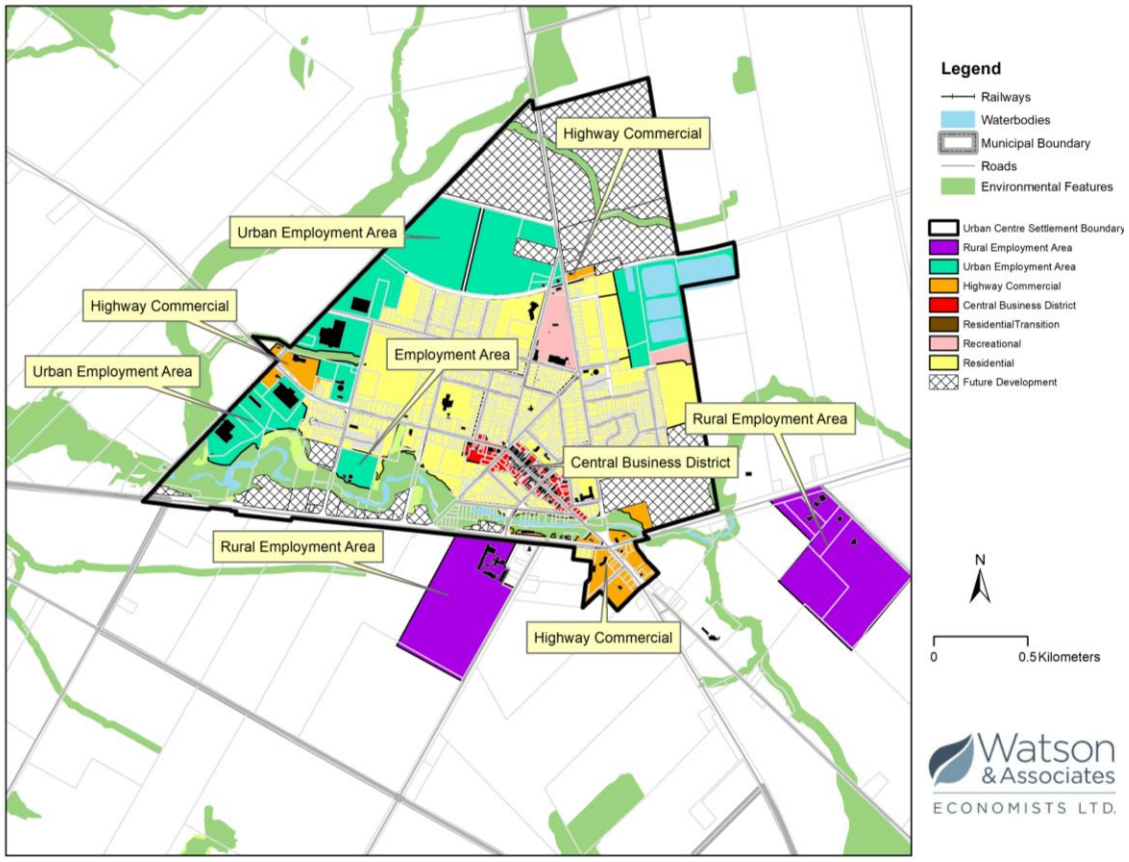


Figure 6-2
County of Wellington
Arthur Primary Urban Centre and Surrounding Rural Employment Areas
Map of Area Non-Residential Areas

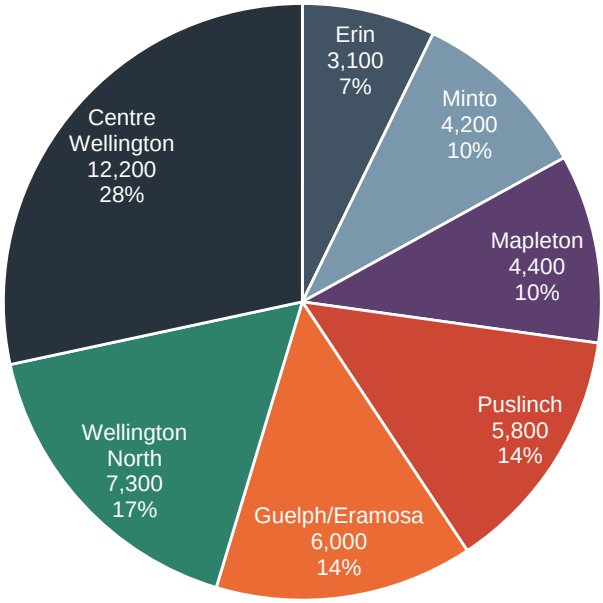


6.2 Existing Employment Base by Area Municipality, 2021

6.2.1 Employment Estimates by Area Municipality, 2021

As of 2021, the County of Wellington the employment base was estimated at 43,000. As summarized in Figure 6-3, of the County's 2021 employment base, just under a third (28%) of the County's population base is accommodated within the Township of Centre Wellington, followed by the Township of Wellington North at 17%, the Township of Guelph/Eramosa at 14% and the Township of Puslinch at 14%. The three remaining Area Municipalities (Township of Mapleton, Town of Minto and Town of Erin) comprise between 7% to 10% of the County's employment base as of 2021. Further details on the employment base for each Area Municipality is provided in Appendix F.

Figure 6-3
County of Wellington
Share of 2021 Estimate by Area Municipality



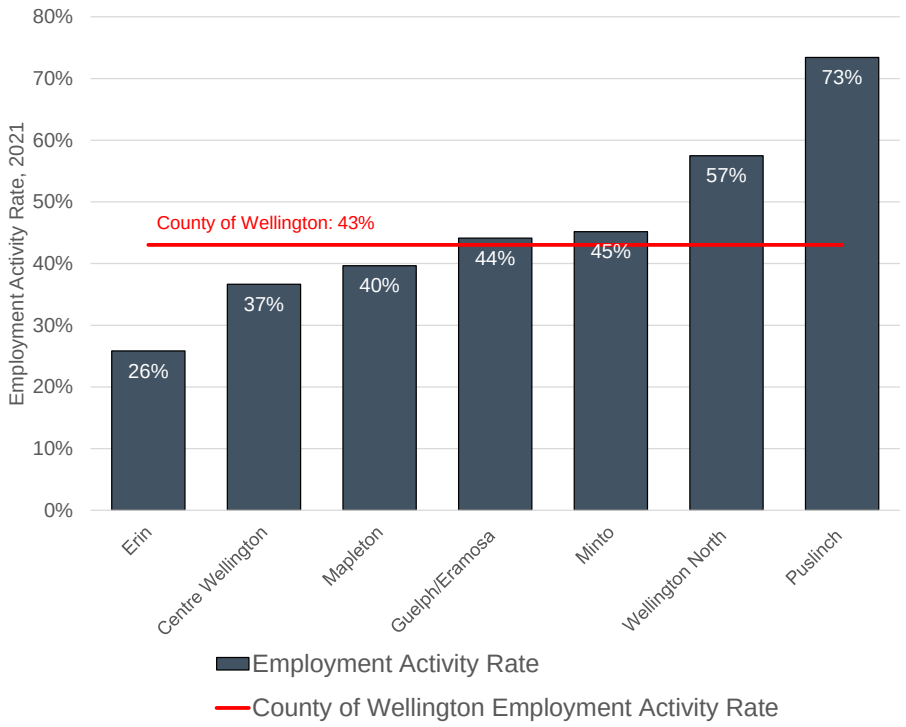
Source: Watson & Associates Economists Ltd.

6.2.2 Area Municipality Employment Activity Rates

Figure 6-4 summarizes employment activity rate (ratio of jobs to population) by Area Municipality compared to the County of Wellington employment activity rate of 43% as of 2021. A high employment activity rate suggests a larger portion of employment relative to the population base of the Area Municipality. As summarized, the Township of Puslinch has the highest employment activity rate at 73%. Puslinch has a large employment base and relies on in-commuting from the surrounding G.G.H. municipalities. Other Area Municipalities with a high employment activity rate include the Township of Wellington North at 57%, followed by the Town of Minto at 45% and the Township of Guelph/Eramosa at 44%. The remaining Area Municipalities (Township of Mapleton, Township of Centre Wellington and the Town of Erin) have an employment activity rate below the County-wide employment activity rate of 43%. The Town of Erin and the Township of Centre Wellington accommodate a large out-commuting population base due to their proximity to a number of large G.G.H. employment markets. As a result, this negatively impacts their respective employment activity rate.

Looking forward, a key opportunity and challenge for the Town of Erin and Township of Centre Wellington will be to accommodate live/work opportunities as the population base grows, while maintaining complete communities. As previously discussed, outward growth trends, particularly from high growth west and north G.T.H.A. municipalities is placing development pressures on municipalities in the GGH Outer Ring. For high population growth municipalities such as Centre Wellington and Erin, maintaining or improving the employment activity rate will require a specific focus on attracting an increased share of export-based employment sectors in addition to P.R.E. jobs. Over the forecast period it is assumed that the employment activity rate in Centre Wellington will increase from 37% in 2021 to 43% by 2051. The employment activity rate for the Town of Erin is anticipated to stabilized by 2051 at a similar rate as of 2021.

Figure 6-3
County of Wellington
Employment Activity Rate by Area Municipality, 2021



Source: Watson & Associates Economists Ltd.

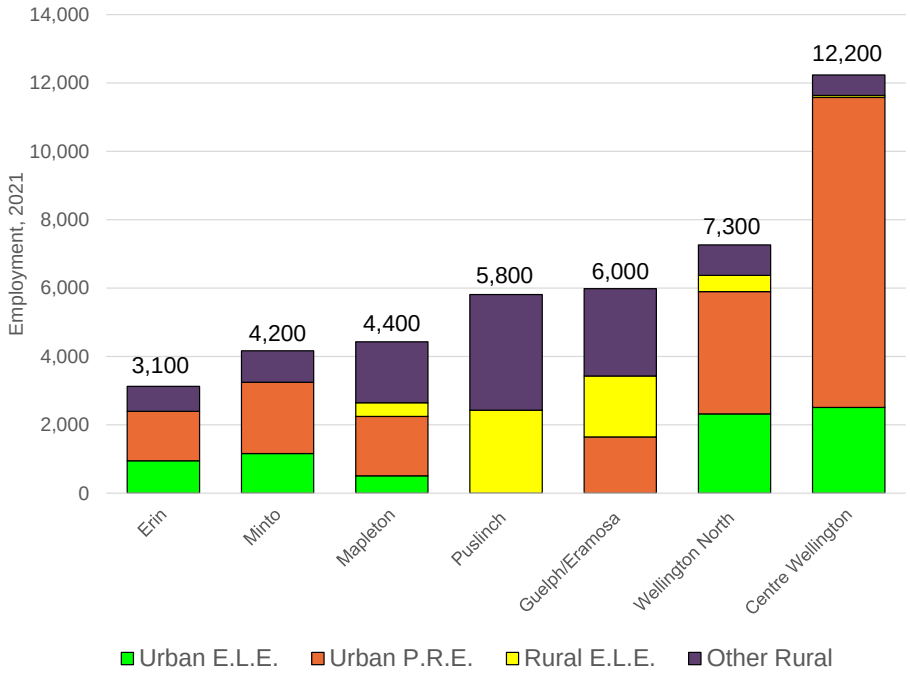
6.2.3 Area Municipality Employment by Type, 2021

As previously discussed, the County of Wellington has a diverse employment base, accommodating a range of sectors and uses in the Urban and the Rural Systems. Figure 6-4 illustrates the 2021 estimated employment for each Area Municipality by employment type (Urban E.L.E., Urban P.R.E. and Rural E.L.E.).

Key highlights include:

- The Township of Centre Wellington has the largest share of Urban P.R.E. employment (represents 46% of the County's Urban P.R.E.);
- The Township of Centre Wellington and the Township of Wellington North accommodate a large portion of the County's Urban E.L.E., at approximately 34% and 31% respectively (combined at 65% of the County's Urban E.L.E.);
- The Township of Puslinch and the Township of Guelph/Eramosa accommodate the majority of the County's Rural E.L.E. employment, at approximately 35% and 47% respectively (combined at 82% of the County's Rural E.L.E.);
- The Township of Mapleton and the Township of Wellington North offer a diverse employment base all four employment categories (Urban P.R.E., Urban E.LE., Rural E.L.E. and Other Rural); and
- The Town of Minto and the Town of Erin accommodate a mix of Urban P.R.E., Urban E.L.E. and Other Rural. The Town of Minto and the Town of Erin does not have a Rural Employment Area.

Figure 6-4
County of Wellington
2021 Estimate by Employment Type



Source: Watson & Associates Economists Ltd.

6.2.4 Industrial Sector Employment by Area Municipality, 2016

As previously discussed in Chapter 5, E.L.E. in the County is primarily of comprised of industrial employment sectors accommodated within the County's Urban Employment Areas and Rural Employment Areas, and to a lesser extent on rural lands throughout the County.

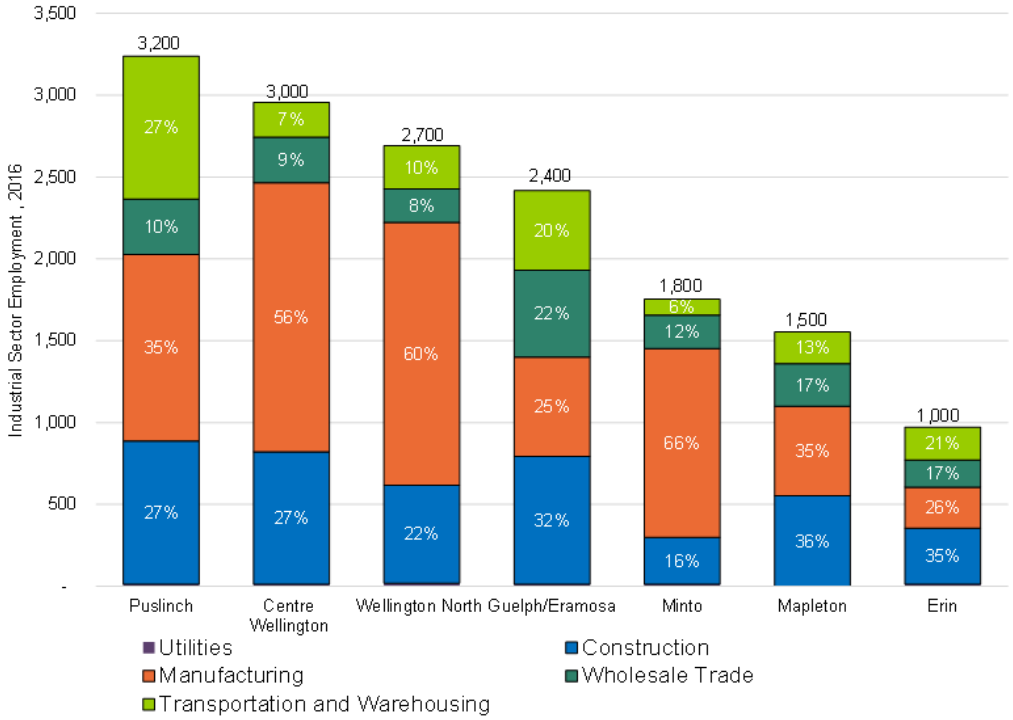
Figure 6-5 provides a summary of the industrial sectors by Area Municipality based on 2016 Census (includes N.F.P.O.W. employment). As summarized in this figure, the composition of industrial sector employment varies by Area Municipality. Key findings include:

- Manufacturing employment represents the largest component of the industrial employment base in Minto (66%), Centre Wellington (56%) and Wellington North (60%). These Area Municipalities are home to some of the County's largest

manufacturing employers in the County, including automotive parts, food processing and plastics manufacturing operations.

- The construction employment sector represents just under a third (27%) of the industrial employment base. Across the County, construction represents approximately 16% (Minto) to 36% (Mapleton) of the industrial base.
- While the transportation and warehousing sector comprises a large share of Puslinch's industrial base (27%) relative to other Area Municipalities in the County and also accommodates the largest share of County's employment in that sector (38%). Puslinch's proximity and access to Highway 401 makes the Township an ideal location for the transportation and warehousing sector.

Figure 6-5
County of Wellington
Industrial Sector Employment by Area Municipality, 2016



Source: Based on Statistics Canada, 2016 Census, Place of Work data by Watson & Associates Economists Ltd.
Note: Utilities represents a low share of the County's industrial base.

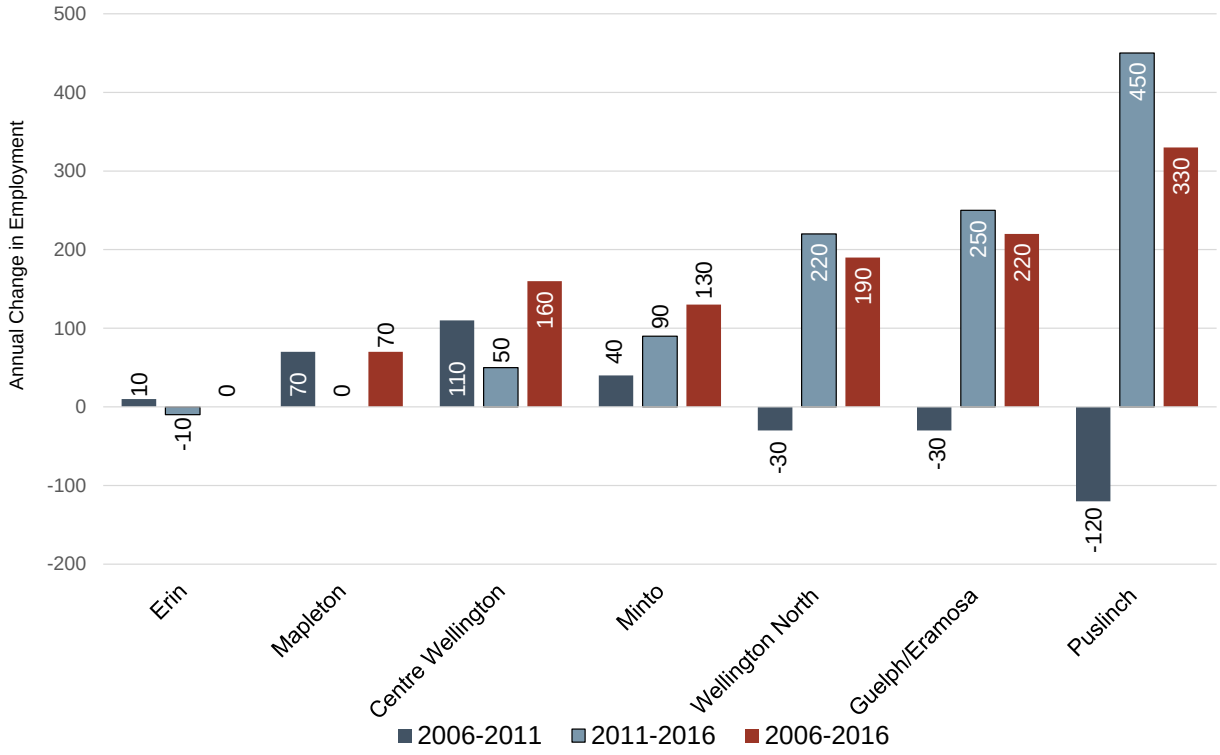
6.2.5 Employment Growth Trends by Area Municipality, 2006 to 2016

Figures 6-6 summarizes historical employment growth trends in the County of Wellington by Area Municipality over the past 10 years by Census period. Over the most recent 10-year Census period, the County of Wellington added 1,090 employees annually, representing an employment growth rate of 1.5%. Figure 6-6 provides a comparison of the average annual employment growth added over the 2006 to 2011 period and over the 2011 to 2016 period by Area Municipality.

Key highlights include:

- Puslinch experienced the highest rate of annual employment growth, adding 330 employees annually over the 2006 to 2016 period. Employment growth in Puslinch was driven by Rural Employment Area growth, as well as employment growth in the remaining rural area.
- Guelph/Eramosa, Centre Wellington and Minto averaged between 130 and 220 employees annually over the 2006 to 2016 period. Growth in Centre Wellington was largely driven by Urban P.R.E. employment growth. Rural Employment Area growth was a major component of employment growth in Guelph Eramosa, while Minto experienced strong Urban Employment Area growth over this period.
- Employment growth in Township of Mapleton averaged 70 jobs annually, lower than the other Area Municipalities.
- The Town of Erin experienced no net increase in employment over this period. It is anticipated that over the forecast horizon, annual employment growth in the Town of Erin will significantly increase with additional municipal water/wastewater servicing anticipated, coupled with strong population growth.

Figure 6-6
Historical Annual Employment Growth by
Area Municipality, 2006 to 2011 and 2011 to 2016



Source: Statistics Canada, Place of Work Employment by Watson & Associates Economists Ltd.

6.3 Employment Forecast by Area Municipality, 2016 to 2051

Figures 6-7 through to 6-11 summarize the employment forecast to 2051 by Area Municipality. Further details are provided in Appendix F. While employment growth rates vary significantly by geographic area, each of the Area Municipalities share several relatively common attributes with respect to long-term employment trends. These include:

- All Area Municipalities are expected to experience steady to strong employment growth over the long-term forecast period;
- Annual employment growth is anticipated to increase from recent levels experienced over the last 10-year census period for all Area Municipalities which are not constrained by land or water/wastewater servicing requirements;

- Future employment growth will comprise a diverse range of employment sectors, including E.L.E. employment; and
- P.R.E. employment will be driven by population growth.

As identified above, various factors were considered in allocating employment growth by Area Municipality. In addition to the above considerations, a number of assumptions were made with respect to the employment growth potential for each Area Municipality within the County, based on discussions with County and the County of Wellington M.C.R. Technical Resource Team.

Key observations on the employment growth allocation have been organized by Area Municipality. As previously mentioned, further details on the employment growth allocation are provided in Appendix F which includes details on the employment by employment by category, existing employment base and employment forecast to 2051.

Centre Wellington

- Centre Wellington's existing employment base as of 2021 comprises of 95% of the employment within the Urban System and 5% of the population in the Rural System. Centre Wellington's employment base compared to the other Area Municipalities is more oriented towards the County's Urban System.
- As summarized in Figure 6-7, Centre Wellington is anticipated to accommodate nearly half (48%) of the County-wide employment growth over the forecast horizon. A large portion of this growth is anticipated to be accommodated in P.R.E. serving the local population base (74%).
- Centre Wellington is anticipated to grow at annual employment rate of 2.5% over the next 35-years (2016 to 2051), which is higher than the annual growth rate experienced over the most recent 10-year Census period (2006 to 2016) annual growth rate of 0.7% annually.
- As summarized in Figure 6-10, Centre Wellington is anticipated to add 14,700 employees over the 2016 to 2051 period, representing approximately 420 employees annually. This is significantly higher than the annual employment added over the 2006 and 2016 period (as previously summarized in Figure 6-6, the annual employees over the 2006 to 2016 period was 160 employees).

Erin

- Erin's existing employment base as of 2021 comprises of 77% of the employment within the Urban System and 23% of the employment in the Rural System. Similar to Centre Wellington, a large portion of the employment base is in the Urban System.
- As summarized in Figure 6-7, Erin is anticipated to accommodate 11% of the County's employment growth over the forecast horizon.
- Employment growth within Erin is anticipated to be significantly higher than historical trends given anticipated investments and expansions in municipal water and wastewater servicing in Erin Village and Hillsburgh.
- As summarized in Figure 6-9, Erin is anticipated to achieve a relatively higher rate of employment growth (2.1% annually) compared to the other Area Municipalities within the County.
- As summarized in Figure 6-10, Erin is anticipated to add 3,200 additional employees over the 2016 to 2051 period, approximately 90 employees annually.
- Employment growth is anticipated to include 74% Urban P.R.E. and 25% Urban E.L.E. The Rural System is anticipated to comprise the remaining 1% of the employment growth.

Guelph-Eramosa

- The existing (2021) population of Guelph-Eramosa base comprises 28% of the population within the Urban System and 72% of the population in the Rural System. Guelph-Eramosa has a small employment base in the Urban System comprised of entirely Urban P.R.E.
- As summarized in Figure 6-7 Guelph-Eramosa is anticipated to accommodated a small share (4%) of the County's employment growth over the forecast horizon. The majority of employment growth is anticipated to be accommodate within the Rural System given limitations on municipal servicing within the Urban Centre of Rockwood.
- The forecast annual employment growth rate of Guelph-Eramosa is anticipated to average 0.5%, which is lower than the growth rate observed over the most recent 10-year census period of 2.1% annually.

Puslinch

- The existing (2021) population base of Puslinch existing is entirely accommodated within the Rural System. As previously noted, Puslinch has two Secondary Urban Centres, Aberfoyle and Morriston within the Rural System that are unserviced, however function as important service hubs to communities within Puslinch.
- Puslinch has active Rural Employment Areas which accommodate several of the County's largest employers.
- As summarized in Figure 6-7, Puslinch is anticipated to accommodate 8% of the County's employment growth over the forecast horizon. Since Puslinch lacks full municipal servicing (water/wastewater servicing), employment growth is relatively concentrated in Rural Employment Areas, and to a lesser extent the remaining rural area.
- Puslinch is anticipated to grow at annual employment growth rate of 1.0%, which is lower than the growth rate observed over the most recent 10-year Census period of 3.5% annually.
- Over the forecast horizon, Puslinch is anticipated to add over 2,000 Rural E.L.E. jobs, approximately 60 employees annually which is higher than the historical growth of 30 Rural E.L.E. employees annually over the 2006 to 2016.
- The existing Rural E.L.E. base in Puslinch is forecast to approximately double by 2051.

Wellington North

- The existing (2021) employment base of Wellington North comprises of 81% of the population within the Urban System and 19% of the employment in the Rural System. Unlike the Wellington North's population base, the employment base is more concentrated within the Urban System.
- As summarized in Figure 6-7, Wellington North is anticipated to accommodate 11% of the County's employment growth over the forecast horizon.
- Wellington North is anticipated to grow at annual employment growth rate of 1.1%, which is lower than the growth rate observed over the most recent 10-year Census period of 1.5% annually.

- It is anticipated that Wellington North will add 100 employees annually over the forecast horizon, which is less than the annual employment growth over the most recent 10-year census period of 190 employees annually.
- It is anticipated that the majority of employment growth will be concentrated in the Urban Centres comprising 56% Urban P.R.E. and 37% Urban E.L.E. The remaining employment growth is anticipated to be accommodated within the Rural System.

Minto

- Minto's existing population base as of 2021 comprises of 78% of the employment within the Urban System and 22% of the population in the Rural System.
- As summarized in Figure 6-7, Minto is anticipated to accommodate 8% of the County's employment growth over the forecast horizon.
- The annual employment growth rate of Minto is anticipated to increase by 1.4%, which is lower than the growth rate observed over the most recent 10-year Census period of 1.7% annually.
- As summarized in Figure 6-10, it is anticipated that Minto will add 70 employees annually over the forecast horizon.
- Employment growth is anticipated to include 54% Urban P.R.E. and 43% Urban E.L.E. The Rural System is anticipated to comprise the remaining 3% of the employment growth.

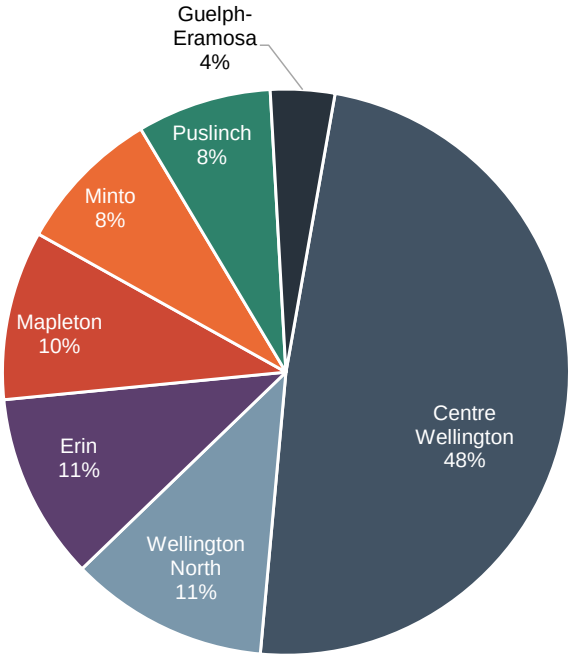
Mapleton

- The existing (2021) employment base of Mapleton comprises 51% of the population within the Urban System and 49% of the population in the Rural System. Compared to the other Area Municipalities, Mapleton's existing employment base is more oriented towards the Rural System.
- As summarized in Figure 6-7, Mapleton is anticipated to accommodate a 10% of the County's employment growth over the forecast horizon.
- The annual forecast employment growth rate of Mapleton is 1.5%, which is higher the growth rate observed over the most recent 10-year Census period of 0.9% annually.
- As summarized in Figure 6-10, it is anticipated that Mapleton will add 80 employees annually over the forecast horizon which is well above annual

employment growth levels experienced over the most recent 10-year Census period (70 employees annually).

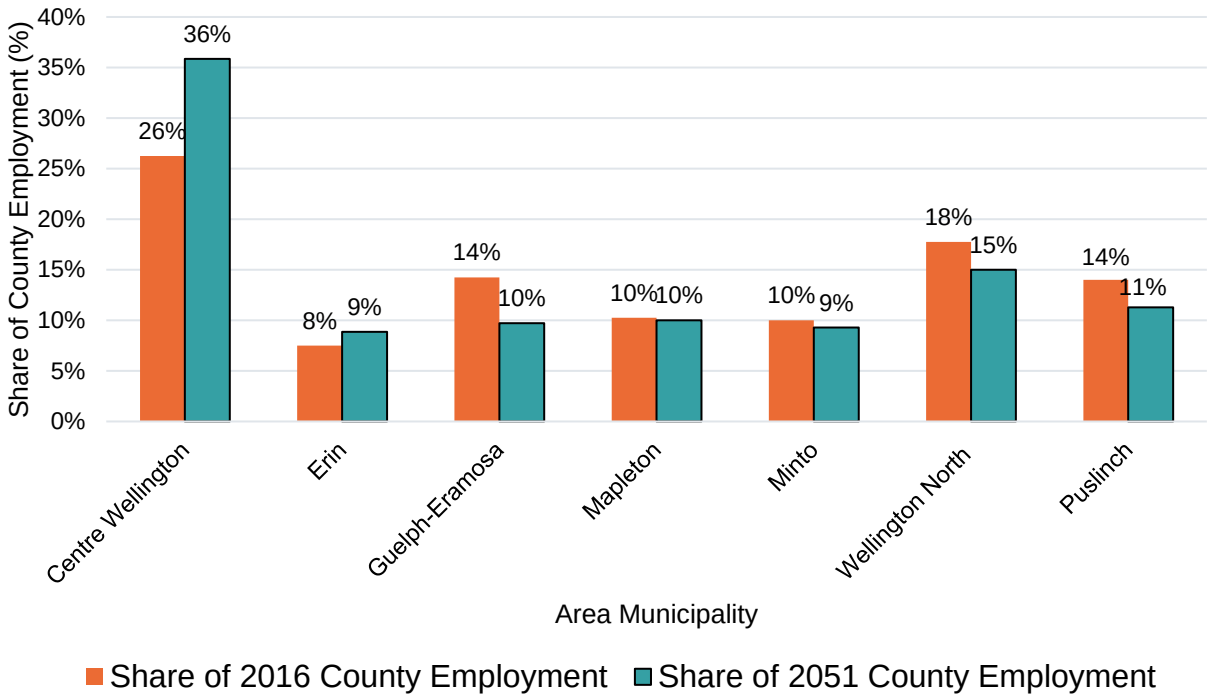
- It is anticipated employment growth will comprise 53% Urban P.R.E. and 24% Urban E.L.E. A large portion of employment is forecast for the Rural System at 22% recognizing the importance of the rural employment base in Mapleton and consistent with employment trends observed.

Figure 6-7
County of Wellington
Employment Growth Allocation by Area Municipality,
2016 to 2051



Source: Watson & Associates Economists Ltd.

Figure 6-8
County of Wellington
Share of Employment by Area Municipality
2016 and 2051



Source: Watson & Associates Economists Ltd.

Figure 6-9
County of Wellington
Forecast Annual Employment
Growth Rates, 2016 to 2051

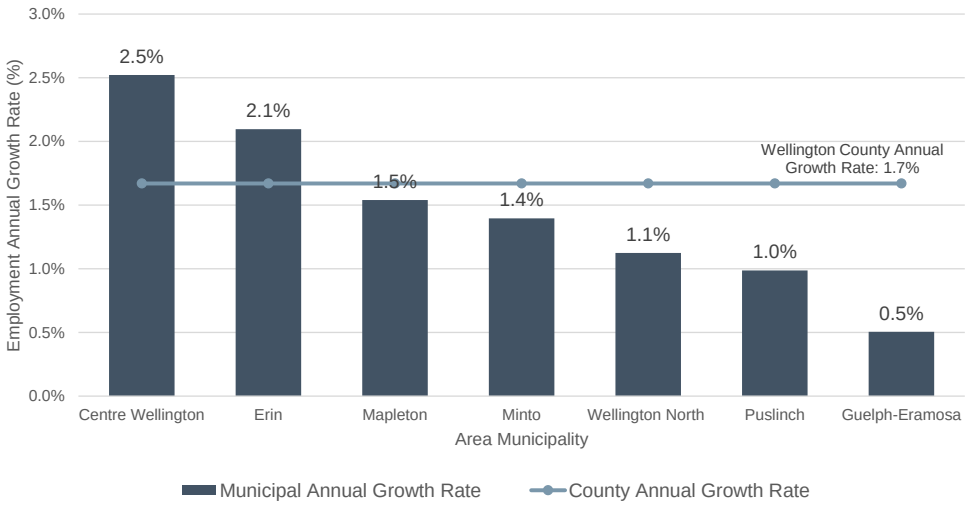
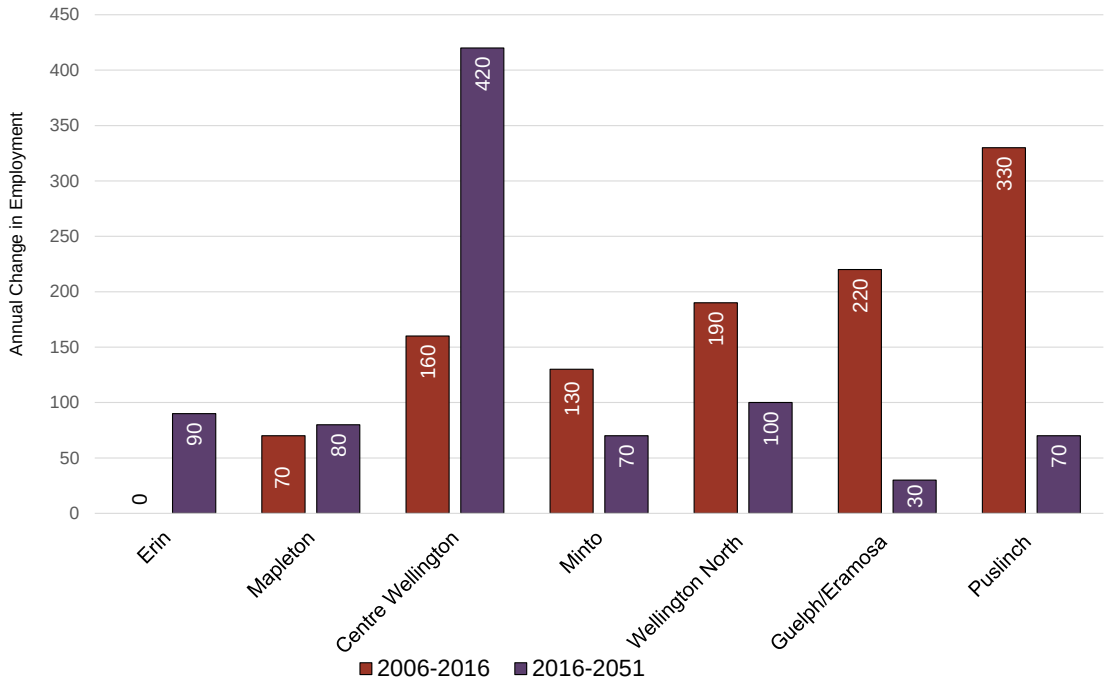
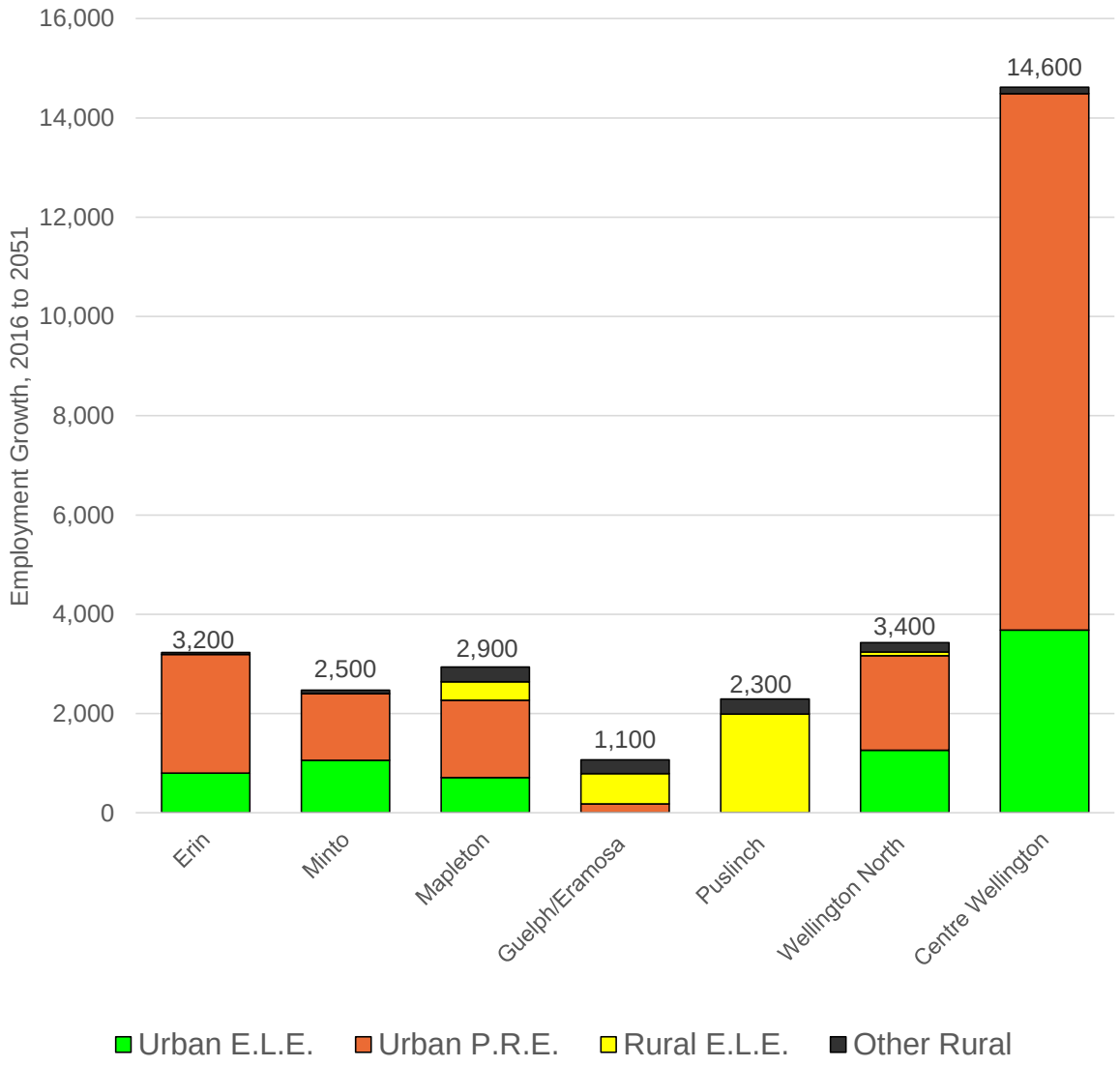


Figure 6-10
County of Wellington
Annual Employment Growth by Area Municipality
2016 to 2051



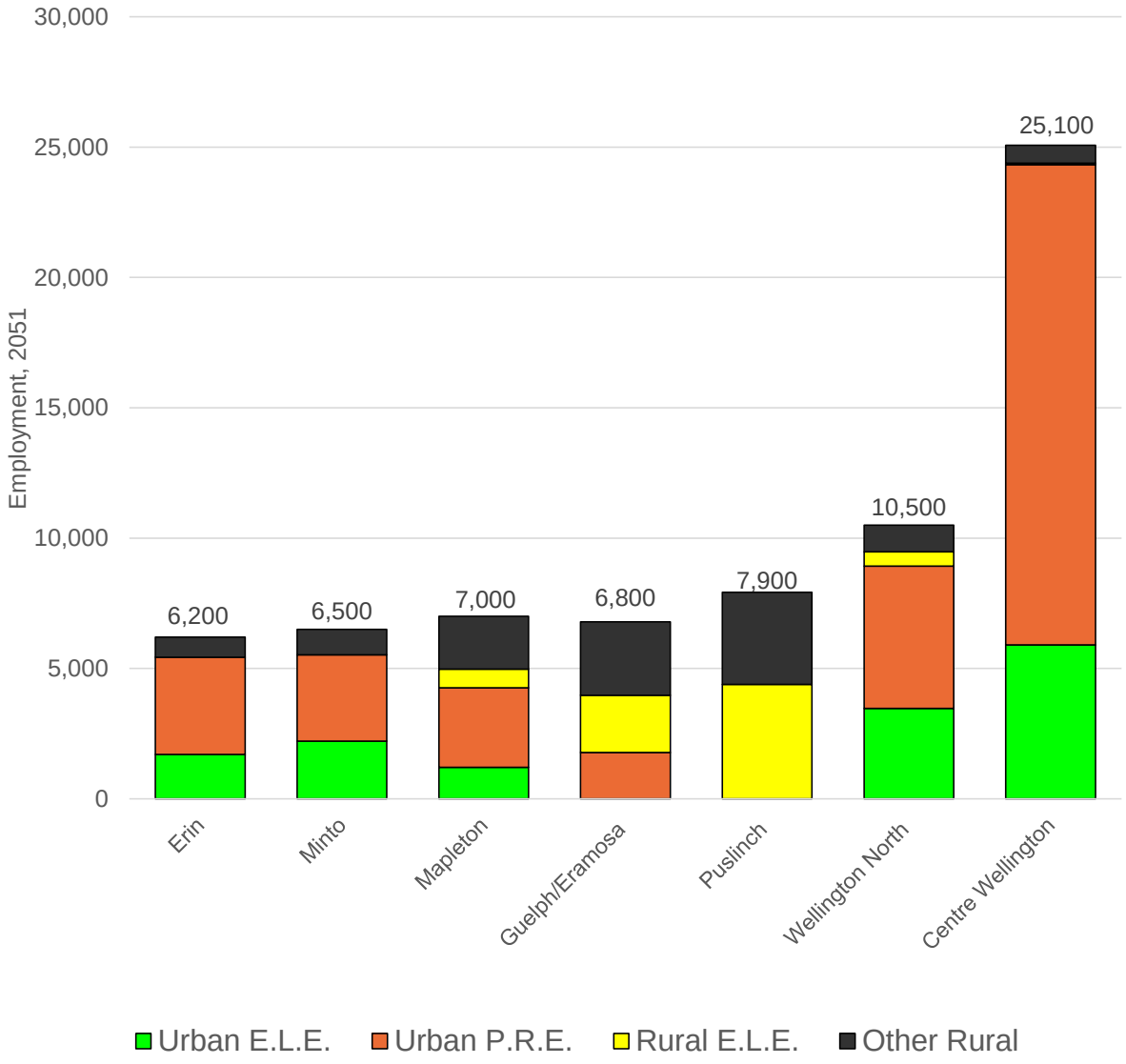
Source: Statistics Canada, Place of Work Employment by Watson & Associates Economists Ltd.

Figure 6-11
County of Wellington
Employment Category Growth by Area Municipality
2016 to 2051



Source: Watson & Associates Economists Ltd.

Figure 6-12
County of Wellington
Employment Category Forecast by Area Municipality, 2051



Source: Watson & Associates Economists Ltd.

6.4 Observations

The long-term economic outlook for the County and each of the Area Municipalities is very positive. As previously noted, as the local employment base and economy within

the surrounding commuter-shed continues to grow, the County of Wellington will continue to be a desirable location for workers to live, leading to steady population and population-related employment growth across the County.

Over the next 30 years, the County's local employment base is also anticipated to benefit from the regional economic expansion anticipated within neighbouring municipalities within the G.G.H. Outer Ring, particularly those that are located within the Toronto-Waterloo Innovation Corridor.[1] Raising the economic profile of the County of Wellington by leveraging the economic opportunities and strengths of the broader G.G.H. regional economy is recommended as a key long-term economic development strategy for the County of Wellington and its Area Municipalities. Achieving the County-wide employment forecast and allocations by Area Municipality will also require significant investment and effort on behalf of both the public and private sector to attract and accommodate new employers and facilitate the expansion of existing businesses across a broad range of established and emerging employment sectors.

As previously noted, the County's competitive economic position is highly tied to its ability to attract and accommodate a growing skilled and unskilled labour force pool. To ensure that economic growth is not constrained by future labour shortages, effort will be required by Wellington County and its local municipalities to continue to explore ways to attract and accommodate new skilled and unskilled working residents to the County within a diverse range of housing options. Attraction efforts must also be linked to housing accommodation (both ownership and rental), infrastructure, municipal services, and amenities, as well as quality of life attributes that appeal to the younger mobile population, while not detracting from the County's attractiveness to older population segments.

[1] The Toronto-Waterloo Innovation Corridor, which includes the City of Guelph and Waterloo Region has strong economic and employment growth potential based on its established presence as the largest technology cluster in Canada, critical mass of post-secondary institutions and incubators, access to skilled labour, and a high quality of life. The Toronto-Waterloo Innovation Corridor is the second largest and second fastest growing market in North America related to technology talent, including over 200,000 tech workers and 15,000+ tech companies. The Toronto-Waterloo Innovation Corridor provides a key opportunity for Wellington County to leverage its growing local economy in the technology sector.

Chapter 7
Conclusions

7. Conclusions

7.1 Summary

Over the forecast horizon it is anticipated that all Area Municipalities within Wellington County will continue to experience strong population, housing and employment growth. As discussed in Chapter 3, it is anticipated that the outward growth trends from the G.T.H.A. to the Outer Ring will continue place urban development pressures on Wellington County.

By 2051, the County of Wellington total population base is forecast to grow to approximately 160,000 persons as per Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 66,400 residents between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Accommodating forecast total population growth in the County of Wellington will require approximately 24,710 new households, or just over 710 new Census households annually over 2016 to 2051 (or 730 over the 2021 to 2051 period). In accordance with the comprehensive analysis provided as part of this Report, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the County of Wellington. As such, a higher long-term population forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

The Urban Centres within the Township of Centre Wellington and the Town of Erin, are anticipated to accommodate a large portion of County's population and employment growth over the long-term planning horizon due to their proximity to the large employment markets of the G.G.H. These Urban Centres will play a role in broadening the housing options available within the County with respect to housing structure type. The remaining Area Municipalities are anticipated to add to their population and employment base at a rate generally higher than historical levels, where municipal water/wastewater servicing constraints have not been identified.

Over the forecast horizon, it is anticipated that the County will become increasingly become more urban. As of 2016, approximately 51% of the County's population is within the Urban System, while 49% of the County's population is within the Rural System. Looking forward, it is anticipated that by 2051, approximately 66% of the

County's population based will be concentrated within the Urban System which includes 12 Primary Urban Centres. Similar to the population base, employment growth is also anticipated to become increasingly more urban. This is anticipated to place increasing demands for infrastructure and municipal services which are able to support a larger, more diverse urban population base.

7.2 Recommendations

The following Phase 1 M.C.R. recommendations are provided regarding the County's proposed urban structure and population, household and employment forecast to 2051.

Urban and Rural System

- The County should provide a distinction of the Urban and Rural System based on serving (water and wastewater) and where the majority of the growth is to be allocated in accordance with the Growth Plan, 2019 policies. It is recommended that the Urban System be defined based on existing/planned full servicing, while the remaining be classified as the Rural System.
- Urban Centres with no full servicing which include Aberfoyle and Morriston are recommended to be referred to as Secondary Urban Centres within the Rural System and identified as priority settlement areas within the Rural System given importance of these settlement areas as community hubs.
- All Urban Centres (12 in total) with existing/planned full municipal servicing are recommended to be referred to as Primary Urban Centres.
- The County should consider modifying the Employment Area definition in the County's O.P. to include only areas identified in the O.P. as Industrial and Rural Employment Areas (i.e. exclude Highway Commercial), lands identified in provincially policies for protection to non-employment uses.

County-Wide Forecast

- In accordance with the comprehensive analysis provided as part of this Report, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the County of Wellington. As such, a higher long-term population forecast for the County of Wellington is not supported for the purposes of long-term growth management and urban land needs analysis.

Growth Allocations to 2051

- It is recommended that the County adopt the growth allocations by Area Municipality to 2051. Area Municipalities may elect to make further refinements to the rate of population and employment growth within the 2021 to 2051 planning horizon.
- It is further recommended that the County and Area Municipalities, which have an identified Urban System, plan for a steady shift in their population and employment base towards urban development.
- While growth allocations have been provided by Urban Centre, these forecasts are provided for guidance and for planning purposes at the local municipal level. Area Municipalities may elect to make further refinements within their Urban System to reflect changes in local conditions, servicing and timing of development.

7.3 Next Steps

This report will form an important component in supporting the analysis in the Phase 2 Report which is scheduled for completion by Fall 2021. The Phase 2 Report - Land Needs Assessment & Policy Considerations will include the technical growth management requirements of the M.C.R. The Phase 2 Report will conclude on the urban land requirements for the County's Urban System (D.G.A. Community Area and Urban Employment), as well as provide further recommendations in accommodating growth in the Urban and Rural System.

Key components of this Phase 2 report will include:

- A review of intensification opportunities and challenges in meeting the County's existing target of 20% of annual housing growth within the B.U.A. and a recommendation on the County intensification target;
- An assessment of the D.G.A. density target of 40 people and jobs/gross ha and recommendation on the County target;
- An Employment Area density target for the O.P.;
- Land requirements for D.G.A. Community Area and Employment Areas within the Urban System; and

- Planning policy considerations with respect to planning for growth and growth management.

Refer to January 31, 2022 Addendum Report for revisions to this Report.

Appendix A
Wellington County Housing Headship Rates, 2016 to 2051

Appendix A: Wellington County Housing Headship Rates, 2016 to 2051

Figure A-1: County of Wellington, Housing Headship Rates, 2016 to 2051

Age Cohort	Household Headship Rates									
	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-14	-	-	-	-	-	-	-	-	-	-
15-24	0.0463	0.0506	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409	0.0409
25-34	0.3804	0.3688	0.3588	0.3588	0.3588	0.3588	0.3588	0.3588	0.3588	0.3588
35-44	0.4749	0.4760	0.4778	0.4778	0.4778	0.4778	0.4778	0.4778	0.4778	0.4778
45-54	0.5218	0.5161	0.5083	0.5083	0.5083	0.5083	0.5083	0.5083	0.5083	0.5083
55-64	0.5385	0.5433	0.5510	0.5510	0.5510	0.5510	0.5510	0.5510	0.5510	0.5510
65-74	0.5834	0.5637	0.5516	0.5516	0.5516	0.5516	0.5516	0.5516	0.5516	0.5516
75+	0.5675	0.5581	0.5838	0.5838	0.5838	0.5838	0.5838	0.5838	0.5838	0.5838
Total	**0.3389**	**0.3475**	**0.3548**	**0.3579**	**0.3585**	**0.3592**	**0.3593**	**0.3591**	**0.3606**	**0.3620**

Source: 2006 to 2016 derived from Statistica Canada Census data, and 2016 to 2051 by Watson & Associates Economists Ltd.

Appendix B
Flatlined Age-Specific Propensity Analysis

Appendix B-1: Wellington County Flatlined Age-Specific Propensity Analysis

Figure B-1: Wellington County, Flatlined Age-Specific Propensity Housing Forecast

Age Group & Housing Type	2016 Census Flatlined Propensity	Total Households								2016 to 2051 Incremental Growth	
		2016	2021	2026	2031	2036	2041	2046	2051	Total Households	Propensity Rate
15-24	**Total**	**495**	**495**	**525**	**635**	**720**	**755**	**745**	**785**	**290**	**100%**
Low Density	61%	301	301	319	386	438	459	453	477	176	61%
Medium Density	8%	39	39	41	50	56	59	58	62	23	8%
High Density	31%	155	155	165	199	226	237	234	246	91	31%
25-34	**Total**	**3,475**	**3,502**	**3,805**	**4,385**	**5,260**	**6,395**	**7,355**	**7,710**	**4,235**	**100%**
Low Density	83%	2,868	2,891	3,141	3,620	4,342	5,279	6,071	6,364	3,496	83%
Medium Density	6%	194	195	212	245	293	357	410	430	236	6%
High Density	12%	413	416	452	521	625	759	873	915	503	12%
35-44	**Total**	**5,030**	**5,153**	**5,605**	**5,760**	**6,120**	**6,805**	**7,930**	**9,470**	**4,440**	**100%**
Low Density	90%	4,550	4,661	5,070	5,210	5,536	6,156	7,173	8,566	4,016	90%
Medium Density	3%	170	174	189	195	207	230	268	320	150	3%
High Density	6%	310	318	345	355	377	419	489	584	274	6%
45-54	**Total**	**7,205**	**6,723**	**6,960**	**7,520**	**8,000**	**8,105**	**8,485**	**9,315**	**2,110**	**100%**
Low Density	91%	6,535	6,098	6,312	6,820	7,256	7,351	7,695	8,448	1,914	91%
Medium Density	3%	235	219	227	245	261	265	277	304	69	3%
High Density	6%	435	406	421	454	483	490	513	563	127	6%
55-64	**Total**	**7,585**	**8,559**	**8,535**	**8,275**	**8,460**	**8,935**	**9,360**	**9,470**	**1,885**	**100%**
Low Density	89%	6,776	7,647	7,625	7,392	7,558	7,982	8,362	8,460	1,684	89%
Medium Density	4%	290	327	326	316	323	341	357	362	72	4%
High Density	7%	519	586	584	567	579	612	641	648	129	7%
65-74	**Total**	**5,285**	**6,398**	**7,505**	**8,490**	**8,355**	**7,970**	**7,995**	**8,320**	**3,035**	**100%**
Low Density	86%	4,544	5,501	6,452	7,299	7,183	6,852	6,873	7,153	2,609	86%
Medium Density	4%	205	249	292	330	325	310	311	323	118	4%
High Density	10%	536	649	761	861	847	808	811	844	308	10%
75+	**Total**	**4,110**	**5,228**	**6,950**	**8,760**	**10,580**	**12,040**	**12,610**	**12,855**	**8,745**	**100%**
Low Density	79%	3,257	4,143	5,507	6,942	8,384	9,541	9,993	10,187	6,930	79%
Medium Density	6%	246	313	416	524	633	720	754	769	523	6%
High Density	15%	607	772	1,027	1,294	1,563	1,779	1,863	1,899	1,292	15%
Wellington County Total	**Total**	**33,185**	**36,059**	**39,885**	**43,825**	**47,495**	**51,005**	**54,480**	**57,925**	**24,740**	**100%**
Low Density	87%	28,830	31,240	34,427	37,669	40,696	43,619	46,621	49,656	20,825	84%
Medium Density	4%	1,379	1,516	1,703	1,905	2,099	2,282	2,436	2,570	1,191	5%
High Density	9%	2,976	3,302	3,755	4,251	4,701	5,104	5,423	5,700	2,724	11%

Note: Forecast presented in this table is based on 2016 Statistics Canada Census flatlined age-specific propensity rates. The housing forecast by structure type which informs the MCR and LNA has been adjusted to account for near-term demand identified and the active residential development pipeline, housing affordability and planning policy.

Source: 2016 derived from Statistics Canada 2016 Census data and 2016 to 2051 forecast by Watson & Associates Economists Ltd.

The above figure is based on the propensity analysis as discussed in section 3.3.2.3. **The propensity analysis is not the preferred housing.** The County-wide housing forecast is provided in the Appendix C

Appendix C
Wellington County Population and Housing Forecast

Appendix C-1: County of Wellington, Population and Housing to 2051

	Year	Population (Including Census undercount)[1]	Excluding Census Undercount			Housing Units					Persons Per Unit (P.P.U.) with undercount
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	
Historical	*Mid-2001*	84,600	81,145	1,418	79,727	23,915	1,150	2,260	420	27,745	3.05
	Mid-2006	88,500	85,470	1,222	84,248	25,795	1,075	2,570	575	30,015	2.95
	Mid-2011	89,100	86,675	1,342	85,333	26,200	1,230	2,565	965	30,960	2.88
	Mid-2016	93,500	90,955	1,597	89,358	28,275	1,385	3,000	535	33,195	2.82
Forecast	*Mid-2021*	100,800	97,883	1,719	96,164	30,223	1,884	3,417	535	36,059	2.80
	Mid-2026	111,300	108,079	1,898	106,182	33,092	2,381	3,876	535	39,884	2.79
	Mid-2031	122,000	118,470	2,080	116,390	36,047	2,893	4,349	535	43,824	2.78
	Mid-2036	132,200	128,374	2,254	126,120	38,616	3,554	4,789	535	47,494	2.78
	Mid-2041	142,000	137,891	2,421	135,470	40,897	4,256	5,316	535	51,004	2.78
	Mid-2046	151,100	146,728	2,576	144,151	42,982	5,021	5,941	535	54,479	2.77
	Mid-2051	160,000	155,370	2,728	152,642	44,877	5,847	6,665	535	57,924	2.76
Incremental	**Mid-2001 to Mid-2006**	3,900	4,325	-196	4,521	1,880	-75	310	155	2,270	
	Mid-2006 to Mid-2011	600	5,530	-76	1,085	405	155	-5	390	945	
	Mid-2011 to Mid-2016	4,400	4,280	255	4,025	2,075	155	435	-430	2,235	
	Mid-2016 to Mid-2021	7,300	6,928	122	6,806	1,948	499	417	0	2,864	
	Mid-2016 to Mid-2031	28,500	27,515	483	27,032	7,772	1,508	1,349	0	10,629	
	Mid-2016 to Mid-2041	48,500	46,936	824	46,112	12,622	2,871	2,316	0	17,809	
	Mid-2016 to Mid-2051	66,500	64,415	1,131	63,284	16,602	4,462	3,665	0	24,729	

Source: Watson & Associates Economists Ltd., 2021.

[1] Census undercount estimated at approximately 3%. Note: Population including the undercount has been rounded.

[2] Includes townhouses and apartments in duplexes.

[3] Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Appendix C-2: Wellington County Population Forecast by Age Group

Figure C-2a: Wellington County, Total Population Forecast by Major Age Group, 2016 to 2051

Cohort	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-19	25,200	24,600	23,300	23,000	25,100	28,200	30,200	31,600	33,100	34,600	36,400
20-34	14,200	14,400	14,000	15,400	15,600	16,700	19,600	23,400	27,500	30,100	31,200
35-44	14,500	13,500	10,900	10,500	10,800	11,700	12,100	12,800	14,200	16,600	19,800
45-54	12,200	13,900	15,200	14,200	13,200	13,700	14,800	15,700	15,900	16,700	18,300
55-64	8,100	10,300	12,000	13,800	15,500	15,500	15,000	15,400	16,200	17,000	17,200
65-74	5,900	6,500	7,600	9,600	11,600	13,600	15,400	15,100	14,400	14,500	15,100
75+	4,400	5,300	6,000	7,000	8,900	11,900	15,000	18,100	20,600	21,600	22,000
Total	**84,600**	**88,500**	**89,100**	**93,500**	**100,800**	**111,300**	**122,000**	**132,200**	**142,000**	**151,100**	**160,000**

Source: 2001 to 2016 Derived from Statistics Canada, Demography Division, by Watson & Associates Economists Ltd. 2016 to 2051 Forecast by Watson & Associates Economists Ltd.

[1] Forecast net population undercount estimated at approximately 3.0%

Note: Figures may not add precisely due to rounding.

Figure C-2b: Wellington County, Total Population Forecast Shares by Major Age Group, 2016 to 2051

Cohort	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-19	30%	28%	26%	25%	25%	25%	25%	24%	23%	22.9%	22.7%
20-34	17%	16%	16%	16%	15%	15%	16%	18%	19%	19.9%	19.5%
35-44	17%	15%	12%	11%	11%	11%	10%	10%	10%	11.0%	12.4%
45-54	14%	16%	17%	15%	13%	12%	12%	12%	11%	11.0%	11.5%
55-64	10%	12%	13%	15%	15%	14%	12%	12%	11%	11.2%	10.7%
65-74	7%	7%	9%	10%	12%	12%	13%	11%	10%	9.6%	9.4%
75+	5%	6%	7%	8%	9%	11%	12%	14%	15%	14.3%	13.8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100.0%**	**100.0%**

Source: 2001 to 2016 Derived from Statistics Canada, Demography Division, by Watson & Associates Economists Ltd. 2016 to 2051 Forecast by Watson & Associates Economists Ltd.

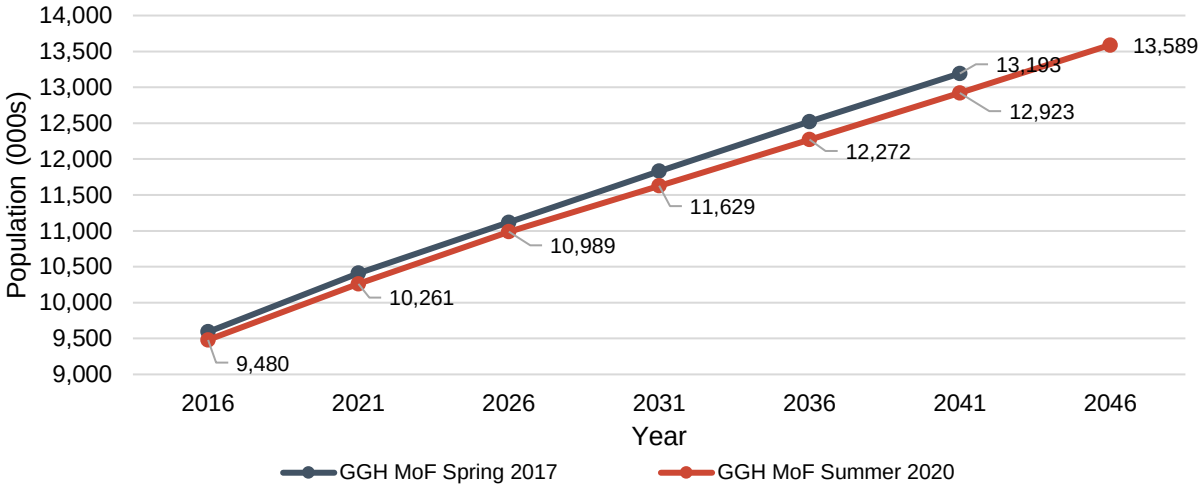
[1] Forecast net population undercount estimated at approximately 3.0%

Note: Figures may not add precisely due to rounding.

Appendix D
Ministry of Finance Population Projections

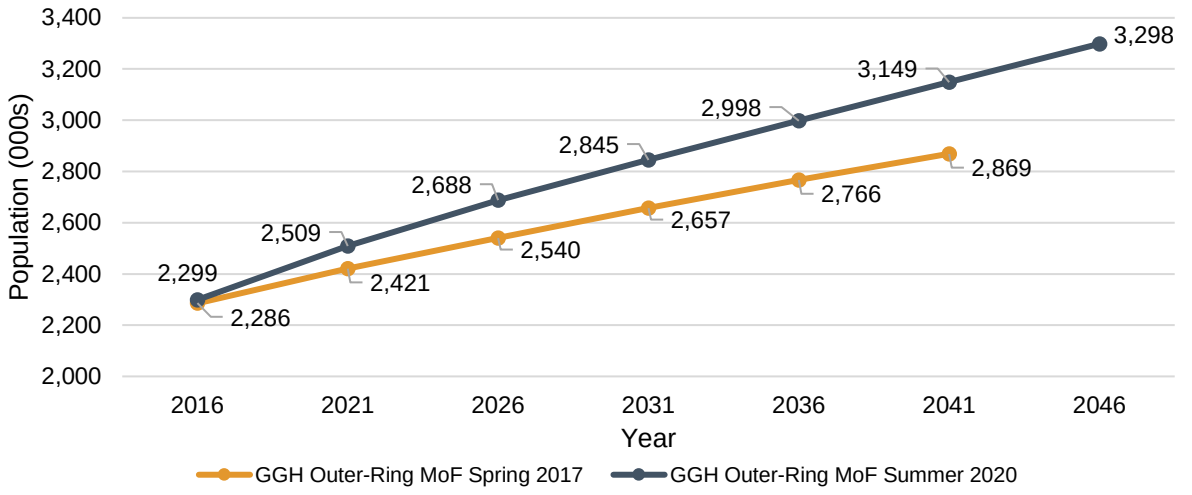
Appendix D: Ministry of Finance Population Projections

Figure D-1: Ministry of Finance G.G.H. Population Projections



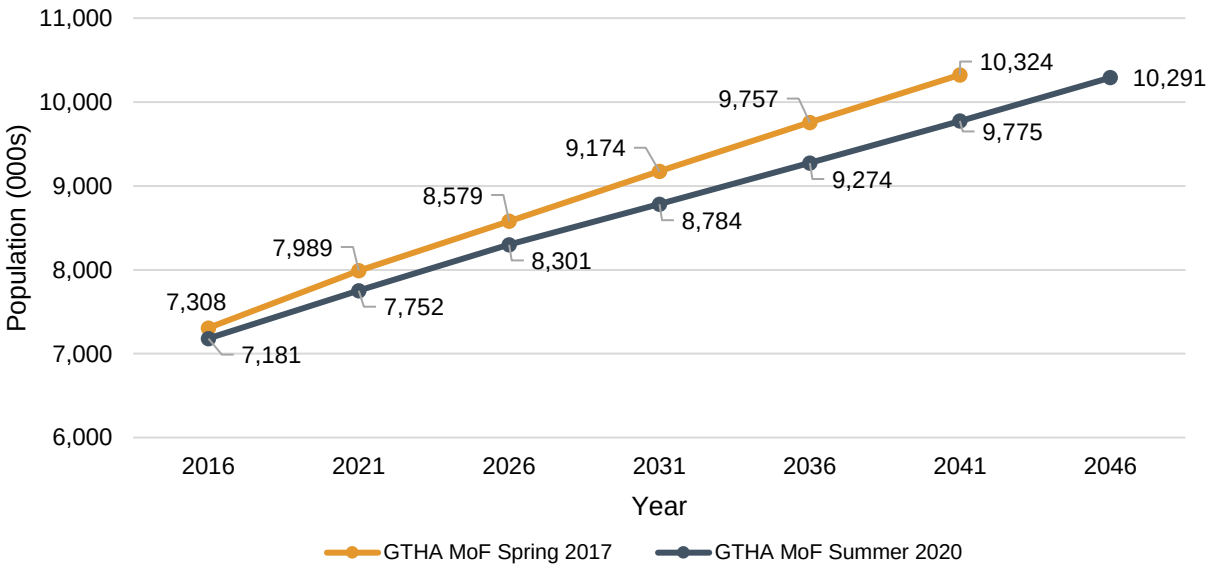
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017and Summer 2020 releases, by Watson & Associates Economists Ltd.

Figure D-2: Ministry of Finance G.G.H. Outer Ring Population Projections



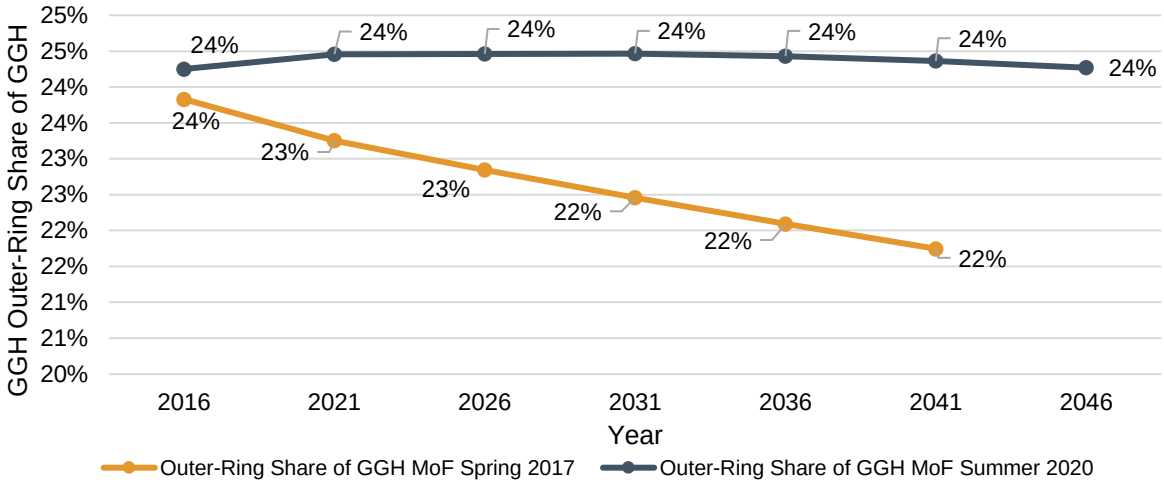
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017 and Summer 2020 releases by Watson & Associates Economists Ltd.

Figure D-3: Ministry of Finance GTHA Population Projections



Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017 and Summer 2020 releases, by Watson & Associates Economists Ltd.

Figure D-4: Ministry of Finance G.G.H. Outer Ring Population Projections



Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017 and Summer 2020 releases, by Watson & Associates Economists Ltd.

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Appendix E
Growth Allocations: Population and Growth

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Appendix E-1 – Population, Housing and Employment Forecasts by Area Municipality

See January 31, 2022 ADDENDUM REPORT for Revisions to this Report

Figure E-1, Table 1
County of Wellington
Population and Housing Forecast
2016 to 2051

Year		Population (Including Census undercount)[1]	Housing Units					Persons Per Unit (P.P.U.) with undercount
			Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	
Historical	*Mid-2001*	84,600	23,915	1,150	2,260	420	27,745	3.05
	Mid-2006	88,500	25,795	1,075	2,570	575	30,015	2.95
	Mid-2011	89,100	26,200	1,230	2,565	965	30,960	2.88
	Mid-2016	93,500	28,275	1,385	3,000	535	33,195	2.82
Forecast	*Mid-2021*	100,800	30,223	1,884	3,417	535	36,059	2.80
	Mid-2026	111,300	33,092	2,381	3,876	535	39,884	2.79
	Mid-2031	122,000	36,047	2,893	4,349	535	43,824	2.78
	Mid-2036	132,200	38,616	3,554	4,789	535	47,494	2.78
	Mid-2041	142,000	40,897	4,256	5,316	535	51,004	2.78
	Mid-2046	151,100	42,982	5,021	5,941	535	54,479	2.77
	Mid-2051	160,000	44,877	5,847	6,665	535	57,924	2.76
Growth	**2001 - 2016**	8,900	4,360	235	740	115	5,450	
	2016 - 2041	48,500	12,622	2,871	2,316	0	17,809	
	2016 - 2051	66,500	16,602	4,462	3,665	0	24,729	
	Annual Growth, 2001 - 2016	0.7%	1.1%	1.2%	1.9%	1.6%	1.2%	
	Annual Growth, 2016 - 2041	1.7%	1.5%	4.6%	2.3%	0.0%	1.7%	
	Annual Growth, 2016 - 2051	1.5%	1.3%	4.2%	2.3%	0.0%	1.6%	

Source: Watson & Associates Economists Ltd., 2020.
Note: Figures may not add precisely due to rounding.
[1] Population undercount estimated at 3%.
[2] Includes all single and semi-detached homes as well as "other" detached homes as per Statistics Canada.
[3] Includes all townhouses and apartments in duplex.
[4] Includes all apartments with less than or greater than five storeys

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Figure E-1, Table 2a
County of Wellington
Population, Housing and Employment, 2016 to 2051

Area Municipality	Forecast Period	Total Population with Undercount[1]	Total Residential Units	Persons Per Units (PPU)	Total Urban Settlement Population	Total Urban Settlement Area Residential Units	Total Employment (including NPOW)	Employment Activity Rate[1]
Centre Wellington	2016	29,000	10,870	2.67	21,800	8,350	10,460	36.1%
	2021	33,300	12,810	2.60	26,900	10,270	12,280	36.9%
	2031	42,500	15,770	2.69	35,000	13,140	16,240	38.2%
	2041	52,300	19,360	2.70	44,700	16,650	21,280	40.7%
	2051	58,900	22,400	2.63	51,100	19,620	25,080	42.6%
	2016 - 2051	29,900	11,530		29,300	11,270	14,620	48.9%
Erin	2016	11,800	4,120	2.86	4,400	1,570	2,980	25.3%
	2021	12,000	4,230	2.84	4,500	1,610	3,140	26.2%
	2031	16,700	5,970	2.80	8,600	3,120	4,090	24.5%
	2041	20,200	7,280	2.77	11,500	4,250	5,290	26.2%
	2051	26,300	9,200	2.86	16,800	5,950	6,210	23.6%
	2016 - 2051	14,500	5,080		12,400	4,380	3,230	22.3%
Guelph-Eramosa	2016	13,200	4,500	2.93	4,900	1,730	5,720	43.3%
	2021	13,600	4,650	2.92	5,200	1,880	5,990	44.0%
	2031	14,100	4,870	2.90	5,600	2,060	6,180	43.8%
	2041	14,600	5,020	2.91	5,900	2,160	6,330	43.4%
	2051	14,700	5,110	2.88	5,800	2,180	6,790	46.2%
	2016 - 2051	1,500	610		900	450	1,070	71.3%
Puslinch	2016	7,600	2,710	2.80	0	0	5,630	74.1%
	2021	7,900	2,850	2.77	0	0	5,820	73.7%
	2031	8,400	3,020	2.78	0	0	6,310	75.1%
	2041	9,700	3,450	2.81	0	0	6,990	72.1%
	2051	10,000	3,560	2.81	0	0	7,920	79.2%
	2016 - 2051	2,400	850		0	0	2,290	95.4%
County of Wellington	2016	93,600	33,280	2.81	47,500	18,060	39,960	42.7%
	2021	99,900	36,060	2.77	53,800	20,510	43,100	43.1%
	2031	122,100	43,820	2.79	72,700	27,350	51,150	41.9%
	2041	142,000	51,010	2.78	90,000	33,620	61,060	43.0%
	2051	160,000	57,930	2.76	105,800	39,840	70,010	43.8%
	2016 - 2051	66,400	24,650		58,300	21,780	30,050	45.3%

Source: Watson & Associates Economists Ltd.
[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.
[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

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Figure E-1, Table 2b
County of Wellington
Population, Housing and Employment, 2016 to 2051

Area Municipality	Forecast Period	Total Population with Undercount[1]	Total Residential Units	Persons Per Units (PPU)	Total Urban Settlement Population	Total Urban Settlement Area Residential Units	Total Employment (including NPOW)	Employment Activity Rate[1]
Mapleton	2016	10,800	3,150	3.43	2,800	980	4,060	37.6%
	2021	11,100	3,260	3.40	2,900	1,020	4,430	39.9%
	2031	12,400	3,780	3.28	3,800	1,370	5,240	42.3%
	2041	14,100	4,380	3.22	5,400	1,940	6,190	43.9%
	2051	14,400	4,540	3.17	5,700	2,080	7,000	48.6%
	2016 - 2051	3,600	1,390		2,900	1,100	2,940	81.7%
Minto	2016	8,900	3,260	2.73	5,800	2,220	4,030	45.3%
	2021	9,300	3,400	2.74	6,100	2,360	4,170	44.8%
	2031	11,900	4,280	2.78	8,200	3,070	4,750	39.9%
	2041	13,400	4,820	2.78	9,500	3,520	5,530	41.3%
	2051	15,200	5,460	2.78	11,000	4,070	6,510	42.8%
	2016 - 2051	6,300	2,200		5,200	1,850	2,480	39.4%
Wellington North	2016	12,300	4,670	2.63	7,800	3,210	7,080	57.6%
	2021	12,700	4,860	2.61	8,200	3,370	7,270	57.2%
	2031	16,100	6,130	2.63	11,500	4,590	8,340	51.8%
	2041	17,700	6,700	2.64	13,000	5,100	9,450	53.4%
	2051	20,500	7,660	2.68	15,400	5,940	10,500	51.2%
	2016 - 2051	8,200	2,990		7,600	2,730	3,420	41.7%
County of Wellington	2016	93,600	33,280	2.81	47,500	18,060	39,960	42.7%
	2021	99,900	36,060	2.77	53,800	20,510	43,100	43.1%
	2031	122,100	43,820	2.79	72,700	27,350	51,150	41.9%
	2041	142,000	51,010	2.78	90,000	33,620	61,060	43.0%
	2051	160,000	57,930	2.76	105,800	39,840	70,010	43.8%
	2016 - 2051	66,400	24,650		58,300	21,780	30,050	45.3%

Source: Watson & Associates Economists Ltd.
[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.
[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

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Figure E-1, Table 3a
County of Wellington
Housing Forecast by Municipality, 2016 to 2051

Area Municipality	Forecast Period	Singles/Semi-Detached	Townhomes	Apartments	Others	Total Residential Units
Centre Wellington	2016	8,500	680	1,530	160	10,870
	2021	9,740	1,030	1,880	160	12,810
	2031	11,900	1,360	2,350	160	15,770
	2041	14,340	2,160	2,700	160	19,360
	2051	15,430	3,220	3,590	160	22,400
	2016 - 2051	6,930	2,540	2,060	0	11,530
Erin	2016	3,810	40	120	150	4,120
	2021	3,910	40	130	150	4,230
	2031	5,240	340	240	150	5,970
	2041	5,920	550	660	150	7,280
	2051	7,440	730	880	150	9,200
	2016 - 2051	3,630	690	760	0	5,080
Guelph-Eramosa	2016	4,100	240	130	30	4,500
	2021	4,240	250	130	30	4,650
	2031	4,440	260	140	30	4,870
	2041	4,570	270	150	30	5,020
	2051	4,600	280	200	30	5,110
	2016 - 2051	500	40	70	0	610
Puslinch	2016	2,560	40	20	90	2,710
	2021	2,700	40	20	90	2,850
	2031	2,870	40	20	90	3,020
	2041	3,300	40	20	90	3,450
	2051	3,410	40	20	90	3,560
	2016 - 2051	850	0	0	0	850

Note: May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

[1]Includes population undercount at approximately 3%. Figures have been rounded and may not add up precisely.

[2]Urban settlement areas include all urban areas within the County of Wellington with a delineated Growth Plan built boundary by the province.

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Appendix E-1, Tabe 3b (Continued)
County of Wellington
Housing Forecast by Municipality, 2016 to 2051

Area Municipality	Forecast Period	Singles/Semi-Detached	Townhomes	Apartments	Others	Total Residential Units
Mapleton	2016	2,920	50	110	70	3,150
	2021	3,020	50	120	70	3,260
	2031	3,380	150	180	70	3,780
	2041	3,820	240	250	70	4,380
	2051	3,910	270	290	70	4,540
	2016 - 2051	990	220	180	0	1,390
Minto	2016	2,760	110	370	20	3,260
	2021	2,830	150	400	20	3,400
	2031	3,570	240	450	20	4,280
	2041	3,920	370	510	20	4,820
	2051	4,330	520	590	20	5,460
	2016 - 2051	1,570	410	220	0	2,200
Wellington North	2016	3,660	260	730	20	4,670
	2021	3,780	330	730	20	4,860
	2031	4,640	500	970	20	6,130
	2041	5,020	630	1,030	20	6,700
	2051	5,760	790	1,090	20	7,660
	2016 - 2051	2,100	530	360	0	2,990
County of Wellington	2016	28,310	1,420	3,010	540	33,280
	2021	30,220	1,890	3,410	540	36,060
	2031	36,040	2,890	4,350	540	43,820
	2041	40,890	4,260	5,320	540	51,010
	2051	44,880	5,850	6,660	540	57,930
	2016 - 2051	16,570	4,430	3,650	0	24,650

Note: May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

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Appendix E-2 – Detailed Population and Housing Forecasts by Area Municipaliy

See January 31, 2022 ADDENDUM REPORT for Revisions to this Report

Appendix E-2, Table 1
Township of Centre Wellington
Population and Housing Forecast, 2016 to 2051

Centre Wellington								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	28,200	29,000	8,500	680	1,530	160	10,870	2.668
2021	33,100	34,100	9,740	1,030	1,880	160	12,810	2.662
2026	37,200	38,300	10,840	1,290	2,080	160	14,370	2.665
2031	41,200	42,500	11,900	1,360	2,350	160	15,770	2.695
2036	46,000	47,400	13,160	1,730	2,520	160	17,570	2.698
2041	50,800	52,300	14,340	2,160	2,700	160	19,360	2.701
2046	53,600	55,200	14,790	2,680	3,180	160	20,810	2.653
2051	57,200	58,900	15,430	3,220	3,590	160	22,400	2.629
2016 - 2041	22,600	23,300	5,840	1,480	1,170	-	8,490	
2016 - 2051	29,000	29,900	6,930	2,540	2,060	-	11,530	

Appendix E-2, Table 2
Town of Erin
Population and Housing Forecast, 2016 to 2051

Erin								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	11,400	11,800	3,810	40	120	150	4,120	2.864
2021	11,700	12,000	3,910	40	130	150	4,230	2.837
2026	13,200	13,600	4,370	70	180	150	4,770	2.851
2031	16,200	16,700	5,240	340	240	150	5,970	2.797
2036	17,900	18,400	5,590	450	430	150	6,620	2.779
2041	19,600	20,200	5,920	550	660	150	7,280	2.775
2046	22,700	23,300	6,760	590	680	150	8,180	2.848
2051	25,500	26,300	7,440	730	880	150	9,200	2.859
2016 - 2041	8,200	8,400	2,110	510	540	-	3,160	
2016 - 2051	14,100	14,500	3,630	690	760	-	5,080	

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Appendix E-2, Table 3
Township of Guelph-Eramosa
Population and Housing Forecast, 2016 to 2051

Guelph/Eramosa								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	12,900	13,200	4,100	240	130	30	4,500	2.933
2021	13,200	13,600	4,240	250	130	30	4,650	2.925
2026	13,600	14,000	4,380	250	140	30	4,800	2.917
2031	13,700	14,100	4,440	260	140	30	4,870	2.895
2036	13,900	14,300	4,500	270	150	30	4,950	2.889
2041	14,200	14,600	4,570	270	150	30	5,020	2.908
2046	14,200	14,600	4,570	280	180	30	5,060	2.885
2051	14,300	14,700	4,600	280	200	30	5,110	2.877
2016 - 2041	1,300	1,400	470	30	20	-	520	
2016 - 2051	1,400	1,500	500	40	70	-	610	

Appendix E-2, Table 4
Township of Mapleton
Population and Housing Forecast, 2016 to 2051

Mapleton								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	10,500	10,800	2,920	50	110	70	3,150	3.429
2021	10,800	11,100	3,020	50	120	70	3,260	3.405
2026	11,400	11,800	3,200	110	150	70	3,530	3.343
2031	12,000	12,400	3,380	150	180	70	3,780	3.280
2036	12,500	12,900	3,540	150	200	70	3,960	3.258
2041	13,700	14,100	3,820	240	250	70	4,380	3.219
2046	13,700	14,200	3,870	230	260	70	4,430	3.205
2051	14,000	14,400	3,910	270	290	70	4,540	3.172
2016 - 2041	3,200	3,300	900	190	140	-	1,230	
2016 - 2051	3,500	3,600	990	220	180	-	1,390	

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Appendix E-2, Table 5
Town of Minto
Population and Housing Forecast, 2016 to 2051

Minto								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	8,700	8,900	2,760	110	370	20	3,260	2.730
2021	9,000	9,300	2,830	150	400	20	3,400	2.735
2026	10,300	10,600	3,210	200	420	20	3,850	2.753
2031	11,500	11,900	3,570	240	450	20	4,280	2.780
2036	12,600	12,900	3,840	310	480	20	4,650	2.774
2041	13,000	13,400	3,920	370	510	20	4,820	2.780
2046	13,800	14,200	4,110	440	550	20	5,120	2.773
2051	14,800	15,200	4,330	520	590	20	5,460	2.784
2016 - 2041	4,300	4,500	1,160	260	140	-	1,560	
2016 - 2051	6,100	6,300	1,570	410	220	-	2,200	

Appendix E-2, Table 6
Township of Wellington North
Population and Housing Forecast, 2016 to 2051

Wellington North								
Year	Population (Excluding Census	Population (Including Census	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	11,900	12,300	3,660	260	730	20	4,670	2.634
2021	12,400	12,700	3,780	330	730	20	4,860	2.613
2026	14,200	14,700	4,260	420	880	20	5,580	2.634
2031	15,600	16,100	4,640	500	970	20	6,130	2.626
2036	16,900	17,400	4,960	610	990	20	6,580	2.644
2041	17,200	17,700	5,020	630	1,030	20	6,700	2.642
2046	19,100	19,600	5,520	760	1,080	20	7,380	2.656
2051	19,900	20,500	5,760	790	1,090	20	7,660	2.676
2016 - 2041	5,300	5,400	1,360	370	300	-	2,030	
2016 - 2051	8,000	8,200	2,100	530	360	-	2,990	

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Appendix E-2, Table 7
Township of Puslinch
Population and Housing Forecast, 2016 to 2051

Puslinch								
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	7,300	7,600	2,560	40	20	90	2,710	2.804
2021	7,700	7,900	2,700	40	20	90	2,850	2.772
2026	8,000	8,300	2,820	40	20	90	2,970	2.795
2031	8,100	8,400	2,870	40	20	90	3,020	2.781
2036	8,600	8,800	3,020	40	20	90	3,170	2.776
2041	9,400	9,700	3,300	40	20	90	3,450	2.812
2046	9,600	9,900	3,360	40	20	90	3,510	2.821
2051	9,700	10,000	3,410	40	20	90	3,560	2.809
2016 - 2041	2,100	2,100	740	-	-	-	740	
2016 - 2051	2,400	2,400	850	-	-	-	850	

Source: Watson & Associates Economists Ltd., 2020.
Note: Figures may not add precisely due to rounding.
[1] Population undercount estimated at 3%.
[2] Includes all single and semi-detached homes as well as "other" detached homes as per Statistics Canada.
[3] Includes all townhouses and apartments in duplex.
[4] Includes all apartments with less than or greater than five storeys.

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Appendix E-2, Table 8
County of Wellington
Housing Forecast by Area Municipality, 2016 to 2051

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,870	4,110	4,490	3,140	3,250	4,660	2,700	33,220
2021	12,810	4,230	4,650	3,260	3,410	4,860	2,850	36,070
2026	14,380	4,770	4,800	3,540	3,850	5,580	2,970	39,890
2031	15,770	5,980	4,870	3,780	4,280	6,130	3,020	43,830
2036	17,570	6,630	4,950	3,960	4,640	6,590	3,170	47,510
2041	19,360	7,280	5,030	4,380	4,820	6,690	3,440	51,000
2046	20,820	8,180	5,060	4,450	5,120	7,380	3,510	54,520
2051	22,410	9,200	5,110	4,540	5,460	7,660	3,550	57,930
Share of 2016 County Households	33%	12%	14%	9%	10%	14%	8%	100%
Share of 2051 County Households	39%	16%	9%	8%	9%	13%	6%	100%
Housing Growth								
2016 - 2051	11,540	5,090	620	1,400	2,210	3,000	850	24,710
Annual Growth Rate, 2016 - 2051	2.1%	2.3%	0.4%	1.1%	1.5%	1.4%	0.8%	1.6%
Share of County Household Growth, 2016-2051	47%	21%	3%	6%	9%	12%	3%	100%

Note: Above figure includes "other" dwellings of approximately 540 units.
Source: Watson & Associates Economists Ltd.

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Appendix E-3 – Population and Housing Forecasts by Urban Settlement Area

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Appendix E-3, Table 1
Township of Centre Wellington
Population and Housing Forecast, 2016 to 2051

Fergus							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	14,300	14,700	4,060	470	1,170	5,690	2.51
2021	18,500	19,100	5,100	790	1,410	7,310	2.53
2026	19,500	20,100	5,290	960	1,530	7,790	2.50
2031	22,900	23,600	6,200	1,010	1,770	8,980	2.55
2036	26,900	27,700	7,200	1,340	1,930	10,470	2.57
2041	30,700	31,600	8,220	1,520	2,100	11,840	2.59
2046	33,100	34,000	8,540	2,020	2,480	13,040	2.53
2051	35,800	36,900	8,980	2,490	2,800	14,280	2.51
2016 - 2041	16,400	16,900	4,160	1,050	930	6,150	
2016 - 2051	21,500	22,200	4,920	2,020	1,630	8,590	

Elora/Salem							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	6,900	7,100	2,090	210	370	2,660	2.59
2021	7,600	7,800	2,250	240	460	2,960	2.57
2026	10,500	10,900	3,120	340	550	4,000	2.63
2031	11,100	11,400	3,240	350	570	4,160	2.66
2036	11,800	12,100	3,450	390	590	4,430	2.66
2041	12,700	13,100	3,580	650	600	4,820	2.63
2046	13,100	13,500	3,660	660	700	5,030	2.60
2051	13,800	14,200	3,820	730	790	5,340	2.58
2016 - 2041	5,800	6,000	1,490	440	230	2,160	
2016 - 2051	6,900	7,100	1,730	520	420	2,680	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,000	7,200	2,350	0	0	2,350	2.99
2021	7,100	7,200	2,390	0	0	2,390	2.96
2026	7,100	7,300	2,430	0	0	2,430	2.94
2031	7,200	7,400	2,470	0	0	2,470	2.92
2036	7,300	7,500	2,510	0	0	2,510	2.91
2041	7,400	7,600	2,550	0	0	2,550	2.92
2046	7,500	7,700	2,590	0	0	2,590	2.90
2051	7,600	7,800	2,630	0	0	2,630	2.89
2016 - 2041	400	400	200	-	-	200	
2016 - 2051	600	600	280	-	-	280	

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Appendix E-3, Table 2
Town of Erin
Population and Housing Forecast, 2016 to 2051

Erin (Village)							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	3,000	3,000	940	20	90	1,040	2.88
2021	3,000	3,100	950	20	100	1,070	2.80
2026	3,700	3,900	1,170	40	120	1,330	2.78
2031	5,600	5,800	1,680	220	180	2,080	2.69
2036	6,700	6,900	1,910	280	310	2,500	2.68
2041	7,700	7,900	2,040	340	530	2,910	2.65
2046	9,200	9,400	2,420	380	540	3,340	2.75
2051	10,400	10,700	2,740	440	590	3,770	2.76
2016 - 2041	4,700	4,900	1,100	320	440	1,870	
2016 - 2051	7,400	7,700	1,800	420	500	2,730	

Hillsburgh							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	1,400	1,400	490	10	30	530	2.64
2021	1,400	1,400	500	10	30	540	2.59
2026	1,900	1,900	630	30	60	720	2.64
2031	2,700	2,800	860	110	60	1,040	2.60
2036	3,100	3,100	910	160	110	1,190	2.61
2041	3,500	3,600	1,000	200	130	1,340	2.61
2046	4,800	4,900	1,380	210	140	1,720	2.79
2051	5,900	6,100	1,610	280	290	2,180	2.71
2016 - 2041	2,100	2,200	510	190	100	810	
2016 - 2051	4,500	4,700	1,120	270	260	1,650	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,100	7,300	2,380	10	0	2,390	2.97
2021	7,300	7,500	2,460	10	0	2,470	2.96
2026	7,600	7,800	2,570	10	0	2,580	2.95
2031	7,800	8,100	2,690	10	0	2,700	2.89
2036	8,100	8,400	2,780	10	0	2,790	2.90
2041	8,500	8,700	2,870	10	0	2,880	2.95
2046	8,700	9,000	2,960	10	0	2,970	2.93
2051	9,100	9,400	3,090	10	0	3,100	2.94
2016 - 2041	1,400	1,400	490	-	-	490	
2016 - 2051	2,000	2,100	710	-	-	710	

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Appendix E-3, Table 3
Township of Guelph/Eramosa
Population and Housing Forecast, 2016 to 2051

Rockwood							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	4,700	4,900	1,440	210	90	1,740	2.70
2021	5,100	5,200	1,570	220	90	1,880	2.71
2026	5,400	5,600	1,690	230	90	2,010	2.69
2031	5,500	5,600	1,730	240	100	2,070	2.66
2036	5,600	5,700	1,760	240	100	2,100	2.67
2041	5,700	5,900	1,800	250	110	2,160	2.64
2046	5,700	5,800	1,780	250	130	2,160	2.64
2051	5,700	5,800	1,780	250	150	2,180	2.61
2016 - 2041	1,000	1,000	360	40	20	420	
2016 - 2051	1,000	900	340	40	60	280	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	8,100	8,300	2,660	30	40	2,730	2.97
2021	8,100	8,400	2,670	30	50	2,740	2.96
2026	8,200	8,500	2,690	30	50	2,760	2.97
2031	8,300	8,500	2,710	30	50	2,780	2.99
2036	8,400	8,600	2,740	30	50	2,810	2.99
2041	8,500	8,700	2,770	30	50	2,840	2.99
2046	8,500	8,800	2,800	30	50	2,870	2.96
2051	8,600	8,900	2,820	30	50	2,890	2.98
2016 - 2041	400	400	110	-	10	110	
2016 - 2051	500	600	160	-	10	160	

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Appendix E-3, Table 4
Township of Mapleton
Population and Housing Forecast, 2016 to 2051

Drayton

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,200	2,300	690	40	80	810	2.72
2021	2,300	2,400	720	40	90	850	2.71
2026	2,500	2,500	740	80	100	920	2.72
2031	2,600	2,700	780	110	120	1,010	2.57
2036	2,700	2,800	810	110	130	1,050	2.57
2041	3,400	3,500	960	170	160	1,290	2.64
2046	3,400	3,500	970	170	160	1,300	2.62
2051	3,400	3,600	970	180	180	1,330	2.56
2016 - 2041	1,200	1,200	270	130	80	480	
2016 - 2051	1,200	1,300	280	140	100	520	

Moorefield

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	500	600	140	10	30	170	2.94
2021	500	600	140	10	30	180	2.78
2026	800	800	190	30	50	270	2.96
2031	1,000	1,100	260	40	60	360	2.78
2036	1,400	1,400	360	40	70	470	2.98
2041	1,900	1,900	490	70	90	660	2.88
2046	1,900	2,000	500	80	100	680	2.79
2051	2,100	2,200	550	80	110	750	2.80
2016 - 2041	1,400	1,300	350	60	60	490	
2016 - 2051	1,600	1,600	410	70	80	580	

Rural

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	7,800	8,000	2,090	0	0	2,090	3.73
2021	7,900	8,200	2,160	0	0	2,160	3.66
2026	8,200	8,500	2,280	0	0	2,280	3.60
2031	8,400	8,600	2,340	0	0	2,340	3.59
2036	8,400	8,700	2,370	0	0	2,370	3.54
2041	8,400	8,700	2,380	0	0	2,380	3.53
2046	8,500	8,700	2,390	0	0	2,390	3.56
2051	8,400	8,700	2,390	0	0	2,390	3.51
2016 - 2041	600	700	290	-	-	290	
2016 - 2051	600	700	300	-	-	300	

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Appendix E-3, Table 5
Town of Minto
Population and Housing Forecast, 2016 to 2051

Clifford

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	830	860	280	30	40	350	2.37
2021	910	940	300	30	50	380	2.39
2026	990	1,010	310	40	60	410	2.41
2031	1,060	1,090	320	50	70	440	2.41
2036	1,130	1,170	330	60	80	470	2.40
2041	1,210	1,250	340	70	90	500	2.42
2046	1,280	1,320	350	80	110	530	2.42
2051	1,360	1,400	360	90	120	560	2.43
2016 - 2041	380	390	60	40	50	150	
2016 - 2051	530	540	80	60	80	210	

Harriston

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,100	2,100	610	10	160	780	2.69
2021	2,200	2,200	620	30	170	830	2.65
2026	2,500	2,600	720	50	170	940	2.66
2031	2,700	2,800	750	70	180	1,010	2.67
2036	2,900	3,000	800	100	190	1,090	2.66
2041	3,000	3,100	810	130	200	1,140	2.63
2046	3,200	3,300	850	140	210	1,200	2.67
2051	3,400	3,500	890	180	220	1,280	2.66
2016 - 2041	900	1,000	200	120	40	360	
2016 - 2051	1,300	1,400	280	170	60	500	

Palmerston

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,700	2,800	870	70	170	1,100	2.45
2021	2,900	2,900	890	90	180	1,160	2.50
2026	3,300	3,400	1,020	110	180	1,310	2.52
2031	4,200	4,400	1,300	130	190	1,620	2.59
2036	4,800	4,900	1,450	150	200	1,810	2.65
2041	5,000	5,100	1,490	170	220	1,880	2.66
2046	5,400	5,600	1,590	220	240	2,040	2.65
2051	5,900	6,100	1,710	250	260	2,220	2.66
2016 - 2041	2,300	2,300	620	100	50	780	
2016 - 2051	3,200	3,300	840	180	90	1,120	

Rural

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	3,000	3,100	1,010	0	0	1,010	2.97
2021	3,100	3,200	1,030	0	0	1,030	3.01
2026	3,500	3,600	1,170	0	0	1,170	2.99
2031	3,600	3,700	1,200	0	0	1,200	3.00
2036	3,700	3,900	1,260	0	0	1,260	2.94
2041	3,800	3,900	1,280	0	0	1,280	2.97
2046	3,900	4,000	1,320	0	0	1,320	2.95
2051	4,100	4,200	1,380	0	0	1,380	2.97
2016 - 2041	800	800	270	-	-	270	
2016 - 2051	1,100	1,100	370	-	-	370	

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Appendix E-3, Table 6
Township of Wellington North
Population and Housing Forecast, 2016 to 2051

Arthur

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	2,500	2,600	740	100	170	1,010	2.48
2021	2,600	2,700	750	120	170	1,040	2.50
2026	3,400	3,500	940	140	240	1,320	2.58
2031	3,800	3,900	1,060	170	260	1,490	2.55
2036	4,100	4,200	1,110	200	280	1,590	2.58
2041	4,200	4,400	1,140	200	310	1,650	2.55
2046	4,500	4,700	1,200	240	330	1,770	2.54
2051	4,700	4,800	1,240	250	340	1,830	2.57
2016 - 2041	1,700	1,800	400	100	140	640	
2016 - 2051	2,200	2,200	500	150	170	820	

Mount Forest

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	5,100	5,200	1,500	160	560	2,220	2.30
2021	5,400	5,500	1,560	210	560	2,330	2.32
2026	6,500	6,700	1,840	270	640	2,750	2.36
2031	7,400	7,600	2,060	330	710	3,100	2.39
2036	8,200	8,500	2,290	410	710	3,410	2.40
2041	8,300	8,600	2,300	430	720	3,450	2.41
2046	9,700	10,000	2,670	530	740	3,940	2.46
2051	10,200	10,500	2,820	540	750	4,110	2.48
2016 - 2041	3,200	3,400	800	270	160	1,230	
2016 - 2051	5,100	5,300	1,320	380	190	1,890	

Rural

Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	4,300	4,400	1,430	0	0	1,405	3.06
2021	4,400	4,500	1,470	0	0	1,470	2.99
2026	4,400	4,500	1,480	0	0	1,480	2.97
2031	4,500	4,600	1,520	0	0	1,520	2.96
2036	4,600	4,700	1,570	0	0	1,570	2.93
2041	4,600	4,800	1,570	0	0	1,570	2.93
2046	4,800	5,000	1,650	0	0	1,650	2.91
2051	5,000	5,100	1,700	0	0	1,700	2.94
2016 - 2041	300	400	140	-	-	165	
2016 - 2051	700	700	270	-	-	295	

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Appendix E-3, Table 7
Township of Puslinch
Population and Housing Forecast, 2016 to 2051

Aberfoyle							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	300	300	140	20	10	170	2.07
2021	300	300	140	20	10	170	2.08
2026	300	400	140	20	10	170	2.08
2031	300	400	140	20	10	170	2.08
2036	300	400	150	20	10	180	2.09
2041	400	400	150	20	10	180	2.09
2046	400	400	150	20	10	180	2.10
2051	400	400	150	20	10	180	2.10
2016 - 2041	100	100	10	-	-	10	
2016 - 2051	100	100	10	-	-	10	

Morriston							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	500	500	140	0	20	160	3.13
2021	500	500	140	0	20	160	3.13
2026	600	600	180	0	20	200	3.00
2031	600	600	190	0	20	210	2.86
2036	700	700	220	0	20	240	2.92
2041	800	900	260	0	20	280	2.86
2046	900	900	270	0	20	290	3.10
2051	900	900	280	0	20	300	3.00
2016 - 2041	300	400	120	-	-	120	
2016 - 2051	400	400	140	-	-	140	

Rural							
Year	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	6,600	6,700	2,270	20	0	2,280	2.89
2021	6,900	7,100	2,420	20	0	2,440	2.83
2026	7,100	7,300	2,490	20	0	2,510	2.83
2031	7,200	7,400	2,540	20	0	2,560	2.81
2036	7,500	7,800	2,660	20	0	2,680	2.80
2041	8,300	8,500	2,890	20	0	2,910	2.85
2046	8,400	8,600	2,940	20	0	2,960	2.84
2051	8,500	8,700	2,970	20	0	2,990	2.84
2016 - 2041	1,700	1,800	620	-	-	630	
2016 - 2051	1,900	2,000	700	-	-	710	

Note: Urban Centres in Puslinch are not summarized at the County-Wide level as Urban Settlement Areas. Aberfoyle and Morriston are grouped as "Rural" at the County-Wide level.

Appendix F
Growth Allocations: Employment

Appendix F-1, Table 1
Township of Centre Wellington
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	2,540	6,520	9,060	55	590	645	9,705	93%	7%
	2011	2,570	6,875	9,445	55	730	785	10,230	92%	8%
	2016	2,230	7,610	9,840	55	560	615	10,455	94%	6%
Forecast	2021	2,510	9,070	11,580	55	600	655	12,235	95%	5%
	2026	2,810	10,540	13,350	55	590	645	13,995	95%	5%
	2031	3,410	12,115	15,525	55	650	705	16,230	96%	4%
	2036	4,010	13,795	17,805	55	660	715	18,520	96%	4%
	2041	4,810	15,740	20,550	55	670	725	21,275	97%	3%
	2046	5,410	17,130	22,540	55	680	735	23,275	97%	3%
	2051	5,910	18,420	24,330	55	690	745	25,075	97%	3%
Incremental	2016 - 2021	280	1,460	1,740	0	40	40	1,780	98%	2%
	2016 - 2026	580	2,930	3,510	0	30	30	3,540	99%	1%
	2016 - 2031	1,180	4,505	5,685	0	90	90	5,775	98%	2%
	2016 - 2036	1,780	6,185	7,965	0	100	100	8,065	99%	1%
	2016 - 2041	2,580	8,130	10,710	0	110	110	10,820	99%	1%
	2016 - 2046	3,180	9,520	12,700	0	120	120	12,820	99%	1%
	2016 - 2051	3,680	10,810	14,490	0	130	130	14,620	99%	1%

Appendix F-1, Table 2
Town of Erin
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	780	1,570	2,350	0	620	620	2,970	79%	21%
	2011	880	1,560	2,440	0	590	590	3,030	81%	19%
	2016	900	1,345	2,245	0	730	730	2,975	75%	25%
Forecast	2021	950	1,445	2,395	0	735	735	3,130	77%	23%
	2026	1,050	1,705	2,755	0	740	740	3,495	79%	21%
	2031	1,150	2,190	3,340	0	745	745	4,085	82%	18%
	2036	1,270	2,730	4,000	0	750	750	4,750	84%	16%
	2041	1,380	3,150	4,530	0	755	755	5,285	86%	14%
	2046	1,490	3,665	5,155	0	760	760	5,915	87%	13%
	2051	1,700	3,735	5,435	0	770	770	6,205	88%	12%
Incremental	2016 - 2021	50	100	150	0	5	5	155	97%	3%
	2016 - 2026	150	360	510	0	10	10	520	98%	2%
	2016 - 2031	250	845	1,095	0	15	15	1,110	99%	1%
	2016 - 2036	370	1,385	1,755	0	20	20	1,775	99%	1%
	2016 - 2041	480	1,805	2,285	0	25	25	2,310	99%	1%
	2016 - 2046	590	2,320	2,910	0	30	30	2,940	99%	1%
	2016 - 2051	800	2,390	3,190	0	40	40	3,230	99%	1%

Appendix F-1, Table 3
Township of Guelph/Eramosa
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	0	1,200	1,200	1,380	2,060	3,440	4,640	26%	74%
	2011	0	1,300	1,300	1,000	2,170	3,170	4,470	29%	71%
	2016	0	1,600	1,600	1,580	2,540	4,120	5,720	28%	72%
Forecast	2021	0	1,650	1,650	1,780	2,555	4,335	5,985	28%	72%
	2026	0	1,680	1,680	1,810	2,590	4,400	6,080	28%	72%
	2031	0	1,710	1,710	1,840	2,625	4,465	6,175	28%	72%
	2036	0	1,720	1,720	1,880	2,650	4,530	6,250	28%	72%
	2041	0	1,740	1,740	1,920	2,670	4,590	6,330	27%	73%
	2046	0	1,750	1,750	2,070	2,780	4,850	6,600	27%	73%
	2051	0	1,780	1,780	2,190	2,820	5,010	6,790	26%	74%
Incremental	2016 - 2021	0	50	50	200	15	215	265	19%	81%
	2016 - 2026	0	80	80	230	50	280	360	22%	78%
	2016 - 2031	0	110	110	260	85	345	455	24%	76%
	2016 - 2036	0	120	120	300	110	410	530	23%	77%
	2016 - 2041	0	140	140	340	130	470	610	23%	77%
	2016 - 2046	0	150	150	490	240	730	880	17%	83%
	2016 - 2051	0	180	180	610	280	890	1,070	17%	83%

Appendix F-1, Table 4
Township of Mapleton
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	390	1,620	2,010	280	1,410	1,690	3,700	54%	46%
	2011	480	1,700	2,180	340	1,530	1,870	4,050	54%	46%
	2016	500	1,490	1,990	350	1,720	2,070	4,060	49%	51%
Forecast	2021	510	1,740	2,250	400	1,780	2,180	4,430	51%	49%
	2026	660	1,805	2,465	470	1,850	2,320	4,785	52%	48%
	2031	720	2,115	2,835	520	1,880	2,400	5,235	54%	46%
	2036	790	2,435	3,225	560	1,900	2,460	5,685	57%	43%
	2041	850	2,835	3,685	600	1,900	2,500	6,185	60%	40%
	2046	1,040	2,900	3,940	670	1,970	2,640	6,580	60%	40%
	2051	1,210	3,050	4,260	720	2,020	2,740	7,000	61%	39%
Incremental	2016 - 2021	10	250	260	50	60	110	370	70%	30%
	2016 - 2026	160	315	475	120	130	250	725	66%	34%
	2016 - 2031	220	625	845	170	160	330	1,175	72%	28%
	2016 - 2036	290	945	1,235	210	180	390	1,625	76%	24%
	2016 - 2041	350	1,345	1,695	250	180	430	2,125	80%	20%
	2016 - 2046	540	1,410	1,950	320	250	570	2,520	77%	23%
	2016 - 2051	710	1,560	2,270	370	300	670	2,940	77%	23%

Appendix F-1, Table 5
Town of Minto
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	690	1,920	2,610	0	790	790	3,400	77%	23%
	2011	890	1,930	2,820	0	780	780	3,600	78%	22%
	2016	1,150	1,970	3,120	0	910	910	4,030	77%	23%
Forecast	2021	1,160	2,085	3,245	0	920	920	4,165	78%	22%
	2026	1,300	2,220	3,520	0	925	925	4,445	79%	21%
	2031	1,460	2,350	3,810	0	935	935	4,745	80%	20%
	2036	1,640	2,560	4,200	0	945	945	5,145	82%	18%
	2041	1,790	2,775	4,565	0	955	955	5,520	83%	17%
	2046	2,000	3,035	5,035	0	965	965	6,000	84%	16%
	2051	2,210	3,315	5,525	0	975	975	6,500	85%	15%
Incremental	2016 - 2021	10	115	125	0	10	10	135	93%	7%
	2016 - 2026	150	250	400	0	15	15	415	96%	4%
	2016 - 2031	310	380	690	0	25	25	715	97%	3%
	2016 - 2036	490	590	1,080	0	35	35	1,115	97%	3%
	2016 - 2041	640	805	1,445	0	45	45	1,490	97%	3%
	2016 - 2046	850	1,065	1,915	0	55	55	1,970	97%	3%
	2016 - 2051	1,060	1,345	2,405	0	65	65	2,470	97%	3%

Appendix F-1, Table 6
Township of Wellington North
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	2,500	2,760	5,260	465	380	845	6,105	86%	14%
	2011	2,000	2,835	4,835	470	655	1,125	5,960	81%	19%
	2016	2,210	3,555	5,765	475	830	1,305	7,070	82%	18%
Forecast	2021	2,320	3,580	5,900	475	890	1,365	7,265	81%	19%
	2026	2,420	3,885	6,305	480	920	1,400	7,705	82%	18%
	2031	2,720	4,185	6,905	490	940	1,430	8,335	83%	17%
	2036	3,020	4,445	7,465	510	960	1,470	8,935	84%	16%
	2041	3,170	4,765	7,935	525	980	1,505	9,440	84%	16%
	2046	3,320	5,155	8,475	525	1,000	1,525	10,000	85%	15%
	2051	3,470	5,460	8,930	550	1,020	1,570	10,500	85%	15%
Incremental	2016 - 2021	110	25	135	0	60	60	195	69%	31%
	2016 - 2026	210	330	540	5	90	95	635	85%	15%
	2016 - 2031	510	630	1,140	15	110	125	1,265	90%	10%
	2016 - 2036	810	890	1,700	35	130	165	1,865	91%	9%
	2016 - 2041	960	1,210	2,170	50	150	200	2,370	92%	8%
	2016 - 2046	1,110	1,600	2,710	50	170	220	2,930	92%	8%
	2016 - 2051	1,260	1,905	3,165	75	190	265	3,430	92%	8%

Appendix F-1, Table 7
Township of Puslinch
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas			Rural Area			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	0	0	0	2,130	1,850	3,980	3,980	0%	100%
	2011	0	0	0	1,770	1,630	3,400	3,400	0%	100%
	2016	0	0	0	2,400	3,225	5,625	5,625	0%	100%
Forecast	2021	0	0	0	2,430	3,385	5,815	5,815	0%	100%
	2026	0	0	0	2,650	3,410	6,060	6,060	0%	100%
	2031	0	0	0	2,870	3,435	6,305	6,305	0%	100%
	2036	0	0	0	3,130	3,465	6,595	6,595	0%	100%
	2041	0	0	0	3,510	3,480	6,990	6,990	0%	100%
	2046	0	0	0	3,900	3,505	7,405	7,405	0%	100%
	2051	0	0	0	4,390	3,530	7,920	7,920	0%	100%
Incremental	2016 - 2021	0	0	0	30	160	190	190	0%	100%
	2016 - 2026	0	0	0	250	185	435	435	0%	100%
	2016 - 2031	0	0	0	470	210	680	680	0%	100%
	2016 - 2036	0	0	0	730	240	970	970	0%	100%
	2016 - 2041	0	0	0	1,110	255	1,365	1,365	0%	100%
	2016 - 2046	0	0	0	1,500	280	1,780	1,780	0%	100%
	2016 - 2051	0	0	0	1,990	305	2,295	2,295	0%	100%

Appendix F-1, Table 8
County of Wellington
Employment Forecast, 2016 to 2051

Year		Urban Settlement Areas[1]			Rural Area[2]			Total Employment	Urban Employment %	Rural Employment %
		Employment Land Employment	Population-Related Employment	Total Urban Employment	Employment Lands Employment	Other Rural	Total Rural Employment			
		A	B	C = A + B	D	E	F = D + E	G = C + F	H = C / G	I = F / G
Historical	2006	6,900	15,600	22,500	4,300	7,700	12,000	34,500	65%	35%
	2011	6,800	16,200	23,000	3,600	8,100	11,700	34,700	66%	34%
	2016	7,000	17,600	24,600	4,900	10,500	15,400	39,900	62%	38%
Forecast	2021	7,500	19,600	27,000	5,100	10,900	16,000	43,000	63%	37%
	2026	8,200	21,800	30,100	5,500	11,000	16,500	46,600	65%	35%
	2031	9,500	24,700	34,100	5,800	11,200	17,000	51,100	67%	33%
	2036	10,700	27,700	38,400	6,100	11,300	17,500	55,900	69%	31%
	2041	12,000	31,000	43,000	6,600	11,400	18,000	61,000	70%	30%
	2046	13,300	33,600	46,900	7,200	11,700	18,900	65,800	71%	29%
	2051	14,500	35,800	50,300	7,900	11,800	19,700	70,000	72%	28%
Incremental	2016 - 2021	500	2,000	2,500	300	400	600	3,100	81%	19%
	2016 - 2026	1,300	4,300	5,500	600	500	1,100	6,600	83%	17%
	2016 - 2031	2,500	7,100	9,600	900	700	1,600	11,200	86%	14%
	2016 - 2036	3,700	10,100	13,900	1,300	800	2,100	15,900	87%	13%
	2016 - 2041	5,000	13,400	18,400	1,800	900	2,600	21,100	87%	13%
	2016 - 2046	6,300	16,100	22,300	2,400	1,100	3,500	25,800	86%	14%
	2016 - 2051	7,500	18,200	25,700	3,000	1,300	4,400	30,100	85%	15%

Source: Watson & Associates Economists Ltd.
Notes: Figures have been rounded and may not up precisely at the area municipal level.
Employment Land Employment is defined as employment within "industrial-type" buildings.
"Other Rural" includes employment within a rural area outside a Rural Employment Area and include agriculture, commercial/institutional and mixed industrial/agriculture employment.
[1]Urban Settlement Areas include: Erin Village, Hillsburgh, Fergus, Elora-Salem, Mount Forest, Arthur, Rockwood, Drayton, Moorefield, Harriston, Palmerston, Clifford.
[2]All employment outside of urban settlement areas.

Appendix F-2: Wellington County Employment by Area Municipality, 2051

Year	Centre Wellington	Erin	Guelph-Eramosa	Mapleton	Minto	Wellington North	Puslinch	County of Wellington
2016	10,500	3,000	5,700	4,100	4,000	7,100	5,600	40,000
2021	12,200	3,100	6,000	4,400	4,200	7,300	5,800	43,000
2026	14,000	3,500	6,100	4,800	4,400	7,700	6,100	46,600
2031	16,200	4,100	6,200	5,200	4,700	8,300	6,300	51,000
2036	18,500	4,800	6,300	5,700	5,100	8,900	6,600	55,900
2041	21,300	5,300	6,300	6,200	5,500	9,400	7,000	61,000
2046	23,300	5,900	6,600	6,600	6,000	10,000	7,400	65,800
2051	25,100	6,200	6,800	7,000	6,500	10,500	7,900	70,000
Share of 2016 County Employment	26%	8%	14%	10%	10%	18%	14%	100%
Share of 2051 County Employment	36%	9%	10%	10%	9%	15%	11%	100%
Employment Growth								
2016 - 2051	14,600	3,200	1,100	2,900	2,500	3,400	2,300	30,000
Annual Growth Rate, 2016 - 2051	2.5%	2.1%	0.5%	1.5%	1.4%	1.1%	1.0%	1.6%
Share of County Employment Growth, 2016-2051	49%	11%	4%	10%	8%	11%	8%	100%

Note: Figure has been rounded by Area Municipality.
Source: Watson & Associates Economists Ltd., 2021.

Appendix C

Growth Management Action Plan (Watson & Associates Economists Ltd., August 16, 2024)



Growth Management Action Plan

Township of Wellington North

Report

Watson & Associates Economists Ltd.
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In association with: WSP Canada Inc.

August 16, 2024

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List of Acronyms and Abbreviations

A.R.U.	Additional Residential Unit
B.U.A.	built-up area
D.C.	Development Charges
D.G.A.	designated greenfield area
F.I.R.	Financial Information Return
G.F.A.	gross floor area
M.D.D.	Maximum Day Demand
M.C.R.	Municipal Comprehensive Review
O.P.	Official Plan
O.P.A.	Official Plan Amendment
O.P.R.	Official Plan Review
P.P.S., 2020	Provincial Policy Statement, 2020
P.P.S., 2024	Provincial Planning Statement, 2024
R.C.C.	Reserve Capacity Calculation
S.M.E.	Small and medium-sized enterprises
S.P.S.	Sewage Pumping Station
W.W.T.P.	Wastewater Treatment Plant

Glossary

Additional Residential Unit (A.R.U.): as defined by the *Planning Act*, refers to a second and a third residential unit in addition to a primary residential unit on a residential lot containing a single detached housing unit, semi-detached housing unit, or townhouse unit. A.R.U.s are also referred to as second units, secondary suites, accessory dwelling units, basement apartments, coach houses, laneway houses, garden suites, tiny homes, granny flats, in-law apartments, or nanny suites.

Affordable Housing: is defined in the Provincial Policy Statement (P.P.S.), 2020 as:

"a) in the case of ownership housing, the least expensive of:

1. housing for which the purchase price results in annual accommodation costs which do not exceed 30 percent of gross annual household income for low and moderate income households; or

2. housing for which the purchase price is at least 10 percent below the average purchase price of a resale unit in the regional market area;

b) in the case of rental housing, the least expensive of:

1. a unit for which the rent does not exceed 30 percent of gross annual household income for low and moderate income households; or

2. a unit for which the rent is at or below the average market rent of a unit in the regional market area."[1]

Attainable Housing: is a relatively new concept that has not yet been defined by the Province in any provincial planning documents. Generally, refers to housing that is adequate in condition (no major repairs needed), appropriate in size (bedrooms

[2] Provincial Policy Statement, 2020, definitions, p. 39.

appropriate for the household), reasonably priced (for lower and moderate income households) and available (a range of housing options).[1]

Built-up Area (B.U.A.): refers to the area delineated by the Province in 2006 reflecting the lands that were built upon. This area is where intensification, including redevelopment and infill, is expected to occur. The Township's intensification rate is applied to the B.U.A.; any housing development within this area is considered intensification, regardless of housing structure type.

Climate Change Mitigation: refers to reducing and avoiding emissions of greenhouse gases into the atmosphere to limit the magnitude of future climate impacts.

Climate Change Resilience: refers to effectively adapting with and managing the impacts of climate change while preventing those impacts from getting worse. A climate resilient Township plans from a climate change lens and is equipped to deal with the realities of an increasingly warmer world.

Community Area: refers to the area within the Township's urban area that is planned to accommodate housing and most of the population-related employment. This area also includes the Township's parkland and recreational lands. Community Areas are further divided based on two geographic areas: designated greenfield areas (D.G.A.) and the built-up area (B.U.A.).

Community Area Land Needs Assessment: is a calculation to determine the amount of urban land required to meet the future needs of the Township's residential, commercial, and institutional land requirements. Prior to a land needs assessment, a housing intensification analysis is carried out to determine the growth that can be accommodated within the Township's B.U.A. Housing growth not anticipated to be accommodated through intensification is inputted into the land needs assessment.

Complete Communities: is where communities meet the needs of residents for daily living throughout an entire lifetime by providing an appropriate mix of jobs, local services, a full range of housing, and community infrastructure, including affordable housing, schools, recreation, and open space for their residents. A key objective of complete communities is to ensure that residents are offered a range of transportation options to accommodate the daily needs of residents. Providing diverse transportation options makes communities more inclusive by accommodating the mobility of people of all ages, abilities, and income levels.

[2] Rural Ontario Municipal Association (ROMA), ROMA Task Force on Attainable Housing and Purpose-Built Rentals, Proposals for Specific Actions: Policy, Legislative and Regulations Project Development and Financial Incentives, August 2022.

Complete Streets: are streets that are safe for all users, regardless of age, ability, income, race, ethnicity, or mode of travel. By using a Complete Streets approach to designing road networks, we can create spaces that allow all users to thrive — not only motorists.[1]

Designated Greenfield Area (D.G.A.): refers to newly established, developing, and vacant lands that are designated for residential and other Community Area uses that are generally on the periphery of the Township's urban centres of Arthur and Mount Forest. The D.G.A. has accommodated most of the Township's new at-grade housing over the past decade.

Employment Areas: refers to lands designated for industrial-type development. These lands are protected from sensitive uses such as residential, large-scale institutional uses (e.g., hospitals, nursing homes, and schools), and major retail uses due to land use compatibility issues and the traffic these sensitive uses generate.

Gross Developable Land Area: refers to lands that can be built on for the development of housing, commercial, and institutional uses, as well as infrastructure uses (stormwater ponds, parks/trails and roads). Gross developable land area excludes environmental features and other lands that cannot be built on.

Growth Management: refers to strategically planning the when and where of growth, considering both current and anticipated urban needs and the broader needs of the Township.

Future Development Lands: is a designation in the County of Wellington's Official Plan that have been placed into a holding category in the Official Plan to limit development until a need is demonstrated. These lands currently have no use identified in the County's Official Plan and are identified in white on the County's Official Plan land use schedules. Section 8.10 of the County's Official Plan provides policies on the Future Development lands, including guidelines on redesignation. The Township of Wellington North has Future Development lands in Arthur and Mount Forest.

Intensification Rate: refers to the percentage of the Township's historical and forecast housing growth accommodated within the B.U.A. The intensification rate is measured based on geographic area and a target was set by the County of Wellington in accordance with provincial policy direction. The Township of Wellington North is required to plan for a minimum of 20% of housing unit growth in the Township to be accommodated within the B.U.A. by 2051.

[1] Complete Streets of Canada website – https://completestreetsforcanada.ca/what-are-complete-streets/, retrieved July 24, 2024.

Missing Middle Housing: refers to the range of housing types between traditional single detached houses and high-rise apartments that have gone "missing" from many large cities in Ontario. Missing middle housing is typically defined to include a range of house-scale buildings with multiple units – compatible in scale and form with detached single-family homes – located in a walkable neighbourhood.

Net Residential Land Area: refers to the portion of the developable land area to accommodate lots for housing, exclusive of all other land uses, such as roads, stormwater ponds, parks/trails, and commercial and institutional sites.

People and Jobs per Hectare: an estimate of the population and jobs divided by the gross developable land area. This is a key growth management target established by the County in accordance with provincial policy. The minimum people and jobs per hectare in the Township of Wellington is 32 people and jobs per hectare in the D.G.A.

Population-Related Employment: employment within the Community Areas that supports the population base, including retail, office, and institutional uses. These uses are generally found within the Township of Wellington North's commercial areas and the various institutional sites in the Township (e.g., schools, daycares, nursing homes, public service facilities, hospitals, and government facilities).

Rural Area: refers to lands outside the Urban Centres of Arthur and Mount Forest which includes prime agricultural lands, rural lands, rural settlement areas (hamlets), mineral aggregate resources, rural commercial, and rural Employment Areas.

Urban Area: refers to municipally serviced (water/wastewater) lands within the Urban Centres of Arthur and Mount Forest. In accordance with provincial planning policies, the Township's Urban Area will accommodate most of the Township's growth, with a limited amount of growth allocated to the Rural Area. This approach prioritizes the protection of the Township's prime agricultural lands, while providing some growth opportunities to contribute to the rural economy.



Executive Summary

Executive Summary

Introduction

In December 2023, the Township of Wellington North retained Watson & Associates Economists Ltd., in association with WSP Canada Inc. (hereinafter referred to as "the Consultant Team") to prepare a Township of Wellington North Growth Management Action Plan. The Consultant Team comprises a multi-disciplinary team working together to provide a study that addresses and integrates a wide range of considerations in planning for growth and development within Wellington North, including the long-term population and employment trends, urban land needs, hard and soft infrastructure requirements, financial impacts of development on the Township, and strategic planning policy direction.

Growth management is a set of techniques to strategically plan the when and where of growth, considering both current and anticipated urban needs. The goal is to advance sustainable growth patterns by optimizing the utilization of land, resources, and infrastructure, while also managing other key priorities. Additional priorities often encompass building complete communities, addressing climate resiliency, preserving the character of communities, and safeguarding natural heritage.

The Township of Wellington North Growth Management Action Plan will be designed to serve as a guiding document that broadly addresses the future impacts of growth related to municipal service delivery, infrastructure requirements, urban land needs and land use planning policy, economic development, and financial sustainability as the Township evolves.

Key objectives of the Growth Management Action Plan include the following:

- Develop a long-term vision for growth and development for the Township to guide local growth management decision-making;
- Describe the type of growth the community wants and where that growth should occur;
- Implement the County's growth forecasts and policy directions through a local lens;
- Prepare a high-level assessment of the growth impacts from a services/ infrastructure perspective; and

- Suggest areas where the Township may need to explore a further review and study.

A key difference between the previous growth management study, the Township of Wellington North Growth Plan, 2018, and this study is that this analysis will not conduct and evaluate growth scenarios for the Township's Urban Centres. This study, the Growth Management Action Plan, will instead focus on building upon the County's growth management work, developing a local vision for growth, and providing direction on local implementation. Through engagement with public stakeholders, this study will identify a series of preferred growth principles and priorities for the Township.

Study Process

Over the duration of the study, the Consultant Team had active engagement with the Steering Committee which included members of the Township's staff and personnel from the County of Wellington. The Steering Committee provided a review of planning, infrastructure, and municipal finance information prepared for the Growth Management Action Plan.

The Growth Management Action Plan was carried out with the engagement of an Advisory Committee of 18 members. The Advisory Committee includes Township councillors, community leaders, and a number of residents, including those who are business owners and members of community groups. Five workshop meetings were held with the Advisory Committee throughout the project. Furthermore, report presentation packages were provided to the Advisory Committee for review and comment. The Advisory Committee provided valuable insights and supported the development of the Township's vision and guiding principles for growth.

In the early stages of the project, a public online survey was posted on the Township's website and promoted on social media to gather input from the broader community on growth-related topics. The Consultant Team reviewed the 42 surveys submitted. The information from the surveys supplemented the on-going feedback from the Advisory Committee which was used to inform this Growth Management Action Plan.

The Growth Management Action Plan was prepared under five phases of work as illustrated in Figure ES-1.

Figure ES-1
Growth Management Action Plan
Study Components



Deliverables

The Background Report[1] is the first component of the Growth Management Action Plan. It provides important context for the Growth Management Action Plan, and discusses the implications of trends, growth projections, demographic shifts, and other factors influencing development patterns and how the Township is to plan for growth. Designed as a resource for discussions, this document provides background information and explores key themes related to residential and non-residential development trends that require long-term growth management considerations.

This report, the Growth Management Action Plan, summarizes the Township's growth forecast, vision for growth, growth principles, and priorities. The report also includes a high-level assessment of the growth impact on municipal finance and operations, as well as hard servicing requirements (e.g., roads and water and wastewater servicing).

[1] Township of Wellington North Growth Management Action Plan Background Report prepared by Watson & Associates Economists Ltd. and WSP Canada Inc., March 2024.

Furthermore, it includes recommendations and direction on local growth implementation.

Policy Context

The Growth Management Action Plan must conform with provincial and County planning policies. The County of Wellington, as an upper-tier municipality, has a responsibility to set growth management parameters for the member municipalities within the County, including growth forecasts and allocations, and minimum targets for density and intensification. In updating the County of Wellington Official Plan, the County recently undertook a Municipal Comprehensive Review (M.C.R.). That document provides further details on planning for growth across the County, including growth forecasts by member municipality, Urban Centre growth allocations, and an urban land needs assessment to the year 2051.

The Township of Wellington North, as with other lower-tier municipalities in Ontario, holds responsibility for managing growth through a range of tasks, including:

- zoning by-law;
- development approvals;
- infrastructure planning;
- phasing of growth;
- municipal finance;
- exploring initiatives for greenhouse gas reduction;
- accommodating a range of housing options;
- business retention and expansion; and
- collaboration in County planning.

Growth Vision and Guiding Principles

A key component of the Growth Management Action Plan is developing growth vision and guiding principles for planning for growth within the Township of Wellington North. The growth vision and guiding principles were developed through workshops with the Advisory Committee, consultation with Township and County staff, and a public survey. Additionally, the growth vision and guiding principles build upon the previous Township of Wellington North Growth Plan, 2018 and the recently completed Township of Wellington North Strategic Plan, 2024. It is important to note that the growth vision and

guiding principles were developed based on the provincial and County planning framework and represent key planning policy direction from the Province and the County of Wellington.

The growth vision and guiding principles are intended to describe the overall community planning and growth management direction for Wellington North. Furthermore, the growth vision and guiding principles are also intended to provide a consistent, long-term framework through which future planning decisions and investments are considered and evaluated towards a desired common outcome for the Township.

Provided below is the growth vision statement:

> **Wellington North is a place for everyone, supported by a high quality of life and sustainable growth for current and future generations.**

The 10 guiding principles for planning for growth are as follows:

1. Together as One: Wellington North
2. Championing Environmental Stewardship and Protecting Resources for Future Generations
3. Supporting Responsible and Sustainable Growth and Infrastructure
4. Embracing Creative and Innovative Solutions
5. Engaging Residents, Businesses, and Community Groups
6. Preserving the Character and Vibrancy of Our Communities and Countryside
7. Nurturing a Diverse and Adaptable Local Economy and Employment Base
8. Providing Diverse and Affordable Options for Housing
9. Enhancing Mobility and Connectivity within the Township and Beyond
10. Ensuring the Safety and Wellbeing of Residents

Growth Forecast

The Township is anticipated to reach a population of 20,500 and an employment base of 10,500 jobs by 2051. As a result, over the 2024 to 2051 period, the Township is anticipated to add 6,700 residents and 2,900 jobs.

As of mid-2024, Mount Forest is estimated to have a population base of 5,800, while Arthur is estimated to have a population base of 3,300. Mount Forest and Arthur are both anticipated to experience robust population growth, increasing at an annual rate of 2.2% and 1.4%, respectively, to 2051. The Rural Area has a population of 4,700 as of mid-2024. Over the 2024 to 2051 period, Mount Forest is forecast to add 4,700 residents and 1,620 households, while Arthur is anticipated to add 1,500 residents and 600 households. The Rural Area is expected to add 500 residents and 170 households over the same period.

Mount Forest is anticipated to accommodate 64% of the Township's employment growth, while Arthur is anticipated to accommodate 30% of the Township's employment growth. Both Urban Centres are anticipated to benefit from building upon the existing employment base and population-related employment opportunities such as commercial and institutional uses. The Rural Area is anticipated to add a slight increase to the employment base.

Key Growth Targets

Figure ES-2 provides a summary of the growth targets to be considered in planning for growth in the Township of Wellington North. These targets are considered minimums and are deemed appropriate based on a review of the market, growth drivers, and the consideration of long-term changes in the demographic base. Over the planning horizon, the Township in partnership with the County of Wellington should continue to monitor the growth targets summarized in Figure ES-2. Other factors in monitoring growth should be explored, including the range of non-residential uses (e.g., commercial, industrial, and institutional) and housing options (e.g., housing by tenure and structure type).

Figure ES-2
Township of Wellington North
Growth Targets

Growth Targets	Target
Township Population by 2051	**20,500**
Township Employment by 2051	**10,500**
Minimum Intensification Rate – Share of Housing Growth in the Built-up Area	**20%**
Minimum Density in Greenfield Areas	**32 people and jobs/hectare**

Source: Derived from the County of Wellington, Phase 2 M.C.R. Report: Urban Land Needs Assessment prepared by Watson & Associates Economists Ltd., 2022.

Does the Township have Enough Land to Accommodate Population and Housing Growth?

The County's M.C.R. identified that Mount Forest and Arthur have sufficient land available within the Urban Centre boundary to accommodate population growth to 2051. While the Township does not require additional lands outside the Urban Centres boundary to accommodate growth, it does require approximately 81 gross hectares (200 gross acres) of Future Development lands to be redesignated for Community Area uses. This is anticipated to accommodate just over 600 housing units, as well as parkland, local roads, and commercial/institutional uses. The County of Wellington M.C.R. identified that there is a need for additional designated commercial lands within Arthur and a minimum of 2 hectares (5 acres) would be required to 2051. It was recommended that additional lands beyond the 2 hectares (5 acres) be considered for commercial uses to ensure a market choice of designated commercial lands. The commercial land requirement is included in the 81 hectares (200 acres) of Future Development land required to be redesignated for Community Area uses. A summary of the amount of Future Development lands to be redesignated for Community Area uses (e.g., residential, commercial, and institutional) by Urban Centre is summarized in Figure ES-3.

Figure ES-3
Township of Wellington North
Future Development Lands to be Redesignated
to Community Area Uses by 2051

Urban Centre	Land Area, hectare
Arthur	27
Mount Forest	54
Total	**81**

Source: Derived from the County of Wellington, Phase 2 M.C.R. Report: Urban Land Needs Assessment prepared by Watson & Associates Economists Ltd., 2022.

Does the Township have Enough Land to Accommodate Employment Area Growth?

In accordance with the County's M.C.R. report, it was identified that there is a 70-hectare (173 acres) surplus of Employment Area lands to 2051.[1] While there is a surplus of Employment Area lands in the Township, it is important to recognize that a large portion of the vacant Employment Area land supply is not currently available for development or is not suitable for immediate use due to servicing and the current use of the sites. For example, a large portion of the Employment Area land supply in Mount Forest is used for agricultural purposes and the land is not currently marketed for industrial purposes. Over the long term, these lands may become available; however, in the short term, the Township has a limited supply of serviced Employment Area lands ready for industrial development. Moreover, it is important to note that the surplus of Employment Area lands is within Mount Forest, as Arthur would require all of its 30 hectares (74 acres) of vacant Employment Area lands for employment growth to 2051.

Accommodating Additional Designated Urban Lands

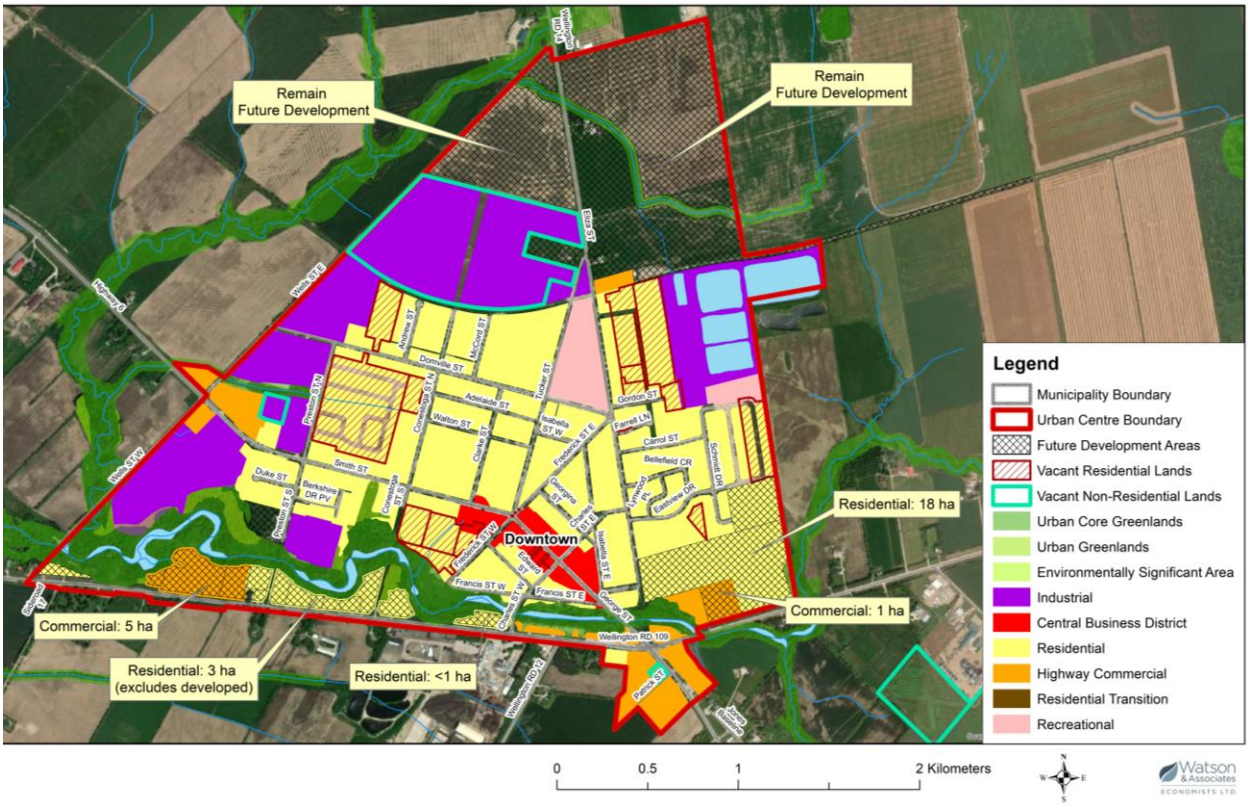
A review was carried out to examine the opportunities to accommodate a shortfall of designated residential lands in the Urban Centres of Arthur and Mount Forest to 2051. The Urban Centres include Future Development lands that are within the urban

[1] County of Wellington, Phase 2 Municipal Comprehensive Review Report: Land Needs, prepared by Watson & Associates Economists Ltd., March 31, 2022.

boundary and are available for redesignation. Future Development is a holding designation category in the County of Wellington O.P. and lands can be redesignated should there be a demonstrated need. The Township of Wellington North requires 81 hectares (200 acres) to be redesignated for Community Area uses (e.g., residential, commercial/institutional, parkland, local roads, and infrastructure).

Based on the review, the required lands to be redesignated in Arthur for residential and commercial uses to 2051 will be fulfilled as part of County of Wellington O.P.A. 123 which proposes to redesignate 28 hectares (69 acres) of Future Development lands in Arthur.

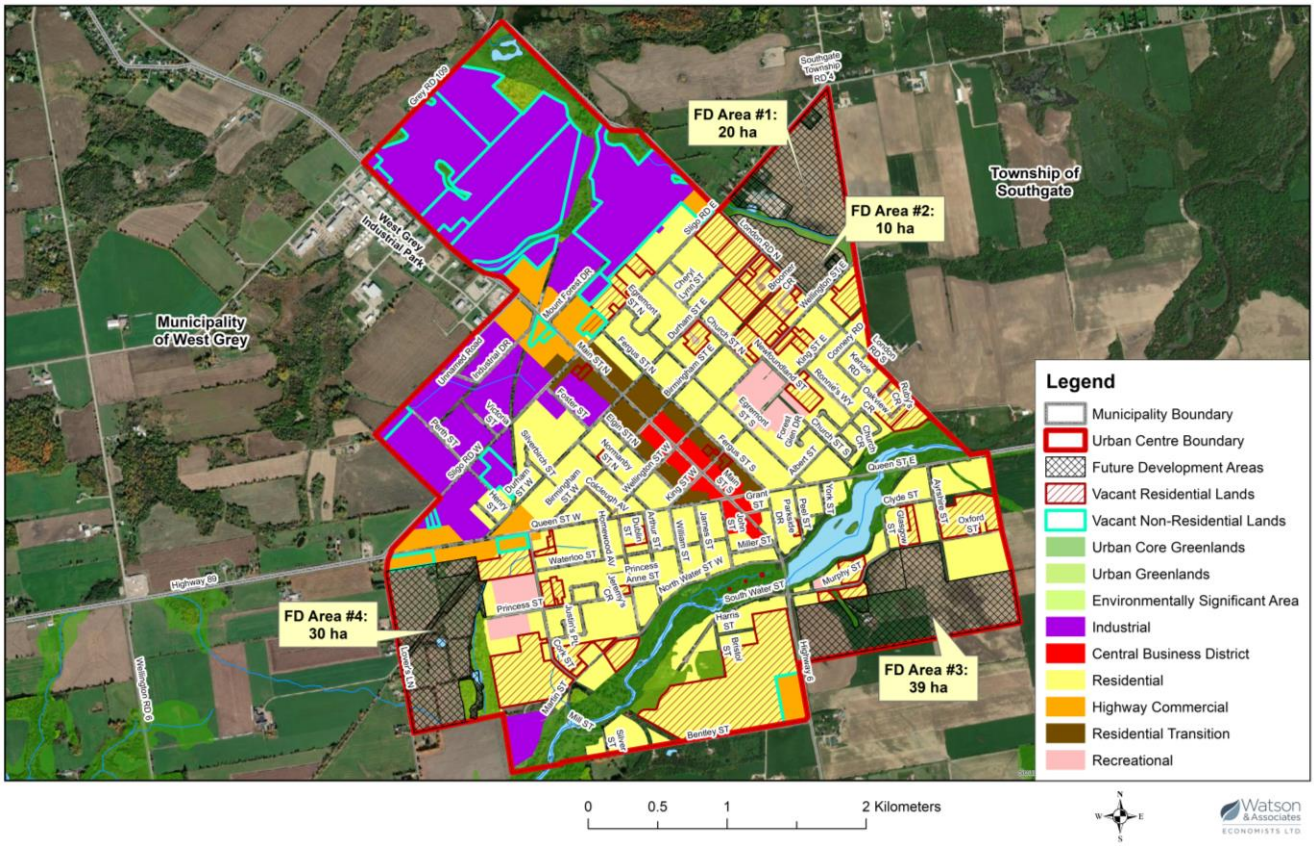
Figure ES-4
Township of Wellington North
Arthur Urban Centre
Potential Future Development Sites for Redesignation as part of O.P.A. 123



Note: only primarily vacant Future Development sites are identified in the Future Development overlay.

Mount Forest requires 54 hectares (133 acres) of Future Development lands to be redesignated for residential and commercial uses. The Consultant Team reviewed four Future Development site areas and recommended the redesignation of Future Development Sites #2 and #3 as illustrated in Figure ES-5. In addition to the planning and growth management considerations, all Future Development site areas were reviewed at a high level for water and wastewater servicing requirements.

Figure ES-5
Township of Wellington North
Mount Forest Urban Centre
Potential Future Development Sites for Redesignation



Infrastructure and Services Review

A review of the growth impacts on services (water, wastewater and stormwater, and transportation needs) was undertaken based on a high-level evaluation of infrastructure requirements and associated impacts from a fiscal and operational perspective. The

high-level infrastructure and service assessment comprises of the following components:

- **Infrastructure Analysis** includes a review of growth and its impact on planning for water, wastewater and stormwater, and transportation needs.
- **Municipal Fiscal Analysis** includes a high-level fiscal review of growth and the associated infrastructure and services to support growth, along with an impact to the operating requirements to service the future developments.

It is important to note that this high-level infrastructure and service assessment is considered a starting point in exploring the impacts of growth. Furthermore, it is the intention of this assessment to identify areas that the Township will need to explore as a part of further study. The assessment identified a number of water, wastewater, and road improvements that would be required to accommodate growth to 2051 in Arthur and Mount Forest, including the infrastructure improvements required on Future Development lands. Overall, it is recommended that the Township consider secondary or master planning for new greenfield areas in Arthur and Mount Forest before development takes place. This would also explore a phasing and staging plan that would ensure the orderly development of greenfield land that is aligned with infrastructure. Furthermore, it is recommended that the Township develop a Transportation Master Plan (including roadway, open and unopen road allowances, sidewalks, and trails), specifically a "Mobility Master Plan" that includes planning for all forms of mobility.

Strategic Growth Directions

This report has provided a series of strategic growth directions for the Township in managing growth over the long term. These strategic directions have been organized according to the 10 guiding principles in planning for growth, as previously discussed. The strategic growth directions encompass two types of actions: approaches and initiatives. Approaches are overarching recommended strategies that guide planning and decision-making processes. Initiatives are specific projects and programs implemented to achieve the Township's growth management objectives. The recommended strategic growth directions also identify whether the Township of Wellington North would be leading this approach or initiative, or whether it would be in partnership with the County of Wellington. It is important to recognize that some of the strategic growth directions identified are already being carried out by the Township and

are included as a recommendation to continue. The strategic growth directions tables should be reviewed regularly by Township staff and Council and updated where necessary.

Next Steps

The Township in partnership with the County of Wellington should continue to proactively monitor growth within the Township. As part of this review, the Township should also monitor growth as it relates to infrastructure and service needs. It is important to recognize that over the next couple of decades there will be updates to the growth forecast, allocations, and key growth targets (i.e., intensification and density) as part of an O.P.R. The County's next O.P.R. is likely to involve a longer time horizon, i.e., beyond 2051, and that will have an impact on land needs and infrastructure. As a result, to proactively prepare for discussions with the County, the Township should explore the infrastructure requirements of all Future Development lands within the Urban Centres of Mount Forest and Arthur through potential secondary plans or master plans. Exploring infrastructure requirements will also be key in preparing for potential discussions and planning applications by landowners or developers.

Furthermore, the Township should review the supply of the Township's vacant Employment Area lands more closely as part of an Employment Area Strategy. The Employment Area Strategy would explore the competitiveness of the Employment Areas, the appropriateness of vacant sites for industrial development, and opportunities to service vacant Employment Area lands.

Other key studies and initiatives that should be explored include an updated Transportation Mobility Plan, a Stormwater Study, an Intensification and Infill Strategy, a Downtown Parking Study, completing the Wellington North Recreation Master Plan, and a Housing Affordability Study. Furthermore, the Township should expand the Sewage Allocation Policy to include water/wastewater for the Township's Urban Centres to manage and phase residential and employment growth to 2051. This policy will provide transparency on growth priorities (balancing residential and non-residential demands and location), what improvements are required, and the timelines.

A reoccurring theme by members of the public included the need to bring the Township together as one collective community. It has been observed that there is a necessity to shift the focus from the distinctions among the communities within Wellington North

towards acknowledging and emphasizing the commonalities they share. Looking forward, the Township is anticipated to accommodate a higher rate of growth and, as a result, will need to ensure that Council and the general public of the Township come together to make decisions on accommodating growth that impacts the Township as a whole.



Report

Chapter 1
Introduction

1. Introduction

1.1 Purpose

1.1.1 Terms of Reference

In December 2023, the Township of Wellington North retained Watson & Associates Economists Ltd., in association with WSP Canada Inc. (hereinafter referred to as "the Consultant Team"), to prepare a Growth Management Action Plan. The Consultant Team comprises a multi-disciplinary team working together to provide a study that addresses and integrates a wide range of considerations in planning for growth and development within Wellington North. This includes a review of long-term population and employment trends, urban land needs, hard and soft infrastructure requirements, the financial impacts of development on the Township, and strategic planning policy direction. In developing the study work plan, the Consultant Team has established a detailed consultation and public engagement strategy to address the above-mentioned considerations.

1.1.2 What is Growth Management?

Growth management is a set of techniques to strategically plan the when and where of growth, considering both current and anticipated urban needs. The goal is to advance sustainable growth patterns by optimizing the utilization of land, resources, and infrastructure, while also managing other key priorities. Additional priorities often encompass building complete communities, addressing climate resiliency, preserving the character of communities, and safeguarding natural heritage.

1.1.3 Growth Management Roles

The Growth Management Action Plan must conform with provincial and County planning policies. The County of Wellington, as an upper-tier municipality, has a responsibility to set growth management parameters for the member municipalities within the County, including growth forecasts and allocations, and minimum targets for density and intensification. The County is required to prepare these under the provincial policy framework, which includes the Provincial Policy Statement (P.P.S.), 2020 and A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019 (Growth Plan, 2019). In updating the County of Wellington's Official Plan (O.P.), the County recently

undertook a Municipal Comprehensive Review (M.C.R.). That document provides a summary of the growth forecasts, Urban Centre growth allocations, and an urban land needs assessment to the year 2051. A more detailed review is provided in the Growth Management Action Plan Background Report prepared for the Township of Wellington North in March 2024.[1]

1.1.4 What Role Does the Township of Wellington North have in Growth Management?

The Township of Wellington North, as with other lower-tier municipalities in Ontario, holds responsibility for managing growth through a range of tasks, including:

- **Zoning By-law**: regulates how land can be used and developed, including provisions for setbacks, building heights, parking requirements, and permitted uses.
- **Development approvals**: reviewing and approving development applications such as subdivisions and site plans.
- **Infrastructure planning**: planning and providing for infrastructure, such as roads, water supply, wastewater treatment, and community facilities, to accommodate growth and development.
- **Phasing of growth**: staging the development of lands that align with infrastructure planning, economic development plans, and community priorities and values.
- **Municipal finance**: ensuring that the Township is planning for growth that is fiscally responsible over the long term.
- **Leadership in greenhouse gas reduction**: the P.P.S., 2020 requires municipalities address energy conservation and emission reductions through land use and development patterns.[2] Local municipal governments have a key responsibility in reducing greenhouse gas emissions, as it is estimated that 44% of Canada's greenhouse gas emissions were directly and indirectly controlled by municipal government.[3]

[2] Township of Wellington North Growth Management Action Plan Background Report prepared by Watson & Associates Economists Ltd. and WSP Canada Inc., March 2024.
[3] Provincial Policy Statement, 2020, policy 1.8.1.
[1] EnviroEconomics, Act Locally. The Municipal Role in Fighting Climate Change, prepared for the Federation of Canadian Municipalities, 2009.

- **Accommodating opportunities for a range of housing options**: the provincial policy framework includes a series of housing policies that stress the importance of municipalities in facilitating housing development, including supporting affordable housing options.
- **Business retention and expansion**: implementing policies and initiatives to encourage business growth and retention within the Township, thereby supporting local employment opportunities and preventing the erosion of the non-residential assessment tax base.
- **Collaboration in County planning**: collaborating with the County of Wellington and neighbouring member municipalities to coordinate growth management efforts, address regional issues, and achieve broader planning objectives.

A local growth management strategy can serve as a guide in decision making related to the above responsibilities, ensuring that development and initiatives align with the Township's long-term vision, priorities, and goals.

1.1.5 What is the Purpose of the Growth Management Action Plan?

The Growth Management Action Plan is designed to serve as a guiding document that broadly addresses the future impacts of growth as they relate to municipal service delivery, infrastructure requirements, urban land needs and land use planning policy, economic development, and financial sustainability as the Township evolves.

Key objectives of the Growth Management Action Plan include the following:

- Develop a long-term vision for growth and development for the Township to guide local growth management decision-making;
- Describe the type of growth the community wants and where that growth should occur;
- Implement the County's growth forecasts and policy directions through a local lens;
- Prepare a high-level assessment of the growth impacts from a services/ infrastructure perspective; and
- Suggest areas where the Township may need to explore further review and study.

1.1.6 The Growth Management Action Plan Serves as the Township's Growth Management Update

This Growth Management Action Plan is intended to update the Township of Wellington North Growth Plan prepared in 2018 by GSP Group Inc. and Curtis Planning Inc. The Township of Wellington North Growth Plan, 2018 was used to inform the County of Wellington on the Township's growth priorities and issues as the County conducted its M.C.R. and drafted Official Plan Amendments (O.P.A.s).[1]

A key difference between the Township of Wellington North Growth Plan, 2018 and this study is that this study does not conduct and evaluate growth scenarios for the Township's Urban Centres. The purpose of assessing growth scenarios and selecting the preferred growth scenario for the Township was to inform the County of Wellington M.C.R. growth management work. This study, the Growth Management Action Plan, instead focuses on building upon the County's growth management work, developing a local vision for growth, and providing direction on local implementation. As a result, this recognizes that the County of Wellington's growth management work was informed by the previous Growth Management Action Plan.

Through engagement with an Advisory Committee, Township and County staff, and the public, this study identifies a series of preferred growth principles and priorities for the Township.

1.2 Study Process and Components

1.2.1 Steering Committee

Over the duration of the study, the Consultant Team had active engagement with the Steering Committee which included members of the Township's staff and personnel from the County of Wellington. The Steering Committee provided a review of planning, infrastructure, and municipal finance information prepared for the Growth Management Action Plan.

[1] County of Wellington, County Official Plan Review – Report #PD2023-24, prepared for the County of Wellington Chair and Members of the Planning Committee by County of Wellington planning staff, September 14, 2023.

1.2.2 Advisory Committee

The Growth Management Action Plan was carried out with the engagement of an Advisory Committee of 18 members. The Advisory Committee includes Township councillors, community leaders, and a number of residents, including those who are business owners and members of community groups. Five workshop meetings were held with the Advisory Committee throughout the project and included:

- **Advisory Committee Meeting #1**: Introduction (January 16, 2024)
  - Project goals, objectives, and approach.
- **Advisory Committee Meeting #2:** Background Study (February 20, 2024)
  - How have we grown?
  - Discussion of the provincial and County's growth policy context from a local perspective.
- **Advisory Committee Meeting #3**: Developing a Vision (March 19, 2024)
  - Identifying principles and priorities for guiding growth.
- **Advisory Committee Meeting #4:** Preferred Growth Vision (April 30, 2024)
  - Selected principles and priorities for growth.
- **Advisory Committee Meeting #5:** Growth Management Recommendations (June 11, 2024)
  - Strategic directions for growth:
    - Finalizing growth vision and guiding principles.
    - Review of Future Development lands in Arthur and Mount Forest.
    - Review of draft Growth Management Action Plan recommendations.

Furthermore, report presentation packages were provided to the Advisory Committee for review and comment. The Advisory Committee provided valuable insights and supported the development of the Township's vision and guiding principles for growth.

1.2.3 Growth Management Public Survey

In the early stages of the project, a public online survey was posted on the Township's website to gather input from the broader community on growth-related topics. The Consultant Team reviewed the 42 surveys submitted. The information from the surveys supplemented the on-going feedback from the Advisory Committee which was used to inform this Growth Management Action Plan.

1.2.4 Background Report

The Background Report[1] is the first component of the Growth Management Action Plan. It provides important context for the Growth Management Action Plan, and discusses the implications of trends, growth projections, demographic shifts, and other factors influencing development patterns and how the Township is to plan for growth. Designed as a resource for discussions, this document provides background information and explores key themes related to residential and non-residential development trends that require long-term growth management considerations.



1.2.5 Growth Management Action Plan Report

This report, the Growth Management Action Plan, summarizes the Township's growth forecast, vision for growth, growth principles, and priorities. The report also includes a high-level assessment of the growth impact on municipal finance and operations, as well as hard servicing requirements (e.g., roads and water and wastewater servicing). Furthermore, it includes recommendations and direction on local growth implementation.

1.2.6 Study Components

The Growth Management Action Plan was prepared under five phases of work as illustrated in Figure 1.

[1] Township of Wellington North Growth Management Action Plan Background Report prepared by Watson & Associates Economists Ltd. and WSP Canada Inc., March 2024.

Figure 1
Growth Management Action Plan
Study Components



Provided below is a summary of the phases of work that was carried out to complete the Growth Management Action Plan report.

Phase 1 – Background Report

Phase 1 laid the foundation for the project's success by reviewing a series of background technical information related to planning for growth, conducting an analysis of evolving development trends and identifying key stakeholders. The Background Report was prepared in March 2024.

Phase 2 – Developing a Vision for Growth

As part of this phase, the vision for growth developed in the 2018 Wellington North Growth Plan was reviewed and updated. The Consultant Team undertook a visioning session with the Township's Advisory Committee with the primary objectives of determining whether the 2018 vision is still applicable and drafting updates to guide future development of the Township and its Urban Centres (Mount Forest and Arthur).

Phase 3 – Preferred Growth Vision

Phase 3 identified the preferred growth vision and its principles and priorities. Furthermore, a review of Future Development lands to accommodate additional designated residential and commercial lands in Arthur and Mount Forest was carried out.

Phase 4 – Service Impact Analysis

Phase 4 involved the assessment of the preferred growth vision based on its impact on services provided by the Township. This phase included a high-level review of the growth impacts on services (water, wastewater and stormwater, and transportation needs) based on a high-level evaluation of infrastructure requirements and associated impacts from a fiscal and operational perspective. A high-level review of servicing needs for the Future Development lands in Arthur and Mount Forest was carried out.

Phase 5 – Implementation and Action Plan Development

This final phase provides an updated Growth Management Action Plan for the Township to guide sustainable growth and development over the next 10 to 15 years. Working with the Advisory Committee, an updated growth vision and a series of guiding principles for growth have been established, building on the previous phases of this study and the results of the Wellington County M.C.R. and the 2018 Wellington North Growth Management Action Plan. Furthermore, recommendations were established for future development lands in Arthur and Mount Forest.

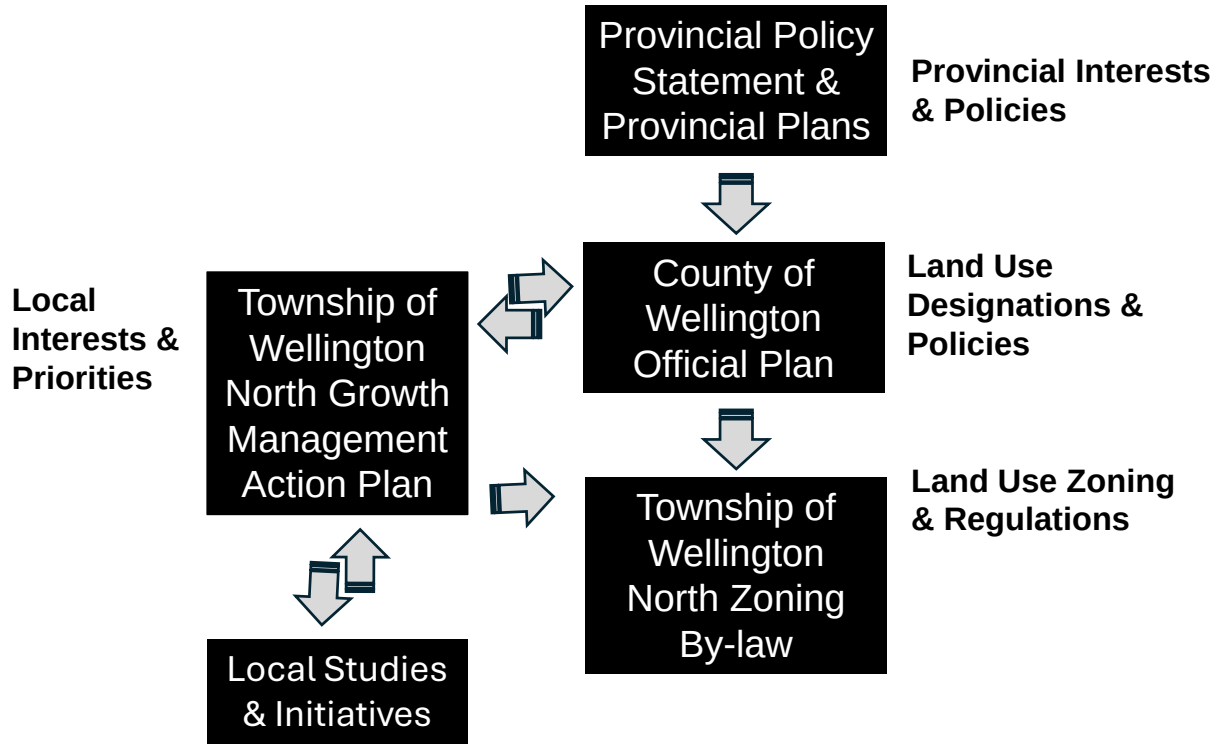
1.3 Policy Context and Key Documents

1.3.1 Relationship of Growth Management Action Plan within the Planning Policy Framework

Figure 2 illustrates the relationship between the Growth Management Action Plan within the broader provincial planning policy framework. The Growth Management Action Plan is intended to reflect the local interests and priorities of the Township in managing growth. This Growth Management Action Plan was prepared in accordance with key planning policies and documents, including the P.P.S., 2020 and the Growth Plan, 2019. In addition, the proposed Provincial Planning Statement (P.P.S., 2024) was

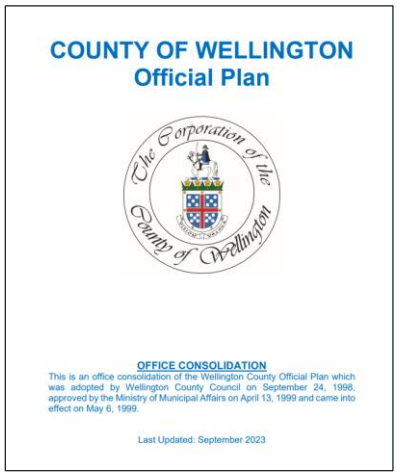
taken into consideration. Furthermore, the Growth Management Action Plan is intended to conform to the policies and growth allocations of the County of Wellington O.P. and is to be used to inform future updates of the County of Wellington O.P. as it relates to managing growth within the Township of Wellington North. It is important to recognize that the County of Wellington O.P. is a statutory policy document, while this document is considered a background document on providing local policy direction.

Figure 2
Relationship of Growth Management Action Plan
and Planning Policy Framework



1.3.2 County of Wellington Official Plan

The County of Wellington is currently undergoing a review of its O.P. to reflect current provincial policy direction and the County's strategic initiatives. The County is updating its O.P. through a series of O.P.A.s. The County O.P. is a long-range document designed to manage change and the physical development of the County over a long-term planning horizon. All member municipalities within the County are required to plan for long-term growth in accordance with the policies of the County O.P. All Zoning By-laws and local growth management strategies are required to implement the policies of the County O.P.



Except for the Town of Erin and the Township of Centre Wellington, the County O.P. is the only statutory plan for the member municipalities in accordance with the Ontario *Planning Act*. The local O.P.s of the Town of Erin and the Township of Centre Wellington are also required to conform to the County O.P.

It is important to note that while the Township of Wellington North does not have its own O.P., it does have its own section in the County of Wellington O.P. (section 9.7) for local policies. The local policies within the County O.P. primarily include special policy areas.[1] The County O.P. also includes the following schedules for the Township of Wellington North: growth structure, land use, source water protection, and mineral aggregates.

The Growth Management Action Plan is an important document to inform the County's future O.P. updates. The previous Township of Wellington North Growth Plan served as an important document to inform the County of local growth priorities as the County carried out O.P.A.s as part of the Official Plan Review (O.P.R.).

[2] County of Wellington Official Plan, adopted by Wellington County Council on September 24, 1998, approved by the Ministry of Municipal Affairs on April 13, 1999, and came into effect on May 6, 1999, Updated September 2023, Wellington North Local Policies, policy section 9.7.

Further information on the policy context can be found within the Background Report.[1]

1.3.3 Township of Wellington North Strategic Plan, 2024

Over several recent terms of Council, the Township has advanced its strategic planning framework. The 2019 to 2022 strategic plan was focused upon modernization and efficiency, partnerships, municipal infrastructure, alignment, and integration. It is important to recognize that the Strategic Plan is a document that is focused on short-term priorities for Council and Township staff. The Strategic Plan involved extensive consultation with the public and stakeholders to understand the satisfaction of the delivery of municipal services and to identify key focus areas for the Township. Background information from public engagement and outreach from this study was also utilized for this Growth Management Action Plan.

Provided below is a summary of the three key focus areas identified in the 2024 Strategic Plan for the Township:

- Shape and support sustainable growth so that the Township maintains and supports growth for a balanced and inclusive community;
- Deliver quality, efficient community services aligned with the Township's mandate and capacity so that the Township carefully maintains, enhances, and improves services that are balanced with community needs and resources; and
- Enhance information sharing and participation in decision-making so that the Township increases engagement and sense of community.[2]

1.3.4 Township of Wellington North Zoning By-law

The Wellington North Comprehensive Zoning By-law[3] is a regulatory tool used by the Township to control and regulate land use. It divides the Township into zones or special policy areas, each with a specific regulation governing the types of land uses, building sizes, heights, parking requirements, setbacks and other development standards. The Zoning By-law is enacted under the authority of the Ontario *Planning Act* and must

[2] Township of Wellington North Growth Management Action Plan Background Report prepared by Watson & Associates Economists Ltd. and WSP Canada Inc., March 2024.
[3] Township of Wellington North Strategic Plan, 2024, prepared by Do/Able Consulting.
[1] Ibid.

conform to provincial policies and the County of Wellington O.P. The Zoning By-law is an important tool for the Township, as it provides a framework for managing growth.

The Township of Wellington North has 26 zones within the Zoning By-law. Zone classes within the Township of Wellington North Urban Centres include the following zones that accommodate housing and employment growth:

- **Residential**: Low Density Residential (R1B and R1C); Medium Density Residential (R2); and High Density Residential (R3).
- **Mixed-Use**: Mixed-Use (MU1); and Main Street Mixed-Use (MU2).
- **Commercial and Institutional:** Institutional Zone (IN); Central Commercial Zone (C1); Highway Commercial Zone (C2); Neighbourhood Commercial Zone (C3); and Shopping Central Commercial Zone (C4).
- **Industrial**: Industrial Zone (M1).
- **Unserviced and Future Uses**: Unserviced Residential Zone (R1A); and Future Development Zone (FD). These include sites where the zoning limits the type of development/use until the lands are fully serviced (i.e., water and wastewater servicing).

As the Township grows, a key consideration for Wellington North will be the review of the Zoning By-law. A review of the Zoning By-law will ensure that it provides a framework to accommodate new, desired development forms and employment opportunities, and provides an opportunity to tackle climate resiliency. Furthermore, there may be an opportunity to consolidate zones, to provide more simplicity. For example, zones permitting commercial uses include several zones that may not reflect the evolving commercial structure and hierarchy of the Urban Centres of Arthur and Mount Forest. Moreover, the housing built-forms in the Zoning By-law do not consider new built-forms that are now appearing within the County of Wellington, including stacked townhouses and back-to-back townhouses.

1.4 Local Policy Context and Initiatives

Provided below is a list of key policy documents and initiatives prepared at the local level that the Township has influence in shaping and directing growth:

- Zoning By-law;

- Strategic Plan;
- Development Charges Background Study;
- Asset Management Plan;
- Township Industrial Strategy;
- Community Improvement Program;
- Municipal Servicing Standards;
- Partnership in Saugeen Connects;
- Business Retention and Expansion Surveys;
- Application for the Canada Mortgage and Housing Corporation Housing Accelerator Fund;
- Recreation Master Plan; and
- Municipal Cultural Plan.

Chapter 2
Growth Vision and Guiding Principles

2. Growth Vision and Guiding Principles

This chapter provides a summary of the growth vision and guiding principles for planning for growth within the Township of Wellington North. The growth vision and guiding principles were developed through workshops with the Advisory Committee, consultation with Township and County staff, and a public survey. Additionally, the growth vision and guiding principles build upon the previous Township of Wellington North Growth Plan, 2018 and the recently completed Township of Wellington North Strategic Plan, 2024. It is important to note that the growth vision and guiding principles were developed based on the provincial and County planning framework and represent key planning policy direction from the Province and the County of Wellington.

The growth vision and guiding principles are intended to describe the overall community planning and growth management direction for Wellington North. Furthermore, the growth vision and guiding principles are also intended to provide a consistent, long-term framework through which future planning decisions and investments are considered and evaluated towards a desired common outcome for the Township.

2.1 Considerations in Developing the Growth Vision and Guiding Principles

A key objective of the Growth Vision is to capture a range of topics in planning for growth and for the needs of existing and future generations. The guiding principles were developed to reflect the following considerations for the Township:

- What do we value?
- How will we make decisions on growth?
- What are our parameters for growth?
- How will we manage growth?

2.2 Developing the Growth Vision and Guiding Principles

What We Heard

The following is a consolidated summary that reflects discussions with the Advisory Committee and the results of the public survey.

Vision for the Future

- The rural and small town character of the Township is reflected in the property and design standards even as the communities grow.
- Communities and destinations are connected by safe roads and multi-modal transportation options.
- New developments support the realization of complete communities.
- More community facilities, such as schools, daycares, and recreation centres, are developed and provide programming and services for families and children.
- Community health services are accessible to all residents.
- A range of businesses and services are accessible within the Township, meeting the needs of residents.
- The Township is affordable for residents and financially sustainable.
- The downtown area is vibrant.
- The Township's agricultural base continues to thrive.
- Future generations continue to enjoy the natural environment and the Township's abundant natural resources.
- Cultural diversity is supported and promoted.

Purpose and Mission

- A united Township with a shared vision for growth and prosperity.
- Local representatives and stakeholders listen to and work with residents to envision and implement initiatives, programs, and changes that are identified. Residents understand how their input has been considered and used in community building initiatives.
- Create a liveable community that respects and protects the beauty of the Township's natural environment.
- Invest in initiatives that increase the quality of life for residents such as road improvements, public safety, programming and services for all ages and promote civic engagement.
- Establish rules for how the Township grows in terms of pace of development, density targets, and building form.

2.3 Growth Vision Statement and Guiding Principles

Wellington North is a place for everyone, supported by a high quality of life and sustainable growth for current and future generations.

The Township of Wellington North is guided by 10 principles in planning for growth, as illustrated in Figure 3. A summary of each principle follows on the next page.

Figure 3
Township of Wellington North
Guiding Principles in Planning for Growth



Together as One: Wellington North



The Township of Wellington North was formed in 1999, bringing together the former Township of Arthur, Village of Arthur, the Town of Mount Forest, and the Township of West Luther. It is recognized that each of these communities has their own heritage and identity. As a relatively young municipality with a 25-year history, the Township is still in the process of developing a collective identity. Up until recently, population growth in the Township has been modest. Looking forward, the Township is anticipated to accommodate a higher rate of growth and, as a result, will need to ensure members of the Township come together to make decisions on accommodating growth that impacts the Township as a whole.

The central focus of this guiding principle is to emphasize unity, collaboration, and collective growth goals within the Township. It underscores the importance of working towards common goals, fostering a sense of belonging, and supporting each other to create a thriving, inclusive, and prosperous Township.

Championing Environmental Stewardship and Protecting Resources for Future Generations



This principle ensures that development is sustainable and that growth minimizes the impact on the natural environment and the Township's ecosystems. To be responsible stewards of the lands within Wellington North, it is critical to ensure that decisions are assessed not just based on the impact to the current and next generation, but for several generations in the future. Championing environmental stewardship also considers opportunities to enhance the natural environment that will benefit future generations.

Supporting Responsible and Sustainable Growth and Infrastructure



This principle focuses on integrating environmental stewardship, fiscal responsibility and social equity into planning for growth and infrastructure. Key considerations in planning for responsible and sustainable growth includes ensuring that growth is phased and occurs at a pace that aligns with the timing of infrastructure delivery in a fiscally and sustainable manner. Moreover, this principle involves prioritizing infrastructure that is resilient to climate change, energy efficient and adaptable to future needs, while also

considering the social and economic benefits for the Township. By adhering to this principle, the Township aims to create a thriving, well-planned environment that supports both current and future generations.

Embracing Creative and Innovative Solutions



This principle involves applying forward-thinking solutions and approaches to address the challenges and opportunities facing the Township. It encourages development and infrastructure investments by the private and public sectors to push beyond conventional solutions. Moreover, this principle seeks to foster creativity in the development process while meeting provincial, County, and local planning requirements.

Engaging Residents, Businesses, and Community Groups



The Township comprises an engaged public, including a number of community groups. As the Township grows, there will be a need to ensure that public engagement remains strong. This principle involves actively engaging residents, businesses, and community groups to ensure that diverse perspectives and needs are considered. By fostering open dialogue and collaboration, decisions on growth and development will reflect the values and aspirations of the community, resulting in more effective and widely supported outcomes. Additionally, this principle considers the opportunity for collaboration on community building initiatives between members of the community and the Township, tackling issues facing the community today such as labour retention, affordable housing, and climate change.

Preserving the Character and Vibrancy of Our Communities and Countryside



The Township is fortunate to have a landscape of vibrant communities and a rural area with beautiful natural features and an agricultural base with some of the best soil conditions in the Province. This principle ensures that development and growth respect and enhance the distinctive qualities, natural features, and cultural heritage of the Township's communities and rural area, while accommodating change in a way that supports the local character and cohesion.

Nurturing a Diverse and Adaptable Local Economy and Employment Base



The Township's employment base is among the largest and most diverse in the County and the surrounding area. This principle recognizes the opportunity to build upon the strengths of the Township's employment base and local economy, while adapting to the key economic disruptors that are shaping the broader economy.

Providing Diverse and Affordable Options for Housing



The Township is anticipated to accommodate an increasingly diverse population base, as well as a large, aging population. Furthermore, across the Province housing affordability is eroding rapidly. This principle involves ensuring that growth in the Township accommodates a variety of housing types that cater to different income levels, family sizes, age groups, and lifestyle needs. By prioritizing affordability and diversity in housing, the Township will create an inclusive and vibrant community where residents have access to suitable and sustainable living arrangements.

Enhancing Mobility and Connectivity within the Township and Beyond



This principle emphasizes the need to plan communities in the Township that support the mobility of residents with a range of transportation options within the Township and in the surrounding area. Moreover, this principle also encourages opportunities to improve mobility within the Township's existing areas. Recognizing that public transit services are not currently offered within the Township, focus should be on accommodating cycling and improving pedestrian movement as alternatives to travel by vehicle. This principle also considers the need to accommodate parking for vehicles, bicycles, as well as unique parking requirements of the community (e.g., the parking of horse and buggies).

Ensuring the Safety and Wellbeing of Residents



This principle involves creating and maintaining secure, healthy, and inclusive communities where all residents can thrive. This includes ensuring that the new and existing communities have access to a range of services (e.g., health care, schools, and community centres) and opportunities for recreational activities. The Township already offers a range of services and recreational facilities; however, as the Township

continues to grow, consideration should be given to ensuring that the service levels are maintained or improved upon.

Chapter 3
Growth Forecast and the Township's Urban Land Needs

3. Growth Forecast and the Township's Urban Land Needs

The purpose of this chapter is to provide a summary of the growth forecast and allocations, and urban land needs to 2051. This chapter also provides a summary of key growth targets, including the intensification rate and people and jobs density on designated greenfield area (D.G.A.) lands. A more comprehensive review of the growth forecasts and land needs, including a review within the context of trends, growth drivers, and disruptors is provided in the Growth Management Action Plan Background Report prepared in March 2024.[1]

Appendix A provides tables on the growth forecasts by Urban Centre and the remaining Rural Area. Appendix B provides details on the land supply within the Urban Centres, including mapping and tables.

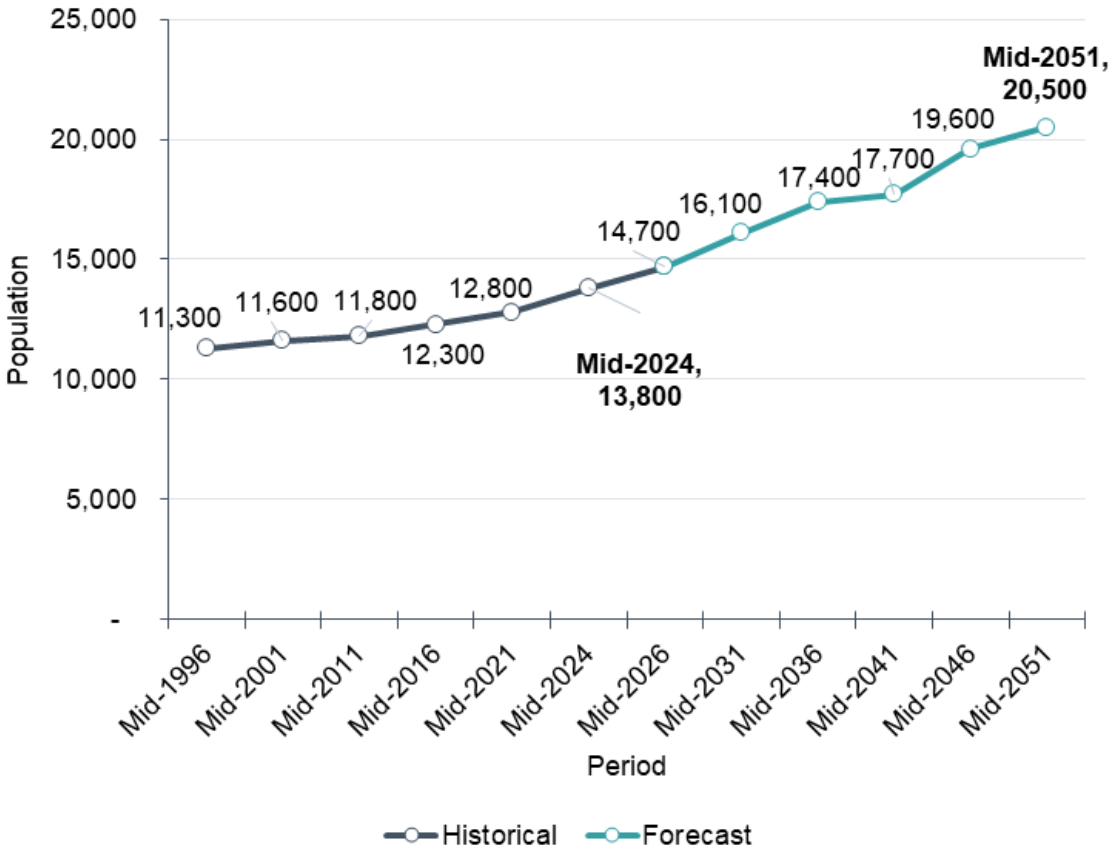
3.1 Wellington North Population, Housing, and Employment Forecast, 2021 to 2051

Figure 4 summarizes the population forecast to 2051, based on five-year increments, and the mid-2024 population estimate for the Township of Wellington North. By 2031, the Township is forecast to accommodate a population of 16,100, an increase of 2,300 or 329 residents annually over the 2024 to 2031 period. As a result, the population growth over that period is anticipated to increase at an annual rate of 2.2%. While the growth rate is very robust, this is slightly lower growth than the Township experienced over the past few years, 2021 to 2024, at 2.5%, which was due to a spike in residential building permit activity experienced during that period.

The growth rate is expected to gradually slow down over the long term. Over the 2031 to 2051 period, the Township is projected to add 4,400 residents at an annual growth rate of 1.2% due to an aging population base.

[1] Township of Wellington North Growth Management Action Plan Background Report prepared by Watson & Associates Economists Ltd. and WSP Canada Inc., March 2024.

Figure 4
Township of Wellington North
Population Forecast 2051

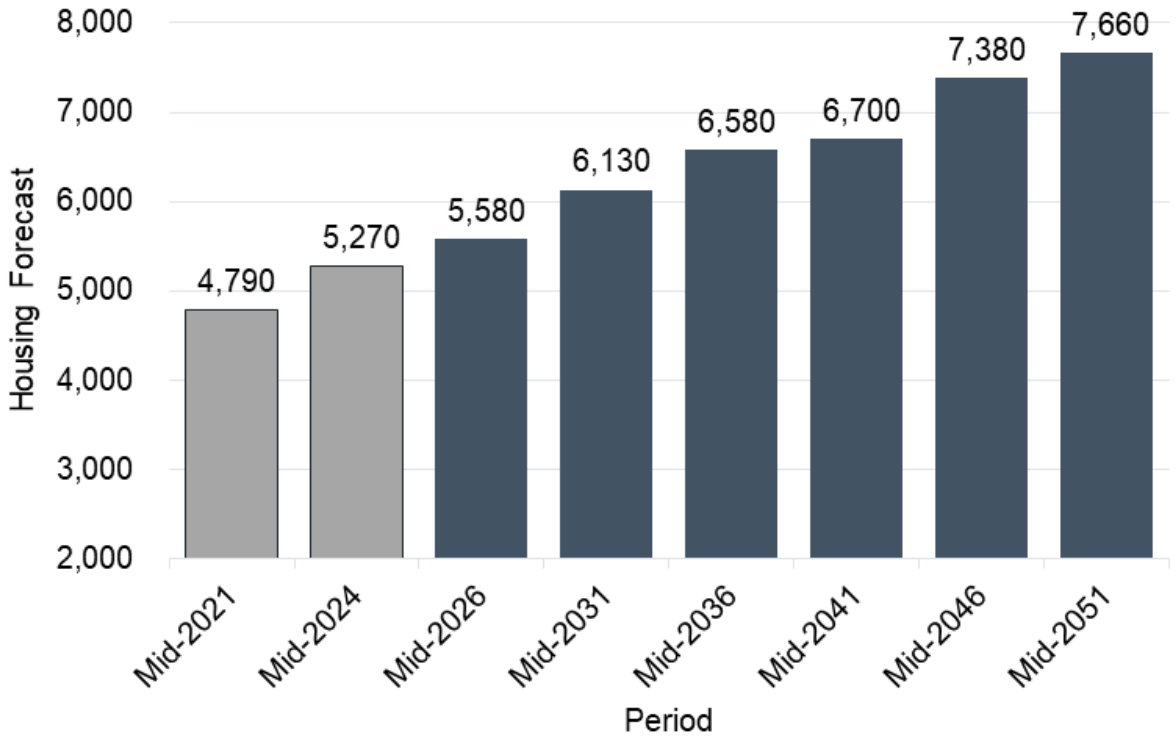


Note: Figure includes undercount at approximately 3%.
Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimates for 2021 and 2024 are based on Statistics Canada Census data and building permits issued for new housing since the 2021 Census. The estimate for 2026 has been adjusted by Watson & Associates Economists Ltd., 2024.

As summarized in Figure 5, over the mid-2024 to mid-2031 period, the Township is forecast to add approximately 860 housing units, or 123 units annually. Housing growth over the mid-2031 to mid-2051 period is anticipated to gradually slow down, increasing by approximately 77 units annually. By 2051, it is forecast that the Township will

accommodate 7,660 housing units, an increase of 2,400 housing units over the mid-2024 to mid-2051 period, or an average of just under 90 housing units annually.

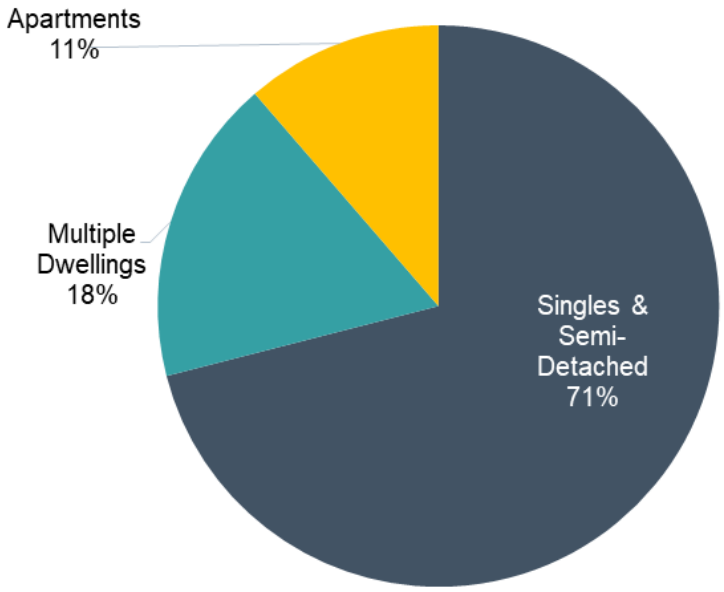
Figure 5
Township of Wellington North
Housing Forecast 2051



Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimates for 2021 and 2024 are based on Statistics Canada Census data and building permits issued for new housing since the 2021 Census. The estimate for 2026 has been adjusted by Watson & Associates Economists Ltd., 2024.

As summarized in Figure 6, over the early 2024 to mid-2051 period, it is forecast that approximately 71% of the new housing units will be single and semi-detached units, while 18% will comprise multiples (townhouses), and the remaining 11% will represent apartments.

Figure 6
Township of Wellington North
Housing Forecast by Housing Structure Type,
Mid-2024 to Mid-2051



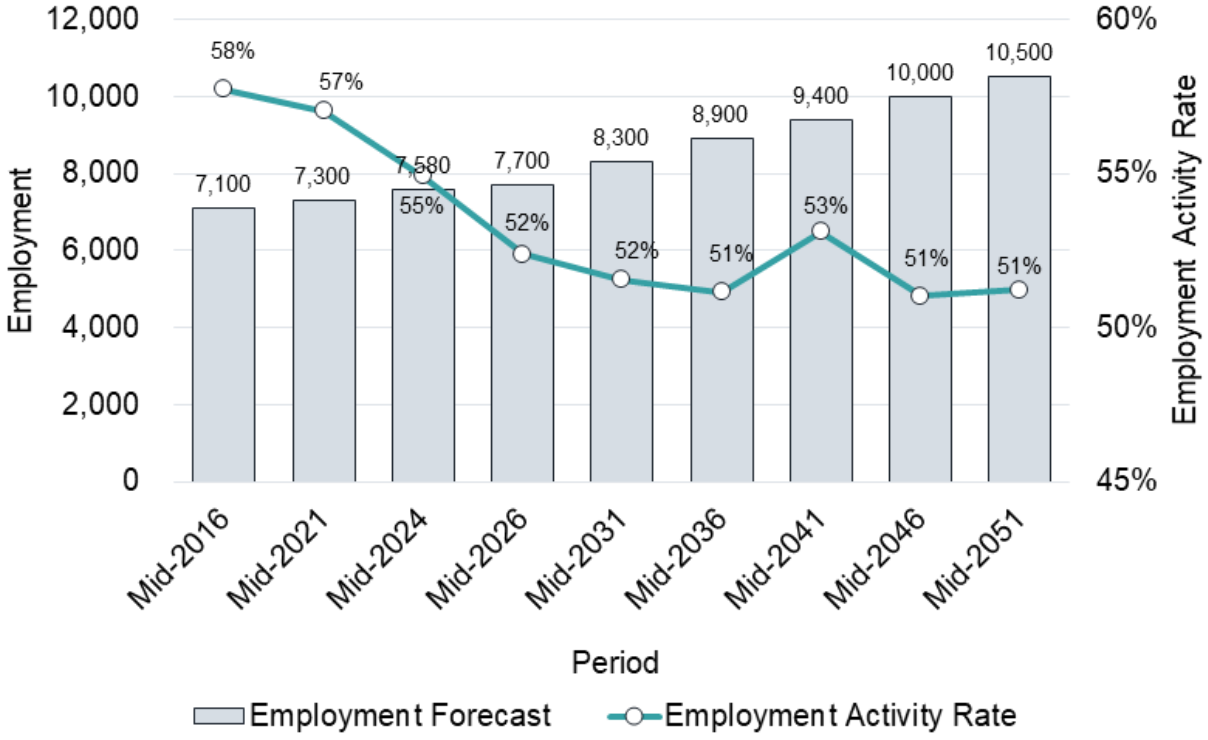
Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimates for 2021 and 2024 are based on Statistics Canada Census and building permits issued for new housing since the 2021 Census.

Figure 7 summarizes the employment forecast to 2051 for the Township of Wellington North in five-year increments, including a mid-2024 employment estimate. By 2031, the Township is forecast to accommodate an employment base of 8,300, an increase of 720 or 103 jobs annually over the 2024 to 2031 period. As a result, employment growth over that period is anticipated to increase at an annual rate of 1.3%. Over the 2031 to 2051 period, the growth rate is anticipated to continue to remain stable at 1.2%.

A key consideration in planning for complete communities is the ability to accommodate jobs as the community grows in population. An employment activity rate, the ratio of jobs to population, is used to understand the relationship between population growth and employment growth. Figure 7 illustrates the employment activity forecast for the Township of Wellington North over the long-term horizon. Compared to other member municipalities in the County, Wellington North has one of the highest employment activity rates at 55%. As identified in the County of Wellington Phase 1 MCR Report,

the employment activity rate in the County ranges from 26% in the Town of Erin to 73% in the Township of Puslinch. The County-wide employment activity rate is 43%.

Figure 7
Township of Wellington North
Employment Forecast and Employment Activity Rate to 2051



Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimate for 2024 by Watson & Associates Economists Ltd., 2024.

Wellington North boasts a strong industrial employment base, coupled with a strong agriculture and agri-food business sector which bodes well in accommodating a diversified employment base. The Township is home to one of the County's largest employers, Musashi Auto Parts Inc., an anchor business in Wellington County that supports Ontario's robust automobile and auto parts sector.[1] The Township of

[1] County of Wellington Economic Development Plan, 2023-2026, prepared by the County of Wellington Economic Development Department, 2023.

Wellington North and the Township of Centre Wellington accommodate a large share of the County's urban employment lands (i.e., industrial-type employment).

The existing employment base in Wellington North comprises the following sectors:

- Industrial: 48%
- Population-related employment: 44%
- Agriculture and primary employment: 8%

Further details of the employment base can be found within the Growth Management Action Plan Background Report.

3.2 Township of Wellington North Growth Structure

How is Growth Allocated and Managed within the Township?

As illustrated in Figure 8, the Township of Wellington's North Growth Structure comprises several components, as discussed below. Each component has different growth management objectives. The County has developed a Growth Structure that guides allocations within each of the member municipalities.





Urban System: This is where 94% of the Township's population growth and 91% of the Township's employment is anticipated by 2051. The Urban System comprises the Urban Centres of Mount Forest and Arthur that offer full municipal servicing (water and wastewater). Each Urban Centre includes the following sub-components with specific growth objectives:

- **Built-up Area (B.U.A.)**: This area is identified in dark purple on the map. This is where intensification is planned to occur and where the minimum intensification rate target applies. The delineation was created by the Province as part of the Growth Plan in 2006.
- **Designated Greenfield Area (D.G.A.)**: This area is identified in light purple on the map. This is where new urban residential, commercial, and institutional development on large vacant lands occurs. This is the area where a minimum people-and-jobs density target applies. The planning objective is to maximize

the utilization of land for housing and population-related employment opportunities.

The above two sub-components are referred to as the **Urban Community Area.** This is where people live, go to school, shop, and work in offices, retail, and other facilities. The objective of the Urban Community Area is to build a complete community with a range of housing options, jobs, and amenities.

Urban Employment Area: Identified in aqua blue on the map, this is the area that accommodates industrial and export-based industries. This area is protected from Community Area uses that may be sensitive to the function of the Employment Area. The objective of this area is to accommodate employment uses that require separation from other uses and contribute towards a range of employment and economic opportunities for the Township.

Rural System: This is where 6% of the Township's population growth and 9% of the Township's employment is forecast by 2051. The Rural System comprises the Hamlets, Rural Employment Areas, and agricultural lands. The Rural System does not offer full municipal servicing (water and wastewater). The Rural System has the following sub-components with specific growth objectives:



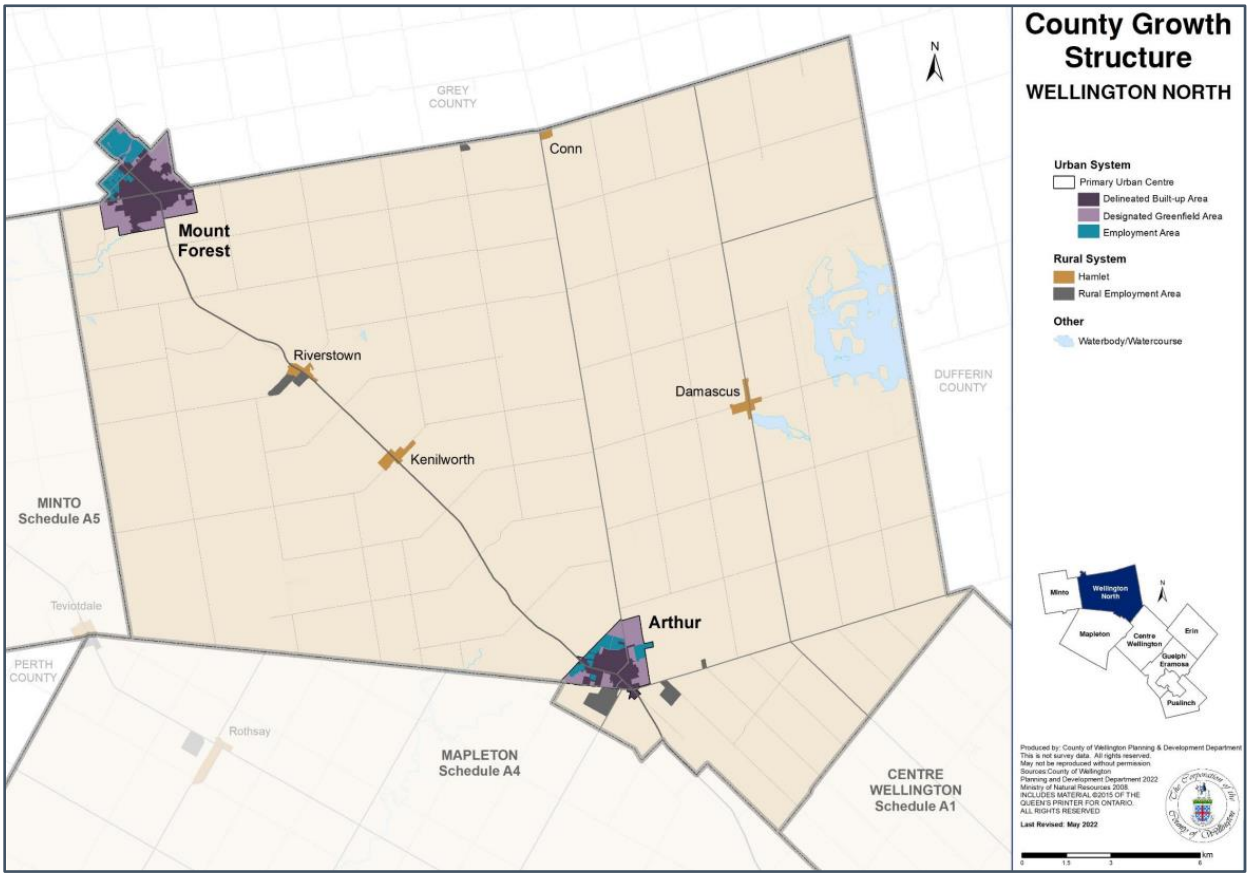






- **Hamlets**: Identified in orange on the map, these small rural communities are planned for minor rounding out of subdivisions and other small-scale residential and employment opportunities. Wellington North has four Hamlets: Riverstown, Kenilworth, Damascus, and Conn.
- **Rural Employment Areas**: These areas are identified in grey on the map. They provide opportunities for the cluster of rural economic development activities that are industrial in nature and do not require servicing.
- **Remaining Rural**: Identified in an ivory colour on the map, Remaining Rural is the largest component of the Township. These lands accommodate agricultural and other rural-based activities. These lands are protected from large-scale urban development and include prime agricultural lands that require protection.

Figure 8
Township of Wellington North
Growth Structure



Source: County of Wellington O.P.A. 119.

3.3 Urban Centre and Rural Area Population and Housing Allocations to 2051

Figure 9 provides a summary of the population growth allocations for the Township's Urban Centres and the Rural Area, while Figure 10 provides the housing growth allocations. Further details on the growth forecast allocations can be found in the Growth Management Action Plan Background Report.

As of mid-2024, Mount Forest is estimated to have a population base of 5,800, while Arthur is estimated to have a population base of 3,300. Mount Forest and Arthur are both anticipated to experience robust population growth, increasing at an annual rate of

2.2% and 1.4%, respectively, to 2051. The Rural Area has a population of 4,700 as of mid-2024. Over the 2024 to 2051 period, Mount Forest is forecast to add 4,700 residents and 1,620 households, while Arthur is anticipated to add 1,500 residents and 600 households. The Rural Area is expected to add 500 residents and 170 households over the same period.

Figure 9
Township of Wellington North
Population Allocations by Urban Centre and Remaining Rural Area

Location	Mid-2021 Population	Mid-2024 Population	Mid-2051 Population	Population Growth, 2024 to 2051
Mount Forest	5,300	5,800	10,500	4,700
Arthur	2,700	3,300	4,800	1,500
Urban Area	**8,000**	**9,100**	**15,300**	**6,200**
Rural Area	**4,800**	**4,700**	**5,200**	**500**
Township	**12,800**	**13,800**	**20,500**	**6,700**

Note: All figures include a population undercount estimated at 3%. Figures have been rounded.
Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimates for 2021 are based on the Statistics Canada Census. The estimate for 2024 is by Watson & Associates Economists Ltd.

Figure 10
Township of Wellington North
Housing Allocations by Urban Centre and Remaining Rural Area

Location	Mid-2021 Housing Units	Mid-2024 Housing Units	Mid-2051 Housing Units	Housing Growth, 2024 to 2051
Mount Forest	2,290	2,490	4,110	1,620
Arthur	1,035	1,240	1,840	600
Urban Area	**3,325**	**3,730**	**5,950**	**2,220**
Rural Area	**1,465**	**1,540**	**1,705**	**166**
Township	**4,790**	**5,270**	**7,655**	**2,386**

Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. 2021 estimates are based on Statistics Canada Census. 2024 is an estimate by Watson based on residential building permit activity.

3.4 Urban Centre and Rural Area Employment Allocations to 2051











Figures 11a and 11b provide a summary of the employment growth allocations for the Township's Urban Centres and the Rural Area. As summarized, Mount Forest is anticipated to accommodate 64% of the Township's employment growth, largely benefiting from opportunities to build upon its existing employment base, including a diverse industrial base. Mount Forest is a key commercial centre within the County, representing the County's second largest commercial base after Fergus, with over 39,000 sq.m (420,000 sq.ft.) of retail and commercial gross floor area (G.F.A.).[1] Furthermore, Mount Forest offers a full range of institutional services, including the Township's only hospital and secondary school.

Arthur is anticipated to accommodate 30% of the Township's employment growth. Benefiting from its proximity to the large labour pool to the south (Guelph Census Metropolitan Area), Arthur has an opportunity to build upon its existing industrial base. Furthermore, strong growth within Arthur is anticipated to support the need for additional commercial and institutional employment. Arthur already accommodates some of the County's largest industrial employers and has the County's fourth largest commercial base in terms of G.F.A. (approximately 25,000 sq.m or 269,000 sq.ft.).[2]

Recognizing the advancement in automation of agricultural activities and the consolidation of farms, traditional agricultural activities are not anticipated to experience a significant increase in employment growth. Diversification of farm activities, including accommodating non-traditional agricultural activities (e.g., farm commerce activities, biofuels, etc.) may off-set losses in traditional agricultural activities. As the second-largest agricultural market in the County in terms of agricultural operating

[2] County of Wellington, Phase 2 M.C.R. Report: Land Needs Assessment, prepared by Watson & Associates Economists Ltd., March 31, 2022.
[3] Ibid.

income and land area (behind the Township of Mapleton), Wellington North has a substantial agricultural base upon which to build.[1] Rural Employment Areas, clusters of designated industrial lands with no municipal servicing (i.e., water and wastewater servicing) are anticipated to contribute towards a stable rural employment base. These lands provide opportunities for dry industrial uses that do not require a high level of water consumption. Given the lack of water servicing, these lands would not attract major investments due to requiring water services for fire protection needs.

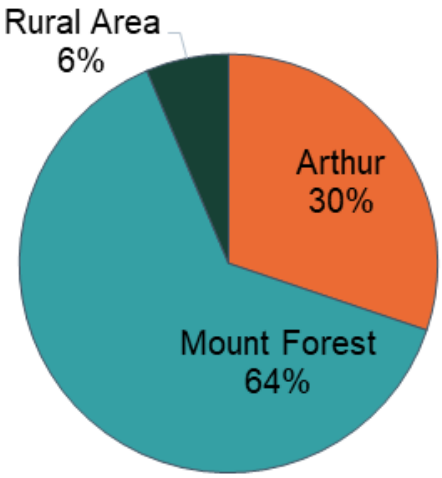
Figure 11a
Township of Wellington North
Employment Growth Allocations

Time Period	Arthur	Mount Forest	Rural Area	Total
2024	2,370	3,840	1,390	7,600
2051	3,245	5,680	1,575	10,500
2024 to 2051	**875**	**1,840**	**185**	**2,900**

Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimate for 2024 by Watson & Associates Economists Ltd.

[1] County of Wellington County Official Plan Review – Agricultural System Mapping and Policy Review, Report to Planning Committee, March 9, 2023.

Figure 11b
Township of Wellington North
Employment Growth Allocations



Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimate for 2024 by Watson & Associates Economists Ltd.

3.5 Key Growth Targets

3.5.1 Summary of Growth Targets

Figure 12 provides a summary of the growth targets to be considered in planning for growth in the Township of Wellington North, while Figure 13 provides an illustration of the key policy areas. As previously discussed, these targets are considered minimums. Over the planning horizon, the Township in partnership with the County of Wellington should continue to monitor the growth targets summarized in Figure 12. Other factors in monitoring growth should be explored, including the range of non-residential uses (e.g., commercial, industrial, and institutional) and housing options (e.g., housing by tenure and structure type).

Figure 12
Township of Wellington North
Growth Targets

Growth Targets	Target
Township Population by 2051	**20,500**
Township Employment by 2051	**10,500**
Minimum Intensification Rate – Share of Housing Growth in the Built-up Area	**20%**
Minimum Density in Greenfield Areas	**32 people and jobs/hectare**

Source: Derived from the County of Wellington, Phase 2 M.C.R. Report: Urban Land Needs Assessment prepared by Watson & Associates Economists Ltd., 2022.

Figure 13
Township of Wellington North
Example of Policy Areas in Arthur



The following provides a further discussion on planning for growth through intensification and on D.G.A. lands.

3.5.2 Planning for Intensification

3.5.2.1 What is Considered Intensification?

The Growth Plan, 2019 considers any residential development within the delineated B.U.A. as intensification. All residential development between mid-2022 and mid-2051 occurring within the B.U.A. counts towards the County's intensification target. As previously discussed, a B.U.A. was delineated for all urban settlements as of 2006 as part of the Growth Plan for the Greater Golden Horseshoe, 2006 under the *Places to Growth Act, 2005*.[1] The B.U.A. was based on the portion of the urban settlement that was primarily developed at that time. It is important to note that the delineation of the B.U.A. does not change over time.

Intensification includes the following opportunities:

- Development on infill sites (i.e., accommodating growth on underutilized sites);
- Redevelopment at a higher density level;
- Vacant lands and the rounding out of existing subdivisions;
- Residential development incorporated on commercial or mixed-use lands;
- Conversion of buildings to other uses (e.g., conversion of a non-residential building for housing); and
- Additional Residential Units (A.R.U.s) on existing residential lots.

3.5.2.2 Benefits and Considerations in Planning for Intensification

Intensification maximizes the use of existing urban infrastructure and services by increasing the density of development in established areas, thereby reducing the potential need to expand the Urban Centres outward. Furthermore, intensification builds compact development patterns that can provide a range of housing options that are accessible to amenities and improve climate resilience by building housing that is more energy efficient (multiple dwelling unit structures are more energy efficient than single housing unit structures). It is important not to oversimply the benefits of intensification. Accommodating too much intensification or focusing on growth only through intensification may pose challenges, as the Township may be required to

[1] Places to Grow. Better Choices. Brighter Future. Built Boundary for the Growth Plan for the Greater Golden Horseshoe, 2006. Ministry of Public Infrastructure Renewal. Ontario. 2008.

upgrade and replace infrastructure (e.g., bigger watermains and trunk sewers) prior to its identified useful life, which can have significant financial implications. Furthermore, considering the range of demographic groups attracted to the Township (i.e., young adults, families with children, empty nesters and seniors), Wellington North will need to accommodate a variety of housing options by structure type, tenure (i.e., ownership and rental), and location. To effectively accommodate the forecast housing demand for this area, the Township will need to plan for an appropriate balance of housing options within both the B.U.A. and D.G.A. that aligns with anticipated market demand. Accordingly, the Township should plan for intensification that considers a range of factors, including servicing requirements and market demand.

3.5.2.3 Anticipated Housing Growth to be Accommodated Through Intensification

As of December 2023, the Township has the potential to accommodate just over 550 units, including 15% (82 units) low-density units, 46% (255 units) medium-density units, and 39% (217 units) high-density units within the B.U.A.s of the Urban Centres. It is estimated that approximately 80% of the identified intensification potential is in the planning approvals process (i.e., registered, draft approved, and applications under review). Appendix A provides further details on the intensification supply potential. The intensification supply potential excludes A.R.U. potential. The County of Wellington M.C.R. forecasts that the Urban Centres in Wellington North can accommodate approximately 90 A.R.U.s over the 2019 to 2051 period as a minimum.[1]

The Township of Wellington North is planned to accommodate a minimum target of 20% of its housing growth through intensification which represents approximately 19 housing units annually. The intensification rate for Wellington North is among the highest in the County, reflecting opportunities to accommodate a range of housing options in the B.U.A.s of Mount Forest and Arthur. In order to reach a 20% intensification rate to 2051, it is estimated that the Township will need to accommodate just over 470 housing units in the B.U.A. to 2051, which represents most of the Township's intensification potential (550 units). Achieving a higher rate of intensification would require that the Township encourage more A.R.U.s or the redevelopment of existing lands. The current intensification target would represent a level of intensification that would gradually

[1] County of Wellington, Phase 2 M.C.R. Report: Land Needs Assessment, prepared by Watson & Associates Economists Ltd., March 31, 2022.

accommodate higher density uses, while maintaining the character of the Urban Centres.

3.5.3 Planning for Growth on Designated Greenfield Area Lands

3.5.3.1 Land Area and Housing Unit Potential in the Designated Greenfield Area

As previously discussed, the D.G.A. represents lands within the Urban Centers of Arthur and Mount Forest that were developed as of 2006. These lands are planned to accommodate primarily at-grade housing, as well as other uses to support the residential base, such as local roads and infrastructure (e.g., stormwater ponds) and parkland, commercial, and institutional uses. It is estimated that the D.G.A. in Arthur and Mount Forest collectively comprises 319 hectares (788 acres) of gross developable land area (net of environmental features). The D.G.A. lands include approximately 170 gross hectares (420 gross acres) (net of environmental features) of lands designated as Future Development or approximately 53% of the D.G.A. lands. Future Development lands are identified in the County of Wellington O.P. as lands that require redesignation in order to accommodate development.

As of 2024, the D.G.A. in Arthur and Mount Forest, combined, has the potential to accommodate just over 1,200 housing units on vacant designated residential lands, excluding Future Development lands. Future Development lands have the potential to accommodate a minimum of 1,600 additional housing units.[1] In total, it is estimated that the D.G.A. has the potential for approximately 2,800 housing units on vacant lands within the D.G.A. The yield of the housing potential depends on the density assumed for the D.G.A. and the amount of land that would be redesignated for residential and non-residential uses on Future Development lands.

3.5.3.2 Designated Greenfield Area Density Target

A key objective in planning for the D.G.A. lands is to plan for a density that would accommodate an optimal utilization of land and a range of housing and job options. In

[1] Estimate of housing yield on Future Development lands assumes an estimated average density of 32 people and jobs/hectare. A population of 4,900 and an employment base of 500 is assumed. Population is divided by an average persons per unit of 2.97.

planning for the D.G.A., municipalities are required to plan for a minimum people and jobs density. Similar to the intensification target, as part of the M.C.R. the County reviewed the opportunities and challenges of achieving a higher density for each member municipality and Urban Centre. It is important to recognize that a large portion of the vacant lands in Arthur and Mount Forest already have approved developments, which was considered in assessing the density. The Township of Wellington North is required to plan to accommodate the following as a **minimum** by Urban Centre:

- **Arthur:** 32 people and jobs/hectare
- **Mount Forest:** 32 people and jobs/hectare.

The Township should support developments that exceed this density target where appropriate and recognize that developments may have challenges in exceeding the density depending on site conditions (e.g., site configuration). It can be expected that the people and jobs density on some sites will exceed the minimum. As such, it is important to recognize that the people and jobs density assumptions discussed above represent averages, and opportunities to increase density may vary on a site level basis. Based on the minimum D.G.A. density target of 32 people and jobs/hectare, the Township's D.G.A. lands are planned to accommodate, at a minimum, a population of 6,500 people and 1,000 jobs by 2051. This assumes that 48% of the Future Development lands would be redesignated for residential and commercial uses and accommodate development by 2051.

3.6 Urban Land Needs Requirements

3.6.1 Does the Township Require Additional Community Area Land?

As previously discussed, Community Area lands are lands within the Urban Centres that accommodate residential, commercial, institutional, and recreational/parkland uses (i.e., all urban uses, except industrial-type employment uses). The County's M.C.R. identified that Mount Forest and Arthur have sufficient land available within the Urban Centre boundary to accommodate growth to 2051. While the Township does not require additional lands outside the Urban Centres boundary to accommodate growth, it does require approximately 81 gross hectares (200 gross acres) of Future Development lands to be redesignated for Community Area uses. This is anticipated to accommodate just over 600 housing units, as well as parkland, local roads, and

commercial/institutional uses. The County of Wellington M.C.R. identified that there is a need for additional designated commercial lands within Arthur and a minimum of 2 hectares (5 acres) would be required to 2051. It was recommended that additional lands beyond the 2 hectares (5 acres) be considered for commercial uses to ensure a market choice of designated commercial lands. The commercial land requirement is included in the 81 hectares (200 acres) of Future Development land required to be redesignated for Community Area uses. A summary of the amount of Future Development lands to be redesignated for Community Area uses (e.g., residential, commercial, and institutional) by Urban Centre is summarized in Figure 14.

Figure 14
Township of Wellington North
Future Development Lands to be Redesignated
to Community Area Uses by 2051

Urban Centre	Land Area, hectare
Arthur	27
Mount Forest	54
Total	**81**

Source: Derived from the County of Wellington, Phase 2 M.C.R. Report: Urban Land Needs Assessment prepared by Watson & Associates Economists Ltd., 2022.

3.6.2 Does the Township Require Additional Employment Area Land?



Employment lands are an integral part of Wellington North's economic development potential and accommodate a significant share of the Township's businesses and employment. Employment Area lands accommodate primarily export-based employment, including a wide range of industrial uses (e.g., manufacturing, distribution/logistics, and transportation services). These uses may include accessory or ancillary office and/or retail uses as part of an integrated development with industrial as the primary use. In contrast to other urban land uses (e.g., commercial and mixed-use areas), Employment Area lands provide the opportunity to accommodate export-based employment sectors that cannot be easily accommodated in other areas of the Township. While the Township's Employment Areas in the Rural Area may provide vacant land opportunities, due to the lack of municipal servicing (i.e., water and wastewater servicing) only a limited range of industrial uses can be accommodated.

It is estimated that Mount Forest has a vacant developable Employment Area land supply of 86 hectares, while Arthur has approximately 30 hectares (75 acres) of vacant developable Employment Area lands.[1] An Employment Area land needs assessment and analysis was prepared for the County of Wellington in the Phase 2 M.C.R. Report: Urban Lands Needs Assessment. The M.C.R. report identified that collectively, the two Urban Centres have a demand of 70 gross hectares (173 gross acres) (net of environmental features) of Employment Area lands to 2051, averaging 2 hectares (5 acres) annually and accommodating 10% of the employment growth through intensification.

In accordance with the County's M.C.R. report, it was identified that there is a 70-hectare (173-acre) surplus of Employment Area lands to 2051.[2] While there is a surplus of Employment Area lands in the Township, it is important to recognize that a

[2] Based on the current County of Wellington Vacant Commercial Land Inventory.
[1] County of Wellington, Phase 2 M.C.R. Report: Land Needs Assessment, prepared by Watson & Associates Economists Ltd., March 31, 2022.

large portion of the vacant Employment Area land supply is not currently available for development or not suitable for immediate use due to servicing and the current use of the sites. For example, a large portion of the Employment Area land supply in Mount Forest is used for agricultural purposes and the land is not currently marketed for industrial purposes. Over the long term, these lands may become available; however, in the short term, the Township has a limited supply of serviced Employment Area lands ready for industrial development. Moreover, it is important to note that the surplus of Employment Area lands is within Mount Forest, as Arthur would require all of its 30 hectares (74 acres) of vacant Employment Area lands for employment growth to 2051.

Chapter 4
Accommodating Additional Designated Urban Lands

4. Accommodating Additional Designated Urban Lands

The purpose of this chapter is to examine the opportunities to accommodate a shortfall of designated lands to accommodate residential and commercial growth in the Urban Centres of Arthur and Mount Forest to 2051. The Urban Centres include Future Development lands that are within the urban boundary and are available for redesignation. Future Development is a holding designation category in the County of Wellington O.P. and lands can be redesignated should there be a demonstrated need. The Township of Wellington North requires 81 hectares (200 acres) to be redesignated for Community Area uses (e.g., residential, commercial/institutional, parkland, local roads, and infrastructure).

4.1 Opportunities of Future Development Lands

Future Development lands are sites within the Urban Centres of Arthur and Mount Forest that have been placed into a holding category in the County of Wellington O.P. to limit development until a need is demonstrated. These lands currently have no use identified in the County O.P. and are identified in white on the County's O.P. land use schedules. The following is the County of Wellington O.P. framework for redesignating Future Development lands:

a) "that a need for additional land is demonstrated by the fact that approximately three-quarters of the land designated for development by this Plan are already developed;

b) that services of all kinds are or can be reasonably and economically provided to the proposed development;

c) that adequate development plans which indicate the type of development and facilities to be provided (such as, streets, schools, parks and shopping facilities) are or will be made available to the municipality;

d) that the proposed development is contiguous to and is a logical extension of existing development;

e) any required impact studies have been completed."[1]

As previously discussed, the Township has approximately 170 hectares (420 acres) of vacant Future Development lands within Arthur and Mount Forest. The Township requires 81 gross hectares (200 gross acres) of the 170 hectares (420 acres) of Future Development lands to be redesignated for Community Area uses. By Urban Centre the following Future Development lands are required for redesignation:

- Mount Forest: 54 hectares (133 acres)
- Arthur: 28 hectares (69 acres).

4.2 County of Wellington Official Plan Amendment 123

Recently, the County of Wellington completed a draft O.P.A. (O.P.A. 123) which proposes to redesignate Future Development lands in Arthur and Mount Forest and other Urban Centres in the County. Provided below is a summary by Urban Centre of the Future Development lands proposed to be redesignated as part of O.P.A. 123.[2]

Arthur Urban Centre

Approximately 28 hectares (69 acres) of vacant Future Development lands (excludes environmental features) in the southern area of Arthur are proposed to be redesignated as part of O.P.A. 123 and comprise the following land uses:

- Residential: 22 hectares (54 acres)
- Commercial: 6 hectares (15 acres)
- Total: 28 hectares (69 acres).[3]

These lands are estimated to accommodate at least 120 housing units and approximately 200 population-related employment jobs. In addition, the County

[2] County of Wellington Official Plan, Updated February 2024, policy 8.10.4., pp. 104 and 105.
[3] County of Wellington, Draft O.P.A., 123. Public Meeting of O.P.A., 123 was held on June 13, 2024, to review Draft O.P.A. 123.
[1] Measurements by Watson & Associates Economists Ltd. based on mapping from the County of Wellington. Note only includes vacant Future Development lands to be redesignated (i.e., excludes developed Future Development lands).

redesignated additional lands that are already developed as part of the housekeeping of the County O.P. The redesignation of Future Development lands through O.P.A. 123 is anticipated to accommodate all the required growth to 2051. The remaining Future Development lands, situated in the northern portion of Arthur, are proposed to remain as Future Development. These lands should be further explored in subsequent O.P.R.s by the County and with input from the Township. Figure 15 provides a map of the Future Development lands, which are identified in a crosshatch overlay with the proposed designation underneath. Provided below is a summary of the two key areas that have been redesignated from Future Development to other Community Area uses in County of Wellington O.P.A. 123.

Southeast Area of Arthur (Future Development Area Site #1)

The southeast area of Arthur includes approximately 18 hectares (44 acres) of residential lands and 1 hectare (2.5 acres) of commercial lands proposed to be redesignated from Future Development. Residential and commercial lands in the southeast area of Arthur were identified as a priority for future growth residential and commercial uses for Arthur in the Township of Wellington North Growth Plan, 2018 and benefit from the following:

- Logical extension of a residential growth area in Arthur;
- Opportunity to integrate commercial uses with potential commercial uses within walking distance;
- Large site area with no fragmentation and limited environmental features;
- Site can accommodate a housing supply shortfall of up to 120 housing units and commercial land needs; and
- Supports the traffic bypass of Wellington Road 109 and Highway 6.

Based on a water and wastewater servicing review, the following improvements are required for this area:

- Water – Site can be serviced by a 150 mm watermain on John St. An additional 150 mm watermain connection will be available through Schmidt Dr of the neighbouring Eastridge Subdivision (Phase 5) once it is constructed. The site is anticipated to have low static operating pressure, 241 – 310 kPa (35 – 45 psi), due to the high elevation of the site. Subsequently, the anticipated fire flows will be in the range of 50 – 100 L/s. Both of these operating parameters are

considered to be on the low end of design requirements, thus, the site is not likely to support only low density residential development without supplemental infrastructure.

- Wastewater - Sanitary servicing to the site may be achieved by an existing 200 mm diameter sewer on John St and/or a future 200 mm sewer on Schmidt St. Grading constraints on Schmidt St may result in very limited flow going into the Schmidt St sewer. This site is estimated to generate 20 – 25 L/s which will result in some of the downstream sewers on Francis St being near full capacity. As such, off-site upgrades to service this development may be warranted, however further investigation will be required.

Southwest Area of Arthur – County Road 109: Residential Sites (Future Development Sites #2 and 3)

O.P.A. 123 proposes the redesignation of small residential sites along County Road 109 in the southwest area of Arthur. The redesignation also includes developed large residential lots that are interspersed with the vacant lands. It is estimated that the vacant portion is 3 hectares (approximately 7 acres). The redesignation of the vacant sites due to their configuration and surrounding context, is not anticipated to accommodate a significant yield of housing. Any residential development within this area may provide opportunities to increase the housing supply beyond the 2051 land needs requirements.

Based on a water and wastewater servicing review, the following improvements are required by sub-areas as discussed below. It is important to note that these sites are among a few large residential lots.

Site Area #2: This site fronts onto WR109 near the Charles St West intersection. The total development area 1 ha and is proposed to be designated as residential based on the proposed County of Wellington O.P.A. 123.

- Water – Water servicing to the site is available through the existing 200 mm watermain on Charles St West. The site sits at a low elevation and is expected to achieve the sufficient minimum static operating pressure of 410 – 441 kPa (60 – 64 psi)

- Wastewater – There is no existing sanitary sewer along the frontage of WR109. The closest sewer is approximately 80 m east of the site and on the opposite side of WR109. Flows from this site will likely need to be pumped due to the topography. The site is estimated to generate 1 L/s of flow with minimal effect on the existing downstream sewers.

Site #3: This site fronts onto WR109 between the extensions of Fredrick Street West and Preston Street South. The total site area is 3 ha and is proposed to be designated as a residential based on the proposed County of Wellington O.P.A. 123.

- Water – Watermain would need to be extended along WR109 for at least 600 m to the intersection of Charles Street to deliver water services to this site. This site is expected to have a static operating range of 380 – 420 kPa (55 – 61 psi) and a fire flow in a low to moderate range. A lack of watermain looping available to this site is a concern for this site.
- Wastewater - There is no existing sanitary sewer along the frontage of WR109. The closest sewer is approximately 650 m east of the site and on the opposite side of WR109. Sewage will also likely need to be pumped due to the topography. The site is estimated to generate 2.5 L/s of flow which will result in the sewers downstream of the site being less than 90% full.

<u>Southwest Area of Arthur – County Road 109: Commercial Site (Site # 4)</u>

O.P.A. 123 proposes the redesignation of lands along County Road 109 in the southwest area of Arthur, including a large commercial site (5 hectares or 12 acres). This site is located on WR109, near the intersection of the Preston Street extension. The redesignation of the Future Development lands will contribute towards providing market choice of commercial land supply options over the long term. The commercial site has the potential to accommodate mid-sized commercial uses (e.g., grocery store, hardware store, etc.).

Based on a water and wastewater servicing review, the following improvements are required for this area:

- Water - Watermain would need to be extended east along WR109 for at least 1,200 m from the intersection of Charles St to deliver water services to this site.

This site is expected to have a static operating range of 410 – 448 kPa (60 – 65 psi) and a fire flow in the low end due to a lack of watermain looping available. However, fire flow is increased to acceptable levels if a watermain is also extended west on WR109 to the Wells St or Preston St ROW and extended under the Conestoga River to connect to the existing watermain.

- Wastewater - There is no existing sanitary sewer along the frontage of WR109. The closest sewer is approximately 13,00 m east of the site and on the opposite side of WR109. Sewage will also likely need to be pumped due to the topography. The site is estimated to generate 4.2 L/s of flow which will result in the sewers downstream of the site being less than 90% full.

Remain Future Development

This site area is situated within the northern area of Arthur Urban Centre as shown on the map in Figure 15. The total area is approximately 65 ha and is proposed to remain designated for Future Development at this time due to growth anticipated to 2051. The Future Development lands in the south (previously discussed) will accommodate the anticipated land needs in Arthur to 2051, therefore is anticipated Future Development lands in the north will not be required by 2051.

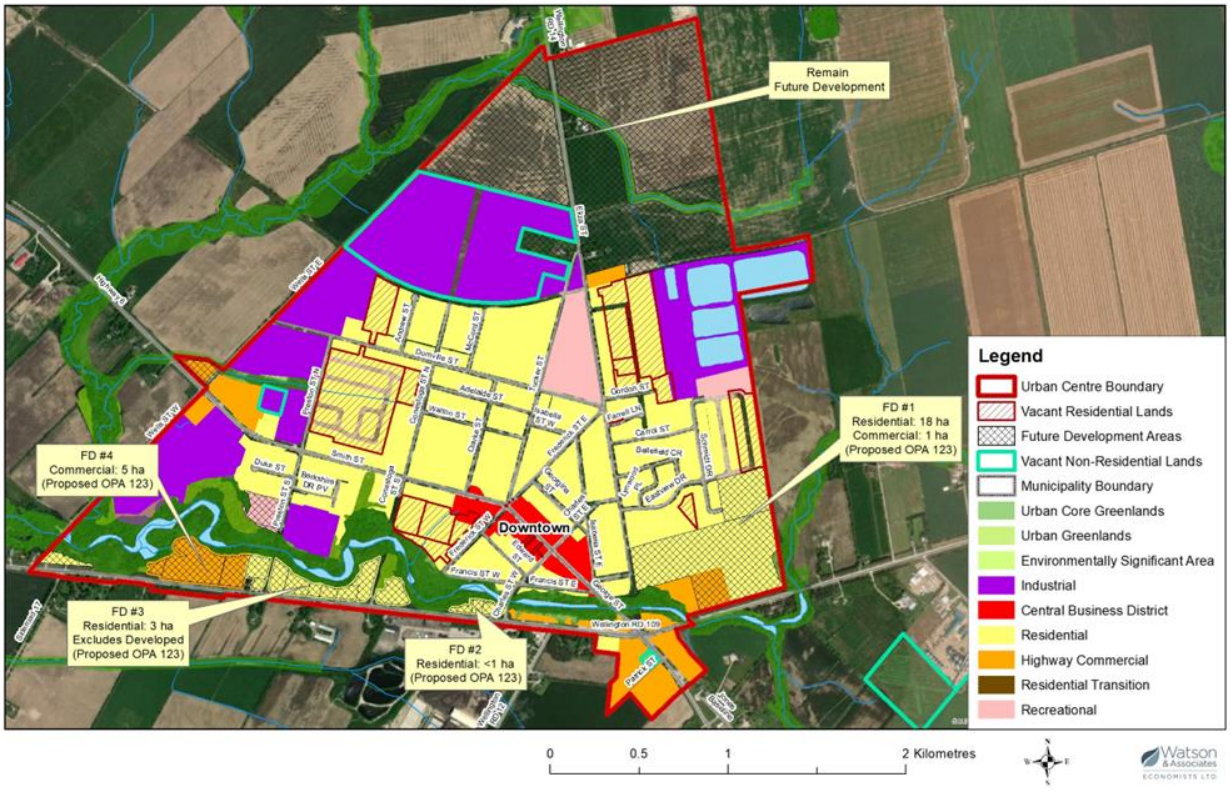
Based on a water and wastewater servicing review, the following improvements are required for this area:

- Water – Water servicing to this site will require a 300 m watermain extension on Eliza St and a 1000 m watermain extension on the unopened Wells St ROW. Both watermain extensions are required to ensure redundancy. The site is anticipated to have static operating pressure ranging between 241 – 310 kPa (35 – 45 psi) and low available fire flow. This means this site is likely suitable only for low density residential development.
- Wastewater – Sanitary servicing will require significant sewer extensions from the existing system. This site can be expected to generate 55 L/s of flow and all sewers downstream of the are less than 90% full.

The Township has considered next steps related to future development on lands in the north area of Arthur that are currently identified to remain designated Future Development at this time (not identified to be re-designated in the County of Wellington O.P.A. 123). A significant concern/constraint will be sewage treatment capacity at the

existing Arthur Wastewater Treatment Plant (W.W.T.P.). The additional capacity resulting from this is not significant (i.e., ~400 ERU) when compared to the developments being proposed. As such, a further expansion of the wastewater treatment system within Arthur will be required to support this and other future developments. To this end, the Township is proposing a Class Environmental Assessment. A project to investigate a further expansion of the wastewater treatment system. This will be a Township project that will be included in the next development charge background study and by-law. Updates regarding this project will be provided as available.

Figure 15
Township of Wellington North
Arthur Urban Centre
Future Development Lands



Mount Forest Urban Centre

O.P.A. 123 proposes to redesignate Future Development lands for general housekeeping purposes and the lands are not anticipated to accommodate long-term housing needs. Most of the lands proposed to be redesignated are already developed.

As a result, in collaboration with the County of Wellington, the Township will need to identify approximately 54 hectares (133 acres) of Future Development lands to be redesignated as Community Area uses to accommodate approximately 490 housing units, as well as other uses to support the population base (e.g., parkland and commercial/institutional uses). It is important to note that this land requirement is beyond what will be accommodated through O.P.A. 123. Furthermore, the land requirement may be reduced depending on the density anticipated.

4.3 Review of Future Development Lands in Mount Forest

Figure 16 illustrates the four potential Future Development site areas in Mount Forest that can be considered for redesignation to accommodate growth to 2051. All Future Development sites are considered serviceable; however, they have unique servicing requirements. Provided below is a summary of the Future Development site areas. All land area measurements exclude environmental features identified in the County of Wellington O.P.

- **Site 1: Northeast Mount Forest – Sligo Road and West of Side Road 41 Southgate**
    - The site area is approximately 20 hectares (49 acres) of land forming a triangular site area that is surrounded by the Township of Southgate to the north and east. An environmental feature located to the west of the site separates the lands from the rest of the Urban Area in Mount Forest. Given the surrounding context, the development of these lands would require cross-jurisdictional cooperation with the Township of Southgate in terms of road improvements and other planning considerations.
    - Based on a review of water and wastewater servicing requirements, this site would require the following:
        - Water – 300 mm diameter extension on Sligo Road with the watermain looping into the existing watermain distribution system.
        - Sanitary – Extension of existing deep (5.5 m) sanitary sewer on Sligo Road.
- **Site 2: Northeast Mount Forest – London Road and South of Sligo Road**
    - The site area is approximately 10 hectares (25 acres) located along London Road. This site has the potential to integrate with the growing

residential areas to the west and south. An environmental feature to the east provides a discernible urban edge to the Urban Area of Mount Forest.

- Based on a review of water and wastewater requirements, this site would require the following:
  - Water – 300 mm diameter extension on Sligo Road with the watermain looping into the existing watermain distribution system.
  - Sanitary – Extension of existing deep (5.5 m) sanitary sewer on Sligo Road. Connections with the existing trunk storm sewer on London Road are possible.

- **Site 3: Southeast Mount Forest – Highway 6 and South of Murphy Street**
  - The site area is approximately 39 hectares (96 acres) along Highway 6, forming a large rectangular block. The site provides good connectivity with the existing Urban Area of Mount Forest. Additionally, it provides a logical extension of a larger active development area (large draft approved subdivision to the west), creating an opportunity for a cohesive new Community Area. Additionally, there is a large vacant designated commercial site on the west side of Highway 6 which offers an opportunity to support the local population base.
  - Based on a review of water and wastewater servicing requirements, this site would require the following:
    - Water – Most of the Future Development area (i.e., easterly two-thirds) is high in elevation and may require a separate high-pressure zone complete with a booster pumping station with standby power. It is important to note that Murphy Street is a dead-end watermain at present. The servicing strategy for these lands may require a second Main Street connection for looping, but a higher pressure zone portion of this Future Development area would not end up being looped. A possible upgrade to the Murphy Street watermain would be needed to upsize to a 250 mm diameter, but this depends on the location of the booster pumping station. The need for a booster pumping station and the existing dead-end high-pressure zone may preclude the opportunity for high-density residential development in this area.
    - Sanitary – This area requires a new sewage pumping station (S.P.S.) to be constructed on South Water Street, including a

gravity sanitary sewer on South Water Street from the S.P.S. to Main Street, a sewer crossing of Main Street (Highway 6) by jack and boring, and extending this new sewer easterly along Murphy Street. The gravity sewer would be 7.0 m deep. Alternatively, as S.P.S. would be required to pump from Murphy Street to the highway crossing.

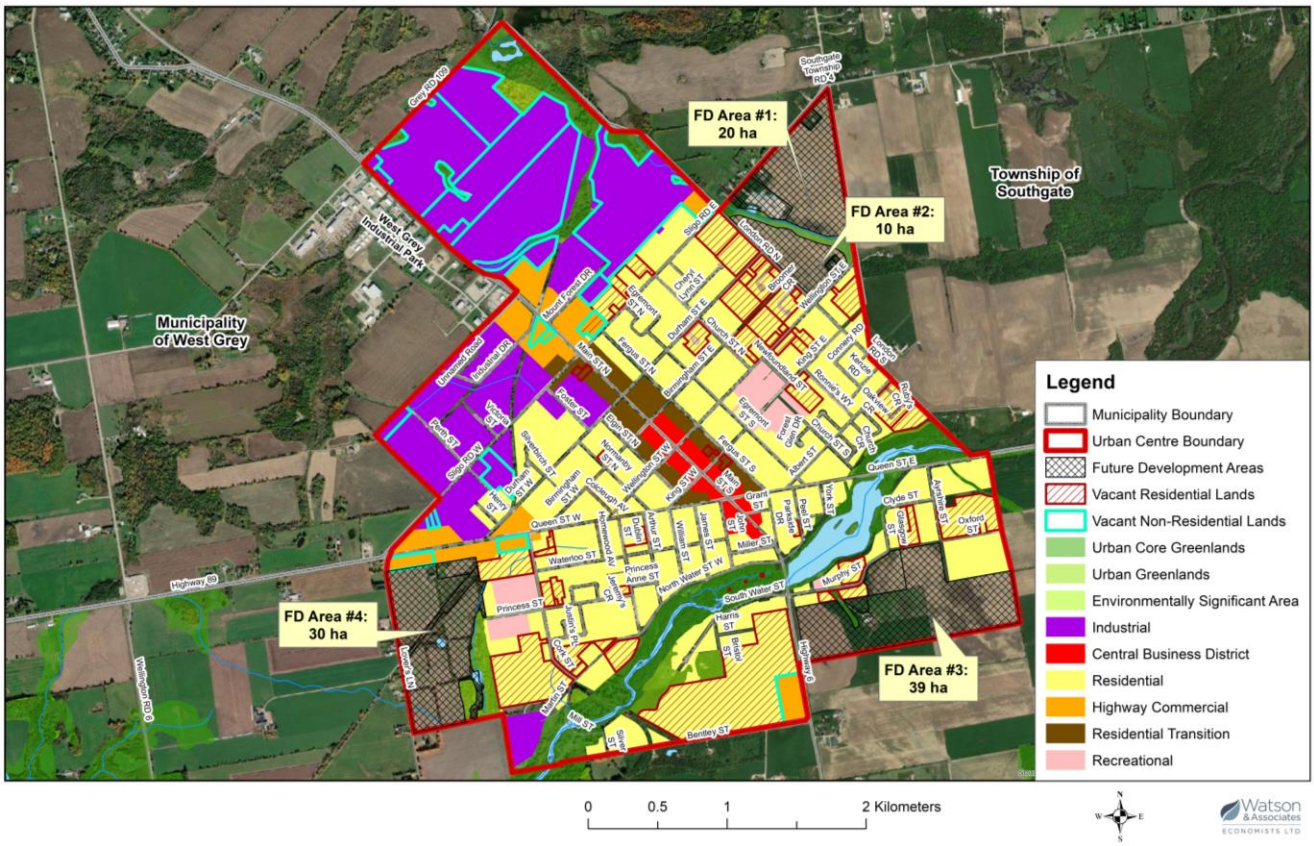
- **Site 4: Southwest Mount Forest – Lover's Lane and South of Queen Street West**
    - The site area is approximately 30 hectares (74 acres) along Highway 6, forming a large rectangular block. While there are some institutional uses within walking distance (a recreational complex and an elementary school), the site is separated from the residential area of the Urban Area due to a large environmental feature to the east. A key consideration is that the site is along Lover's Lane which is considered an important cultural landscape feature for the Township.
    - Based on a review of water and wastewater servicing requirements, this site would require the following:
        - Water – 250 mm diameter extension on Queen Street and Lover's Lane is required with the watermain looping into the existing watermain distribution system. As a result, the servicing may not be able to accommodate higher-density residential due to limitations of practical looping options (this has not been evaluated to date).
        - Sanitary – An S.P.S. is required. The sanitary sewer on Queen Street would need to be extended from Cork Street to Lover's Lane. The existing Cork Street sewer collection and Cork Street S.P.S. capacities would need to be elevated to ensure that no upgrades are required to service this future land area.

Based on review, it is recommended that the following potential new growth areas in Mount Forest, which offer collectivity and accommodate most of the land needs required (49 hectares), be considered as a priority for future growth phasing:

- Future Development Site #3 (39 hectares or approximately 96 acres); and
- Future Development Site #2 (10 hectares or approximately 25 acres).

These Future Development sites should be reviewed further in more detail prior to redesignation. Additionally, it is recommended that the Township consider the absorption of existing designated lands, including those with approvals already in place. It is important to note that Mount Forest has a sufficient supply of vacant designated lands to accommodate housing and commercial growth to 2036. Recognizing the potential timeline to designate and service lands, the Township should explore opportunities for redesignation in the short term (i.e., within the next five years).

Figure 16
Township of Wellington North
Mount Forest Urban Centre
Potential Future Development Sites for Redesignation



Note: Area maps for each Development Area are provided in Appendix C.

Chapter 5
Infrastructure and Services Review

5. Infrastructure and Services Review

The purpose of this chapter includes a review of the growth impacts on services (water, wastewater, stormwater, and transportation needs) based on a high-level evaluation of infrastructure requirements and associated impacts from a fiscal and operational perspective. The high-level infrastructure and service assessment comprises of the following components:

- **Infrastructure Analysis** includes a review of growth and its impact on planning for water, wastewater, stormwater, and transportation needs.
- **Municipal Fiscal Analysis** includes a high-level fiscal review of growth and the associated infrastructure and services to support growth, along with an impact to the operating requirements to service the future developments.

It is important to note that this high-level infrastructure and service assessment is considered a starting point in exploring the impacts of growth. Furthermore, it is the intention of this assessment to identify areas the Township will need to explore as part of further study.

5.1 Infrastructure Analysis

5.1.1 Water and Wastewater Review

The Township of Wellington North is served by two water and wastewater systems – one located in Arthur and the other located in Mount Forest. The total cost of the Township's water and wastewater systems is recovered from operating (non-rate) revenues and through direct billing (rate) to customers. Rate revenues include revenues from flat rate water and wastewater charges to residential customers, and base/metered charges to non-residential customers. The Township is estimated to have 3,866 water customers and 3,749 wastewater customers (Arthur and Mount Forest combined). [1]

[1] Based on information obtain from the Township of Wellington North staff on the number of Wellington North Power customers that are billed.

5.1.1.1 Approach

In preparing the review of the impact of growth on planning for water and wastewater systems, WSP Canada Inc. reviewed the following documents:

- Water and Sanitary Systems, Technical Study – Arthur (September 2020);
- Township of Wellington North, Mount Forest Sanitary and Water Servicing Technical Update (January 2021);
- Township of Wellington North, Community of Arthur 2024 Reserve Capacity Calculation;
- Township of Wellington North, Community of Mount Forest 2024 Reserve Capacity Calculation; and
- Township of Wellington North, 10-year Capital Project Forecast.

The Township of Wellington North, in July 2024, retained Triton Engineering Services Ltd. to prepare a memorandum on the impact of water and wastewater servicing on Future Development sites in Arthur.

5.1.1.2 Existing Water Systems

Arthur

The Arthur water system is a single pressure zone watermain distribution network that is supplied by three bedrock wells – Well No. 7B, Well No. 8A, and Well No. 8B – and flow is stored in two elevated towers – Charles Street Tower and Freud (Spheroid) Tower. The network includes approximately 19.1 km of watermains ranging in size from 50 mm to 600 mm with 1,369 services. The system services 1,258 residential and 111 industrial, commercial, and institutional units, while also providing fire protection to the entire service area. System operation is controlled by a Supervisory Control and Data Acquisition system where generally well pumps are turned on and off based on water levels in the storage towers.

The production capacity of the Arthur water system is 4,216 m^3/day. According to the Arthur 2024 Annual Reserve Capacity Calculation (R.C.C.) completed by Triton Engineering Services Limited, the annual R.C.C. three-year maximum day demand (M.D.D.) in Arthur is 1,545 m^3/day. This is within the capacity of the system. It is assumed that if failure occurs at Well 7 (since Wells 8A and 8B are very unlikely to fail

simultaneously) that the system capacity would be reduced to 2,255 m^3/day. Even with reduced capacity, the system can still support the 2023 M.D.D.

Water storage requirements are calculated based on Ministry of Environment, Conservation and Parks guidelines as a sum of fire storage, equalization storage, and emergency storage. Total system storage volume and required storage according to the Arthur 2024 R.C.C. is 1,137m^3 and 1,113 m^3, respectively. The recommended fire flow was also determined to be 100 L/s based on the 2020 Arthur Technical Study. Based on this, the system storage is adequate in supporting the system. A computer simulation model of the Arthur Water System was created as part of the Master Plan and updated for the purposes of the 2020 Arthur Technical Study. The results from the model determined that the existing distribution network's normal pressure ranged from approximately 40 psi to 80 psi, which is within the acceptable operating range.

Mount Forest

Mount Forest is supplied by a municipal drinking water system, comprising four bedrock well supplies, an elevated water storage standpipe and booster pumping station system, and a water distribution network. Based on recent water demands and the growth forecast projections, the following water design values were chosen: 275 L/capita/day (all uses), M.D.D. factor of 2.0 (according to MECP guidelines), and peak hour demand factor of 3.0 (according to MECP guidelines).

Based on current operations, the operational firm capacity of the wells, 5,976 m^3/day, can support the 2024 M.D.D. of 2,409 m^3/day. The water storage standpipe has an effective capacity of 2,000 m^3, while the water storage requirement for Mount Forest, calculated based on the MECP guidelines, is 2,766 m^3 per the 2024 Mount Forest R.C.C. Therefore, the system storage is not adequate to support the system; however, the system has a significant surplus of supply (3,567 m^3/day) which is available to augment the storage deficiency per the 2024 Mount Forest R.C.C. The referenced Technical Study deferred the fire flow study to the Fire Department. A computer simulation model of the Mount Forest Water System was created and calibrated and determined that the existing distribution network normal pressure ranged from approximately 50 psi to 70 psi, which is within the acceptable operating range.

5.1.1.3 Existing Wastewater Systems

Arthur

The Arthur wastewater system includes a dedicated sanitary sewer/forcemain collection network, a wastewater treatment plant (W.W.T.P.), two S.P.S.s, and an effluent storage lagoon facility. The system provides 1,229 service connections according to the Arthur 2024 R.C.C., and includes 19.1 km of sewermains ranging in size from 150 mm to 450 mm, and approximately 4 km of forcemains ranging in size from 150 mm to 250 mm.

The Arthur W.W.T.P. provides tertiary treatment utilizing the extended aeration process. The rated average day flow capacity of the W.W.T.P. is 1,465 m^3/day, and discharges to the Conestogo River. Due to capacity limits between May 1 and September 15, effluent is instead pumped to the effluent storage lagoons for holding. The collection system for Arthur is divided into three service areas and is collected by the Wells Street S.P.S., Preston Street Trunk Sewer, and Frederick Street S.P.S. The three-year annual average day flow based on flows recorded at the W.W.T.P. from 2021 to 2023 is 1,301 m^3/day which complies with the Certificate of Approval for the W.W.T.P. The reserve capacity is 65 m^3/day, which corresponds to an additional 45 equivalent residential units. For Arthur, the M.E.C.P. recommends a flow rate of 400 L/cap/day, which is lower than the existing average flow rate of 581 L/cap/day, since this value includes industrial, commercial, and institutional flows which are significant, and the flow rate will decrease as residential growth increases.

Mount Forest

The Mount Forest sanitary sewer system consists of four S.P.S.s (Perth Street, Cork Street, Durham Street, and North Water Street), an extended aeration W.W.T.P. that discharges to the South Saugeen River, and a collection sewer network. This system had 2,385 service connections in 2023 per the 2024 Mount Forest R.C.C. The three-year annual average day flow from 2021 to 2023 is 1,901 m^3/day. The W.W.T.P. has an approved annual average day capacity of 2,818 m^3/day, and an approved peak flow capacity of 15,000 m^3/day.

5.1.1.4 Future Water Systems

Arthur

Based on these projections, the M.D.D. will exceed firm capacity between 2040 and 2051. Also, existing reserve capacity is anticipated to be nearing or in deficit by 2045. Therefore, the Arthur Technical Study recommends that the Township is proactive in securing future water sources (Arthur well supply is underway to this effect) and should monitor the Water Supply Reserve Capacity trends on an annual basis.

Based on the computed requirements, existing available storage will be insufficient in supporting the projected population. Therefore, it is recommended in the Arthur Technical Study that additional storage be added to the system. Note that some of the potential Future Development areas are located at higher topographical elevations and operating ranges may need to be increased to adequately service these areas.

The following approach is recommended by the Arthur Technical Study to accommodate future growth:

- Decommissioning of the Charles Street Tower is recommended given its age, limited volume, and on-going remedial/maintenance costs.
- Freud Tower is well into its service life and may require significant upgrades (i.e., mixing/rechlorination system) and maintenance (i.e., painting, corrosion treatment) within the planning horizon of the required additional storage.
- The increase in volume required to service future development would result in a relatively small tower size. This size would have a higher cost per unit volume than a larger sized tower that could provide the entire required volume. Also, the tower could be oversized to accommodate beyond the 2051 requirements at minimal additional cost.
- Retaining the existing towers in the system would not allow for the higher operating range unless a separate pressure zone is created. A dual pressure zone would increase the complexity of the system and limit the benefit of the increased operating level.
- The new facility would be equipped with improved features (i.e., separate fill/draw risers, provisions for mixing/re-chlorination, improved safety/accessibility).

The following major water servicing projects have been identified for Arthur in the Township's 10-year Capital Project Forecast:

- A new water tower in Arthur (2026); and
- A new well in Arthur to improve water supply capacity (2025).

Mount Forest

The existing firm capacity is adequate in supporting even the 50-year scenario. The projected M.D.D. was higher than the 2,070 projected M.D.D., due to the revised growth rate projecting a population of 10,500 persons in 2051 while the technical update projected a population of 10,449 persons in 2070. Upgrades are not deemed necessary on the basis of capacity restraints. The total design storage reaches a volume of 4,425 m^3, but the effective capacity of the existing standpipe is only 2,000 m^3. Therefore, upgrades must be considered to accommodate for future growth. The recommendation proposed in the Mount Forest Technical Update is to either demolish the existing standpipe and construct a single elevated tank with a capacity of 4,425 m^3 or construct a new second elevated storage tank at the north end of the community with a minimum capacity of 2,425 m^3.

The following projects are recommended by the Mount Forest Technical Update to support the future water system – consistent with commentary above, these capital project recommendations are now required to support the growth projected for 2051:

1. Complete a Schedule B Class EA to finalize an evaluation of the two proposed recommendations for water storage.
2. Replace the 300 mm diameter Grant Street cast iron watermain (prioritize this if demolishing and replacing the existing standpipe alternative is selected).
3. Replace the John Street 150 mm diameter cast iron watermain from Waterloo Street to Queen Street, as part of a road reconstruction project.
4. Construct a 300 mm diameter watermain on the future Moynihan Place to service new industrial lots.
5. Extend the 300 mm diameter Industrial Drive watermain from Moynihan Place to Coral Lee Drive to service new industrial lots.
6. Extend the 250mm dia. Birmingham Street watermain from east of Church Street to west of London Road.
7. As part of Phase 1 of the Avila subdivision, replace the existing South Water Street watermain from the proposed S.P.S. to the southwestern end of the street,

and extend it through the unopened road allowance and into the subdivision lands.

8. Continue replacing old cast iron and small diameter (<150 mm) watermains, typically as part of progressively completing street reconstruction within the community, or in accordance with priorities due to increased breakage rates or other problems with specific sections of this old watermain. As a minimum, match the existing watermain size, except no smaller than 150 mm in diameter. Consider replacing the northerly Egremont Street and one leg of the Byeland Drive watermain using 250 mm diameter watermains, to finish the Egremont Street trunk watermain looping to Sligo Road (or else via a Durham-Fergus Street route). Consider replacing the Dublin Street watermain using 250 mm diameter watermains to improve fire flows to the institutional locations at/near Princess Street (hospital, seniors/nursing home, medical clinic).
9. Replace the existing 150 mm diameter watermain road crossing at the Queen/Cork Street intersection with 300 mm diameter watermain the next time road work is completed on Queen Street.
10. Complete an overview of hydrant locations with the Fire Department and determine where additional fire hydrants are needed to achieve target operational fire flows based on land uses within the community.
11. Consider increasing the frequency of sampling and testing Well No. 5 for sodium and chloride to look for trends.
12. Consider increasing the frequency of sampling and testing Well No. 6 for sulphate and hydrogen sulphide to look for trends.
13. Upgrade the well pumphouses with flow-paced chlorine metering pumps, to avoid low chlorine alarm conditions that occur during large watermain break situations, and that require flushing and sampling to reinstate the affected well supply.

Projects 1 through 13 were pulled directly from the Mount Forest Sanitary and Water Servicing Technical Update (2021) report; refer to Figure 4.6 and Appendix E in the report. The costing information presented in this review comprises the estimated construction costs as at the time of completion of the Technical Update report (2021).

The following major water servicing projects have been identified for Mount Forest in the Township's 10-year Capital Project Forecast:

- A new water tower in Mount Forest in the north end of the urban centre (2028).

5.1.1.5 Future Wastewater Systems

Arthur

Hydraulic capacity of the sewers may be exceeded due to the Future Development sites in the south based on sewer routing. Therefore, servicing of the future residential and highway commercial developments needs to be reviewed to optimize existing sewer capacity. The effect of the development areas on the sewer hydraulics was analyzed independently of each other. The proposed plant expansion will have sufficient capacity to treat sewage until the year 2045. It is also expected that the Phase 2 expansion should be implemented to keep pace with development as there is currently a sewage capacity constraint for developments in Arthur.

The Township has considered next steps related to future development on lands in the north area of Arthur that are currently identified to remain designated Future Development at this time (not identified to be re-designated in the County of Wellington O.P.A. 123). A significant concern/constraint will be sewage treatment capacity at the existing Arthur Wastewater Treatment Plant (W.W.T.P.). The additional capacity resulting from this is not significant (i.e., ~400 ERU) when compared to the developments being proposed. As such, a further expansion of the wastewater treatment system within Arthur will be required to support this and other future developments. To this end, the Township is proposing a Class Environmental Assessment. A project to investigate a further expansion of the wastewater treatment system. This will be a Township project that will be included in the next development charge background study and by-law. Updates regarding this project will be provided as available.

The following major wastewater servicing projects have been identified for Arthur in the Township's 10-year Capital Project Forecast:

- A Phase 2 expansion/plant upgrade of the Arthur W.W.T.P.

Mount Forest

The existing W.W.T.P. has an additional capacity of 917 m^3/day according to the 2024 Mount Forest R.C.C. This additional capacity will not be met by 2051 based on the updated growth forecasts for Mount Forest. There is, however, only a surplus capacity of 237 m^3/day by 2051; therefore, there is capacity to accommodate growth beyond this

planning horizon. The following projects are recommended by the Mount Forest Technical Update to support the future wastewater system:

1. Complete the W.W.T.P. Receiver Impact Assessment and obtain approval for increasing the operational capacity of that plant to 3,500 m^3/day.
2. Conduct an additional evaluation on the Cork Street S.P.S. to determine actual peak sewage inflow rate and reserve pumping capacity.
3. Conduct an additional evaluation on the North Water Street S.P.S. to establish the actual non-wet weather peak flow rate and to confirm if the W.W.T.P. can accept the high flow periods.
4. Prior to proceeding with any easterly extension of the Sligo Road sanitary sewer, complete a survey and evaluate the possibility of gravity servicing east past the tributary to Fairbanks Creek.
5. Replace the 200 mm diameter sanitary sewer on John Street, from Waterloo Street to Queen Street, as part of a street reconstruction project.
6. Construct a 200 mm diameter sanitary sewer on the future Moynihan Place located within the existing Industrial Drive area, to service new industrial lots.
7. Extend the 300 mm diameter Industrial Drive sanitary sewer, from Moynihan Place to Coral Lea Drive, and along Coral Lea Drive to the new elevated water storage tank (if this is the selected storage alternative), to service new industrial lots.
8. Construct the new South Water Street S.P.S., dependent on developer schedules.
9. As part of Phase 1 of the Avila subdivision, construct a 250 mm diameter sanitary sewer complete with services on South Water Street, from the South Water Street S.P.S. site southwesterly past the western end of the existing street and into the subdivision lands. This work is to be completed by the developer. There may be some cost sharing with the Township.
10. Continue replacing old sanitary sewers in concert with cast iron and small diameter (<150 mm) watermain replacement activities.

Projects 1 through 10 were pulled directly from the Mount Forest Sanitary and Water Servicing Technical Update (2021) report, as identified in Appendix E in the report. The costing information presented in this review comprises the estimated construction costs as at the time of completion of the Technical Update report (2020).

The following major wastewater servicing projects have been identified for Mount Forest in the Township's 10-year Capital Project Forecast:

- An upgrade (re-rating) to the Mount Forest W.W.T.P. (2031).

5.1.1.6 Overall Conclusions

Overall, it is recommended that the Township consider secondary or master planning for new greenfield areas in Arthur and Mount Forest before development takes place. This would also explore a phasing and staging plan that would ensure the orderly development of greenfield land that is aligned with infrastructure.

5.1.2 Transportation Review

Wellington North's transportation network is shaped by Highway 89 forming most of the northern boundary, County Road 109 forming a portion of the southern boundary, and Highway 6 acting as the main north-south axis.

5.1.3 Approach

This analysis examines both existing and future traffic conditions, taking into account the available data and designated land supply in both Arthur and Mount Forest.

5.1.4 Future Needs

The population of the Township is expected to grow by approximately 48% to 20,400 by the year 2051. The employment in the area is also expected to grow by 38% to 10,500 by the same year. The growth is expected to occur mainly in the urban areas of Mount Forest and Arthur. The forecast growth will generate trips that will impact the vehicle traffic volumes in the Township, especially along Highway 6 through the two urban areas of Arthur and Mount Forest, which has already been highlighted as a heavily travelled corridor.

The estimated trips from the proposed growth are assigned to the roadway based on the above traffic distribution on the Township's roadway network. The trips from the future growth are assumed to likely use Main Street, Mount Forest (Highway 6), and Smith Street and George Street, Arthur (Highway 6). As previously highlighted, these two roadway sections were identified as the heavily travelled corridors that experience roadway congestion in the study area. Based on the trip distribution and total trips, it is

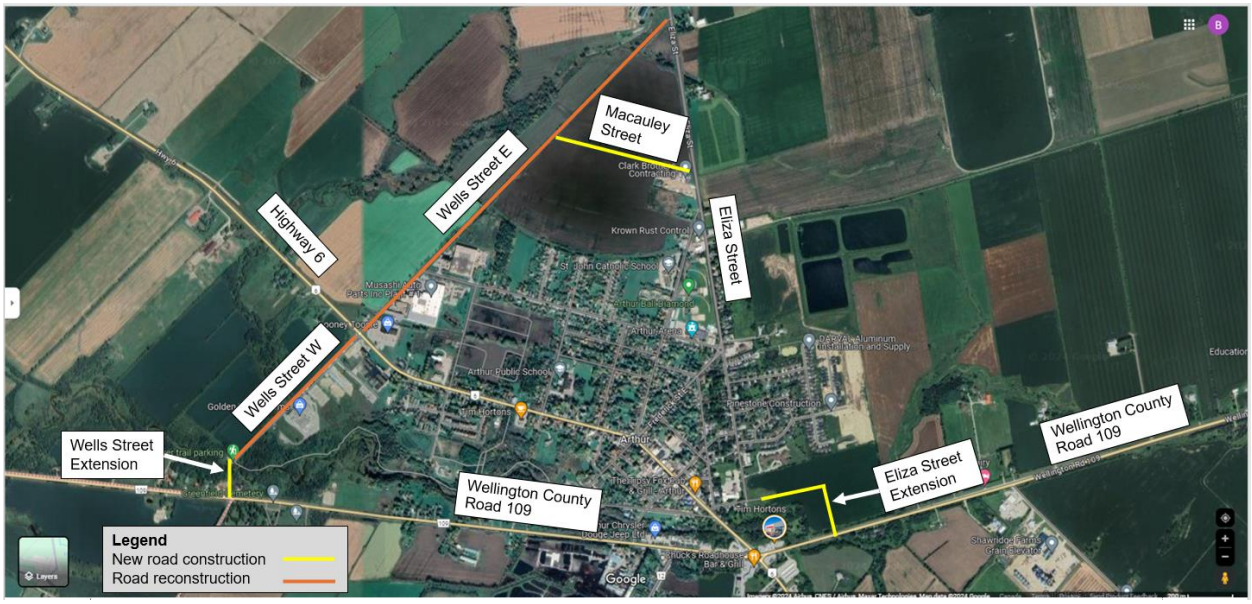
estimated that Smith Street could have an additional 14,500 daily trips and Main Street could have an additional 11,900 daily trips by the year 2051. This could theoretically increase the total daily traffic along Smith Street and George Street to approximately 40,300 (a 56% increase) and 29,200 (a 68% increase) on Main Street by the year 2051. These volumes are not sustainable or desirable on these streets and additional road network infrastructure will be required to help accommodate growth.

The land identified for development was reviewed considering the existing road network. Opportunities were identified to accommodate the forecast growth by providing additional or improved connectivity, connecting missing links by formalizing gravel or tar roads as paved roads, and enabling alternate routes to reduce the strain of vehicles on the main streets of Arthur and Mount Forest. The following improvements were identified for Arthur:

i. Extend Wells Street West to connect to Wellington County Road 109.
ii. Improve Wells Street west of Highway 6 to 2-lane paved roadways constructed per design standards.
iii. Construct a 2-lane Wells Street East from Highway 6 to Eliza Street.
iv. Construct Macauley Street between Wells Street East and Eliza Street.
v. Extend Eliza Street south to connect to Wellington Road 109.

These are illustrated in Figure 17.

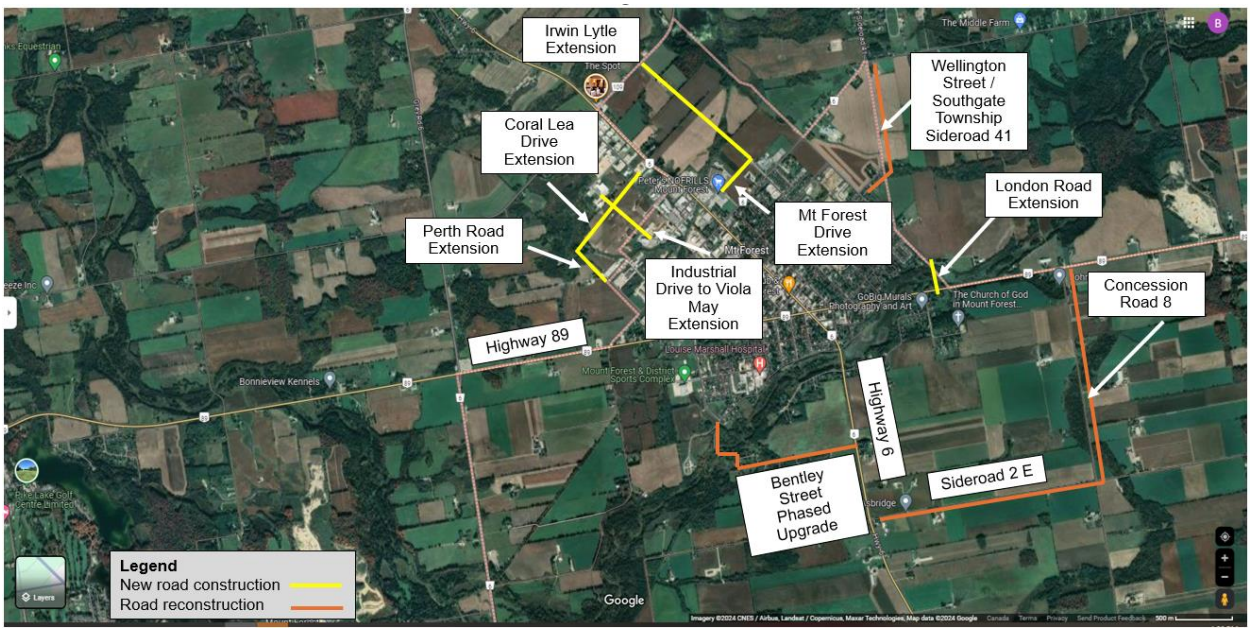
Figure 17
Recommended Road Network Improvements to Accommodate
Forecast Growth in Arthur



The same exercise was undertaken for Mount Forest, and the recommended road network improvements to accommodate growth are shown in Figure 18 and include:

i. Extension of London Road south of Albert Street to connect to Highway 89.
ii. Extension of Industrial Drive to Viola May Crescent.
iii. Extension of Coral Lea Drive to the new extension of Industrial Drive.
iv. Extension of Mount Forest Drive to Irwin Lytle Drive.
v. Extension of Irwin Lytle Drive to Grey Road 109.
vi. Extension of Perth Road to Coral Lea Drive.
vii. The Bentley Street Phased Upgrade:
    (1) Bentley Street to Silver Street;
    (2) Silver Street to Mill Street;
    (3) Mill Street to Martin Street.
viii. Improvement of the following roadways to 2-lane paved roadways constructed per design standards:
    (1) Wellington Street/Southgate Township Sideroad 41 between London Road and Southgate Township Road 4.
    (2) Concession Road 8 between Highway 89 and Sideroad 2 E.
    (3) Sideroad 2 E between Highway 6 and Concession Road 8.

Figure 18
Recommended Road Network Improvements to Accommodate
Forecast Growth in Mount Forest



The findings of the future traffic analysis indicate that there will be increased traffic volumes on the main streets of both Arthur and Mount Forest. Alternate routes to Highway 6 (which becomes the main street in both of these communities) needs to be provided for local traffic in the Arthur and Mount Forest areas to help mitigate increasing traffic volumes on Highway 6 through the communities.

5.1.4.1 Overall Conclusions

Overall, it is recommended that the Township develop a Transportation Master Plan (including roadway, open and unopen road allowances, sidewalks, and trails), specifically a "Mobility Master Plan" that includes planning for all forms of mobility. The Strategic Directions (Chapter 6) provide further recommendations on improving mobility needs within the Township.

5.2 Municipal Fiscal Analysis

5.2.1 Overview

As part of the Growth Management Action Plan, a fiscal analysis has been undertaken to assess the impacts of the proposed residential and non-residential growth on the Township. This analysis examines the following:

- potential assessment values of the residential and non-residential forecast;
- potential property tax and non-tax revenues;
- additional operating expenditures;
- estimated lifecycle costs based on the capital information presented in the 2022 Development Charges Background Study; and
- a calculation of the potential surplus (or deficit) that the proposed developments will generate for the Township based on the above.

It should be noted that the analysis contained herein does not include an assessment of future capital infrastructure that would be required to 2051. While section 5.1 of this report describes the potential water, wastewater, and transportation projects that the Township should consider, the costing information associated to these works are not available at this time. Furthermore, the internal infrastructure (local roads, sidewalks, internal watermains, internal sewermains, parks, etc.) that would be required to be constructed within these developments are unknown. The fiscal impact will need to be updated subsequent to the development of these capital costs, which will impact the overall surplus/deficit figures that the proposed growth will have on the Township.

Additionally, it is recommended that the Township undertake a new Development Charges (D.C.) study once the infrastructure projects and associated costs are identified. This will allow the Township to collect the appropriate D.C. revenues to fund the required growth-related works.

5.2.2 Approach

The approach utilized in the financial analysis is consistent with the methodology devised by the firm and used for over 36 years to evaluate fiscal impact for more than three dozen landowners, the Ministry of Municipal Affairs, the Ontario Land Corporation, Canada Mortgage and Housing Corporation (C.M.H.C.), and municipalities such as (but

not limited to) Oakville, Burlington, Halton Hills, Caledon, York Region, East Gwillimbury, Collingwood, Durham Region, Pickering, Haldimand-Norfolk, Halton Region, Georgian Bay Township, and Cavan Monaghan.

Essentially, the methodology involves an operating and capital cost analysis. The operating cost analysis involves calculating the municipality's tax calculation with the addition of the proposed residential and non-residential forecast. Note that for the purposes of this analysis, the 2022 Financial Information Return (F.I.R.) data was used as it provides the most up to date data on actual spending and received revenues for the Township. For the evaluation, revenues and expenditures attributable to the forecasted development are estimated on an incremental basis. That is, revenue and expenditure dollars are assigned to the project, only in accordance with anticipated variations it would create from the 2022 base year, if it had been built out, as of that time. Sunk costs are ignored and service levels are planned as remaining generally constant.

As described earlier, the capital cost analysis has been excluded at this time due to the lack of costing information.

5.2.3 Proposed Developments and Assessment Values

Based on the 2024 to 2051 growth forecast information presented in Chapter 3, the Township is estimated to grow by 2,385 residential units, which equate to approximately 6,600 people. With respect to non-residential growth, the Township is estimated to grow by 2,045 employees, which equates to approximately 2.2 million square feet of non-residential gross floor area. Figures 19 and 20 provides the residential and non-residential summaries by type.

Figure 19
Residential Incremental Growth Summary

Type Of Units	Units Increment Number of Units	Population Increment
Single/Semi Detached	1,696	5,253
Townhomes	420	838
Apartments	269	463
Total	**2,385**	**6,554**

Figure 20
Non-Residential Incremental Growth Summary

Type of Development	Sq.ft. Increment Number of Sq.ft.	Estimated Employment
Industrial	1,596,000	1,140
Commercial / Institutional	427,500	855
Primary	175,000	50
Total	**2,198,500**	**2,045**

As the new developments are constructed, the Township will receive additional assessment arising from the completion of the units. Figure 21 provides for the estimated new assessment to be generated from the development. The assessment values presented herein are calculated based on MPAC's database, which are still based on the 2016 full phased-in values. The steps undertaken are as follows:

- The average assessment values for single detached homes, semi-detached homes, townhomes, and apartments from municipalities throughout Wellington County were applied.
- The assessment values for commercial and industrial buildings were based on businesses throughout Wellington County.
- The assessment values for primary (farms) are based on 50% of the industrial buildings.
- The total assessment value (which will form the basis for the property tax revenue estimate) was calculated using the estimated average assessment per unit multiplied by the number of units for each development type.

Figure 21
Estimated Assessment Values

Residential

Type Description	Average Assessment per Unit	Number of Units	Assessed Value
Single/Semi Detached	395,000	1,696	$669,920,000
Townhomes	315,000	420	$132,300,000
Apartments	313,000	269	$84,197,000
Total		**2,385**	**$886,417,000**

Information above based on MPAC Assessments within Wellington County

Non-residential

Type Description	Average Assessment per Sq.ft.	Est. GFA	Assessed Value
Industrial	45.00	1,596,000	$71,820,000
Commercial / Institutional	75.00	427,500	$32,062,500
Primary	22.50	175,000	$3,937,500
Total		**2,198,500**	**$107,820,000**

Information above based on MPAC Assessments within Wellington County
Note: Primary Assessment is assumed to be 50% of Industrial

5.2.4 Impact on the Township's Operating Budget

This section examines the potential impact of the buildout of the 2051 incremental residential and non-residential developments on the Township's operating budget. This is done by examining the revenue and expenditure implications separately, and then together with reference to net operating position.

An additional analysis has been carried out to include an annual lifecycle contribution from capital projects identified in the 2022 D.C. study. This assessment assumes a similar cost per capita and per employee for growth-related infrastructure works from the 2022 D.C. study and applies it to these future developments.

5.2.4.1 Operating Expenditure Implications

Figure 22 summarizes the Township's "Revenue Fund" or "Operating Fund" transactions for 2022 (based on the Township's Financial Information Return (F.I.R.)). This represents a simple "model" of the Township's financial position for the operating fund and provides the structure of the financial impact analysis contained in this chapter.

Figure 23 modifies the operating expenditures shown in Figure 22 by netting “Interest on Long Term Debt”, “External Transfers”, and “Amortization” from the total. The debt charges are for “sunk” investments, unaffected by growth. The external transfers can vary significantly from year to year and relate largely to capital expenditures and general reserves, which are addressed separately in this analysis. Further, amortization is an accounting allocation which seeks to capture annual replacement costs. As this is based on historical costs, a separate analysis on lifecycle expenditures (based on future replacement cost) is required. It is therefore appropriate to remove these three classes of expenditures from the spending base, before determining incremental loss and/or average operating fund spending levels per capita and employee.

Figure 24 allocates the Township’s existing operating expenditure components between the needs of residential development and non-residential development, based on differences in the amount of such development and the need for particular types of services in each case. The expenditure allocation is then presented on a per household/per employee basis. The expenditures are divided between residential and non-residential development based on varying proportions for each service. Most expenditures have been shared on a population-to-employment basis. As the 2024 population is estimated to be 13,800 and employment is 5,240, these costs are split approximately 72%/28%. For parks and recreation and cemeteries, a minor allocation has been provided to non-residential development which acknowledges some usage by the non-residential sector (5%).

Figure 25 assesses each of the Township’s key tax-supported service components in relation to the proposed development to determine how the operating costs are likely to be impacted based on the characteristics and location of the developments.

Figure 22
Summary of Consolidated Expenditures and Revenues
2022 F.I.R. Data ('000's $)

Summary of Consolidated Expenditures and Revenues	General Levy
1. GROSS EXPENDITURES	
1.1 General Government	1,362.5
1.2 Fire	1,056.3
1.3 Protective Inspection and Control	678.8
1.4 Building Permit and Inspection Services	5.7
1.5 Emergency Measures	44.7
1.6 Roadways & Winter Control	7,022.7
1.7 Street Lighting	117.6
1.8 Wastewater Collection/Conveyance	1,578.8
1.9 Wastewater Treatment & Disposal	1,253.7
1.10 Water Treatment	1,616.7
1.11 Cemeteries	123.4
1.12 Parks	180.5
1.13 Recreation Facilities	2,137.3
1.14 Planning and Zoning	195.1
1.15 Commercial and Industrial	637.7
Total Gross Expenditures	**18,011.6**
2. REVENUES	
2.1 Payment in Lieu of Taxes	164.6
2.2 Unconditional Grants	1,300.6
2.3 Specific Grants	2,865.5
2.4 Revenue from Other Municipalities	111.1
2.5 Total User Fees and Service Charges	6,200.4
2.6 Licenses, Permits, Rents etc.	912.9
2.7 Fines and Penalties	152.9
2.8 Investment Income	750.0
2.9 Gain/Loss on sale of land & Capital Assets	200.4
2.10 Deferred Revenue Earned	95.5
2.11 Donations & Donated Tangible Capital Assets	52.2
2.12 Other Revenues from Government Business Enterprise	536.0
2.13 Other: Other Revenue	74.3
2.14 Total of all supplementary taxes (Supps, Omits, Section 359)	553.0
2.15 Business improvement area	30.0
2.16 (Surplus) / Deficit	(4,258.8)
Total Revenues	**9,740.6**
NET EXPENDITURES	**8,271.0**
3. PROPERTY TAXATION	**8,271.0**

Figure 23
Summary of Net Operating Expenditures (2022 F.I.R. Data)

Category	Total Gross Expenditures	Interest on Long Term Debt	External Transfers	Amortization	Net Operating Expenditures
1.1 General Government	1,362,506	-	-	92,717	1,269,789
1.2 Fire	1,056,286	-	-	224,085	832,201
1.3 Protective Inspection and Control	678,758	-	178,152	-	500,606
1.4 Building Permit and Inspection Serv	5,722	-	-	-	5,722
1.5 Emergency Measures	44,701	-	-	-	44,701
1.6 Roadways & Winter Control	7,022,687	-	-	3,618,071	3,404,616
1.7 Street Lighting	117,604	-	-	21,695	95,909
1.8 Wastewater Collection/Conveyance	1,578,846	193,524	-	-	1,385,322
1.9 Wastewater Treatment & Disposal	1,253,712	-	-	1,253,712	-
1.10 Water Treatment	1,616,657	-	-	392,728	1,223,929
1.11 Cemeteries	123,442	-	-	1,341	122,101
1.12 Parks	180,522	-	-	-	180,522
1.13 Recreation Facilities	2,137,325	-	-	463,736	1,673,589
1.14 Planning and Zoning	195,123	-	-	-	195,123
1.15 Commercial and Industrial	637,691	-	-	-	637,691
TOTAL	**18,011,582**	**193,524**	**178,152**	**6,068,085**	**11,571,821**

Note: the water and wastewater information presented in Figure 23 is for illustrative purposes to summarize the total operating expenditures within the Township. The water and wastewater impacts have not been assessed at this time.

Figure 24
Average Cost per Capita and per Employee (2022 F.I.R. Data)

Category	Total Net Operating Expenditure	Residential Share		Cost Per Capita	Non-Residential Share		Cost Per Employee
		%	$		%	$	
1. Expenditures							
1.1 General Government	1,269,789	72%	920,330	66.69	28%	349,459	66.69
1.2 Fire	832,201	72%	603,171	43.71	28%	229,030	43.71
1.3 Protective Inspection and Control	500,606	72%	362,834	26.29	28%	137,772	26.29
1.4 Building Permit and Inspection Service	5,722	72%	4,147	0.30	28%	1,575	0.30
1.5 Emergency Measures	44,701	72%	32,399	2.35	28%	12,302	2.35
1.6 Roadways & Winter Control	3,404,616	72%	2,467,631	178.81	28%	936,985	178.81
1.7 Street Lighting	95,909	72%	69,514	5.04	28%	26,395	5.04
1.11 Cemeteries	122,101	95%	115,996	8.41	5%	6,105	1.17
1.12 Parks	180,522	95%	171,496	12.43	5%	9,026	1.72
1.13 Recreation Facilities	1,673,589	95%	1,589,910	115.21	5%	83,679	15.97
1.14 Planning and Zoning	195,123	72%	141,423	10.25	28%	53,700	10.25
1.15 Commercial and Industrial	637,691	0%	0	0.00	100%	637,691	121.70
TOTAL	**8,962,570**		**6,478,851**	**469.49**		**2,483,719**	**474.00**

Current Year Population (Includes Undercount)	13,800	72%
Current Year Employment (Exclude WAH and NFPOW)	5,240	28%

Figure 25
Operating Expenditures – Growth Sensitivity Analysis (Tax Supported – 2022$)

Expenditure Category	RESIDENTIAL			NON-RESIDENTIAL		
	Net Expenditure per Capita	Growth Share %	Net Expenditure Recast	Net Expenditure per Employee	Growth Share %	Net Expenditure Recast
1.1 General Government	66.69	50%	33.35	66.69	50%	33.35
1.2 Protection to Person and Property						
1.2.1 Fire	43.71	100%	43.71	43.71	100%	43.71
1.2.2 Protective Inspection and Control	26.29	100%	26.29	26.29	100%	26.29
1.2.3 Building Permit and Inspection Service	0.30	100%	0.30	0.30	100%	0.30
1.2.4 Emergency Measures	2.35	100%	2.35	2.35	100%	2.35
1.3 Transportation Services						
1.3.1 Roadways & Winter Control	178.81	75%	134.11	178.81	75%	134.11
1.3.2 Street Lighting	5.04	75%	3.78	5.04	75%	3.78
1.4 Health Services						
1.4.1 Cemeteries	8.41	50%	4.21	1.17	50%	0.59
1.5 Recreation and Cultural Services						
1.5.1 Parks	12.43	75%	9.32	1.72	75%	1.29
1.5.2 Recreation Facilities	115.21	100%	115.21	15.97	100%	15.97
1.6 Planning and Development						
1.6.1 Planning and Zoning	10.25	100%	10.25	10.25	100%	10.25
TOTAL	**469.49**		**382.88**	**474.00**		**393.69**

The “Growth Share %” column denotes a particular percentage factor in each case. This factor reflects any variation from the current overall average per household expenditure level, which is called for in dealing with a development increment. For instance, if the average existing expenditure for a service is $100 per capita, economies of scale or other efficiencies, may indicate that service costs for the growth increment alone are likely to be lower than average, say 90% (or $90 per capita), while being unaltered for the base population. This determination has been based on analysis of the municipality’s budget, discussions with Township staff, practices elsewhere, and the consultant’s experience. The provisions made are considered to be adequate with respect to the proposed developments and existing service capacity in the Township.

These percentage attributions are used to compute average incremental operating costs per household and per employee, which is reflected in the “Net Expenditure” column. The per household and employee expenditure averages are utilized, subsequently, to estimate the incremental expenditure requirement generated by growth.

Based on the analysis provided in Figure 25, the forecast of annual expenditures has been undertaken. Figure 26 provides for the per household and per employee amount

multiplied by the assumed growth take-up as provided in Figures 19 and 20. The total line provides for the product of this calculation.

Figure 26
Operating Expenditures Summary (Tax Supported – 2022$)

CATEGORY	Cost Per Capita	Cost Per Employee	Incremental Expenditures (2022$)
1. Expenditures			
1.1 General Government	33.35	33.35	286,777
1.2 Fire	43.71	43.71	375,862
1.3 Protective Inspection and Control	26.29	26.29	226,068
1.4 Building Permit and Inspection Services	0.30	0.30	2,580
1.5 Emergency Measures	2.35	2.35	20,208
1.6 Roadways & Winter Control	134.11	134.11	1,153,212
1.7 Street Lighting	3.78	3.78	32,504
1.11 Cemeteries	4.21	0.59	28,799
1.12 Parks	9.32	1.29	63,721
1.13 Recreation Facilities	115.21	15.97	787,745
1.14 Planning and Zoning	10.25	10.25	88,140
1.15 Commercial and Industrial	-	121.70	248,877
TOTAL	**382.88**	**393.69**	**3,314,492**

5.2.4.2 Operating Revenue Implications

Figure 27 sets out the 2022 non-tax revenues for the Township as outlined in Figure 22. The figure distinguishes the revenues by service specific revenues (defined as being directly related to individual programs) and those being of a general nature.

Figure 28 assesses the 2022 non-tax revenues as to those which may be directly affected by growth. Generally, any unconditional grants and subsidies have been eliminated and the residual amounts are assessed as to their applicability to growth. The costs are then allocated between the population and employees to provide a per capita and per employee revenue.

Figure 29 assesses the estimated proportionate share of growth in a similar manner as provided in Figure 26. Figure 30 then determines the forecast non-tax revenue to be generated annually based on the buildout of the incremental growth to 2051 provided in Figures 19 and 20.

Figure 27
Operating Revenue Summary (2022$)

CATEGORY	NON-TAX OPERATING REVENUES (2022$)							
	Ontario Conditional Grants	Canada Conditional Grants	Other Municipalities	User Fees and Service Charges	Ontario Grants - Tangible Capital Assets	Canada Grants - Tangible Capital Assets	User Fees, Service Charges, and Grants	Total Revenue - FIR
2. Revenues								
2.1 Service Specific Non-Tax Revenues								
General Government	-	2,100	-	10,028	-	-	12,128	12,128
Fire	-	-	101,050	-	-	-	-	101,050
Roadways & Winter Control	28,017	4,200	-	57,332	2,760,399	-	89,549	2,849,948
Wastewater Collection/Conveyance	-	-	-	2,837,951	-	-	2,837,951	2,837,951
Water Treatment	-	-	-	2,401,711	-	-	2,401,711	2,401,711
Cemeteries	-	-	-	62,082	-	-	62,082	62,082
Recreation Facilities	-	28,846	10,000	567,789	-	-	596,635	606,635
Planning and Zoning	-	-	-	252,885	-	-	252,885	252,885
Commercial and Industrial	28,000	13,900	-	10,648	-	-	52,548	52,548
2.2 Other Non-Tax Revenues								
Payment in Lieu of Taxes								164,558
Unconditional Grants								1,300,600
Specific Grants								2,865,462
Revenue from Other Municipalities								111,050
Total User Fees and Service Charges								6,200,426
Licenses, Permits, Rents etc.								912,852
Fines and Penalties								152,908
Investment Income								749,998
Gain/Loss on sale of land & Capital Assets								200,442
Deferred Revenue Earned								95,535
Donations & Donated Tangible Capital Assets								52,220
Other Revenues from Government Business Enterprise								535,976
Other: Other Revenue								74,288
Total of all supplementary taxes (Supps, Omits, Section 359)								553,046
Business improvement area								30,000
(Surplus) / Deficit								(4,258,802)
TOTAL	**56,017**	**49,046**	**111,050**	**6,200,426**	**2,760,399**	**-**	**6,305,489**	

Note: the water and wastewater information presented in Figure 27 is for illustrative purposes to summarize the total operating revenues within the Township. The water and wastewater impacts have not been assessed at this time.

Figure 28
Non-Tax Operating Revenue Summary – Average Revenue Per Capita and Per Employee (2022$)

CATEGORY	Total Net Operating Revenue and Grants	Residential Share		Revenue Per Capita	Non-Residential Share		Revenue Per Employee[2]
		%	$		%	$	
2. Revenues							
2.1 Service Specific Non-Tax Revenues							
General Government	12,128	72%	8,790	0.64	28%	3,338	0.64
Roadways & Winter Control	89,549	72%	64,904	4.70	28%	24,645	4.70
Cemeteries	62,082	95%	58,978	4.27	5%	3,104	0.59
Recreation Facilities	596,635	95%	566,803	41.07	5%	29,832	5.69
Planning and Zoning	252,885	72%	183,289	13.28	28%	69,597	13.28
Commercial and Industrial	52,548	0%	-	-	100%	52,548	10.03
2.2 Other Non-Tax Revenues							
Payment in Lieu of Taxes	164,558	n/a	-	-	n/a	-	-
Unconditional Grants	1,300,600	n/a	-	-	n/a	-	-
Specific Grants[1]	2,865,462	n/a	-	-	n/a	-	-
Revenue from Other Municipalities	111,050	n/a	-	-	n/a	-	-
Total User Fees and Service Charges[1]	6,200,426	n/a	-	-	n/a	-	-
Licenses, Permits, Rents etc.	912,852	72%	661,626	47.94	28%	251,226	47.94
Fines and Penalties	152,908	72%	110,826	8.03	28%	42,082	8.03
Investment Income	749,998	72%	543,591	39.39	28%	206,407	39.39
Gain/Loss on sale of land & Capital Assets	200,442	n/a	-	-	n/a	-	-
Deferred Revenue Earned	95,535	n/a	-	-	n/a	-	-
Donations & Donated Tangible Capital Assets	52,220	n/a	-	-	n/a	-	-
Other Revenues from Government Business Enterprise	535,976	n/a	-	-	n/a	-	-
Other: Other Revenue	74,288	72%	53,843	3.90	28%	20,445	3.90
Total of all supplementary taxes (Supps, Omits, Section 3	553,046	n/a	-	-	n/a	-	-
Business improvement area	30,000	n/a	-	-	n/a	-	-
(Surplus) / Deficit	(4,258,802)	n/a	-	-	n/a	-	-
TOTAL	**10,806,386**	**-**	**2,252,651**	**163.22**	**-**	**703,223**	**134.19**

Current Year Population (Includes Undercount)	13,800
Current Year Employment (Exclude WAH and NFPOW)	5,240

1 Specific grants and Total User Fees and Service Charges have been incldued in section 2.1 above

Figure 29
Non-Tax Operating Revenue – Growth Sensitivity Analysis (Tax Supported – 2022$)

REVENUE CATEGORY	RESIDENTIAL			NON-RESIDENTIAL		
	Net Revenue per Capita	Growth Share %	Net Revenue Recast	Net Revenue per	Growth Share %	Net Revenue Recast
2.1 Service Specific Non-Tax Revenues						
General Government	0.64	50%	0.32	0.64	50%	0.32
Roadways & Winter Control	4.70	75%	3.53	4.70	75%	3.53
Cemeteries	4.27	50%	2.14	0.59	50%	0.30
Recreation Facilities	41.07	100%	41.07	5.69	100%	5.69
Planning and Zoning	13.28	100%	13.28	13.28	100%	13.28
Commercial and Industrial	-	0%	-	10.03	100%	10.03
Sub-total	63.96		60.34	34.93		33.15
2.2 Other Non-Tax Revenues						
Licenses, Permits, Rents etc.	47.94	100%	47.94	47.94	100%	47.94
Fines and Penalties	8.03	100%	8.03	8.03	100%	8.03
Investment Income	39.39	100%	39.39	39.39	100%	39.39
Other: Other Revenue	3.90	50%	1.95	3.90	50%	1.95
Sub-total	**99.26**		**97.31**	**99.26**		**97.31**
TOTAL	**163.22**		**157.65**	**134.19**		**130.46**

Figure 30
Non-Tax Operating Revenue Summary (Tax Supported – 2022$)

CATEGORY	Revenue Per Capita	Revenue Per Employee	Incremental Revenues (2022$)
2. Revenues			
2.1 Service Specific Non-Tax Revenues			
General Government	0.32	0.32	2,752
Roadways & Winter Control	3.53	3.53	30,354
Cemeteries	2.14	0.30	14,639
Recreation Facilities	41.07	5.69	280,809
Planning and Zoning	13.28	13.28	114,195
Commercial and Industrial	-	10.03	20,511
2.2 Other Non-Tax Revenues			-
Licenses, Permits, Rents etc.	47.94	47.94	412,236
Fines and Penalties	8.03	8.03	69,050
Investment Income	39.39	39.39	338,715
Other: Other Revenue	1.95	1.95	16,768
TOTAL	**157.65**	**130.46**	**1,300,029**

5.2.4.3 Taxation Revenue

Based on the Weighted Assessment Increment calculations provided in Figure 21, a forecast of the taxation revenue to be generated at buildout was undertaken using the 2024 tax rates (note: while the FIR data is based on 2022$, the Township requested that the 2024 tax rates be utilized for the purposes of this section). Figure 31 provides for this calculation at buildout. In undertaking this calculation, it is recognized that the undeveloped properties located throughout the Township (which are the assumed existing farmland areas that will be the future site of the residential and non-residential developments) do currently pay property taxes to the Township, which is estimated at $12,411 (based on the current assessment and 2024 farm tax rate). The existing property tax amount has been netted from the estimated taxation revenue estimate to establish the additional taxation revenue increment.

Figure 31
Property Tax Revenue

Property Tax Classes		Municipal Property Tax Revenue (2024$)
1. Property Tax[1]		
Residential Growth		
Residential Assessment (RT)		*886,417,000*
Property Tax Revenue	**0.5559%**	4,927,982
Total Residential Property Tax Revenue		4,927,982
Non-residential Growth		
Commercial Assessment (CT)		*32,062,500*
Property Tax Revenue	**0.8289%**	265,770
Total Commercial Property Tax Revenue		265,770
Non-residential Growth		
Industrial Assessment (IT)		*71,820,000*
Property Tax Revenue	**1.3343%**	958,270
Total Industrial Property Tax Revenue		958,270
Non-residential Growth		
Farmland Assessment (FT)		*3,937,500*
Property Tax Revenue	**0.1390%**	5,473
Total Industrial Property Tax Revenue		5,473
Less Existing Property Tax Revenue		12,411
TOTAL PROPERTY TAX REVENUE		**6,145,084**

[1] Tax Rates (2024)	General Tax Rate
2024 Residential Tax Rate (RT)	0.5559%
2024 Multi-Residential Tax Rate (MT)	1.0563%
2024 Commercial Tax Rate (CT)	0.8289%
2024 Industrial Tax Rate (IT, IH, JT)	1.3343%
2024 Farmlands and Managed Forest Tax Rate (FT)	0.1390%

5.2.4.4 Lifecycle Analysis

Infrastructure that is constructed or assumed by the Township will require replacement at the end of their useful life. This replacement of capital is often referred to as asset management or lifecycle cost. The method selected in this analysis to assess future

asset replacement costing is the sinking fund method which provides that money will be contributed annually and invested, so that those funds will grow over time to equal the amount required for future replacement.

Figures 32 and 33 provides for an analysis of the residential and non-residential indirect lifecycle costs, within the context of the capital identified in the Township's 2022 D.C. study. The D.C. study identified a forecasted growth of 4,403 population / 1,459 employment in the Township to 2041. Given that the growth forecast contained within this report is to 2051, the Township's D.C. study will need to be updated to reflect the new growth forecast and potentially new infrastructure costs.

The annual lifecycle contribution amounts have been divided by their respective forecast period populations to generate a per capita/per employee cost by service (the residential and non-residential splits are based on the Township's D.C. Study). These per capita and per employee costs have been multiplied by the proposed development's population forecast of 6,554 people and 2,045 employees, respectively.

The analysis herein only provides for the D.C. related lifecycle costs. The Township will need to assess the impacts of the internal capital works that will be constructed as part of the proposed residential and non-residential developments.

Note: The analysis in Figures 32 and 33 are with respect to non-water/wastewater assets only. As stated earlier, the impacts related to water and wastewater have not been assessed at this time.

Figure 32
Indirect Annual Lifecycle Costs (Residential)

Service	Annual Lifecycle Contribution	Annual Lifecycle Contribution (Residential)	D.C. Forecast Population	Annual Lifecycle Contribution Per Capita	Proportionate Share of Annual Lifecycle costs for the 2051 Residential Growth (6,554 people)
Roads and Related	123,215	88,715	4,403	20.15	132,054
Fire Protection Services	2,550	1,836	2,124	0.86	5,665
By-law Services	202	146	2,124	0.07	450
Outdoor Recreation Services	13,569	12,891	2,124	6.07	39,777
Indoor Recreation Services	32,775	31,137	2,124	14.66	96,078
Total - Township-wide Services	**172,312**	**134,724**			**274,024**

Figure 33
Indirect Annual Lifecycle Costs (Non-Residential)

Service	Annual Lifecycle Contribution	Annual Lifecycle Contribution (Non-Residential)	D.C. Forecast Employment	Annual Lifecycle Contribution Per Capita	Proportionate Share of Annual Lifecycle costs for the 2051 Non-Residential Growth (2,045 employees)
Roads and Related	123,215	34,500	1,459	23.65	48,357
Fire Protection Services	2,550	714	1,459	0.49	1,001
By-law Services	202	57	1,459	0.04	79
Outdoor Recreation Services	13,569	678	867	0.78	1,600
Indoor Recreation Services	32,775	1,639	867	1.89	3,865
Total - Township-wide Services	**172,312**	**37,588**			**54,903**

5.2.4.5 Net Operating Impacts to the Township

Figure 34 summarizes the foregoing analysis over a planned forecast period. This table calculates the operating expenditures, indirect lifecycle costs, non-tax revenues and taxation revenues to provide for the net annual financial position.

Figure 34
Summary of the Tax Supported Impacts to the Township

Summary of Fiscal Impact		At Buildout
1.	Revenues	
	1.1 Property Tax	
	Residential Growth	4,927,982
	Non-residential Growth	1,229,513
	Less Existing Property Tax	12,411
	Total Property Tax Revenue	**6,145,084**
	1.2 Non-Tax	
	Residential Growth	1,033,238
	Non-residential Growth	266,791
	Total Non-Tax Revenue	**1,300,029**
	1.3 Total Revenue	
	Residential Growth	5,961,220
	Non-residential Growth	1,496,304
	Less Existing Property Tax	12,411
	Total Revenue	**7,445,113**
2.	Expenditures	
	2.1 Operating	
	Residential Growth	2,509,396
	Non-residential Growth	805,096
	Total Operating Expenditures	3,314,492
	2.2 Lifecycle	
	Broader City-wide Lifecycle Impacts	328,927
	Total Expenditures	**3,643,418**
3.	**Surplus (Deficit)**	**3,801,694**

Based on the results provided in Figure 34, the residential and non-residential developments would provide a net positive contribution to the Township, with an estimated surplus of $3.8 million annually for the tax supported services.

As mentioned in section 5.2.1, the analysis contained herein does not include an assessment of future capital infrastructure that would be required to 2051 due to costing

information currently being unavailable. The fiscal impact will need to be updated subsequent to the development of these capital costs, which will impact the overall surplus/deficit figures presented herein.

Chapter 6
Strategic Growth Directions

6. Strategic Growth Directions

Provided below is a summary of strategic growth directions for the Township in managing growth over the long term. These strategic directions have been organized according to the guiding principles discussed in Chapter 2. The strategic growth directions encompass two types of actions: approaches and initiatives. Approaches are overarching recommended strategies that guide planning and decision-making processes. Initiatives are specific projects and programs implemented to achieve the Township's growth management objectives. The recommended strategic growth directions also identify whether the Township of Wellington North would be leading this approach or initiative, or whether it would be in partnership with the County of Wellington. It is important to recognize that some of the strategic growth directions below are already being carried out by the Township and are included as a recommendation to continue. These tables should be reviewed regularly by Township staff and Council and updated where necessary.

Together as One: Wellington North

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Ensure decisions on accommodating growth are viewed at a Township-wide perspective.	Approach	County/ Township
2. Celebrate and share the Township's history, accomplishments, assets, and community pride.	Approach	Township-Led
3. Explore undertaking a review of the "Township's brand" in marketing the Township and bringing residents and businesses across the Township together.	Initiative	Township-Led

Championing Environmental Stewardship and Protecting Resources for Future Generations

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Integrate climate change considerations with infrastructure and planning decisions. For example, encourage developments to incorporate natural systems into urban development, such as parks and greenspaces that serve as flood control areas. Further information on incorporating Green Standards in development can be considered through the Green Development Standards currently underway by the County of Wellington, a joint initiative with the County of Grey and the County of Dufferin. The Green Development Standards are anticipated to be completed by November 2024.[1]	Approach	County/ Township
2. As part of the planning and development application review, require development to be designed to maximize the retention of existing trees and vegetation, wetlands, riparian and/or other wildlife habitats through greenspaces and green infrastructure.	Approach	County/ Township
3. Commission stormwater studies to obtain the performance metrics required by O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure, specifically the percentage of properties in the municipality resilient to a 100-year storm, and the percentage of the network resilient to a five-year storm.[2]	Initiative	Township-Led

[2] County of Wellington website – Green Development Standards: https://www.wellington.ca/business/planning-development/major-projects/green-development-standards, retrieved August 24, 2024.

[1] A recommendation identified in the Township of Wellington North 2021 Asset Management Plan, Transportation, Stormwater, Water and Wastewater Services, 2021, p. 27.

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
4. Continued to support efforts to increase the vegetation (e.g., trees, shrubs, etc.) within the Urban Centres through any necessary updates to the Township's Municipal Servicing Standards document. Increasing the requirement of vegetation levels will need to consider the appropriate type and level of vegetation based on the development and site context.	Initiative	Township-Led
5. Lead by example – review opportunities for Township operations to be more "green."	Initiative	Township-Led

Supporting Responsible and Sustainable Growth and Infrastructure

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Ensure the phasing, pace, and scale of all new future development will be aligned with the timing of infrastructure delivery in a fiscally and sustainable manner.	Approach	Township-Led
2. The further development of any designated Future Development lands in Mount Forest and Arthur should be directed by a comprehensive planning exercise which considers: community design, transportation, parks and trails, servicing, stormwater management, housing types, commercial needs, and other matters. It is anticipated that the Township will undertake a secondary planning exercise to guide the development of the future development lands once serving has been rationalized and the Township and County are satisfied that there is a need for additional Community Area lands (residential or commercial).	Initiative	Township-Led
3. Expand the Sewage Allocation Policy to include water/wastewater for the Township's Urban Centres to manage and phase	Initiative	Township-Led

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
residential and employment growth to 2051. Policy will provide transparency on growth priorities (balancing residential and non-residential demands and location), what improvements are required, and the timelines.		
4. Continue to plan for the implementation of the Arthur Wastewater Treatment Plant Phase 2 Expansion and cost recovery of the growth-related share of these investments through development charges.	Initiative	Township-Led
5. Develop a Master Stormwater Management Plan based on sub-watershed planning.	Initiative	Township-Led
6. Ensure cost-effective development and land use patterns and require development to demonstrate the fiscal management of growth-related costs.	Approach	County/ Township
7. Continue to work with the school boards to provide growth information to assess school accommodation needs and promote integrated planning of recreation and safe access to schools.	Approach	Township-Led

Embracing Creative and Innovative Solutions

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Allow for creativity in the development process while meeting provincial, County, and Township planning requirements.	Approach	County/ Township
2. Continue to encourage early consultation with applicants on planning and development applications to allow for more involvement with Township and County staff in the vision of the proposed development.	Approach	County/ Township

Engaging Residents, Businesses and Community Groups

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Include the engagement of local residents and businesses in planning processes and use input to inform planning decisions.	Approach	Township-Led
2. Enhance information sharing and participation with residents for the Township to increase engagement and sense of community.	Approach	Township-Led

Preserving the Character and Vibrancy of Our Communities and Countryside

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Continue to develop and support tourism related to cultural heritage, recreation, agriculture, outdoor adventure, etc.	Approach	County/ Township
2. Ensure the Township's downtown and main street areas continue to function as important public realms for commerce and community interactions. In addition, encourage developments within the downtown areas to contribute towards the enhancement of a sense of community and gathering place.	Approach	Township-Led
3. Continue to support Community Improvement Plans that promote continual investment in our urban centres. Consider developing and implementing design guidelines.	Initiative	Township-Led
4. Continue to recognize the importance of agriculture in the Township and ensure its continued viability by protecting prime agricultural areas.	Approach	County/ Township

Nurturing a Diverse and Adaptable Local Economy and Employment Base

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Develop an Employment Strategy that recommends tools and policies to protect and diversify the economic base of the Township.	Initiative	Township-Led
2. Continue efforts to support downtown revitalization, ensuring a strong core in our urban areas.	Initiative	Township-Led
3. Continue to support S.M.E. (Small Medium-Sized Enterprises) in our community, recognizing the importance of S.M.E. as part of our economic base.	Initiative	Township-Led
4. Consider opportunities to support labour force retention and development, entrepreneurs, and business incubators (facilities that are available for business start-ups).	Initiative	County/ Township
5. Continue to support municipal involvement in the development of employment lands, including working with neighbouring jurisdictions to identify opportunities for collaboration.	Initiative	Township-Led
6. Protect employment lands to balance job growth and residential growth and provide opportunities for investment and growth.	Approach	County/ Township
7. Develop and maintain a database of vacant industrial land in the Township in order to maintain regular updates on vacant land supply opportunities.	Initiative	Township-Led
8. Participate in strategic partnerships and programs to capitalize on economic development opportunities that involve industrial land development.	Approach	Township-Led
9. Undertake and facilitate new planning activities to encourage industrial development/ redevelopment of industrial areas in an orderly, cost-effective way, and ensure development opportunities are continually available.	Approach	County/ Township
10. Continue to streamline development approval processes and enhance communication and	Approach	County/ Township

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
customer service to facilitate the development of industrial land and buildings.		
11. Conduct analysis of non-residential development charges to ensure the municipality stays competitive.	Initiative	Township-Led

Providing Diverse and Affordable Options for Housing

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Provide an increased range and mix of attainable housing and affordable housing options, including a variety of densities by structure type and tenure (ownership and rental) to accommodate a changing, diverse population base of all backgrounds, ages, and incomes in keeping with high-quality urban design standards while maintaining the Township's small-town charm.	Approach	County/ Township
2. Stress that the County's residential density targets are minimums and advocate for higher densities of development to maximize the yield of housing on land.	Approach	County/ Township
3. Prepare an Intensification and Infill Strategy that will explore future opportunities for housing. This Strategy would build upon the work carried out by the County of Wellington as part of the O.P.R.	Initiative	Township-Led
4. Advocate for a range of housing options in development application plans.	Initiative	Township-Led
5. Continue to support development charges exemptions for purpose-built rental housing and development within the built-up area (intensification).	Initiative	Township-Led
6. Continue to explore provincial and federal government programs to support affordable housing, such as the Canada Mortgage and	Initiative	Township-Led

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
Housing Corporation Housing Accelerator Fund.		
7. Develop a Housing Strategy, which should recommend an affordable housing target for Wellington North and related strategies, tools, and policies to meet identified housing needs, including incentives to increase the supply of rental housing. A key consideration should include attainable housing.[1]	Initiative	County/ Township
8. Consider flexible policies and zoning for residential and mixed-use development in the downtown areas, while protecting the vibrancy of the downtown areas for commercial activity.	Approach	County/ Township
9. As the Township grows, a key consideration for the Township will be the review of the Zoning By-law. A review of the Zoning By-law will ensure that the Township's Zoning By-law provides a framework to accommodate new, desired development forms and employment opportunities, and provides an opportunity to tackle climate resiliency. Furthermore, there may be an opportunity to consolidate zones, to provide more simplicity.	Initiative	County/ Township

Enhancing Mobility and Connectivity within the Township and Beyond

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Develop a Transportation Master Plan (including roadway, open and unopen road	Initiative	Township-Led

[1] Attainable housing is a relatively new concept that has not yet been defined by the Province in any provincial planning documents. According to the Rural Ontario Municipal Association (ROMA), attainable housing refers to housing that is adequate in condition (no major repairs needed), appropriate in size (bedrooms appropriate for the household), reasonably priced (for lower and moderate income households), and available (a range of housing options).

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
allowances, sidewalks, and trails), specifically a “Mobility Master Plan” that includes all forms of mobility.		
2. Priorities of the transportation system will include fiscal responsibility, accessibility, equity, and optimizing the use of transportation assets.	Approach	Township-Led
3. Develop a parking plan for the downtown areas that in addition to accommodating parking for motor vehicles also considers bicycle parking facilities and horse drawn vehicle parking facilities.	Initiative	Township-Led
4. Establish a “complete streets” policy and review traffic calming opportunities in the community.[1]	Initiative	Township-Led
5. Continue to support the County’s RideWell program (including Guelph Owen Sound Transportation) and advocate for service enhancements within the Township as the Township grows.	Initiative	County/ Township
6. Review the feasibility of future local/regional transit opportunities and truck by-pass options as the Township grows.	Initiative	Township-Led
7. Support developments that consider and incorporate pedestrian trails and cycling paths.	Approach	County/ Township
8. Support the efficient movement of goods, including agricultural equipment in planning for growth and infrastructure.	Approach	County/ Township
9. Review the existing transportation network and evaluate the future impacts of growth.	Initiative	Township-Led
10. Continue to recognize the unique transportation requirements of the Township’s rural communities, including accommodating	Approach	Township-Led

[1] As defined by the organization, Complete Streets Canada, “complete streets” are safe for all users, regardless of age, ability, income, race, ethnicity, or mode of travel. By using a Complete Streets approach to designing road networks, we can create spaces that allow all users to thrive – not only motorists.

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
horses and buggies as a mode of transportation, as well as the parking stables for parking at large commercial facilities in Mount Forest.		

Ensuring the Safety and Wellbeing of Residents

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
1. Encourage developments in the Urban Area that create opportunities for residents to be physically active and socially engaged. Further, explore opportunities to ensure that the Township's rural communities (e.g., Damascus, Conn and Kenilworth) have recreational facilities and programs.	Approach	County/ Township
2. Promote the design of new communities around opportunities to support active transportation to nearby public facilities and commercial uses.	Approach	County/ Township
3. Continue to focus on implementing the Municipal Cultural Plan. The quality of life within a community is intricately linked to its richness of cultural assets. The Municipal Plan will provide a supportive framework that enables culture to continue to thrive in the Township.	Initiative	Township-led
4. Support developments that include pedestrian trails and cycling paths.	Approach	County/ Township
5. Continue to implement the Wellington North Recreation Master Plan and consider how the recreational needs of the Township will change according to the change in	Initiative	Township-Led

Strategic Growth Direction	Approach or Initiative	Township Leading or Partnership with County?
demographics, as well as the location of new growth areas.[1]		

[8] This is an initiative that is currently underway by staff at the Township of Wellington North.

Chapter 7
Next Steps

7. Next Steps

The Township, in partnership with the County of Wellington, should continue to proactively monitor growth within the Township. As part of this review, the Township should also monitor growth as it relates to infrastructure and service needs. It is important to recognize that over the next couple of decades there will be updates to the growth forecast, allocations, and key growth targets (i.e., intensification and density) as part of an O.P.R. The County's next O.P.R. is likely to involve a longer time horizon, i.e., beyond 2051, and that will have an impact on land needs and infrastructure. As a result, to proactively prepare for discussions with the County, the Township should explore the infrastructure requirements of all Future Development lands within the Urban Centres of Mount Forest and Arthur through potential secondary plans or master plans. Exploring infrastructure requirements will also be key in preparing for potential discussions and planning applications by landowners or developers.

Furthermore, the Township should review the supply of the Township's vacant Employment Area lands more closely as part of an Employment Area Strategy. The Employment Area Strategy would explore the competitiveness of the Employment Areas, the appropriateness of vacant sites for industrial development, and opportunities to service vacant Employment Area lands.

Other key studies and initiatives that should be explored include an updated Transportation Mobility Plan, a Stormwater Study, an Intensification and Infill Strategy, a Downtown Parking Study, completing the Wellington North Recreation Master Plan, and a Housing Affordability Study. Furthermore, the Township should expand its Sewage Allocation Policy to include water/wastewater for the Township's Urban Centres to manage and phase residential and employment growth to 2051. This policy will provide transparency on growth priorities (balancing residential and non-residential demands and location), what improvements are required, and the timelines.

A reoccurring theme by members of the public included the need to bring the Township together as one collective community. It has been observed that there is a necessity to shift the focus from the distinctions among the communities within Wellington North towards acknowledging and emphasizing the commonalities they share. Looking forward, the Township is anticipated to accommodate a higher rate of growth and, as a result, will need to ensure that Council and the general public of the Township come together to make decisions on accommodating growth that impacts the Township as a whole.

Appendix A
Growth Forecast

Appendix A: Township of Wellington North Growth Forecasts

Figure E-1
Township of Wellington North Population and Housing Forecast to 2051

Year	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Other	Total	
2016	12,300	3,660	260	730	20	4,670	2.634
2021	12,800	3,780	330	730	20	4,860	2.634
2024	13,800	4,060	370	820	20	5,270	2.619
2026	14,700	4,260	420	880	20	5,580	2.634
2031	16,100	4,640	500	970	20	6,130	2.626
2036	17,400	4,960	610	990	20	6,580	2.644
2041	17,700	5,020	630	1,030	20	6,700	2.642
2046	19,600	5,520	760	1,080	20	7,380	2.656
2051	20,500	5,760	790	1,090	20	7,660	2.676

[1]Based on Census undercount of 3%.
[2]Low density includes single-detached and semi-detached housing units.
[3]Medium density includes row housing units and back-to-back townhouses.
[4]High density includes apartments and stacked townhouses.
Notes: 2016 and 2021 are based on Statistics Canada Census. 2024 is an estimate by Watson & Associates Economists Ltd.
May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure E-2
Township of Wellington North
Population and Housing Growth Forecast by Area

Arthur							
Year	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Other[5]	Total	
2021	2,700	765	90	170	10	1,035	2.61
2024	3,300	925	132	173	10	1,240	2.66
2026	3,500	940	140	240	10	1,330	2.63
2031	3,900	1,060	170	260	10	1,500	2.60
2036	4,200	1,110	200	280	10	1,600	2.63
2041	4,400	1,140	200	310	10	1,660	2.65
2046	4,700	1,200	240	330	10	1,780	2.64
2051	4,800	1,240	250	340	10	1,840	2.61
2024 - 2051	1,500	315	118	167	-	600	

Mount Forest							
Year	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Other[5]	Total	
2021	5,300	1,545	170	575	0	2,290	2.31
2024	5,800	1,628	238	648	0	2,490	2.33
2026	6,700	1,840	270	640	0	2,750	2.44
2031	7,600	2,060	330	710	0	3,100	2.45
2036	8,500	2,290	410	710	0	3,410	2.49
2041	8,600	2,300	430	720	0	3,450	2.49
2046	10,000	2,670	530	740	0	3,940	2.54
2051	10,500	2,820	540	750	0	4,110	2.55
2024 - 2051	4,700	1,192	302	102	-	1,620	

Rural							
Year	Population (Including Census Undercount)[1]	Households					Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Other[5]	Total	
2021	4,800	1,460	0	0	5	1,465	3.28
2024	4,700	1,511	0	0	5	1,540	3.05
2026	4,500	1,480	0	0	5	1,485	3.03
2031	4,600	1,520	0	0	5	1,525	3.02
2036	4,700	1,570	0	0	5	1,575	2.98
2041	4,800	1,570	0	0	5	1,575	3.05
2046	5,000	1,650	0	0	5	1,655	3.02
2051	5,100	1,700	0	0	5	1,705	2.99
2024 - 2051	400	189	-	-	-	166	

[1]Based on Census undercount of 3%.
[2]Low density includes single-detached and semi-detached housing units.
[3]Medium density includes row housing units and back-to-back townhouses.
[4]High density includes apartments and stacked townhouses.
Notes: 2021 is based on Statistics Canada Census. 2024 is an estimate by Watson & Associates Economists Ltd.
May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure E-3
Township of Wellington North Population and Employment Growth Forecast to 2051

Year	Population (Including Census Undercount)[1]	Employment	Employment Activity Rate
2016	12,300	7,100	58%
2021	12,800	7,300	57%
2024	13,800	7,600	55%
2026	14,700	7,700	52%
2031	16,100	8,300	52%
2036	17,400	8,900	51%
2041	17,700	9,400	53%
2046	19,600	10,000	51%
2051	20,500	10,500	51%
2024-2051	**6,700**	**2,900**	**-**

[1]Based on Census undercount of 3%.
Notes: 2016 and 2021 are based on Statistics Canada Census. Employment for 2021 is an estimate by Watson & Associates Economists Ltd. 2024 is an estimate by Watson & Associates Economists Ltd.
May not add up precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure E-4
Township of Wellington North
Employment Growth Allocations

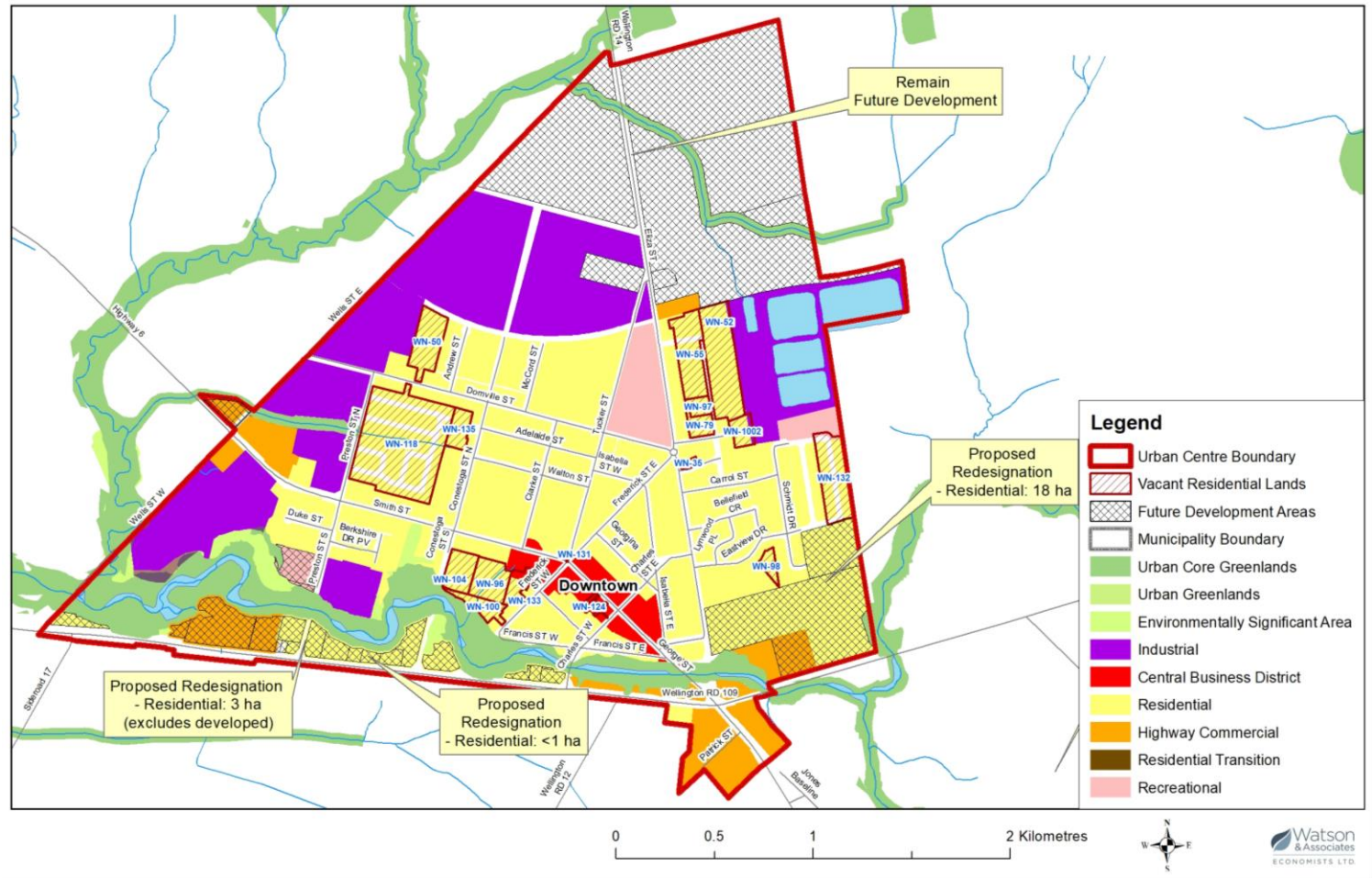
Time Period	Arthur	Mount Forest	Rural Area	Total
2024	2,370	3,840	1,390	7,600
2051	3,245	5,680	1,575	10,500
2024 to 2051	**875**	**1,840**	**185**	**2,900**

Source: Derived from the County of Wellington, Phase 1 MCR Report: Urban Structure and Growth Allocations prepared by Watson & Associates Economists Ltd., 2022. Estimate for 2024 by Watson & Associates Economists Ltd.

Appendix B
Land Supply and Housing Potential on Vacant Lands

Appendix B: Land Supply and Housing Potential on Vacant Lands

Figure B-1
Arthur Urban Centre
Map of Vacant Residential Lands



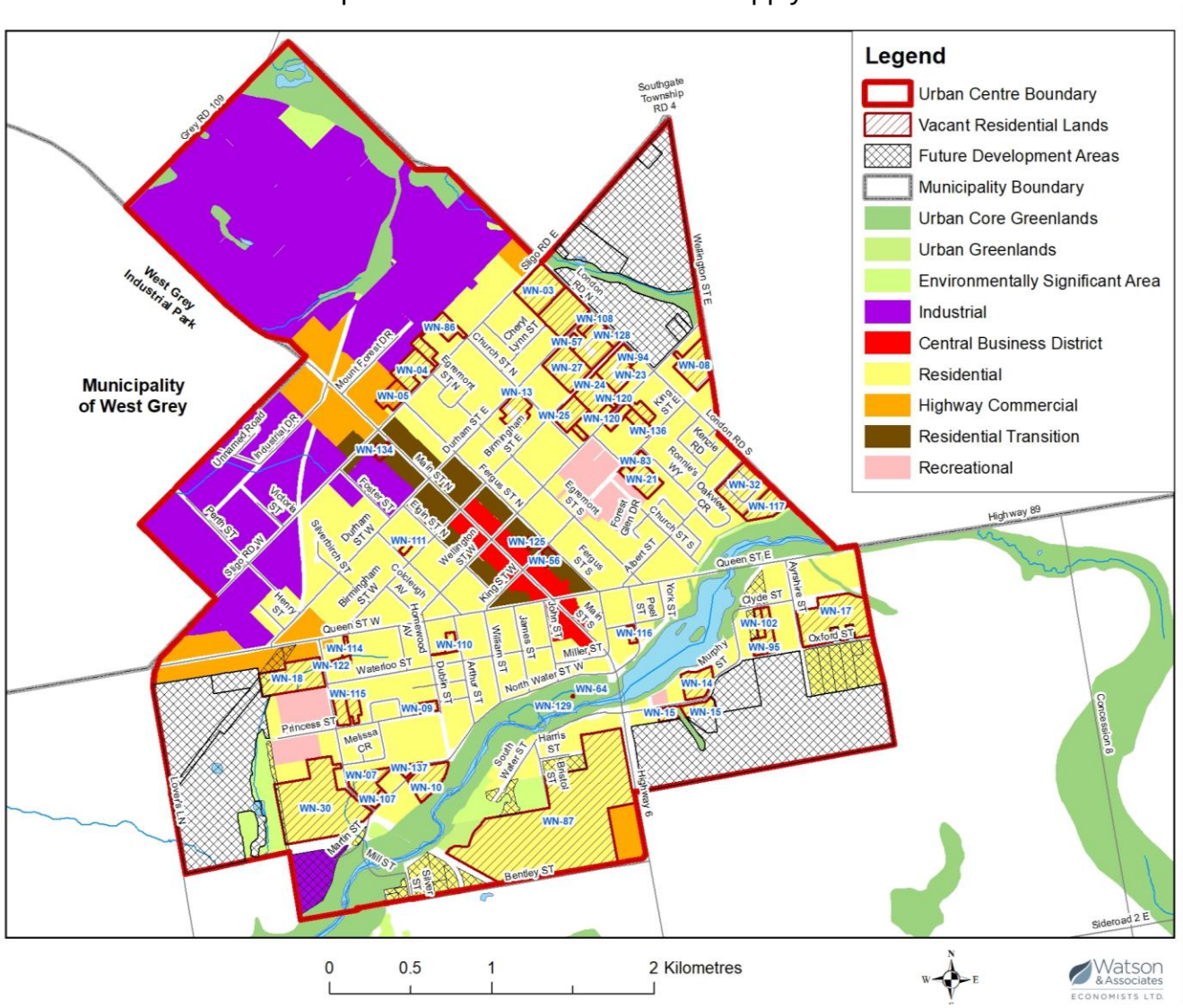
Note: Map includes proposed redesignation sites as part of County of Wellington O.P.A. 123.
Source: Mapping data provide by County of Wellington Planning Department, 2023. Map prepared by Watson & Associates Economists Ltd.

Figure B-2
Arthur Urban Centre
Housing Unit Potential Supply

Map Id#	Urban Centre	Supply Category	Development	Low Density Units	Medium Density Units	High Density Units	Total Units	Built Boundary
WN-65	Arthur	Registered	Vacant Lots in Existing Neig	11	0	0	11	Yes
WN-96	Arthur	Registered	Frederick St West Lot	1	0	0	1	
WN-118	Arthur	Registered	Cachet Developments	38	64	0	102	Yes
WN-131	Arthur	Registered	Accessory Residential Units	0	0	0	0	Yes
WN-132	Arthur	Registered	Eastridge Landing Phase 4	36	20	0	56	
WN-55	Arthur	Draft-Approved	Disapio-Bolger 23T-89002-(	30	0	25	55	
WN-50	Arthur	Draft-Approved	Domville W of Andrew	18	8	24	50	
WN-135	Arthur	Draft-Approved	VED Homes	0	35	0	34	Yes
WN-123	Arthur	Application-Under-Review	Arthur Green Development I	0	0	32	32	Yes
WN-124	Arthur	Application-Under-Review	Arthur Green Development I	0	0	15	15	Yes
WN-133	Arthur	Application-Under-Review	Frederick Street Apartment	0	0	59	59	Yes
WN-52	Arthur	Vacant-Designated	Edelbrook Brothers	51	15	7	73	
WN-66	Arthur	Vacant-Designated	Potential Infill Consents	6	0	0	6	Yes
WN-79	Arthur	Vacant-Designated	204 Gordon St.	0	37	0	37	Yes
WN-97	Arthur	Vacant-Designated	Gordon ST Hidden lots	0	17	0	17	
WN-98	Arthur	Vacant-Designated	Hidden Lot behind Schimdt I	0	0	0	0	
WN-99	Arthur	Vacant-Designated	Francis St W Vacant Lot	4	0	0	4	
WN-1002	Arthur	Vacant-Designated	213 Gordon Street Intensific	0	11	0	11	
Total Arthur				**195**	**207**	**162**	**563**	

Source: County of Wellington Planning Department, summarized by Watson & Associates Economists Ltd., 2023.

Figure B-3
Mount Forest Urban Centre
Map of Vacant Residential Land Supply



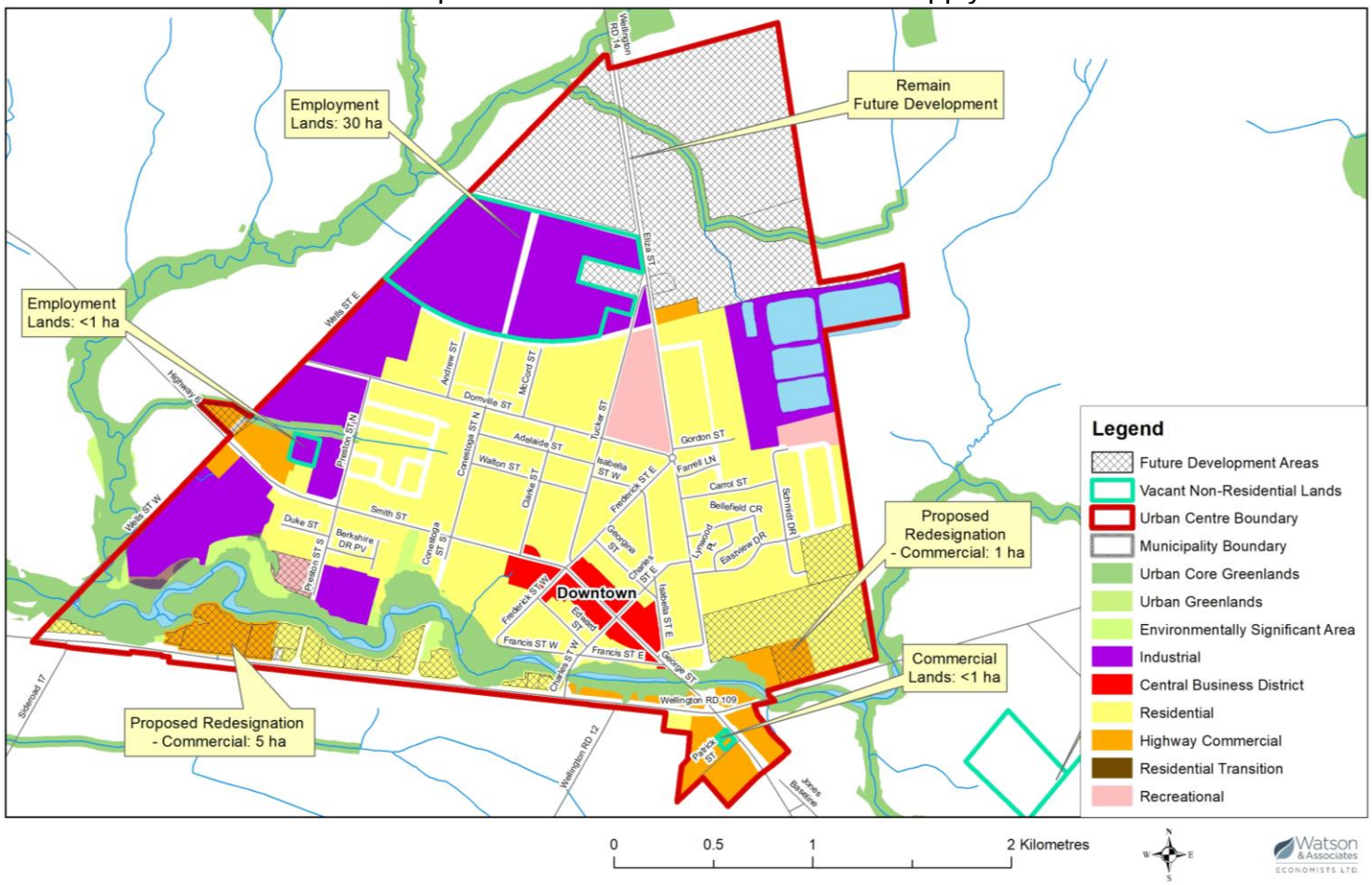
Note: Map includes proposed redesignation sites as part of County of Wellington O.P.A. 123.
Source: Mapping data provide by County of Wellington Planning Department, 2023. Map prepared by Watson & Associates Economists Ltd.

Figure B-4
Mount Forest Urban Centre
Housing Unit Potential Supply

Map Id#	Urban Centre	Supply Category	Development	Low Density Units	Medium Density Units	High Density Units	Total Units	Built Boundary
WN-05	Mount Forest	Registered	N of Sligo T w Fergus	0	0	26	26	Yes
WN-09	Mount Forest	Registered	N Princess (Nursing)	0	0	38	38	Yes
WN-15	Mount Forest	Registered	S of Murphy	2	0	0	2	
WN-23	Mount Forest	Registered	H. Bye	0	22	0	22	
WN-26	Mount Forest	Registered	N Birm. W London	19	10	0	29	
WN-105	Mount Forest	Registered	Reeves Saugeen Highlands - Greenfield	1	0	0	1	
WN-56	Mount Forest	Registered	Royal Stone 190 King	0	0	30	30	Yes
WN-59	Mount Forest	Registered	470 Cork St.	0	6	0	6	Yes
WN-76	Mount Forest	Registered	Plan 419	1	0	0	1	Yes
WN-21	Mount Forest	Registered	Marlanna Homes	22	0	0	22	
WN-31	Mount Forest	Registered	Reeves Saugeen Highlands - Built Boundary	1	0	0	1	Yes
WN-110	Mount Forest	Registered	Circuit Holding Inc	0	10	0	10	Yes
WN-111	Mount Forest	Registered		4	0	0	4	Yes
WN-112	Mount Forest	Registered		3	0	0	3	
WN-63	Mount Forest	Registered	Vacant Lots in Existing Neighbourhoods	13	0	0	13	Yes
WN-107	Mount Forest	Registered	Martin ST Severances	1	0	0	1	
WN-109	Mount Forest	Registered	Sharpe Development	0	4	0	4	Yes
WN-120	Mount Forest	Registered	Consents off Wellington Street E	1	0	0	1	
WN-136	Mount Forest	Registered	425 and 427 King Street East	0	18	0	18	Yes
WN-130	Mount Forest	Registered	405 Wellington Street E	0	8	0	8	Yes
WN-87	Mount Forest	Draft-Approved	Murphy Lands	291	120	0	411	
WN-07	Mount Forest	Application-Under-Review	Betty Dee	0	34	0	34	
WN-30	Mount Forest	Application-Under-Review	John Welton Custom Homebuilding	93	48	0	141	
WN-137	Mount Forest	Application-Under-Review	Betty Dee consents	5	0	0	5	
WN-138	Mount Forest	Application-Under-Review	440 Wellington Street East	0	28	0	28	Yes
WN-03	Mount Forest	Vacant-Designated	S of Sligo W of London	39	0	0	39	
WN-04	Mount Forest	Vacant-Designated	N of Sligo E of NoFrills	26	0	0	26	
WN-10	Mount Forest	Vacant-Designated	S Martin W Saugeen	8	0	0	8	Yes
WN-16	Mount Forest	Vacant-Designated	E Murphy S Glasgow	6	0	0	6	
WN-17	Mount Forest	Vacant-Designated	E Ayrshire N Oxford	6	0	0	6	
WN-18	Mount Forest	Vacant-Designated	W Cork N ball fields	0	4	0	4	
WN-25	Mount Forest	Vacant-Designated	S Birmingham	17	0	0	17	
WN-27	Mount Forest	Vacant-Designated	Greenhouse N Birm.	32	0	0	32	
WN-29	Mount Forest	Vacant-Designated	N Durham W London	39	0	0	39	
WN-86	Mount Forest	Vacant-Designated	N of Sligo W of High School	20	0	0	20	
WN-08	Mount Forest	Vacant-Designated	Reeves E London	34	0	0	34	
WN-113	Mount Forest	Vacant-Designated		0	13	0	13	
WN-116	Mount Forest	Vacant-Designated		0	8	0	8	Yes
WN-117	Mount Forest	Vacant-Designated		0	37	0	37	Yes
WN-24	Mount Forest	Vacant-Designated	Chicken Barns (N Well.)	22	6	3	31	
WN-134	Mount Forest	Vacant-Designated	WT Land CORP	0	0	17	17	Yes
Total Mount Forest				**706**	**376**	**114**	**1,196**	

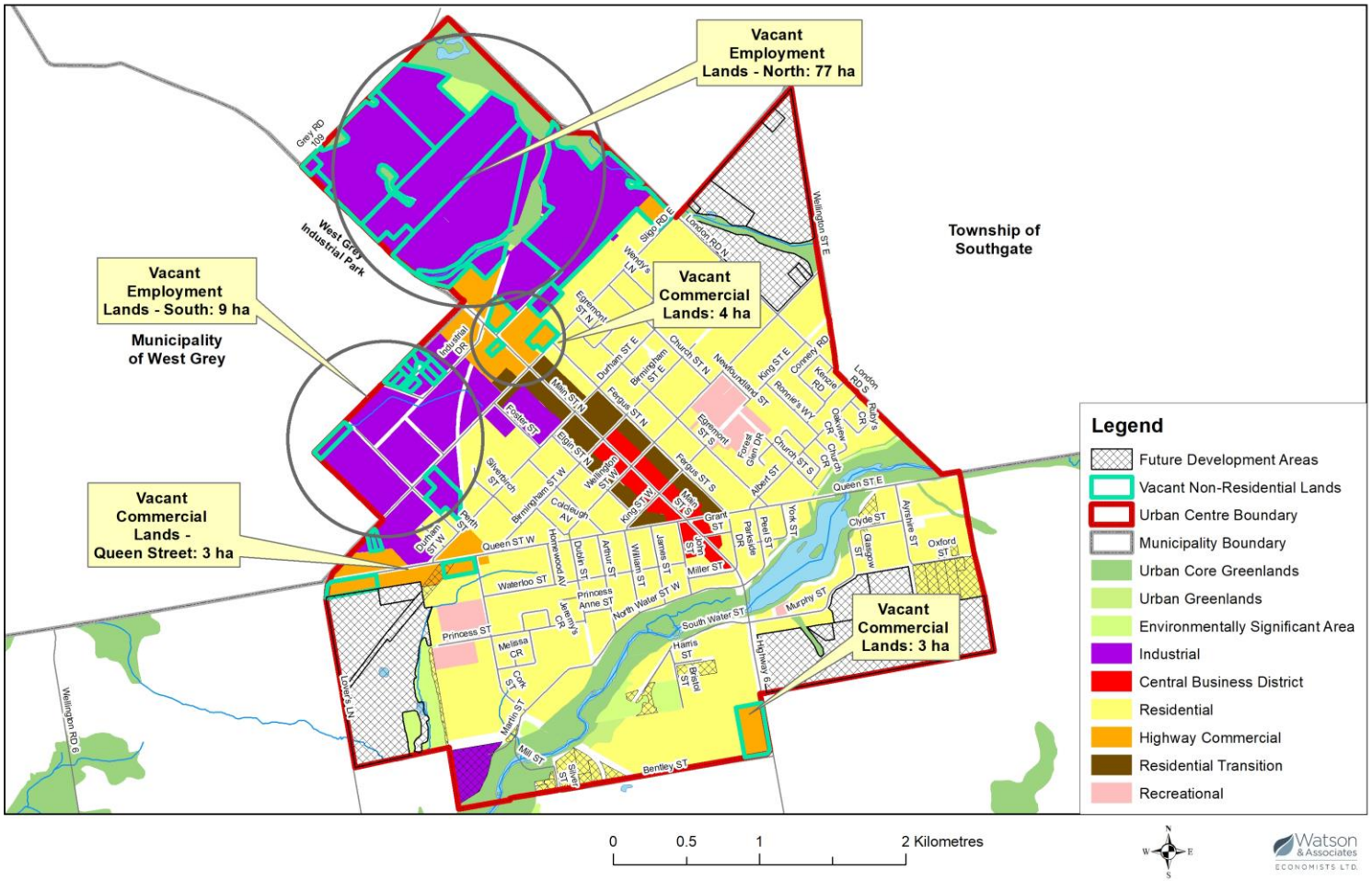
Source: County of Wellington Planning Department, summarized by Watson & Associates Economists Ltd., 2023.

Figure B-5
Arthur Urban Centre
Map of Vacant Non-Residential Land Supply



Note: Map includes proposed redesignation sites as part of County of Wellington O.P.A. 123. Vacant residential lands are outlined in the colour cyan.
Source: Mapping data provide by County of Wellington Planning Department, 2023. Map prepared by Watson & Associates Economists Ltd.

Figure B-6
Mount Forest Urban Centre
Map of Vacant Non-Residential Land Supply

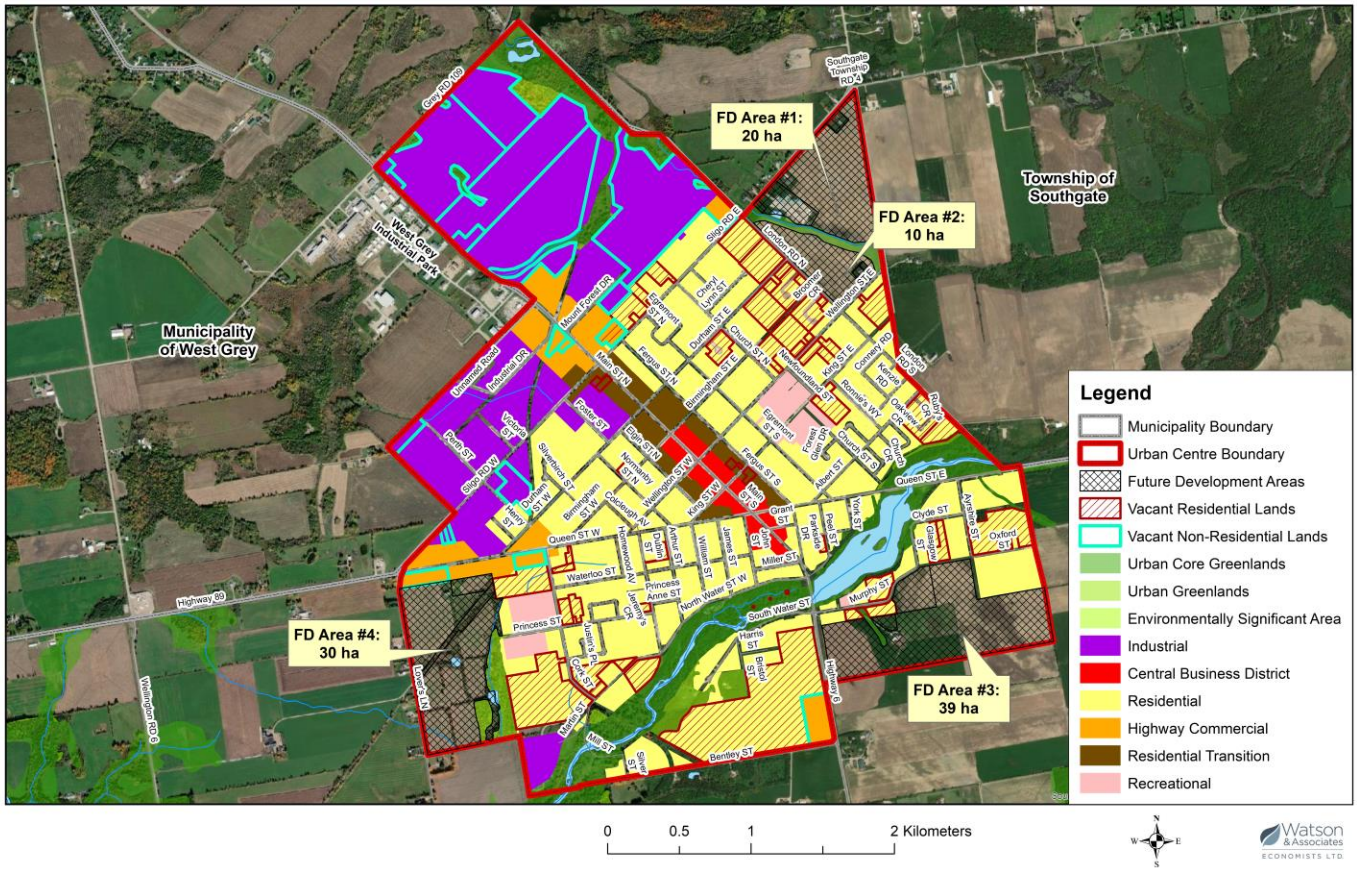


Note: Map includes proposed redesignation sites as part of County of Wellington O.P.A. 123. Vacant residential lands are outlined in the colour cyan.
Source: Mapping data provide by County of Wellington Planning Department, 2023. Map prepared by Watson & Associates Economists Ltd.

Appendix C
Future Development Lands

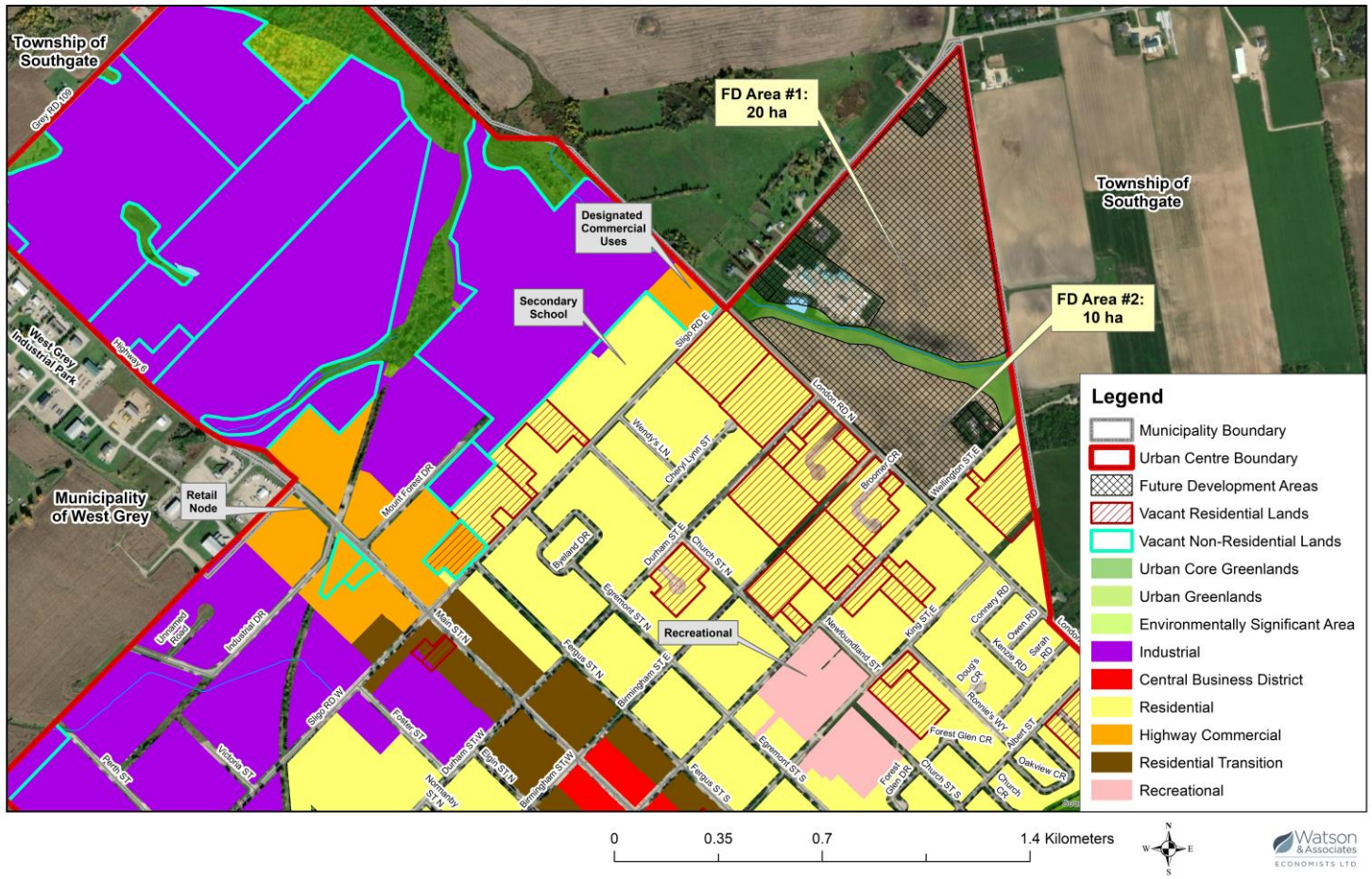
Appendix C: Future Development Lands

Figure C-1
Mount Forest Urban Centre
Map of Future Development Areas



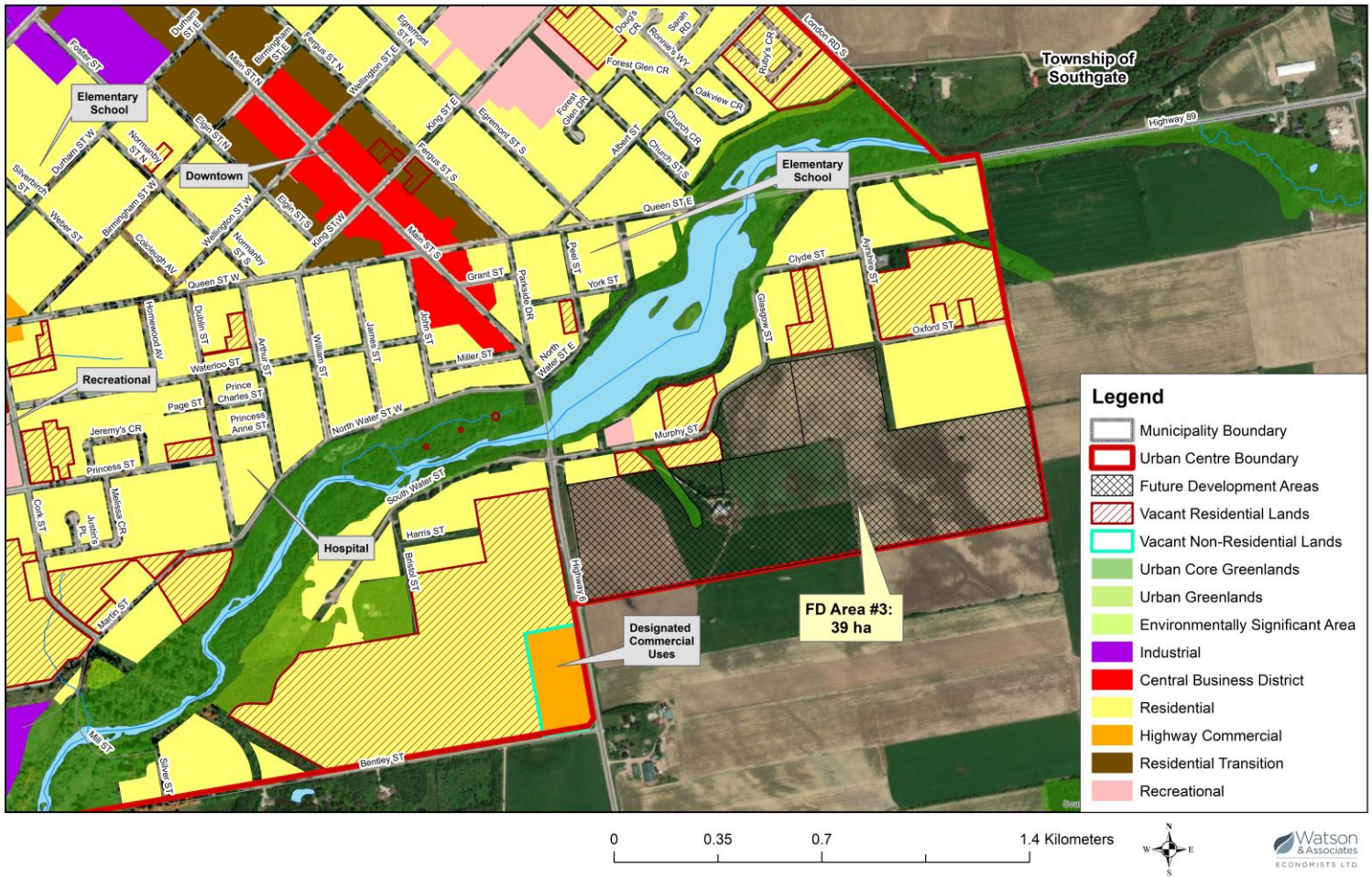
Note: Future Development lands have been refined to exclude the proposed O.P.A. 123 which proposes to remove Future Development lands that are largely already developed.
FD = Future Development
Source: Watson & Associates Economists Ltd.

Figure C-2a
Mount Forest Urban Centre
Map of Future Development Areas – Future Development Areas #1 and #2



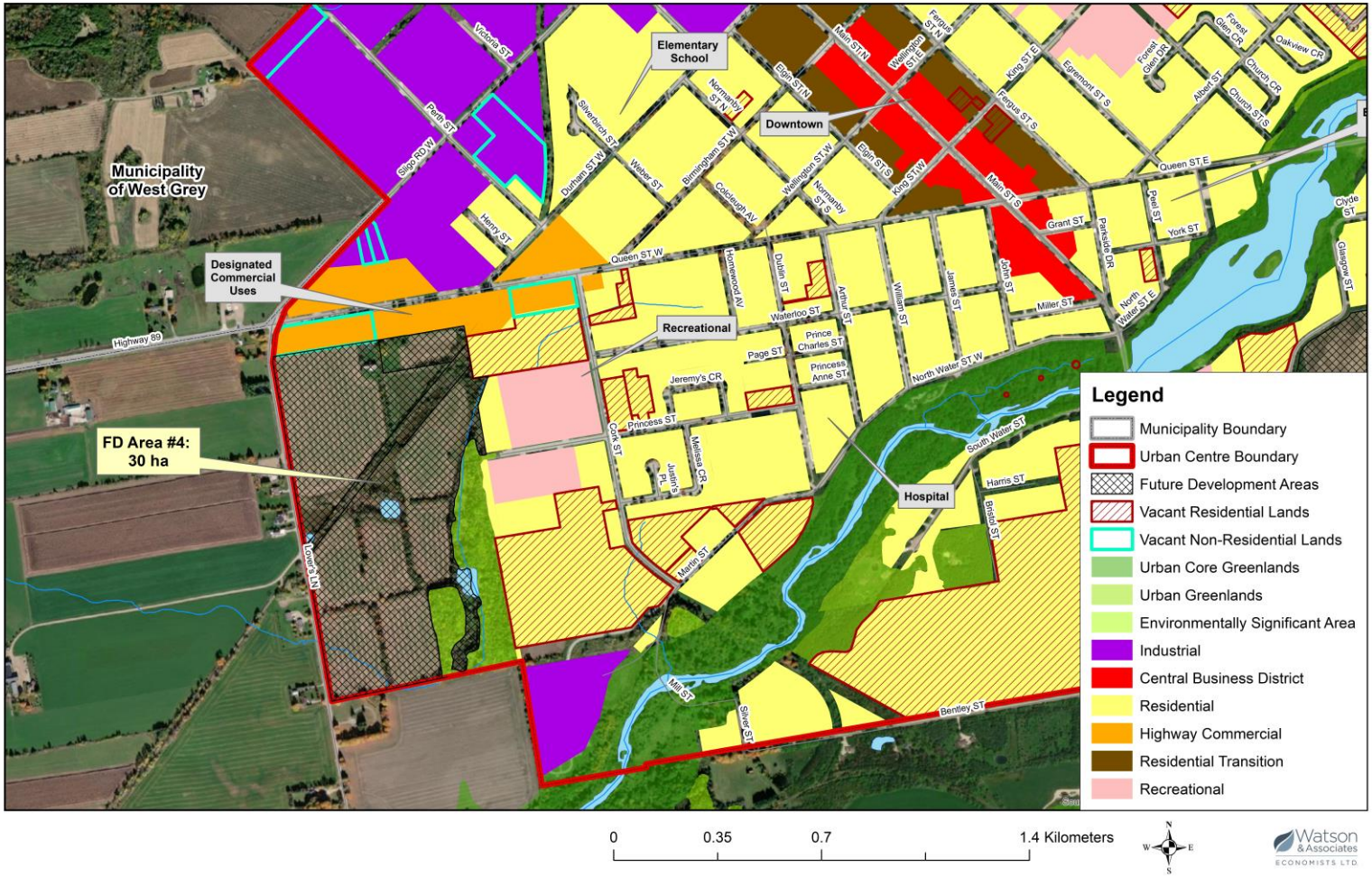
FD = Future Development

Figure C-2b
Mount Forest Urban Centre
Map of Future Development Areas – Future Development Area #3



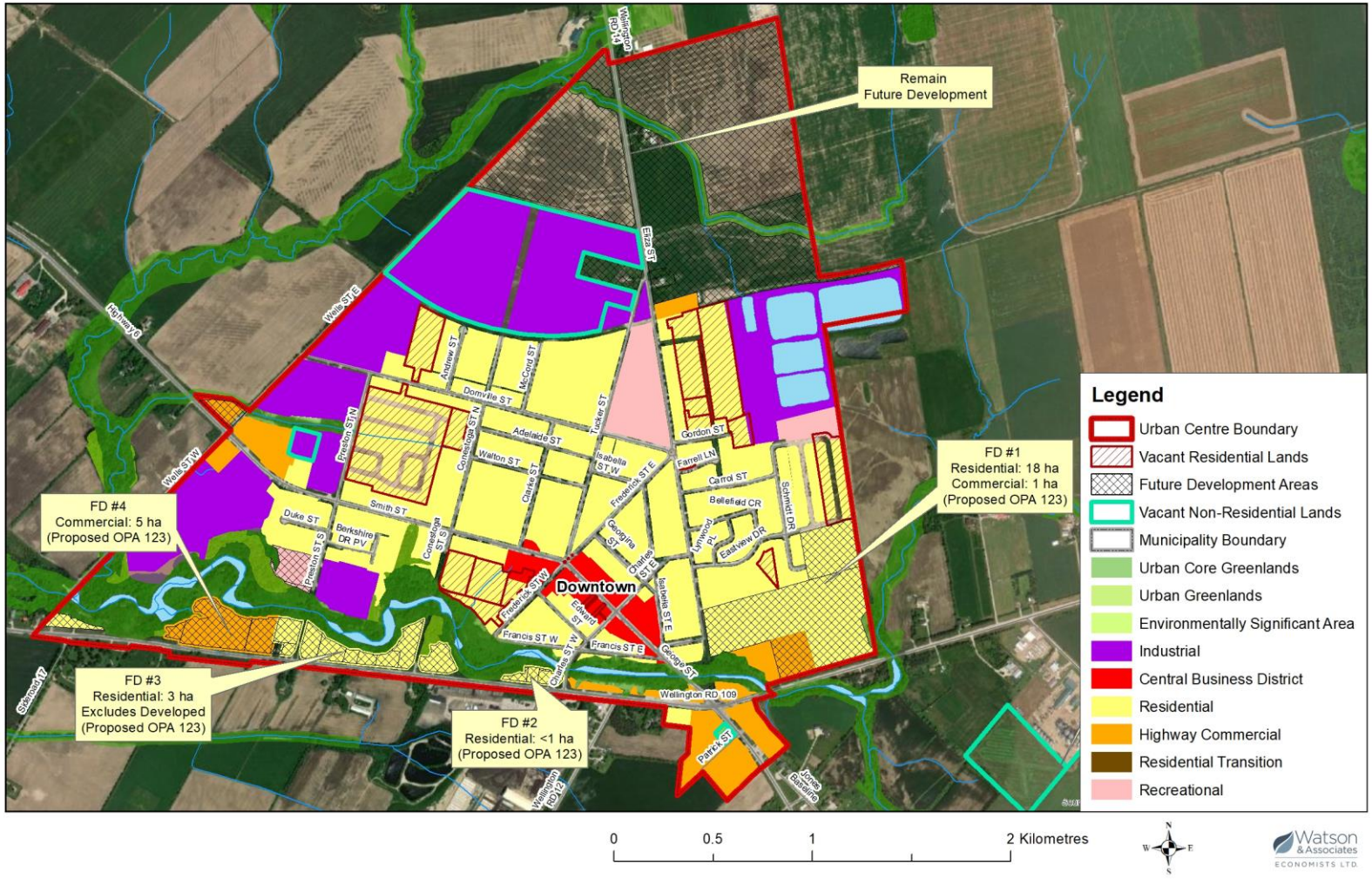
FD = Future Development

Figure C-2c
Mount Forest Urban Centre
Map of Future Development Areas – Future Development Area #4



FD = Future Development

Figure C-3
Arthur Urban Centre
Map of Future Development Areas



Appendix D

Arthur Water and Sanitary Systems Technical Study (Triton, November 2020)

WATER AND SANITARY SYSTEMS

TECHNICAL STUDY – ARTHUR

SEPTEMBER 2020

Prepared for:

Township of Wellington North
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REVISION NO.1
NOVEMBER 2020

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

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1 INTRODUCTION

1.1 General

The community of Arthur is a growing urban community located within the Township of Wellington North (Township) that is serviced by municipal water and sanitary systems. In 2011, the Township initiated a technical review of the water and sanitary infrastructure within the community. The technical review was completed by Triton Engineering Services Limited (Triton), on behalf of the Township, in accordance with the Class Environmental Assessment (Class EA) Master Plan (MP) process as outlined in the Municipal Engineers Association (MEA) Municipal Class EA document. The intention of the review was to formulate a long-term servicing strategy through the identification of specific infrastructure to maintain this level of municipal service for future development within Arthur, which was defined by the Master Plan problem statement as follows:

Develop a water supply and sanitary sewage servicing strategy for the existing and future development areas of Arthur that will allow the integration and coordination of new services with other on-going municipal infrastructure needs.

The Master Plan considered two development periods: the 2031 Scenario, which was used to identify infrastructure requirements needed to support the specific development identified in the Wellington County Planning and Development Department report entitled "*Comprehensive Review of Residential and Employment Growth, Township of Wellington North*" dated October 14, 2009; and the Long-Term Scenario, which was used to identify infrastructure requirements beyond the 2031 Scenario, particularly in areas where servicing extensions were considered. The results of the technical review were documented in the Township of Wellington North Class Environmental Assessment Master Plan Study for Water Supply and Sanitary Sewage System, Community of Arthur document by Triton dated January 2012 (Revision 2).

The purpose of this Water and Sanitary Systems Technical Study – Arthur (Technical Study) is to update the computer simulation models of the water and sanitary systems in Arthur based on current existing conditions to evaluate the adequacy of the systems to meet the needs of the existing community (i.e. calendar year 2020) and to service the future development scenarios to calendar year 2045. The expected population growth is based on the information presented in the Growth Management Plan (GMP), dated February 26, 2018 by GSP Group Inc. (GSP).

1.2 Wellington North Community Growth Plan Final Report (GSP Group Inc, February 2018)

GSP and Curtis Planning completed a Community Growth Plan (also referred to as a Growth Management Strategy or Growth Management Plan, GMP) to "*provide direction for policy development and decision-making regarding land development and growth-related investments and initiatives, to contribute to planning for positive growth and change in Wellington North*". The GMP provides details on the expected growth between 2016 and 2041 and focuses on the urban areas of the communities of Arthur and Mount Forest; however, rural settlements within the Township are also considered. Details of the GMP are documented in the Wellington North Community Growth Plan Final Report dated February 2018, which was prepared by GSP. A copy of the GMP is included in Appendix A1

With respect to infrastructure, the GMP indicates that "*majority of growth and development [is to] be located where it can be serviced by existing or planned municipal water and wastewater systems."* additionally, *"…development that optimizes the efficient use of this infrastructure should*

be prioritized and balanced with the construction of new infrastructure. Future infrastructure planning is required to be undertaken on a watershed- and asset management basis, through servicing master plans and environmental assessments…".

1.3 Township of Wellington North, 2018 Development Charges Background Study & By-Law Final Report (DFA Infrastructure International Inc., 2018)

DFA Infrastructure International Inc. (DFA) was retained by the Township to complete a development charges (DC) background study, calculate new rates and prepare a new DC By-law to meet the requirements of the Development Charges Act and replace the existing By-law 51-13. Development charges collected in the Township are for municipal services, which include: administration, fire protection, parks and recreation, water and wastewater, and roads and related services. Associated costs for the extent and delivery of these services considers the existing population and businesses and expected future growth, which was determined for the 10-year period of 2018 through 2027 and 2028 through 2041 build-out period and considered servicing studies completed for the Township, which identified growth related capital needs. New growth areas and population growth for the community are in accordance with the GMP. Historical growth (last 10 years) was considered to determine historical service levels. A copy of the 2018 DC Report is included in Appendix A2.

2 FUTURE DEVELOPMENT PROJECTIONS

2.1 General

Per the GMP, "*the 2036 and 2041 population, housing and employment growth forecasts for the Township of Wellington North, as established in the County Official Plan, should continue to be used for planning purposes to determine urban land requirements*." And "*The growth forecasts for Wellington North and the distribution of the population and housing forecasts within the Township should be revised and updated through future reviews of the County Official Plan, to align the forecasts with local growth patterns and infrastructure plans*".

The population growth forecast in the GMP for Arthur reflects the increase in available capacity resulting from the Phase 2 expansion of the Arthur Wastewater Treatment Facility and is focused within the existing built-boundary that was delineated by the Province as part of the 2006 Growth Plan for the Greater Golden Horseshoe. Additionally, consistent with the County Official Plan and 2006 Growth Plan, development within the existing built-up areas should intensify by 20%, although, this target may be increased as a result of the next Municipal Comprehensive Review (to be issued on or before July 1, 2022). "*The target is intended to focus growth and development within the existing built-up area of the urban centres, and to ensure outward growth in greenfields is compact",* which can be achieved through infilling and development of existing vacant land in the built-up area, building expansions or conversion, or redevelopment.

Development outside of the delineated built-up area (i.e. "intensification area"), but within the urban boundary that is designated for urban land uses (i.e., designated greenfield areas [DGA] or "urban expansion area") is called greenfield development. The current designated greenfield area target for the Township is 40 residents and jobs per hectare, consistent with the County Official Plan.

The GMP provided the expected growth to 2041, which is summarized in Table 2.1. As per Table 2.1, the 2016 population is greater than the existing serviced population (based on 2020 Reserve Capacity Calculations (RCC); however, this is likely caused by a difference in total population versus serviced population. Therefore, for the purposes of this study, the 2016 serviced

population is used as the existing population with growth added to this. It is anticipated that all future population will be connected to both water and sanitary systems.

Table 2.1 - Arthur Growth (as per GMP)

Arthur Growth (as per GMP)				
Year	Population (Capita)	Households (Equivalent Residential Units, ERUs)	Capita per ERU	Growth (Capita/Year)
2016	2,725	1,005	2.7	-
2036	4,115	1,525	2.7	69.5
2041	4,460	1,665	2.7	69.0

As per the Growth Plan for the Greater Golden Horseshoe, the Township can plan for infrastructure beyond the 2041 planning horizon presented in the current County Official Plan. Four future land development stages were identified in the GMP (refer to "Development Stages – Arthur" figure in the GMP in Appendix A1). Details for each development scenario are provided in Sections 2.2 through 2.5. The intensification and greenfield growth targets are applied to each development scenario to evaluate the adequacy of the systems for the existing and future population beyond calendar year 2045. Assuming that the 2041 population noted in the GMP (refer to Table 2.1) is achieved, growth to 2045 can be extrapolated and associated water demands and sanitary loading within Arthur can be estimated. The interpolated growth for Arthur 2020 to 2045 study period is provided in Table 2.2. Refer to Appendix A3 for additional information regarding interpolated growth projections.

Table 2.2 - Arthur Growth (Interpolated)

Arthur Growth (Interpolated)				
Year	Population (Capita)	Households (ERUs)	Capita per ERU	Growth (Capita/Year)
2020	2,410	970	2.5	-
2025	3,351	1,242	2.7	69.5
2030	3,698	1,370	2.7	69.5
2035	4,046	1,499	2.7	69.5
2040	4,391	1,639	2.7	69.0
2045	4,736	1,768	2.7	69.0

2.2 Development Scenarios

As presented in the GMP, the four Development Scenarios have been assessed to determine development potential based on land availability and reasonable/expected growth densities described herein. The expectation is that not all of the areas identified within the stages will fully develop, however when assessing linear infrastructures ability to service the future lands, full development of viable lands will be assumed. The expectation is that modelling the future serviceability this way will flag certain infrastructure as having insufficient capacity to service the full buildout of that Development Stage. This information will then help the municipality make informed decisions regarding development areas based on infrastructure expansion/remediation costs. Further, this information will be used to size future infrastructure upgrades required to support development.

Vertical infrastructure, such as area wide water supply/storage and sewage treatment, will be assessed based on the overall growth targets set out in the GMP, not on specific development areas/parcels.

2.3 Stage 1 Development Scenario

The Stage 1 Development Scenario includes an additional 8.7 hectares (ha) of land within Arthur's urban area boundary, with lands zoned as low-density residential (5.5 ha with 212 ERUs as per the latest Draft Plans provided in support of these development areas), high-density residential (0.6 ha with 36 ERUs as per the latest Draft Plan), future development (0.5 ha with 15 ERUs as per zoning mapping) and highway commercial (2.1 ha with 55 ERUs assumed based on MECP Equivalents and Developable Land). The Stage 1 Development Area is presented on Figure 2.1 and the Future Land Use Table for the Stage 1 Development Area is presented in Appendix B1.

As per the County Official Plan and 2006 Growth Plan, development within the existing built-up areas should intensify by 20% to 2041; however, since these growth targets were developed in 2016 and this technical study is being completed in 2020, the intensification targets have been revised such that the 20% intensification targets will be reached by 2045. This intensification will be applied to the "Downtown Intensification Area" (refer Figure 2.1) and results in an additional 231 units added by 2045 in the Stage 1 Scenario.

2.4 Stage 2 Development Scenario

The Stage 2 Development Scenario includes an additional 15.2 ha of land within Arthur's urban area boundary including lands zoned as low-density residential and future development (9.8 ha with 250 ERUs), mixed high and low density residential (5.1 ha with 287 ERUs) and mixed highway commercial and future development (0.3 ha with 8 ERUs). The Stage 2 Development Area is presented on Figure 2.2 and the Future Land Use Table for the Stage 2 Development Area is presented in Appendix B1.

2.5 Stage 3 Development Scenario

The Stage 3 Development Scenario includes an additional 33.5 ha of land within Arthur's DGA (all adjacent to the delineated built-area boundary), with lands zoned as low-density residential (0.8 ha with 12 ERUs based on the residential growth target of 14.82 ERUs per ha), high density residential (1.7 ha with 51 ERUs based on the residential growth target of 14.82 ERUs per ha), future development (1.8 ha with 27 ERUs based on the future residential growth target of 14.82 units per ha) and industrial (29.2 ha with 771 ERUs). The Stage 3 Development Area is presented on Figure 2.3 and the Future Land Use Table for the Stage 3 Development Area is presented in Appendix B1.

2.6 Stage 4 Development Scenario

The Stage 4 Development Scenario includes an additional 66.6 ha of land within Arthur's DGA, with lands zoned as future development (66 ha with 1,742 ERUs) and highway commercial (0.6 ha with 16 ERUs). The ERUs are assumed based on MECP expected maximum day demands for Future Industrial/Commercial/Institutional (ICI) lands. The Stage 4 Development Area is presented on Figure 2.4 and the Future Land Use Table for the Stage 4 Development Area is presented in Appendix B1.

3 WATER SUPPLY AND STORAGE

3.1 Existing System

The Arthur water system is a single pressure zone watermain distribution network that is pressurized by two elevated towers. Water is supplied to the system from three bedrock wells.

The system currently provides service to 939 homes and 109 Industrial/Commercial/Institutional (ICI) properties, according to Township records (2020). The system also provides fire protection to the entire service area.

Operation of the system is controlled by a Supervisory Control and Data Acquisition (SCADA) system. Generally, well pumps are called on and turned off based on water levels in the storage towers. These levels are set by the operators based on storage requirements, volume turnover needs and well pumping constraints. The SCADA system also provides real-time monitoring and record keeping.

3.2 Source Capacity

Water supply is provided by three bedrock wells, named Well No. 7B, and Well No. 8A and Well No. 8B. The locations of these wells are presented on Figure 3.1. A summary of details for each well is as follows:

Well No. 7B:

- Located at 109 Wells Street West near the Conestogo River.
- Commissioned in 1998.
- 46 m deep drilled.
- Well pump is a submersible type complete with a 30kW (40 hp) motor which discharges directly to the distribution system (i.e., no highlift pumps).
- Rated capacity is 22.7 l/s (1,961 m^3/day).
- Disinfection using sodium hypochlorite. Contact time is provided by oversized discharge main.
- Iron sequestering treatment provided.

Well No. 8A/8B:

- Located on Part of Lots 20 and 21, Concession A, approximately 1.15 km south of County Road 109 and 235 m east of Highway 6.
- Commissioned in 2005.
- Depth of wells are 61.9 m and 62.2 m for 8A and 8B, respectively.
- Well pumps are submersible type complete with a 30 kW (40hp) motor which discharges directly to the distribution system (i.e., no highlift pumps).
- Rated capacities are 26.1 l/s (2,255 m^3/day) each; however, the Permit to Take Water (PTTW) allows for the operator to pump either Well 8A or Well 8B, but not both wells concurrently. Therefore, total production from this facility is limited to 2,255 m^3/day.
- Disinfection using sodium hypochlorite. Contact time is provided by oversized discharge main.
- Treatment for high manganese is provided.
- Standby power provided by diesel generator.

Based on the above, the total production capability (i.e. source capacity) of the Arthur water system is 4,216 m^3/day. It is our understanding that the Township operates the system to achieve balanced production from the three wells.

3.3 Future Water Demands

A review of the historical water usage rates within Arthur indicate that the maximum day demand of 652 L/day/capita as presented in the Reserve Capacity Calculation (RCC) is well above the typically expected rate for domestic use. This per person RCC value includes the ICI demands

which inflates this value as compared to actual per person use. In a small town such as Arthur with significant ICI usage this value will be higher than typically expected. In communities of similar size and configuration, the MDD is typically between 300 and 500 L/day/capita. In addition, it is our expectation that a metering program will be implemented, which is expected to significantly reduce the current MDD per person. Given these factors, a maximum day per person flow rate of 500 L/day/capita will be applied for future demand calculations. The Township will require that any ICI users that are expected to be heavy/moderate water users will need to be allocated Reserve Capacity in terms of ERUs. Based on Section 3.4.3 of MECP (formerly Ministry of the Environment [MOE] Design Guidelines for Drinking Water Systems 2008 (Guidelines), a demand of 28 m^3/ha/day is appropriate for estimating where actual demand is unknown, this equates to 26 ERU (Water) per hectare of ICI. For the purposes of this study, the ICI area demands are accounted for specifically, and therefore, not included in with the residential demands. Doing this ensures that the per capita demand is conservative.

The resultant demand rates (i.e. MDD) for the future growth, as per the GMP, is outlined in Table 3.1. Refer to Appendices A3 for the 2020 to 2045 Demand Projections.

Table 3.1 - Water Usage Projections

Year	Equivalent Population (Capita)	Households (ERU)	MDD (m^3/day/capita)	MDD (m^3/day/ERU)	Total MDD (m^3/day)
2020	2,410	949	0.652	1.656	1,572
2025	3,351	1,242	0.500	1.349	1,675
2030	3,698	1,370	↓	↓	1,849
2035	4,046	1,499			2,023
2040	4,391	1,639			2,195
2045	4,736	1,768			2,368

MECP Guidelines recommend that the Source Capacity should be greater than MDD so that daily demand can be met if storage is offline. These criteria have been used to assess the capability of Arthur's water production infrastructure (i.e. wells) to satisfy future growth.

3.3.1 Water Supply Reserve Capacity

Triton completed a Reserve Capacity Calculation (RCC) for the Arthur water system for 2020, in accordance with the requirements outlined in the MECP's *Design Guidelines for Drinking Water Systems.* The reserve capacity is based on the system's Firm Capacity, which is defined as the capacity of the system (Source Capacity) with the largest pump or source out of service. Using the firm capacity to determine the reserve capacity ensures sufficient redundancy in the system for water supply and treatment in case of an equipment failure. For the Arthur water system, the largest source is Well 8A or 8B each with a capacity of 2,255 m^3/day, but failure of this entire system is unlikely given it is a dual system. However, failure of Well 7 is a greater possibility and without it, the usable capacity of the system will be reduced to 2,255m^3/day, this being the individual capacity of Well 8a and 8b which cannot be pumped at the same time. With this figure being used as the firm capacity, and based on recent water demands (i.e. calendar years 2017, 2018 and 2019), the 2020 maximum day demand (1,572 m^3/day) in Arthur has not exceeded the firm capacity of its water system, and there is 683 m^3/day of surplus/reserve capacity, which corresponds to 632 available equivalent residential units. Refer to Table 3.2 and Appendix C1 for the existing water supply RCC.

Table 3.2 – Summary of Water Usage Projections and Reserve Capacity

Year	Population (Capita)	Households (ERU)	MDD (m^3/day)	Source Reserve Capacity (m^3/day)	Firm Reserve Capacity (m^3/day)
2020	2,410	949	1,572	2,644	683
2025	3,351	1,242	1,675	2,541	580
2030	3,698	1,370	1,849	2,367	406
2035	4,046	1,499	2,023	2,193	232
2040	4,391	1,639	2,195	2,021	60
2045	4,736	1,768	2,368	1,848	-113

3.3.2 Additional Source Capacity

Table 3.2 presents a summary of the reserve capacity for the future population projections based on the source capacity and the firm capacity. Based on the water usage projections presented in Table 3.1 and Firm Reserve Capacity listed in Table 3.2, MDD will exceed the Firm Capacity between 2040 and 2045 despite the current surplus of Source Capacity. It should be noted that this capacity is obtained from only three sources. If any of these sources were compromised, it would have a significant impact on the system's ability to meet future MDD requirements. Therefore, it is crucial that the Township is proactive in securing future water sources since establishing these new sources, and the infrastructure required to deliver this water to the system can be a lengthy and onerous process, and may affect the configuration and sizing of future watermain upgrades and extensions.

To this end, the Township should begin instigating a well exploration program at this time to ensure that the potential future source locations are identified. Additionally, the Township should begin monitoring the Water Supply RC trends and forecasts on an annual basis to ensure that there is sufficient time to bring additional source capacity on-line to meet future demand. If the RCC indicates that a deficit is expected within the next 5 to 10 years, the Township should implement a Municipal Class EA aimed at establishing additional source capacity for the water system, this would be the first step in this process.

3.4 Storage

Storage for the Arthur water system is provided by two elevated facilities. A summarized description of each facility is as follows:

Charles Street Tower:

- Located near the intersection of Charles Street East and Isabella Street, in the southeast part of the system (195 Isabella Street East).
- Multi-legged steel tank
- Commissioned in 1932
- Volume is 227 m^3
- Operation range: 494.2 m – 499.6 m

Freud (Spheroid) Tower:

- Located just north of Smith Street between Preston and Wells Streets in the northwest part of the system (460 Smith Street).
- All steel spheroid tank
- Commissioned in 1967

- Volume is 1137 m^3
- Operation range: 494.0 m – 499.2 m

Based on discussions with Township staff, these facilities have been recently inspected and no significant deficiencies were noted. The total system storage volume currently available is 1,364 m^3. The locations of the existing storage facilities are presented on Figure 3.2.

Storage requirements for the water system are based on MECP Guidelines. The calculation for storage requirement is as follows:

Total Treated Water Storage Requirement = A + B + C

Where: A = Fire Storage (MECP suggested flow/duration based on population)
B = Equalization Storage (25% of MDD)
C = Emergency Storage (25% of A+B)

The calculated storage requirements for the current and future development are summarized in Table 3.3. Detailed calculations are provided in Appendix C2.

Table 3.3 - Water Storage Requirement Summary

Year	MDD (m^3/day)	Recommended Fire Flow (L/s)	Storage Required (m^3)
Current (2020)	964	100	1,201
2025	1,340	110	1,409
2030	1,479	120	1,542
2035	1,618	120	1,586
2040	1,756	130	1,719
2045	1,894	130	1,762

3.4.1 Existing

Based on Table 3.3, the current storage volume available (1,364 m^3) is more than the storage requirement for the existing population; however, MECP Guidelines indicate that the calculation is for systems where the water supply system is capable of satisfying only the MDD, and that where the supply available is greater than MDD, the storage requirement can be reduced accordingly. Given that the current source capacity is greater than the MDD (refer to Table 3.1), the current storage volumes are considered adequate for the immediate future.

A computer simulation model (i.e. WaterCAD V8i) of the Arthur water system was created as part of the Master Plan and has been updated to support this technical study. As per the updated computer model (WaterCAD), based on existing conditions, the normal pressure throughout the existing distribution network ranges from approximately 40 psi to 80 psi which is within an acceptable range.

3.4.2 Future Storage Requirements

The storage volume requirements to support the future growth, as per the GMP, is outlined in Table 3.3 . This calculation indicates that the existing available storage will be insufficient for the projected population by the year 2025. However, this deficit will initially be small (i.e. 45m^3) and may not be a concern depending on a variety of factors such as the MDD and fire flow requirements at that time. By the year 2045, however, the storage deficit will be 398m^3 which is

significant. Therefore, it is recommended that additional storage be added to the system within the next 5 to 15 years to accommodate growth. Other factors such as retirement of the existing water towers (i.e. Charles Street Tower) should be considered when planning for a new facility, both the volume and timing of such a facility.

Some of the potential future development areas around the existing urban boundary are located at higher topographic elevations. Given this, it is recommended that consideration be given to increasing the operating range of a future elevated tower to adequately service these areas. An increase of approximately 10 m, to a maximum operating level of 510 m, would provide an overall pressure increase of 14 psi to the system. This would also improve the fire flow capability throughout the system whilst also keeping maximum system pressure under the acceptable limit of 90-100 psi. The difficulty of implementing this strategy is that all towers in a given pressure zone need to be operating at the same elevations. Therefore, the existing towers would have to be decommissioned, or separate pressure zones would need to be established for the existing and new towers. Creating multiple pressure zones in a system increases the operating complexity and infrastructure requirements and therefore should be avoided where possible.

The following sections review the storage options available;

- the dual pressure zone system option which retains one or both of the existing tower along with the construction of a new higher small tower,

- option of replacing the existing towers with a single large tower at a higher elevation and maintaining a single zone system.

3.4.2.1 Freud Tower & New Tower with separate/higher Pressure Zone

As indicated above, the storage deficit projected by the year 2045 is 398m^3, requiring a small tower be constructed. Although Arthur has a relatively consistent topography, the future development areas to the North and North East are at higher elevations than the rest of the existing community. The existing system pressures would not be sufficient to service these development areas, requiring that a separate higher-pressure zone be created. This new pressure zone would encompass Eliza Street from the southern end to the urban limit, Domville Street from Eliza Street to Tucker Street, and all the existing and future network east and north thereof. This would require the installation of pressure reducing valve chambers at six locations and the construction of a booster pumping station.

The expected costs associated with establishing this dual zone system including the addition of a new tower and decommissioning of the Charles Street Tower, whilst also keeping the Freud Tower are as follows:

Table 3.4.2.1 – Freud Tower & New Tower Expected Costs

Infrastructure	Cost ($) *
400m^3 Composite Elevated Tower	$2,522,838
Booster Station	$1,500,000
Pressure Reducing Valves (6)	$100,000
Total Cost	**$4,122,838**

* All costs include 10% for contingency, 10% for engineering and 13% HST.

The 2017 inspection of the (Spheroid) Freud Tower noted a number of recommended maintenance items, however there were no significant issues noted. Despite this, it should be noted that the Spheroid Tower was constructed in 1969, and assuming an 80-year service life, the tower will have reached its theoretical service life in 2049.

3.4.2.2 Single New Tower

Given that the future storage deficit is minor, and the existing towers are both exceeding or well into their service lives, we have also assessed the option of decommissioning both existing towers and constructing one, larger tower that would service the entire community. The new tower would be constructed at a higher elevation than the existing system to accommodate future development, however still able to service existing system within acceptable pressures.

The costs associated with the construction of a centrally located tower are as follows:

Table 3.4.2.2 – New Tower Expected Costs

Infrastructure	Cost ($) *
2,000m^3 Elevated Tower	**$3,675,438**

* All costs include 10% for contingency, 10% for engineering and 13% HST.

3.4.2.3 Recommended Approach

In summary, the recommended approach and reasoning related to system storage is outlined below:

- Decommissioning of the Charles Street Tower is recommended given its age, limited volume and on-going remedial/maintenance costs.
- Freud Tower is well into its service life and may require significant upgrades (i.e., mixing/ rechlorination system) and maintenance (i.e., painting, corrosion treatment) within the planning horizon of the required additional storage.
- The increase in volume required to service future development would result in a relatively small tower size. This size would have a higher cost per unit volume than a larger sized tower which could provide the entire required volume. Also, the tower could be oversized to accommodate beyond the 2045 requirements at minimal additional cost.
- The operating complexities and costs of three towers in a system verse one.
- Retaining the existing towers in the system would not allow for the higher operating range unless a separate pressure zone is created. A dual pressure zone would increase the complexity of the system and limit the benefit of the increased operating level.
- The new facility would be equipped with improved features (i.e., separate fill/draw risers, provisions for mixing/re-chlorination, improved safety/accessibility).

With respect to the location of a new tower, utilizing one of the existing sites was considered. The Charles Street Tower site is too small and constrained by existing development. The Freud Tower site is feasible, however, there are several considerations as outlined:

- The site may be large enough to accommodate a new larger tower, however, there is not enough room for the existing tower to remain in place while the new tower is constructed. Therefore, the available storage in the system would be reduced significantly (i.e., to volume of Charles Tower) for an extended period (i.e., up to a year) while the Freud tower is removed and the new tower constructed. Although this may not impact day to day servicing, it would have an impact on the fire flows available from the system during this period.

- It is situated near the industrial area and located adjacent to a trunk watermain; therefore, it will provide adequate fire flows to critical areas of the system.

- The site is at a moderate ground elevation, therefore, the height of the new tower, assuming the higher operating level, would be considerable (i.e., approx. 52m) resulting in an increased cost for the facility.

Alternately, a new site could be selected which would allow the existing facilities to remain in service during construction. Upon review of the existing topography within the town boundary and expected growth areas, a parcel within the future industrial lands M3-1, between Domville and McCauley, near Tucker Street would be suitable given its high elevation (ground elevation of approximately 465m) and proximity to existing and future industrial development. Refer to Figure 4.1.

If the new site is considered, it is important that the extension of watermains consider the new site and are sized accordingly.

Establishment of a new water storage facility and the decommissioning of the existing facilities are both considered Schedule B projects under the Municipal Class EA. This Class EA would be completed in the future as development warrants the new facility. At that time details regarding sizing, configuration, operating levels and location can be confirmed along with the status of the existing facilities will be considered.

4 WATER DISTRIBUTION NETWORK

4.1 Existing

The distribution network presently services all existing developed areas within Arthur's urban area boundary. The network includes approximately 19.1 km of watermain ranging in size from 50 mm to 600 mm with 1048 services. Type of watermain used to construct the network has varied throughout the years and includes cast iron, ductile iron and PVC. Within the last 10-15 years, any upgrades and extensions to the existing distribution system have been with PVC watermain. The existing distribution network by size and type is illustrated on Figure 4.1. The network includes a trunk main consisting of 250 mm and 300 mm pipe which runs from the Wells 8A/8B along Jones Baseline, Highway 6, George Street and Smith Street, past the Freud Tower to Wells Street and along Wells Street to Well 7B.

The information presented in Tables 2.1 and 2.2 can be used to determine the expected demands of the water system's vertical infrastructure (i.e., wells and water towers); however, the expected demand on horizontal infrastructure (i.e. watermains) and the associated capacities needs to consider the expected demand as a result of complete build out of the development scenarios (i.e. Stages 1 through 4 development scenarios as per the GMP).

The updated WaterCAD model was used to review the fire flow capabilities throughout the water

distribution network for the current community and for each of the development scenarios. A minimum residual pressure of 20 psi was used to establish water taking capability, consistent with the normal accepted industry standard for firefighting. This review also assumes that the system is operating during maximum day demand, with the municipal wells running to support the fire effort. Results of this analysis, which reflects the available flow from the mains at a location in the system, rather than a specific hydrant, is provided in the following sections for each of the development scenarios.

Generally, higher fire flows are required in industrial and high-density commercial area (i.e., downtown core), with actual fire flow requirements being site specific. For evaluation of the existing system, the MOE population based recommended figure of 103 l/s was used. Further, the MOE recommends a minimum 30 l/s capability throughout a system that provides firefighting service. Based on these criteria, the Arthur system provides adequate fire flows throughout the network. The lower flow areas are generally restricted to dead-end areas. Fire flow scenarios can be simulated using the model to assess system performance for specific properties/developments or system conditions, as required.

There has been a number of network improvements completed in Arthur since the Master Plan Study was completed in 2012, however a number of watermains remain that are recommended for upgrade and/or replacement. A summary of these watermains is provided in

Table 4.1 below.

Table 4.1 – Recommended Water System Replacements

Location	Size (mm)	Length (m)
Edward Street	150	260
Frederick Street West (Edward Street to George Street)	150	140
Walton Street (Clarke Street to Tucker Street)	150	175
Clark Street (Domville Street to 150m South of Walton Street)	150	400
Domville Street (Conestoga Street to Preston Street)	150	450
Eastview Drive (Eliza Street to Bellefield Crescent)	150	300
Bellefield Crescent	150	375
Lynwood Place	150	250
Eliza Street (John Street to Caressant Care)	150	100

The watermain extensions required to service the proposed Development Stages are detailed in Sections 4.2 to 4.5 below.

Given that the existing water towers are likely to reach their capacity to service Arthur in the years 2025 to 2035, future modelling has been completed assuming the recommended upgrades are implemented including a new centrally located water tower with a maximum operating at an elevation of 510masl, and that the existing towers have been decommissioned. .

4.2 Stage 1 Development Scenario

Table 4.2 – Stage 1 Development Water Serviceability

Map ID	Development Name/Description	Area (ha)	Units (ERU)	Existing Towers		Future Tower(s)	
				Fire Flow* (L/s)	Pressure* (PSI)	Fire Flow* (L/s)	Pressure* (PSI)
R1-1	Eastridge Subdivision	4.5	162	83	44	78	54
R1-2	Gordon Street Condo	0.6	36	62	51	65	63
R1-3	Forest View Estates (WN-50)	1.0	50	81	57	67	67
FD1-1	Undesignated Not Serviced	0.5	13	N/A	N/A	N/A	N/A
C1-1	Existing Residential on 6	0.1	3	101	44	78	55
C1-2	Existing Residential on 109	0.1	3	125	60	95	70
C1-3	Vacant Land on 6	1.0	26	89	61	87	72
C1-4	Vacant Land on 6	0.4	10	117	48	86	59
C1-5	Vacant Land on 6	0.5	13	99	43	77	53

*Expected pressure and fire flow based on existing topographical information (mapping).

Based on the above, there are no distribution system improvements/upgrades to the existing system required to service areas within the Stage 1 Development Scenario. However, watermain will need to be extended eastward on Highway 109 to service areas C1-2 and C1-3. The expectation is that when C1-3, C2-2 and R2-1 will offer interconnection and looping for the system, however will not be trunk mains. Sizing required for this extension will need to be confirmed at preliminary design stage.

Additionally, if the existing towers remain in service, the available pressures within R1-1, C1-1 and C1-4 are expected to be in the lower range, which may result in end user complaints.

4.3 Stage 2 Development Scenario

Table 4.3 – Stage 2 Development Water Serviceability

Map ID	Development Name/Description	Area (ha)	Units (ERU)	Existing Towers		Future Tower(s)	
				Fire Flow* (L/s)	Pressure* (PSI)	Fire Flow* (L/s)	Pressure* (PSI)
R2-1	Burnside Subdivision	9.8	250	103	45	82	56
R2-2	Cachet Subdivision	5.1	287	82	59	68	70
C2-1	Smith & Wells	0.3	8	150	64	91	74
C2-2	Highway 6 Vacant Commercial	5.1	132	92	45	76	56

*Expected pressure and fire flow based on existing topographical information (mapping).

Based on the above, there are no recommended improvements required to the existing water distribution system to service areas within the Stage 2 Development Scenario. However, watermain will need to be extended eastward on Highway 109 to service area C2-2. The expectation is that mains within C2-2 will provide a second connection to R2-1, and R2-1 will offer

interconnection and looping to the remaining system, however these will not need to be trunk mains. Sizing required for the Highway 109 extension will be confirmed at preliminary design stage for the C2-2 development.

4.4 Stage 3 Development Scenario

Table 4.4 – Stage 1 Development Water Serviceability

				Existing Towers		Future Tower(s)	
Map ID	Development Name/Description	Area (ha)	Units (ERU)	Fire Flow* (L/s)	Pressure* (PSI)	Fire Flow* (L/s)	Pressure* (PSI)
R3-1	West Anderson	0.8	12	92	46	128	61
R3-2	East Anderson	1.8	27	66	46	88	61
R3-3	Vacant Residential	1.7	25	110	65	106	77
M3-1	North Arthur Industrial Lands	29.2	757	130	50	142	63

*Expected pressure and fire flow based on assumed land elevations based on high level existing topographical information (mapping).

Based on the above, there are no recommended improvements required to the water distribution system to service areas within the Stage 3 Development Scenario. However, watermain will need to extended on the Anderson Street ROW from Farrell Lane to the Draper Street ROW, west on the Draper ROW to connect back into Eliza Street to provide service to R3-1 and R3-2. Additionally, a trunk (300mm) watermain will need to be constructed on Wells St. at Domville to the MaCauley Street ROW, along the McAuley ROW and on Eliza Street to provide service and looping for M3-1. Alternatively, this looping may be provided through M3-1 internally, however providing it along the McAuley Street ROW will provide additional interconnectivity to future development areas north of McAuley Street. Sizing required for these extensions will need to be confirmed at preliminary design stage.

4.5 Stage 4 Development Scenario

Table 4.5 – Stage 4 Development Water Serviceability

				Existing Towers		Future Tower(s)	
Map ID	Development Name/Description	Area (ha)	Units (ERU)	Fire Flow* (L/s)	Pressure* (PSI)	Fire Flow* (L/s)	Pressure* (PSI)
FD4-1	North of Lagoons	12.1	313	0	24	91	59
FD4-2	East of Eliza Street	36.6	948	0	20	136	55
FD4-3	West of Eliza	16.4	425	0	30	174	65
FD4-4	Preston-Conestoga (109) – Not Serviced	0.9	23	N/A	N/A	N/A	N/A
C4-1	Wells & 109 – Not Serviced	0.6	16	N/A	N/A	N/A	N/A

*Expected pressure and fire flow based on assumed land elevations based on high level existing topographical information (mapping) and that the entire system pressure will be increased as per recommendations.

Based on the above, there are no recommended improvements required to the existing water distribution system to service areas within the Stage 4 Development Scenario. However, significant watermain extensions would be required along Eliza Street or internal to these development areas to provide service to FD4-1, FD4-2 and FD4-3. These areas are high topographically, resulting in moderate operating pressures and fire flows. In order to maximize pressures and fire flows to these future industrial areas, watermain sizing and looping would need to be considered during preliminary development discussions.

4.6 Summary of Watermain Extensions

The following table provides a summary on the expected watermain system extensions, their service areas, as applicable and the expected costs of the watermain construction. Note, the costs indicated do not include any costs associated with the restoration or upgrade of the surface features, such as road urbanization or asphalt re-instatement since it is assumed these watermain extensions will be completed as part of a road construction/reconstruction project. Refer to Figure 4.1.

Table 4.6 – Water System Extensions

Location	Size (mm)	Length (m)	Service Area	Estimated Infrastructure Cost ($)
Wells St. (Domville St. to Macauley St.)	300	850	M3-1, FD4-1, FD4-2, FD4-3	$556,000
Macauley St. (Wells St. to Eliza St.)	300	640	M3-1, FD4-1, FD4-2, FD4-3	$418,000
Eliza St. (Macauley St. to Tucker St.)	300	191	M3-1, FD4-1, FD4-2, FD4-3	$125,000
Draper St. (Eliza St. to Anderson St.)	150	155	R3-1, R3-2	$95,000
Anderson St. (Draper St. to Farrell Lane)	150	440	R3-1, R3-2	$265,000

5 WASTEWATER COLLECTION AND TREATMENT

5.1 Existing Infrastructure

The Arthur wastewater system includes a dedicated sanitary sewer/forcemain collection network, two sewage pumping stations (SPS), a wastewater treatment plant (WWTP) and an effluent storage lagoon facility.

5.1.1 Collection System

The network services the entire developed area of Arthur (i.e. within the urban boundary) and currently provides 1032 service connections, according to Township records (2020). The network includes approximately 19.1 km of sewer, ranging in size (diameter) from 150 mm to 450 mm, approximately 4 km of forcemain that is 150 mm to 250 mm in diameter. The type of sanitary sewer pipes varies within the network and includes asbestos cement, concrete and PVC. Upgrades and extensions to the sanitary sewer network within the last 10-15 years have been PVC pipe. The existing sanitary sewer collection system is presented on Figure 5.1 and Figure 5.2.

A computer simulation model (i.e. SewerCAD V8i) of the Arthur sanitary collection system was created as part of the Master Plan and has been updated to support this technical study to estimate peak flows throughout the network and compare them to the hydraulic capacity of the various sewers and forcemain under the various development scenarios and expected population growth.

5.1.2 Treatment Plant

The Arthur WWTP is located at the south end of Preston Street near the Conestogo River. The plan provides tertiary treatment utilizing the extended aeration process. The treatment process components include:

- *Preliminary Treatment*: grit channels, comminutor, manual bar screen.
- *Secondary Treatment*: aeration, secondary clarifier.
- *Tertiary Treatment*: filtration, ultra-violet disinfection.
- *Biosolids Management*: aerobic digestion, biosolids storage.
- *Effluent Pumping Station*: two effluent pumps to transfer treated effluent from the WWTP to the lagoons during the non-discharge period.
- *Discharge*: to the Conestogo River during the discharge period, effluent is stored in the lagoons *during* the non-discharge period.

The rated average day flow (ADF) capacity of the WWTP is 1,465 m^3/day, and discharges to the Conestogo River (River); however, due to assimilative capacity limitations of the River, discharging to the River is restricted to between September 16 and April 30. Between May 1 and September 15, effluent from the WWTP must be pumped to the effluent storage lagoons for holding until discharging to the River is permitted.

A Schedule C Class Environmental Assessment (XCG, 2016) was completed for the WWTP, which recommended the plant and associated Fredrick St. SPS be expanded in a phased approach from the existing rated capacity a 1,465 m^3/d to 1,860 m^3/d (Phase 1) and 2,300 m^3/d (Phase 2). Since WWTP information is available from this EA document, this Technical update will not provide information or comment on this infrastructure in detail.

5.1.3 Sewage Pumping Stations

The collection network for the Arthur wastewater system is divided into three service areas, and is collected by the following trunk sewer and sewage pumping stations:

Wells Street SPS:
The Wells Street SPS pumps via a 1 km - 150 mm diameter PVC/AC forcemain to a manhole at the intersection of Preston and Smith Streets. This SPS receives primarily industrial flows from the industry located in the west side of the town.

Preston Street Trunk Sewer:
Preston Street trunk sewer services Preston Street and the western portion of Domville Street along with the Wells SPS discharge. This area flows by gravity directly into the Arthur WWTP and services a mix of residential and industrial users.

Frederick Street SPS:
The Frederick Street SPS receives the majority of the flows in the community including the central, southern and eastern portions of the system. It pumps directly into the WWTP through a 750 m long, 250 mm diameter forcemain. This SPS services primarily commercial and residential flows.

5.1.4 Reserve Capacity

Triton completed a review of the reserve capacity for the Arthur WWTP for 2020, in accordance with the requirements outlined in the MECP guidelines. The ADF based on flows recorded at the WWTP in calendar years 2017, 2018, and 2019 is 1,400 m^3/day, which is in compliance with the Certificate of Approval for the WWTP. The WWTP reserve capacity of 65 m^3/day corresponds to an additional 45 equivalent residential units that can be served; however, given that 31 equivalent residential units are committed to Golden Valley Farm's, the reserve capacity corresponds to 14 uncommitted equivalent residential units. Refer to Appendix D1 for the 2020 Reserve Capacity Calculations for the Arthur WWTP.

5.1.5 Per Person Flow Rate

The existing average per person flow rate in Arthur is estimated at 581L/day, as presented in the Arthur 2020 RCC, however this value includes ICI flows which are significant within the community. Our expectation is that as the community continues to grow with primarily residential development, the per person flow rate will begin to decrease to more typical values. Therefore, for future planning purposes, the MECP recommended per person flow rate of 400L/day was used. This rate should be reviewed as part of the annual RCC and adjusted accordingly if actual per person flows decrease significantly. As with the water RCC, it is recommended that any significant future ICI developments be required to apply for sewage treatment allocation to ensure that the RCC reflects future usage requirements.

5.1.6 Future Reserve Capacity

Based on the growth as described in section 2, the information presented in the Arthur Wastewater Treatment Plant Expansion Design Brief, and the calculations shown in Table 5.1.6 below, the proposed plant expansions will have sufficient capacity to treat the sewage until the year 2045, with a minor deficit of 25 ERUs remaining at that time. Further, in order to keep pace with the development, it is expected that the Phase 2 expansion should be implemented by 2030.

Table 5.1.6 – Future Sanitary Reserve Capacity

Year	Population (Capita)	Households (ERU)	ADF (m^3/day)	Phase 1 Reserve Capacity		Phase 2 Reserve Capacity	
				m^3	ERU	m^3	ERU
Rated Capacity				1,860m^3		2,300m^3	
2020	2,410	949	1400	460	402		
2025	3,351	1,242	1777	83	69		
2030	3,698	1,370	1915	-55		385	317
2035	4,046	1,499	2055	-195		245	202
2040	4,391	1,639	2193	-333		107	89
2045	4,736	1,768	2331	-471		-31	-25

5.2 Stage 1 Development Scenario

The following Developments have been included in the Stage 1 Development scenario.

Table 5.2 – Stage 1 Developments

Map ID	Development Name	Area (ha)	Units (ERU)
R1-1	Eastridge Subdivision	4.5	162
R1-2	Gordon Street Condo	0.6	36
R1-3	Forest View Estates (WN-50)	1.0	50
C1-1	Existing Residential on 6	0.1	3
C1-2	Existing Residential on 109	0.1	3
C1-3	Vacant Land on 6	1.0	26
C1-4	Vacant Land on 6	0.4	11
C1-5	Vacant Land on 6	0.5	13

To service the developments within Stage 1 there are no sanitary sewer extensions or upgrades required. However, the expectation is that in the event that a land area is not serviceable by gravity (i.e. C1-3) a sewage pumping station or low-pressure sanitary system will be installed on site to provide connection to the nearest municipal infrastructure serviced by gravity. The configuration of such infrastructure would need to be reviewed based on the specific development needs.

5.3 Stage 2 Development Scenario

In addition to the Developments included in Stage 1, the following Developments have been included in the Stage 2 modelling.

Table 5.3a – Stage 2 Developments

Map ID	Development Name	Area (ha)	Units (ERU)
R2-1	Burnside Subdivision	9.8	250
R2-2	Cachet Subdivision	5.1	287
C2-1	Smith & Wells	0.3	8
C2-2	Highway 6 Vacant Commercial	5.1	135

Under the Stage 2 development scenario the following sanitary sewers are over capacity as indicated in Table 5.3b.

Table 5.3b – Stage 2 Sanitary Sewers Over Capacity

Label	Start MH	End MH	Street	Length (m)	Diameter (mm)	Slope (%)	Percent Full (%)
CO-21	MH-179	MH-178	Francis Street	76.5	200	0.36	164.2
CO-22	MH-178	MH-177	Francis Street	45.1	200	0.41	159.5
CO-23	MH-177	MH-176	Francis Street	36	200	0.42	157.7
CO-24	MH-176	MH-175	Francis Street	22.9	200	0.53	140.7
CO-50	MH-78	MH-77	Intersection of George & Fredrick	20.9	300	0.13	115.2

5.4 Stage 3 Development Scenario

Table 5.4a – Stage 3 Developments

Map ID	Development Name	Area (ha)	Units (ERU)
R3-1	West Anderson	0.8	12
R3-2	East Anderson	1.8	27
R3-3	Vacant Residential	1.7	25
M3-1	North Arthur Industrial Lands	29.2	771

Under the Stage 3 conditions the following sanitary sewers are over capacity as indicated in Table 5.4b. Note, this assumes full development of lands within Stage 1, Stage 2 and Stage 3.

Table 5.4b – Stage 3 Sanitary Sewers Over Capacity

Label	Start MH	End MH	Street	Length (m)	Diameter (mm)	Slope (%)	Percent Full (%)
CO-21	MH-179	MH-178	Francis Street	76.5	200	0.36	164.2
CO-22	MH-178	MH-177	Francis Street	45.1	200	0.41	159.5
CO-16	MH-190	MH-189	Francis Street	87.5	200	0.32	159
CO-23	MH-177	MH-176	Francis Street	36	200	0.42	157.7
CO-24	MH-176	MH-175	Francis Street	22.9	200	0.53	140.7
CO-15	MH-191	MH-190	Francis Street	37.8	200	0.11	115.3
CO-50	MH-78	MH-77	Intersection of George & Fredrick	20.9	300	0.13	**121.3**

5.5 Stage 4 Development Scenario

Table 5.5a – Stage 4 Developments

Map ID	Development Name	Area (ha)	Units (ERU)
FD4-1	North of Lagoons	12.1	319
FD4-2	East of Eliza Street	36.6	966
FD4-3	West of Eliza	16.4	433

Under the Stage 4 conditions the following sanitary sewers are over capacity as indicated in Table 5.5b. Note, this assumes full development of lands within Stage 1, Stage 2, Stage 3 and Stage 4.

Table 5.5b – Stage 4 Sanitary Sewers Over Capacity

Label	Start MH	End MH	Street	Length (m)	Diameter (mm)	Slope (%)	Percent Full (%)
CO-21	MH-179	MH-178	Francis Street	76.5	200	0.36	164.2
CO-22	MH-178	MH-177	Francis Street	45.1	200	0.41	159.5
CO-16	MH-190	MH-189	Francis Street	87.5	200	0.32	159
CO-23	MH-177	MH-176	Francis Street	36	200	0.42	157.7
CO-24	MH-176	MH-175	Francis Street	22.9	200	0.53	140.7
CO-15	MH-191	MH-190	Francis Street	37.8	200	0.11	115.3
CO-50	MH-78	MH-77	Intersection of George & Fredrick	20.9	300	0.13	**144.8**

The expectation is that FD4-2 and FD4-3 will be serviced by the Preston Street Trunk.

6 CONCLUSION

6.1 General

This Water and Sanitary Systems Technical Study - Arthur provides current (based on available information) computer simulation models of the water and sanitary systems in Arthur. These models were used to evaluate the adequacy of the systems to meet the needs of the existing community (i.e. calendar year 2020) and to service the future development scenarios to calendar year 2045, consistent with the expected population growth and development Stages presented in the GMP (GSP Group Inc., February 26, 2018) and the Development Charges Background Study (DFA Infrastructure International Inc., 2018).

In addition to the modelling/evaluation of the collection/conveyance systems, the capabilities of key components of the system were assessed for their ability to accommodate the future growth including water supply/ storage and sewage treatment.

A summary of the infrastructure servicing upgrades and extensions identified, and the corresponding recommendations to phase/stage the implementation of these infrastructure improvements is provided in the following sections.

6.2 Water System

Source Capacity is a measure of the municipal water system's ability to supply water. Based on current information, the Source Capacity of the Arthur water system is sufficient to meet the estimated water demands of the 2045 growth scenario. However, redundancy within the water supply system is crucial to ensure water is available for users in the event of a significant issue with a production well such as contamination or production decline. In order to identify a systems' redundancy, it is recommended that the Township determine the available Reserve Capacity on an annual basis and consider the possibility of failure of one on the current supply wells. Given that this capacity is obtained from only three sources, two of which are in the same well field, a failure of any of these would have a significant impact on the system's ability to meet MDD

requirements. Therefore, it is crucial that the Township is proactive in identifying and securing future water sources since establishing these new sources, and the infrastructure required to deliver this water to the system can be a lengthy and onerous process, and may affect the configuration and sizing of future watermain upgrades and extensions. The first step in this process is to establish a well exploration program. It is recommended that the Township establish this program as soon as possible. Subsequent steps (i.e. PTTW and pumping infrastructure) to bring this additional Source Capacity on-line would be contingent on projected water demand.

Water storage within the system is provided for three purposes; fire storage to allow the system to achieve flow rates and volume necessary to effectively fight fires; equalization storage which provides water to the system during peak demand periods; and emergency storage intended to provide a safety factor for water supply. Based on the Ministry of Environment (MOE) guidelines, the existing storage is adequate for the current population and given the surplus in source capacity which can supplement storage requirements, the storage should be adequate for the immediate future. In considering the GMP growth projections, the storage requirements are significantly above the current volume available and as the surplus source capacity is diminished more storage will be required. Therefore, it is recommended that additional storage be added to the system within the next 5 to 15 years.

Given the age and limited volume of the existing facilities, and the fact that a tower with a higher operating level is needed to service outlying areas, consideration is to be given to constructing a new elevated tower that would replace the storage volume in the existing towers and provide additional storage for future development. This tower would also operate at a higher level in order to service outlying areas and improve fire flow capabilities of the existing system. Although the existing Freud Tower site may be suitable for the new tower, the Township should consider obtaining a site for this future tower as part of future development proposals in the industrial area. This would provide a higher base elevation (i.e., shorter tower) and allow for adequate system storage during construction of the new tower. Establishment of a new water storage facility and the decommission of the existing facilities are both considered Schedule B projects under the Class EA.

Hydraulic analysis of the system indicates that system pressures and fire flow capabilities are adequate to meet existing development, and with watermain extensions, the future scenarios are accommodated as well. However, it is recommended that consideration be given to increasing the operating range of a future elevated tower to adequately service the potential future development areas to the north of the existing urban area which are located at higher topographic elevations. This would have the added benefit of increasing system pressures and fire flows through the entire service area.

Generally, the watermain within the existing system are in good condition, however, there remains a moderate amount of cast iron and thin walled pvc pipe in the system. This pipe should continue to be replaced as a part of road reconstruction projects as it is reaching the end of its service life.

Given the future expansion of the industrial area outlined in the development scenarios, it is recommended that trunk watermains be extended to service this area. It is recommended that these trunks would be extended on Wells Street East to Macauley Street, along Macauley Street to Eliza Street and on Eliza Street to complete the loop. However, the optimum routing for these trunks and connections to the existing system will depend on the configuration of the developments to a certain extent and should be reviewed in the context of future development proposals. Additional local watermain may be required along the Highway 109 corridor to service future highway commercial areas.

6.3 Sanitary System

The existing computer simulation model of the sanitary collection system was reviewed and updated to estimate flows throughout the network and compare them to the hydraulic capacity of the various sewers. Based on this analysis, the collection system has sufficient hydraulic capacity under existing and Stage 1 development conditions. However, under the Stage 2/3/4 Scenarios, hydraulic capacity in some of the existing sewers may be exceeded depending on the sewer routing of future development. Specifically, servicing of the future residential and highway commercial developments C1-3, C2-2 and R2-2 will need to be reviewed to ensure that existing sewer capacity can be optimized. Figure 5.8 illustrates upgrades that would be required under the worst-case scenario, but the hope is sewage can be directed to alternative sewers routes thereby avoiding upgrades to the sewers on Francis Street. Figure 5.8 illustrates possible sewer extensions to service the future industrial development areas utilizing existing right-of-way. However, depending of the configuration of the developments, these sewers may be extended internal to the development areas. The optimum sewer configuration should be considered as development proposals are brought forward.

The theoretical flows modelled in the Stage 2 through 4 scenarios are approaching sewer capacity along Francis Street downstream of the Charles Street intersection up to the Fredrick Street SPS and a small section of sewer on the west side of George Street at the Fredrick St. intersection. However, actual flows at these locations should be confirmed with local flow monitoring in the future prior to replacement of sewers. Additionally, as discussed above, the future modelling is based on full occupancy of the lands. Therefore, before any reconstruction project, it is imperative that the potential future development upstream of the sewers be thoroughly investigated to determine the best servicing strategy for the area and the existing system.

Based on the design flows, the recommended servicing strategy and staged Development, the Wells Street sewage pumping station, and associated forcemain are adequate to service the future development scenarios considered in this study and the Fredrick Street SPS is currently being upgraded to address future needs.

This report is respectfully submitted.

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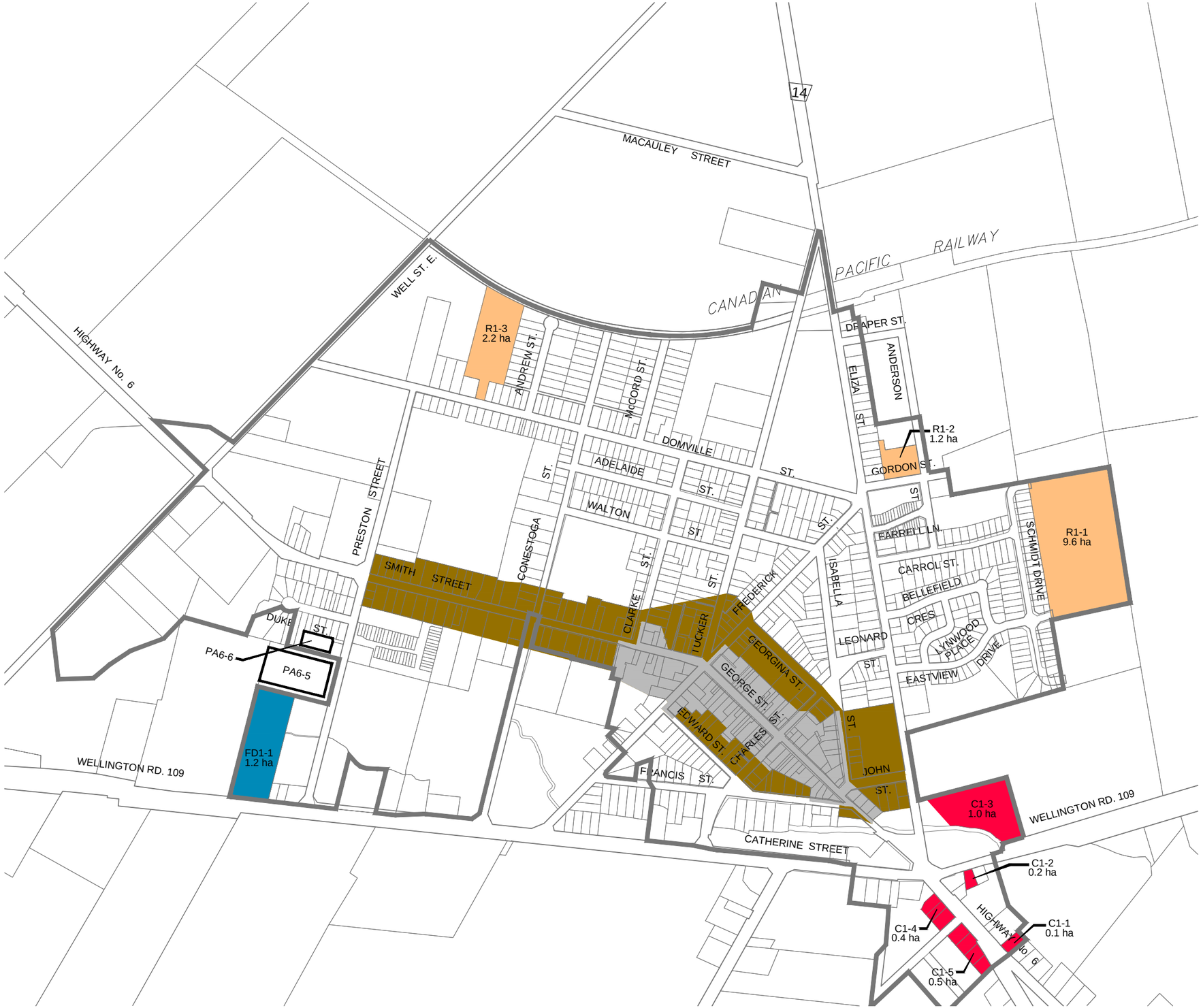
Dustin Lyttle, E.I.T



Ray Kirtz, P.Eng

TOWNSHIP OF WELLINGTON NORTH

ARTHUR WATER AND SANITARY SERVICING STUDY



LEGEND:

- RESIDENTIAL
- INDUSTRIAL
- HIGHWAY COMMERCIAL
- CENTRAL BUSINESS DISTRICT
- INTENSIFICATION CORRIDOR
- FUTURE RESIDENTIAL & COMMERCIAL
- STAGE 1 BOUNDARY
- PA — POLICY AREA
- R2-1, 9.8 ha — DEVELOPMENT ID, ASSUMED DEVELOPABLE LAND

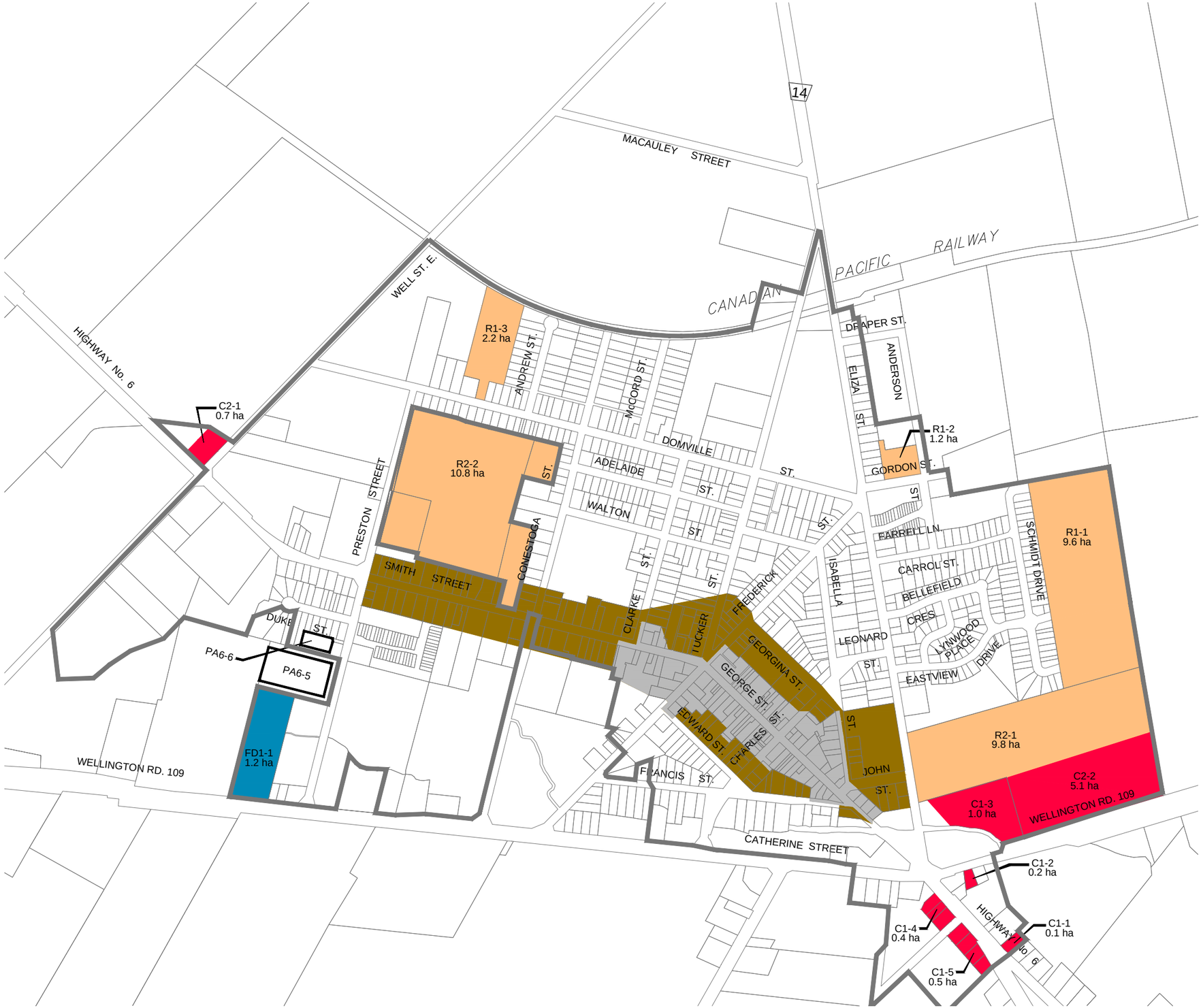
FIGURE 2.1
STAGE 1 DEVELOPMENT SCENARIO

SCALE 1:10,000
A5514

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LEGEND:

- RESIDENTIAL
- INDUSTRIAL
- HIGHWAY COMMERCIAL
- CENTRAL BUSINESS DISTRICT
- INTENSIFICATION CORRIDOR
- FUTURE RESIDENTIAL & COMMERCIAL
- STAGE 2 BOUNDARY
- PA — POLICY AREA
- R2-1 9.8 ha — DEVELOPMENT ID ASSUMED DEVELOPABLE LAND

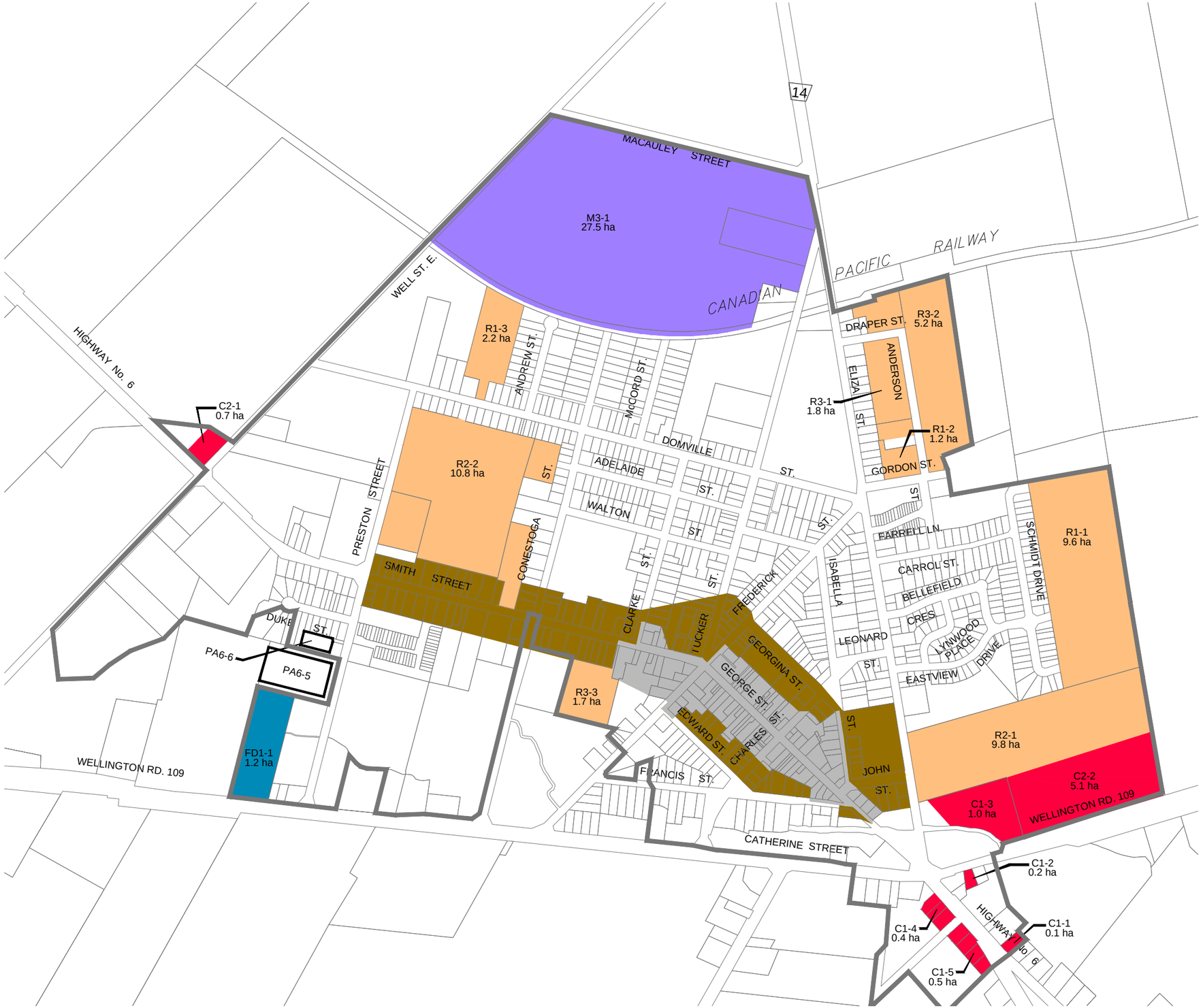
FIGURE 2.2
STAGE 2 DEVELOPMENT SCENARIO

SCALE 1:10,000
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LEGEND:

- RESIDENTIAL
- INDUSTRIAL
- HIGHWAY COMMERCIAL
- CENTRAL BUSINESS DISTRICT
- INTENSIFICATION CORRIDOR
- FUTURE RESIDENTIAL & COMMERCIAL
- STAGE 3 BOUNDARY
- PA — POLICY AREA
- R2-1, 9.8 ha — DEVELOPMENT ID, ASSUMED DEVELOPABLE LAND

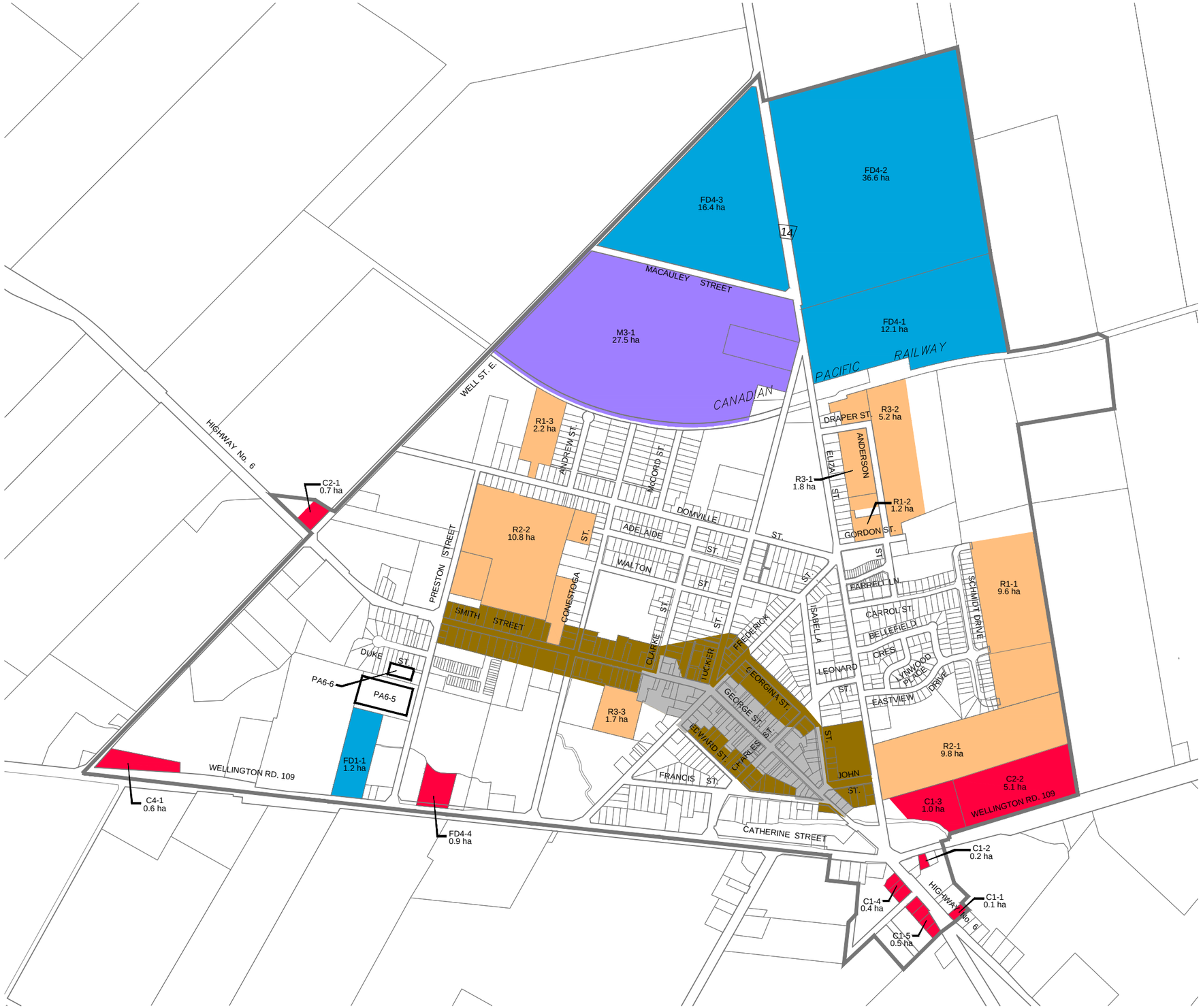
FIGURE 2.3
STAGE 3 DEVELOPMENT SCENARIO

SCALE 1:10,000
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LEGEND:

- RESIDENTIAL
- INDUSTRIAL
- HIGHWAY COMMERCIAL
- CENTRAL BUSINESS DISTRICT
- INTENSIFICATION CORRIDOR
- FUTURE RESIDENTIAL & COMMERCIAL
- STAGE 4 BOUNDARY
- PA — POLICY AREA
- R2-1, 9.8 ha — DEVELOPMENT ID, ASSUMED DEVELOPABLE LAND

FIGURE 2.4
STAGE 4 DEVELOPMENT SCENARIO

SCALE 1:12,500
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WATERMAIN SIZING:

- ≤100mm
- 150mm
- 200mm
- 250mm
- 300mm

JUNCTION PRESSURE RANGES

- 40 - 50 psi
- 50 - 60 psi
- 60 -70 psi
- 70 - 80 psi

FIGURE 3.1

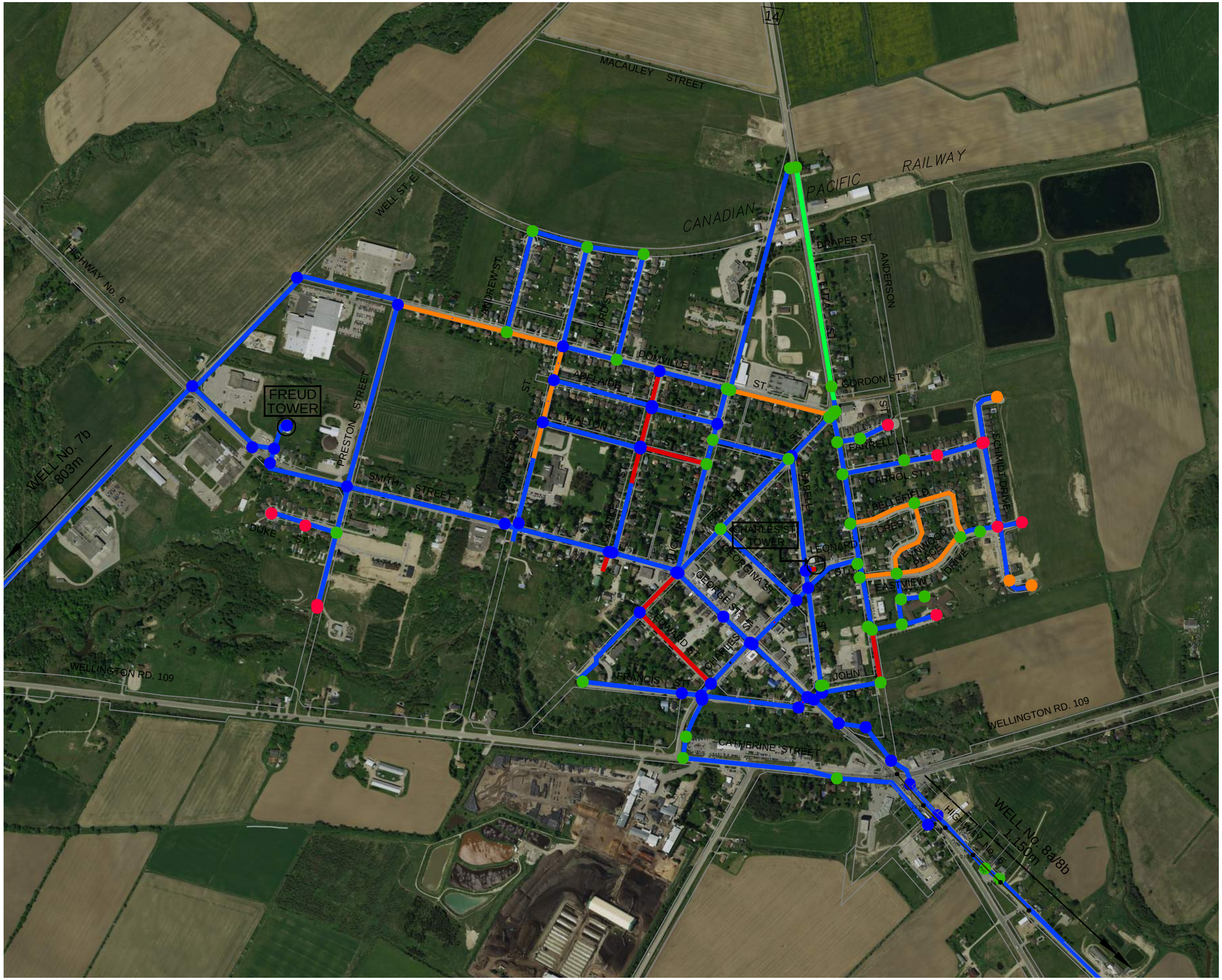
WATER SYSTEM
WATERMAIN SIZE
& SYSTEM PRESSURE

SCALE 1:10,000
A5514

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WATERMAIN MATERIAL

- PVC
- CAST IRON
- DUCTILE IRON
- THIN WALL PVC

JUNCTION FIRE FLOW RANGE

- 70 - 80 L/s
- 80 - 103 L/s
- 103 - 200 L/s
- 200 - 350 L/s

FIGURE 3.2

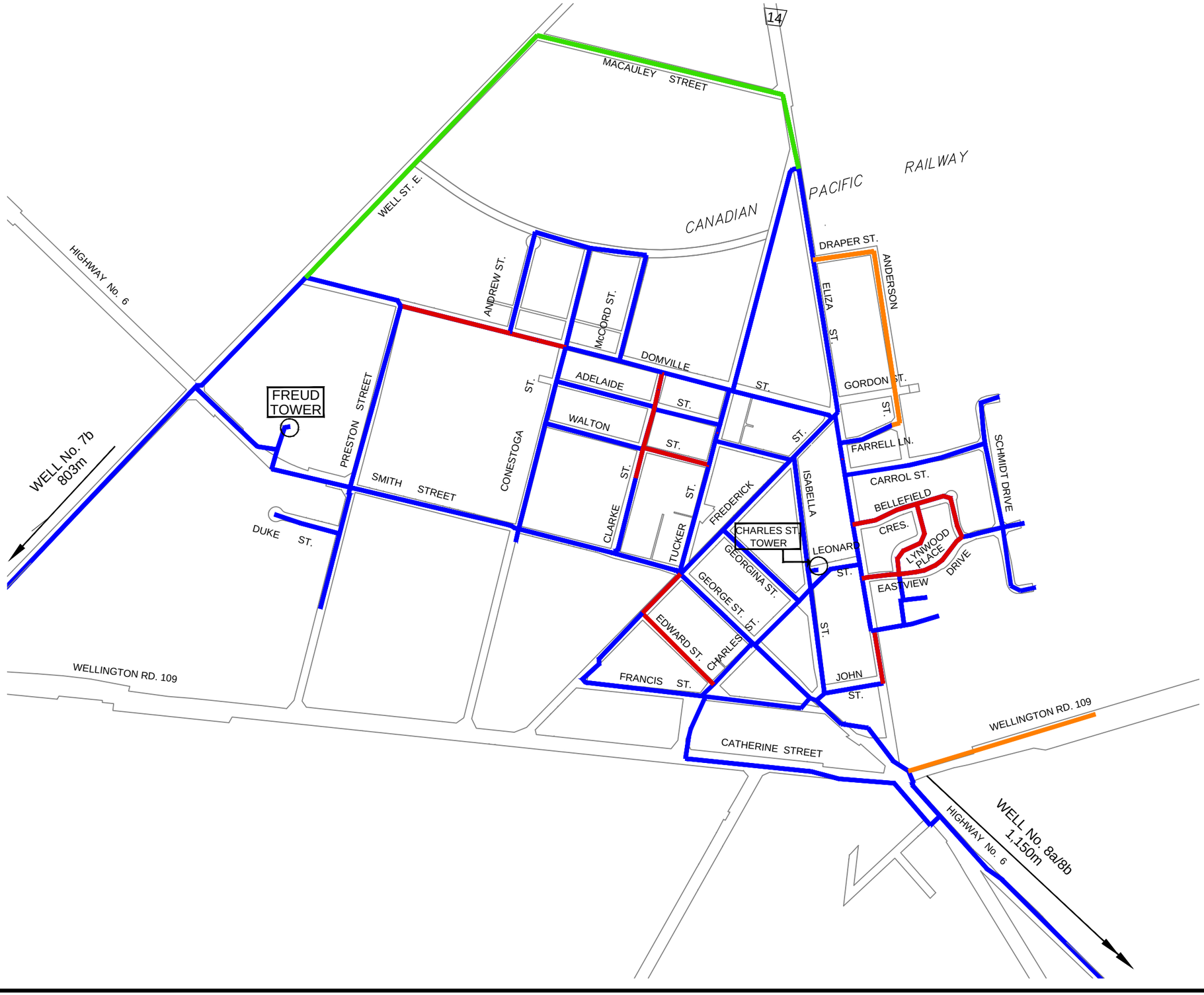
WATER SYSTEM
WATERMAIN MATERIAL &
FIRE FLOW CAPABILITIES

SCALE 1:10,000
A5514

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LEGEND

- EXISTING WATERMAIN TO REMAIN
- REPLACEMENT
- TRUNK MAIN EXTENSION
- LOCAL MAIN EXTENSION

FIGURE 4.1

RECOMMENDED WATER UPGRADES AND EXTENSIONS

SCALE 1:10,000
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SEWER SIZING:

- 200mm
- 250mm
- 300mm
- 375mm
- 450mm
- FORCEMAINS
- LAGOON OVERFLOW

FIGURE 5.1

SANITARY SYSTEM SEWER SIZE

SCALE 1:10,000
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LEGEND:

- CONCRETE
- PVC
- ASBESTOS CEMENT

FIGURE 5.2

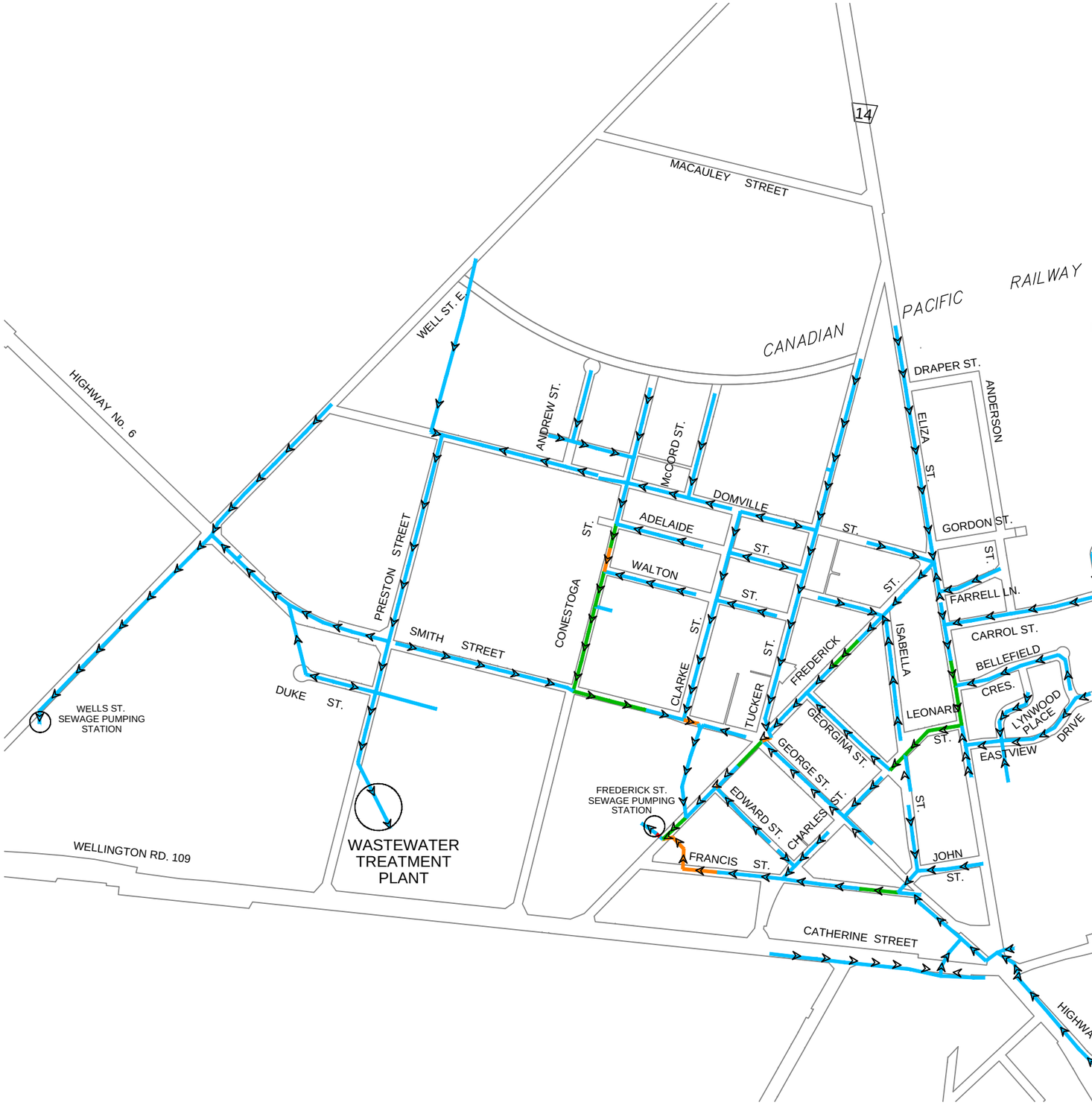
SANITARY SEWER MATERIAL

SCALE 1:10,000
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EFFLUENT STORAGE LAGOONS

PEAK FLOW / CAPACITY (%)

- ≤25%
- ≤50%
- ≤75%
- ≤100%

FIGURE 5.3

PEAK SEWAGE FLOWS (EXISTING CONDITIONS)

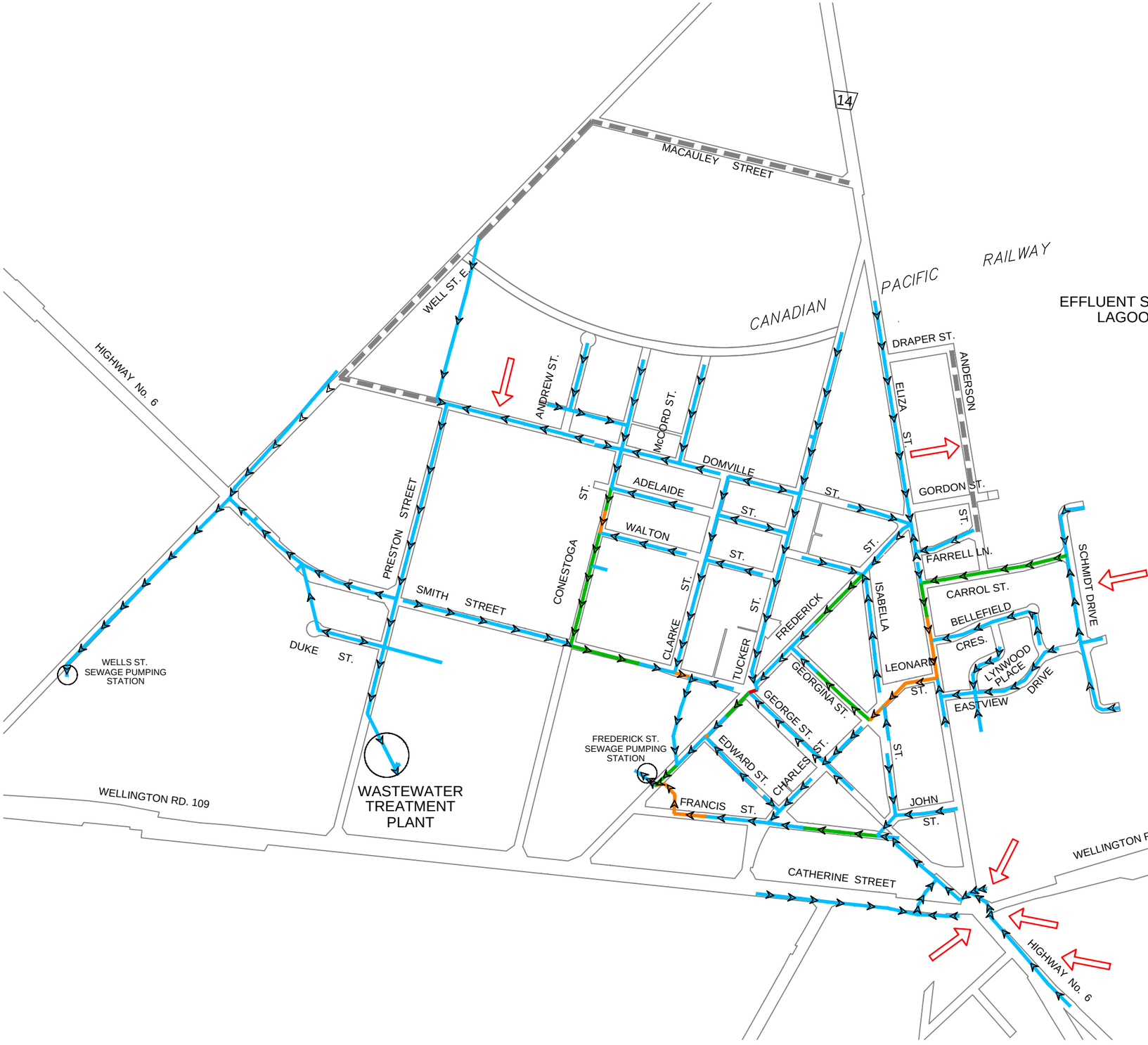
SCALE 1:10,000
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EFFLUENT STORAGE
LAGOONS



PEAK FLOW / CAPACITY (%)

- ≤50%
- ≤75%
- ≤100%
- ≥100%
- FUTURE SEWER EXTENSIONS
- FUTURE DEVELOPMENT CONTRIBUTION

FIGURE 5.4

PEAK SEWAGE FLOWS (STAGE 1)

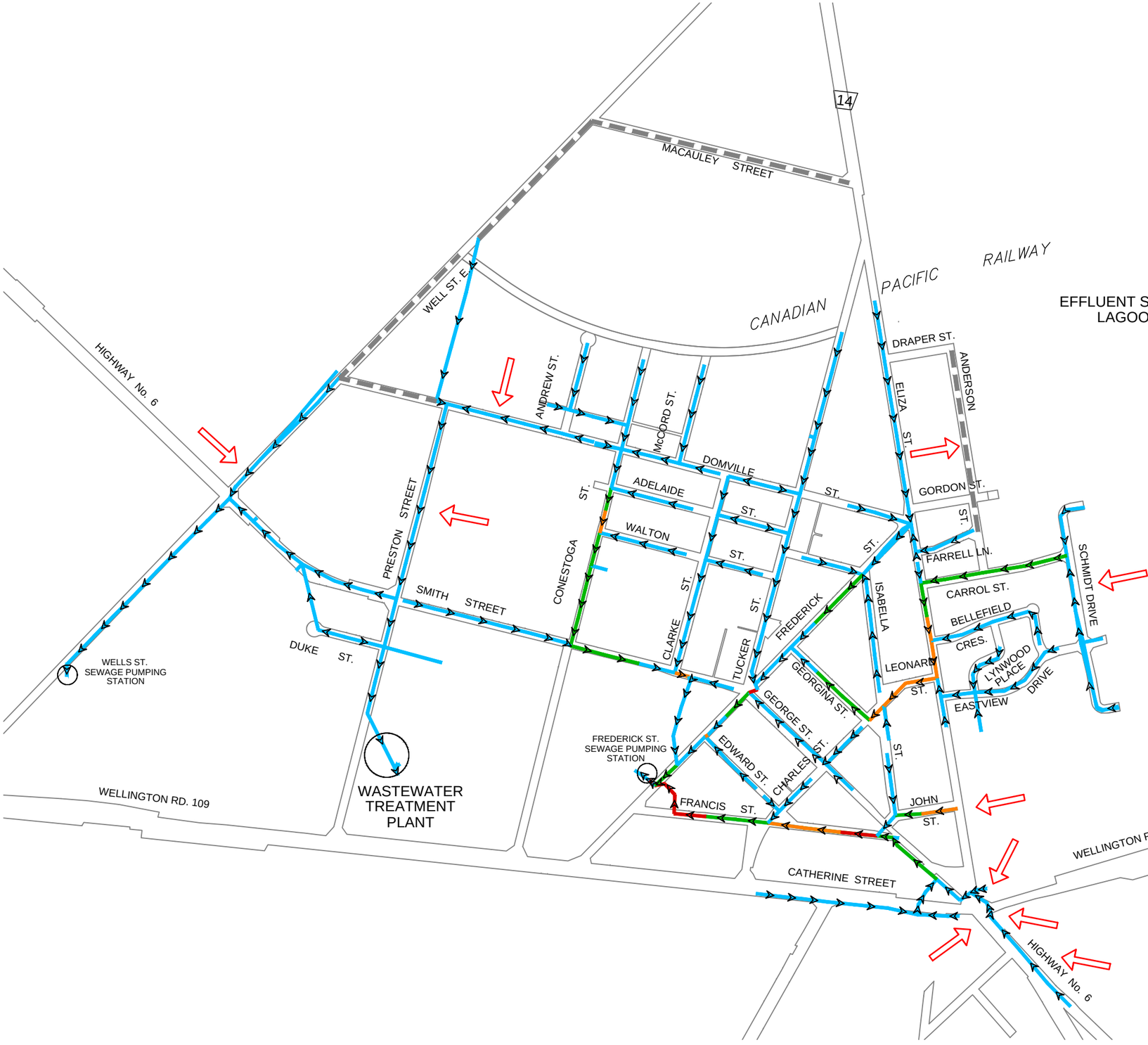
SCALE 1:10,000
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EFFLUENT STORAGE
LAGOONS



PEAK FLOW / CAPACITY (%)

- ≤50%
- ≤75%
- ≤100%
- ≥100%
- FUTURE SEWER EXTENSIONS
- FUTURE DEVELOPMENT CONTRIBUTION

FIGURE 5.5

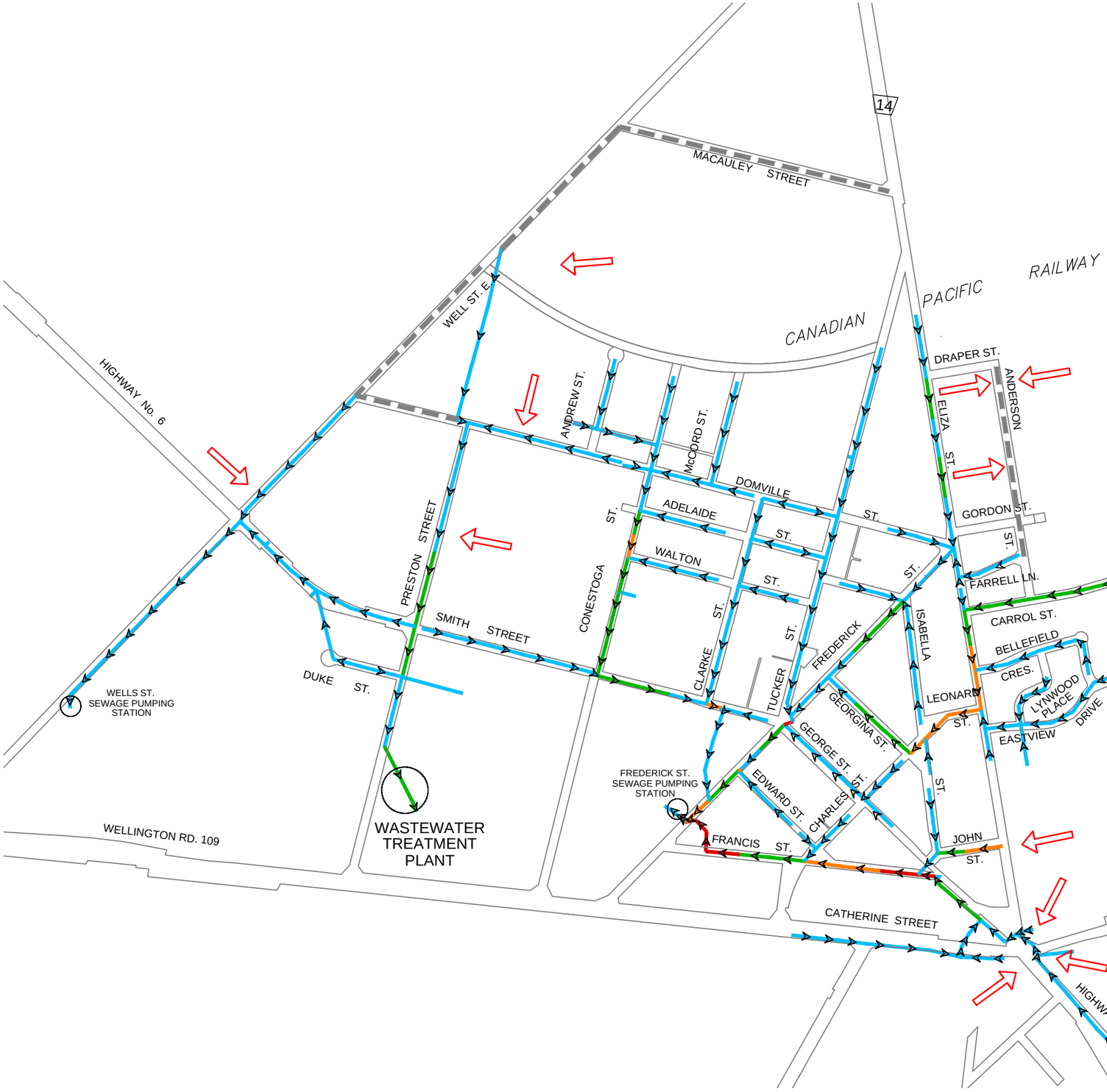
PEAK SEWAGE FLOWS
(STAGE 2)

SCALE 1:10,000
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PEAK FLOW / CAPACITY (%)

- ≤ 50%
- ≤ 75%
- ≤ 100%
- ≥ 100%
- FUTURE SEWER EXTENSIONS
- FUTURE DEVELOPMENT CONTRIBUTION

FIGURE 5.6

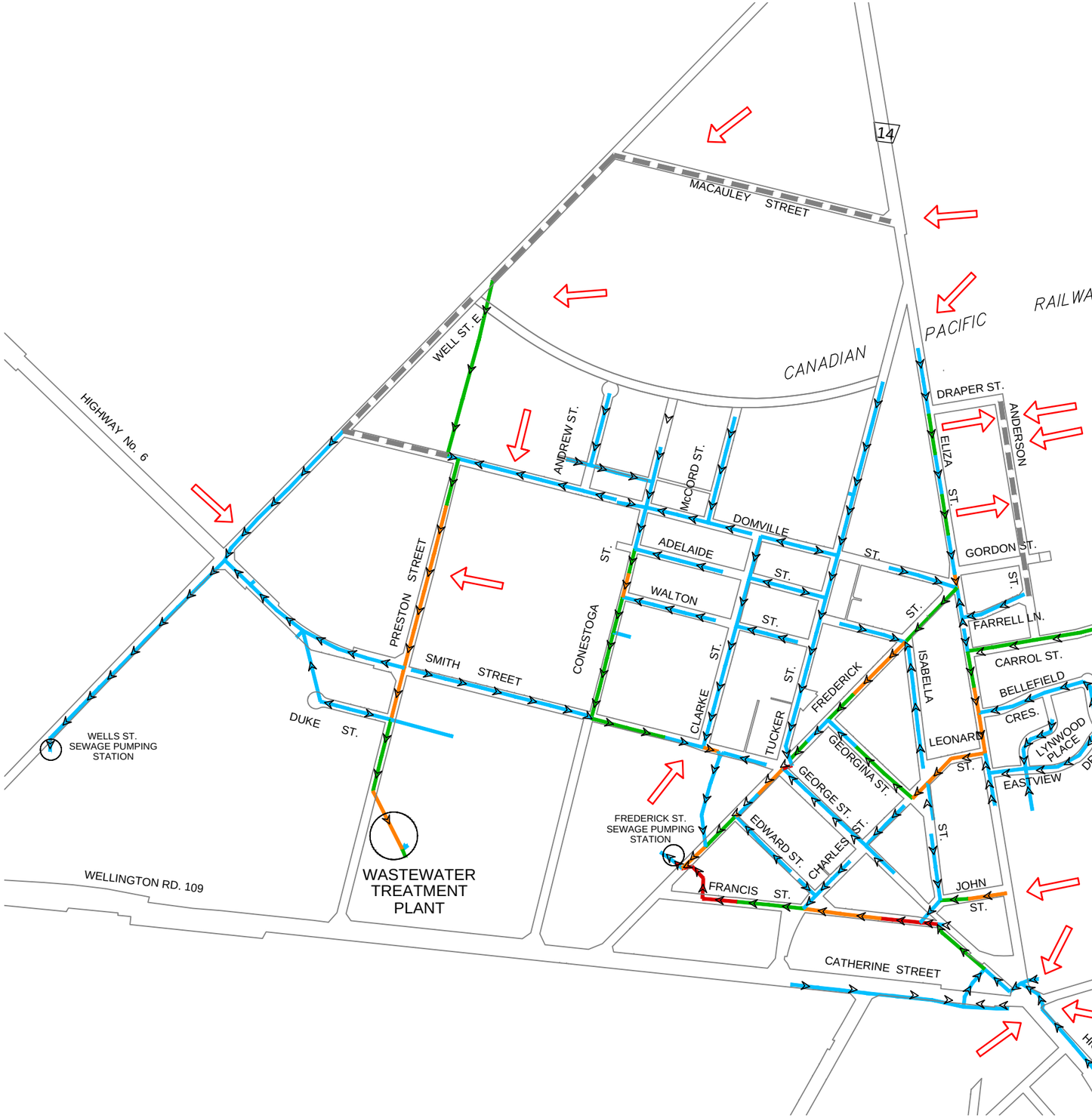
PEAK SEWAGE FLOWS (STAGE 3)

SCALE 1:10,000
A5514

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ARTHUR WATER AND SANITARY SERVICING STUDY



PEAK FLOW / CAPACITY (%)

- <50%
- ≤75%
- ≤100%
- ≥100%
- FUTURE SEWER EXTENSIONS
- FUTURE DEVELOPMENT CONTRIBUTION

FIGURE 5.7

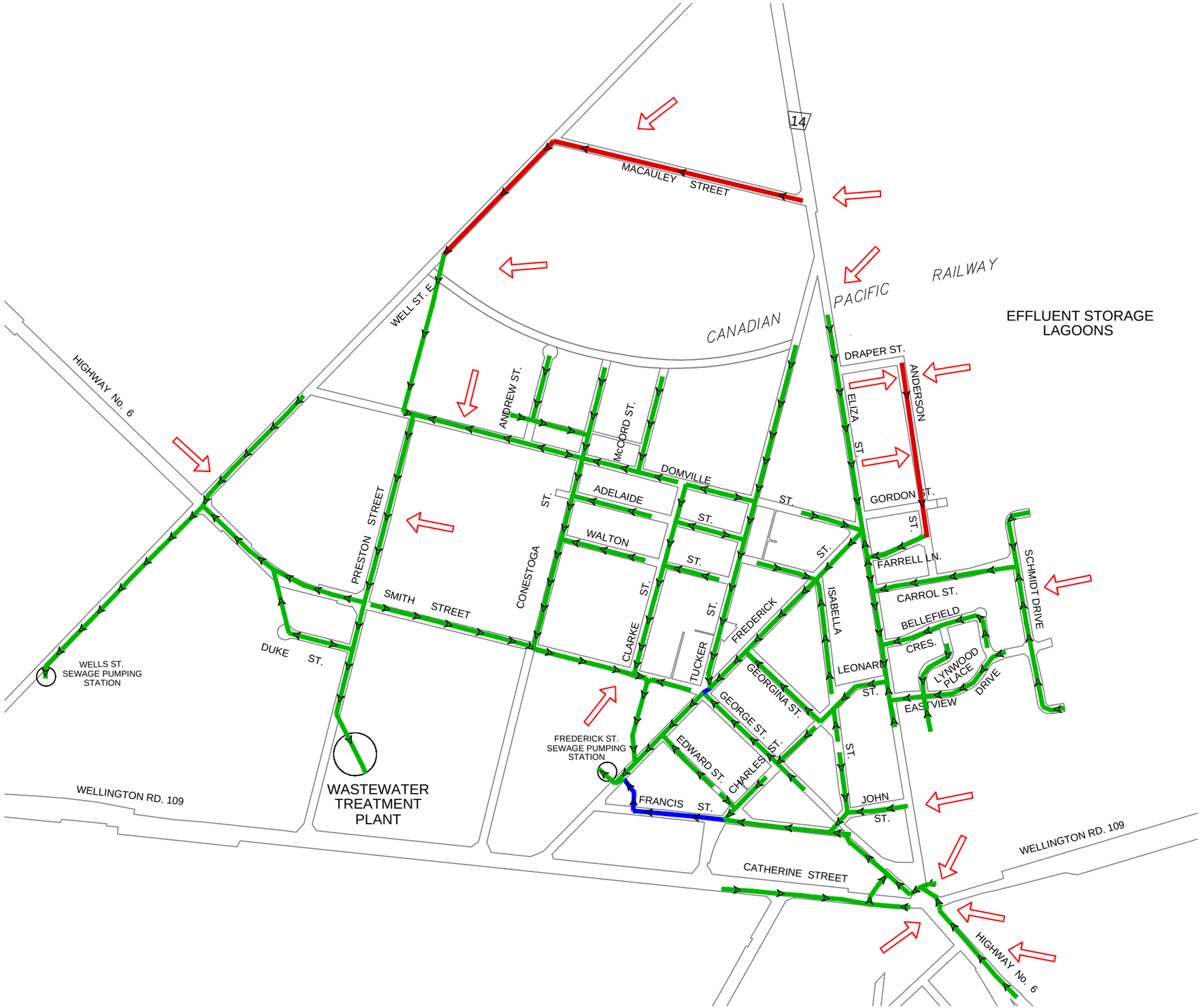
PEAK SEWAGE FLOWS (STAGE 4)

SCALE 1:10,000
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TOWNSHIP OF
WELLINGTON NORTH

ARTHUR WATER AND SANITARY SERVICING STUDY



LEGEND

- EXISTING SEWER TO REMAIN
- UPGRADES
- EXTENSIONS

FIGURE 5.8

RECOMMENDED SANITARY UPGRADES AND EXTENSIONS

SCALE 1:10,000
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Appendix E

Arthur Water System Pressure Testing Report (Triton, August 2024)

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

Memorandum

DATE:	August 16, 2024
TO:	Cory Schmidt
FROM:	Dustin Lyttle
RE:	Arthur Water System Class EA – System Pressure Testing Report
FILE:	T4003A

Introduction:

The Arthur Drinking Water System is currently supported by two elevated water storage facilities: the Charles Street (Multi-Leg) Tower and the Freud (Spheroid) Tower. As part of the ongoing Municipal Class Environmental Assessment (MCEA), an assessment of the systems' operating levels was conducted to consider potential improvements to these levels to service existing and future development needs. Further, this assessment considered how to best integrate a new tower into the system while retaining the Spheroid tower on-line, thereby utilizing the remaining useful life of the Spheroid Tower and retaining the dual tower operational flexibility, recognizing that the Multi-leg Tower has reached the end of its service life and is due to be decommissioned.

This assessment involved a combination of in-situ pressure data collection across various locations (PG#'s) in the distribution network, as shown on the attached Figure 1 and hydraulic modeling to simulate different operational scenarios. The objective was to evaluate various operating conditions and recommend a preferred long-term approach to infrastructure details (i.e. levels, locations) and implementation/operation (i.e. commissioning, operating levels) which would enhance system performance, maintain adequate pressure levels, and ensure reliable service as the community continues to grow.

Testing Procedure:

As part of this assessment, the pressure and geodetic elevation of the pressure gauges were simultaneously recorded at 9:00AM on July 23, 2024, at the various locations throughout the distribution network as presented on the attached Figure 1. These locations were selected as they represent key locations (i.e., expected highest and lowest pressure) throughout the distribution network. Prior to conducting the pressure test, the Spheroid Tower was filled to the maximum water level to ensure a consistent and known hydraulic grade line (HGL) throughout the distribution network was achieved, which is also representative of the maximum achievable pressure within the watermain distribution network. The Multi-leg Tower remained connected to the system. Additionally, to maintain the highest possible HGL within the system, the Well pumps feeding the system were also on at the moment the readings were taken.
Once the pressure gauge readings were collected, the recorded data was compared to the theoretical pressure calculated by the existing WaterCAD model of the water distribution system based on the operating HGL of the system at the time of testing.

Spheroid Tower Levels & Hydraulic Grade Line:

Based on the pressure gauge reading, the maximum water level within the Spheroid Tower is calculated to be **498.703 m** and is representative of the HGL that the water distribution system was operating at when the pressure readings were recorded.

Table 1 – Spheroid Tower

Pressure Gauge		Water Level - HGL[1] (m)
Elevation (m)	Reading (PSI)	
454.398	63.0	498.703

[1] *Calculated.*

Pressures & Locations:

Based on the above setup and determined HGL within the Spheroid Tower, the following pressure gauge elevations, pressures and subsequent HGL elevations were applicable at the locations as discussed above and shown on Figure 1. These recorded pressures are then compared to the modelled pressure, HGL and theoretical pressure at those same locations and elevations.

Table 2 – Locations & Pressures

ID	Location	Recorded Data			Theoretical Data		
		Pressure Gauge Elevation (m)	Pressure (PSI)	HGL[1] (m)	Modelled Pressure (PSI)	Modelled HGL (m)	Pressure[2] (PSI)
PG1	H95 - Francis St	447.799	72.0	498.433	72.2	498.635	72.384
PG2	H118 - Schmidt Dr	468.279	43.0	498.519	43.1	498.630	43.262
PG3	Blowoff - Eliza St	465.304	46.0	497.653	47.3	498.631	47.492
PG4	H8 - Wells St and Domville St	454.973	66.0	501.387	62.0	498.616	62.182
PG5	Well 8 - Jones Baseline	463.679	51.0	499.545	49.9	498.636	49.803
PG6	Well 7 - Wells St	437.150	87.5	498.684	87.0	498.446	87.526
PG7	Multi-leg Tower - Isabella St	461.859	53.0	499.131	52.3	498.669	52.391
PG8	H38 - Clarke St and Walton St	460.216	55.0	498.895	54.5	498.633	54.727

[1] *Calculated based on the recorded pressure and pressure gauge elevation.*

[2] *Theoretical pressure is based on the recorded pressure gauge elevation and the water level of 498.704m in the Spheroid Tower.*

Assessment:

Recorded Data:

As seen above, the recorded pressures match closely with the theoretical, except for PG4, where the recorded pressure is almost 4 PSI higher than the theoretical pressure. This may be a result of the pumps operating within Well 7.

The pressure within a watermain distribution network should be maintained between 40 psi to 100 psi, as per the Ministry guidelines. While all pressures recorded during testing are between this range, PG2, near Schmidt Drive and PG3, on the hydrant at Eliza St., are areas of concern given that this condition is during the maximum achievable pressure, and these are only 3 – 6 psi above the minimum. This would imply that under normal operating conditions, where the water level within the Spheroid is between 75% - 100% full, these areas of the system are below 40 psi.

The location PG6, at a Well 7, was the highest at 87 psi which is below the 100-psi threshold. However, it should be noted that a higher pressure at the Well House will result in an increase in back pressure on the pumps that are feeding the system. However, changes to operating levels contemplated by this assessment are not expected to have a significant impact on pumping rates or power usage.

Existing System Operating HGL - Modelling

Table 3 provides a summary of how varying water levels (HGL) within the Spheroid tower affects pressures and available fire flows in the system based on theoretical results from the WaterCad model.

The first HGL elevation assessed is the low water level (LWL) and has been taken at 493.303m which is 5.4m (operating range) below the highest water level as determined above. This represents the lowest possible water level within the tower. The second HGL elevation assessed is the high-water level (HWL) and has been taken at 498.703m, as determined above. Results are provided in Table 3 below.

Table 3 – Existing System Modelling Results

ID	Location	LWL: 493.303m		HWL: 498.703m	
		Pressure (PSI)	Fire Flow (L/s)	Pressure (PSI)	Fire Flow (L/s)
PG1	H95 - Francis St	66.8	84.1	72.2	151.8
PG2	H118 - Schmidt Dr	38.2	45.0	43.1	74.6
PG3	Blowoff - Eliza St	42.0	63.4	47.3	109.3
PG4	H8 - Wells St and Domville St	54.7	83.7	62.0	258.8
PG5	Well 8 - Jones Baseline	44.5	79.5	49.9	154.7
PG6	Well 7 - Wells St	79.9	83.7	87.0	192.8
PG7	Multi-leg Tower - Isabella St	49.8	90.6	52.3	303.0
PG8	H38 - Clarke St and Walton St	48.9	83.5	54.5	190.2

Based on the above, it can be seen that there are some areas with the existing system that are below the 40 psi threshold if the water levels fall to the LWL. Further, the reduction in HGL has a significant impact on available fire flow.

Proposed Optimal Operating HGL Range- Modelling:

To determine an optimal HGL range for the community, various theoretical HGL's have been determined by imposing the necessary theoretical water level (or HGL) to the measured gauge elevations to achieve pressures between the optimal range of 40 psi and 100 psi (pressure limits), based on the known locations of the lowest and highest pressures within the existing distribution network.

Table 4 – HGL Ranges

ID	Location	Pressure Gauge Elevation (m)	Water Level (HGL)	
			40 PSI (m)	100 PSI (m)
PG1	H95 - Francis St	447.799	475.929	518.124
PG2	H118 - Schmidt Dr	468.279	**496.409**	538.604
PG3	Blowoff - Eliza St	465.304	493.434	535.629
PG4	H8 - Wells St and Domville St	454.973	483.103	525.298
PG5	Well 8 - Jones Baseline	463.679	491.809	534.004
PG6	Well 7 - Wells St	437.150	465.280	**507.475**
PG7	Multi-leg Tower - Isabella St	461.859	489.989	532.184
PG8	H38 - Clarke St and Walton St	460.216	488.346	530.541

Based on the results, the lowest acceptable HGL is 496.409 m and the highest acceptable HGL is 507.475m. Working within these bounds will maintain a minimum of 40 psi and maximum of 100 psi throughout the existing system.

Although the system pressures will be at or below 100 psi if the HGL is increased to 507.475m, a modern water tower has a typical operational range of 8 – 10m, which would result in a LWL of 499.475, which is above the maximum water level within the existing Spheroid tower and would therefore require decommissioning, or some type of control to prevent this tower from overflowing (i.e. pressure reducing valve or solenoid controlled valve), if this HGL was to be implemented.

Considering this, it would be reasonable to design the future water system to have LWL equal to the existing LWL (493.303m) and future HWL (FHWL) to be 3 metres above the existing HWL (498.703m). Doing so would provide a FHWL of 501.703m and a future operational range of 8.4m. Further to this, it would allow for the new system to be operated at the existing HWL of 498.703m until the Spheroid tower is due for decommissioning.

The additional 3m above this elevation would be available for future use but could remain unused until needed (i.e. decommissioning of Spheroid, or, future growth requirements) .

Operating the system at a new HGL (FHWL) of 501.703m results in the following theoretical pressures, and modelled fire flows, based on an assumed tower location that is at the north end of Eliza St, as that is one of the highest areas within the community and has good connection to the existing system. Refer to Figure 1 for additional information.

Table 5 – Future High Water Level Results:

ID	Location	Pressure Gauge Elevation (m)	Theoretical Pressure (PSI)	Modelled Pressure (PSI)	Modelled Fire Flow[1] (L/s)	% Increase
PG1	H95 - Francis St	447.799	76.650	76.30	155.05	1.58%
PG2	H118 - Schmidt Dr	468.279	47.528	47.20	77.49	7.54%
PG3	Blowoff - Eliza St	465.304	51.758	51.50	328.81	589.31%
PG4	H8 - Wells St and Domville St	454.973	66.449	66.20	373.33	5.41%
PG5	Well 8 - Jones Baseline	463.479	54.069	54.10	45.04	1.78%
PG6	Well 7 - Wells St	437.315	91.792	91.00	42.34	3.54%
PG7	Multi-leg Tower - Isabella St	461.859	56.657	56.30	193.20	-22.75%
PG8	H38 - Clarke St and Walton St	460.216	58.993	58.70	205.04	6.54%

[1]*The multi-leg is not considered.*

The above results indicate the pressures at the assessed locations to be acceptable at the higher HGL. The fire flow results presented show an overall improvement, except at PG7 which is a result of the multi-leg being removed.

Future Development Considerations:

To further assess whether a two-tower system can deliver adequate pressure for future developments, the theoretical pressure at the highest elevation in the potential future development areas was calculated.

Based on the latest topographic mapping available, the highest elevation in the future development areas is approximately 470m. Based on this elevation and the Future HWL of 501.703m, the theoretical pressure is expected to be at least 45 psi. The Future LWL of 493.303m would result in a pressure below 40 psi at the same elevation, however this represents the worst-case scenario. Typically, a system is only operated at LWL during extreme situations (i.e. after extended firefighting, severe watermain break) and only for a short period of time. Normal LWL is expected to be only 3 - 4 m below HWL.

It should be noted that the expected highest elevation in any future development site will be 470m, and under existing operating LWL and HWL the pressures would be 33 and 41 PSI, respectively.

Conclusion & Recommendations:

The pressure testing and subsequent modeling confirm that the Arthur water system's existing Spheroid tower typically maintains adequate pressure across the existing community within the desired range of 40 to 100 psi. However, certain areas, such as those near Schmidt Drive and Eliza Street, exhibit pressures close to the minimum acceptable threshold, indicating an opportunity for improvement.

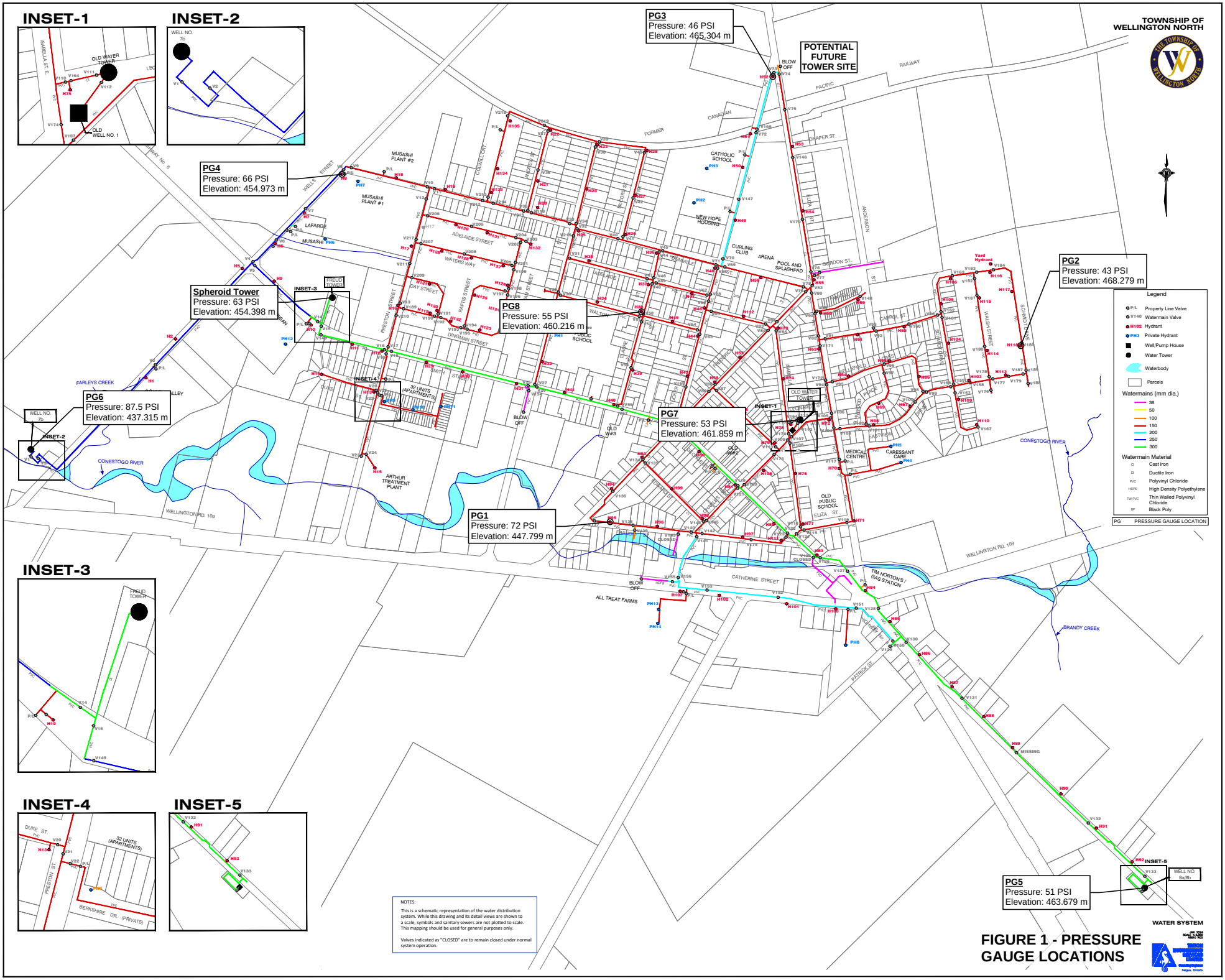
To future-proof the water system and ensure adequate pressure levels as the community grows, it is recommended that the future tower be designed with a HWL of **501.703m**, which is 3m above the existing HWL**.** This will require that the new tower be operated to the maximum operating level equal to the existing Spheroid until it is decommissioned in the future.

Given that the Spheroid Tower has a remaining service life of potentially more than 30 years, the new tower

could immediately begin operating consistent with the existing HWL of 498.703m. This approach ensures continuity and avoids unnecessary disruptions while transitioning to the new system's HGL when the Spheroid nears the end of its service life.

Implementing these recommendations will maintain optimal water pressure across Arthur while accommodating future growth and development. Further, retaining the Spheroid while adding the new tower to the system will provide the operational flexibility.

Figure 1 – Pressure Gauge Locations


INSET-1
INSET-2
INSET-3
INSET-4
INSET-5
PG3
Pressure: 46 PSI
Elevation: 465.304 m
POTENTIAL FUTURE TOWER SITE
PG4
Pressure: 66 PSI
Elevation: 454.973 m
Spheroid Tower
Pressure: 63 PSI
Elevation: 454.398 m
PG8
Pressure: 55 PSI
Elevation: 460.216 m
PG2
Pressure: 43 PSI
Elevation: 468.279 m
PG6
Pressure: 87.5 PSI
Elevation: 437.315 m
PG7
Pressure: 53 PSI
Elevation: 461.859 m
PG1
Pressure: 72 PSI
Elevation: 447.799 m
PG5
Pressure: 51 PSI
Elevation: 463.679 m
TOWNSHIP OF WELLINGTON NORTH
Legend
Property Line Valve
Watermain Valve
Hydrant
Private Hydrant
Well/Pump House
Water Tower
Waterbody
Parcels
Watermains (mm dia.)
38
50
100
150
200
250
300
Watermain Material
Cast Iron
Ductile Iron
Polyvinyl Chloride
High Density Polyethylene
Thin Walled Polyvinyl Chloride
Black Poly
PG PRESSURE GAUGE LOCATION
NOTES:
This is a schematic representation of the water distribution system. While this drawing and its detail views are shown to a scale, symbols and sanitary sewers are not plotted to scale. This mapping should be used for general purposes only.
Valves indicated as "CLOSED" are to remain closed under normal system operation.
WATER SYSTEM
FIGURE 1 - PRESSURE GAUGE LOCATIONS

Appendix F

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes – A Checklist for the Non-Specialist

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
    - is a recognized heritage property
    - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
    - the main project area
    - temporary storage
    - staging and working areas
    - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

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Project or Property Name

Study Area for the Arthur Water System Supply Redundancy and Storage Class EA

Project or Property Location (upper and lower or single tier municipality)

Township of Wellington North(Arthur)

Proponent Name

Township of Wellington North

Proponent Contact Information

Corey Schmidt, Manager, Environmental & Development Services, cschmidt@wellington-north.com, 519-848-3620 x4627

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☒

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☒

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☒
b. a National Historic Site (or part of)?	☐	☒
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☒
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☒
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☒
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☒

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☒
b. has or is adjacent to a known burial site and/or cemetery?	☐	☒
c. is in a Canadian Heritage River watershed?	☐	☒
d. contains buildings or structures that are 40 or more years old?	☐	☒

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☒
b. has a special association with a community, person or historical event?	☐	☒
c. contains or is part of a cultural heritage landscape?	☐	☒

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note**: To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

---

ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

---

iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

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iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act.* **Note**: To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust

---

v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

Appendix G

Criteria for Evaluating Archaeological Potential – A Checklist for the Non-Specialist

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Archaeological Potential

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area may contain archaeological resources i.e., have archaeological potential
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Archaeological assessment

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a licensed consultant archaeologist (see page 4 for definitions) to undertake an archaeological assessment.

The assessment will help you:

- identify, evaluate and protect archaeological resources on your property or project area
- reduce potential delays and risks to your project

Note: By law, archaeological assessments **must** be done by a licensed consultant archaeologist. Only a licensed archaeologist can assess – or alter – an archaeological site.

What to do if you:

- **find an archaeological resource**

  If you find something you think may be of archaeological value during project work, you must – by law – stop all activities immediately and contact a licensed consultant archaeologist

  The archaeologist will carry out the fieldwork in compliance with the *Ontario Heritage Act* [s.48(1)].

- **unearth a burial site**

  If you find a burial site containing human remains, you must immediately notify the appropriate authorities (i.e., police, coroner's office, and/or Registrar of Cemeteries) and comply with the *Funeral, Burial and Cremation Services Act*.

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages when completing this form.

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Project or Property Name

Study Area for the Arthur Water System Supply Redundancy and Storage Class EA

Project or Property Location (upper and lower or single tier municipality)

Township of Wellington North (Arthur)

Proponent Name

Township of Wellington North

Proponent Contact Information

Corey Schmidt, Manager, Environmental & Development Services, cschmidt@wellington-north.com, 519-848-3620 x4627

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☒

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

	Yes	No
2. Has an archaeological assessment been prepared for the property (or project area) and been accepted by MTCS?	☐	☒

If Yes, do **not** complete the rest of the checklist. You are expected to follow the recommendations in the archaeological assessment report(s).

The proponent, property owner and/or approval authority will:

- summarize the previous assessment
- add this checklist to the project file, with the appropriate documents that demonstrate an archaeological assessment was undertaken e.g., MTCS letter stating acceptance of archaeological assessment report

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g., environmental assessment document
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Are there known archaeological sites on or within 300 metres of the property (or the project area)?	☐	☒
4. Is there Aboriginal or local knowledge of archaeological sites on or within 300 metres of the property (or project area)?	☐	☒
5. Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 300 metres of the property (or project area)?	☐	☒
6. Is there a known burial site or cemetery on the property or adjacent to the property (or project area)?	☐	☒
7. Has the property (or project area) been recognized for its cultural heritage value?	☐	☒

If Yes to any of the above questions (3 to 7), do **not** complete the checklist. Instead, you need to hire a licensed consultant archaeologist to undertake an archaeological assessment of your property or project area.

If No, continue to question 8.

	Yes	No
8. Has the entire property (or project area) been subjected to recent, extensive and intensive disturbance?	☐	☒

If Yes to the preceding question, do **not** complete the checklist. Instead, please keep and maintain a summary of documentation that provides evidence of the recent disturbance.

An archaeological assessment is not required.

If No, continue to question 9.

X

	Yes	No
9. Are there present or past water sources within 300 metres of the property (or project area)?	[X]	[ ]

If Yes, an archaeological assessment is required.

If No, continue to question 10.

	Yes	No
10. Is there evidence of two or more of the following on the property (or project area)?	[ ]	[ ]

- elevated topography
- pockets of well-drained sandy soil
- distinctive land formations
- resource extraction areas
- early historic settlement
- early historic transportation routes

If Yes, an archaeological assessment is required.

If No, there is low potential for archaeological resources at the property (or project area).

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g., under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

In this context, the following definitions apply:

- **consultant archaeologist** means, as defined in Ontario regulation as an archaeologist who enters into an agreement with a client to carry out or supervise archaeological fieldwork on behalf of the client, produce reports for or on behalf of the client and provide technical advice to the client. In Ontario, these people also are required to hold a valid professional archaeological licence issued by the Ministry of Tourism, Culture and Sport.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may be already in place for identifying archaeological potential, including:

- one prepared and adopted by the municipality e.g., archaeological management plan
- an environmental assessment process e.g., screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s. B.2.]

2. Has an archaeological assessment been prepared for the property (or project area) and been accepted by MTCS?

Respond 'yes' to this question, if all of the following are true:

- an archaeological assessment report has been prepared and is in compliance with MTCS requirements
  - a letter has been sent by MTCS to the licensed archaeologist confirming that MTCS has added the report to the Ontario Public Register of Archaeological Reports (Register)
- the report states that there are no concerns regarding impacts to archaeological sites

Otherwise, if an assessment has been completed and deemed compliant by the MTCS, and the ministry recommends further archaeological assessment work, this work will need to be completed.

For more information about archaeological assessments, contact:

- approval authority
- proponent
- consultant archaeologist
- Ministry of Tourism, Culture and Sport at archaeology@ontario.ca

3. Are there known archaeological sites on or within 300 metres of the property (or project area)?

MTCS maintains a database of archaeological sites reported to the ministry.

For more information, contact MTCS Archaeological Data Coordinator at archaeology@ontario.ca.

4. Is there Aboriginal or local knowledge of archaeological sites on or within 300 metres of the property?

Check with:

- Aboriginal communities in your area
- local municipal staff

They may have information about archaeological sites that are not included in MTCS' database.

Other sources of local knowledge may include:

- property owner
- local heritage organizations and historical societies
- local museums
- municipal heritage committee
- published local histories

5. Is there Aboriginal knowledge or historically documented evidence of past Aboriginal use on or within 300 metres of the property (or property area)?

Check with:

- Aboriginal communities in your area
- local municipal staff

Other sources of local knowledge may include:

- property owner
- local heritage organizations and historical societies
- local museums
- municipal heritage committee
- published local histories

6. Is there a known burial site or cemetery on the property or adjacent to the property (or project area)?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulation Unit, Ontario Ministry of Consumer Services – for database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, 'adjacent' means 'contiguous', or as otherwise defined in a municipal official plan.

7. Has the property (or project area) been recognized for its cultural heritage value?

There is a strong chance there may be archaeological resources on your property (or immediate area) if it has been listed, designated or otherwise identified as being of cultural heritage value by:

- your municipality
- Ontario government
- Canadian government

This includes a property that is:

- designated under *Ontario Heritage Act* (the OHA), including:
  - individual designation (Part IV)
  - part of a heritage conservation district (Part V)
  - an archaeological site (Part VI)
- subject to:
  - an agreement, covenant or easement entered into under the OHA (Parts II or IV)
  - a notice of intention to designate (Part IV)
  - a heritage conservation district study area by-law (Part V) of the OHA
- listed on:
  - a municipal register or inventory of heritage properties
  - Ontario government's list of provincial heritage properties
  - Federal government's list of federal heritage buildings
- part of a:
  - National Historic Site
  - UNESCO World Heritage Site
- designated under:
  - *Heritage Railway Station Protection Act*
  - *Heritage Lighthouse Protection Act*
- subject of a municipal, provincial or federal commemorative or interpretive plaque.

To determine if your property or project area is covered by any of the above, see:

- Part A of the MTCS Criteria for Evaluating Potential for Built Heritage and Cultural Heritage Landscapes

Part VI – Archaeological Sites

Includes five sites designated by the Minister under Regulation 875 of the Revised Regulation of Ontario, 1990 (Archaeological Sites) and 3 marine archaeological sites prescribed under Ontario Regulation 11/06.

For more information, check Regulation 875 and Ontario Regulation 11/06.

8. Has the entire property (or project area) been subjected to recent extensive and intensive ground disturbance?

Recent: after-1960

Extensive: over all or most of the area

Intensive: thorough or complete disturbance

Examples of ground disturbance include:

- quarrying
- major landscaping – involving grading below topsoil
- building footprints and associated construction area
  - where the building has deep foundations or a basement
- infrastructure development such as:
  - sewer lines
  - gas lines
  - underground hydro lines
  - roads
  - any associated trenches, ditches, interchanges. **Note**: this applies only to the excavated part of the right-of-way; the remainder of the right-of-way or corridor may not have been impacted.

A ground disturbance does **not** include:

- agricultural cultivation
- gardening
- landscaping

Site visits

You can typically get this information from a site visit. In that case, please document your visit in the process (e.g., report) with:

- photographs
- maps
- detailed descriptions

If a disturbance isn't clear from a site visit or other research, you need to hire a licensed consultant archaeologist to undertake an archaeological assessment.

9. Are there present or past water bodies within 300 metres of the property (or project area)?

Water bodies are associated with past human occupations and use of the land. About 80-90% of archaeological sites are found within 300 metres of water bodies.

Present

- Water bodies:
  - primary - lakes, rivers, streams, creeks
  - secondary - springs, marshes, swamps and intermittent streams and creeks
- accessible or inaccessible shoreline, for example:
  - high bluffs
  - swamps
  - marsh fields by the edge of a lake
  - sandbars stretching into marsh

Water bodies not included:

- man-made water bodies, for example:
  - temporary channels for surface drainage
  - rock chutes and spillways
  - temporarily ponded areas that are normally farmed
  - dugout ponds
- artificial bodies of water intended for storage, treatment or recirculation of:
  - runoff from farm animal yards
  - manure storage facilities
  - sites and outdoor confinement areas

Past

Features indicating past water bodies:

- raised sand or gravel beach ridges – can indicate glacial lake shorelines
- clear dip in the land – can indicate an old river or stream
- shorelines of drained lakes or marshes
- cobble beaches

You can get information about water bodies through:

- a site visit
- aerial photographs
- 1:10,000 scale Ontario Base Maps - or equally detailed and scaled maps.

10. Is there evidence of two or more of the following on the property (or project area)?

- elevated topography
- pockets of well-drained sandy soil
- distinctive land formations
- resource extraction areas
- early historic settlement
- early historic transportation routes

- **Elevated topography**

  Higher ground and elevated positions - surrounded by low or level topography - often indicate past settlement and land use.

  Features such as eskers, drumlins, sizeable knolls, plateaus next to lowlands, or other such features are a strong indication of archaeological potential.

  Find out if your property or project area has elevated topography, through:

  - site inspection
  - aerial photographs
  - topographical maps

- **Pockets of well-drained sandy soil, especially within areas of heavy soil or rocky ground**

  Sandy, well-drained soil - in areas characterized by heavy soil or rocky ground - may indicate archaeological potential

  Find out if your property or project area has sandy soil through:

  - site inspection
  - soil survey reports

- **Distinctive land formations**

  Distinctive land formations include – but are not limited to:

  - waterfalls
  - rock outcrops
  - rock faces
  - caverns
  - mounds, etc.

  They were often important to past inhabitants as special or sacred places. The following sites may be present – or close to – these formations:

  - burials
  - structures
  - offerings
  - rock paintings or carvings

  Find out if your property or project areas has a distinctive land formation through:

  - a site visit
  - aerial photographs
  - 1:10,000 scale Ontario Base Maps - or equally detailed and scaled maps.

- **Resource extraction areas**

  The following resources were collected in these extraction areas:

  - food or medicinal plants e.g., migratory routes, spawning areas, prairie
  - scarce raw materials e.g., quartz, copper, ochre or outcrops of chert
  - resources associated with early historic industry e.g., fur trade, logging, prospecting, mining

  Aboriginal communities may hold traditional knowledge about their past use or resources in the area.

- **Early historic settlement**

  Early Euro-Canadian settlement include – but are not limited to:

  - early military or pioneer settlement e.g., pioneer homesteads, isolated cabins, farmstead complexes
  - early wharf or dock complexes
  - pioneers churches and early cemeteries

  For more information, see below – under the early historic transportation routes.

- **Early historic transportation routes** - such as trails, passes, roads, railways, portage routes, canals.

  For more information, see:

  - historical maps and/or historical atlases
    - for information on early settlement patterns such as trails (including Aboriginal trails), monuments, structures, fences, mills, historic roads, rail corridors, canals, etc.
    - Archives of Ontario holds a large collection of historical maps and historical atlases
    - digital versions of historic atlases are available on the Canadian County Atlas Digital Project
  - commemorative markers or plaques such as local, provincial or federal agencies
  - municipal heritage committee or other local heritage organizations
    - for information on early historic settlements or landscape features (e.g., fences, mill races, etc.)
    - for information on commemorative markers or plaques

Appendix H

Arthur Preliminary Well Exploration Assessment (RJ Burnside, May 6, 2021)

Arthur Preliminary Well Exploration Assessment

Township of Wellington North

R.J. Burnside & Associates Limited
292 Speedvale Avenue West Unit 20
Guelph ON N1H 1C4 CANADA

May 6, 2021
300052287.0000

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Record of Revisions

Revision	Date	Description
0	February 19, 2021	Initial Submission to Township of Wellington North
1	May 6, 2021	Final Submission to Township of Wellington North

R.J. Burnside & Associates Limited

Report Prepared By:



Jim Baxter, P.Eng.
Groundwater Resource Engineer
JB:js

Report Reviewed By:



Dwight Smikle
Senior Hydrogeologist
DS:js

1.0 Introduction

R.J Burnside & Associates Limited (Burnside) was retained by the Township of Wellington North (Wellington North) to complete an assessment and initial exploration into the potential to increase the capacity of the existing water supply system for the community of Arthur. A Class Environmental Assessment Master Plan Study for Water Supply and Sanitary Sewage Systems, Community of Arthur was completed in 2012 and an update entitled Water and Sanitary Systems, Technical Study - Arthur was submitted in September 2020 (Triton, 2020). The 2020 report identifies the 2045 maximum day demand as 2,368 m^3/day. The report also notes that the current supply is obtained from three sources (Well 7B, Well 8A and Well 8B) and if Well 7B was to be out of service the system capacity is limited to 2,255 m^3/day which is less than the 2045 maximum day demand. The report states that "it is crucial to that the township be proactive in securing future water sources"

Burnside has provided Wellington North with professional hydrogeological services for the construction and monitoring of their existing Well 7B and Wells 8A/8B sites since 1984. These two sites, located 3 km apart in the southwest and southeast corners of Arthur, are both high capacity overburden wells that are capable of producing in excess of the current permitted total flow of 4216 m^3/day. However, the Well 7B site produces water that contains elevated levels of iron and the Well 8A/8B site produces water that contains elevated concentrations of manganese that affect the aesthetic water quality. Environment Canada has created a health related guideline of for manganese that the Province of Ontario is in the process of adopting as a standard that would require treatment of water from the Well 8A/8B site. The timing of the adopting of this new standard is not known but as outlined above, water from Well 8A/8B would need to be treated to meet the new standard. In addition, Wellington North staff indicate that recent pressure for growth in rural Ontario has resulted in increased current and future demands.

Treatment of high capacity wells such as 7B and 8A/8B would involve the construction of larger pumphouses and locations to discharge wastewater from the treatment process as neither well site has sanitary sewers. An alternative to treatment of the existing wells is to explore for a new well with better water quality and no need for treatment.

The purpose of this report is to consider the option of a new well and potential locations for test drilling. The new well to be developed would ideally:

1. Produce in excess of 10 L/s and,

2. Provide water with concentrations of sulphate, iron and manganese that are ideally below the current and future Ontario Drinking Water Standards.

This report provides the background and preliminary hydrogeological assessment to move forward with active groundwater exploration in 2021.

The preparation of this report included review of previous studies completed in the area including the most recent studies in the area, some as recent as 2020. We have included a number of hydrogeologic maps and figures from government studies inserted within the text to provide information relevant to this study. A detailed review of existing well records through the creation of a database has also been completed in specific locations relevant to this assessment.

2.0 Background

The Village of Arthur municipal water system was established in the early 1930's with the construction of Arthur Well 1 at the east end water tower. Review of the original Well 1 Water Well Record indicates that the drilling of Well 1 at the water tower located on Charles Street took approximately one year and included installation of 600 mm and 300 mm well casing and drilling to a depth of 183 m (600 ft). Well 1 was tested by Burnside during the 2001 Groundwater Management Study when its capacity was identified as about 6 L/s of water with elevated levels of dissolved minerals including iron and sulphate.

Following the completion of Well 1 in the early 1930's a series of shallower bedrock wells (2, 3, 4, 5 and 6) were drilled in the following 50 years with the most recent bedrock well (Arthur Well 6) constructed in 1977. The shallower bedrock wells typically produced generally better quality water with lower dissolved minerals but also had relatively low capacities for municipal wells (less than 7 L/s). Detailed analysis using video logging and flow profiling of the bedrock wells identified the primary source of water for wells 2 to 6 as fractures within the upper 10 m of the weathered bedrock surface. Attempts to enlarge deep fractures in the bedrock aquifer with acidic solutions to increase capacity were completed in the 1990's but had limited success.

In 1984 Burnside, with the assistance of Mr. David Crowely, established a new higher capacity overburden well called Arthur Well 7 in the southwest corner of the community. Arthur Well 7 was a 150 mm diameter well, had a capacity of 12.5 L/s (165 Igpm) and became the primary water supply for the Arthur municipal water system.

In 1997, Arthur Well 7 developed a hole in the casing due to corrosion and required repair. Once repaired, it was determined that Arthur Well 7 should be replaced with a new larger diameter well, Arthur Well 7B. Arthur Well 7B was constructed in 1998 on the west side of the Well 7 pumphouse and became the primary water supply source for the Village of Arthur water supply system. Through its design as a 250 mm diameter well, the capacity of Arthur Well 7B was increased to 22.7 L/s (300 Igpm). Potential for even high pumping from this well is possible as the current pumping senerio at about 20 L/s

results in pumping water levels that make use of less than 50% of the available drawdown in the well. Well 7B could likely produce in excess of 35 L/s (500 Igpm)

A groundwater management study (GMS) was completed by Burnside for the Township of Wellington North in 2001. The GMS included the construction of several test wells one of which was located at the intersection of Highway 6 and County Road 109 on Eliza St. in an unopened road allowance. This Test Well indicated the presence of a deep overburden aquifer with a capacity in excess of 15.2 L/sec (200 Igpm).

Exploration at the southeast corner of Arthur continued in 2002 as part of a water supply environmental assessment. Due to less than ideal aquifer conditions and potential sources of contamination close to Arthur, Wells 8A/8B were eventually commissioned on the Jones Baseline about 2 km south of Arthur in November 2005.

The locations of Well 7B in the southwest corner of Arthur and Wells 8A/8B in the southeast corner of the community are relatively remote from the developed area and potential sources of contamination that are common in developed areas. While the remote locations are ideal from a source protection standpoint the locations also put the chlorination sources in remote corners of the distribution system and make the pipelines that connect to the distribution system from these remote location sites for potential pipeline failure.

3.0 Hydrogeology of the Arthur Area

A set of six Figures have been prepared as part of this assessment. These figures include:

1. Figure 1 Site Plan – showing an air photo of Arthur dated 2015 and the location of wells of interest and the municipal wells, both old abandoned and existing wells.

2. MECP Well Location Map – shows the location of wells included in the MECP water well record database. Wells of interest are highlighted.

3. Surficial Geology Map of the Arthur Area.

4. Bedrock Geology Map of the Arthur Area.

5. Cross Section A-A’ along County Road 14 down to Arthur Wells 8A/8B.

6. Cross Section B-B’ along Wells Street.

Additional five imbedded plates obtained from regional reports are referenced separate from the Burnside Figures listed above.

The hydrogeology of the Arthur area consists of about 50 to 75 m of glacial derived overburden materials underlain by Paleozoic aged carbonate and shale bedrock. The glacial overburden consists primarily of thick layers of glacial till with thinner layers of sand and gravel sediments. The layers were laid down from glaciers that advanced and retreated (melted) multiple times from the north about 10,000 years ago. The thickest sand and gravel layers are typically found just above the bedrock in what are sometimes referred to as contact aquifers.

The Ontario Geologic Survey (OGS) has completed numerous investigations of the surficial geology in southern Ontario to support groundwater understanding since the 2000 Walkerton tragedy and ensuing O'Connor report in 2002. Plate 1, inserted below, obtained from a progress report on a new three dimensional geological model of southern Ontario was published in 2020 and shows the closest study to Arthur (Study 4) was completed on the Orangeville Moraine just east of Arthur.

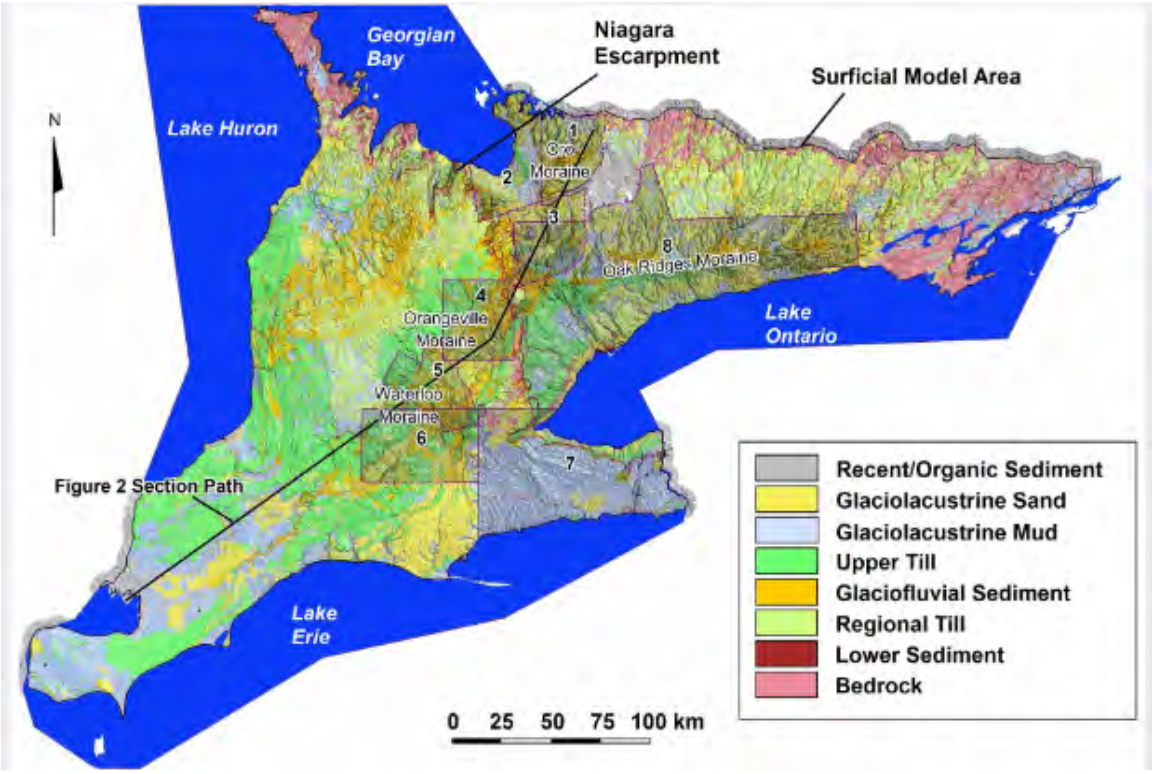


Plate 1: Simplified 8 unit surficial sediment geology draped on a hill-shaded DEM.

The above excerpt provides a legend showing the layering that is currently being used to model the overburden in southern Ontario.

The following figure is a *"Conceptual representation of stratigraphic architecture for southern Ontario along a southwest-northeast cross-section from Essex Clay Plain to the Oro Moraine."* Along the line shown in the above Plate 1.

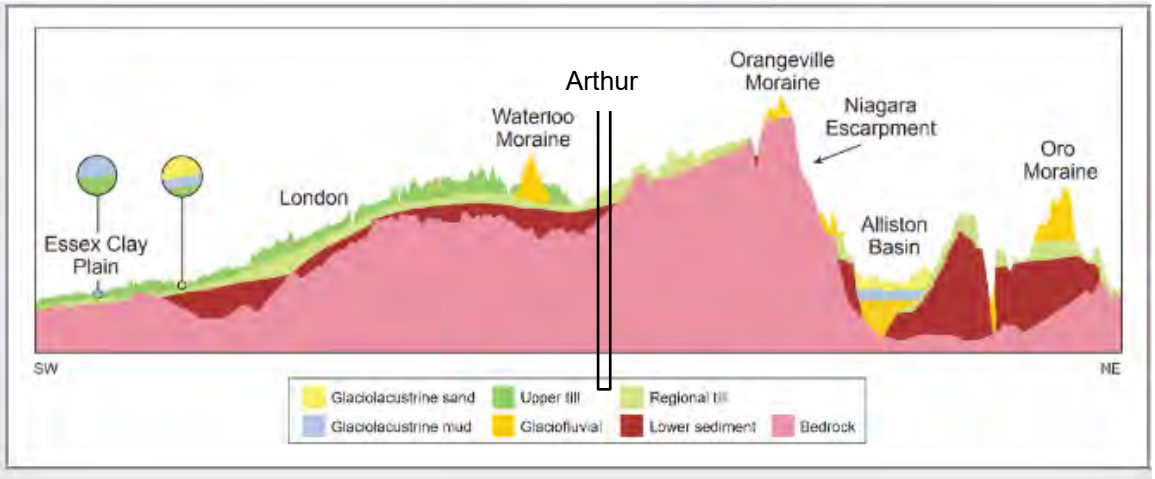


Plate 2: Lower Overburden Sediments in the Arthur Area

The approximate location of Arthur is shown on the cross section above and its location with regard to the dark maroon layer called the "Lower Sediments" is noted. The Lower Sediments are interpreted to be the source of water for Wells 7B, 8A and 8B and the section shows that these sediments thin out to the north east of Arthur. These sediments are thought to provide ideal conditions for high capacity wells to be developed. Despite the high capacity, it is noted that the high iron and manganese content of the water from these sediments is inherently due to mineralization within the sediments.

The bedrock geology of the Wellington North area (See pink layer above) consists of about 100 to 120 m of shale, limestone and dolostone that is considered to be part of a regional bedrock aquifer that traverses southern Ontario from Hamilton to Lake Huron. The following maps (Plate 3) of southern Ontario show the Salina and Guelph Formations that are the bedrock aquifers in the Arthur area. The upper right hand box on the individual maps identifies the Orangeville Moraine study area which is just east of Arthur.

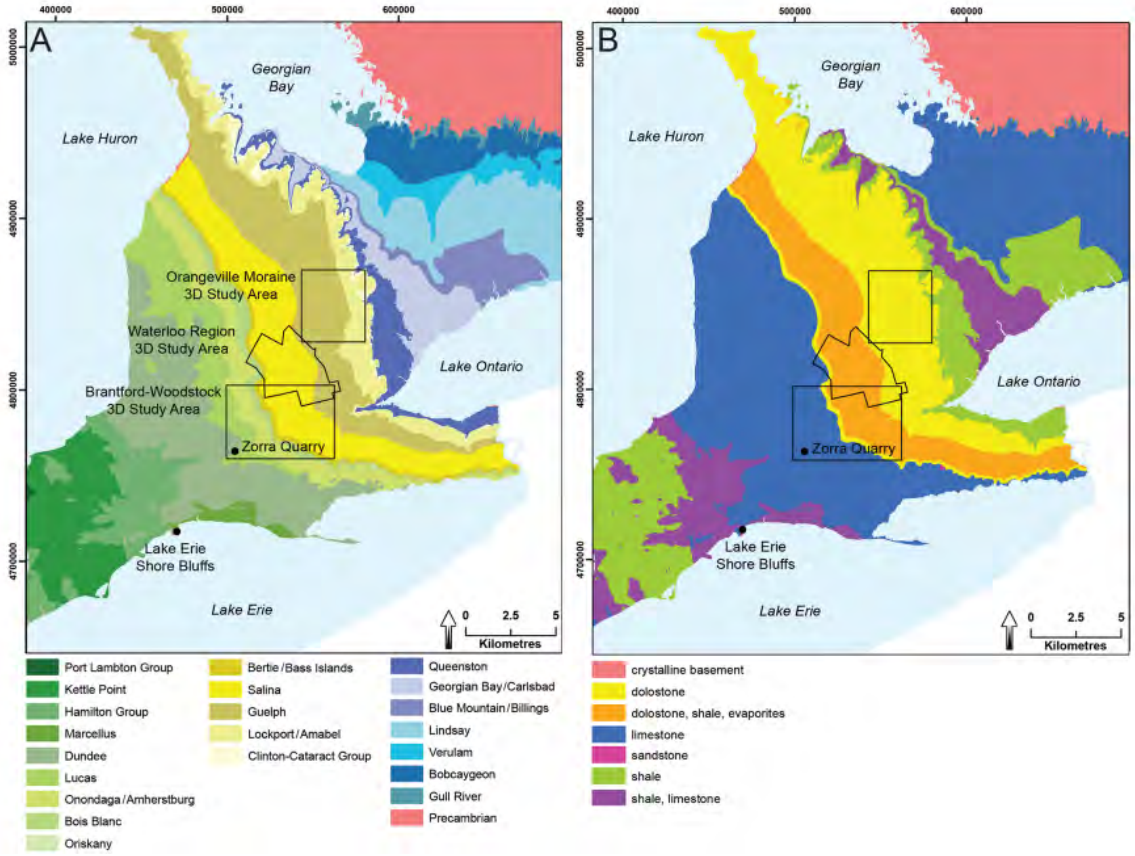


Plate 3: Bedrock Geology of Southern Ontario

Arthur is located above the buried transition from the Guelph Formation dolostone in the east and the Salina dolostone, limestone and shale in the west. Plate 3 shows the interpreted boundary between these formations. The Guelph formation is the source for high capacity wells in Grand Valley where Burnside designed and supervised the construction and testing a new 25 L/s well in 2020. The Guelph and underlying Gasport formations are also the source of water for Mount Forest to the north and Fergus / Elora to the south.

The lack of water production in the Arthur area where Wells 1 to 6 were drilled indicates a low permeability portion of the carbonate bedrock aquifer in Wellington County. Carbonate aquifers such as the Guelph Formation are formed from the fractured bedrock and within these aquifers high capacity production is often limited to specific zones and fractures. Outside of these fractured zones, permeability can be quite low. Often time the zone of high capacity is the so called contact aquifer zone at the top of the bedrock aquifer. The lack of water production in the Arthur area may be due to the fact that high capacity zones have not been encountered or fully intercepted in Arthur.

Plate 4: Bedrock Geology of Southern Ontario

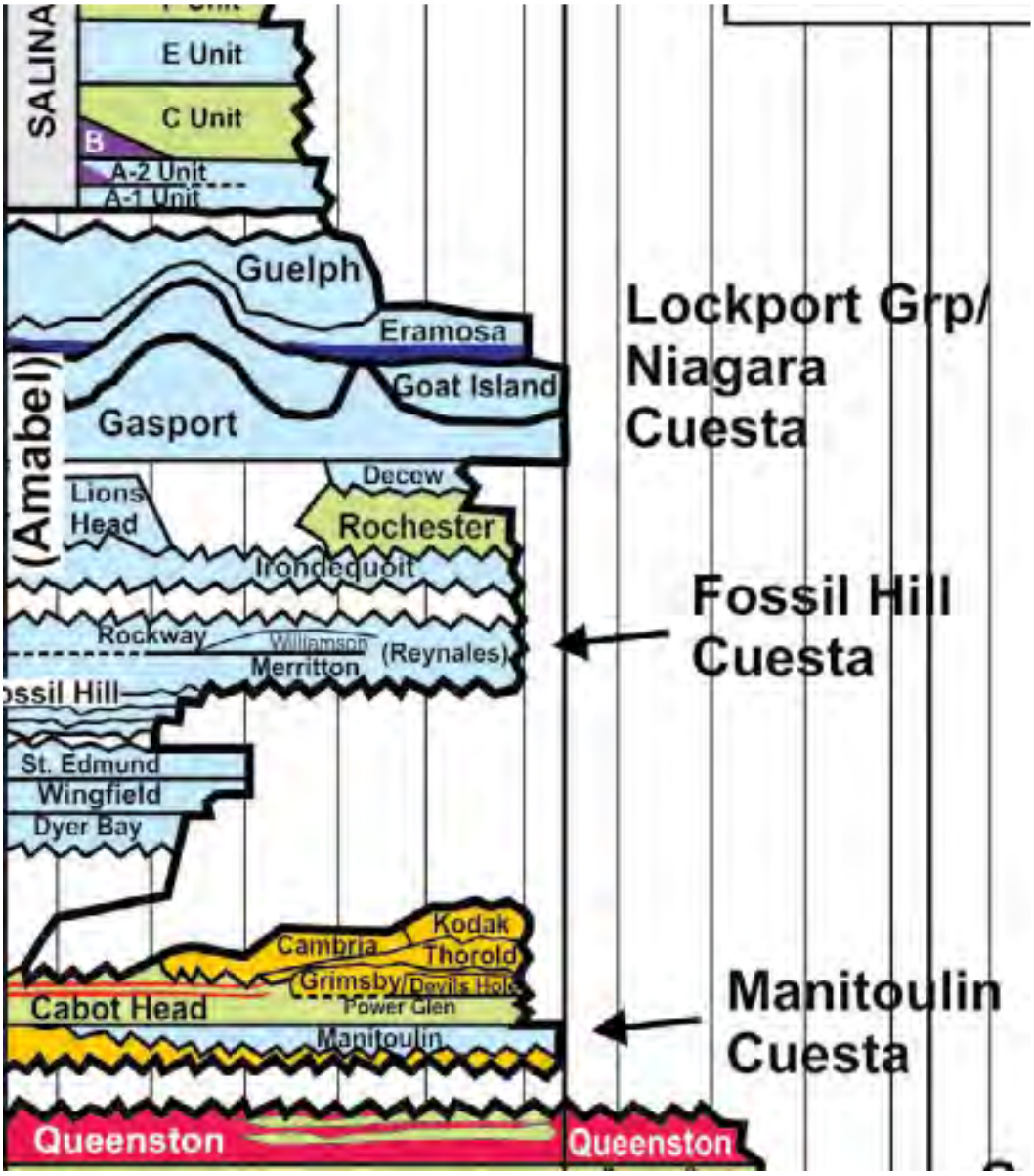


Plate 4 provides the layers that are present beneath Arthur. The Gasport Formation is a common source of high capacity groundwater encountered in the wells in the surrounding communities. The Queenston red shale marks the bottom of the carbonate bedrock aquifer.

The overburden and bedrock geology in the Arthur area was included in the Center Wellington Tier 3 Source Protection Characterization report. Burnside reviewed the Characterization report for Wellington County from Wellington North's perspective. The cross section included below as Plate 5 (Matrix, 2019) indicates the layers of the groundwater model developed as part of the study. The red yellow and green layers are relatively high hydraulic conductivity layers such as sand, gravel and fractured and/or micro karst bedrock. The blue and purple layers are low hydraulic conductivity layers such as silt, clay, glacial till and unfractured bedrock. The section includes both the Well 7 and Well 8A/8B sites on the left (NW) side.

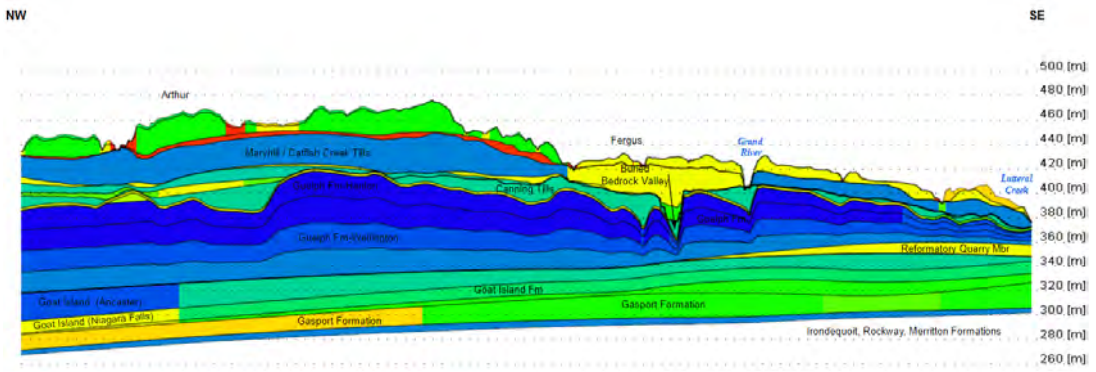


Plate 5: Centre Wellington Tier 3 Water Budget, Model Layers

We note that the bedrock beneath Arthur is included in the low hydraulic conductivity portion of the deep bedrock aquifer. This is likely based on the low capacity of Arthur Wells 1 to 6 and the lack of a significant thickness of sand and gravel layer above the bedrock. It is important to note that in the area south of Arthur the deep bedrock is modeled as a higher hydraulic conductivity. If this characterization of the bedrock is correct it suggests potential for high capacity bedrock wells just south of Arthur. The potential is discussed further in section 4.2.

4.0 Alternatives for Additional Water

The existing wells 7B, 8A and 8B are high capacity wells that are completed in two separate aquifers. Both sites can produce significantly more water than the current PTTW, infrastructure and associated approvals allow. The fact that there are two separate sources/aquifers is ideal for a municipal system so if one source becomes contaminated by an unforeseen event the other source is available. The quality of the water from the sources is the only issue of concern for these sources. The potential implementation of a new health related manganese standard in Ontario is currently the most significant issue.

The options that are available to increase the capacity of the water system are summarized below in order of degree of predictability.

1. **Install treatment** for removal of iron and manganese at either or both the Well 7B and Well 8A/8B sites. This will require expansion of the pumphouses sites and construction of Well 7C to provide mechanical duplication of Well 7B. This work would require an increase in the maximum day capacity of the PTTW at either or both sites. Long term testing at both well sites indicates that additional water is available beyond the 22.7 L/s (1,961m3/d) at Well 7B and the 25 L/s (2,160 m3/d) currently permitted but additional testing at the higher rates will be required. This would be most simply completed at the 8A/8B site where the two wells could be operated together to the system under a Category 2 PTTW to confirm the higher capacity.

2. Drill a test well into the **deep bedrock at the Well 8A/8B** site that would ideally produce 10 L/s or more and could potentially be blended with water from Well 8A/8B. Although bedrock wells in Arthur are typically moderate to low capacity the Well 8A/8B site is 2 km in the direction of Fergus where much higher bedrock well capacities are present. If a test well were successful and the level of manganese were low two new municipal bedrock wells could be constructed, and the water pumped individually or blended with the existing wells to meet maximum day capacities.

3. **Exploration at a new well site at the north end of Arthur**. This area would be approximately 1 km north the old Arthur Well 4 site. A test well constructed on a road allowance in this area would evaluate both potential for an overburden well or a bedrock well. A bedrock well would likely produce at a minimum of 6 L/s from the top of the bedrock and ideally more water at depth. A site as far north and west should be considered.

A detailed review of the existing wells listed in the water well database was completed as part of this study. A summary of higher capacity deep wells and original water well

records are included in Appendix A. Assessment of the wells listed in the area north of Arthur and in the area of Wells 8A/8B are included in sections 4.1 and 4.2.

4.1 North Arthur Exploration

The potential for a municipal well in the north portion of Arthur was discussed with Wellington North staff during a site visit in September 2020. The initial review of regional studies included in sections 2.0 and 3.0 does not specifically address the potential for a high capacity well in the north area. Although the Tier 3 study in Centre Wellington does support the low to moderate quantity of water available from the bedrock aquifer and a lack of a deep overburden aquifer of significant thickness

The specific conditions of specific wells at known locations is the key to determining the potential for a well with high capacity. Our review of the area began with a review of the old, abandoned Arthur Wells 1 to 6 in the center of Arthur shown on Figure 1. We then reviewed the water well database for an area of about 5 km surrounding Arthur which included over 500 wells. A detailed GIS database of all the wells was prepared which allowed sorting according to various well parameters such and depth and theoretical capacity.

Approximately 100 wells were identified as being greater than 70 m deep and of these about 30 were identified as high capacity (> 7 L/s) deep wells. The individual well information for the old Arthur wells and the 30 selected deep high capacity wells are included in Appendix A along with a summary table that includes comments about each well.

Arthur Wells 1, 4 and 5 were drilled for the Village of Arthur water supply between 1930 and 1970. The depth and quality of water from these wells is summarized in Table 1 along with seven(7) privately owned wells north of Arthur.

Table 1 includes the distance of each well from the McCauley Street right of way in the area of proposed development.

Table 1: Summary of Wells in North Arthur

Well	Distance (m)		Gravel (m)	Bedrock Depth (m)	Capacity (L/s)	Sulphate (mg/L)
Arthur 1	900	SE			6	685-960
Arthur 4	300	SE	51-52	52-113	4.5	8-25
Arthur 5	700	SW	0	57-107	2	83-143
Clark (7353747)	< 100	E	0	47-72	1	
Martin (6707276)	< 100	N	0	73-130	1	14
6710468	<100	N	0	43-114	1	
Obelink (7213881)	1500	E	50-52	52-129	2.5	

Well	Distance (m)		Gravel (m)	Bedrock Depth (m)	Capacity (L/s)	Sulphate (mg/L)
7113269	3600	N	28-35	35-143	~3	
Furmanek Bedrock (7170386)	4000	N	0	34-184	3	Low capacity abandoned
Furmanek Gravel(7180284)	4000	N	30-35	-	15	Reported high iron

As noted in the records, the abandoned Arthur municipal wells were all bedrock wells. The wells were drilled as large diameter high-capacity wells but unfortunately the capacity of the wells was below 7L/s. Sulphate concentration in the deepest wells (Well 1 and 6) were above the drinking water limit of 500 mg/L. Sulphate is a mineral that is derived from gypsum in the bedrock and cannot be removed with a water softener. Wells 4 and 5 produced acceptable quality water but the capacity of the wells was even lower, below 4.5 L/s.

A nearby deep bedrock well at the Martin farm at 8565 Eliza Street just south of the intersection of Wells Street was sampled to determine what would potentially be the deep bedrock quality in this area. The results are appended, and the sulphate concentration water determined to be 14 mg/L. However, the capacity of the well is listed to be less than 1 L/s and likely draws water from the weathered shallow bedrock similar to the old Well 4 and Well 5.

Obelink Farms is located 1500 m east of Arthur at 8135 Second Line. This dairy farm has a deep bedrock well whose “very hard” water is typically avoided in favour of a shallower bedrock well that reportedly produces more water.

Furmanek Farms 4000 m to the north drilled a bedrock wells with an open hole in the bedrock from 34 to 184 m in an attempt to obtain a high capacity well. This well reportedly produced only 3 L/s and was eventually abandoned in favour of a gravel overburden well that produces about 15 L/s. The gravel reportedly produces water that contains high concentrations of iron.

To summarize the conditions in the area north of Arthur:

- The overburden gravel aquifer that is present just above the bedrock is not reported in most of the wells north of Arthur as noted above. The Furmanek overburden well 4 km north of Arthur is the closest known indication of a deep overburden aquifer,
- The top of the bedrock is at about 50 m in the north end of Arthur; and
- The bottom of the carbonate aquifer is likely at about 180 m below grade.

Exploration in the northern portion of Arthur would ideally be completed on Township owned land as far north and west but within the future area of growth. Further north and

west locations would be ideal in order to encounter a different portion of the bedrock aquifer than the old, abandoned town wells. As noted above, the deep bedrock wells in that area are all in the range of 1-4 L/s and completed to depths of up to 114 m. It is expected that drilling into the bedrock will require enhanced development with low pH solutions to enlarge fractures in the bedrock that produce the water to maximize the test well capacity. Plate 6 shows the north end of Arthur that could be accessed by a drill rig on the Wells Street unopened road allowance.



Plate 6: North Arthur; The Conn Road and Wells Street looking south.



Plate 7– Jones Baseline looking North at Wells 8A/8B on the west side.

4.2 Arthur Well 8A/8B Bedrock Exploration

All of the municipal wells in the communities of Grand Valley, Fergus and Elora are high capacity bedrock wells that produce water at rates in excess of 15 L/s. It is interpreted that the bedrock aquifer becomes more permeable than what was described for the old Arthur Wells 1 to 6 in section 4.3 moving south and east from Arthur. The furthest south deep bedrock well in Arthur is Arthur Well 6 that was abandoned due to a capacity of less than 7 L/s and sulphates that were above the limit of 500 mg/L.

The point at which the bedrock becomes more permeable between Arthur and Fergus is difficult to determine because the majority of wells south of Arthur are completed in the same high-capacity overburden aquifer as Wells 8A and 8B. As a result, there are very few deep bedrock wells in the area. Considering that Arthur Wells 8A and 8B are located on a parcel of land that is owned by Wellington North and equipped with existing water source infrastructure we considered the possibility of exploration of the bedrock aquifer in this area.

Review of bedrock wells along the Jones Baseline indicated that most of the bedrock wells are completed in the top 10 m of the bedrock that is typically in direct connection with the deep overburden aquifer. About 4 km south of Arthur (500 m south of Figure 2) there are a few deeper bedrock wells with high capacity. The Knight domestic well (6706641) is an example of a well that appears to have a high capacity. The original pumping test indicated less than 0.4 m of drawdown when pumped at a rate of about 0.5 L/s.

It is therefore recommended that in order to define the bedrock conditions at the Well 8A/8B site a 150 mm diameter test well be drilled on the existing site. The test well should be cased at least 10 m into the top of the bedrock to ensure that the test well is not directly connected to the deep overburden aquifer that supplies 8A and 8B. An open hole in the bedrock should be drilled to the bottom of the carbonate bedrock aquifer or until poor quality water is encountered. The well should be video logged and characterized to identify the quantity and quality of water produced from fractures in the bedrock. Enhanced development using low pH solutions should be used to optimize the capacity of the water producing intervals. The test hole should then be tested and sampled to determine the potential for this to provide a municipal water supply.

If the bedrock test well at the Well 8A/8B is not successful in obtaining a source in excess of 10 L/s another test hole could be drilled at the extreme south end of the Jones Baseline Road allowance to improve the opportunity for a higher capacity source in the bedrock. Plate 7 (Page 12) is a view of the Jones Baseline from the south end looking north.

5.0 Conclusions

Based on the review of existing information in this report we can conclude:

1. The existing wells 7B and 8A/8B in Arthur draw water from the deep overburden contact aquifer between 40 and 70 m. This aquifer has high capacity with potential for significant expansion on existing and potentially additional sites.

2. The most predicable but likely most expensive method to increase the capacity of the Arthur water system would be to expand the existing pump houses and construct treatment for the removal of manganese at Wells 8A/8B and iron at Well 7B.

3. A second well at the Well7B is required to provide a duplicate water source to maintain this source of water in the case that Well 7B were to fail.

4. Exploration for a bedrock water source that may contain less iron and manganese is likely a possible source of water that is used in surrounding communities but to date has not been available in the Arthur area.

5. The capacity of the bedrock at the 8A/8B site has not been determined as no deep bedrock wells have been drilled in this area. This groundwater resource is the least understood in the Arthur area and considered to provide the best potential for a new water source at a site where infrastructure already exists.

6. Drilling in the area north of the old Arthur Wells 1-6, north of the Arthur Arena would provide a water source in the community that would be an alternate supply to the existing wells that are connected to the system with individual pipelines. Although bedrock wells can have highly variable and unpredicable capacities, review of the existing wells in the area indicates that a test would likely produce 4 to 7 L/s. A higher capacity well may be possible with greater depth, but quality tends to decline with depth. Significant thickness of sand above the bedrock in this area is not expected.

7. The drilling of test wells does not require approvals and the results of this drilling can be used to support future decisions regarding the need for treatment or potential new water sources.

8. Proposed new regulations by the MECP that are slated for implementation in the summer of 2021 would allow for well testing to proceed without a PTTW and for pumping tests to be conducted after an online registration on the Environmental Activity Sector Registry (EASR).

6.0 Recommendations

1. Exploratory Test Wells should be drilled into the deep carbonate bedrock aquifer to evaluate the potential of this groundwater source at locations outside of the Arthur core area where the low capacity and poor quality Wells 1 to 6 provided water before their abandonment in 2005.

    a. Arthur Well 8A/8B site; A test well should should be drilled at this existing well site. Casing should be installed 10 m into the top of the bedrock to protect the existing wells from the drilling program. The extreme south end of the Jones Baseline should also be considered if drilling at the Well 8A/8B site is not successful. (See Plate 7)

    b. North Arthur; the area as far north and west of the Arthur Arena as possible, within the proposed development area on a municipally owned road allowance; possibly the Wells Street unopened road allowance. (See Plate 6)

2. The costs to treat the water from Wells 8A/8B to remove manganese should be investigated. The costs to remove iron from water at Well 7B should also be determined. Both assessments should address the requirement for the disposal of water from the treatment process.

3. A second well at the Arthur Well 7B site should be constructed to provide mechanical duplication at this site. This well, likely called Well 7C, should be constructed with stainless steel casing to match the stainless steel riser pipe and pumps that are now used in all municipal wells.

7.0 References

Burnside, 2001, Township of Wellington North, Groundwater Management and Protection Study.

Burnside, 2003, Exploration for a new Water Source for the Village of Arthur, Ontario, Hydrogeolgic Report, Construction and Testing of TW4/02.

Burnside, 2020, Village of Arthur Municipal Wells 7B, 8A, 8B 2019 Annual PTTW Monitoring Report, PTTW No.8202-9DNKD3

Matrix, 2019, Center Wellington Tier Three Water Budget Study and Risk Assessment, Groundwater Flow Model Development and Calibration Report, Version 1.0 (Plate 5)

Carter and Brunton et al, 2020, Three-dimensional geological modelling of the Paleozoic bedrock of southern Ontario: Status update. In Russell, H.A.J. and Kjarsgaard, B.A. Eds. Southern Ontario groundwater project 2014–2019: summary report. Geological Survey of Canada, Open File 8536, 7-21. (Plates 3 and 4)

Singer, Cheng and Scafe, 2003, The hydrogeology of Southern Ontario, Environmental Monitoring and Reporting Branch, Ministry of the Environment.

Triton, 2020, Water Supply and Sanitary Sewage Systems, Technical Study - Arthur

Logan, C.E., Russell, H.A.J., Bajc, A.F., Burt, A., Mulligan, R.P.M. and Sharpe, D.R. 2020. A three-dimensional surficial geology model of southern Ontario: Progress report. In Russell, H.A.J. and Kjarsgaard, B.A. Eds. Southern Ontario groundwater project 2014–2019: summary report. Geological Survey of Canada, Open File 8536, 49-64. https://doi.org/10.4095/321084 (Plates 1 and 2)

BURNSIDE

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Figures



LEGEND

- Approximate Village Boundary
- Municipal Well
- Monitoring Well
- Abandoned Municipal Well
- MECP Bedrock Well Location
- Deep Bedrock Well Sampled

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.
3. Background 2016 Air Photo Source: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Datum: North American 1983 CSRS

Coord. System: NAD 1983 CSRS UTM Zone 17N

N

0 250 500 750 1,000

Metres

BURNSIDE

Client

TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

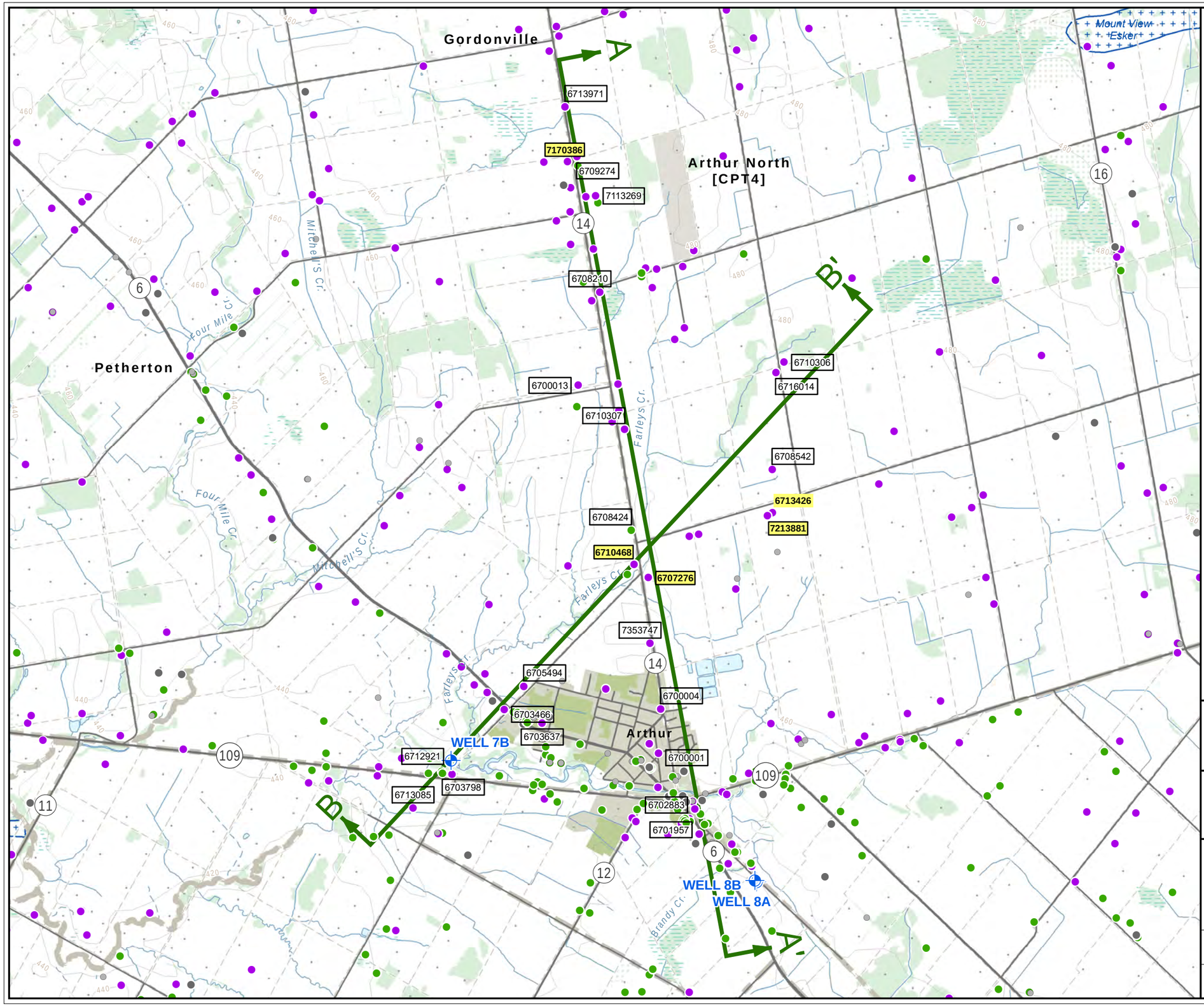
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WELL EXPLORATION REPORT

ARTHUR PRODUCTION
WELL LOCATION PLAN

Drawn	Checked	Date	Figure No.
CD	JB	December 2020	1
Scale		Project No.	
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File Path: \\ELMO\Shared Work Areas\052287 Arthur Well Exploration\06_GIS\052287 Well Explore Site Plan.mxd Print Date: 2021/02/16 Time: 09:57 AM



- Municipal Well
- MECP Bedrock Well Location
- MECP Overburden Well Location
- MECP Well - Unknown Status/Formation
- MECP Abandoned Well Location
- Cross Section Orientation
- Expressway / Highway
- Arterial / Collector Road
- Local Road
- Contour (25m Interval)
- Spot Elevation
- Municipal Boundary
- Geographic Township Boundary
- Lot Boundary
- ANSI (MNR)
- Wetland
- Waterbody: Permanent
- Stream: Permanent
- Stream: Intermittent
- Airports and Related Lands
- Wooded Area
- Plantation
- Built-Up Area: Impervious
- Built-Up Area: Pervious

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.

Datum: North American 1983 CSRS

Coord. System: NAD 1983 CSRS UTM Zone

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Metres

BURNSIDE

Client

TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

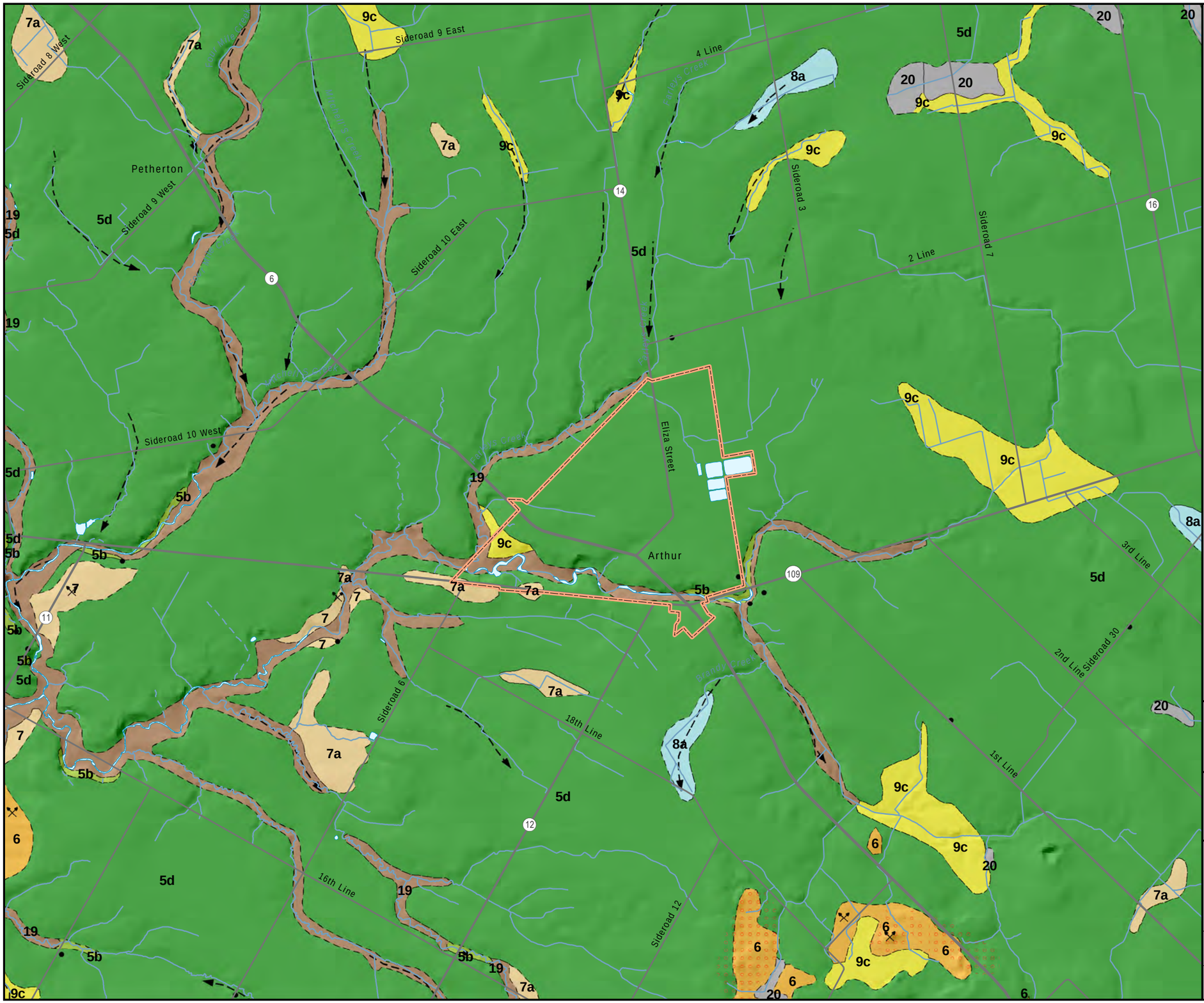
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WELL EXPLORATION REPORT

REGIONAL TOPOGRAPHY AND MECP WELL LOCATIONS

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Scale		Project No.	
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LEGEND

- Approximate Village Boundary
- Stream: Permanent
- Stream: Intermittent
- Expressway / Highway
- Arterial / Collector Road
- Local Road
- Waterbody

Surficial Geology

- 5b: Till: Stone-poor, carbonate-derived silty to sandy till
- 5d: Till: Glaciolacustrine-derived silty to clayey till
- 6: Ice-contact stratified deposits
- 7: Glaciofluvial deposits
- 7a: Glaciofluvial deposits: Sandy deposits
- 8a: Fine-textured glaciolacustrine deposits: Massive-well laminated
- 9c: Coarse-textured glaciolacustrine deposits: Foreshore-basinal deposits
- 19: Modern alluvial deposits
- 20: Organic deposits
- Unit Contact Boundary
- Sand and Gravel Pit
- Meltwater Channel: Inferred Direction of Flow
- Meltwater Channel: Unknown Direction of Flow
- Sample Location
- Hummocky Topography

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.
3. Ontario Geological Survey 2010. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 128 – Revised.

N

Datum: North American 1983 CSRS

Coord. System: NAD 1983 CSRS UTM Zone 17N

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Metres

BURNSIDE

Client

TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

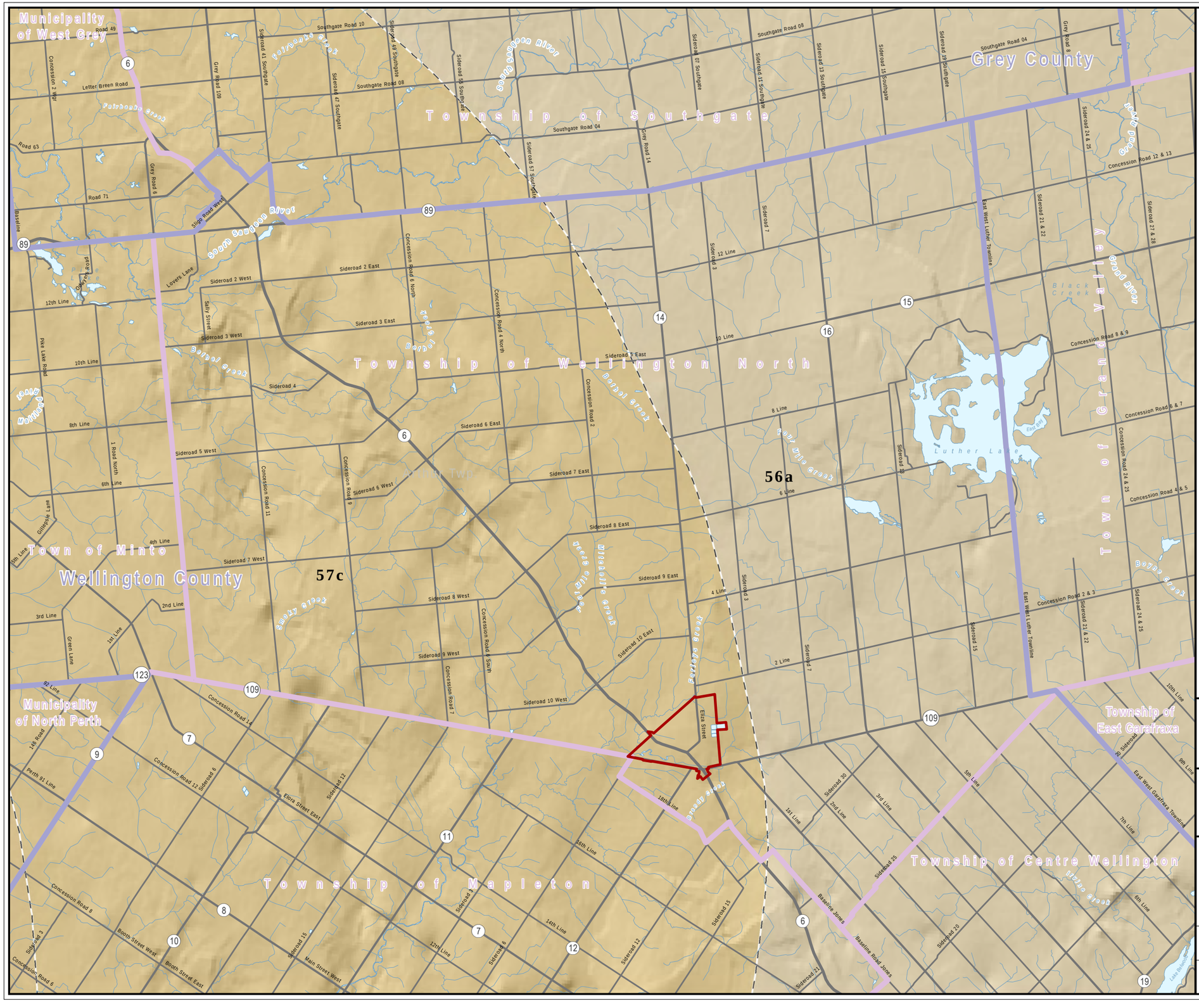
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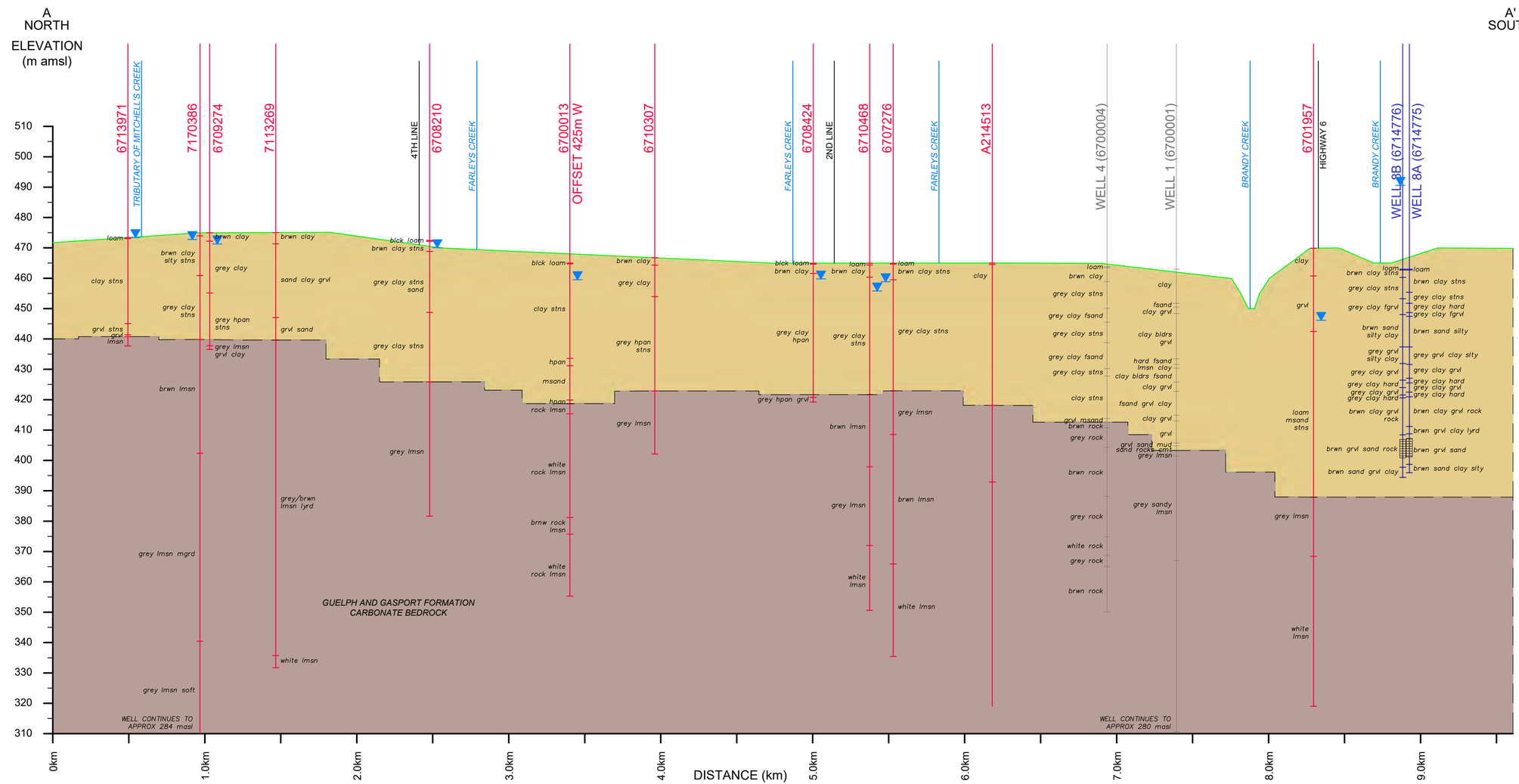
WELL EXPLORATION REPORT

SURFICIAL GEOLOGY

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Municipality of West Grey
Township of Southgate
Grey County
Township of Wellington North
Township of Mapleton
Township of Centre Wellington
Township of East Garafraxa
Town of Minto
Wellington County
Municipality of North Perth
56a
57c
South Saugeen River
Saugeen River
Grand River
Fairbanks Creek
Barbel Creek
Fork Creek
Black Creek
Luther Lake
Letter Breen Road
Sligo Road West
Lovers Lane
Sally Street
Elora Street East
Elora Street
Perth 91 Line
Booth Street West
Booth Street East
Main Street West
Gillespie Lane
Green Lane
Concession Road 2 West
Grey Road 109
Grey Road 6
Grey Road 14
Grey Road 8
Baseline
Concession Road 12 & 13
Concession Road 8 & 9
Concession Road 6 & 7
Concession Road 4 & 5
Concession Road 2 & 3
East West Luther Townline
East West Garafraxa Townline
Concession Road 6 North
Concession Road 4 North
Concession Road 2
Concession Road 6 South
Concession Road 7
Concession Road 9
Concession Road 11
Concession Road 14
Sideroad 2 East
Sideroad 3 West
Sideroad 4
Sideroad 5 West
Sideroad 6 East
Sideroad 7 East
Sideroad 8 East
Sideroad 9 East
Sideroad 10 East
Sideroad 7 West
Sideroad 8 West
Sideroad 9 West
Sideroad 10 West
Sideroad 12
Sideroad 15
Sideroad 20
Sideroad 21 & 22
Sideroad 24 & 25
Sideroad 27
Sideroad 30
Southgate Road 04
Southgate Road 08
Southgate Road 10
Sideroad 41 Southgate
Sideroad 47 Southgate
Sideroad 49 Southgate
Sideroad 55 Southgate
Sideroad 07 Southgate
Sideroad 11 Southgate
Sideroad 13 Southgate
Sideroad 15 Southgate
Sideroad 19 Southgate
Sideroad 17 Southgate
Sideroad 3
Sideroad 7
Road 49
Road 63
Road 71
Pike Lake Road
1 Road North
146 Road
Gilkison Street
Wilkinson Street
Wilkinson Creek
Farleys Creek
Pike Creek
Elora Street
Baseline Jones
Road Jones
Lake Belwood
East Bay
Fork Mile Creek
Buyne Creek
Wilkie Creek
Sideroad 5 West
Sideroad 6 West
Sideroad 8 West
Sideroad 9 West
Sideroad 10 West
Sideroad 7 West
Sideroad 8 East
Sideroad 9 East
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Sideroad 7
Sideroad 8
Sideroad 9
Sideroad 10
Sideroad 12
Sideroad 15
Sideroad 20
Sideroad 21 & 22
Sideroad 24 & 25
Sideroad 27
Sideroad 30
Sideroad 3
Sideroad 7
Sideroad 15
Sideroad 24 & 25
Sideroad 21 & 22
Sideroad 27
Sideroad 30
Sideroad 3
Sideroad 7
Sideroad 15
Sideroad 20
Sideroad 21
Sideroad 25



LEGEND

- 5883 — WELL LOCATION & NUMBER
- EXISTING GROUND PROFILE
- silty sand — GEOLOGICAL STRATIGRAPHY
- STATIC WATER LEVEL *(At Time of Drilling)*
- WELL SCREEN

Horizontal Scale: 1:20,000
Vertical Scale: 1:1,000
Vertical Exaggeration: 20X

BURNSIDE

Client
TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

Figure Title
WELL EXPLORATION REPORT

INTERPRETED CROSS SECTION A-A'

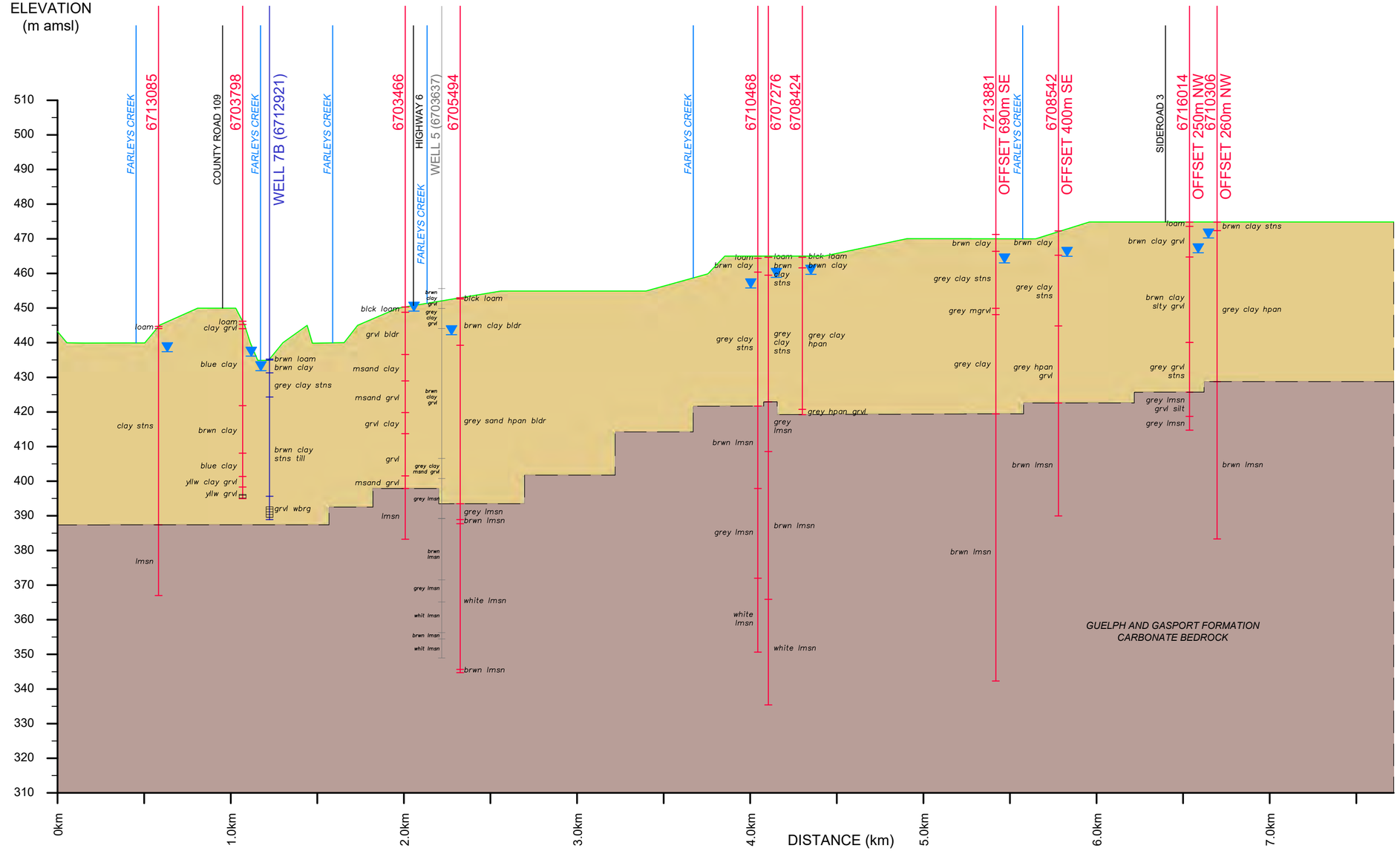
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B
SOUTHWEST

B'
NORTHEAST

ELEVATION
(m amsl)



LEGEND

5893 — WELL LOCATION & NUMBER

EXISTING GROUND PROFILE

silty sand — GEOLOGICAL STRATIGRAPHY

STATIC WATER LEVEL
(At Time of Drilling)

WELL SCREEN

Horizontal Scale: 1:20,000
Vertical Scale: 1:1,000
Vertical Exaggeration: 20X

BURNSIDE

Client
TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

Figure Title
WELL EXPLORATION REPORT

INTERPRETED CROSS SECTION B-B'

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CD	JB	December 2020	**6**
Scale		Project No.	
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Appendix A

Water Well Records

Burnside ID	Date Completed	Screen Top (m)	Casing Bottom (m)	Borehole Depth (m)	Bedrock Depth (m)	Static water Level (m)	Test Flow Rate (l/min)	Level End Pump Test (m)	Available Drawdown (l/m	Specific Capacity (l/min/m	Theoretical Yield (l/s)	Water	Elevation	Comments
MOE.7334364	23-May-19			86.9	81.4	11.9	68.2	13	72.2	62	75	(1) Untested 85.3m		south of hwy 9, Rulkay Farms, 2019, WIL
MOE.6702883	24-Oct-56			74.4	69.5	21.3	68.2	22.9	48.2	42.6	34	(1) Fresh 74.4m	462.2	old 4 inch 200 m SE of 6 and 9
MOE.6713857	07-Aug-01	67.1	67.1	71.3		10.7	181.8	16.2	56.4	33.1	31	(1) Fresh 68.3m	461.1	Overburden SW of 6 and 9
MOE.7288592	02-May-17			80.2	66.8	10.5	154.6	15.7	58.4	29.7	29	(1) Fresh 77.7m	451.4	top of rock 2 km SW of 6 and 9
MOE.6702118	15-Sep-64			82	51.2	9.1	68.2	13.7	71.7	14.8	18	(1) Fresh 81.4m	454.8	2 km SW of 6 and 9, top of rock
MOE.6710396	24-Jul-90			75.3	12.2	11.9	68.2	15.8	58.2	17.5	17	(1) Fresh 75.3m	470.9	4 km SE of 6 and 9, top of rock
MOE.6711738	13-Jun-95			80.8	62.5	12.5	45.5	15.2	50.9	16.9	14	(1) Fresh 76.2m	472.9	3 km SE of 6 and 9,top of Rock
MOE.7254812	01-Sep-15			120.4	5.2	7.3	68.2	11	44.5	18.4	14		461.5	8inch well 4 km NW of Arthur, deep rock
MOE.6706641	23-Jun-77			95.1	59.4	21.6	27.3	23.5	52.5	14.4	13	(1) Fresh 85.3m	470.5	jonesbaseline (Knight) 6km SE of 6and 7, deep rock
MOE.6704178	07-Oct-71			75.9	69.8	21.6	45.5	25.9	49.4	10.6	9	(1) Fresh 74.1m	470	jonesbaseline 6km SE of 6and 9, top of rock
MOE.6710971	30-Jun-92			94.5	93.9	23.2	27.3	27.1	71	7	8	(1) Fresh 94.5m	469.5	HWY6 5km SE of 6and 9, top of rock
MOE.6703847	07-Aug-70			76.2	63.1	10.1	31.8	13.7	53.9	8.8	8	(1) Fresh 67.1m	474.5	4km east of arthur, top of rock
MOE.6703000	09-Mar-65			98.8	73.8	12.2	45.5	18.3	62.8	7.5	8	(1) Fresh 96m	462.9	1 km east of arthur, 80' of rock
MOE.7333175	29-Apr-19			79.3	55.8	10.7	45.5	15.2	46	10.1	8			8586 hwy 6 NW of arthur,80' of rock
MOE.6700002	28-Jun-50			93	48.5	9.1	318.2	39.6	39.4	10.4	7	(1) Fresh 86.9m	454	Arthur Well 3
MOE.6702129	07-Apr-58			122.8	51.2	9.1	54.6	18.3	58	5.9	6	(1) Fresh 122.8m	454.7	hwy 9 1 km west of 6, deep bedrock, 4 inch
MOE.6714404	25-Feb-03			103.6	67.7	16.5	113.7	34.7	54.2	6.2	6	(1) Fresh 103.6m	468.7	
MOE.6703637	18-Mar-70			106.7	56.7	10.1	277.3	53.3	48.1	6.4	5	(1) Fresh 73.2m	455.8	
MOE.7185589	06-Aug-12			135.6	131.4	10.4	22.7	20.4	121.6	2.3	5	(1) Fresh 132.9m	475	
MOE.6700004	29-Nov-66			113.4	51.2	10.7	386.4	71.6	41.1	6.3	4	(1) Fresh 61m	463.4	Arthur Well 4, near the pool
MOE.6711333	25-Aug-93			82.3	61.9	8.5	45.5	18.3	54.3	4.6	4	(1) Fresh 76.2m	452.3	
MOE.6703976	20-May-71			85.3	71.3	14	22.7	19.8	58.5	3.9	4	(1) Fresh 84.7m	462.6	
MOE.6703003	09-Feb-62			99.1	54.9	8.5	54.6	23.2	58.6	3.7	4	(1) Fresh 91.4m	468	
MOE.6705980	05-Apr-76			86	76.8	27.4	45.5	32	19.8	9.9	3	(1) Fresh 86m	467.3	
MOE.6703001	21-May-63			86.6	74.1	13.1	45.5	27.4	61	3.2	3	(1) Fresh 83.8m	464.4	
MOE.6703707	03-Jun-70			80.8	46.3	3.7	45.5	15.2	42.6	4	3	(1) Fresh 80.8m	475.4	
MOE.7050300	13-Aug-07			82.3	69.5	15.9	34	29.2	56.5	2.6	2	(1) Fresh 74m	457	
MOE.1703073	05-Oct-84			71.6	32	11.3	54.6	19.8	22.2	6.4	2	(1) Fresh 61m	460.1	
MOE.6708230	10-Jul-85			70.1	2.4	0.6	54.6	19.8	47.9	2.8	2	(1) Fresh 67.1m	437.6	
MOE.6705420	02-Jan-75			86.6	71.9	15.2	36.4	32	56.7	2.2	2	(1) Fresh 82.3m	461.8	
MOE.6712404	16-Oct-97			78	64	7.3	36.4	28.3	58.2	1.7	2	(1) Fresh 75m	463.8	

7353747 (Clark)

19-17

Ontario — Ministry of the Environment and Climate Change

Well Tag No. *(Place Sticker and/or Print Below)* **Tag#: A 214513**

Well Record

068

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☑ Metric ☐ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	CLARK BROS CONTRACTING		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
510 ELIZA ST	ARTHUR	ON	N0G1A0	5198483070

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
510 ELIZA ST.	ARTHUR	28	1

County/District/Municipality	City/Town/Village	Province	Postal Code
WELLINGTON		Ontario	N0G1A0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	17	537401	4854520		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	TOPSOIL			0	.5
	CLAY	GRAVEL		.5	46.9
GREY	LIMESTONE	BROWN LAYERS		46.9	72.1
			DEPTH	236½'	

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	7.0	BENTONITE	.2

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☑ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.9	STEEL	.48	+.8	48.0
15.6	OPEN HOLE		48.0	72.1

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☑ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth	Kind of Water: ☐ Fresh ☑ Untested

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)

Results of Well Yield Testing

After test of well yield, water was:
☑ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 46M 150'

Pumping rate (l/min / GPM): 45 LPM 12GPM

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 33.68M 110.5'

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 46M 150'

Recommended pump rate (l/min / GPM): 38LPM 10GPM

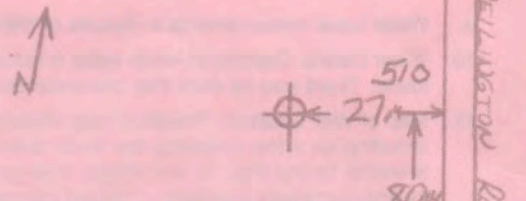
Well production (l/min / GPM):

Disinfected? ☑ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		11.34		33.68
1	1	13.32	1	31.91
2	2	14.94	2	30.36
3	3	16.35	3	28.91
4	4	17.60	4	27.87
5	5	18.75	5	26.35
10	10	23.10	10	21.50
15	15	26.06	15	18.32
20	20	28.12	20	16.29
25	25	29.67	25	14.91
30	30	30.82	30	14.04
40	40	32.25	40	13.09
50	50	33.07	50	12.65
60	60	33.68	60	12.37

Map of Well Location

Please provide a map below following instructions on the back.



069

Method of Construction

- [ ] Cable Tool
- [x] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Other, *specify*
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging

Well Use

- [ ] Public
- [x] Domestic
- [ ] Livestock
- [ ] Irrigation
- [ ] Industrial
- [ ] Other, *specify*
- [ ] Commercial
- [ ] Municipal
- [ ] Test Hole
- [ ] Cooling & Air Conditioning
- [ ] Not used
- [ ] Dewatering
- [ ] Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.9	STEEL	.48	+.8	48.0
15.6	OPEN HOLE		48.0	72.1

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

- [x] Water Supply
- [ ] Replacement Well
- [ ] Test Hole
- [ ] Recharge Well
- [ ] Dewatering Well
- [ ] Observation and/or Monitoring Hole
- [ ] Alteration (Construction)
- [ ] Abandoned, Insufficient Supply
- [ ] Abandoned, Poor Water Quality
- [ ] Abandoned, other, *specify*
- [ ] Other, *specify*

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
60-72	[ ] Fresh [x] Untested	[ ]	
	[ ] Fresh [ ] Untested	[ ]	
	[ ] Fresh [ ] Untested	[ ]	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	7.0	25.1
7.0	48.0	22.3
48.0	72.1	15.6

Well Contractor and Well Technician Information

Business Name of Well Contractor: MEADOWBANK DRILLING SERVICES

Well Contractor's Licence No.: 6 8 6 5

Business Address (Street Number/Name): RR 5

Municipality: MT FOREST

Province: ON

Postal Code: N0G 2L0

Business E-mail Address:

Bus. Telephone No. (inc. area code): 5 1 9 3 2 3 3 5 4 8

Name of Well Technician (Last Name, First Name): HUGH BRONDFOOT

Well Technician's Licence No.: 1 8 9 7

Signature of Technician and/or Contractor:

Date Submitted: 2019 Mar 30

0506E (2014/11)

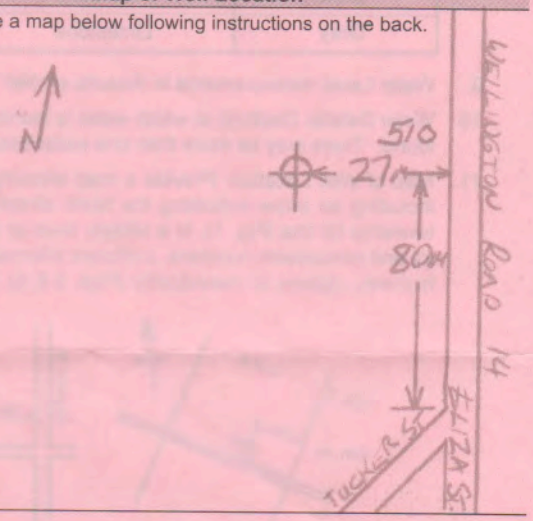
Well Owner's Copy

Pumping rate (l/min / GPM)	45 LPM	12 GPM	
Duration of pumping	1 hrs + 0 min		
Final water level end of pumping (m/ft)	33.68 m	110.5 ft	
If flowing give rate (l/min / GPM)			
Recommended pump depth (m/ft)	46 m	150 ft	
Recommended pump rate (l/min / GPM)	38 LPM	10 GPM	
Well production (l/min / GPM)			
Disinfected?	[x] Yes [ ] No		

	Time (min)		Water Level (m/ft)
1	14.[illegible]	2	30.[illegible]
3	16.35	3	28.91
4	17.[illegible]	4	27.87
5	18.75	5	26.35
10	23.10	10	21.50
15	26.06	15	18.32
20	28.12	20	16.29
25	29.67	25	14.91
30	30.82	30	14.04
40	32.25	40	13.09
50	33.07	50	12.65
60	33.68	60	12.37

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered: [x] Yes [ ] No

Date Package Delivered: 2019 Mar 30

Date Work Completed: 2019 Mar 16

Ministry Use Only

Audit No. Z298683

Received

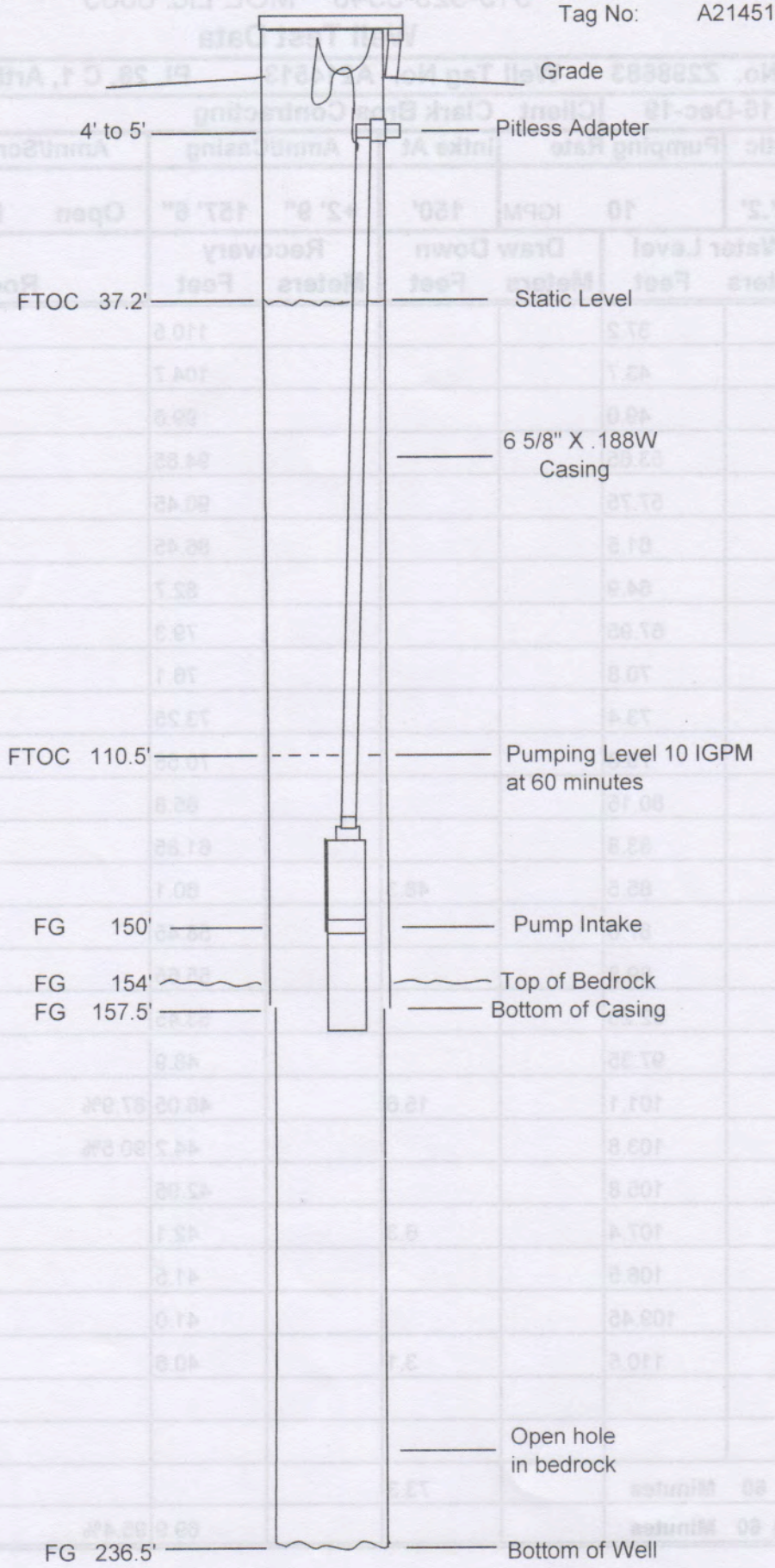
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Meadowbank Drilling Services
RR 5, Mt Forest, ON, N0G 2L0
519-323-3548
MOE Lic. 6865

Date: 16-Dec-19
Well Record: Z298683
Tag No: A214513

Well No. 19-17
Clark Bros Contracting
510 Eliza St,
Arthur, ON, N0G 1A0
Part Lot 28,
Conc.1,
Arthur Twp.,
Wellington County.

GPS NAD 83 17
537401
4854520



FTOC from top of casing
FG from grade

Not to Scale

Meadowbank Drilling Services

RR 5, Mt Forest, Ont. N0G 2L0
519-323-3548 MOE Lic. 6865

Well Test Data

MOE Audit No. Z298683			Well Tag No. A214513			PL 28, C 1, Arthur Twp, Wellington Cty		
Date 16-Dec-19			Client Clark Bros Contracting			510 Eliza St, Arthur, ON		
Well #	Static	Pumping Rate	Intke At	Amnt/Casing		Amnt/Screen	Ttl Dpth	Datum
							To Grade	Top of Casing
19-17	37.2'	10 IGPM	150'	+2' 9"	157' 6"	Open Hole	236.5'	

Elapsd Time	Water Level Meters	Water Level Feet	Draw Down Meters	Draw Down Feet	Recovery Meters	Recovery Feet	Remarks
							Rock starts @ 154'
0		37.2				110.5	
1		43.7				104.7	
2		49.0				99.6	
3		53.65				94.85	
4		57.75				90.45	
5		61.5				86.45	
6		64.9				82.7	
7		67.95				79.3	
8		70.8				76.1	
9		73.4				73.25	
10		75.8				70.55	
12		80.15				65.8	
14		83.8				61.85	
15		85.5		48.3		60.1	
16		87.0				58.45	
18		89.8				55.65	
20		92.25				53.45	
25		97.35				48.9	
30		101.1		15.6		46.05	87.9%
35		103.8				44.2	90.5%
40		105.8				42.95	
45		107.4		6.3		42.1	
50		108.5				41.5	
55		109.45				41.0	
60		110.5		3.1		40.6	
Drawdown @ 60 Minutes				73.3			
Recovery @ 60 Minutes						69.9	95.4%

Comments

Well Screening Report
Arthur 8A (MOE.6714775)



Geographic Location		
Long/Lat: 80.520851°W 43.820147°N UTM: 17T 538531 4852008		
County (1)		CON
Wellington		A
Municipality (1)		Lot
Peel Twp.		020
MOE ID	Tag	Audit No.
6714775		253367
Burnside Well Class		Construction Date
Well: Municiplal Supply		9/8/2003
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Municipal | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
462.1 (masl)		67.1 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
27 m	32 m	690 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
28.8 m	138 l/min/m	3974.4 l/min

Geology Description

(1) Topsoil 0m ~ .3m | (2) Clay, Stones (Brown) .3m ~ 7.6m | (3) Clay, Stones (Grey) 7.6m ~ 11.3m | (4) Clay, Hard (Grey) 11.3m ~ 14.3m | (5) Clay, Fine Gravel (Grey) 14.3m ~ 15.5m | (6) Sand, Silty (Brown) 15.5m ~ 25.6m | (7) Gravel, Clay, Silty (Grey) 25.6m ~ 31.4m | (8) Clay, Gravel (Grey) 31.4m ~ 36m | (9) Clay, Hard (Grey) 36m ~ 37.5m | (10) Clay, Gravel (Grey) 37.5m ~ 40.5m | (11) Clay, Hard (Grey) 40.5m ~ 42.1m | (12) Clay, Gravel, Rock (Brown) 42.1m ~ 51.8m | (13) Gravel, Clay, Layered (Brown) 51.8m ~ 54.3m | (14) Gravel, Sand (Brown) 54.3m ~ 64.3m | (15) Sand, Clay, Silty (Brown) 64.3m ~ 67.1m

Casing Description

(1) 10″ø Steel ~ 55.8m

Screens	Water Encountered (at time of drilling)
(1) 55.8m ~ 61.9m	(1) Not Stated 61.9m

Project Notes

Elevation updated with LiDAR DTM.

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6714775.pdf

(1) Names may reflect former municipalities at the time of construction.



0 500 1,000
Metres

Well: Municipal Supply

Geographic Location		
Long/Lat: 80.521148°W 43.820333°N UTM: 17T 538507 4852029		
County (1)		CON
Wellington		A
Municipality (1)		Lot
Peel Twp.		020
MOE ID	Tag	Audit No.
6714776		253368
Burnside Well Class		Construction Date
Well: Municiplal Supply		9/23/2003
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Municipal | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
462 (masl)		68.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
27 m	30 m	690 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
29.1 m	230 l/min/m	6693 l/min

Geology Description

(1) Topsoil 0m ~ .3m | (2) Clay, Stones (Brown) .3m ~ 2.7m | (3) Clay, Stones (Grey) 2.7m ~ 9.8m | (4) Clay, Fine Gravel (Grey) 9.8m ~ 14.9m | (5) Sand, Silty, Clay (Brown) 14.9m ~ 25.6m | (6) Gravel, Silty, Clay (Grey) 25.6m ~ 31.1m | (7) Clay, Gravel (Grey) 31.1m ~ 36.6m | (8) Clay, Hard (Grey) 36.6m ~ 39m | (9) Clay, Gravel (Grey) 39m ~ 41.5m | (10) Clay, Hard (Grey) 41.5m ~ 42.4m | (11) Clay, Gravel, Rock (Brown) 42.4m ~ 54.6m | (12) Gravel, Sand, Rock (Brown) 54.6m ~ 65.2m | (13) Sand, Gravel, Clay (Brown) 65.2m ~ 68.6m

Casing Description

(1) 10″ø Steel ~ 55.8m

Screens	Water Encountered (at time of drilling)
(1) 56.1m ~ 62.2m	

Project Notes

Elevation updated with LiDAR DTM.

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6714776.pdf

(1) Names may reflect former municipalities at the time of construction.

File Path: C:\Users\pstubbert\RJB\Geomatics - AllsWell\AllsWell.aprx Print Date: 2021/01/15 Time: 11:32 AM



Geographic Location		
Long/Lat: 80.495779°W 43.808995°N UTM: 17T 540554 4850782		
County (1)		CON
Dufferin		01
Municipality (1)		Lot
East Garafraxa Twp.		031
MOE ID	Tag	Audit No.
1703073		
Burnside Well Class		Construction Date
Well: Domestic Supply		10/5/1984
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
460.1 (masl)	32 m	71.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
11.3 m	19.8 m	54.6 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
22.2 m	6.4 l/min/m	142.6 l/min

Geology Description

(1) Clay, Stones (Brown) 0m ~ 32m | (2) Limestone 32m ~ 71.6m

Casing Description

(1) 5″ø Steel ~ 33.5m | (2) 5″ø Open ~ 71.6m

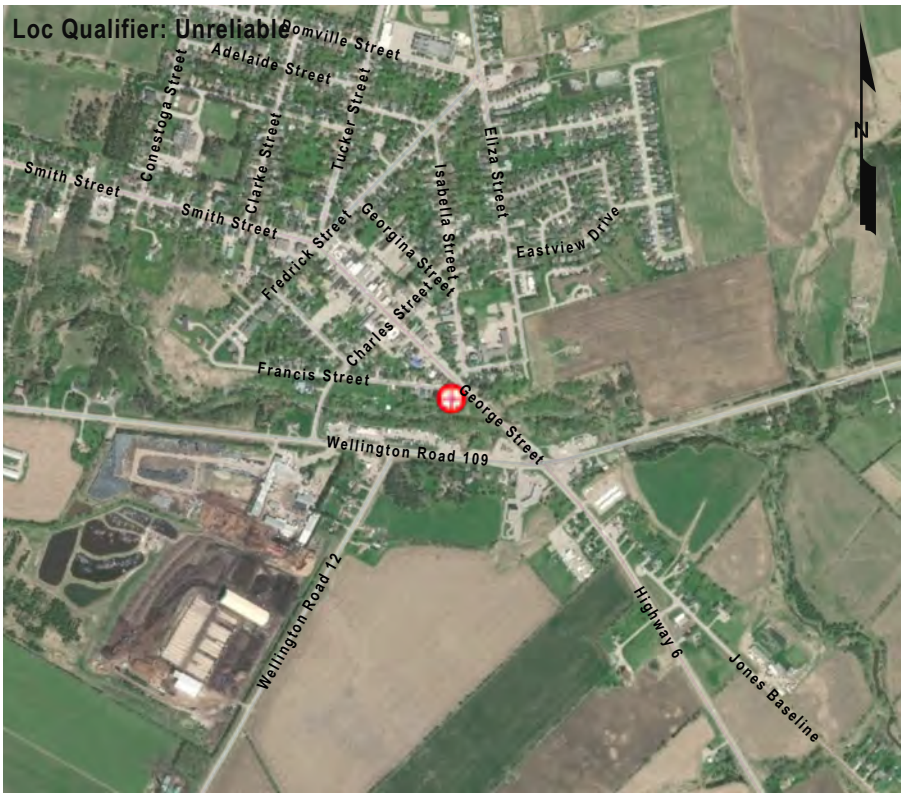
Screens	Water Encountered (at time of drilling)
	(1) Fresh 61m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/170/1703073.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.533802°W 43.829163°N UTM: 17T 537484 4853004		
County (1)		CON
Wellington		
Municipality (1)		Lot
Arthur Village		
MOE ID	Tag	Audit No.
6700002		
Burnside Well Class		Construction Date
Well: Municiplal Supply		6/28/1950
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Municipal | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
454 (masl)	48.5 m	93 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
9.1 m	39.6 m	318.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
39.4 m	10.4 l/min/m	411.1 l/min

Geology Description

(1) Fill 0m ~ 1.5m | (2) Clay (Brown) 1.5m ~ 10.7m | (3) Fine Sand (Brown) 10.7m ~ 15.2m | (4) Clay (Blue) 15.2m ~ 18.3m | (5) Clay, Medium Sand (Blue) 18.3m ~ 47.2m | (6) Gravel, Silt 47.2m ~ 48.5m | (7) Limestone (Brown) 48.5m ~ 55.8m | (8) Limestone (White) 55.8m ~ 57m | (9) Rock (Blue) 57m ~ 59.1m | (10) Rock (Grey) 59.1m ~ 61.9m | (11) Rock (Brown) 61.9m ~ 73.2m | (12) Rock (Blue) 73.2m ~ 78.9m | (13) Rock (White) 78.9m ~ 81.4m | (14) Rock (Blue) 81.4m ~ 82m | (15) Rock (Grey) 82m ~ 83.2m | (16) Rock (Brown) 83.2m ~ 87.8m | (17) Rock (Blue) 87.8m ~ 93m

Casing Description

(1) 10″ø Steel ~ 48.5m | (2) 10″ø Open ~ 93m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 86.9m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6700002.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.533371°W 43.83659°N UTM: 17T 537514 4853829		
County (1)		CON
Wellington		
Municipality (1)		Lot
Arthur Village		
MOE ID	Tag	Audit No.
6700004		
Burnside Well Class		Construction Date
Well: Municiplal Supply		11/29/1966
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Municipal | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
463.4 (masl)	51.2 m	113.4 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.7 m	71.6 m	386.4 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
41.1 m	6.3 l/min/m	260.8 l/min

Geology Description

(1) Topsoil 0m ~ .3m | (2) Clay (Brown) .3m ~ 4.9m | (3) Clay, Stones (Grey) 4.9m ~ 13.7m | (4) Clay, Fine Sand (Grey) 13.7m ~ 18.3m | (5) Clay, Stones (Grey) 18.3m ~ 25m | (6) Clay, Fine Sand (Grey) 25m ~ 33.5m | (7) Clay, Stones (Grey) 33.5m ~ 36m | (8) Clay, Stones 36m ~ 50m | (9) Gravel, Medium Sand 50m ~ 51.2m | (10) Rock (Brown) 51.2m ~ 53m | (11) Rock (Grey) 53m ~ 59.4m | (12) Rock (Brown) 59.4m ~ 75.6m | (13) Rock (Grey) 75.6m ~ 89m | (14) Rock (White) 89m ~ 95.1m | (15) Rock (Grey) 95.1m ~ 98.8m | (16) Rock (Brown) 98.8m ~ 113.4m

Casing Description

(1) 10″ø Steel ~ 51.8m | (2) 10″ø Open ~ 113.4m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 61m | (2) Not Stated 113.4m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6700004.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.5554°W 43.804939°N UTM: 17T 535761 4850304		
County (1)		CON
Wellington		17
Municipality (1)		Lot
Peel Twp.		009
MOE ID	Tag	Audit No.
6702118		
Burnside Well Class		Construction Date
Well: Agricultural Supply		9/15/1964
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
454.8 (masl)	51.2 m	82 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
9.1 m	13.7 m	68.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
71.7 m	14.8 l/min/m	1063 l/min

Geology Description

(1) Clay (Brown) 0m ~ 21.9m | (2) Medium Sand, Clay 21.9m ~ 51.2m | (3) Hardpan 51.2m ~ 80.8m | (4) Limestone 80.8m ~ 82m

Casing Description

(1) 4″ø Steel ~ 80.8m | (2) 4″ø Open ~ 82m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 81.4m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6702118.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.548698°W 43.828107°N UTM: 17T 536287 4852880		
County (1)		CON
Wellington		19
Municipality (1)		Lot
Peel Twp.		008
MOE ID	Tag	Audit No.
6702129		
Burnside Well Class		Construction Date
Well: Agricultural Supply		4/7/1958
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
454.7 (masl)	51.2 m	122.8 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
9.1 m	18.3 m	54.6 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
58 m	5.9 l/min/m	344.2 l/min

Geology Description

(1) Clay (Blue) 0m ~ 15.5m | (2) Gravel, Clay 15.5m ~ 51.2m | (3) Shale (Brown) 51.2m ~ 67.1m | (4) Limestone 67.1m ~ 122.8m

Casing Description

(1) 4″ø Steel ~ 67.1m | (2) 4″ø Open ~ 122.8m

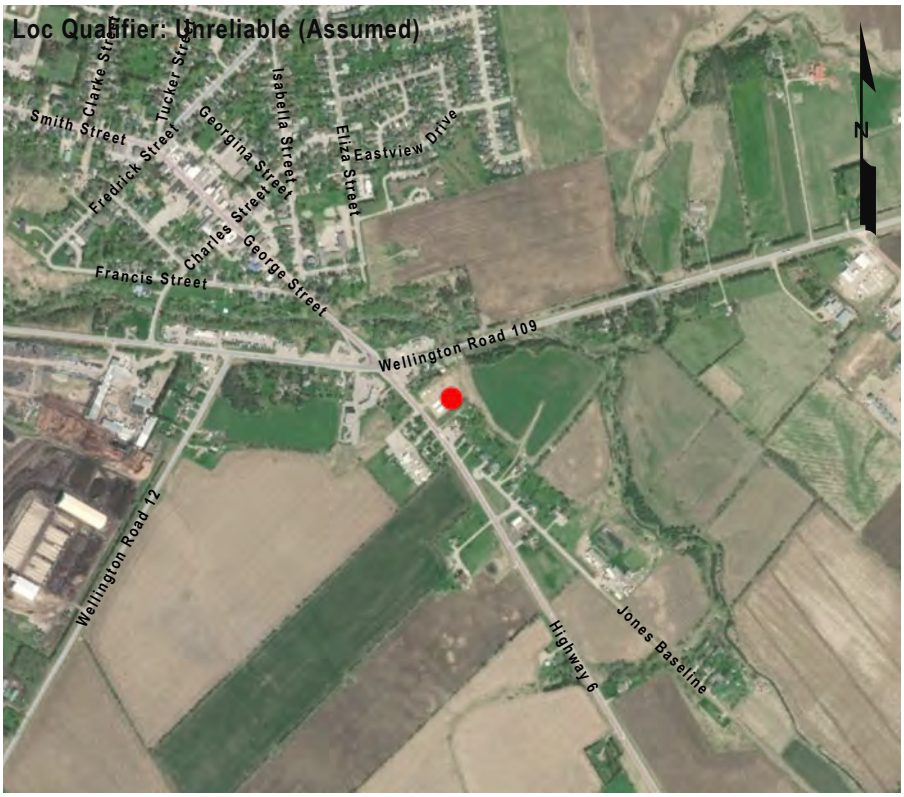
Screens	Water Encountered (at time of drilling)
	(1) Fresh 122.8m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6702129.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.528981°W 43.827091°N UTM: 17T 537873 4852776		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Garafraxa Twp.		037
MOE ID	Tag	Audit No.
6702883		
Burnside Well Class		Construction Date
Well: Domestic Supply		10/24/1956
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
462.2 (masl)	69.5 m	74.4 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
21.3 m	22.9 m	68.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
48.2 m	42.6 l/min/m	2054.5 l/min

Geology Description

(1) Previously Dug 0m ~ 3.7m | (2) Clay 3.7m ~ 69.5m | (3) Limestone 69.5m ~ 74.4m

Casing Description

(1) 4″ø Steel ~ 69.5m | (2) 4″ø Open ~ 74.4m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 74.4m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6702883.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.515359°W 43.833678°N UTM: 17T 538964 4853514		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Luther Twp.		003
MOE ID	Tag	Audit No.
6703000		
Burnside Well Class		Construction Date
Well: Agricultural Supply		3/9/1965
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
462.9 (masl)	73.8 m	98.8 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
12.2 m	18.3 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
62.8 m	7.5 l/min/m	468.4 l/min

Geology Description

(1) Clay, Stones (Grey) 0m ~ 12.2m | (2) Medium Sand 12.2m ~ 18.3m | (3) Clay, Medium Sand (Grey) 18.3m ~ 54.9m | (4) Gravel, Stones 54.9m ~ 65.5m | (5) Medium Sand 65.5m ~ 71.6m | (6) Clay, Stones (Grey) 71.6m ~ 73.8m | (7) Rock (Blue) 73.8m ~ 80.8m | (8) Limestone (White) 80.8m ~ 98.8m

Casing Description

(1) 4"ø Steel ~ 75m | (2) 4"ø Open ~ 98.8m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 96m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703000.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.507402°W 43.833284°N UTM: 17T 539604 4853474		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Luther Twp.		004
MOE ID	Tag	Audit No.
6703001		
Burnside Well Class		Construction Date
Well: Agricultural Supply		5/21/1963
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
464.4 (masl)	74.1 m	86.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
13.1 m	27.4 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
61 m	3.2 l/min/m	194.1 l/min

Geology Description

(1) Topsoil 0m ~ .6m | (2) Stones, Gravel .6m ~ 7.6m | (3) Clay, Gravel 7.6m ~ 24.4m | (4) Gravel, Medium Sand, Boulders 24.4m ~ 39.6m | (5) Clay, Medium Sand, Gravel 39.6m ~ 47.2m | (6) Gravel, Stones 47.2m ~ 53.3m | (7) Medium Sand, Clay 53.3m ~ 65.5m | (8) Gravel, Medium Sand 65.5m ~ 68.6m | (9) Quicksand 68.6m ~ 74.1m | (10) Rock (Brown) 74.1m ~ 86.6m

Casing Description

(1) 4″ø Steel ~ 74.1m | (2) 4″ø Open ~ 86m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 83.8m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703001.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.496673°W 43.837199°N UTM: 17T 540464 4853914		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Luther Twp.		006
MOE ID	Tag	Audit No.
6703003		
Burnside Well Class		Construction Date
Well: Agricultural Supply		2/9/1962
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
468 (masl)	54.9 m	99.1 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
8.5 m	23.2 m	54.6 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
58.6 m	3.7 l/min/m	217.7 l/min

Geology Description
(1) Previously Dug 0m ~ 13.7m | (2) Clay, Medium Sand 13.7m ~ 18.3m | (3) Clay, Medium Sand, Gravel (Brown) 18.3m ~ 54.9m | (4) Shale (Brown) 54.9m ~ 64m | (5) Limestone (Brown) 64m ~ 99.1m

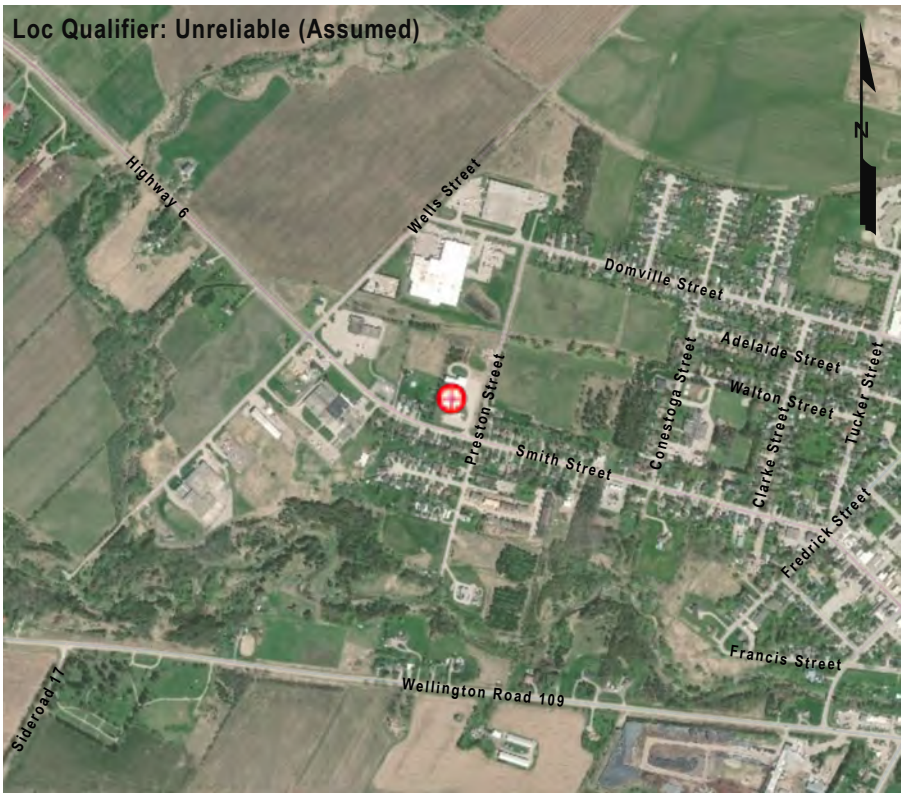
Casing Description
(1) 4″ø Steel ~ 67.1m | (2) 4″ø Open ~ 99.1m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 91.4m

Project Notes

Link to MOE Water Well Record
https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703003.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.54893°W 43.835347°N UTM: 17T 536264 4853684		
County (1)		CON
Wellington		
Municipality (1)		Lot
Arthur Village		
MOE ID	Tag	Audit No.
6703637		
Burnside Well Class		Construction Date
Well: Municiplal Supply		3/18/1970
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Municipal | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
455.8 (masl)	56.7 m	106.7 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.1 m	53.3 m	277.3 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
48.1 m	6.4 l/min/m	308.8 l/min

Geology Description

(1) Clay, Gravel (Brown) 0m ~ 5.8m | (2) Clay, Gravel (Grey) 5.8m ~ 11.6m | (3) Clay, Gravel (Brown) 11.6m ~ 49.1m | (4) Clay, Medium Sand, Gravel (Grey) 49.1m ~ 54.9m | (5) Clay, Gravel (Brown) 54.9m ~ 56.7m | (6) Limestone (Grey) 56.7m ~ 66.4m | (7) Limestone (Brown) 66.4m ~ 84.1m | (8) Limestone (Grey) 84.1m ~ 90.5m | (9) Limestone (White) 90.5m ~ 99.4m | (10) Limestone (Brown) 99.4m ~ 101.2m | (11) Limestone (White) 101.2m ~ 106.7m

Casing Description

(1) 10″ø Steel ~ 58.2m | (2) Open ~ 106.7m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 73.2m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703637.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.546702°W 43.882967°N UTM: 17T 536414 4858974		
County (1)		CON
Wellington		01
Municipality (1)		Lot
Arthur Twp.		022
MOE ID	Tag	Audit No.
6703707		
Burnside Well Class		Construction Date
Well: Agricultural Supply		6/3/1970
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
475.4 (masl)	46.3 m	80.8 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
3.7 m	15.2 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
42.6 m	4 l/min/m	168.5 l/min

Geology Description

(1) Topsoil 0m ~ .3m | (2) Clay, Stones .3m ~ 13.7m | (3) Clay, Gravel 13.7m ~ 46.3m | (4) Rock (Brown) 46.3m ~ 67.4m | (5) Rock (Grey) 67.4m ~ 68m | (6) Rock (Brown) 68m ~ 80.8m

Casing Description

(1) 5"ø Steel ~ 46.3m | (2) Open ~ 80.8m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 80.8m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703707.pdf

(1) Names may reflect former municipalities at the time of construction.

Well Screening Report
MOE.6703847



Geographic Location		
Long/Lat: 80.473198°W 43.833312°N UTM: 17T 542353 4853494		
County (1)		CON
Wellington		04
Municipality (1)		Lot
West Garafraxa Twp.		031
MOE ID	Tag	Audit No.
6703847		
Burnside Well Class		Construction Date
Well: Agricultural Supply		8/7/1970
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
474.5 (masl)	63.1 m	76.2 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.1 m	13.7 m	31.8 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
53.9 m	8.8 l/min/m	476.1 l/min

Geology Description
(1) Clay, Stones (Brown) 0m ~ 15.8m | (2) Gravel, Medium Sand 15.8m ~ 18m | (3) Clay, Boulders 18m ~ 63.1m | (4) Limestone (White) 63.1m ~ 76.2m

Casing Description
(1) 4"ø Steel ~ 64m | (2) 4"ø Open ~ 76.2m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 67.1m

Project Notes

Link to MOE Water Well Record
https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703847.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location	
Long/Lat: 80.537183°W 43.826296°N UTM: 17T 537214 4852684	
County (1)	CON
Wellington	19
Municipality (1)	Lot
Peel Twp.	009

MOE ID	Tag	Audit No.
6703976		

Burnside Well Class	Construction Date
Well: Domestic Supply	5/20/1971

MOE Well Class
Water Supply

MOE Well Uses (Primary Use | Secondary Use)
Domestic | Not Recorded

Ground Elevation	Bedrock Depth	Borehole Depth
462.6 (masl)	71.3 m	85.3 m

Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
14 m	19.8 m	22.7 l/min

Available Drawdown	Specific Capacity	Theoretical Yield
58.5 m	3.9 l/min/m	229 l/min

Geology Description

(1) Clay, Stones 0m ~ 71.3m | (2) Limestone (Grey) 71.3m ~ 85.3m

Casing Description

(1) 4″ø Steel ~ 72.5m | (2) 4″ø Open ~ 85.3m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 84.7m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6703976.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.468542°W 43.783409°N UTM: 17T 542763 4847954		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Garafraxa Twp.		025
MOE ID	Tag	Audit No.
6704178		
Burnside Well Class		Construction Date
Well: Agricultural Supply		10/7/1971
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Domestic		
Ground Elevation	Bedrock Depth	Borehole Depth
470 (masl)	69.8 m	75.9 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
21.6 m	25.9 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
49.4 m	10.6 l/min/m	522.7 l/min

Geology Description

(1) Clay, Stones (Brown) 0m ~ 9.1m | (2) Clay, Stones, Boulders (Grey) 9.1m ~ 69.8m | (3) Limestone 69.8m ~ 75.9m

Casing Description

(1) 4″ø Steel ~ 71m | (2) 4″ø Open ~ 74.7m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 74.1m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6704178.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.538106°W 43.824427°N UTM: 17T 537141 4852476		
County (1)		CON
Wellington		B
Municipality (1)		Lot
Peel Twp.		023
MOE ID	Tag	Audit No.
6705420		
Burnside Well Class		Construction Date
Well: Domestic Supply		1/2/1975
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
461.8 (masl)	71.9 m	86.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
15.2 m	32 m	36.4 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
56.7 m	2.2 l/min/m	122.9 l/min

Geology Description

(1) Topsoil (Black) 0m ~ .3m | (2) Clay (Red) .3m ~ 42.7m | (3) Clay, Boulders, Gravel (Blue) 42.7m ~ 57.9m | (4) Sand, Gravel, Clay (Brown) 57.9m ~ 71.9m | (5) Rock (Brown) 71.9m ~ 82.3m | (6) Rock (Grey) 82.3m ~ 86.6m

Casing Description

(1) 4″ø Steel ~ 71.9m | (2) 4″ø Open ~ 86.6m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 82.3m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6705420.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.529852°W 43.809699°N UTM: 17T 537813 4850844		
County (1)		CON
Wellington		B
Municipality (1)		Lot
Peel Twp.		019
MOE ID	Tag	Audit No.
6705980		
Burnside Well Class		Construction Date
Well: Domestic Supply		4/5/1976
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
467.3 (masl)	76.8 m	86 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
27.4 m	32 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
19.8 m	9.9 l/min/m	195.8 l/min

Geology Description

(1) Clay (Brown) 0m ~ 5.5m | (2) Clay, Boulders (Grey) 5.5m ~ 38.4m | (3) Clay, Hardpan (Grey) 38.4m ~ 76.8m | (4) Rock (Grey) 76.8m ~ 86m

Casing Description

(1) 6″ø Steel ~ 31.1m | (2) 6″ø Steel ~ 47.2m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 86m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6705980.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.470408°W 43.783148°N UTM: 17T 542613 4847924		
County (1)		CON
Wellington		A
Municipality (1)		Lot
Peel Twp.		006
MOE ID	Tag	Audit No.
6706641		
Burnside Well Class		Construction Date
Well: Domestic Supply		6/23/1977
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
470.5 (masl)	59.4 m	95.1 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
21.6 m	23.5 m	27.3 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
52.5 m	14.4 l/min/m	754.3 l/min

Geology Description

(1) Clay (Brown) 0m ~ 4.3m | (2) Coarse Sand (Brown) 4.3m ~ 6.4m | (3) Clay, Stones (Grey) 6.4m ~ 59.4m | (4) Hardpan, Soapstone, Boulders 59.4m ~ 73.2m | (5) Rock (White) 73.2m ~ 95.1m

Casing Description

(1) 4"ø Steel ~ 74.1m | (2) 4"ø Open ~ 95.1m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 85.3m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6706641.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.579581°W 43.829791°N UTM: 17T 533802 4853054		
County (1)		CON
Wellington		18
Municipality (1)		Lot
Peel Twp.		004
MOE ID	Tag	Audit No.
6708230		
Burnside Well Class		Construction Date
Well: Domestic Supply		7/10/1985
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Livestock		
Ground Elevation	Bedrock Depth	Borehole Depth
437.6 (masl)	2.4 m	70.1 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
0.6 m	19.8 m	54.6 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
47.9 m	2.8 l/min/m	136.2 l/min

Geology Description

(1) Topsoil (Black) 0m ~ .3m | (2) Clay (Brown) .3m ~ 2.4m | (3) Hardpan, Stones (Grey) 2.4m ~ 46m | (4) Limestone (Grey) 46m ~ 54.9m | (5) Limestone (Brown) 54.9m ~ 70.1m

Casing Description

(1) 5″ø Steel ~ 48.5m | (2) 5″ø Open ~ 70.1m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 67.1m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/670/6708230.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.459375°W 43.821434°N UTM: 17T 543473 4852182		
County (1)		CON
Wellington		03
Municipality (1)		Lot
West Garafraxa Twp.		029
MOE ID	Tag	Audit No.
6710396		34384
Burnside Well Class		Construction Date
Well: Domestic Supply		7/24/1990
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
470.9 (masl)	12.2 m	75.3 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
11.9 m	15.8 m	68.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
58.2 m	17.5 l/min/m	1017.8 l/min

Geology Description

(1) Topsoil (Black) 0m ~ .6m | (2) Clay (Brown) .6m ~ 6.1m | (3) Clay (Grey) 6.1m ~ 12.2m | (4) Hardpan (Grey) 12.2m ~ 38.1m | (5) Hardpan, Stones (Grey) 38.1m ~ 56.4m | (6) Hardpan, Gravel (Grey) 56.4m ~ 69.2m | (7) Limestone (Grey) 69.2m ~ 75.3m

Casing Description

(1) 5"ø Steel ~ 70.1m | (2) 5"ø Open ~ 75.3m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 75.3m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6710396.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.507777°W 43.805933°N UTM: 17T 539591 4850436		
County (1)		CON
Wellington		A
Municipality (1)		Lot
Peel Twp.		016
MOE ID	Tag	Audit No.
6710971		109284
Burnside Well Class		Construction Date
Well: Domestic Supply		6/30/1992
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
469.5 (masl)	93.9 m	94.5 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
23.2 m	27.1 m	27.3 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
71 m	7 l/min/m	497 l/min

Geology Description

(1) Topsoil 0m ~ .3m | (2) Clay, Sandy .3m ~ 25.6m | (3) Clay, Stones 25.6m ~ 93.9m | (4) Shale (Brown) 93.9m ~ 94.5m

Casing Description

(1) 5"ø Steel ~ 94.2m | (2) Open ~ 94.5m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 94.5m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6710971.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.561444°W 43.841932°N UTM: 17T 535254 4854410		
County (1)		CON
Wellington		
Municipality (1)		Lot
Arthur Twp.		034
MOE ID	Tag	Audit No.
6711333		128299
Burnside Well Class		Construction Date
Well: Domestic Supply		8/25/1993
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
452.3 (masl)	61.9 m	82.3 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
8.5 m	18.3 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
54.3 m	4.6 l/min/m	252.1 l/min

Geology Description

(1) Clay, Stones (Brown) 0m ~ 3m | (2) Clay, Sticky (Grey) 3m ~ 26.8m | (3) Clay, Stones (Grey) 26.8m ~ 61.9m | (4) Limestone (Grey) 61.9m ~ 82.3m

Casing Description

(1) 6″ø Steel ~ 62.8m | (2) 6″ø Open ~ 82.3m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 76.2m | (2) Fresh 80.5m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6711333.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.466698°W 43.82851°N UTM: 17T 542879 4852964		
County (1)		CON
Wellington		04
Municipality (1)		Lot
West Garafraxa Twp.		030
MOE ID	Tag	Audit No.
6711738		158301
Burnside Well Class		Construction Date
Well: Domestic Supply		6/13/1995
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Livestock		
Ground Elevation	Bedrock Depth	Borehole Depth
472.9 (masl)	62.5 m	80.8 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
12.5 m	15.2 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
50.9 m	16.9 l/min/m	857.8 l/min

Geology Description

(1) Clay (Brown) 0m ~ 4.6m | (2) Clay, Sticky (Grey) 4.6m ~ 10.4m | (3) Clay (Grey) 10.4m ~ 15.8m | (4) Clay, Sand (Grey) 15.8m ~ 19.8m | (5) Clay, Stones (Grey) 19.8m ~ 35.1m | (6) Clay, Stones (Brown) 35.1m ~ 39m | (7) Clay, Stones, Boulders (Grey) 39m ~ 46.9m | (8) Clay (Grey) 46.9m ~ 51.8m | (9) Sand, Clay 51.8m ~ 62.5m | (10) Limestone (Grey) 62.5m ~ 80.8m

Casing Description

(1) 6″ø Steel ~ 63.4m | (2) 6″ø Open ~ 80.8m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 76.2m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6711738.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.479161°W 43.819996°N UTM: 17T 541883 4852012		
County (1)		CON
Wellington		03
Municipality (1)		Lot
West Garafraxa Twp.		030
MOE ID	Tag	Audit No.
6712404		184530
Burnside Well Class		Construction Date
Well: Domestic Supply		10/16/1997
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
463.8 (masl)	64 m	78 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
7.3 m	28.3 m	36.4 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
58.2 m	1.7 l/min/m	100.9 l/min

Geology Description

(1) Clay (Brown) 0m ~ 1.8m | (2) Clay, Rock (Grey) 1.8m ~ 46.6m | (3) Gravel, Clay (Grey) 46.6m ~ 64m | (4) Shale (Blue) 64m ~ 64.3m | (5) Limestone (Grey) 64.3m ~ 68.9m | (6) Limestone (Brown) 68.9m ~ 73.2m | (7) Limestone (Grey) 73.2m ~ 75m | (8) Limestone (Brown) 75m ~ 78m

Casing Description

(1) 6″ø Steel ~ 65.5m | (2) 6″ø Open ~ 78m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 75m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6712404.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.548418°W 43.789804°N UTM: 17T 536332 4848626		
County (1)		CON
Wellington		17
Municipality (1)		Lot
Peel Twp.		011
MOE ID	Tag	Audit No.
6713857		236112
Burnside Well Class		Construction Date
Well: Industrial/Other		8/7/2001
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Not Recorded | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
461.1 (masl)		71.3 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.7 m	16.2 m	181.8 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
56.4 m	33.1 l/min/m	1864.3 l/min

Geology Description

(1) Topsoil (Brown) 0m ~ .6m | (2) Clay, Stones (Red) .6m ~ 5.8m | (3) Clay, Stones (Grey) 5.8m ~ 25.6m | (4) Hardpan (Grey) 25.6m ~ 52.4m | (5) Clay, Stones (Brown) 52.4m ~ 63.1m | (6) Fine Sand 63.1m ~ 65.5m | (7) Medium Gravel, Silt 65.5m ~ 69.2m | (8) Hardpan (Grey) 69.2m ~ 71.3m

Casing Description

(1) 6″ø Steel | (2) 6″ø Steel | (3) 6″ø Steel

Screens	Water Encountered (at time of drilling)
(1) 67.1m ~ 68.3m	(1) Fresh 68.3m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6713857.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.477575°W 43.826579°N UTM: 17T 542006 4852744		
County (1)		CON
Wellington		03
Municipality (1)		Lot
West Garafraxa Twp.		031
MOE ID	Tag	Audit No.
6714404		253317
Burnside Well Class		Construction Date
Well: Industrial/Other		2/25/2003
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Industrial | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
468.7 (masl)	67.7 m	103.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
16.5 m	34.7 m	113.7 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
54.2 m	6.2 l/min/m	338.6 l/min

Geology Description

(1) Clay (Brown) 0m ~ 1.8m | (2) Clay, Gravel, Sand (Brown) 1.8m ~ 54.9m | (3) Gravel, Boulders, Clay (Brown) 54.9m ~ 60m | (4) Boulders (Brown) 60m ~ 61m | (5) Clay, Gravel (Grey) 61m ~ 67.7m | (6) Limestone, Shale, Soft (Brown) 67.7m ~ 69.5m | (7) Limestone, Hard (Brown) 69.5m ~ 70.7m | (8) Limestone, Hard (Brown) 70.7m ~ 84.7m | (9) Limestone (Grey) 84.7m ~ 103.6m

Casing Description

(1) 6″ø Steel ~ 70.7m | (2) 6″ø Open ~ 103.6m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 103.6m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/671/6714404.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.518945°W 43.835134°N UTM: 17T 538674 4853674		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Luther Twp.		002
MOE ID	Tag	Audit No.
7050300	A034736	Z74787
Burnside Well Class		Construction Date
Well: Domestic Supply		8/13/2007
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
457 (masl)	69.5 m	82.3 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
15.9 m	29.2 m	34 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
56.5 m	2.6 l/min/m	144.4 l/min

Geology Description

(1) Clay, Gravel (Brown) 0m ~ 3.7m | (2) Clay, Gravel, Stones (Grey) 3.7m ~ 28.4m | (3) Clay, Sand (Brown) 28.4m ~ 40m | (4) Clay, Gravel (Grey) 40m ~ 49.4m | (5) Gravel, Clay (Grey) 49.4m ~ 69.5m | (6) Limestone (Grey) 69.5m ~ 78.6m | (7) Limestone (White) 78.6m ~ 82.3m

Casing Description

(1) 6"ø Steel -.8m ~ 72.4m | (2) Open 72.4m ~ 82.3m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 74m | (2) Fresh 82m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/705/7050300.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.490617°W 43.848922°N UTM: 17T 540942 4855219		
County (1)		CON
Wellington		01
Municipality (1)		Lot
West Luther Twp.		006
MOE ID	Tag	Audit No.
7185589	A125537	Z152153
Burnside Well Class		Construction Date
Well: Domestic Supply		8/6/2012
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
475 (masl)	131.4 m	135.6 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.4 m	20.4 m	22.7 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
121.6 m	2.3 l/min/m	276 l/min

Geology Description

(1) Clay, Stones (Brown) 0m ~ 21m | (2) Clay, Stones (Grey) 21m ~ 69.2m | (3) Clay, Rock (Grey) 69.2m ~ 73.5m | (4) Clay, Stones, Silty (Brown) 73.5m ~ 131.4m | (5) Limestone (Grey) 131.4m ~ 135.6m

Casing Description

(1) 6″ø Steel 0m ~ 71.6m | (2) 6″ø Steel 71m ~ 132m | (3) 5″ø Open 132m ~ 135.6m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 132.9m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/718/7185589.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.56228°W 43.86557°N UTM: 17T 535172 4857035		
County (1)		CON
Wellington		02
Municipality (1)		Lot
Arthur Twp.		026
MOE ID	Tag	Audit No.
7254812	A147771	Z217637
Burnside Well Class		Construction Date
Well: Agricultural Supply		9/1/2015
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
461.5 (masl)	5.2 m	120.4 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
7.3 m	11 m	68.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
44.5 m	18.4 l/min/m	820.2 l/min

Geology Description

(1) Topsoil (Brown) 0m ~ .3m | (2) Clay, Stones (Brown) .3m ~ 5.2m | (3) Hardpan (Grey) 5.2m ~ 32m | (4) Hardpan, Stoney (Grey) 32m ~ 32.3m | (5) Limestone (Brown) 32.3m ~ 53.3m | (6) Limestone (White) 53.3m ~ 60.4m | (7) Limestone (Brown) 60.4m ~ 108.2m | (8) Limestone, Layered (Brown) 108.2m ~ 120.4m

Casing Description

(1) Steel -.6m ~ 51.8m | (2) Open 51.8m ~ 120.4m

Screens	Water Encountered (at time of drilling)

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/725/7254812.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.556353°W 43.800864°N UTM: 17T 535687 4849851		
County (1)		CON
Wellington		17
Municipality (1)		Lot
Peel Twp.		010
MOE ID	Tag	Audit No.
7288592	A222572	Z256321
Burnside Well Class		Construction Date
Well: Domestic Supply		5/2/2017
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
451.4 (masl)	66.8 m	80.2 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.5 m	15.7 m	154.6 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
58.4 m	29.7 l/min/m	1736.3 l/min

Geology Description
(1) Clay, Hard (Brown) 0m ~ 4.3m | (2) Clay, Hard (Grey) 4.3m ~ 14.6m | (3) Clay, Stones, Hard (Grey) 14.6m ~ 25.6m | (4) Till, Gravel, Layered (Grey) 25.6m ~ 29m | (5) Till, Clay, Stones (Grey) 29m ~ 66.8m | (6) Shale, Soft (Blue) 66.8m ~ 68.9m | (7) Limestone, Shale (Brown) 68.9m ~ 80.2m

Casing Description
(1) 6″ø Steel .9m ~ 68.9m | (2) 6″ø Open 68.9m ~ 80.2m

Screens	Water Encountered (at time of drilling)
	(1) Fresh 77.7m

Project Notes

Link to MOE Water Well Record
https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/728/7288592.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.566867°W 43.844051°N UTM: 17T 534816 4854643		
County (1)		CON
Wellington		
Municipality (1)		Lot
Arthur Twp.		033
MOE ID	Tag	Audit No.
7333175	A256296	Z308013
Burnside Well Class		Construction Date
Well: Domestic Supply		4/29/2019
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Domestic | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
	55.8 m	79.3 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
10.7 m	15.2 m	45.5 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
46 m	10.1 l/min/m	465.1 l/min

Geology Description

(1) Sand, Stones (Brown) 0m ~ 3m | (2) Clay, Stones, Soft (Brown) 3m ~ 22.9m | (3) Clay, Boulders (Brown) 22.9m ~ 27.7m | (4) Clay, Soft (Brown) 27.7m ~ 36.6m | (5) Clay, Gravel, Stones (Brown) 36.6m ~ 55.8m | (6) Limestone (Brown) 55.8m ~ 58.5m | (7) Limestone, Hard (Grey) 58.5m ~ 67.1m | (8) Limestone, Hard (Brown) 67.1m ~ 73.2m | (9) Limestone, Hard (Grey) 73.2m ~ 79.2m

Casing Description

(1) 6″ø Steel -.9m ~ 56.7m | (2) Open 56.7m ~ 79.2m

Screens	Water Encountered (at time of drilling)

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/733/7333175.pdf

(1) Names may reflect former municipalities at the time of construction.



Geographic Location		
Long/Lat: 80.55354°W 43.801358°N UTM: 17T 535913 4849907		
County (1)		CON
Wellington		17
Municipality (1)		Lot
Peel Twp.		010
MOE ID	Tag	Audit No.
7334364	A252621	Z306241
Burnside Well Class		Construction Date
Well: Agricultural Supply		5/23/2019
MOE Well Class		
Water Supply		
MOE Well Uses (Primary Use | Secondary Use)		
Livestock | Not Recorded		
Ground Elevation	Bedrock Depth	Borehole Depth
	81.4 m	86.9 m
Static Water Lev.	Lev. After Pump Test	Test Flow Pump Rate
11.9 m	13 m	68.2 l/min
Available Drawdown	Specific Capacity	Theoretical Yield
72.2 m	62 l/min/m	4476.4 l/min

Geology Description

(1) Clay, Stones, Hard (Brown) 0m ~ 3.4m | (2) Clay, Stones, Hard (Grey) 3.4m ~ 29.3m | (3) Till, Stones, Sandy (Grey) 29.3m ~ 34.7m | (4) Till, Stones, Clay (Grey) 34.7m ~ 68.3m | (5) Clay, Stones, Hard (Grey) 68.3m ~ 81.4m | (6) Shale, Soft (Blue) 81.4m ~ 83.8m | (7) Limestone, Soft (Brown) 83.8m ~ 86.9m

Casing Description

(1) 6″ø Steel -.9m ~ 84.1m

Screens	Water Encountered (at time of drilling)
	(1) Untested 85.3m | (2) Untested 86.6m

Project Notes

Link to MOE Water Well Record

https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/733/7334364.pdf

(1) Names may reflect former municipalities at the time of construction.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Water Quality Data

Your Project #: 300052287
Your C.O.C. #: 020654

Attention: Jim Baxter

RJ Burnside Associates Ltd
292 Speedvale Ave W
Unit 20
Guelph, ON
CANADA N1H 1C4

Report Date: 2021/01/15
Report #: R6481965
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C107683
Received: 2021/01/12, 10:15

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2021/01/14	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2021/01/15	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2021/01/14	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	1	N/A	2021/01/14	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2021/01/14	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	1	N/A	2021/01/14	CAM SOP 00102/00408/00447	SM 2340 B
Metals Analysis by ICPMS (as received) (2)	1	N/A	2021/01/13	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2021/01/15		
Anion and Cation Sum	1	N/A	2021/01/15		
Total Ammonia-N	1	N/A	2021/01/14	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (3)	1	N/A	2021/01/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2021/01/13	2021/01/14	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	1	N/A	2021/01/14	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2021/01/15		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2021/01/15		Auto Calc
Sulphate by Automated Colourimetry	1	N/A	2021/01/14	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	1	N/A	2021/01/15		Auto Calc

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and

Your Project #: 300052287
Your C.O.C. #: 020654

Attention: Jim Baxter

RJ Burnside Associates Ltd
292 Speedvale Ave W
Unit 20
Guelph, ON
CANADA N1H 1C4

Report Date: 2021/01/15
Report #: R6481965
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C107683
Received: 2021/01/12, 10:15

use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Metals analysis was performed on the sample 'as received'.
(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: Ashton.Gibson@bureauveritas.com
Phone# (905)817-5765
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

RESULTS OF ANALYSES OF WATER

BV Labs ID		OOW152			OOW152		
Sampling Date		2021/01/11 16:00			2021/01/11 16:00		
COC Number		020654			020654		
	UNITS	MARTIN WELL	RDL	QC Batch	MARTIN WELL Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	4.25	N/A	7146764			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	190	1.0	7146157			
Calculated TDS	mg/L	230	1.0	7146141			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.9	1.0	7146157			
Cation Sum	me/L	4.49	N/A	7146764			
Hardness (CaCO3)	mg/L	140	1.0	7146134			
Ion Balance (% Difference)	%	2.72	N/A	7146763			
Langelier Index (@ 20C)	N/A	0.419		7146137			
Langelier Index (@ 4C)	N/A	0.170		7146139			
Saturation pH (@ 20C)	N/A	7.61		7146137			
Saturation pH (@ 4C)	N/A	7.86		7146139			
Inorganics							
Total Ammonia-N	mg/L	0.11	0.050	7148113			
Conductivity	umho/cm	410	1.0	7148441	400	1.0	7148441
Dissolved Organic Carbon	mg/L	0.94	0.40	7148823	0.93	0.40	7148823
Orthophosphate (P)	mg/L	ND	0.010	7147987	ND	0.010	7147987
pH	pH	8.03		7148443	8.08		7148443
Dissolved Sulphate (SO4)	mg/L	14	1.0	7148010	14	1.0	7148010
Alkalinity (Total as CaCO3)	mg/L	190	1.0	7148428	200	1.0	7148428
Dissolved Chloride (Cl-)	mg/L	3.9	1.0	7147998	4.1	1.0	7147998
Nitrite (N)	mg/L	ND	0.010	7148131			
Nitrate (N)	mg/L	ND	0.10	7148131			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
ND = Not detected

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		OOW152	OOW152		
Sampling Date		2021/01/11 16:00	2021/01/11 16:00		
COC Number		020654	020654		
	UNITS	MARTIN WELL	MARTIN WELL Lab-Dup	RDL	QC Batch
Metals					
Aluminum (Al)	ug/L	5.9	ND	4.9	7148433
Antimony (Sb)	ug/L	ND	ND	0.50	7148433
Arsenic (As)	ug/L	ND	ND	1.0	7148433
Barium (Ba)	ug/L	44	46	2.0	7148433
Beryllium (Be)	ug/L	ND	ND	0.40	7148433
Boron (B)	ug/L	130	130	10	7148433
Cadmium (Cd)	ug/L	ND	ND	0.090	7148433
Calcium (Ca)	ug/L	32000	30000	200	7148433
Chromium (Cr)	ug/L	ND	ND	5.0	7148433
Cobalt (Co)	ug/L	ND	ND	0.50	7148433
Copper (Cu)	ug/L	11	11	0.90	7148433
Iron (Fe)	ug/L	ND	ND	100	7148433
Lead (Pb)	ug/L	ND	ND	0.50	7148433
Lithium (Li)	ug/L	ND	ND	5.0	7148433
Magnesium (Mg)	ug/L	14000	14000	50	7148433
Manganese (Mn)	ug/L	110	110	2.0	7148433
Molybdenum (Mo)	ug/L	5.7	5.8	0.50	7148433
Nickel (Ni)	ug/L	ND	ND	1.0	7148433
Phosphorus (P)	ug/L	ND	ND	100	7148433
Potassium (K)	ug/L	790	790	200	7148433
Selenium (Se)	ug/L	ND	ND	2.0	7148433
Silicon (Si)	ug/L	4500	4200	50	7148433
Silver (Ag)	ug/L	ND	ND	0.090	7148433
Sodium (Na)	ug/L	40000	41000	100	7148433
Strontium (Sr)	ug/L	350	360	1.0	7148433
Thallium (Tl)	ug/L	ND	ND	0.050	7148433
Titanium (Ti)	ug/L	ND	ND	5.0	7148433
Uranium (U)	ug/L	ND	ND	0.10	7148433

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not detected

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		OOW152	OOW152		
Sampling Date		2021/01/11 16:00	2021/01/11 16:00		
COC Number		020654	020654		
	UNITS	MARTIN WELL	MARTIN WELL Lab-Dup	RDL	QC Batch
Vanadium (V)	ug/L	ND	ND	0.50	7148433
Zinc (Zn)	ug/L	ND	ND	5.0	7148433

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not detected

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

TEST SUMMARY

BV Labs ID: OOW152
Sample ID: MARTIN WELL
Matrix: Water

Collected: 2021/01/11
Shipped:
Received: 2021/01/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7148428	N/A	2021/01/14	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7146157	N/A	2021/01/15	Automated Statchk
Chloride by Automated Colourimetry	KONE	7147998	N/A	2021/01/14	Deonarine Ramnarine
Conductivity	AT	7148441	N/A	2021/01/14	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7148823	N/A	2021/01/14	Nimarta Singh
Hardness (calculated as CaCO3)		7146134	N/A	2021/01/14	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	7148433	N/A	2021/01/13	Azita Fazaeli
Ion Balance (% Difference)	CALC	7146763	N/A	2021/01/15	Automated Statchk
Anion and Cation Sum	CALC	7146764	N/A	2021/01/15	Automated Statchk
Total Ammonia-N	LACH/NH4	7148113	N/A	2021/01/14	Alina Dobreanu
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7148131	N/A	2021/01/14	Chandra Nandlal
pH	AT	7148443	2021/01/13	2021/01/14	Surinder Rai
Orthophosphate	KONE	7147987	N/A	2021/01/14	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7146137	N/A	2021/01/15	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7146139	N/A	2021/01/15	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7148010	N/A	2021/01/14	Deonarine Ramnarine
Total Dissolved Solids (TDS calc)	CALC	7146141	N/A	2021/01/15	Automated Statchk

BV Labs ID: OOW152 Dup
Sample ID: MARTIN WELL
Matrix: Water

Collected: 2021/01/11
Shipped:
Received: 2021/01/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7148428	N/A	2021/01/14	Surinder Rai
Chloride by Automated Colourimetry	KONE	7147998	N/A	2021/01/14	Deonarine Ramnarine
Conductivity	AT	7148441	N/A	2021/01/14	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7148823	N/A	2021/01/14	Nimarta Singh
Metals Analysis by ICPMS (as received)	ICP/MS	7148433	N/A	2021/01/13	Azita Fazaeli
pH	AT	7148443	2021/01/13	2021/01/14	Surinder Rai
Orthophosphate	KONE	7147987	N/A	2021/01/14	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7148010	N/A	2021/01/14	Deonarine Ramnarine

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7147987	AKD	Matrix Spike [OOW152-01]	Orthophosphate (P)	2021/01/14		107	%	75 - 125
7147987	AKD	Spiked Blank	Orthophosphate (P)	2021/01/14		100	%	80 - 120
7147987	AKD	Method Blank	Orthophosphate (P)	2021/01/14	ND, RDL=0.010		mg/L	
7147987	AKD	RPD [OOW152-01]	Orthophosphate (P)	2021/01/14	NC		%	25
7147998	DRM	Matrix Spike [OOW152-01]	Dissolved Chloride (Cl-)	2021/01/14		110	%	80 - 120
7147998	DRM	Spiked Blank	Dissolved Chloride (Cl-)	2021/01/14		103	%	80 - 120
7147998	DRM	Method Blank	Dissolved Chloride (Cl-)	2021/01/14	ND, RDL=1.0		mg/L	
7147998	DRM	RPD [OOW152-01]	Dissolved Chloride (Cl-)	2021/01/14	6.0		%	20
7148010	DRM	Matrix Spike [OOW152-01]	Dissolved Sulphate (SO4)	2021/01/14		103	%	75 - 125
7148010	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2021/01/14		104	%	80 - 120
7148010	DRM	Method Blank	Dissolved Sulphate (SO4)	2021/01/14	ND, RDL=1.0		mg/L	
7148010	DRM	RPD [OOW152-01]	Dissolved Sulphate (SO4)	2021/01/14	6.0		%	20
7148113	ADB	Matrix Spike	Total Ammonia-N	2021/01/14		90	%	75 - 125
7148113	ADB	Spiked Blank	Total Ammonia-N	2021/01/14		99	%	80 - 120
7148113	ADB	Method Blank	Total Ammonia-N	2021/01/14	ND, RDL=0.050		mg/L	
7148113	ADB	RPD	Total Ammonia-N	2021/01/14	0.71		%	20
7148131	C_N	Matrix Spike	Nitrite (N)	2021/01/14		105	%	80 - 120
			Nitrate (N)	2021/01/14		102	%	80 - 120
7148131	C_N	Spiked Blank	Nitrite (N)	2021/01/14		107	%	80 - 120
			Nitrate (N)	2021/01/14		101	%	80 - 120
7148131	C_N	Method Blank	Nitrite (N)	2021/01/14	ND, RDL=0.010		mg/L	
			Nitrate (N)	2021/01/14	ND, RDL=0.10		mg/L	
7148131	C_N	RPD	Nitrite (N)	2021/01/14	3.0		%	20
			Nitrate (N)	2021/01/14	3.5		%	20
7148428	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/01/14		96	%	85 - 115
7148428	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/01/14	ND, RDL=1.0		mg/L	
7148428	SAU	RPD [OOW152-01]	Alkalinity (Total as CaCO3)	2021/01/14	2.1		%	20
7148433	AFZ	Matrix Spike [OOW152-02]	Aluminum (Al)	2021/01/13		102	%	80 - 120
			Antimony (Sb)	2021/01/13		104	%	80 - 120
			Arsenic (As)	2021/01/13		102	%	80 - 120
			Barium (Ba)	2021/01/13		101	%	80 - 120
			Beryllium (Be)	2021/01/13		99	%	80 - 120
			Boron (B)	2021/01/13		103	%	80 - 120
			Cadmium (Cd)	2021/01/13		99	%	80 - 120
			Calcium (Ca)	2021/01/13		NC	%	80 - 120
			Chromium (Cr)	2021/01/13		98	%	80 - 120
			Cobalt (Co)	2021/01/13		97	%	80 - 120
			Copper (Cu)	2021/01/13		98	%	80 - 120
			Iron (Fe)	2021/01/13		99	%	80 - 120
			Lead (Pb)	2021/01/13		95	%	80 - 120
			Lithium (Li)	2021/01/13		103	%	80 - 120
			Magnesium (Mg)	2021/01/13		99	%	80 - 120

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BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Manganese (Mn)	2021/01/13		99	%	80 - 120
			Molybdenum (Mo)	2021/01/13		103	%	80 - 120
			Nickel (Ni)	2021/01/13		96	%	80 - 120
			Phosphorus (P)	2021/01/13		114	%	80 - 120
			Potassium (K)	2021/01/13		101	%	80 - 120
			Selenium (Se)	2021/01/13		100	%	80 - 120
			Silicon (Si)	2021/01/13		102	%	80 - 120
			Silver (Ag)	2021/01/13		96	%	80 - 120
			Sodium (Na)	2021/01/13		NC	%	80 - 120
			Strontium (Sr)	2021/01/13		98	%	80 - 120
			Thallium (Tl)	2021/01/13		94	%	80 - 120
			Titanium (Ti)	2021/01/13		101	%	80 - 120
			Uranium (U)	2021/01/13		102	%	80 - 120
			Vanadium (V)	2021/01/13		99	%	80 - 120
			Zinc (Zn)	2021/01/13		97	%	80 - 120
7148433	AFZ	Spiked Blank	Aluminum (Al)	2021/01/13		108	%	80 - 120
			Antimony (Sb)	2021/01/13		103	%	80 - 120
			Arsenic (As)	2021/01/13		101	%	80 - 120
			Barium (Ba)	2021/01/13		101	%	80 - 120
			Beryllium (Be)	2021/01/13		97	%	80 - 120
			Boron (B)	2021/01/13		102	%	80 - 120
			Cadmium (Cd)	2021/01/13		100	%	80 - 120
			Calcium (Ca)	2021/01/13		107	%	80 - 120
			Chromium (Cr)	2021/01/13		97	%	80 - 120
			Cobalt (Co)	2021/01/13		96	%	80 - 120
			Copper (Cu)	2021/01/13		99	%	80 - 120
			Iron (Fe)	2021/01/13		101	%	80 - 120
			Lead (Pb)	2021/01/13		94	%	80 - 120
			Lithium (Li)	2021/01/13		100	%	80 - 120
			Magnesium (Mg)	2021/01/13		102	%	80 - 120
			Manganese (Mn)	2021/01/13		99	%	80 - 120
			Molybdenum (Mo)	2021/01/13		103	%	80 - 120
			Nickel (Ni)	2021/01/13		94	%	80 - 120
			Phosphorus (P)	2021/01/13		115	%	80 - 120
			Potassium (K)	2021/01/13		102	%	80 - 120
			Selenium (Se)	2021/01/13		101	%	80 - 120
			Silicon (Si)	2021/01/13		106	%	80 - 120
			Silver (Ag)	2021/01/13		96	%	80 - 120
			Sodium (Na)	2021/01/13		101	%	80 - 120
			Strontium (Sr)	2021/01/13		99	%	80 - 120
			Thallium (Tl)	2021/01/13		93	%	80 - 120
			Titanium (Ti)	2021/01/13		102	%	80 - 120
			Uranium (U)	2021/01/13		101	%	80 - 120
			Vanadium (V)	2021/01/13		98	%	80 - 120
			Zinc (Zn)	2021/01/13		97	%	80 - 120
7148433	AFZ	Method Blank	Aluminum (Al)	2021/01/13	ND, RDL=4.9		ug/L	
			Antimony (Sb)	2021/01/13	ND, RDL=0.50		ug/L	
			Arsenic (As)	2021/01/13	ND, RDL=1.0		ug/L	

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BV Labs Job #: C107683
Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Barium (Ba)	2021/01/13	ND, RDL=2.0		ug/L	
			Beryllium (Be)	2021/01/13	ND, RDL=0.40		ug/L	
			Boron (B)	2021/01/13	ND, RDL=10		ug/L	
			Cadmium (Cd)	2021/01/13	ND, RDL=0.090		ug/L	
			Calcium (Ca)	2021/01/13	ND, RDL=200		ug/L	
			Chromium (Cr)	2021/01/13	ND, RDL=5.0		ug/L	
			Cobalt (Co)	2021/01/13	ND, RDL=0.50		ug/L	
			Copper (Cu)	2021/01/13	ND, RDL=0.90		ug/L	
			Iron (Fe)	2021/01/13	ND, RDL=100		ug/L	
			Lead (Pb)	2021/01/13	ND, RDL=0.50		ug/L	
			Lithium (Li)	2021/01/13	ND, RDL=5.0		ug/L	
			Magnesium (Mg)	2021/01/13	ND, RDL=50		ug/L	
			Manganese (Mn)	2021/01/13	ND, RDL=2.0		ug/L	
			Molybdenum (Mo)	2021/01/13	ND, RDL=0.50		ug/L	
			Nickel (Ni)	2021/01/13	ND, RDL=1.0		ug/L	
			Phosphorus (P)	2021/01/13	ND, RDL=100		ug/L	
			Potassium (K)	2021/01/13	ND, RDL=200		ug/L	
			Selenium (Se)	2021/01/13	ND, RDL=2.0		ug/L	
			Silicon (Si)	2021/01/13	ND, RDL=50		ug/L	
			Silver (Ag)	2021/01/13	ND, RDL=0.090		ug/L	
			Sodium (Na)	2021/01/13	ND, RDL=100		ug/L	
			Strontium (Sr)	2021/01/13	ND, RDL=1.0		ug/L	
			Thallium (Tl)	2021/01/13	ND, RDL=0.050		ug/L	
			Titanium (Ti)	2021/01/13	ND, RDL=5.0		ug/L	
			Uranium (U)	2021/01/13	ND, RDL=0.10		ug/L	
			Vanadium (V)	2021/01/13	ND, RDL=0.50		ug/L	
			Zinc (Zn)	2021/01/13	ND, RDL=5.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7148433	AFZ	RPD [OOW152-02]	Aluminum (Al)	2021/01/13	19		%	20
			Antimony (Sb)	2021/01/13	NC		%	20
			Arsenic (As)	2021/01/13	NC		%	20
			Barium (Ba)	2021/01/13	3.9		%	20
			Beryllium (Be)	2021/01/13	NC		%	20
			Boron (B)	2021/01/13	1.7		%	20
			Cadmium (Cd)	2021/01/13	NC		%	20
			Calcium (Ca)	2021/01/13	6.4		%	20
			Chromium (Cr)	2021/01/13	NC		%	20
			Cobalt (Co)	2021/01/13	NC		%	20
			Copper (Cu)	2021/01/13	3.7		%	20
			Iron (Fe)	2021/01/13	NC		%	20
			Lead (Pb)	2021/01/13	NC		%	20
			Lithium (Li)	2021/01/13	NC		%	20
			Magnesium (Mg)	2021/01/13	0.72		%	20
			Manganese (Mn)	2021/01/13	0.34		%	20
			Molybdenum (Mo)	2021/01/13	2.2		%	20
			Nickel (Ni)	2021/01/13	NC		%	20
			Phosphorus (P)	2021/01/13	NC		%	20
			Potassium (K)	2021/01/13	0.41		%	20
			Selenium (Se)	2021/01/13	NC		%	20
			Silicon (Si)	2021/01/13	5.5		%	20
			Silver (Ag)	2021/01/13	NC		%	20
			Sodium (Na)	2021/01/13	1.0		%	20
			Strontium (Sr)	2021/01/13	2.0		%	20
			Thallium (Tl)	2021/01/13	NC		%	20
			Titanium (Ti)	2021/01/13	NC		%	20
			Uranium (U)	2021/01/13	NC		%	20
			Vanadium (V)	2021/01/13	NC		%	20
			Zinc (Zn)	2021/01/13	NC		%	20
7148441	SAU	Spiked Blank	Conductivity	2021/01/14		101	%	85 - 115
7148441	SAU	Method Blank	Conductivity	2021/01/14	ND, RDL=1.0		umho/cm	
7148441	SAU	RPD [OOW152-01]	Conductivity	2021/01/14	0.49		%	25
7148443	SAU	Spiked Blank	pH	2021/01/14		101	%	98 - 103
7148443	SAU	RPD [OOW152-01]	pH	2021/01/14	0.69		%	N/A
7148823	NS3	Matrix Spike [OOW152-04]	Dissolved Organic Carbon	2021/01/14		102	%	80 - 120
7148823	NS3	Spiked Blank	Dissolved Organic Carbon	2021/01/14		103	%	80 - 120
7148823	NS3	Method Blank	Dissolved Organic Carbon	2021/01/14	ND, RDL=0.40		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7148823	NS3	RPD [OOW152-04]	Dissolved Organic Carbon	2021/01/14	1.0		%	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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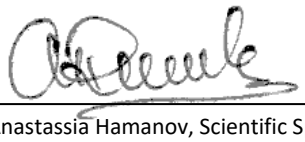
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Report Date: 2021/01/15

RJ Burnside Associates Ltd
Client Project #: 300052287
Sampler Initials: JB

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Exceedance Summary Table – DW for Human Consumption

Result Exceedances

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Appendix I

Technical Memorandum – Arthur Well Exploration Update 1, TW1-21 Construction and Preliminary Testing (RJ Burnside, January 4, 2022)

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
telephone (519) 823-4995 **fax** (519) 941-8120 **web** www.rjburnside.com

BURNSIDE
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Technical Memorandum - Arthur Well Exploration Update 1 TW1-21 Construction and Preliminary Testing

Date: January 4, 2022 **Project No.:** 300052287.0000

Project Name: Arthur Water Well Exploration

Client Name: Test Well TW1-21; Wells Street and Macauley Street Road Allowance

Submitted To: Messer's Matt Aston and Corey Schmidt

Submitted By: Jim Baxter, P.Eng., Josh Donkersgoed, P.Eng.

Reviewed By: Dave Hopkins, P.Geo.

The Township of Wellington North (Wellington North) is currently investigating options for additional and/or new water supplies for the community of Arthur. R.J. Burnside & Associates Limited (Burnside) was retained to provide hydrogeological support in the exploration process.

A request for quotations was advertised on the Wellington North website to retain a water well drilling contractor. Quotes were received from two licensed well contractors and Well Initiatives of Salem was the successful contractor.

A 150 mm diameter test well was located at the southeast corner of the Macauley and Wells Street intersection on Wellington North owned property.



Sampling of the overburden to the bedrock at 160 ft was completed in November 2021 and a thick sand and gravel aquifer was identified from 97 to 158 ft. The most permeable and productive part of the aquifer was from 140 to 156 ft where a continuously wound stainless steel water well screen was installed at the bottom of 140 ft of 6 in. steel casing.



The new test well called TW1-21 was pumped using compressed air for two days to remove the silt and clay in the aquifer around the well screen from the well construction process.

On November 29, 2021 a short term step test of the well was completed and the well was pumped at rates of up to 25 L/s (330 Igpm). The short term testing showed that the TW1-21 site could produce over 30 L/s on a short term basis which would be ideal for a new municipal well. Review of the water well database indicates that there are no wells in the same aquifer as TW1-21 within 2 km. This reduces the potential that a new well would interfere with existing farm water systems. The following picture of the well location database map shows the existing primarily bedrock wells in the area of TW1-21. The distance of over 2,300 m from TW1-21 to the closest well in the same sand and gravel aquifer is shown in blue, just west of the Conn Road.



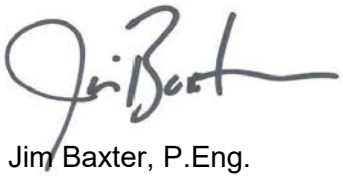
The site plan and cross sections of Arthur that were included in the desktop study presented to council have been updated to include TW1-21 and are appended.

The water quality of the water from TW1-21 was obtained during the short term testing in November and indicates that iron, manganese, and nitrate are less than half the Ontario Drinking Water Standard limit and less than half of what is currently produced from the existing Arthur wells. This suggests that the water from the overburden sand and gravel aquifer at the TW1-21 site may be an excellent water source and an improvement on the current water source. A much more detailed scan of the complete Ontario Drinking Water Standards completed on multiple samples will be required to confirm the apparent excellent water quality at this site.

The next step in the evaluation of the TW1-21 site is to pump the well continuously for a period of about one week. This long term testing, combined with water level monitoring of the existing Arthur wells, existing wells in the area and detailed sampling will provide information on the regional aquifer conditions and long term water quality and quantity at the TW1-21 site.

We trust this memorandum provides an update on the well exploration program in the Arthur area. Initial indications are that the TW1-21 site holds good potential as a future municipal well site. We look forward to testing TW1-21 on a long-term testing to more clearly define the aquifer conditions If you have any questions, please contact the undersigned.

R.J. Burnside & Associates Limited



Jim Baxter, P.Eng.
Groundwater Resource Engineer

JB:sd

Enclosure(s) Well Location Plan
Draft Cross Sections A-A', B-B' and C-C'

cc: Dwayne Graff, President, Well Initiatives Limited (Via: Email)

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LEGEND

- Approximate Village Boundary
- New Test Well Location TW1-21
- Municipal Well
- Monitoring Well
- Abandoned Municipal Well
- MECP Bedrock Well Location
- Deep Bedrock Well Sampled

Sources:

1. Ministry of Natural Resources, © Queen's Printer for Ontario
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.
3. Background 2016 Air Photo Source: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Datum: North American 1983 CSRS

Coord. System: NAD 1983 CSRS UTM Zone 17N

N

0 250 500 750 1,000

Metres

BURNSIDE

Client

TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

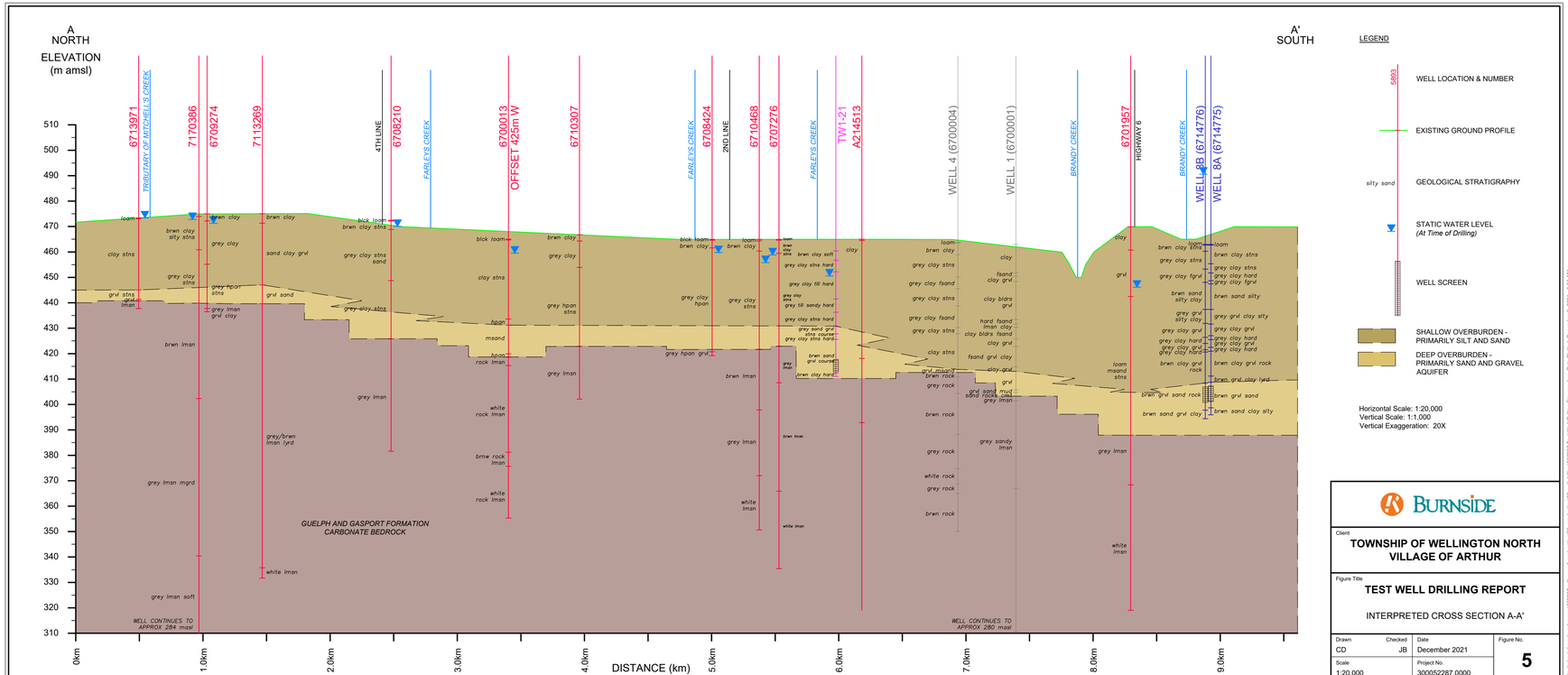
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TEST WELL DRILLING REPORT

ARTHUR PRODUCTION
WELL LOCATION PLAN

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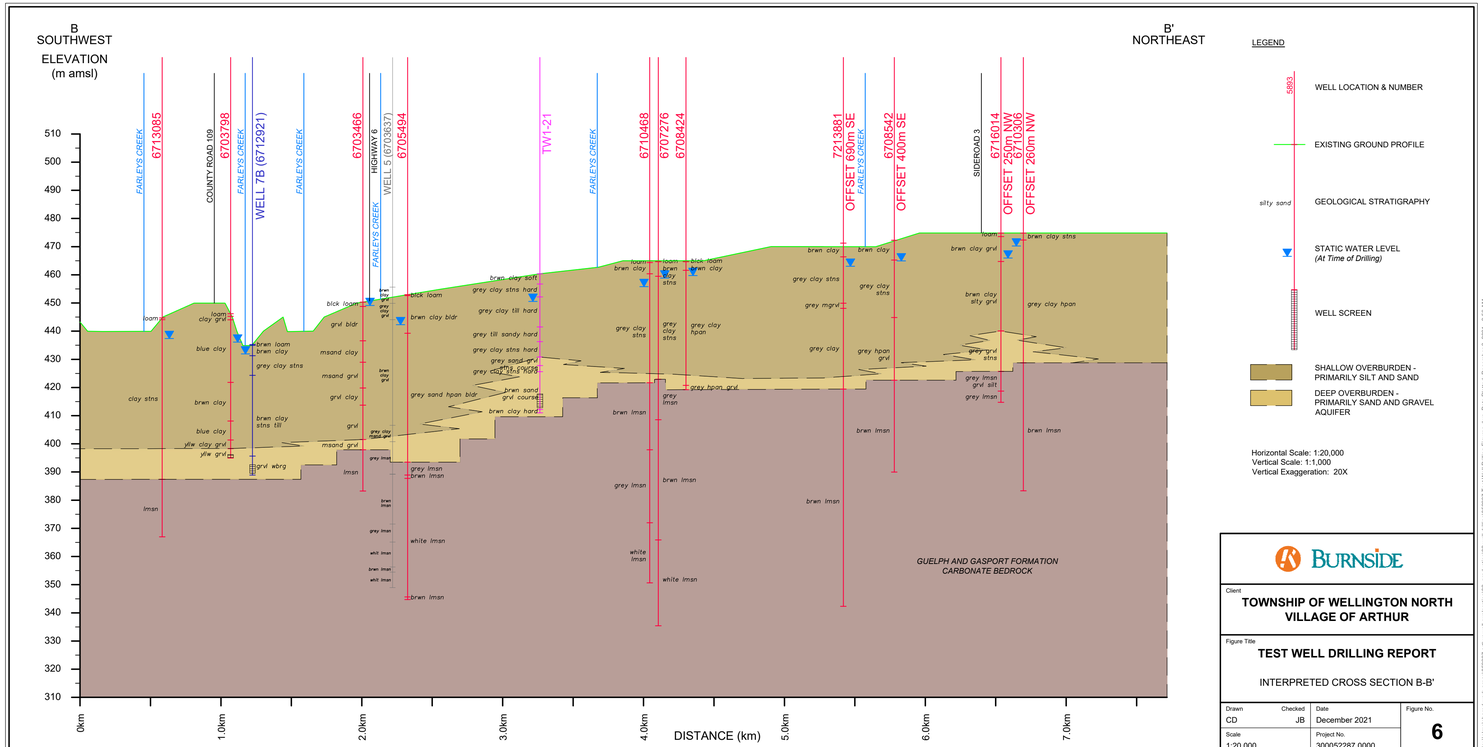
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TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

Figure Title
TEST WELL DRILLING REPORT

INTERPRETED CROSS SECTION A-A'

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CD	JB	December 2021	**5**
Scale		Project No.	
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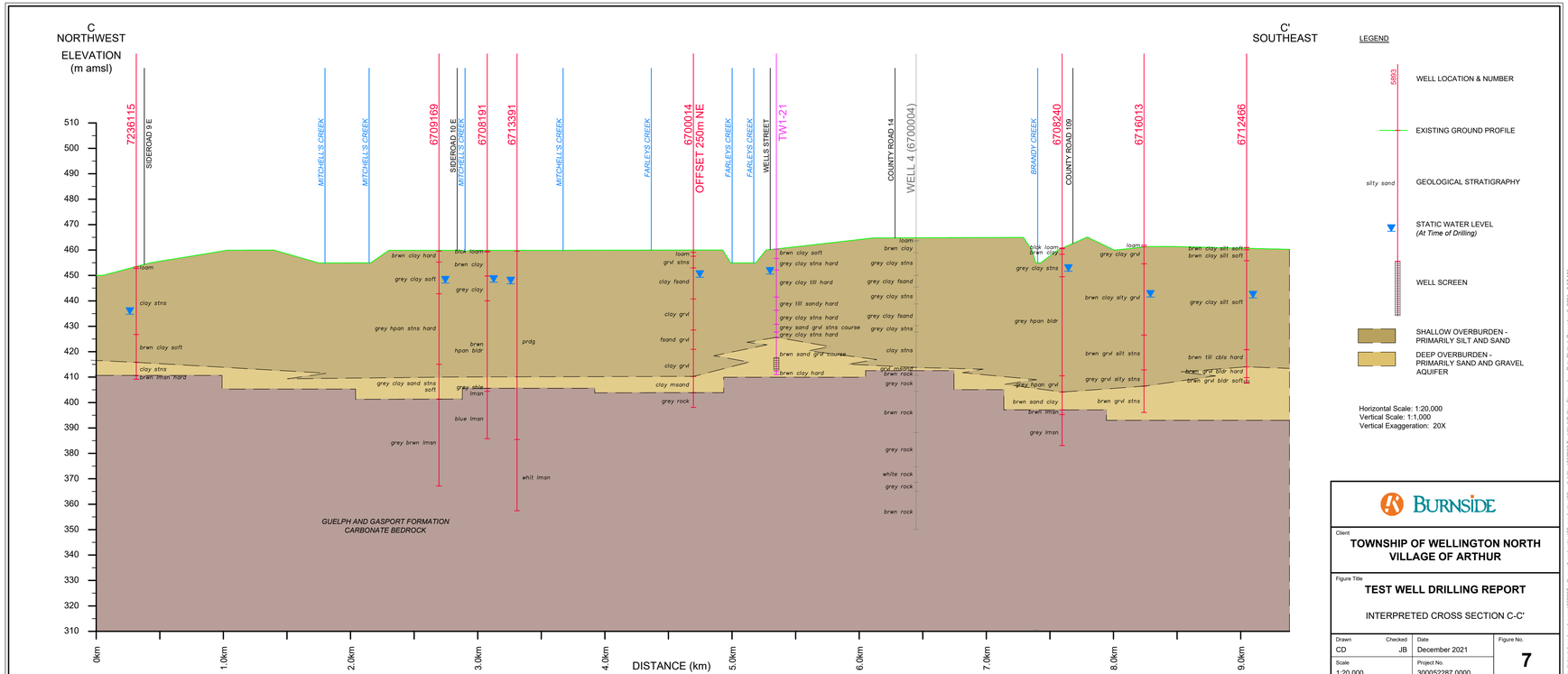
Client
TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

Figure Title
TEST WELL DRILLING REPORT

INTERPRETED CROSS SECTION B-B'

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TOWNSHIP OF WELLINGTON NORTH
VILLAGE OF ARTHUR

Figure Title
TEST WELL DRILLING REPORT

INTERPRETED CROSS SECTION C-C'

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Scale		Project No.	
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