Region of Waterloo

Regional Official Plan Review

Long-Term Population and Housing Growth Analysis

December 2020

Dillon Consulting Ltd. | Watson & Associates Economists Ltd.

Table of Contents

Figures

Figure 5-27: Region of Waterloo, Share of Population and Housing Growth – Permanent and Students Not Captured in Census, 2016 to 2046

List of Aconyms and Abbreviations

Acronym	Full Description of Acronym
DGA	Designated Greenfield Area
GGA	Greater Golden Horseshoe
GTHA	Greater Toronto Hamilton Area
IRCC	Immigration, Refugees and Citizenship Canada
IMP	International Mobility Program
LNA	Land Needs Assessment
LNAM	Land Needs Assessment Methodology
MTSA	Major Transit Station Area
MOF	Ministry of Finance
MMAH	Ministry of Municipal Affairs and Housing
MCR	Municipal Comprehensive Review
NPR	Non-Permanent Residents
OP	Official Plan
OPA	Official Plan Amendment
OMB	Ontario Municipal Board
PPU	Persons Per Unit
PPS	Provincial Policy Statement
ROP	Regional Official Plan
SGA	Strategic Growth Area
SGA	Site Plan Applications
ZBA	Zoning By-law Amendments

Glossary

Census Housing - Private dwellings occupied by usual residents, which includes permanent and non-permanent residents.

Census Population - Refers to the population identified by the Statistics Canada Census, based on a detailed enumeration of Canadian residents which occurs every five years.

Census Undercount - The number of Canadian residents not recorded in the Statistics Canada Census. The population reported in the Statistics Canada Census is adjusted to account for the net number of persons who are missed (i.e. over-coverage less under-coverage) during enumeration.

Collective Dwellings - According to Statistics Canada, a collective dwelling refers to a dwelling of a commercial, institutional or communal nature. These dwellings are occupied by non-usual residents.

Non-Permanent Population - Non-permanent residents are defined by Statistics Canada as persons from another country who have been legally granted the right to live in Canada on a temporary resident permit along with members of their family living with them. These residents include foreign workers, foreign students, the humanitarian population such as refugees and other temporary residents.

Permanent Population - Population which includes persons who reside in Canada on a permanent basis.

Regional Population - The total population and population associated with post-secondary students not captured in the Census population.

Total Population - The Census population adjusted upward to account for Census net undercoverage (Census undercount).

EXECUTIVE SUMMARY

Terms of Reference

The Region of Waterloo (the Region) is undertaking a review of its Regional Official Plan (ROP), the guiding planning document that provides the long-term framework for growth, development, and the protection of many valuable cultural and natural heritage resources located across the Region. The policies and mapping of the ROP will be updated to reflect matters of provincial interest under the *Planning Act*, to be consistent with the Provincial Policy Statement, 2020 (PPS, 2020), and to conform with the Growth Plan, 2019 (as amended)[1]. Building on the provincial policy framework, the ROP review will include a comprehensive analysis of long-term population, housing, and employment growth, as well as associated urban land needs. This analysis forms a key component of the Region's Municipal Comprehensive Review (MCR) process.

The fundamental principles of the current ROP will inform the basis of the analysis. In addition, the area municipalities have completed a range of planning studies that will contribute to the ROP review. Dillon Consulting Limited (Dillon) and Watson & Associates Economists Ltd. (Watson) were retained by the Region to undertake the growth-related components of the MCR. The outcomes of these activities will be documented in a series of Technical Briefs and Background Reports.

The purpose of this technical brief is to analyze the Region's long-term population and housing growth potential based on current data, to extend the Region's population forecast to 2051 to implement the Growth Plan Schedule 3 forecasts, and to inform and provide input into the Land Needs Assessment (LNA). This review has been undertaken within the context of macro-economic trends as well as regional economic and demographic trends that are anticipated to influence the amount, type, and ultimately the location of future residential development within the Region of Waterloo to the year 2051.

Summary of Key Findings

By 2051, the Region of Waterloo's total population base is forecast to grow to approximately 923,000 persons.[2] This represents an increase in population of approximately 366,400 permanent residents and

[1] Hereafter referred to as Growth Plan, 2019. A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Office Consolidation 2020, Ontario.

[2] In accordance with Schedule 3 of A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Office Consolidation 2020, Ontario.

non-permanent residents (NPR) between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Comparatively, the population of the Province as a whole is forecast to increase at a rate of 1.1% over the 2016 to 2046 time period.

Population growth will be primarily driven by the Region's labour force attraction across a diverse range of growing service-providing and goods-producing sectors, particularly sectors that are geared toward innovation and technology. Looking forward, the Region of Waterloo's distinction as a "complete" and competitive community is anticipated to represent a key driver of the future economic success and population growth potential of this Region.

It is important to recognize that while the Region's population base is growing, it is also getting older. Between 2016 and 2051, the 75+ age group is forecast to represent the fastest growing population age group. 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 on medium- and high-density forms including seniors' housing and affordable housing options.

The Region of Waterloo is also anticipated to accommodate a growing share of young adults and new families seeking home ownership and rental housing opportunities. Population growth associated with young adults is anticipated to be primarily driven by net migration of both permanent and NPR. Net migration in the Region of Waterloo associated with NPR is anticipated to be particularly strong over the next 10 years.

Accommodating forecast Census population growth in the Region of Waterloo will require approximately 140,900 new Census households between 2016 and 2051, or just over 4,000 new Census households annually.[3] An additional 2,700 off-campus dwelling units will also be required to accommodate post-secondary students not captured in the Census. To adequately accommodate future housing demand across a diverse selection of demographic and socio-economic groups, a range of new housing typologies will be required with respect to built-form, location, and affordability across the Region's designated greenfield areas (DGAs), strategic growth areas (SGAs), and other residential intensification areas.

This Technical Brief forms an important foundational report for each of the Technical Briefs to follow as part of the Region's MCR and ROP review process. In accordance with the comprehensive analysis provided as part of this Brief, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the Region of Waterloo. As such, a higher long-term population and employment forecast

[3] Census housing refers to private dwellings occupied by usual residents, which includes permanent and non-permanent residents.

for the Region of Waterloo is not supported for the purposes of long-term growth management and urban land needs analysis.

1.0 INTRODUCTION

1.1 Regional Official Plan Review Context

The Region of Waterloo is undertaking a review of its Regional Official Plan (ROP), the guiding planning document that provides the long-term framework for growth, development, and the protection of many valuable cultural and natural heritage resources located across the Region. It is a legal document under the *Planning Act* that contains the goals, objectives, and policies to manage and direct physical (land-use) change, and its effects on the cultural, social, economic, and natural environment within the Regional community.

This review builds on the foundation of the existing ROP. It includes a number of technical studies to update the recommended approach for managing population and employment growth to 2051 within the Region's three cities: Cambridge, Kitchener, and Waterloo as well as the four Townships: Wellesley, Wilmot, Woolwich, and North Dumfries.

In June 2009, Regional Council passed By-law 09-025 to the current ROP to direct growth to 2031. The current ROP replaced the previous Regional Official Policies Plan that took effect in December 1995.

On December 22, 2010, the Province of Ontario approved the current ROP with modifications, however several parties subsequently appealed the Province's decision to the former Ontario Municipal Board (OMB). The OMB issued a decision to approve the current ROP, in part, with modifications, and the document came into effect formally on June 18, 2015.

Since Regional Council adopted the ROP in 2009, the policy framework guiding land-use planning in Ontario has continued to evolve. A summary of recent changes to the provincial planning policy framework is provided in Chapter 2 of this Brief. This provincial policy framework and the corresponding legislative documents provide direction for municipalities on land-use planning as well as where and how to plan for growth. The latest round of changes to these documents seek to address some of the implementation issues more broadly associated with growth management in Ontario and more specifically across the Greater Golden Horseshoe (GGH). The changes also seek to overcome some of the ongoing challenges facing municipalities in the GGH, including increased demand for infrastructure, increased traffic congestion resulting in delays in the movement of people and goods, and decreased housing affordability to name a few. In addition to these changes, the Province also recently enacted Bill 108 (*More Homes, More Choice Act, 2019*), as well as additional changes to the *Planning Act*, the *Local Planning Tribunal Act*, the *Development Charges Act*, and other legislation. The project team will continue to monitor any changes to Ontario's planning system and their implications to the analysis in this study.

1.2 Study Purpose and Process

The policies and mapping of the ROP will be updated to reflect matters of provincial interest under the *Planning Act*, to be consistent with the Provincial Policy Statement, 2020 (PPS, 2020) and to conform with the Growth Plan, 2019 (as amended)[5]. A major component of the ROP review will also include a comprehensive growth analysis, referred to as a Municipal Comprehensive Review (MCR) to examine the Region's land needs to 2051, analyze various growth scenarios, and identify strategic growth areas (SGAs) to achieve the Region's minimum intensification and density targets.

[5] Hereafter referred to as Growth Plan, 2019. A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Office Consolidation 2020, Ontario.

The fundamental principles of the current ROP will inform the basis of the analysis. In addition, the Area Municipalities within the Region of Waterloo have completed a range of planning studies that will contribute to the ROP review. Dillon Consulting Limited (Dillon) and Watson & Associates Economists Ltd. (Watson) were retained by the Region to undertake the growth-related components of the MCR. The growth-related study is being undertaken in four phases as described below:

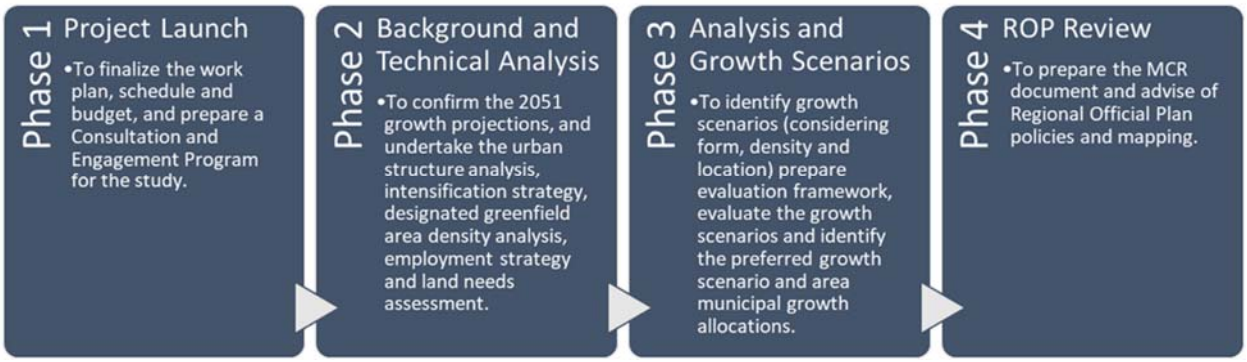


Figure 1-1: Growth Study in Four Phases

A comprehensive consultation and community engagement program is being undertaken to align input with key decision making points in the process. The outcomes of these activities will be documented in the following Technical Briefs and Reports:

1. Region-Wide Long-Term Population and Housing Growth Analysis Technical Brief;
2. Urban Structure Technical Brief;
3. Employment Areas Technical Brief;
4. Intensification Analysis Technical Brief;
5. Community Area and Employment Area: Land Needs and Density Analysis Technical Brief; and
6. Municipal Comprehensive Review Document.

In addition to the growth-related components of the MCR that the Dillon team is leading, the Region is also undertaking a number of other background studies as part of the MCR process, including:

7. Natural Heritage Mapping and Policy Refinement;
8. Aggregate Resource Policy Refinement; and
9. Agricultural System Mapping and Policy Refinement.

The results of these region-led components of the study will feed into the growth analysis for the Region and be a part of the final MCR document.

1.3 Technical Brief Purpose and Context

The purpose of this brief is as follows:

- Analyze the Region's long-term population and housing growth potential based on current data;
- Extend the Region's population forecast to 2051 to implement the Growth Plan, 2019 Schedule 3 forecasts; and
- To assess long-term growth drivers from a regional and local perspective as input into the Land Needs Assessment (LNA) for the Region's Community Areas and Employment Areas.

Accordingly, this review has been undertaken within the context of both macro-economic trends as well as regional economic and demographic trends which are anticipated to influence the amount, type, and location of future residential development within the Region of Waterloo to the year 2051.

1.4 Technical Brief Organization

This document is organized into six chapters, as follows:

- Chapter 1
    - Introduces the purpose and context of the ROP Review.
- Chapter 2 – Background
    - Provides an overview of planning policies and guidelines related to the ROP Review. Key concepts regarding the growth forecast such as the Census undercount, components of population growth and the student population are also defined and introduced.
- Chapter 3 – Region of Waterloo Population and Housing Trends
    - Reviews historical population and housing trends related to the Region of Waterloo and its Area Municipalities.
- Chapter 4 – Region of Waterloo Population and Employment Growth Outlook
    - Identifies key factors which are anticipated to influence population and housing growth in the Region of Waterloo.
- Chapter 5 – Region of Waterloo Population and Housing Growth Forecast, 2016 to 2051
    - Summarizes the population and housing forecast for the Region of Waterloo from 2016 to 2051.
- Chapter 6 – Recommendations and Next Steps

2.0 Background

2.1 Provincial Planning Context

The two key provincial policy documents that apply to long-term growth management in Ontario and the GGH are the PPS, 2020 and the Growth Plan, 2019. The policies set out in these documents outline provincial land-use planning interests and provide high-level policy direction for municipalities.

2.1.1 Provincial Policy Statement

The PPS, 2020 came into effect on May 1, 2020.[6] 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. As previously mentioned, 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 in 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 PPS, 2020 there is strong encouragement to consider the housing market when addressing planning matters such as managing growth overall, identifying market-ready sites to improve economic development and competitiveness, and providing for a range and mix of housing options.

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

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, while housing market demand is important when considering long-range, land-use planning and housing objectives, 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; providing for affordable housing; diversifying the economic base; and supporting job creation.

2.1.2 Provincial Growth Plan for the Greater Golden Horseshoe

In May 2019, the Growth Plan, 2017 was revised by the Progressive Conservative Party of Ontario.7 The changes to the Growth Plan were largely intended to address potential barriers to increasing the supply of housing, creating jobs, and attracting investments across the GGH. To achieve these objectives, the Growth Plan, 2019 introduced revised policies aimed to:

- Speed up development (reducing number of studies, e.g. watershed studies, infrastructure feasibility studies) and unlock modest growth opportunities outside the MCR;
- Provide greater local autonomy for local governments;
- Allow for more collaboration from local governments;
- Provide a simplified criteria and language that stresses “market demand”; and
- Provide reduced intensification and greenfield density targets, as well as opportunities for alternative targets, that are reflective of local real estate market conditions across the GGH.

The Growth Plan, 2019 sets out where and how growth will occur across the GGH and all planning decisions are required to 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:

- Growth will be directed to settlement areas and within settlement areas; it will be focused to SGAs, locations where higher-order transit exists or is planned, and areas with existing or planned public services facilities;

[7] A Place to Grow: Growth Plan for the Greater Golden Horseshoe. May 2019. Ontario.

- 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;
- Population and employment growth is to be accommodated by reducing dependence on the automobile through the development of mixed-use, transit-supportive, pedestrian-friendly urban environments; and
- New revised minimum density targets for upper-tier and single-tier municipalities have been created for the horizon of the Growth Plan, 2019. The designated greenfield area (DGA) minimum density target is 50 people and jobs combined per gross ha. It is important to note that the greenfield density targets established in the Growth Plan, 2019 no longer include employment lands. According to the Growth Plan, 2019, upper- and single-tier municipalities, in consultation with lower-tier municipalities, the Province and other appropriate stakeholders, will each develop an employment strategy that includes establishing a minimum density target in Employment Areas.[9]

On August 28, 2020, the Province released Amendment 1 to A Place to Grow: Growth Plan for the GGH, 2019 which has been incorporated into an Office Consolidation, August 2020 document. The Growth Plan, 2019 has been updated in conjunction with a revised outcome-based LNA methodology for the GGH. 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.[10] 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 to meet market demand and the needs of current and future residents, as well as providing additional labour opportunities for the GGH labour

[9] As per the Growth Plan for the Greater Golden Horseshoe, Office Consolidation, 2020, section 2.2.7 pp. 23 and 24.

[10] Growth Plan, Office Consolidation 2020, Policy 5.2.4, p. 56.

market.[11] It should be noted that higher forecasts established by upper- and single-tier municipalities through their MCRs will not apply to provincial ministries and agencies.[12]

- Minimum density targets are also set out in the Growth Plan, 2019 for transit station areas.[13] In the Region of Waterloo context, minimum density targets are 160 people and jobs combined per gross ha for areas served by light rail transit or bus rapid transit. The Region is serviced by the ION light rail system which is located in a major transit station area (MTSA). While the Region of Waterloo has a station area in the City of Kitchener that is served by the GO Transit rail network, according to Schedule 5 of the Growth Plan, 2019, the station in the Region is not on a priority transit corridor. Given that the Region of Waterloo is not a priority transit corridor, there is no minimum density target for the transit station area in the Region of Waterloo. As such, the Region of Waterloo will need to consider a density target that is appropriate for these SGAs based on the local context, including consideration of other SGAs, for example Urban Growth Centres (UGCs), and the alignment of transit investment with growth.

- The Growth Plan, 2019 provides population and employment forecasts for upper-tier and single-tier municipalities which will apply throughout an MCR.
- Figure 2-1 summarizes the population and employment forecasts for the Region of Waterloo, which had approximately 556,600 people and 275,800 jobs in 2016.[15] As summarized below,

[11] A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Land Needs Assessment Methodology for the Greater Golden Horseshoe, p. 5.

[12] Growth Plan, 2019, Policy 5.2.4.8, p. 57.

[13] Growth Plan for the Greater Golden Horseshoe, Office Consolidation, 2020, section 2.2.4.

[15] 2016 population and employment figures are rounded. 2016 population base includes a Census undercount adjustment of approximately 4%.

the Region of Waterloo is forecast to reach a population of approximately 923,000 by 2051, adding approximately 366,400 people from 2016 to 2051. With respect to employment, by 2051 the Region is forecast to reach 470,000 jobs, adding approximately 194,200 jobs from 2016 to 2051.

Figure 2-1: Growth Plan Population and Employment Projections

GROWTH PLAN, 2019 FORECAST*		
	Population	Employment
	2051	2051
	923	470

*Figures shown represent thousands (i.e. 000s).

2.1.3 Provincial Land Needs Assessment Methodology

On June 16, 2020, the Minister released the proposed LNA in the GGH 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.[17] This methodology replaces the previous LNA methodology for the GGH that was issued on May 4, 2018. The revised LNA methodology focuses on a more simplified and outcome-based approach in comparison to the 2018 LNA methodology. Upper- and single-tier municipalities in the GGH 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 LNA methodology identifies that the results of an LNA can only be implemented through an MCR. As previously identified, an MCR is a new OP, or an Official Plan Amendment (OPA) 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 LNA 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

[17] 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 land employment jobs. Community areas include delineated built-up areas and designated greenfield areas."

"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."[18]

The LNA methodology prescribes the key steps to establishing Community Area and Employment Area land needs. The key steps for Community Area land needs are found in section 2 of the LNA, and in section 3 for Employment Area land needs. [19, 20]

2.2 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 Region of Waterloo 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 Region of Waterloo is strongly correlated with the growth outlook and competitiveness of the economy within the Region of Waterloo and the surrounding region – which in this case is largely represented by the GGH. The GGH represents the economic powerhouse of Ontario and the centre of much of the economic activity in Canada. It also represents much of the commuter-shed for the Region of Waterloo. Potential employment opportunities within the Region of Waterloo and surrounding commuter-shed represent the primary driver of net migration to this area.

The employment base within the Region of Waterloo 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

[18] Land Needs Assessment Methodology for the Greater Golden Horseshoe (2020)., pp. 6 and 7.

[19] Ibid. pp. 8 to 14.

[20] Land Needs Assessment Methodology for the Greater Golden Horseshoe. Ontario. May 4, 2019., pp. 15 to 18.

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 Region of Waterloo within the 0-64 age group, similar the Country as whole, 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 region's 65+ population will continue to be largely driven by the aging of the Region's existing population and, to a lesser extent the attractiveness and affordability of the Region to new seniors.

2.3 Components of Population Growth

2.3.1 Census Population

The Census population refers to the population identified by the Statistics Canada Census, based on a detailed enumeration of Canadian residents which occurs every five years.[21] The Census population includes two key components:

1. **Permanent Population** – The permanent population includes persons who reside in Canada on a permanent basis.
2. **Non-Permanent Resident (NPR) Population** – Non-permanent residents defined by Statistics Canada as persons from another country who have been legally granted the right to live in Canada on a temporary resident permit along with members of their family living with them.

[21] The Statistics Canada Census was updated in 2016.

These residents include foreign workers, foreign students, the humanitarian population such as refugees and other temporary residents.[22]

The majority of the NPR population in the Region of Waterloo is comprised of full-time post-secondary students and foreign workers, and is largely concentrated in the City of Waterloo and to a lesser degree the City of Kitchener due to their proximity to post-secondary institutions and major employers.

It is important to understand future population trends associated with both permanent and NPR population within the Region of Waterloo as these two distinct demographic groups are anticipated to influence the Region's future population growth rate, age structure and housing requirements in unique ways. More specifically, the Region of Waterloo NPR population is largely represented by a temporary cohort which is typically concentrated between the age of 15 and 34 and is represented largely by foreign students, skilled workers and their families.

It is noted that the population forecast methodology provided herein takes into account the unique demographic characteristics associated with the NPR population by distinguishing this population segment from the age-specific growth forecast model which forms a foundational component of the LNA. The future growth potential and composition of the NPR population with respect to full-time international students, other students, workers, asylum seekers has been further considered through an analysis of Immigration, Refugees and Citizenship Canada (IRCC) data, a review of International Mobility Program (IMP) data, consultation with Region of Waterloo and discussions with post-secondary institutions in the Region of Waterloo (i.e. University of Waterloo, Wilfrid Laurier University and Conestoga College). This approach was employed to develop a "bottom-up" NPR population forecast which is then tested against total net migration and population levels anticipated throughout the Region to the year 2051.

Statistics Canada data indicates that post-2016 growth in the NPR category in the Region of Waterloo has most recently been exceptionally strong and is anticipated to represent a large component of Census population growth during the 2016 to 2021 period. Recent strength in NPR population growth has been largely been driven by increased demand in international post-secondary students across Canadian post-secondary institutions, including those in the Region of Waterloo. It is also noted that the Canadian federal government fast-track visa program which was officially launched in June, 2017 has also accelerated growth in foreign temporary workers.[24] Looking forward, NPR population is expected to represent a more significant component of future population growth in the Region of Waterloo, relative

[22] Statistics Canada, Population and Family Estimates Methods.

[24] https://www.immigration.ca/global-talent-stream-early-success-fast-track-canada-visa-pilot.

to historical trends, which will influence both the future demographic composition of the Region as well as housing needs particularly in locations within proximity to the Region's post-secondary institutions. Further details about the forecast are provided in Chapters 4 and 5 and Appendix A.

An additional component of the Census population is the non-household population. The household-population relates to persons who are part of a household, whereas the non-household population relates to persons who are residents of collective dwellings. According to Statistics Canada, a collective dwelling refers to a dwelling of a commercial, institutional, or communal nature. Included in this type of dwelling are lodging or rooming houses, hotels, motels, tourist homes, nursing homes, hospitals, staff residences, communal quarters (military bases), work camps, jails, missions, and group homes. Collective dwellings may be occupied by usual residents or solely by foreign and/or temporary residents. Population in collective dwellings is expected to increase over time largely as a result of the aging population. Further details regarding forecast collective dwellings are provided in Chapter 5.

2.3.2 Census Undercount

The Statistics Canada population is adjusted to account for the net number of persons who are missed (i.e. over-coverage less under-coverage) during enumeration. The 2016 Census population adjusted for the Census undercount was finalized by Statistics Canada in November 2019. For the Region of Waterloo, the 2016 Census undercount was estimated by Statistics Canada at approximately 3.4%.[25] It is also important to note that the Census undercount varies by population age, where under coverage rates are typically highest for young adults between the age of 19 to 24. It is noted that the Region of Waterloo uses an undercount of 4.0% for planning purposes. As such, for the purpose of this Population and Housing Growth Analysis Brief, a 4.0% population undercount has been assumed for the Region of Waterloo for all historical Census periods as well as throughout the forecast period to 2051.[26]

[25] Statistics Canada Table 17-10-0139-01, Population Estimates, July 1, by Census division, 2016 boundaries.

[26] Again, it is noted that the Census population undercount assumed for this study varies by age.

2.3.3 Total Population

Total population is defined as:

> "The Census population adjusted upward to account for Census net undercoverage (which are those people missed by the Census less those who have been double-counted). Growth Plan Schedule 3 population forecasts are expressed in total population."

As previously mentioned, the Region of Waterloo uses an undercount of 4.0%. For the purposes of this Technical Brief, total population refers to the Census population adjusted upward to account for a 4.0% undercount.

2.4 Approach to Student Population Growth Forecast

Post-secondary students are an important part of the Region of Waterloo as they contribute to the vibrancy, diversity, and economic strength of this area. It is recognized that there are more than 59,000 full-time students attending local post-secondary institutions within the Region, of which a portion of this population is not recognized in the Census population base as reported by the Statistics Canada Census.[28] As part of this analysis, population growth associated with post-secondary students not captured in the Census population has been "layered" onto the base total population and total population forecast to the year 2051. The total population and population associated with post-secondary students not captured in the Census population is referred to as Regional population. The approach and methodology utilized to complete this analysis are discussed below.

The geographic origin of current (2016) full-time students was assessed with respect to the share of domestic (i.e. local, Greater Toronto Hamilton Area (GTHA), other Ontario, out of province) and international students. This was completed through a review of available enrollment data from the three-post secondary schools and a review of Council of Ontario Universities Application Statistics, enrollment data from the Ministry of Colleges and Universities.

The analysis also considered the current (2016) residency of the Region's post-secondary student population including those that live on-campus, off-campus with parents or commuting from outside of the Region as well as those residing off-campus in rental housing. This was assessed through available housing surveys/data available from the post-secondary institutions, the City of Waterloo Town and

[28] Reflects full-time enrolment at the University of Waterloo, Wilfrid Laurier University and Conestoga College affiliated campuses located within the Region of Waterloo.

Gown Committee, as well as through consultation with staff from the three post-secondary institutions and the City of Waterloo Planning Department.

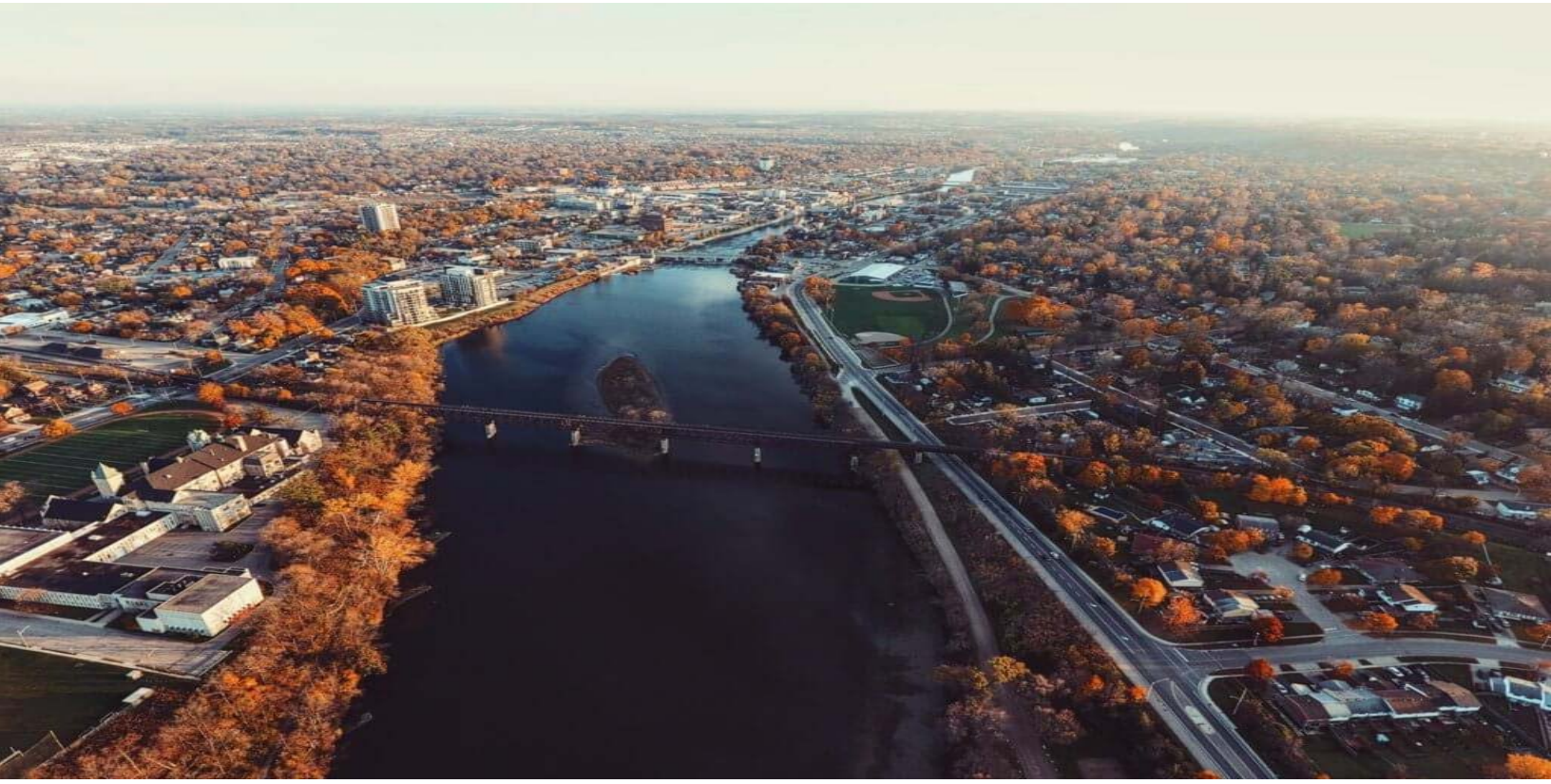
The post-secondary student population not captured in the Census data was estimated to total 24,000 in 2016. This includes a share of students living off-campus in student rental housing and students residing in on-campus residences. The Region's post-secondary student population not captured in the Census was determined through a review of enrollment data as well as general trends in student residency patterns as identified through consultation with post-secondary schools and available reporting as discussed above. This analysis was cross-checked through a review of 2016 Census unoccupied dwelling data within traditional student neighbourhoods. The student enrollment and population not captured in the Census are based on fall enrollment numbers for their respective year. In the case of the 2016 Census, student enrollment numbers would reflect 2016 fall enrollment statistics. Full-time post-secondary enrollment forecasts were prepared for each of Region's three post-secondary institutions which involved the following:

- Determination of current (2016) full-time enrollment by geographic location in Canada (i.e. local – Region of Waterloo and area, GTHA, Rest of Ontario, Canada (excluding Ontario) and corresponding capture rates for population 18 to 24 years of age by geographic zone.[29] The share and number of total international students were also identified.
- Forecast population growth within the 18 to 24 age group by each geographic zone within Canada in five-year increments was then identified over the 2016 to 2051 period. Growth projections for Ontario were based on Ministry of Finance (MOF) growth projections while Canadian growth projections (excluding Ontario) were derived from Statistics Canada.
- With capture rates held constant using the 2016 data, forecast undergraduate enrollment by geographic zone was identified through to 2051 in five-year increments. Future graduate level enrollment growth at the University of Waterloo and Wilfrid Laurier University was assumed to be equal to the determined undergraduate enrollment growth at each school, respectively.
- Potential growth in international students was "layered on," based on recent and anticipated enrollment growth trends at each of the schools as well as the future outlook for macro-level growth in international students globally.

[29] Refers to the share of population aged 18-24 years in the identified markets enrolled in the undergraduate level programs full-time at the Region's three post-secondary schools

- In the development of the short-term forecast (i.e. 2016 to 2021), the analysis also considers actual enrollment levels through 2019 and short-term planned enrollment data provided by the post-secondary institutions.[30]
- Discussions with representatives of the post-secondary institutions were also held to help inform the broader level assumptions utilized to develop the enrollment growth forecasts.

[30] Short-term enrolment forecasts provided by the University of Waterloo, Wilfrid Laurier University and Conestoga College affiliated campuses located within the Region of Waterloo for 2018 and 2019.



3.0 Region of Waterloo Historical Population and Housing Trends

3.1 Introduction

This chapter provides an assessment of historical population and housing growth trends for the Region of Waterloo over the past several decades. A broad range of considerations related to demographics, economics, socio-economics and infrastructure are anticipated to drive future growth throughout the Region over the long-term planning horizon. As further discussed in Chapters 4 and 5, these factors will not only impact the rate and magnitude of growth but will also influence the form, density, and location of residential development throughout the Region.

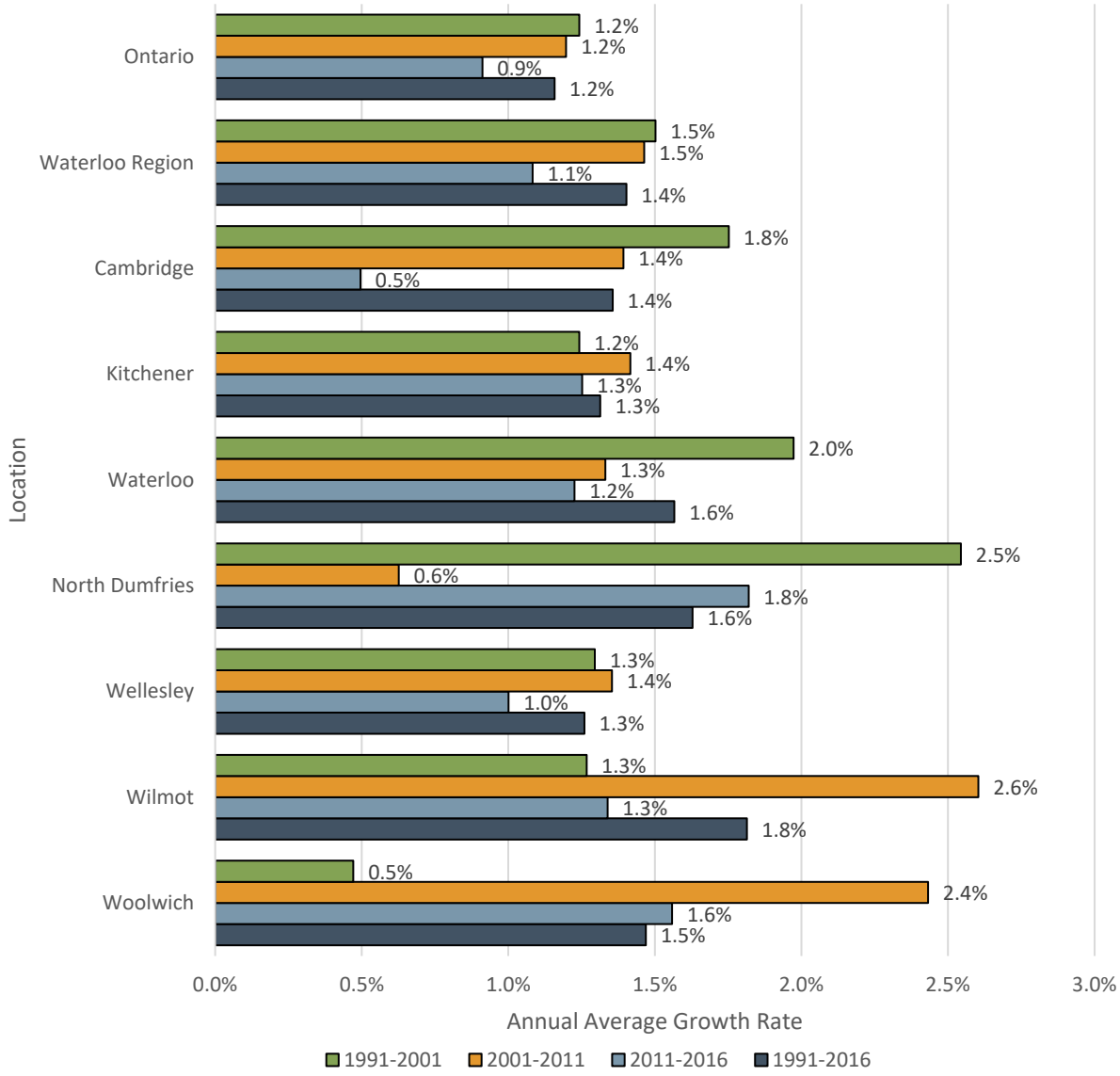
3.2 Review of Historical Census Population and Housing Growth Trends

3.2.1 Region of Waterloo Historical Population Trends by Area Municipality, 1991 to 2016

Figure 3-1 summarizes historical population growth rates for the Region of Waterloo and its Area Municipalities during the 1991 to 2016 period in accordance with Statistics Canada Census data. Key observations include the following:

- The Region of Waterloo experienced strong population growth during this period averaging 1.4% annual growth which was comparatively higher than the provincial average (1.2%);
- The annual rate of population growth across the Region's Area Municipalities averaged between 1.3% and 1.8% during the 1991 to 2016 period, with the Township of Wilmot, the Township of North Dumfries, and the City of Waterloo leading in this area; and
- For several of the Area Municipalities the 2011 to 2016 period represented a relatively slower period of population growth which can be largely attributed to the impacts of the 2009 global economic downturn.

Figure 3-1: Region of Waterloo by Local Municipality, Historical Population Growth Rates, 1991 to 2016



Source: Derived from Statistics Canada Census data by Watson & Associates Economists Ltd., 2019.

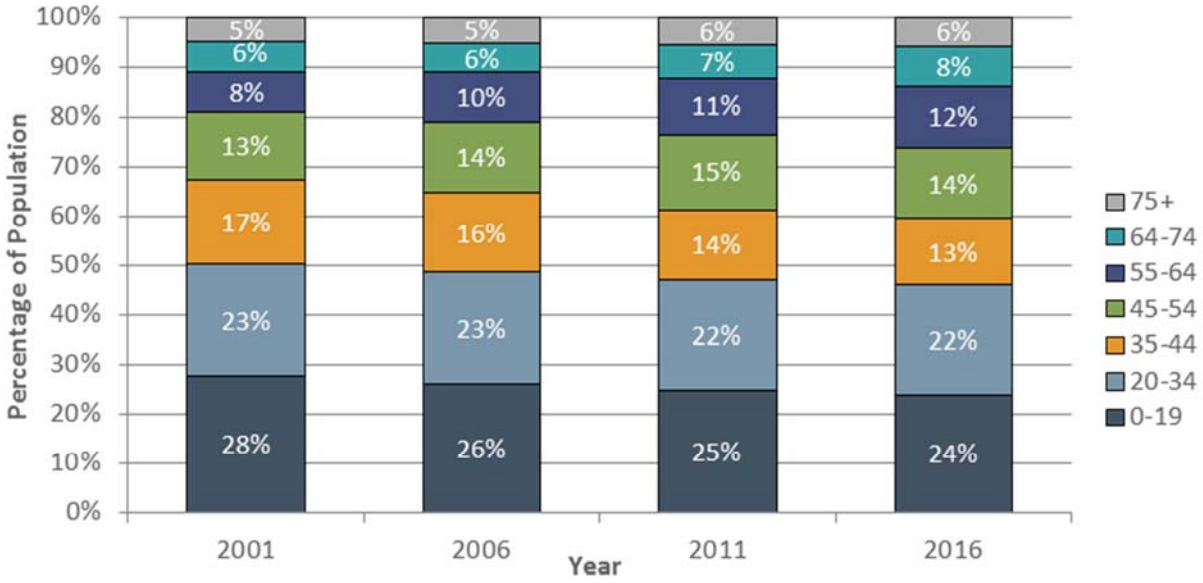
3.2.2 Region of Waterloo Trends in Total Population Age Structure

Figure 3-2 summarizes historical trends in population structure by age cohort over the 2001 through 2016 period by major age groups. Figure 3-3 summarizes the 2016 population age structure in the Region of Waterloo compared to the GGH and Province of Ontario as a whole. Key observations regarding the Region of Waterloo historical population by age include the following:

- In 2016, the 0-19 age cohort (youth population) in the Region of Waterloo accounted for 24% of the total population. Proportionately, the population share of this age cohort has decreased from 28% in 2001;
- The Region's young adult/adult population share (20-54 years of age) has declined moderately over the same time period, comprising approximately 49% of the population in 2016:
    - The 20-34 age cohort (young adults), which comprised an estimated 22% of the population in 2016, has decreased in proportion from 23% in 2001;
    - The percentage of the 35-44 age group decreased from 17% in 2001 to 13% in 2016;
    - The percentage of adults 45-54 years old account for 14% of the 2016 population, up from 13% in 2001;
- The Region's 55-64 (i.e. empty-nesters) and seniors' population share has increased over the same time period, specifically:
    - The 55-74 age group (empty-nesters/younger seniors) increased by 6 percentage points between 2001 and 2016, from 14% to 20%;
    - The 75+ age group (older seniors) has increased moderately from 5% in 2001 to 6% in 2016. Looking forward, the share of the Regions' population in the 75+ age group is anticipated to increase significantly, driven by the aging of the Baby Boom population.[31] This is anticipated to place increasing demand on the need for seniors' housing, affordable housing, as well as social services to support the Region's growing population base of seniors;
- Generally, the Region of Waterloo's 2016 age structure is younger than that of the GGH and provincial average;
- A slightly lower proportion of the population in the Region of Waterloo is concentrated in the 55-74 age group and 75+ age group in comparison to the GGH and Province of Ontario as a whole; and
- The Region of Waterloo has a higher proportion of youth and adults between the ages of 0 to 19 and 20 and 34, respectively, when compared to the GGH and Province of Ontario.

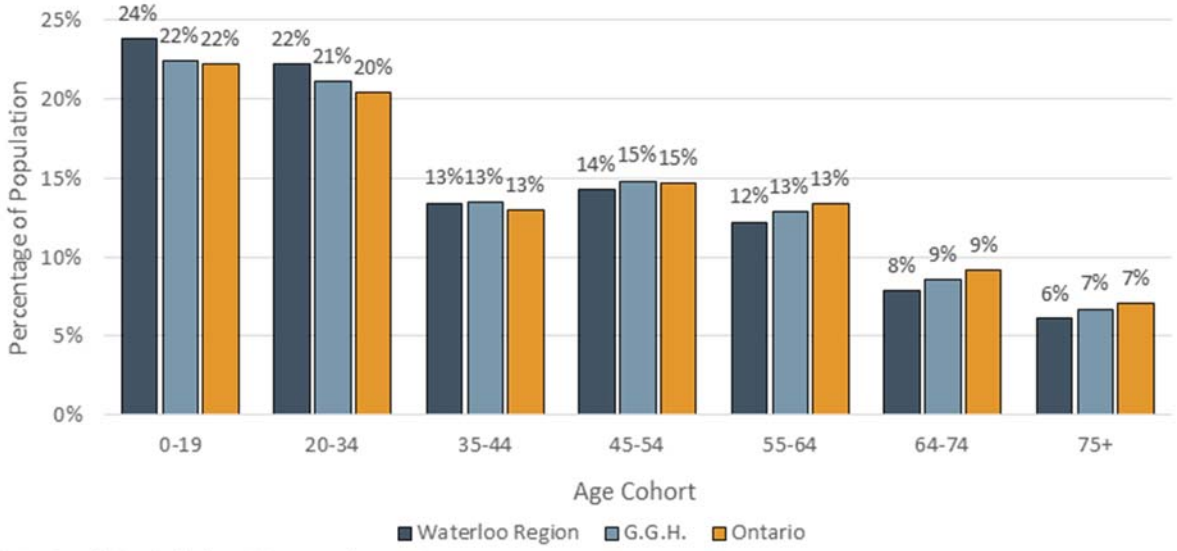
[31] Baby Boomers refer to those born between 1946 and 1964.

Figure 3-2: Region of Waterloo, Population by Age Cohort, 2001 to 2016



Note: Population includes net Census undercount of approximately 4%, based on input from Waterloo Region.
Source: Population forecast by age derived from 2001 to 2016 Statistics Canada census and Annual Demographics Statistics data by Watson & Associates Economists Ltd., 2019.

Figure 3-3: Region of Waterloo, GGH, and Ontario Population by Age Cohort, 2016



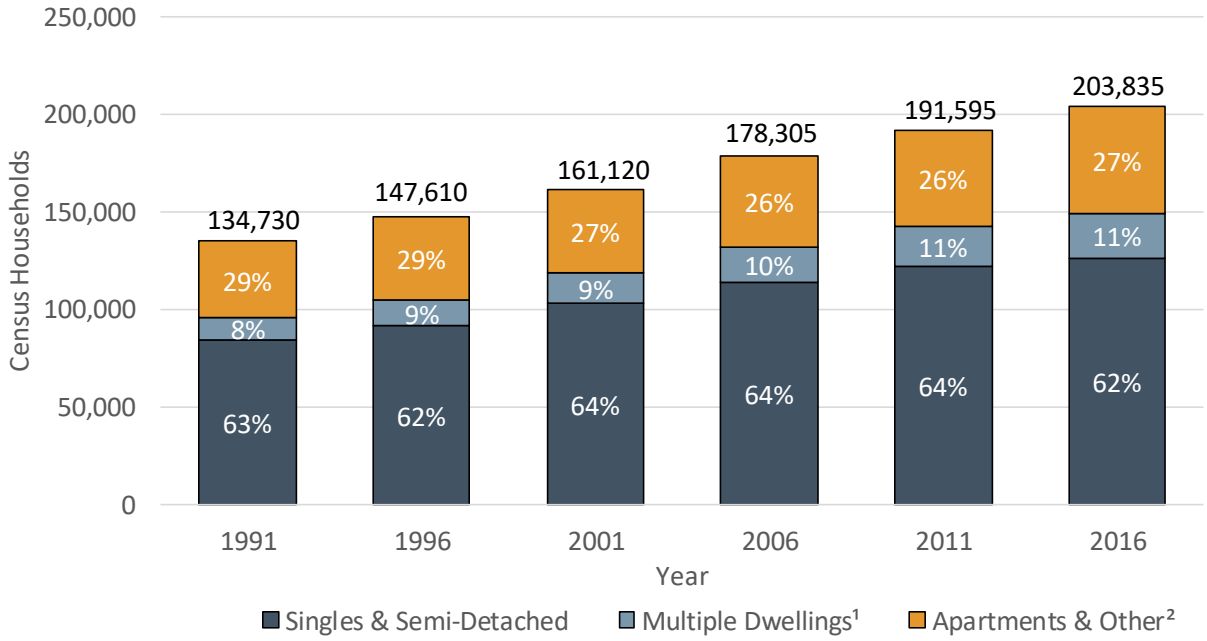
Note: Population includes net Census undercount.
Source: Population by age derived from 2016 Statistics Canada Census and Annual Demographics Statistics data by Watson & Associates Economists Ltd., 2019.

3.2.3 Historical Census Housing Trends, 1991 to 2016

Similar to population growth trends, the Region of Waterloo has experienced a steady rate of Census housing growth over the past 25 years. During this historical period, the Region's housing base has increased by approximately 69,100 households from 134,700 to 203,800, which represents an increase of approximately 2,800 Census housing units per year.[32] Figure 3-4 and Figure 3-5 summarize housing growth by density type between 1991 and 2016. Low density households largely include single and semi-detached units, townhouses comprise medium-density households and apartments in duplexes, while apartments are included in the high-density category. Historically, low-density housing has comprised the majority of new housing development over the past 25 years (at 61% of Census housing growth). Recent housing growth over the past five years from 2011 to 2016, however, has been more balanced by medium and high-density housing forms (67% of total housing growth). Over the next 25 years, it is anticipated that housing development within the Region will be increasingly concentrated in medium- and high-density forms, largely driven by housing affordability and the aging of the Region's population base.

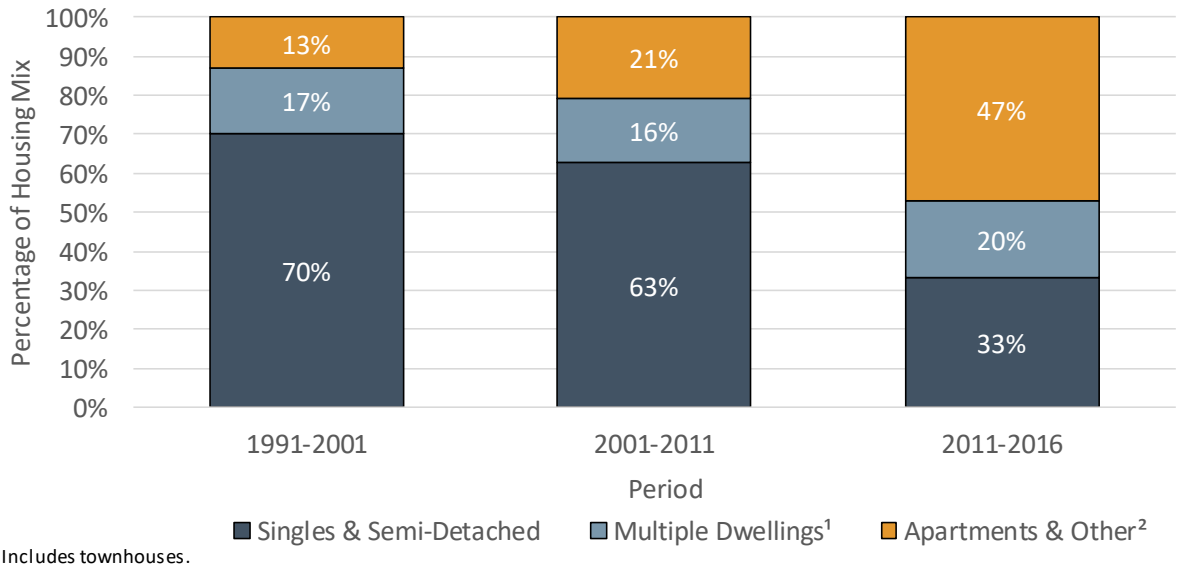
[32] Excludes off-campus student households occupied by students, which are not categorized as private dwellings occupied by usual residents in Region of Waterloo in the Statistics Canada Census.

Figure 3-4: Region of Waterloo, Historical Number of Households, 1991 to 2016



[1] Includes townhouses.
[2] Includes apartments in duplexes, bachelor, 1-bedroom and 2-bedroom+ apartments.
Source: Derived from Region of Waterloo data which is based on Statistics Canada Census data, 1991-2016, by Watson & Associates Economists Ltd., 2019.

Figure 3-5: Region of Waterloo, Historical Share of Housing Growth by Type, 1991 to 2016



[1] Includes townhouses.
[2] Includes apartments in duplexes, bachelor, 1-bedroom and 2-bedroom+ apartments.
Source: Derived from Region of Waterloo data which is based on Statistics Canada Census data, 1991-2016, by Watson & Associates Economists Ltd., 2019.

3.2.4 Housing Occupancy Trends within the Region of Waterloo

3.2.4.1 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).[33] Between 1996 and 2016, the Region of Waterloo's total headship rate increased modestly from 34% to 37% (refer to Appendix B 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 (PPU) trends for the Region of Waterloo, which is further discussed below and in Chapter 5. It is important to note that headship rates by major age group are anticipated to remain relatively stable over the long-term forecast period.

3.2.4.2 Persons Per Housing Unit (PPU)

Figure 3-6 summarizes trends in average housing occupancy for the Region of Waterloo and the Province of Ontario over the 2001 to 2016 period, expressed as the average number of PPU.[34] Trends in household occupancy and age structure are a particularly important statistic for 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:

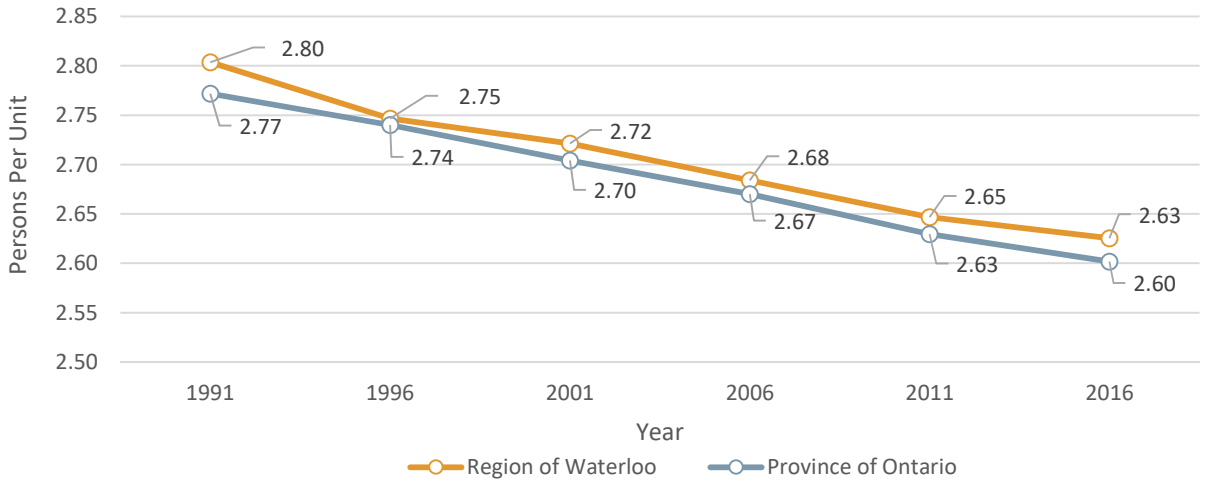
- The average PPU for the Region of Waterloo has steadily declined over the 1991 to 2016 period; however, however, since 2006 the Region's average PPU decline rate has moderated slightly;

[33] It is noted that each household is represented by one primary household maintainer.

[34] Average number of persons per unit (PPU) defined as the total population divided by the number of occupied dwelling units.

- Average housing occupancy levels for the province as a whole are slightly lower relative to the Region of Waterloo; however, the rate of PPU decline between 1991 and 2016 was relatively comparable;
- The recent trend toward greater stabilization in average household occupancy within the Region of Waterloo 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 GGH municipalities, most notably the more populated, urbanized municipalities within the GTHA;
- Over the next 10 years average PPU levels are anticipated to increase, largely driven by strong net migration levels associated with young families arriving in the Region of Waterloo; and
- The average PPU for the Region of Waterloo is forecast to continue to decline over the longer term. This decline, however, is anticipated to occur at a slower rate relative to historical trends primarily as a result of strong net migration associated with young adults (both from permanent and NPR population) anticipated over the forecast period (particularly over the next 10 years).

Figure 3-6: Region of Waterloo, Historical Persons Per Unit (PPU) Trends, 2001 to 2016



Source: Statistics Canada Census data, 1991 to 2016.
Note: Population used to calculate persons per unit does not include the net Census undercount.

Figure 3-7 summarizes the average PPU for new households occupied from 2011 to 2016 for the Region of Waterloo's Area Municipalities by planning policy area.[35] During this time period, the average PPU within the DGA increased in almost all Area Municipalities and remains well above average municipal-wide housing occupancy levels in all cases with the exception of the Township of Wellesley. This observation suggests that average household sizes, particularly related to new construction, on DGA lands are likely to remain higher relative to households within the BUA. In contrast, average PPU levels within the BUA decreased modestly in over half of the Area Municipalities across the Region of Waterloo between 2011 and 2016. In the rural area, the average PPU experienced a decrease in all of Area Municipalities over the same 5-year time period except for the Township of North Dumfries.

Figure 3-7: Region of Waterloo by Area Municipality, Historical Persons Per Unit (PPU) Trends by Built-Up Area (BUA), Designated Greenfield Area (DGA) and Rural Area, 2011 and 2016

Municipality	2011				2016				2011-2016			
	BUA	DGA	Rural	Total	BUA	DGA	Rural	Total	BUA	DGA	Rural	Total
City of Cambridge	2.71	3.10	3.17	**2.73**	2.66	3.19	3.07	**2.69**	(0.05)	0.09	(0.10)	**(0.03)**
City of Kitchener	2.51	2.99	n/a	**2.53**	2.47	3.16	n/a	**2.53**	(0.03)	0.17	n/a	**0.00**
City of Waterloo	2.59	2.95	n/a	**2.60**	2.58	3.24	n/a	**2.61**	(0.01)	0.30	n/a	**0.01**
Township of North Dumfries	2.88	3.19	2.85	**2.87**	2.89	3.11	2.93	**2.93**	0.01	(0.08)	0.08	**0.05**
Township of Wellesley	2.83	3.14	3.63	**3.39**	2.80	3.24	3.62	**3.38**	(0.03)	0.10	(0.01)	**(0.01)**
Township of Wilmot	2.65	2.90	2.88	**2.75**	2.67	3.04	2.73	**2.74**	0.02	0.15	(0.15)	**(0.01)**
Township of Woolwich	2.66	2.89	3.20	**2.87**	2.70	3.12	3.15	**2.92**	0.04	0.23	(0.05)	**0.04**
Region of Waterloo	**2.59**	**3.00**	**3.15**	**2.63**	**2.56**	**3.16**	**3.10**	**2.63**	**(0.03)**	**0.17**	**(0.05)**	**(0.00)**

Source: Derived from the Region of Waterloo ResPoints2018 data, July 5, 2019 by Watson & Associates Economists Ltd., 2019.
Note: PPU data does not include the net Census Undercount.
The PPU's in figure 3-7 are derived from Region of Waterloo ResPoints 2018 data, which may differ from the PPU's in Figure 3-6 which are derived from Statistics Canada Census data.

Generally, it is observed that for newly developed units, average housing occupancy levels tend to increase in the shorter term (1 to 5 years) as new home buyers form families, followed by a decline over the medium term (15 to 30 years) as children age and eventually leave home. This trend is then followed by a period of stabilization over the long term (30+) as older units are regenerated by new families. The result of this pattern is that more recently constructed housing units typically yield a higher PPU on average in comparison to older units.

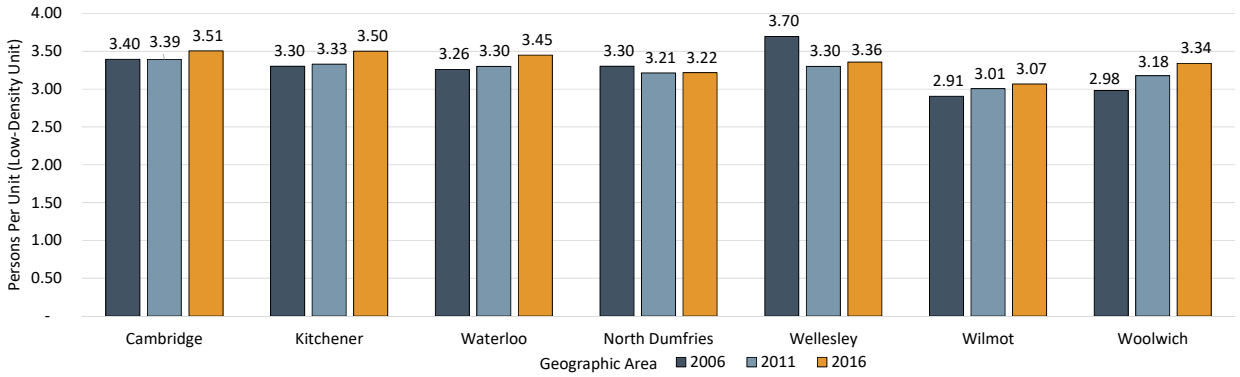
Figure 3-8 through Figure 3-11 summarize average PPU levels for newer housing units (i.e. units which are 15 years or newer in accordance with Census data) by structure type (i.e. low, medium and high density) between 2006 and 2016 for the Region of Waterloo, selected Area Municipalities within the Region of Waterloo, as well as selected surrounding GGH municipalities. This analysis provides insights associated with future household formation trends with the Region of Waterloo relative to broader

[35] Refer to Regional Official Plan Review – Urban Structure Technical Brief for a description of planning policy areas in the Region of Waterloo.

provincial trends. This analysis further points to the unique housing occupancy trends across the Region's Area Municipalities by housing structure type. Key observations include:

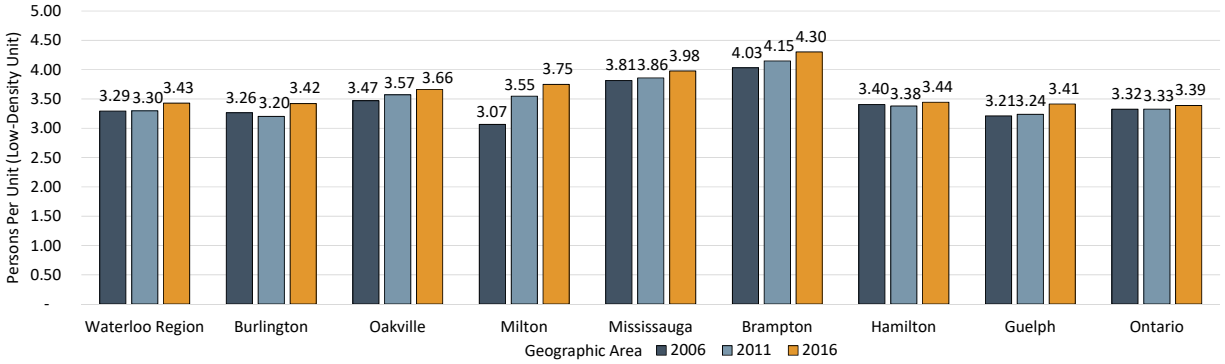
- As of 2016, the average PPU for new low-density dwellings in the Region of Waterloo was 3.43, up from an average of 3.29 in 2006;
- For Region of Waterloo Area Municipalities, the average PPU (as of 2016) for new low-density units was highest in the City of Cambridge (3.51);
- Average new unit PPU levels in the Region of Waterloo are below the average housing occupancy levels of the more populated, urbanized municipalities surveyed within the GTHA, but comparable to many of the other GGH municipalities surveyed as well as the provincial average;
- Over the 2006 to 2016 Census period, average new low-density unit PPU levels increased for all Region of Waterloo Area Municipalities, except for North Dumfries and Wellesley;
- In contrast to low-density households, average PPU levels have not risen by notable amounts over the past decade for medium-density dwellings across the Region of Waterloo. However, several of the other GGH municipalities surveyed within the surrounding area showed a slight to steady PPU increase between 2006 and 2016;
- Average PPU levels for new high-density dwellings increased between 2006 and 2016 for the City of Waterloo and the Region of Waterloo as a whole. This trend is relatively unique compared to many of the other GGH municipalities surveyed (except for the City of Burlington) as well as the Province as a whole, which experienced a PPU decline between 2006 and 2016 in high-density units.

Figure 3-8: Region of Waterloo by Area Municipality, Comparative PPU by Low Density Dwellings for Newer Housing Units (1 to 15 Years of Age)



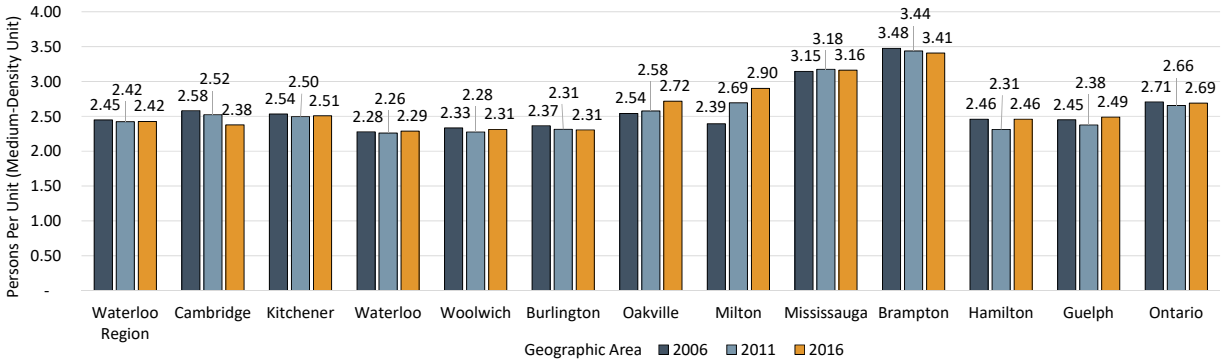
Source: Derived from Census Canada Custom P.P.U. database. Halton Region includes Burlington, Halton Hills, Milton and Oakville. Excludes net Census undercount.
Note: Low-density dwellings represent single and semi-detached housing units.

Figure 3-9: Region of Waterloo and Surrounding GGH Municipalities, Comparative PPU by Low Density Dwellings for Newer Housing Units (1 to 15 Years of Age)



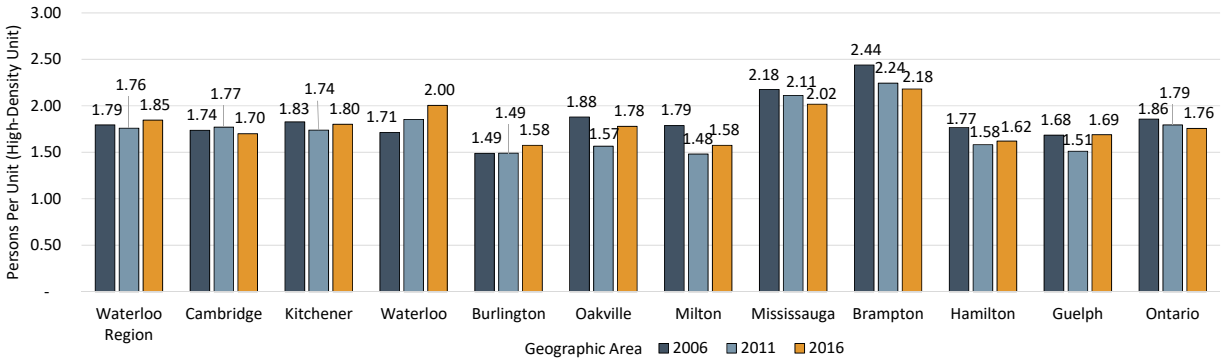
Source: Derived from Census Canada Custom P.P.U. database. Halton Region includes Burlington, Halton Hills, Milton and Oakville. Excludes net Census undercount.
Note: Low-density dwellings represent single and semi-detached housing units.

Figure 3-10: Region of Waterloo and Surrounding GGH Municipalities, Comparative PPU by Medium Density Dwellings for Newer Housing Units (1 to 15 Years of Age)



Source: Derived from Census Canada Custom P.P.U. database. Halton Region includes Burlington, Halton Hills, Milton and Oakville. Excludes net Census undercount.
Note: Medium-density dwellings represent rows and apartments in duplex units.

Figure 3-11: Region of Waterloo and Surrounding GGH Municipalities, Comparative PPU by High Density Dwellings for Newer Housing Units (1 to 15 Years of Age)



Source: Derived from Census Canada Custom P.P.U. database. Halton Region includes Burlington, Halton Hills, Milton and Oakville. Excludes net Census undercount.
Note: High-density dwellngs represent units in apartments >5 storeys.

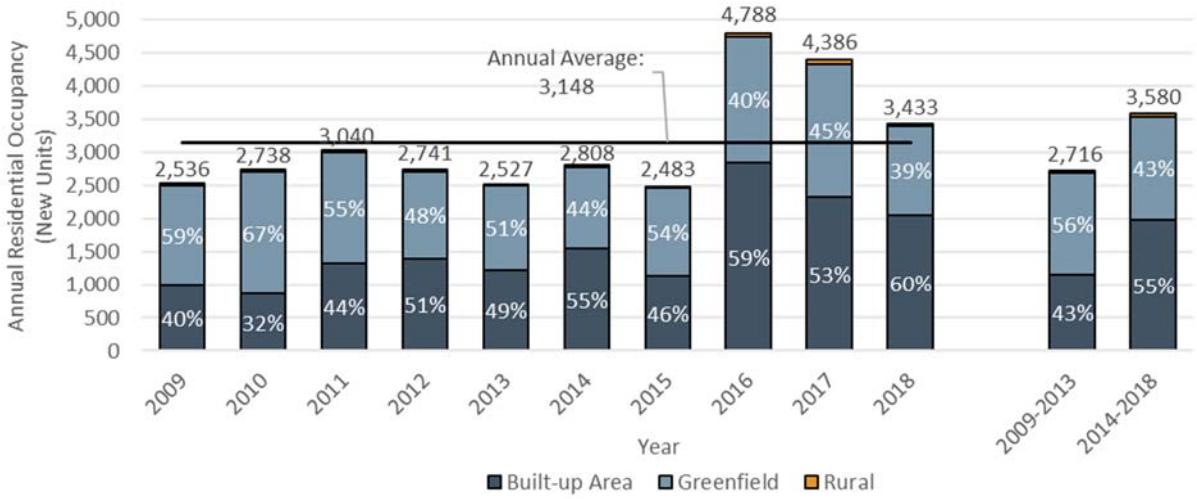
3.2.5 Historical Residential Occupancy Activity by Structure Type and Location

Figure 3-12 and Figure 3-13 summarize recent residential building permit activity at an estimated date of occupancy for new units only within the Region of Waterloo by planning policy area and structure type between 2009 and 2018. During this historical time period:

- Residential new unit occupancy from building permits averaged approximately 3,150 annually;
- Residential occupancy from building permit activity was relatively stable from 2009 to 2015, but has significantly increased since 2016;
- Almost all of recent residential occupancy from building permit activity occurred within settlement areas, averaging just over 3,000 annually;
- More recently, occupancy from residential building permit development activity has shifted towards the built-up area which has averaged almost 2,000 annually from 2014 to 2018 or 55% of total occupancy from residential building permits, compared approximately 43% of total occupancy from residential building permits in the previous 5-year period; and
- A broad mix of housing structure types have been accommodated within the Region of Waterloo, however, recent housing construction has been steadily shifting towards high-density housing forms comprising 50% of residential building permits between 2014 and 2018, up from 35% between 2009 and 2013.

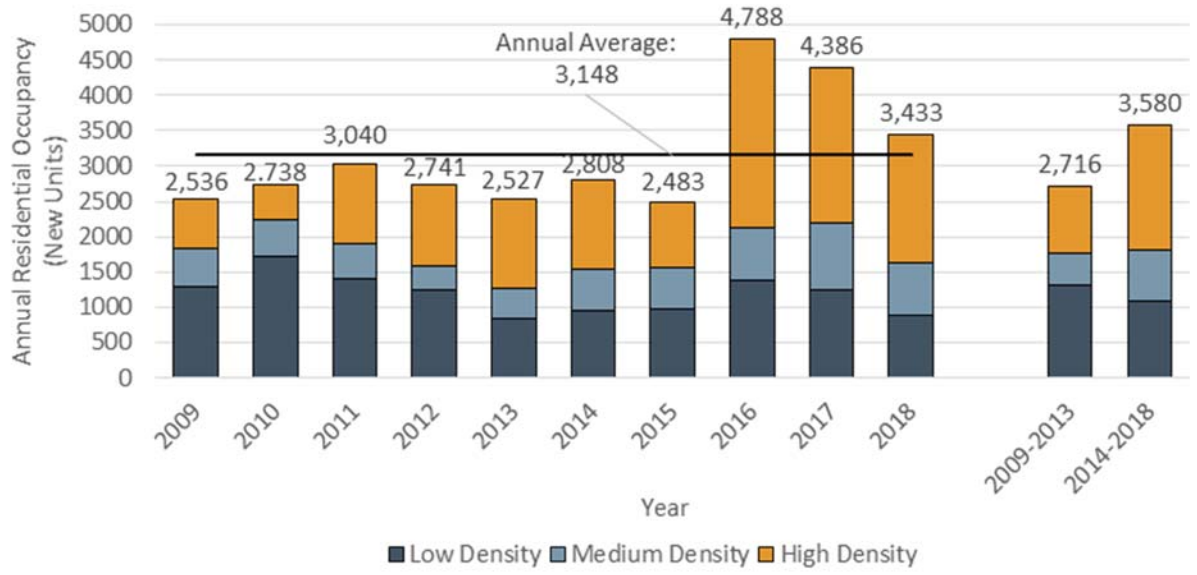
Map 3-1 illustrates the location and concentration of residential building permit activity for the Region of Waterloo between 2006 and 2019 (year-to-date, July). During this time period, building permit activity in the Region was largely concentrated in the City of Waterloo, City of Kitchener, and City of Cambridge. Development outside the Region's cities occurred within Township settlement areas, most notably, Elmira and Breslau in the Township of Woolwich, New Hamburg and Baden in the Township of Wilmot, Ayr in the Township of North Dumfries, and Wellesley in the Township of Wellesley.

Figure 3-12: Region of Waterloo, Residential Building Permit Occupancy (New Units) by Planning Policy Area, 2009 to 2018



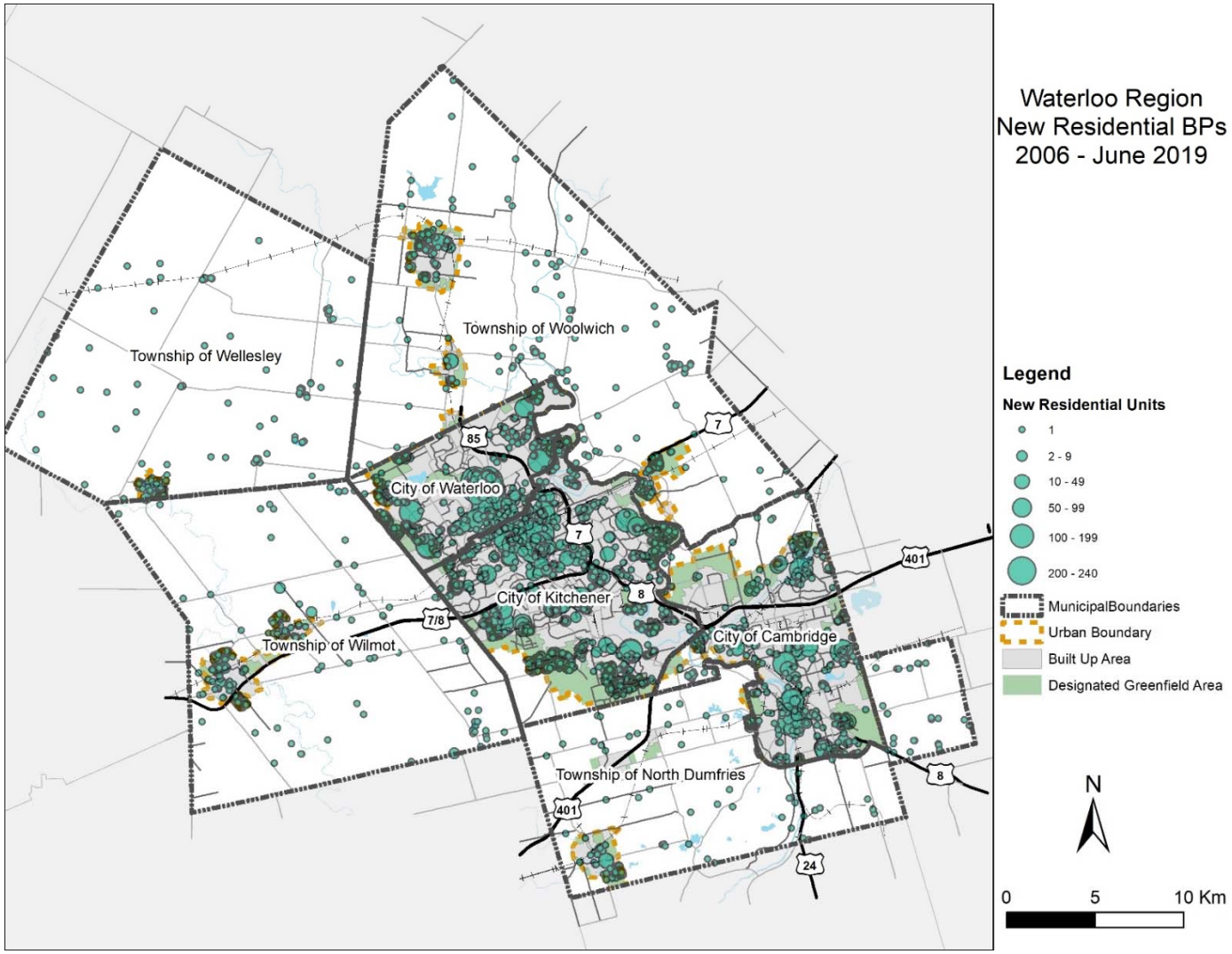
Note: Annual residential occupancy percentage share for the rural area is under 2% for all years.
Source: Derived from Region of Waterloo data by Watson & Associates Economists Ltd., 2019.

Figure 3-13: Region of Waterloo, Residential Building Permit Occupancy (New Units) by Type, 2009 to 2018



Source: Derived from Region of Waterloo data by Watson & Associates Economists Ltd., 2019.

Map 3-1: Region of Waterloo, Residential Building Permit Activity (New Units), 2006 to June-2019



3.2.6 Housing Propensity by Structure Type, 2016

Figure 3-14 summarizes historical housing propensity (i.e. demand) trends by structure type for Census households (private dwellings occupied by usual residents) in the Region of Waterloo based on 2016 Statistics Canada Census data. Age-specific propensities measure housing demand by dwelling structure type, by age of household maintainer.

The socio-economic characteristics of the Region'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 3-14, propensities for high-density housing (apartments and condominium units) are highest among younger age groups, while propensities for low-density housing (single and semi-detached housing) tend to be highest among population age groups between 35 and 64 years of age.

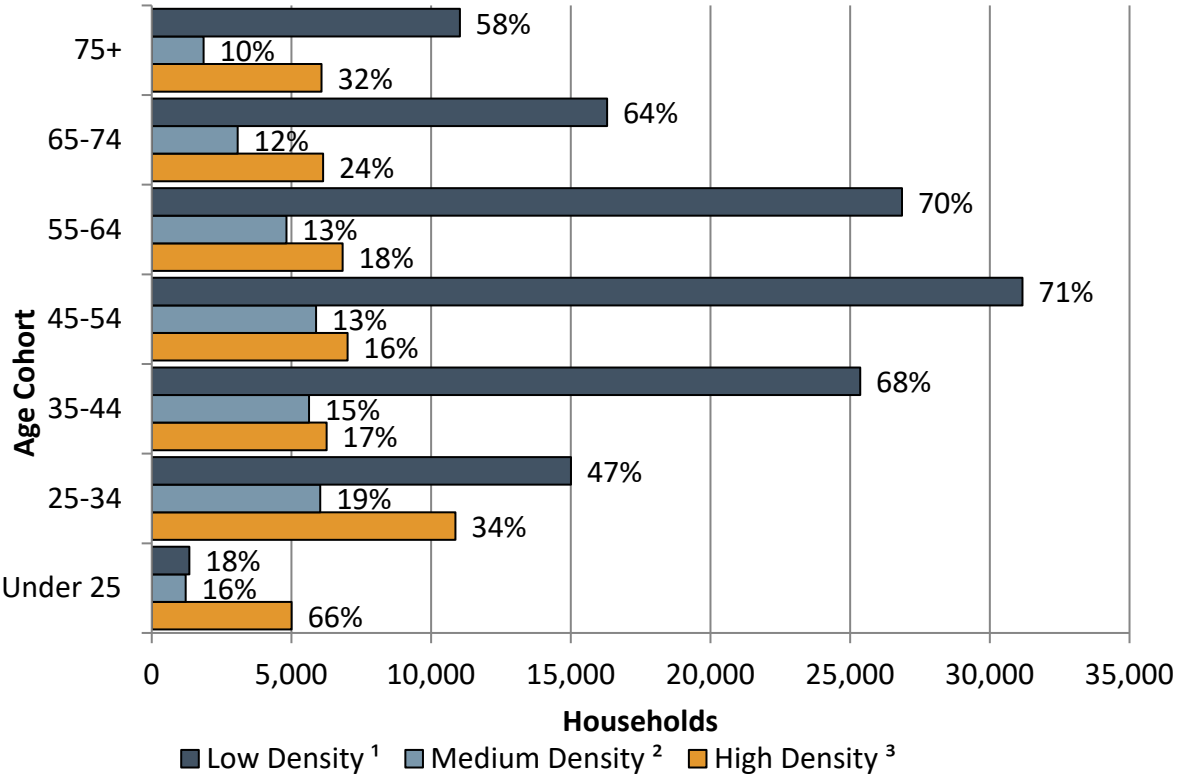
As previously mentioned in Section 3.2.2, the Region of Waterloo population is aging and the 55+ age group has grown considerably over the past 15 years. Looking forward, the percentage of seniors, particularly the 75+ age group, within the Region of Waterloo is expected to increase in both percentage and absolute terms over the next several decades. As the average age of the Region of Waterloo population continues to increase, it is anticipated that the demand for higher density housing forms will also continue to steadily increase. As illustrated in Figure 3-15, 50% of demand for high-density housing growth from 2011 to 2016 was in the 55+ age group.

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 townhomes) 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 (as previously defined in section 2.3.1). Over the next 25 years, the rate of population growth associated with collective dwellings is anticipated to increase significantly relative historical trends largely due to demand from the 75+ age group. This age group is anticipated to represents the fastest growing age-cohort across the Region of Waterloo and place demand on accommodations such as seniors' homes, 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. Section 5.4, herein, provides a long-term forecast of Region of Waterloo population living in collective dwellings.

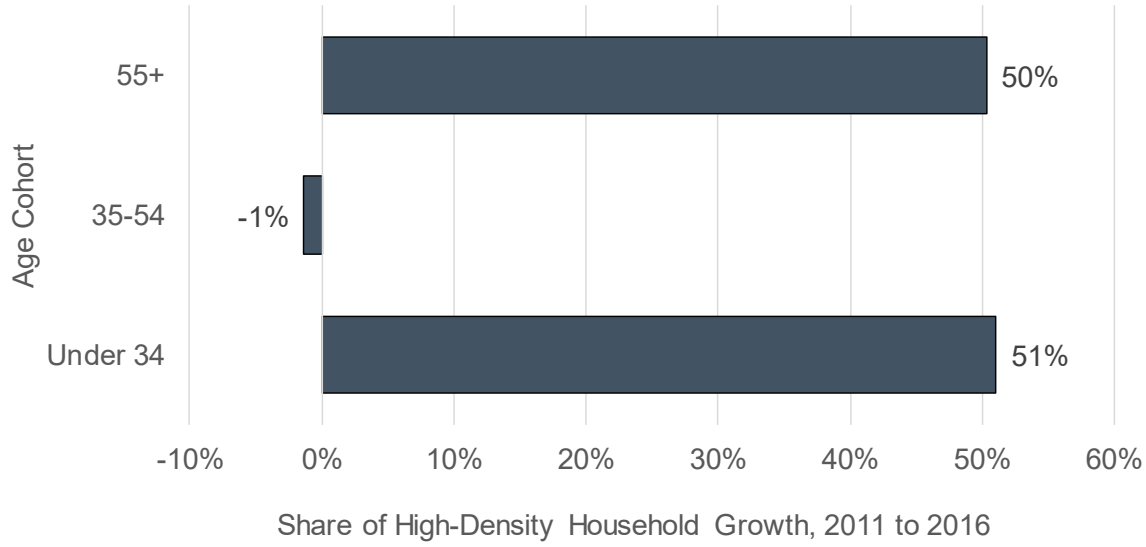
The Region of Waterloo is also anticipated to accommodate a growing share of young adults and new families seeking competitively priced home ownership and rental opportunities. Accordingly, opportunities should be explored to provide a mix of future housing across a range of density types to accommodate those with varying levels of income (including affordable housing options) within greenfield areas as well as in SGAs and other residential intensification across the Region.

Figure 3-14: Region of Waterloo Permanent Housing Propensity by Structure Type, 2016



¹ Includes singles and semi-detached units.
² Includes townhouses and apartment in duplexes.
³ Includes bachelor, 1-bedroom and 2-bedroom+ apartments.
Source: Data from Statistics Canada Census 2016 by Watson & Associates Economists Ltd., 2019.

Figure 3-15: Region of Waterloo High Density Housing Propensity Change by Age Group, 2011 to 2016



Note: Includes bachelor, 1-bedroom and 2-bedroom+ apartments.
Source: Derived from Statistics Canada Census data, 2011 to 2016, by Watson & Associates Economists Ltd., 2019.

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 Region of Waterloo. 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 Region's housing forecast. It is also recognized that the housing propensity analysis summarized above in Figures 3-14 and 3-15 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. Such data sources should include, but would not be limited to, 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 Region of Waterloo.

3.2.7 Trends in Region of Waterloo Housing Prices, 2009 to 2019

Economic conditions and housing prices play a key role in shaping housing development trends. Over the past two decades, the GGH has experienced a steady increase in housing prices driven by rising land prices, strong population growth and a robust employment market. Generally, strong fundamentals associated with the Canadian economy have also attracted a steady stream of local and foreign investment to the GGH real estate market. The current low-interest rate environment has also enabled the appreciation of residential real estate values as buyers have benefited from access to low-rate mortgages. However, recent federal policy changes targeted to gradually "cool"

the market particularly in the cities of Toronto and Vancouver, have somewhat slowed housing appreciation across some areas of the Country, including the GGH in general.

Figure 3-16, summarizes historical trends in average housing sale prices for the Region of Waterloo by Area Municipality and several GGH municipalities for single detached dwelling units between 2009 and 2019. Housing price data for townhouses and condominiums is also provided for 2019, where available. Across the GGH, housing prices for new single detached units vary considerably, with average prices highest in Mississauga, Burlington, and Milton, of the GGH municipalities surveyed. Comparatively, housing prices for Area Municipalities within the Region of Waterloo are relatively lower than average housing prices for the GTHA municipalities surveyed. With respect to housing appreciation for new single detached units, Mississauga, Burlington, Milton, and Guelph have experienced the strongest average annual growth rate over the past 10 years, with the Cities of Kitchener and Waterloo as well as Township of North Dumfries following close behind in this regard.

Figure 3-16: Historical Trends in GGH Housing Prices

Municipality	2009	2019	2019		Annual Increase in New Single Detached Housing Unit, 2009-2019
	New Single Detached	New Single Detached	Townhouse	Condominium	
City of Kitchener	349,000	745,000	$410,800	$327,000	8.1%
City of Waterloo	405,700	921,200			8.8%
City of Cambridge	319,400	535,300	$402,000[3]	$260,000[3]	5.4%
Township of North Dumfries	345,900[1]	734,000[2]	n/a	n/a	8.7%
Township of Wilmot	n/a	684,600	n/a	n/a	*
Township of Woolwich	339,700	650,200	n/a	n/a	6.9%
City of Guelph	339,500	846,300	392,700	338,700	9.8%
City of Hamilton	399,300	633,900	n/a	333,900	4.9%
City of Burlington	620,100	1,997,000	570,100	465,300	12.7%
City of Mississauga	662,200	2,135,500	597,000	475,900	12.8%
Town of Milton	440,600	1,138,400	505,000	464,500	10.2%

[1] Based on on average of 2008 and 2010 data.

[2] Based on 2018 data.

[3] Based on April 18 - May 16, 2018, sales data.

Note: 2019 data is year-to-date Q3. Data for Township of Wellesley not available.

Source: Watson & Associates Economists Ltd., 2019. Data for average single detached prices based on the average price of new single detached units derived from Canada Mortgage Housing Corporation (CMHC), Housing Market Absorption Survey. Townhouse and condominium average price for Kitchener and Waterloo derived from Kitchener Waterloo Association of Realtors data, for Guelph derived from the CREA MLS HPI Tool, and Burlingon, Mississauga and Milton derived from TREB Market Watch Reports.

3.2.8 Region of Waterloo Household Income Trends, 2001 to 2016

Figure 3-17 summarizes average household income growth for the Region of Waterloo and the Province of Ontario between 2000 and 2015. Key observations include the following:

- As of 2015, the estimated average household income in the Region of Waterloo was $95,500, which is marginally lower compared to the average household income for the Province of Ontario; and
- The annual rate of household income growth for the Region of Waterloo has increased over the past five years relative to the previous five years. Household income growth over the past ten years in the Region has been lower relative to the Province of Ontario.

Figure 3-17: Region of Waterloo and Province of Ontario, Average Household Income, 2001 to 2016 Census Years

Census Year	Waterloo Region	Province of Ontario
Average Household Income		
2001	$66,100	$66,800
2006	$78,700	$78,000
2011	$85,500	$85,800
2016	$95,500	$97,900
Average Annual Growth		
2001-2006	$2,520	$2,240
2006-2011	$1,360	$1,560
2011-2016	$2,000	$2,420
Average Annual Growth Rate		
2001-2006	3.6%	3.1%
2006-2011	1.7%	1.9%
2011-2016	2.2%	2.7%

Note: Census year income shown is for previous year. E.g. 2001 to 2016 is 2000 to 2015 income.

Source: 2001 to 2016 data derived from Statistics Canada Census and NHS by Watson & Associates Economists Ltd., 2019.

While average household income levels in the Region of Waterloo have kept up closely with the provincial average, average household incomes have not kept pace with rising Regional resale and new housing prices. As a result, housing affordability has been steadily eroded over the past decade across the GGH, most notably within the larger urban centres of the GTHA. As a result of this upward pressure on housing prices and steady reduction in housing affordability, there is a need to ensure that sufficient opportunities exist within the Region of Waterloo (and across the GGH in general) to accommodate a range of housing types (i.e. ground-oriented and high density) for all income levels, including market, affordable, assisted and emergency housing.[36, 37, 38]

[36] Affordable housing is defined in the PPS, 2020, p. 39.

[37] Assisted housing refers to housing that is available to low and moderate income households for rent or purchase where part of the housing cost is subsidized through a government program.

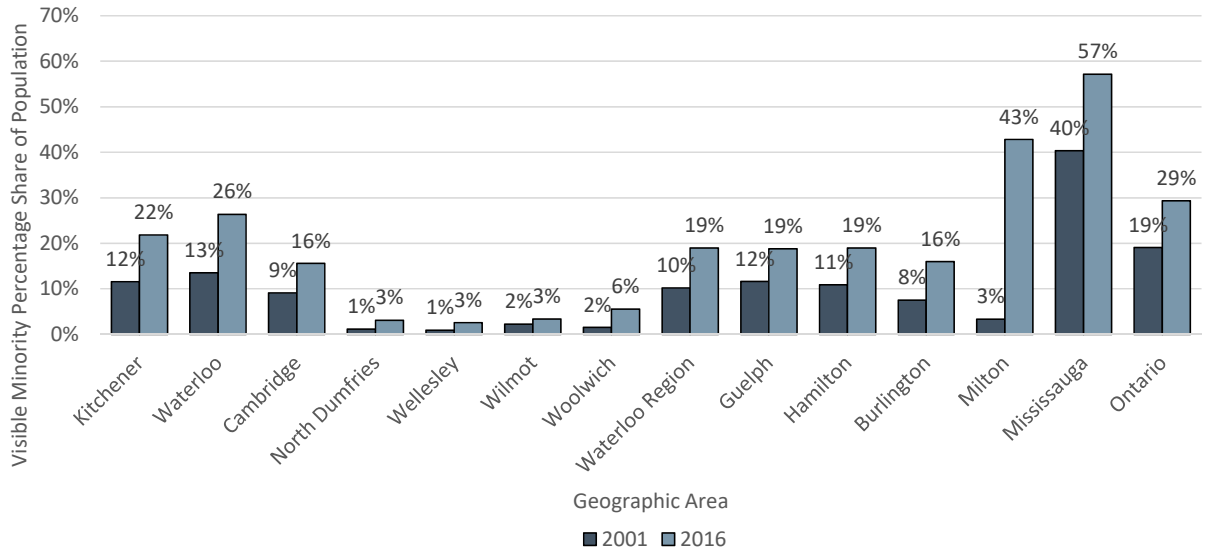
[38] Emergency housing refers to shelters, supportive housing, transitional housing, etc.

3.2.9 Visible Minorities, 2001 to 2016

The changing ethnic makeup within the Region of Waterloo is also anticipated to have an impact on future trends related to family type (e.g. multiple families, non-families) and average household size. These evolving trends are anticipated to have an impact on future housing needs associated with population growth across the Region. Figure 3-18 identifies the percentage total of population categorized as "visible minority" according to the 2001 and 2016 Census, within the Region of Waterloo, the Area Municipalities within the Region of Waterloo as well as selected municipalities within the surrounding area.

During the 2001 to 2016 period, the percentage share of visible minorities in the Region of Waterloo nearly doubled. This increase was predominantly driven by the City of Kitchener, City of Waterloo, and City of Cambridge and, to a lesser extent, the Township of Woolwich. These socio-economic trends are important to consider with respect to future housing needs and housing occupancy trends across the Region of Waterloo.

Figure 3-18: Percentage Share of Population that is Visible Minority, 2001 and 2016



Source: Derived from Statistics Canada Census data by Watson & Associates Economists Ltd., 2019.

3.2.10 Region of Waterloo – Active Residential Applications in the Development Pipeline

The Region's active development application data was reviewed to provide insight into the demand for residential units. Given that the Region collects active development application data limited to Draft Plans of Subdivision and Draft Plans of Condominiums (illustrated in Figure 3-19), data was also collected from the City of Cambridge, City of Kitchener and City of Waterloo on active development applications related to Site Plan Applications (SPA), Zoning By-law Amendments (ZBA) and Official

Plan Amendments (OPA) (illustrated in Figure 3-20). It is important to note that these two datasets should be reviewed collectively for a full understanding of active residential applications in the Region, but that there may be some minor cases where data overlaps between the two datasets. The data was collected early 2020 as is intended to represent a snapshot in time. It is being included for context purposes only.

Over the past 15 years, the residential real estate market across the Region of Waterloo, most notably within the Region's cities, has been transitioning towards high density development. Based on the Region's Draft Plan of Subdivision and Condominium data (see Figure 3-19), 44, 690 residential units are currently being proposed (pending, draft approved or registered and unbuilt) within the Region. Of these, 25% are low density (singles and semi's), 26% are medium density (townhouses) and nearly 50% are high density (apartments). Approximately 35% of units associated with Draft Plan of Subdivision and 81% of the units associated with Draft Plan of Condominium are high density. By 2051, occupancy in these units, along with new developments can be expected.

The additional supply data under SPA, ZBA and OPA collected from the cities identifies that 22,990 residential units are in the pipeline within the three cities. Of these, over 90% are multiple/ apartment units, 5% are townhouse units, and 4% are single detached units. This demonstrates a strong demand for higher density built form.

High-density development projects appear to be targeted towards a broad range of demographic groups, including young urban professionals, NPR, empty nesters, seniors and students. The potential housing unit yield associated with the development applications currently active within the Region's development pipeline and pace of approvals suggests that demand will continue to remain strong over the next decade, particularly for high density development.

Figure 3-19: Region of Waterloo Future Housing Supply in the Development Pipeline by Structure Type (as of 2020). Draft Plan of Subdivision and Draft Plan of Condominium.

	Single Detached Units	Semi-Detached Units	Townhouse Units	Apartment Units	Total	Share of Region-Wide Total
Draft Plan of Subdivision						
Pending	2,691	170	3,890	2,826	9,576	21%
Draft Approved	5,296	718	3,418	3,733	13,165	29%
Registered Unbuilt	2,107	55	1,769	4,146	8,077	18%
Sub-Total	**10,094**	**943**	**9,077**	**10,705**	**30,818**	**69%**
Sub-Total Share	**33%**	**3%**	**29%**	**35%**	**100%**	
Draft Plan of Condominium						
Pending	3	32	285	571	891	2%
Draft Approved	0	0	569	3,452	4,021	9%
Registered Unbuilt	56	54	1,576	7,274	8,960	20%
Sub-Total	**59**	**86**	**2,430**	**11,297**	**13,872**	**31%**
Sub-Total Share	**1%**	**1%**	**18%**	**81%**	**100%**	
Draft Plan of Subdivision and Condominium Total						
Total	**10,153**	**1,029**	**11,507**	**22,002**	**44,690**	**100%**
Total Share	**23%**	**2%**	**26%**	**49%**	**100%**	

Note: Multi-units are assumed to be 50% townhouse and 50% apartment. Unspecified units are assumed to be 75% single detached and 25% semi-detached.

Source: Dillon Consulting Ltd.

Figure 3-20: Region of Waterloo, Active Development Applications – Cities of Cambridge, Waterloo, and Kitchener. Site Plan Applications, Zoning By-law Amendments and Official Plan Amendments.

	Single Detached Units	Semi-Detached Units	Townhouse Units	Multiple/ Apartment Units	Total	Share of Total
Site Plan Applications, Zoning By-law Amendments and Official Plan Amendments						
City of Cambridge	18	0	342	1,240	1,600	7%
City of Kitchener	57	0	285	10,991	11,333	49%
City of Waterloo	826	0	605	8,626	10,057	44%
Total	**901**	**0**	**1,232**	**20,857**	**22,990**	**100%**
Total Share	**4%**	**0%**	**5%**	**91%**	**100%**	

Source: Dillon Consulting Ltd.

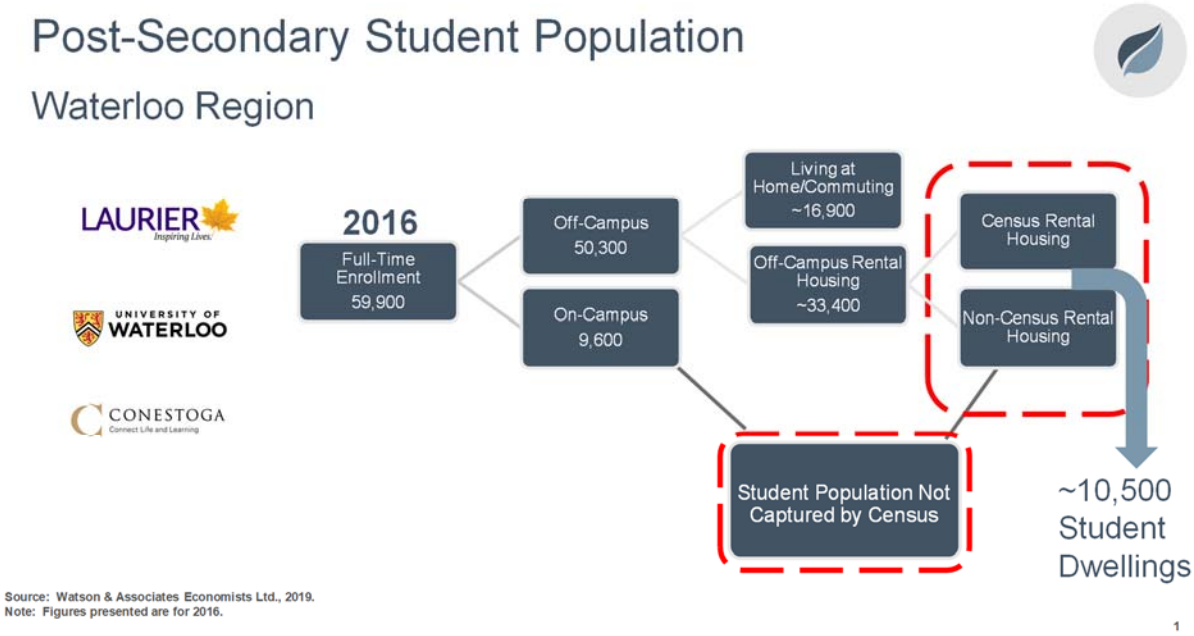
3.2.11 Region of Waterloo Post-Secondary Student Population

As previously, mentioned, there are three main post-secondary institutions in the Region of Waterloo, including University of Waterloo, Wilfrid Laurier University, and Conestoga College. As of 2016, it is recognized that there are approximately 59,900 full-time students attending local post-secondary institutions within the Region. [40] This includes students who are permanent residents within the region, permanent residents outside the Region and international students who are captured as non-permanent residents in the Region. These students are comprised of those who live on-campus, off-campus with parents, as well as those residing off-campus primarily in rental housing as illustrated in Figure 3-21.

[40] Based on enrollment data from the post-secondary institutions.

A portion of the post-secondary student population is not captured in Census data.[41] As previously mentioned, of full-time enrollment, an estimated 40% (24,000 students), are not captured in the 2016 Census. This includes students living on-campus (in school residences) and living off-campus largely in rental housing. The students captured by Census data include those living at home (with parents) or otherwise captured as permanent or non-permanent residents during the Census enumeration.

Figure 3-21: Region of Waterloo Post-Secondary Student Population, 2016



3.3 Observations

Over the past 25 years, the Region of Waterloo has experienced strong population growth across all major demographic groups (i.e. children, adults and seniors), largely driven by steady net migration across all age groups and, to a lesser extent, natural increase (i.e. births less deaths). Since 1991, the Region's population has grown at a rate above the provincial average, fueling steady housing construction throughout the Region. With respect to recent housing trends, resident building permit activity (occupancy permits for new dwelling units) between 2015 to 2018 was higher relative to

[41] In accordance with Statistics Canada, unoccupied private dwellings, represent private dwellings, where usual residents are temporarily absent at the time of Census enumeration, which includes post-secondary student housing.

historical levels from 2009 to 2015. Historically, residential development activity within the Region of Waterloo has been dominated by ground-oriented housing forms (i.e. single/semi-detached and townhouses); however, during the most recent five-year period from 2011 to 2016 the Region has experienced a shift toward high-density housing forms, which have accounted for nearly half of all residential construction in terms of new units.

It is important to recognize that the demographic and socio-economic characteristics observed across the Region are not homogenous. Understanding trends in household occupancy, age structure, income and ethnicity at the municipal level is particularly important for the Region of Waterloo as it relates to the ROP review. These trends are important to understand as they have broad implications on the amount, type, and density of future housing needs, and demands for public infrastructure and municipal services.

4.0 Region of Waterloo Population, Housing and Employment Growth Outlook to 2051

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

As previously mentioned, a key driver of the Region of Waterloo's future economic potential is its geographic location within Ontario. As illustrated on Map 4-1, the Region of Waterloo is located within the GGH "Outer Ring." The GGH comprises the municipalities that make up the GTHA, as well as the surrounding regions/counties within Central Ontario, which extend from Haldimand County in the southwest, to Simcoe County in the north, and to Peterborough County in the northeast.

The population of the GGH 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 GGH 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 GGH represents the fourth largest and one of the fastest growing city/regions in North America.

The GGH represents the economic powerhouse of Ontario and the centre of a large portion of the economic activity in Canada. The GGH is also economically diverse with most of the top 20 traded industry clusters throughout North America having a strong presence in this region. The GGH 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 GGH is highly attractive on an international level to new businesses and investors. The GGH also has a strong appeal given the area's regional infrastructure (i.e. Toronto Pearson International Airport (TPIA), 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.

Map 4-1: Region of Waterloo within the Context of the Greater Golden Horseshoe (GGH)

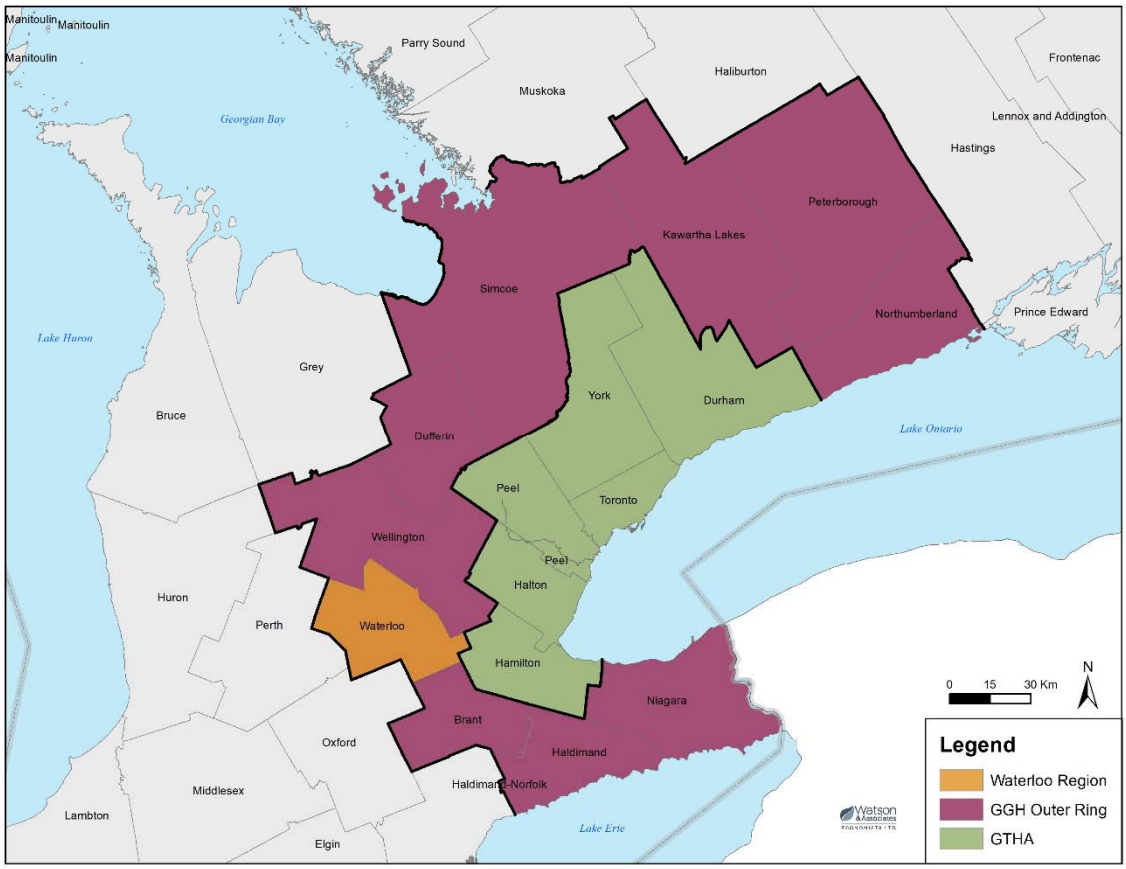


Figure 4-1 through Figure 4-3 summarize the historical and long-term population employment growth forecast for the GGH between the GTHA and the GGH Outer Ring. Figure 4-1 and Figure 4-2 identify that the GTHA has historically experienced a higher rate of population and employment relatively to the GGH Outer Ring over the 2001 to 2016 period. Looking forward, the forecast annual population and employment growth rate of the GGH Outer Ring is anticipated to increase significantly, driven by continued outward growth pressure from the GTHA and steady net migration. In fact, the forecast annual rate of employment growth in the GGH Outer Ring is expected to exceed that of the GTHA between 2016 and 2051.

Figure 4-1: Historical and Forecast Population Growth for the Greater Golden Horseshoe (GGH), 2001 to 2051

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

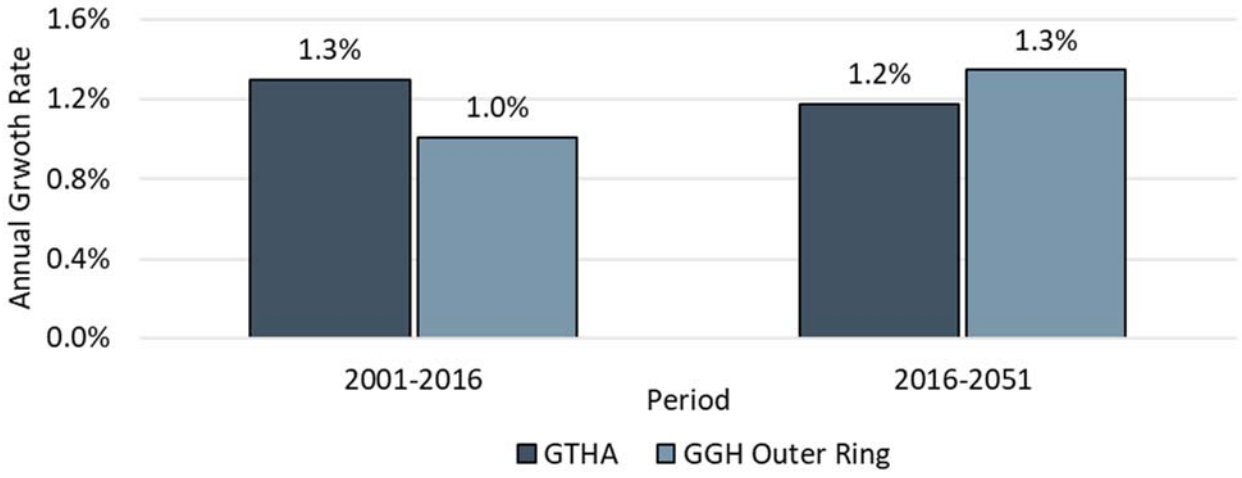
Source: 2001 to 2016 derived from Statistics Canada Census. 2051 from A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca./growthplanning. Figure by Watson & Associates Economists Ltd., 2020.
Note: Population includes the net Census undercount.

Figure 4-2: Historical and Forecast Employment Growth for the Greater Golden Horseshoe (GGH), 2001 to 2051

	Employment			2001 to 2016		2016 to 2051	
Area	2001	2016	2051	Total Employment Growth	Annual Employment Growth Rate	Total Employment Growth	Annual Employment Growth Rate
GTHA	2,938,000	3,564,000	5,360,000	626,000	1.3%	1,796,000	1.2%
GGH Outer Ring	890,000	1,034,000	1,650,000	144,000	1.0%	616,000	1.3%
Total GGH	**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. 2051 from A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca./growthplanning. Figure by Watson & Associates Economists Ltd., 2020.

Figure 4-3: Historical and Forecast Annual Employment Growth Rate for the Greater Golden Horseshoe (GGH), 2001 to 2051

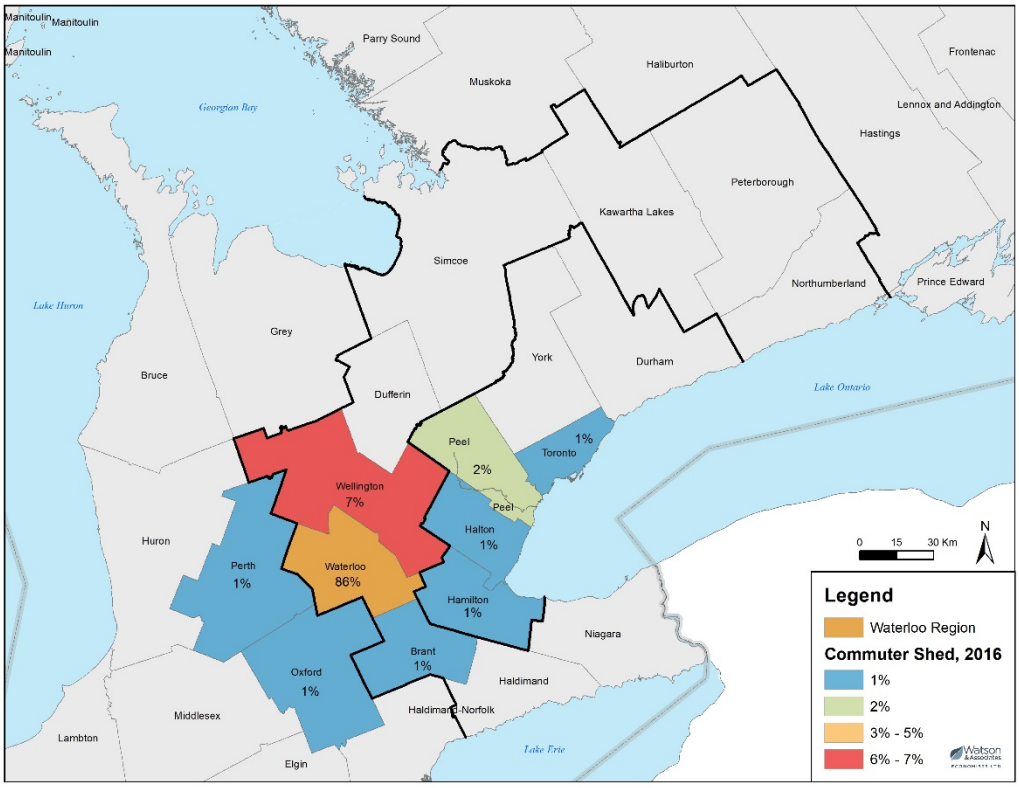


Source: 2001 to 2016 derived from Statistics Canada Census. 2051 from A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca./growthplanning. Figure by Watson & Associates Economists Ltd., 2020.

Notwithstanding the past and potential success of the regional employment market, international competition for business development and investment is increasing in today's "new economy." The Region of Waterloo is located within proximity to a number of highly populated and growing

municipalities within the GGH with which it competes directly with for business attraction and investment. All these municipalities generally offer regional attributes which largely appeal to prospective international and local firms as well as new residents. The Region of Waterloo has been particularly competitive in its ability to distinguish itself as a hub for innovation and technology while encouraging ongoing entrepreneurship, small business development and investment retention. These efforts have produced a diverse and growing local economy with a relatively high ratio of residents who live and work within the Region relative to other surrounding upper-tier/ single-tier municipalities, particularly those in the "905" region of the GTHA. This distinction as a "complete" and competitive community is anticipated to represent a key driver of the future economic success and population growth potential of this Region.

Map 4-2: Where Region of Waterloo Residents Commute to Work



4.2 Near-Term Impacts of COVID-19

4.2.1 Near-Term Impacts of COVID-19 on Population Growth and Longer-Term Impacts on the Economy and the Real Estate Market in Region of Waterloo

To date, the downward impacts of coronavirus disease (COVID-19) on global economic output have been severe. Economic sectors such as travel and tourism, accommodation and food, manufacturing, energy, and financial have been hit particularly hard. Canada's gross domestic product (GDP) declined by approximately 39% in the second quarter of 2020 (April to June) which is the most severe decline due to COVID-19 to-date. As containment measures gradually loosened, beginning in May 2020, businesses came out of lockdown during the summer months and economic activity grew at a pace of 40.5% in the third quarter, although GDP was still short of pre-pandemic levels. The start of the fourth quarter continued with growth; however, newly imposed COVID-19 restrictions towards the end of November will likely cause another contraction to economic activity.[44, 45]

Overall, 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. Furthermore, escalating 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 the current time, the level of sustained economic impact related to this "exogenous shock" to the world and the Canadian economy is still uncertain. Notwithstanding this uncertainty, it is generally clear that the longer COVID-19 persists on an international scale, the greater the severity of the current global recession.

Despite the longer-term consequences of COVID-19 to some industries, firms, and individuals, the long-term economic outlook for the GGH remains positive and the region will continue to be attractive to newcomers. While the housing market across the GGH got off to a slow start in early

[44] Reuters Business News, August 28, 2020.

[45] CBC Business News, Canada's economy bounced back at record 40% pace in third quarter – but GDP still below pre-COVID levels, December 1, 2020.

2020 due to COVID-19, pent-up demand and historically low mortgage rates have accelerated housing demand across the GGH, particularly in less populated regions, in the second half of 2020. Since the start of the COVID-19 pandemic in early 2020, outward growth pressure from the GTHA to the GGH Outer Ring has accelerated. According to the Kitchener-Waterloo Association of Realtors, November is the fifth consecutive month in 2020 of record-breaking homes sales for the Kitchener Waterloo area. Furthermore, the year-over-year average sale price has increased by approximately 13%, while housing sales are also up by close to 29%, compared to November 2019. New listings also increased by approximately 35% compared to November 2019; however, the number of months of supply is estimated at only one month. [46]

Notwithstanding the recent positive real estate trends identified for the GGH as a whole, the GGH Outer Ring, and the Region of Waterloo, there are a number of reasons to remain cautious with respect to the broader demand for housing across the GGH over the near term (i.e. next one to three years). A recent report released by R.B.C. Economics identifies that on-going border restrictions, travel-related health fears, and the global economic downturn are expected to reduce immigration levels sharply in 2020.[47] The R.B.C. report also points out that while temporary foreign workers are exempt from entry restrictions, fewer are coming to Canada due to logistical and financial burdens related to COVID-19 work restrictions and isolation requirements. After the COVID-19 crisis, many economists warn that immigration may remain relatively low compared to recent years, because relatively higher unemployment rates during the post-COVID-19 economic recovery period in Canada may reduce the incentive for immigrants coming into the Country.[48]

This near-term scenario has the potential to reduce population growth levels and soften the housing market in areas of Ontario where population growth is most heavily dependent on immigration. For the GGH, the City of Toronto, Peel Region, and York Region would potentially be the most heavily impacted by such a trend, while the remaining “905” Area of the GTHA, and the GGH Outer Ring, which is more dependent on inter-provincial and intra-provincial net migration as a source of housing demand, may potentially be less impacted.

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. As such, enterprises will increasingly be required to rethink the way they

[46] The Kitchener-Waterloo Association of Realtors, November 2020 Stats Report, December 3, 2020.

[47] R.B.C. Economics. Current Analysis. COVID-19 Derails Canadian Immigration. May 29, 2020.

[48] Stalling immigration may add to Canada’s COVID-19 economic woes. Fergal Smith, Steve Scherer. Reuters. May 27, 2020.

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 to consider the manner in which these impacts are likely to influence the nature of employment by type as well as by place of work. Today, approximately 7% of the Region of Waterloo workforce is identified as working from home on a full-time basis, up from 6% in 2001. During this same time period, the percentage of workers who reported having no fixed place of work increased from approximately 7% to 10%.[49] It is anticipated that the percentage of people who work from home on a full-time and part-time basis, as well as those who do not have a fixed place of work, will steadily increase over the long term. As this percentage continues to steadily rise, it may reduce the relative need for future commercial and institutional building space associated with the employment forecasts set out in Schedule 3 of the Growth Plan, 2019.

4.2.2 Near-Term Immigration Levels for Canada are Likely to Remain Below Historical Averages due to COVID-19

In October 2020, the Canadian federal government released its Immigration Plan for the following three years. Canada has continued to raise their immigration targets and aims to welcome 401,000 new permanent residents in 2021, 411,000 in 2022, and 421,000 in 2023. This is an increase of 50,000 newcomers annually from the previous targets of 351,000 in 2021 and 361,000 in 2026 to make up for the shortfall in 2020 and fill crucial labour market gaps to ensure Canada remains competitive on the world stage. With a focus on economic growth, 60% of admissions are to come from the economic class.[50]

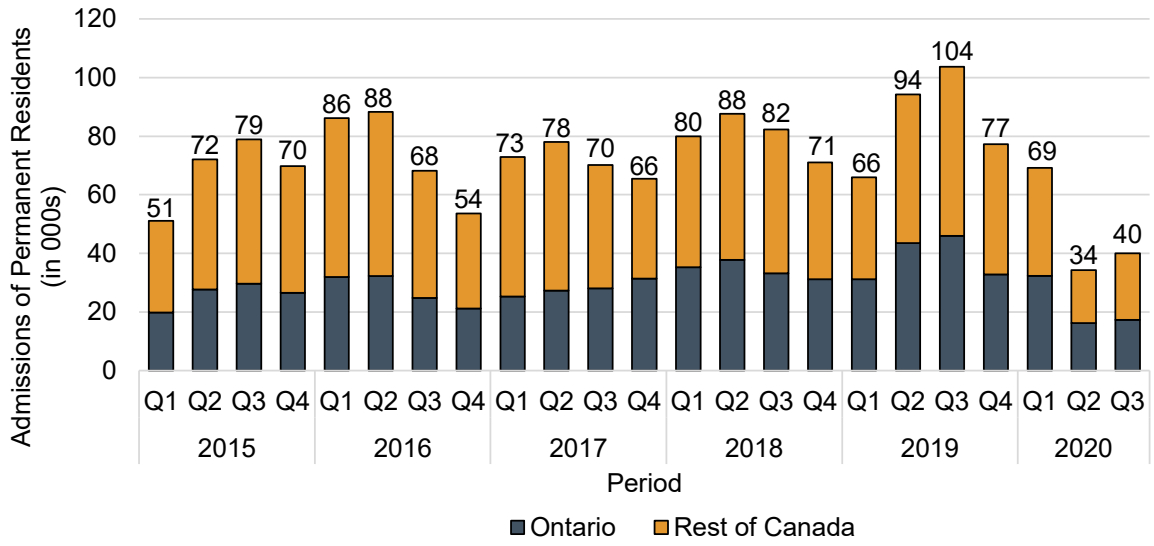
Figure 4-12 summarizes admissions to Canada and Ontario by quarter since 2015. Looking forward over the remainder of 2020 and part of 2021, immigration levels to Canada and Ontario are anticipated to remain low as a result of travel restrictions due to COVID-19. This suggests that near-term immigration levels in the Region of Waterloo (i.e. 2021) will also remain below recent historical averages. Furthermore, it remains largely unknown if these targets can be met with imposed travel

[49] Statistics Canada defines no fixed place of work 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."

[50] Immigration, Refugee and Citizenship Canada news release, October 20, 2020. https://www.canada.ca/en/immigration-refugees-citizenship/news/2020/10/government-of-canada-announces-plan-to-support-economic-recovery-through-immigration.html

restrictions in place, heading into the winter of 2021. A recent report prepared by the Federal Department of Immigration, Refugees and Citizenship Canada (IRCC) indicates that when travel restrictions begin to ease, a significant surge of applications and support requirements is anticipated. However, sustainable higher levels of immigration to Canada and Ontario, reflective of current national immigration targets, will be largely dictated by the on-going strength of the national and provincial economies.

Figure 4-12: Quarterly Admission of Permanent Residents in Ontario Versus the Rest of Canada, 2015 to 2020



Source: Derived from IRCC, September 30, 2020, data, by Watson & Associates Economists Ltd., 2020.

4.3 Longer-Term Population Growth Drivers and Disruptors in the Region of Waterloo

4.3.1 Regional Transportation Infrastructure Assets

The Region of Waterloo's population and economic base is well served by a comprehensive network of transportation infrastructure required to facilitate the movement of people and goods throughout the Region. This includes a number of provincial and regional highways, arterial and local roads, freight services supported from Canadian National (CN) and Canadian Pacific (CP), bus transit services in Kitchener, Waterloo, Cambridge, Elmira, St. Jacob and New Hamburg, two passenger rail services, including GO and VIA rail, and the ION light rail which help connect the local companies to a large and growing talent pool within the Toronto-Waterloo Region Corridor. [51]

Investments in regional infrastructure represent a key driver of new construction, increased assessment values and economic activity which will continue to support population and employment growth across the region. Some examples of key infrastructure projects include:

- The Region and its federal and provincial funding partners are investing $818 million into the ION rapid transit system which connects the Region's Tri-City area. The ION corridor has

[51] Region of Waterloo 2018 Community Profile. Region of Waterloo Economic Development.

seen more than $2.5 billion in new construction value from 2011 to 2018 and an increase in property assessment values from 10 billion in 2011 to $15.3 billion in 2018;[52] [53]

- The Region of Waterloo International Airport (YKF) is a full-service facility that supports commercial, corporate and general aviation. YKF consistently ranks as one of the top 20 busiest airports in Canada. To meet growing demand, Regional Council recently approved a $375 million Airport Master Plan and five-year Business Plan which will provide a vision and strategy to support improved air service, customer service and business development over the next 20 years. It is recognized that the regional role of YKF will continue to increase over the next two decades as the TPIA reaches its annual capacity limit of 70 million passengers by the mid-2030s.[54]
- East Side Lands - In June 2015, the Ontario Municipal Board (OMB) approved the new Regional OP with approximately 300 hectares of land designated for employment uses in what is known as the East Side Lands. The East Side Lands is located on the eastern edge of the Region of Waterloo, at the border of Woolwich Township and Cambridge, near the Region of Waterloo International Airport. This Employment Area will play a key role in accommodating future non-residential development in the Region of Waterloo, in particular land extensive industries, which require large parcels for current operations and future expansions. Future employment generated within this Employment Area will provide opportunities for the local and regional labour base, which in turn is anticipated to act as a driver of net migration.[55]

4.3.2 Quality of Life

In addition to the above-mentioned “hard” regional infrastructure attributes, “soft” or “quality” factors are becoming increasingly important regarding the attraction of new families and business development. The Region of Waterloo has a world class reputation as a vibrant, growing, low-crime location in which to live. Generally, the Region offers a wide range of top-rated elementary, secondary and post-secondary schools, a high standard of local infrastructure (i.e. roads,

[52] https://www.regionofwaterloo.ca/en/doing-business/regional-investments.aspx

[53] Central Transit Corridor (CTC) Monitoring Program, Kitchener-Cambridge-Waterloo. Monitoring Change in the CTC 2018 Report, November 2019, Region of Waterloo.

[54] Region of Waterloo International Airport. Airport Master Plan Executive Summary, March 2017.

[55] East Side Lands – Stage 2. Master Environmental Servicing Plan and Secondary Plan. Planning Rationale Report. Final. June 13, 2018.

indoor/outdoor recreation facilities and social services, etc.), vibrant downtowns, access to shopping, arts and culture and other recreational opportunities. These "soft" factors represent a key reason why the Region of Waterloo's competitive position is likely to strengthen in attracting new families and business development over the long term. Talent attraction and retention will be a key focus in the Region of Waterloo's competitiveness going forward and, therefore, a factor in the Region's economic growth will be the extent to which it can develop "quality of life" enhancements to appeal to mobile young talent, while not detracting from its attractiveness for other older population segments.

4.3.3 Regional Economic Opportunities

The Region of Waterloo is characterized by a blend of vibrant Cities and Townships. The existing employment base is concentrated in a diverse range of goods-producing and services-producing sectors such as small-, medium- and large-scale manufacturing, wholesale trade, transportation, government and education, business services, information technology, research and innovation, accommodation and food services, agriculture, and tourism. The employment base is also highly concentrated in the "creative class" economy.[56] People engaged in arts, culture, and tourism form a large part of the foundation which creates the "quality of place" of the Region of Waterloo's urban centres and surrounding rural countryside. According to recent data sources, the arts, culture, and tourism sector has grown by 54% between 2001 to 2019 in terms of employment.[57] The economic base is also highly oriented towards small businesses and home-based occupations. A more detailed discussion regarding the Region's long-term employment outlook and the implications on planning for Employment Areas, Community Areas and Rural Areas will be discussed in the Employment Analysis Technical Brief.

As previously identified, Regional employment growth opportunities represent the primary driver of labour force growth, net migration, and ultimately long-term population growth within the Region of Waterloo. As summarized in Figure 4-4 the Region of Waterloo's labour force base grew by 50,500 persons or 1.3% annually between 2001 and 2016. During the same historical time period, the Region's labour force participation rate[58] declined from 71% to 67% between 2001 and 2016 largely due to the aging of the labour force. Looking forward, the Region's labour force participation

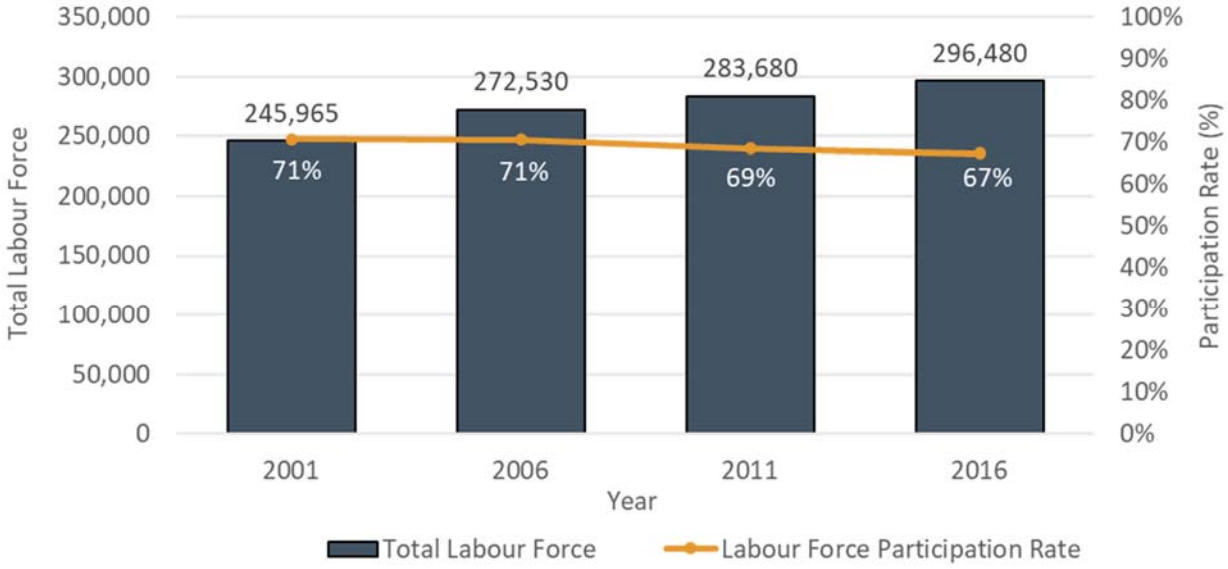
[56] The creative class is a posited socioeconomic class identified by American economist and social scientist Richard Florida, a professor and head of the Martin Prosperity Institute at the Rotman School of Management at the University of Toronto.

[57] Economic Modeling Specialists International (EMSI), 2019.

[58] The labour force participation rate is defined as the ratio of employed and unemployed people to the total working-age population (age 15 years and older).

rate is anticipated to further decline as the Baby Boomer generation continues to age. It is important to recognize that the Region's aging population and labour force will place downward pressure on long-term labour force growth potential, which further emphasizes the need to plan for steady migration, particularly geared to the working-age population.

Figure 4-4: Region of Waterloo, Historical Labour Force Trends, 2001 to 2016



Source: 2001 to 2016 derived from Statistics Canada Census and NHS by Watson & Associates Economists Ltd., 2019.

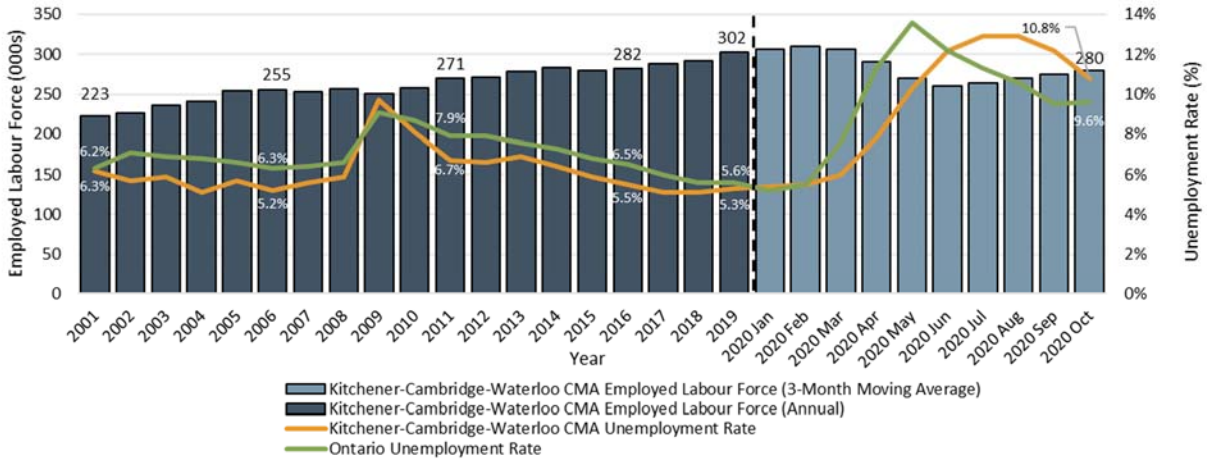
Figure 4-5 summarizes total employed labour force and unemployment rate trends for the Kitchener-Cambridge-Waterloo Census Metropolitan Area (CMA).[59] Census labour force data is not available for the Region of Waterloo post-2016, but it is captured in the Kitchener-Cambridge-Waterloo CMA by the Statistics Canada Labour Force Survey. After a decline from 2014 to 2015, the employed labour force in the Kitchener-Cambridge-Waterloo CMA has increased to a historical high in 2019 with an annual growth rate of 2.4% from 2016 to 2019. The unemployment rate in the Kitchener-Cambridge-Waterloo CMA peaked at over 9% in 2009, coinciding with the 2008 global economic recession, and has since fallen to 5.3% in 2019. Comparatively, the unemployment rate for the Province of Ontario as a whole was 5.6% in 2019.

[59] It is noted the geographic area of the Kitchener-Cambridge-Waterloo CMA and the Region of Waterloo are different, with the former excluding the Township of Wellesley. Labour force data provided by the Statistics Canada Labour Force Survey varies from the labour force data provided by the Statistics Canada Census.

Despite the strong recent historical performance of the Kitchener-Cambridge-Waterloo CMA labour market, the unemployment rate increased to a high of 12.9% in July and August (3-month moving average) as a result of the COVID-19 pandemic, and most recently as of October has improved to 10.8%. According to Statistics Canada, the unemployment increase due to the COVID-19 pandemic has been driven by temporary layoffs, indicating that much of the labour force is expected to return to their former place of work as restrictions are relaxed.[60]

Anticipated economic growth across the Region of Waterloo will continue to generate a steady need for local skilled and unskilled labour over the coming decades. This will require on-going efforts to retain, attract, and accommodate new working residents across the Region to ensure that economic development potential is not unduly constrained by labour shortages.

Figure 4-5: Kitchener-Cambridge-Waterloo CMA Total Employed Labour Force and Unemployment Rate Trends, 2001 to 2020



Note: Statistics Canada Labour Force Survey and Census labour force statistics may differ.
Source: Annual Kitchener-Cambridge-Waterloo (CMA) employed labour force and unemployment rate from Statistics Canada Table 14-10-0096-01 and monthly from Table 14-10-0287-03. Annual Province of Ontario unemployment rate from Statistics Canada Table 14-10-0090-01 and monthly from Table 14-10-0295-02. By Watson & Associates Economists Ltd., 2020.

4.3.4 Technological Change – Disruptor or Generator of Future Labour Force Demand?

Long-term labour force growth potential across the national, provincial, regional and local level will also be directly influenced by continued structural changes and disruptions driven by technology and automation. According to the Brookfield Institute for Innovation + entrepreneurship, over the next 10 to 20 years, 42% of the Canadian labour force is at high risk of being affected by automation,

[60] Statistics Canada, The Daily, Labour Force Survey, April 2020.

either through significant task restructuring or elimination. Jobs that are anticipated to be most highly impacted by automation are primarily within occupations that are administrative, routine, or oriented towards sales and service. The Brookfield Institute report also notes that highly-skilled occupations are expected to grow much more quickly than the rest of the labour force and are at a lower risk of being negatively affected by automation. This suggests that more highly-skilled labour will be a significant driver of Canada's future economic growth.

Considerable research has recently been undertaken by institutions and consulting agencies to assess the potential impacts of artificial intelligence (AI) to businesses as well as its broader impacts to the global economy. A report prepared by PWC in 2017 identifies that the net impacts to global GDP resulting from AI are anticipated to contribute up to $15.7 trillion to the global economy in 2030, more than the current output of China and India combined. The report also identifies that over the next decade, A.I. will generate massive disruption as both established businesses and new entrants drive innovation and develop new business models. While the long-term net economic impacts of automation and/or AI appear to be positive, global competition from both established and emerging markets looking to capitalize on potential opportunities related to this technology will be increasingly fierce. To prevent an undesirable lose-lose scenario associated with anticipated technological change in the economy – talent shortages, unemployment and growing inequality – a number of critical actions are needed. This includes businesses assuming an active role in supporting their existing workforce through reskilling and upskilling, individuals taking a proactive approach to their own lifelong learning, and governments creating an enabling environment to assist in these efforts.

With three highly-respected post-secondary institutions, more than 1,570 tech-related businesses, as well as an array of business support organizations, the Region of Waterloo is an internationally recognized technology innovation cluster with the world's second highest start-up density after Silicon Valley. More broadly, the Toronto-Waterloo Innovation Corridor is the second largest and second fastest growing market in North America regarding technology talent, including over 200,000 tech workers and 15,000+ tech companies within a 1-hour drive.[61] Building on its strong institutional and community foundations, the Region of Waterloo has been active in increasing its readiness towards an ever-evolving knowledge-based economy through on-going leadership and investment. These efforts will continue to be important in driving youth in-migration (both permanent and NPR), talent attraction and retention, global investment and regional employment opportunities ultimately geared towards an increasingly skilled labour market.

[61] Waterloo at a glance. Waterloo EDC.

4.4 Observations

Comparatively, the GGH economy is growing, and projected to continue to grow, at a faster rate than remaining regions of the province. The GGH also represents the fastest growing large metropolitan area in the Great Lakes / Eastern US region of North America. Future population and employment growth potential within the Region of Waterloo is strongly correlated with the growth outlook and competitiveness of the export-based sectors with the regional economy – which in this case is largely represented by the GGH. The GGH represents the economic powerhouse of Ontario and the centre of much of the economic activity in Canada. It also represents much of the commuter-shed for the Region of Waterloo. Potential job opportunities within the Region's diverse and growing economic base and surrounding commuter-shed represent the primary driver of net migration to the Region of Waterloo. In turn, net migration drives population growth within the Region's working-age population and their dependents (i.e. children, spouses not in the labour force and other family members).

A review of recent economic trends and anticipated growth drivers suggest that the Region of Waterloo is well positioned to accommodate a growing portion of the regional economic and population growth that is anticipated within the broader GGH. It is also recognized that technological change and automation will continue to create economic opportunities and disruptions within an increasingly competitive global labour market. Looking forward, the Region of Waterloo will need to remain proactive in its pursuit to capitalize on anticipated opportunities generated from an evolving economy while continuing to manage change associated with creative disruption as well as an aging demographic base. This will require innovative local land-use planning and economic development policies, as well as programs and initiatives which continue to promote the attractiveness of the region for future investments while also striving to enhance the quality of life for its residents.

5.0 Region of Waterloo Population and Housing Growth Forecast, 2016 to 2051

This chapter provides an assessment of the long-term population and housing growth potential for the Region of Waterloo to the year 2051 in five-year increments building on the analysis summarized in Chapters 3 and 4, to implement the Growth Plan Schedule 3 forecasts and to inform and provide input into the LNA.[62] Additional details regarding the Census population and housing forecast are provided in Appendix C. As previously mentioned, the post-secondary student population represents a significant component of the Region's total population base. As such, the growth analysis presented herein recognizes the Region's post-secondary student population, including those not captured by the Census. Additional details regarding the post-secondary student population are provided in Appendix A.

[62] This forecast is prescribed by the Province in Schedule 3 of A Place to Grow: Growth Plan for the Greater Golden Horseshoe, May 2019, and municipalities are required to plan and manage growth using this forecast.

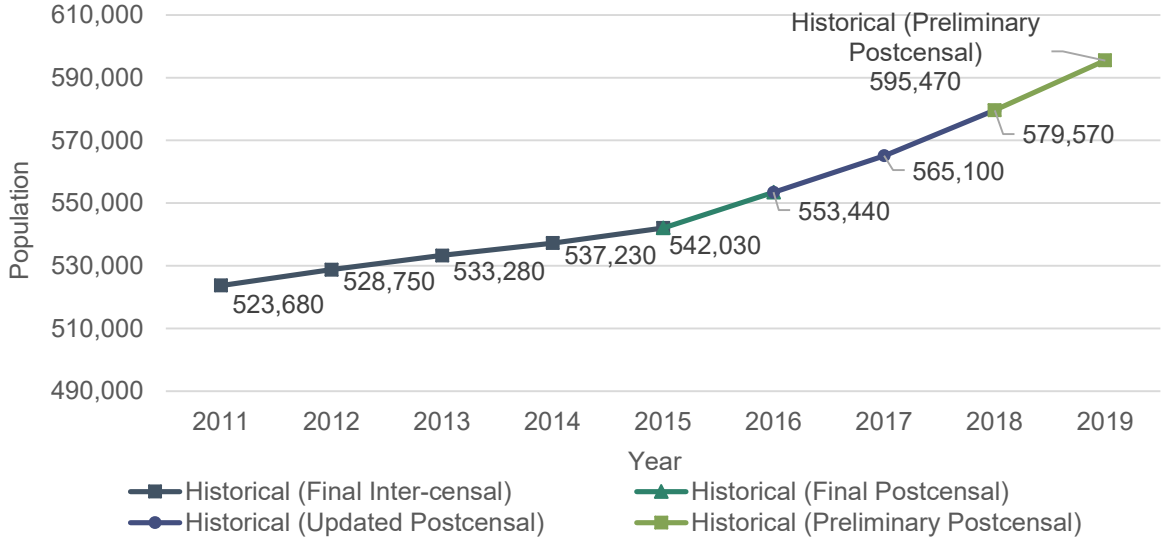
5.1 Region of Waterloo Short-Term Population Estimate, 2016 to 2019

Figure 5-1 summarizes the annual intercensal and postcensal population estimates for the Region of Waterloo as provided by Statistics Canada. The 2019 postcensal population estimate provided by Statistics Canada is 595,470. As identified in Figure 5-1, the Statistics Canada population estimates for the Region of Waterloo are tracking noticeably higher from 2015 to 2019 compared to historical levels from 2011 to 2015. The Statistics Canada 2019 population estimates are preliminary and are subject to change.

Based on Statistics Canada components of population growth data,[63] a key driver of population growth from 2015 to 2019 primarily relates to an increase in NPR population and to a lesser degree an increase in intra-provincial migration (i.e. immigration to the Region of Waterloo from other areas of Ontario). With respect to the age of new migrants to the Region of Waterloo, recent demand has been experienced across all major age groups with a large concentration in youth and young adults, specifically in the 15-24 age group which accounted for approximately 50% of new migrants.

[63] Statistics Canada. Table 17-10-0140-01 Components of population change by Census division, 2016 boundaries.

Figure 5-1: Region of Waterloo, Short-Term Population Estimate, 2011 to 2019



Note: Population includes the Statistics Canada net Census undercount as reported in Annual Demographic Estimates and is rounded. Historical population in figure may vary from the historical population presented in other figures in the report which have been adjusted for a 4% net Census undercount.
Source: Historical population derived from Statistics Canada Annual Demographic Estimates, July 1, by Census Division (Table 17-10-0139-01), by Watson & Associates Economists Ltd., 2020.

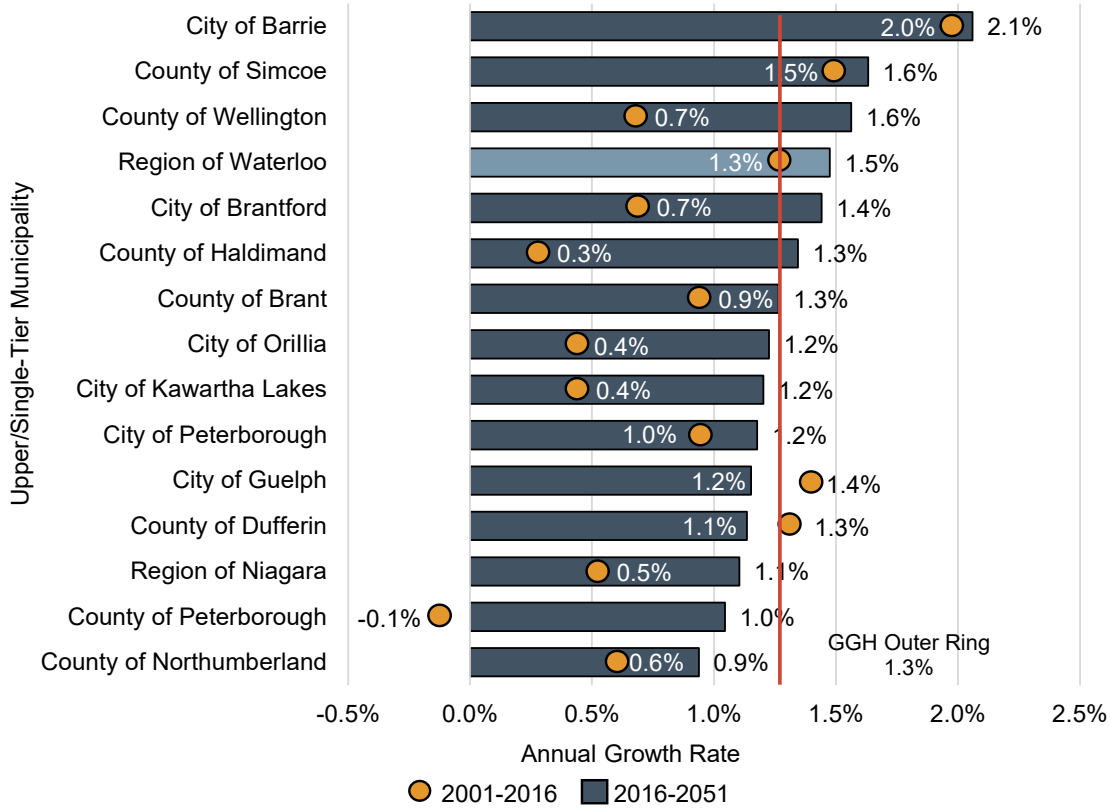
5.2 Region of Waterloo Total Population Growth Forecast, 2016 to 2051

5.2.1 Region of Waterloo Preferred Growth Forecast

As previously discussed in Chapter 4, the long-term growth population and employment forecast for the Region of Waterloo, 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 GGH, and the influence of regional growth drivers on the share of GGH growth allocated to the Region of Waterloo. These factors are summarized below in rationalizing the preferred long-term population and employment growth scenario for the Region of Waterloo to the year 2051.

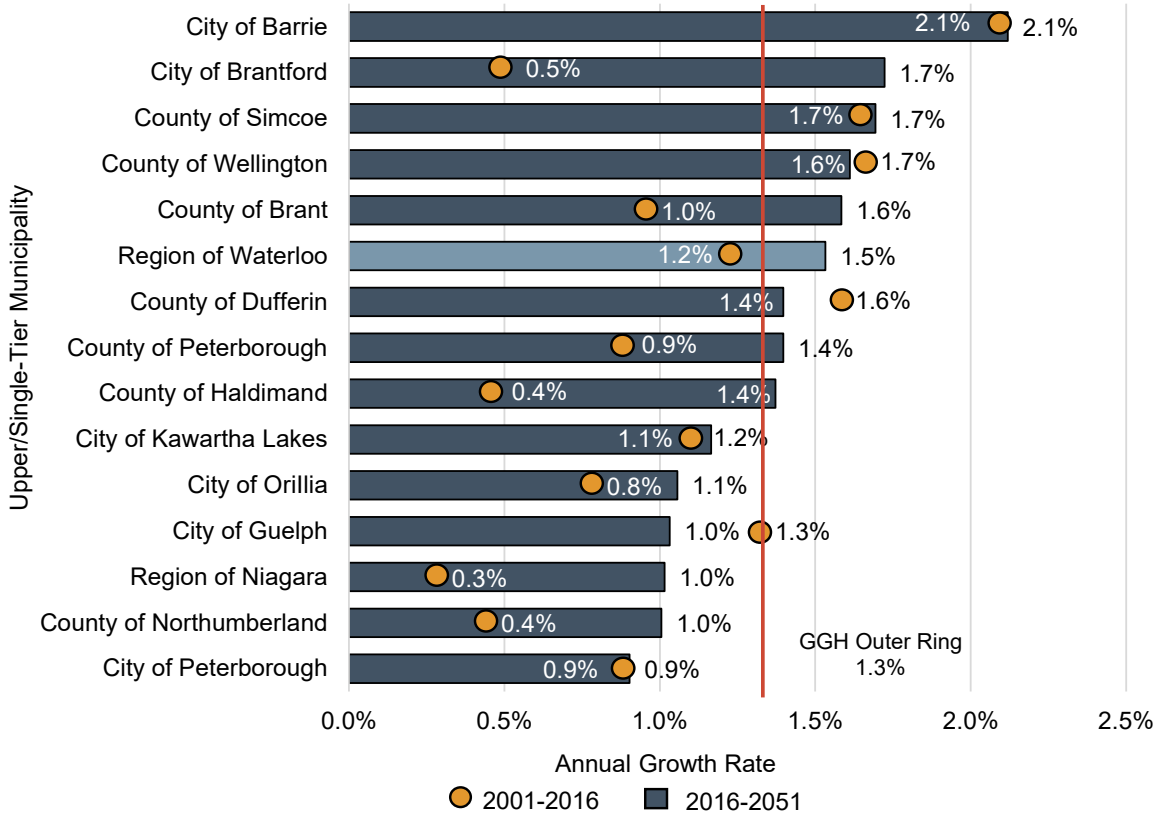
As illustrated in Figure 5-2 and Figure 5-3, the population and employment base for the Region of Waterloo grew at an annual rate of 1.3% and 1.3%, respectively between 2001 and 2016. Over the 2016 to 2051 forecast period, the rate of annual population and employment growth within the Region of Waterloo is forecast to moderately increase as a result of the regional growth drivers previously discussed in Chapter 4. Relative to the rate of population and employment growth for the GGH Outer Ring, and more specifically the neighbouring municipalities to the Region of Waterloo, the long-term growth outlook for the Region appears to be appropriate.

Figure 5-2: GGH 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.

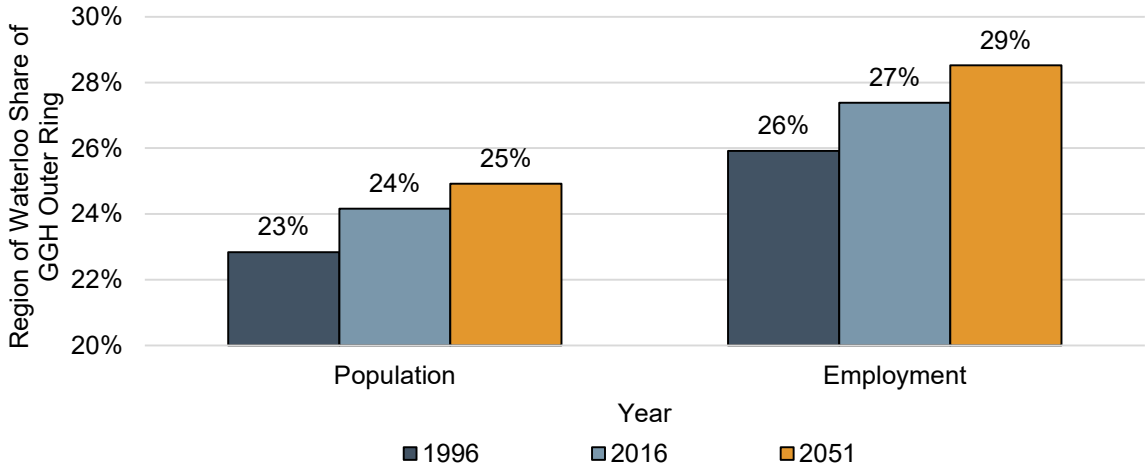
Figure 5-3: GGH Outer Ring, Annual Employment Growth Rate by Municipality, 2016 to 2051 (Schedule 3)



Source: Derived from Greater Golden Horseshoe: Growth Forecasts to 2051 Technical Report, June 16, 2020, Hemson Consulting Ltd., by Watson & Associates Economists Ltd., 2020.

As illustrated in Figure 5-4, the Region of Waterloo has historically accommodated an increasing share of GGH population and employment within the GGH Outer Ring. Looking forward, the Region of Waterloo's population and employment base is forecast to grow at a faster rate relative to the GGH Outer Ring as a whole. As such, the share of total GGH Outer Ring population and employment within the Region of Waterloo is forecast to continue to steadily increase over the long-term planning horizon.

Figure 5-4: Region of Waterloo Share of GGH Outer Ring Population and Employment, 2016 to 2051 (Schedule 3)



Source: Historical data derived from Statistics Canada Census, 1996 to 2016, and 2051 from Growth Plan, 2019 (as amended), by Watson & Associates Economists Ltd., 2020.

The Ontario Ministry of Finance (MOF) population projections provide further insight into long-term population trends across Ontario and the GGH. In summary, recent population project updates prepared by the MOF continue to identify a shift in population growth across the GGH from the GTHA to GGH Outer Ring. The most recent MOF population projections (Summer 2020) identify that the impacts of COVID-19 have potentially accelerated this shift in population growth from the GTHA to the GGH Outer Ring; however, these impacts are anticipated to return to their longer-term pre-pandemic trendline by 2022.[64]

When considering long-term population growth scenarios for the Region of Waterloo it is important to monitor long-term provincial growth forecasts prepared by the Ministry of Municipal Affairs (MMA) and the MOF for the GGH as well as its sub-regional areas. While it is anticipated that long-term population growth rates within the GGH Outer Ring will continue to outpace the GTHA, the long-term MOF population forecast for the Region of Waterloo is still tracking below the Region of Waterloo Growth Plan, 2019 population forecast (refer to Appendix D for further details). As such, the MOF projections do not provide evidence to support a higher population growth scenario for the Region of Waterloo.

As further discussed in Chapter 5, the Region's population is getter older on average, driven by the aging of the Baby Boomers. As the Region's population continues to age, net migration will become an increasing source of population growth. As previously mentioned in Chapter 4, the aging of the

[64] Ontario Population Projections Update, 2019-2046. Office of Economic Policy. Ontario Summary 2020, p. 3.

population also places downward pressure on labour force participation rates and ultimately labour force growth. As noted in section 5.2.6 herein, the level of annual net migration required to achieve the Growth Plan, 2019 population is almost two times higher than historical trends achieved between 2001 and 2016. While it is recognized there are several economic and demographic drivers that support higher annual net migration levels in the Region of Waterloo relative to historical trends, achieving higher levels of net migration relative to the net migration forecast summarized in section 5.2.6 (Figure 5-9) is not considered to be a likely long-term scenario.

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

- 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 drives on future development trends across the Region; and
- Represents a reasonable increase in the share of total population and employment in the Region of Waterloo relative to the GGH Outer Ring as a whole.

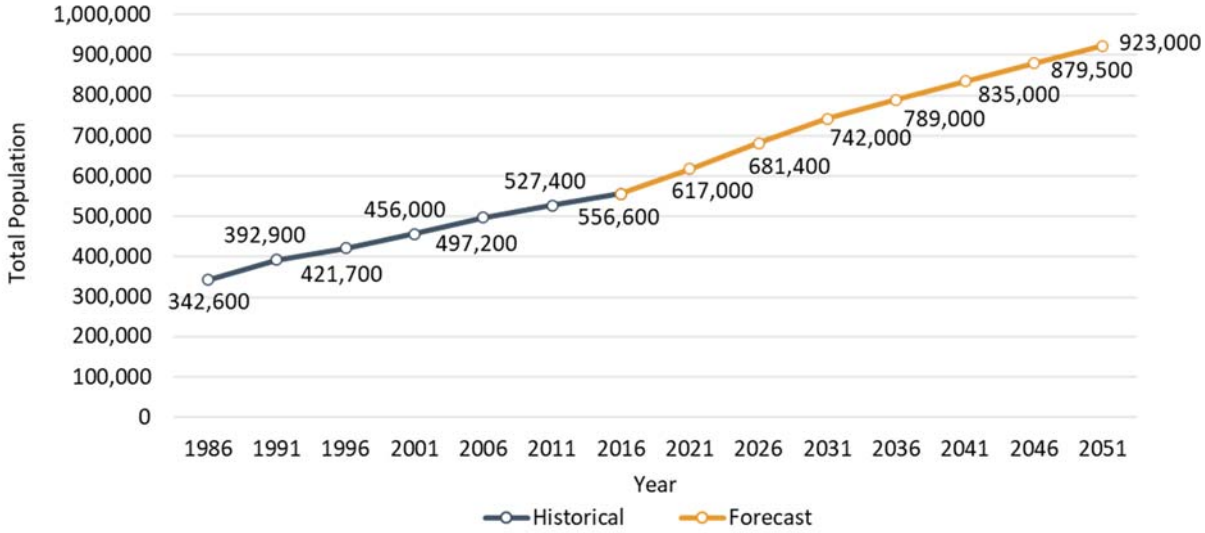
In accordance with the detailed review of the Region's long-term population and employment growth outlook provided herein, a higher long-term population and employment forecast for the Region of Waterloo is not supported for the purposes of long-term growth management and urban land needs analysis.

5.2.2 Total Population Growth Forecast

Figure 5-5 summarizes the Region of Waterloo total population growth forecast over the 2016 to 2051 forecast period relative to historical population between 1986 and 2016. As identified, the Region of Waterloo total population base is forecast to steadily increase between 2016 and 2051 largely driven by continued expansion of the Regional economic base. By 2051, the Region of

Waterloo total population base is forecast to grow to approximately 923,000.[65, 66] This represents an increase of approximately 366,400 persons between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Comparatively, the population of the Province as a whole is forecast to increase at a rate of 1.1% over the 2016 to 2046 time period.[67]

Figure 5-5: Region of Waterloo, Total Long-Term Forecast Population, 2016 to 2051



Note: Population includes net Census undercount of 4%.
Source: Historical data derived from Statistics Canada Census, 1986-2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020. 2051 conforms with Schedule 3 from A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca./growthplanning.

5.2.3 Total Population Growth Forecast by Major Age Group

Figure 5-6 summarizes the total population growth forecast for the Region of Waterloo by the percentage population by major age group. More detailed population forecast information is provided in Appendix C. Key observations include:

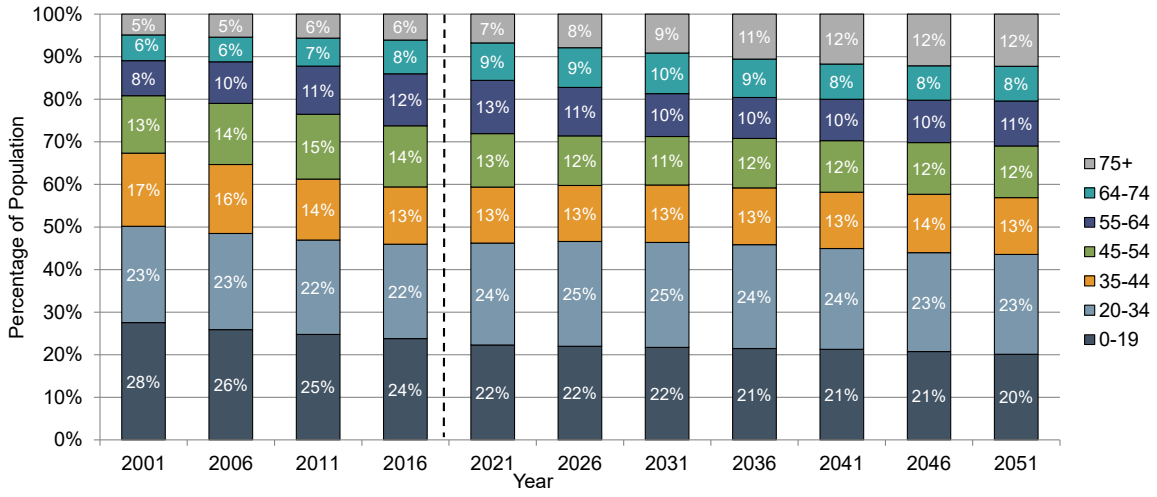
[65] Population forecast includes the net Census undercount, which is estimated at 4.0% for all periods and has been adjusted from the Statistics Canada net Census undercount. The Census undercount represents the net number of permanent residents who are missed (i.e. over-coverage less undercoverage) during Census enumeration in accordance with Statistics Canada.

[66] A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Office Consolidation 2020.

[67] Ontario growth rate based on Ministry of Finance Ontario Population Projection, 2019-2046, Summer 2020.

- The percentage of the Region of Waterloo's youth (0-19) is forecast to gradually decline from 24% in 2016 to 20% in 2051;
- The 20-34 age cohort (young adults), which comprised 22% of the population in 2016, is forecast to increase in percentage share to 23% in 2051;
- The share of population in the 35-54 age group (adults) is forecast to decline slightly from 27% to 25% over the same period;
- The percentage of empty-nesters/younger seniors (age 55-74) is forecast to decline from 20% to 19%; and
- The percentage of population in the age 75+ age group (older seniors) is forecast to double from 6% in 2016 to 12% 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 5-6: Region of Waterloo, Total Population by Major Age Group, 2016 to 2051

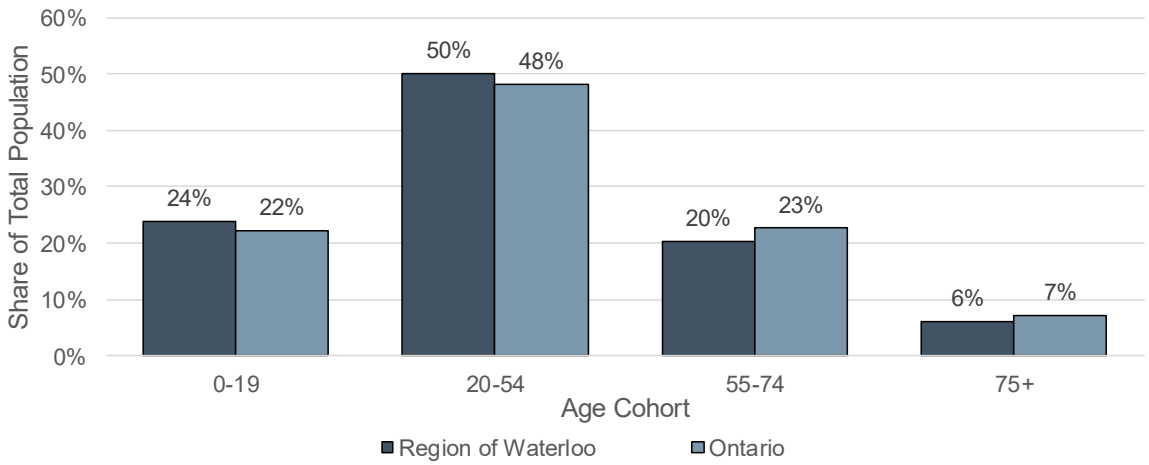


Source: Population forecast by age derived from 2001 to 2016 Statistics Canada Census and Annual Demographics Statistics data by Watson & Associates Economists Ltd., 2020. 2016 to 2051 population forecast by age prepared by Watson & Associates Economists Ltd., 2020.
Note: Population includes net Census undercount of 4%, based on input from Waterloo Region.

5.2.4 Region of Waterloo Population Comparison by Major Age Group

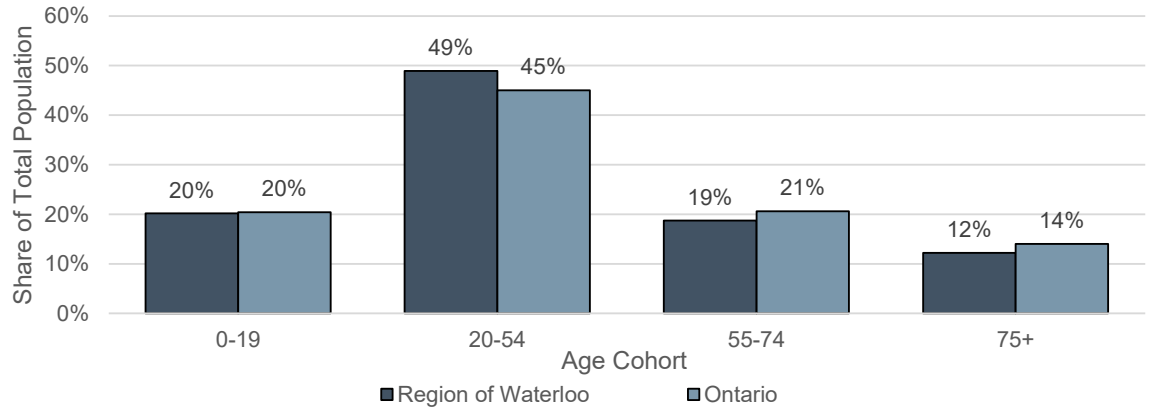
Figure 5-7 and Figure 5-8 summarize the 2016 and 2046 population age structure in the Region of Waterloo compared to the Province of Ontario as a whole. Generally, the Region of Waterloo existing population is younger than the Province of Ontario. By 2046, the Region's population is anticipated to remain younger than Ontario. This is partly due to the student population base in the Region of Waterloo and forecast growth in the NPR population.

Figure 5-7: Region of Waterloo and Ontario Population Age Structure, 2016



Note: Population used to calculate shares includes the net Census undercount.
Source: Ontario and Region of Waterloo derived from Statistics Canada Table 17-10-0139-01 by Watson & Associates Economists Ltd., 2019.

Figure 5-8: Region of Waterloo and Ontario Population Age Structure, 2046



Note: Population used to calculate shares includes the net Census undercount.
Source: Ontario derived from Ontario Ministry of Finance Population Projections, Summer 2020, and Region of Waterloo by Watson & Associates Economists Ltd., 2020.

5.2.5 Planning for Existing and Future Generations within the Region of Waterloo

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 Region of Waterloo. For most Canadian municipalities, including the Region of Waterloo, 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 Region of Waterloo is provided below.

5.2.5.1 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 28 to 40 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 19% of the Region of Waterloo population.

Within the broader GGH context, a high percentage of Millennials are currently choosing to live in urban locations, primarily the City of Toronto core, over suburban GGH locations given the proximity of downtown Toronto to amenities, entertainment and employment. Over the 2011-2014 period, average annual population growth of the Millennial generation in the GTHA averaged 40,000 per year.[68] Nearly two-thirds of GTHA population growth in the Millennial cohort was accommodated in the City of Toronto.[69] Of the population growth in the City of Toronto over the 2011 to 2014 period, Millennials accounted for 76%.[70] Notwithstanding these recent trends, eroding housing affordability is anticipated to steadily shift a portion of housing demand within this generation towards medium and high-density housing forms to other locations within the GTHA which offer a more competitive and wider product offerings relative to Downtown Toronto.

Based on recent survey data, 62% of Millennials prefer to live in mixed-use environments that urban centres offer which includes proximity to amenities and employment.[71] Millennials also tend to have a higher preference to live in more compact environments which offer a short distance to work and place a higher preference for walkability and access to public transit.[72] A survey of Millennials

[68] Population Dynamics in the Greater Golden Horseshoe – Millennials vs. Baby Boomers, Centre for Urban Research and Land Development, Ryerson University, November 19, 2015.

[69] Ibid.

[70] Ibid.

[71] Millennials – Breaking the Myths, Nielsen, 2014.

[72] Emerging Trends in Real Estate, Canadian Edition, PwC and ULI, 2014.

planning to purchase their next residence found that 47% of respondents indicated that proximity to work and amenities was an important feature/attribute of their next home.[73]

Various polls and surveys have identified that home ownership is considered important by the majority of Millennials.[74] A Canadian survey found that more than half the Millennials planning to purchase their next residence intend to purchase in the suburbs (56%) compared to the downtown core of a city (22% per cent).[75] The same survey found that 70% of respondents have a preference for a low-density home for their next home compared to 16% wanting a condominium/apartment.[76] Much of this demand for a future home appears to be the desire for additional floor space and a yard, in many cases to accommodate a growing family. This anticipated shift in housing preferences by the Millennial population is anticipated drive future housing demand across the Region of Waterloo in both urban areas which offer high-order transit access as well as suburban locations across which provide options for "move-up" buyers with growing families. With this in mind, housing demand is anticipated to be primarily strong for medium-density development – such as townhouses, stacked/back-to-back townhouses, as mid-rise condos, and to a lesser extent, single and semi-detached dwellings.

Within the Region of Waterloo, the City of Kitchener has been the most successful in attracting and accommodating the Millennial generation in recent years. Between 2011 and 2016, the Millennial population increased by approximately 3,500 persons in the City of Kitchener, of which approximately 90% of this population increase was accommodated within the BUA.[77] During this same time period, the Millennial population increased by just 1,850 for the Region of Waterloo as a whole, with some Area Municipalities experiencing a decline in this specific age group. The City of Kitchener's success in attracting this cohort can largely be attributed to market competitive housing opportunities (refer to Figure 3-15), regional employment opportunities (particularly in knowledge-based sectors), synergies associated with the Region's post-secondary institutions, business support organizations for start-up industries, as well as increasing options related to amenities and entertainment.

[73] Royal LePage National Survey, 2013.

[74] CIBC online poll, March 2016.

[75] Royal LePage National Survey, 2013.

[76] Ibid.

[77] Derived from 2011 and 2016 Statistics Canada Census data.

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, the Generation Z population comprises approximately 15% of the Region of Waterloo population base. Between 2016 and 2051 Generation Z is forecast to comprise 17% of total population growth within the Region of Waterloo. 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. From a planning and economic development perspective, both Millennials and 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 Region of Waterloo. The extent to which the Region of Waterloo 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, fuel costs, lifestyle preferences, local amenities, community services and perceived quality of life).

5.2.5.2 Continuing to Plan for Older Generations

As summarized in Figure 5-6, the average age of the population base in the Region of Waterloo is getting older, due to the large concentration of Baby Boomers within the region. As of 2020 this age group is between 56 and 74 years of age. As of 2016 Baby Boomers comprises 22% of the Region's population base. As the Region'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 Region is anticipated to steadily increase over the 2016 to 2051 forecast period. From 2001 to 2016, the Region's 75+ population grew at an annual rate of 2.8%. Over the 2016 and 2051 period, the forecast population growth rate for the 75+ age group is forecast to increase to 3.5% annually. This demographic trend is anticipated to be largely driven by the aging of the Region's existing population, as opposed to net-migration of older residents into the Region. It is important to recognize that not only is the Baby Boom age group large in terms of its population share in the Region of Waterloo, 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 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.[78] While there is strong rationale to support "aging in place" as a general concept, it is important to address the current characteristics of the Regional 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 Region of Waterloo (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.[79] 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.[80]

5.2.6 Components of Total Population Growth

Figure 5-9 and Figure 5-10 summarize population growth in the Region of Waterloo 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 Region of Waterloo. This is a result of diminished 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 represents the largest source of net migration for the Region of Waterloo;

[78] Canadian Housing Observer 2011. CMCH. 2011.

[79] The Meaning of "Aging in Place" to Older People. The Gerontologist, Vol. 52, No. 3, 2012.

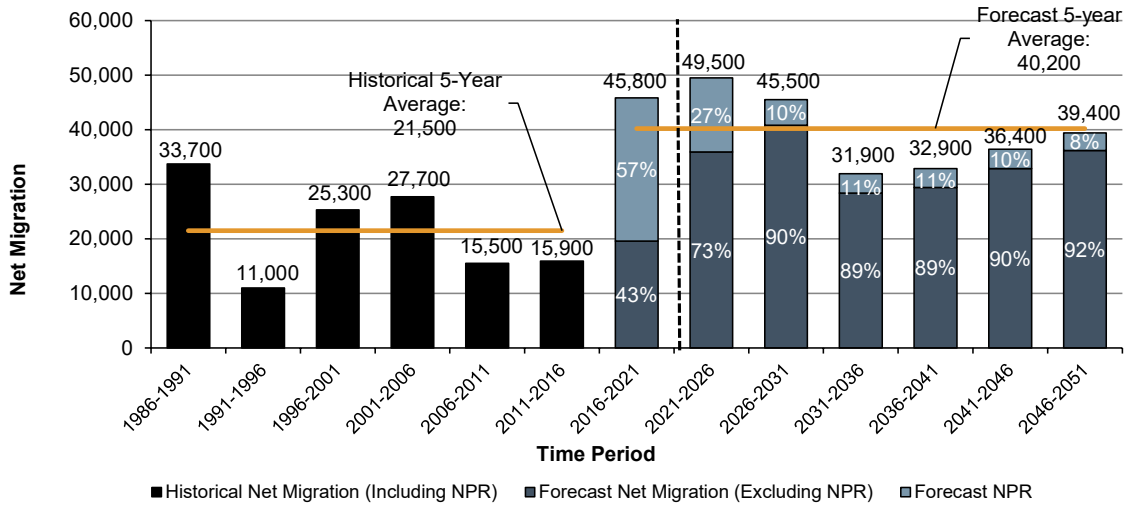
[80] Housing for Older Canadians: The Definitive Guide to the Over-55 Market. CMCH. Canada. 2012. p. 18.

- **Inter-provincial Net-Migration** – is comprised of in-migration less out-migration from other Canadian Provinces/Territories. Historically this has not been a major source of net-migration for the Region of Waterloo; 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 Region of Waterloo.

Key observations with respect to the components of population growth in the Region of Waterloo include:

- Over the 2016 to 2051 period, approximately 77% of population growth within the Region of Waterloo is anticipated to be driven from net migration;
- The Region is forecast to accommodate just over 8,000 new net migrants per year (or 40,200 migrants every five years). Relative to historical trends, this represents a considerable increase to the average historical levels of net migration experienced between 1986 and 2016;
- As previously discussed, forecast net migration in the Region of Waterloo 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 Region's attractiveness as a place to work, live, and study also represent key drivers of net future migration within the Region;
- Historically the NPR population has represented a minor component of the Region's total population. Between 1996 and 2016, the NPR population in the Region of Waterloo increased by approximately 3,100 people over the 20-year period. Over the 2016 to 2051 planning horizon, the NPR population is anticipated to represent a significant component of future population growth;
- As previously discussed in section 5.1, net migration over the 2016 to 2021 period is anticipated to be heavily driven by a significant increase in the number of NPR population moving to the Region of Waterloo. Net migration related to NPR population is forecast to remain strong over the forecast period; however, relative demand from this population segment is anticipated to moderate over the latter half of the forecast period (refer to section 5.2.5);
- Net migration of permanent residents is forecast to comprise 79% of total net migration, while NPR population is forecast to comprise the remaining 21% of total net migration from 2016 to 2051; and
- The Region is anticipated to experience relatively strong net migration across all major age groups, most notably the 20 to 34 age group (young adults).

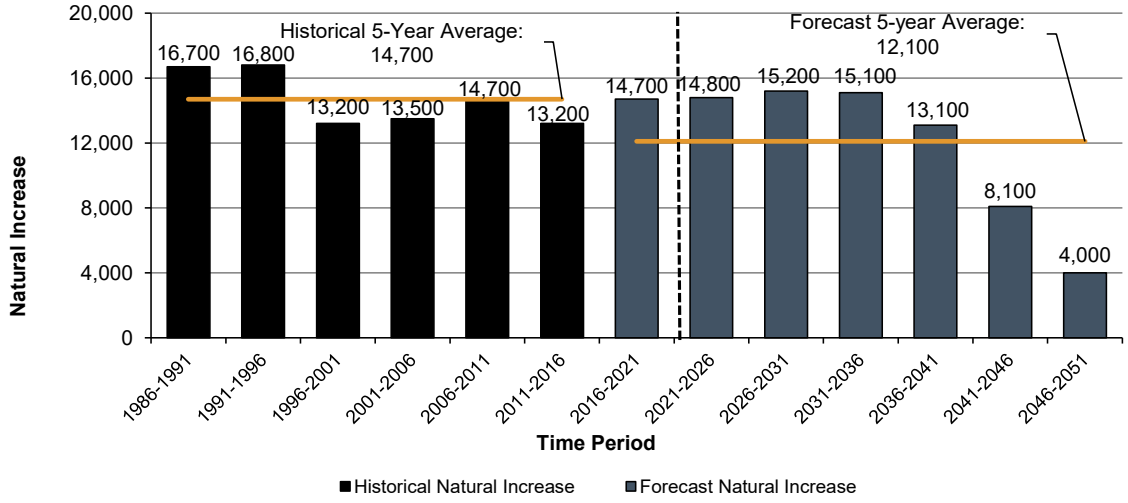
Figure 5-9: Region of Waterloo, Historical and Forecast Net Migration, 2016 to 2051



Source: 1986 to 2016 Derived from Statistics Canada, Demography Division (Catalogue no. 91C0005), by Watson & Associates Economists Ltd., 2020. 2016 to 2051 net migration and N.P.R. forecast prepared by Watson & Associates Economists Ltd., 2020. Population includes Census undercount of approximately 4%, based on input from Waterloo Region..

Figure 5-7 summarizes forecast population growth associated with natural increase for the Region of Waterloo relative to historical trends. As previously discussed, historical population growth (1986 to 2016) associated with natural increase has been relatively strong in the Region of Waterloo, driven by a relatively young population base. Over the forecast period, the share of population growth associated with natural increase is forecast to decline, particularly during the post-2041 period. Comparatively, the share of population growth associated with natural increase is anticipated to decline more rapidly for the Province as a whole, as the Ontario population is relatively older and aging more rapidly when compared to the Region of Waterloo.

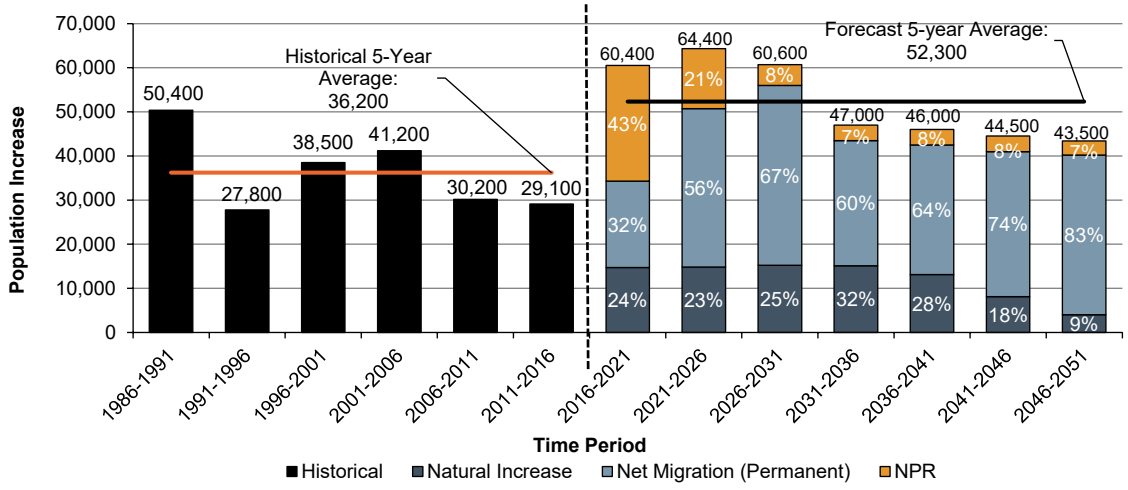
Figure 5-10: Region of Waterloo Historical and Forecast Natural Increase, 2016 to 2051



Source: 1986 to 2016 Derived from Statistics Canada, Demography Division data by Watson & Associates Economists Ltd., 2020. 2016 to 2051 forecast prepared by Watson & Associates Economists Ltd., 2020. Population includes Census undercount of approximately 4%, based on input from Waterloo Region..

Figure 5-11 summarizes the Region of Waterloo's total population forecast by growth component from 2016 to 2051 in five-year increments, in comparison to historical population growth trends. Total population growth in the Region of Waterloo is forecast to be significantly higher relative to historical trends driven by higher net migration from both permanent and NPR population. Further details regarding NPR growth are provided in section 5.2.5.

Figure 5-11: Region of Waterloo, Historical and Forecast Total Population Growth, 2016 to 2051



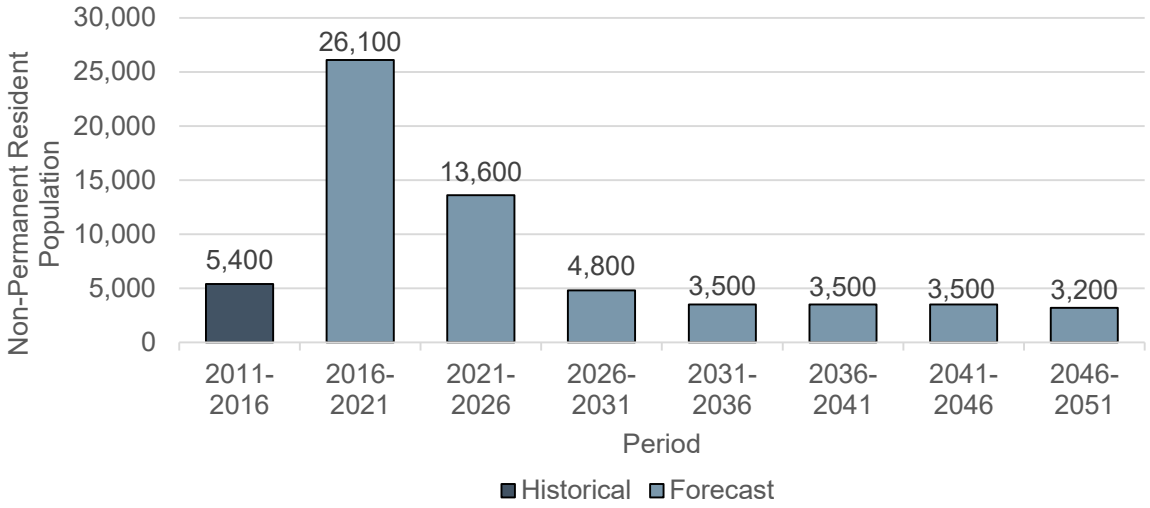
Note: The 2016 to 2021 period is informed by Statistics Canada components of population change estimates from 2016 to 2018.
Source: 1986 to 2016 derived from Statistics Canada, Demography Division, Statistics Canada Census and Region of Waterloo Data. 2016 to 2051 derived by Watson & Associates Economists Ltd., 2020.

5.2.7 Non-Permanent Resident Population Growth Forecast

Figure 5-12 through Figure 5-15 provide additional details regarding the Region of Waterloo NPR population forecast in five-year increments over the 2016 to 2051 forecast. Recent population

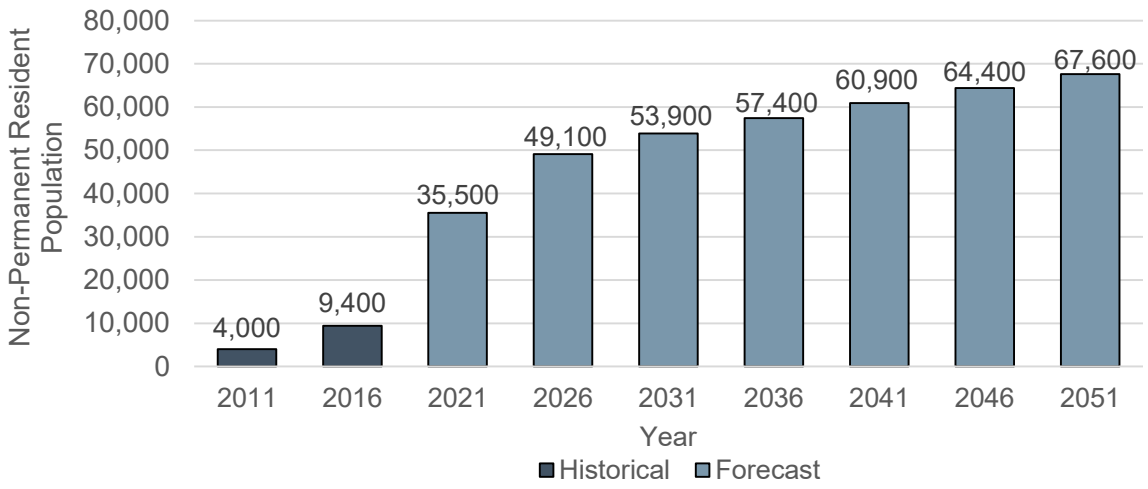
growth between 2016 and 2019 (as identified by Statistics Canada data) has accelerated in the Region of Waterloo primarily due to a significant increase in NPR population. At the broader five-year level, this trend is anticipated to continue over the 2019 to 2026 period, largely driven by increases in international enrollment at post-secondary institutions in the Region of Waterloo. Over the forecast period, the NPR population in Region of Waterloo is forecast to increase from 9,400 in 2016 to 67,600 by 2051, an increase of 58,200 persons. In 2016, NPR population represented 2% of the Region's total population base, by 2051 this segment of the population is anticipated to increase to 7% of the Region's total population. As illustrated below, near-term population growth associated with NPR in the Region of Waterloo is anticipated to be substantial. Over the longer term (post-2026), absolute population growth associated with NPR population is forecast to steadily moderate to approximately 1.3% per year.

Figure 5-12: Region of Waterloo, Historical and Forecast NPR Population Growth, 2016 to 2051



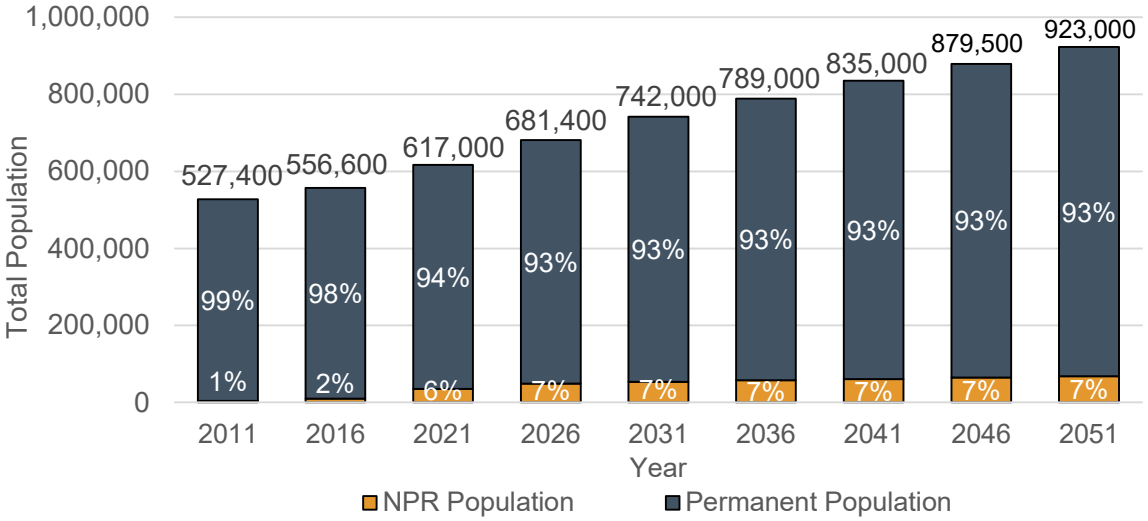
Note: The 2016 to 2021 period is informed by Statistics Canada components of population change estimates from 2016 to 2018, and forecasted from 2018 to 2021.
Source: Historical data from Statistics Canada Census, 2011-2016, and 2016-201 forecast by Watson & Associates Economists Ltd., 2020.

Figure 5-13: Region of Waterloo, Historical and Forecast NPR Population, 2016 to 2051



Note: The growth from 2016 to 2021 is informed by Statistics Canada components of population change estimates from 2016 to 2018.
Source: Historical data from Statistics Canada Census, 2011-2016, and 2016-2051 forecast by Watson & Associates Economists Ltd., 2020.

Figure 5-14: Region of Waterloo, NPR Population share of Total Population, 2016 to 2051

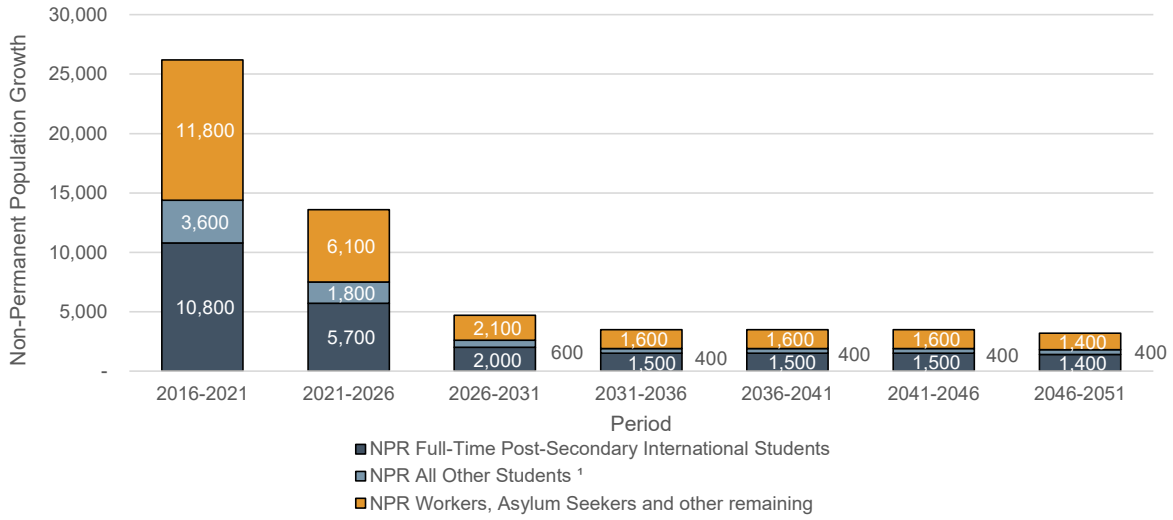


Note: Total population includes a net Census undercount of 4%.
Source: Historical data from Statistics Canada Census, 2011-2016, and 2016-2051 forecast by Watson & Associates Economists Ltd., 2020.

Figure 5-15 summarizes NPR population growth for the Region of Waterloo in five-year increment by component. As summarized, full-time post-secondary international students are anticipated to represent a major component of NPR population growth in the Region of Waterloo, making up 42%

of the total NPR growth from 2016 to 2051. All other students[81] are projected to make up 13% of total NPR population growth over the forecast period. Other NPR population components comprise 45% of total NPR population forecast, which is largely associated with foreign workers (including family members not identified as workers or students), and to a lesser degree, asylum seekers and any other remaining NPR population.

Figure 5-15: Region of Waterloo, Components of NPR Population Growth, 2016 to 2051



¹ All none full-time post-secondary students and all non-post secondary full-time and part-time students including elementary and secondary schools.
Source: Watson & Associates Economists Ltd., 2020.

5.3 Region of Waterloo Census Housing Growth Forecast

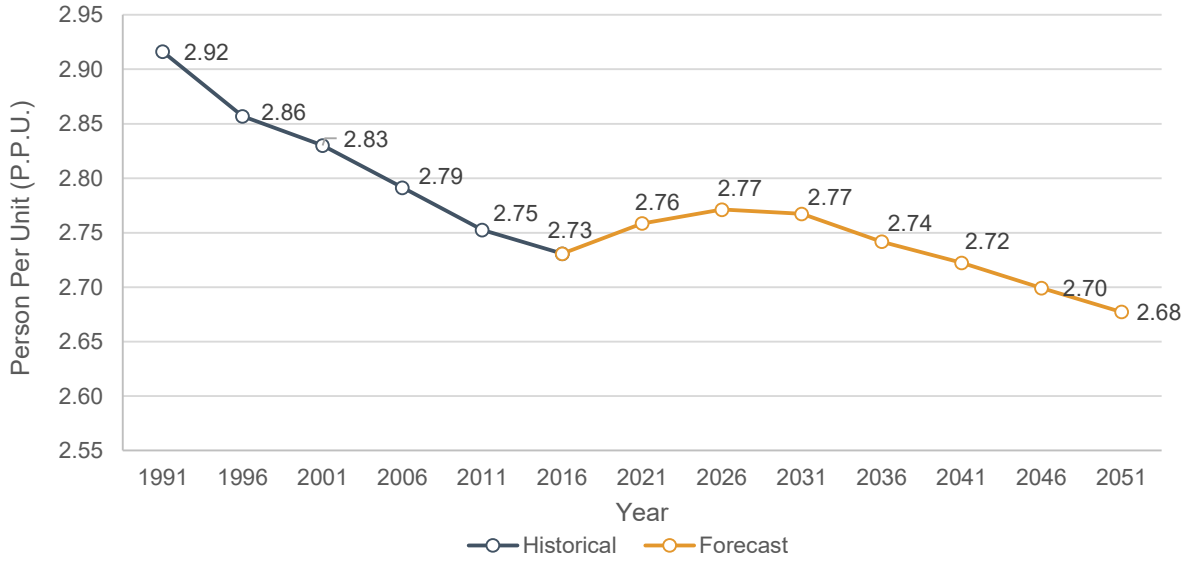
Figure 5-16 summarizes anticipated long-term forecast housing occupancy trends (i.e. PPU) for the Region of Waterloo from 2016 to 2051 within the context of historical trends from 1991 to 2016. As previously discussed, this PPU forecast is based on a headship rate analysis (refer to Appendix B for additional details).[82] Over the forecast period, average household occupancy levels are expected to steadily increase between 2016 and 2026 driven by strong levels of net migration and associated

[81] All non-full-time post-secondary students and all non-post-secondary full-time and part-time students including elementary and secondary schools.

[82] A headship rate is defined as the number of primary household maintainers or heads of households by major population age group. The headship forecast forms the basis for determining the demand for new households generated from population growth. Dividing total units over population generates the resulting long-term PPU for the Region from 2016 to 2051.

new housing construction. It is important to note that the high growth of the NPR population during the 2016 to 2026 period has an impact on driving the average PPU for the Region of Waterloo higher. This is largely because the average PPU associated with NPR is higher than the average PPU for the Region.[83] During the post-2026 period, average PPU levels are forecast to stabilize and then eventually decline, largely as a result of relatively slower incremental population growth combined with the aging of population which generates downward pressure on the PPU during this time period.

Figure 5-16: Region of Waterloo, Person Per Unit (PPU), 2016 to 2051



Note: Population used for P.P.U. calculation includes net Census undercount of 4%.
Source: Historical data from Statistics Canada Census, 1991 to 2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

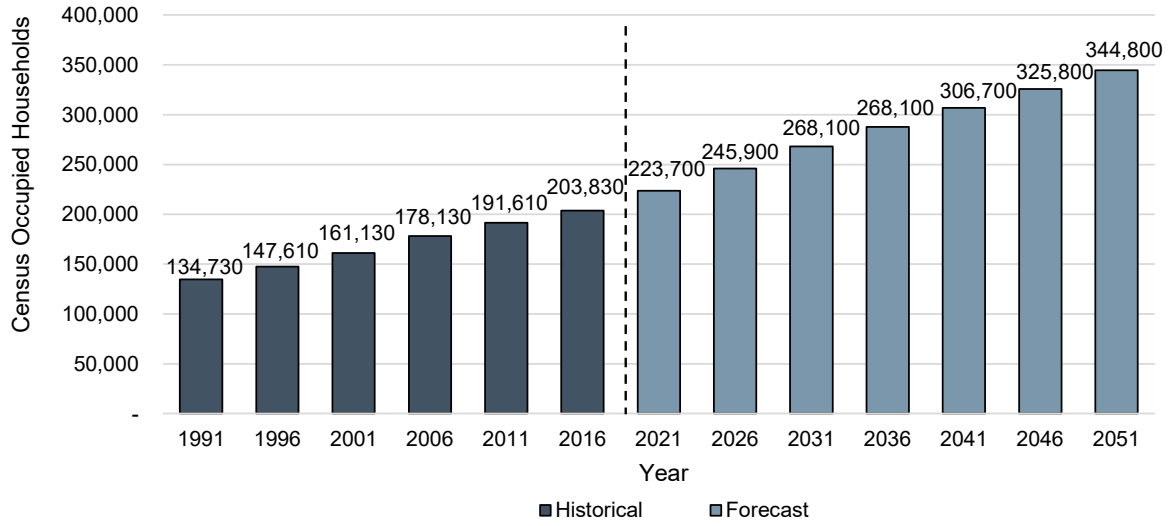
Figure 5-17 summarizes the long-term total Census household forecast for the Region of Waterloo in five-year increments from 2016 to 2051. By 2031 the Region's Census housing base is forecast to reach approximately 268,100 total households.[84] The rate of housing growth is forecast to slow down during the post-2031 period, similar to forecast population growth trends anticipated during this time period. By 2051, the Region's housing base is forecast to increase to approximately 344,800. This represents an annual housing growth rate of approximately 1.5% over the 35-year

[83] NPR PPU based on custom 2016 Statistics Canada Census data. Note that the average PPU for NPR as of 2016 was 2.84.

[84] Census housing refers to private dwellings occupied by usual residents.

forecast period. This represents a relatively comparable rate of forecast housing growth relative to the Region's historical 25-year average annual housing growth rate (1.7% from 1991 to 2016).

Figure 5-17: Region of Waterloo, Census Housing Forecast, 2016 to 2051

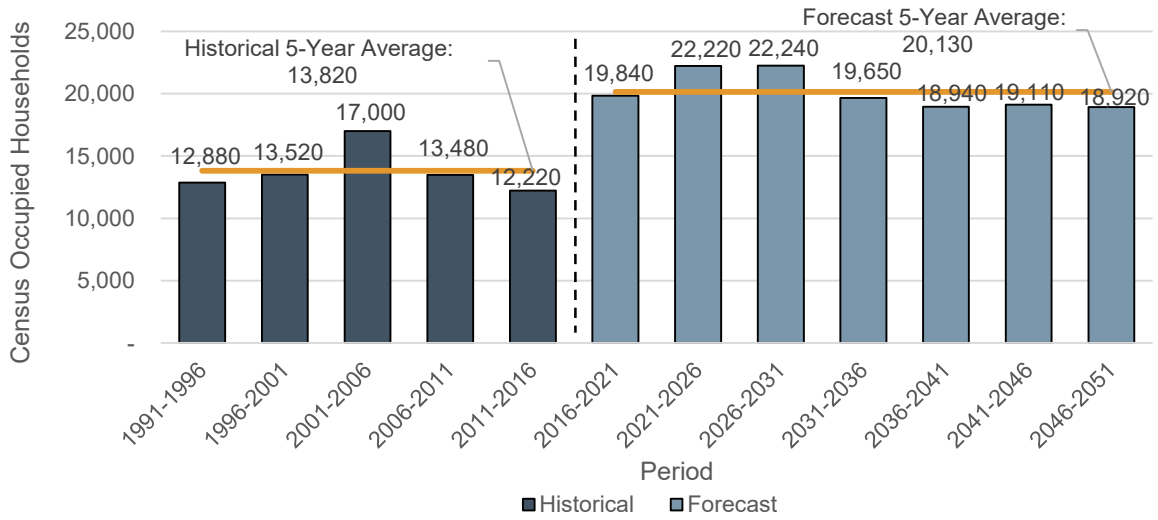


Source: Historical data from Statistics Canada Census Profiles, 1991 to 2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

Figure 5-18 compares annual historical permanent housing growth for the Region of Waterloo from 1991 to 2016 against forecast new housing growth over the 2016 to 2051 period.[85] In accordance with housing growth trends between 2016 and 2018 (i.e. residential occupancy permits) and a review of housing units in the development approvals process, total absolute housing growth over the 2016 to 2021 period is anticipated to be strong relative to historical trends. Over the long term, forecast total Census housing growth from 2016 to 2051 is forecast to remain well above historical averages (approximately 46% higher relative to the 1991 to 2016 historical period in absolute terms).

[85] In the 2016 to 2021 forecast period, 2016 to 2018 is based on actual occupancy data received from the Region of Waterloo.

Figure 5-18: Region of Waterloo, Annual Census Housing Forecast, 2016 to 2051



Note: The growth from 2016 to 2021 is informed by Region of Waterloo new housing unit data from 2016 to 2019.
Source: Historical data from Statistics Canada Census Profiles, 1991 to 2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

5.4 Region of Waterloo Population in Collective Dwellings Forecast, 2016 to 2051

Figure 5-19 summarizes historical and forecast trends regarding the population in collective dwellings for the Region of Waterloo from 2006 to 2051. Over the historical time period from 2006 to 2016, the population in collective dwellings increased by approximately 530 people or 53 people annually. This represents an annual growth rate of 0.7%. Historically, the share of population in collective dwellings relative to total population has remained relatively stable between 2006 and 2016.

Over the 2016 to 2051 period, it is anticipated that the number of collective dwellings in the Region of Waterloo will steadily increase as the population grows. Also, as previously discussed, the Region of Waterloo's population is aging. This suggests that the number of collective dwellings related to facilities such as hospitals, retirement facilities and nursing homes will also increase. Over the 2016 to 2051 period, the Region of Waterloo population in collective dwellings is forecast to increase by approximately 13,000 persons. This represents an annual increase of approximately 372 persons in collective dwellings per year or a 2.8% annual growth rate. Over the 2016 to 2051 planning horizon the share of population in collective dwellings relative to total population is forecast to increase from 1.4% to 2.3%.

Figure 5-19: Region of Waterloo Population in Collective Dwellings. 2016 to 2051

Year	Population in Collective Dwellings	Total Population	Percentage Share of Population in Collective Dwellings to Total Population	Equivalent Collective Households[1]
Historical				
2006	7,285	497,200	1.5%	6,625
2011	7,485	527,400	1.4%	6,805
2016	7,815	556,600	1.4%	7,105
Forecast				
2021	9,770	617,000	1.6%	8,880
2026	11,785	681,400	1.7%	10,715
2031	13,710	742,000	1.8%	12,465
2036	15,470	789,000	2.0%	14,065
2041	17,225	835,000	2.1%	15,660
2046	19,035	879,500	2.2%	17,305
2051	20,830	923,000	2.3%	18,935
Incremental Growth				
2016-2031	5,895	185,400	0.4%	5,360
2016-2036	7,655	232,400	0.6%	6,960
2016-2041	9,410	278,400	0.7%	8,555
2016-2046	11,220	322,900	0.8%	10,200
2016-2051	13,015	366,400	0.9%	11,830

[1] According to Statistics Canada, a collective dwelling refers to a dwelling of a commercial, institutional or communal nature. These dwellings are occupied by non-usual residents. Collective dwellings include but are not limited to seniors' homes, nursing homes, assisted living, and long-term care homes. A PPU of 1.1 depicts units in these collective dwellings.

Note: Figures have been rounded.

Source: Historical data derived from Statistics Canada Census, and forecast by Watson & Associates Economists Ltd., 2020.

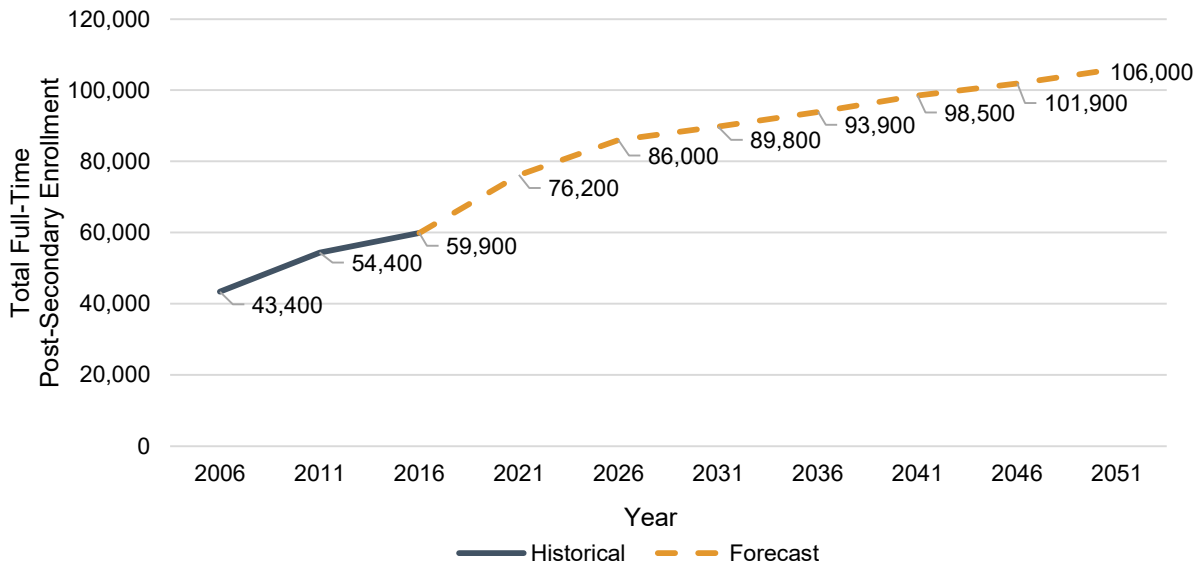
5.5 Region of Waterloo Student Enrollment and Corresponding Population Growth Forecast, 2016 to 2051

5.5.1 Student Enrollment Forecast

Based on the methodology presented in section 2.4, a long-term (2016 to 2051) aggregate post-secondary student enrollment forecast for the Region of Waterloo was prepared reflecting growth potential within the Region's three post-secondary institutions. As illustrated in Figure 5-20, full-time enrollment is forecast to increase from 59,900 in 2016 to 106,000 by 2051, an increase of 77% (46,100 students) over the forecast period (1.6% annual growth rate).

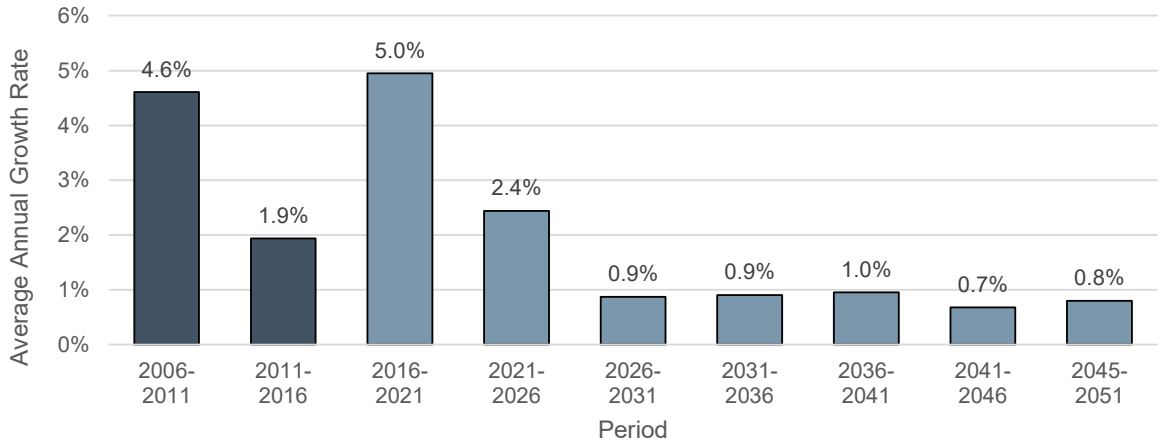
Over the past decade, full-time post-secondary student enrollment growth in the Region of Waterloo has been relatively strong. During the 2006 to 2011 and 2011 to 2016 periods, full-time enrollment growth increased at an annual average rate of 4.6% and 1.9%, respectively, as presented in Figure 5-21. Over the short term (i.e. 2016 to 2021), full-time enrollment growth is expected to be the strongest with an annual growth rate of 5.0%, coinciding with high growth in the NPR population which includes international students, followed by an annual rate of 2.4% over the 2021 to 2026 period. Post-2026, full-time enrollment is forecast to moderate to an annual growth rate of approximately 0.8%. The moderation of the long-term post-secondary student forecast is anticipated to be driven by slowing population growth related to domestic students and increased global competition related to post-secondary international student attraction.

Figure 5-20: Region of Waterloo, Full-Time Post-Secondary Student Enrollment, 2016 to 2051



Note: Figures have been rounded.
Source: 2006 to 2016 derived from Region of Waterloo data. 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

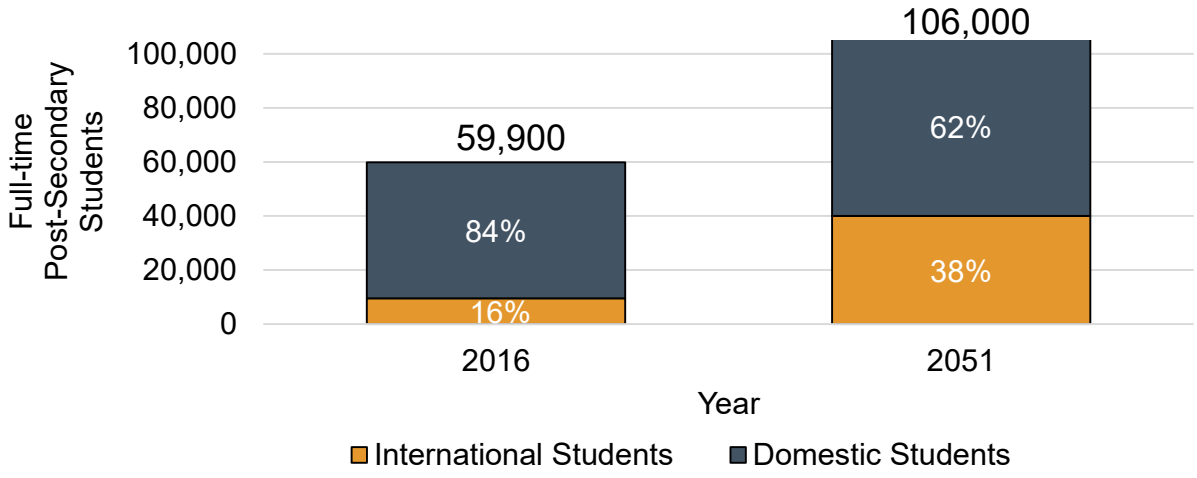
Figure 5-21: Region of Waterloo, Full-Time Post-Secondary Student Enrollment Growth Rate, 2016 to 2051



Note: Actual future student population may be impacted by a number of factors that affect student enrollment at post-secondary institutions, including changes in government policy related to enrollment and funding.
Source: 2006 to 2016 derived from Region of Waterloo data. 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

In accordance with domestic demographic trends, combined with demand from international students, the share of total full-time enrollment associated with international students is expected to increase from 16% in 2016 to 38% in 2051. Conversely, the share of domestic students is expected to decrease from 84% to 62% during the same period.

Figure 5-22: Region of Waterloo, Geographic Origin of Full-Time Post-Secondary Student Enrollment, 2016 vs. 2051

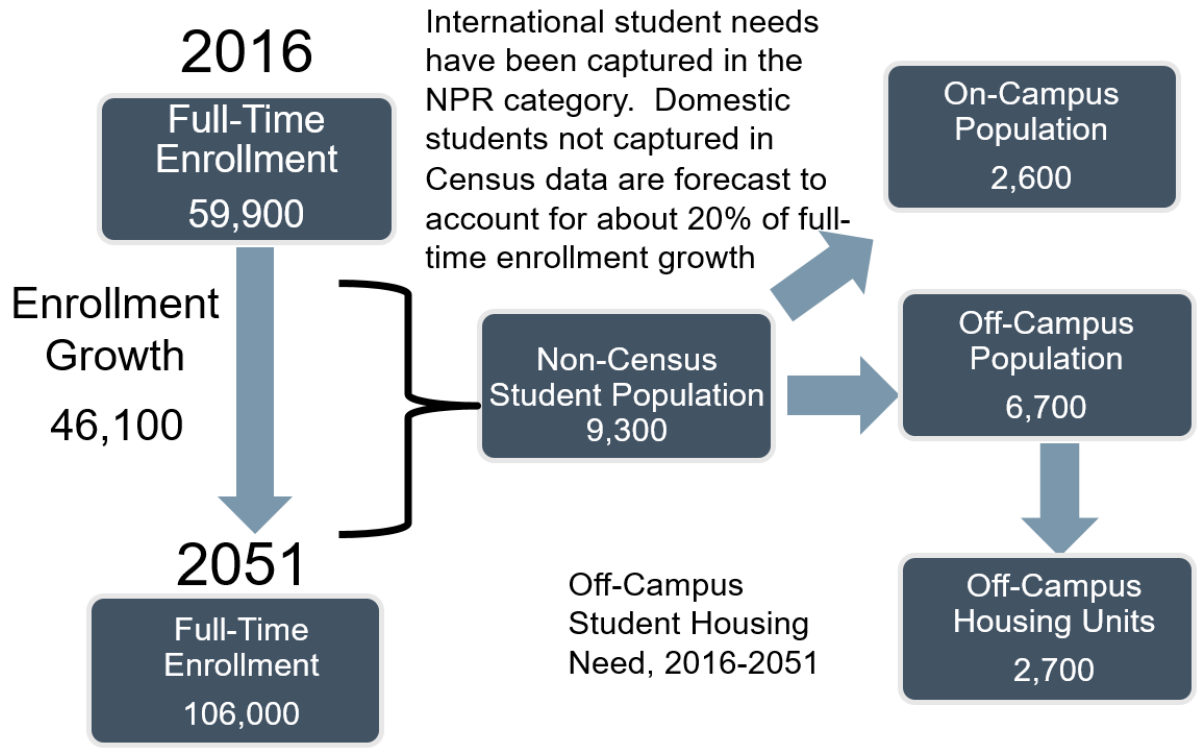


Source: Watson & Associates Economists Ltd., 2020.

Based on anticipated growth trends in enrollment by geographic location and local residency patterns, it is anticipated that 20% (9,300 of 38,600 students) of forecast full-time post-secondary enrollment growth over the 2016 to 2051 period, will reflect students not captured in the Census (i.e. those who are counted elsewhere in Canada but require housing locally while they are studying at one of the post-secondary institutions in the Region of Waterloo). As previously identified, it is important to note that international students are part of the NPR population and are already

captured in the Census. Based on current occupancy trends, it is anticipated that approximately 2,600 of the students not captured in the Census (28% of total) will be accommodated in on-campus residences, as illustrated in Figure 5-23. The residual (72% or 6,700 students) are anticipated to be accommodated in off-campus housing. Assuming an average PPU of 2.5[86], this will generate the need for approximately 2,700 off-campus dwelling units to accommodate post-secondary students not captured in the Census over the 2016 to 2051 period.

Figure 5-23: Region of Waterloo, Student Population Forecast



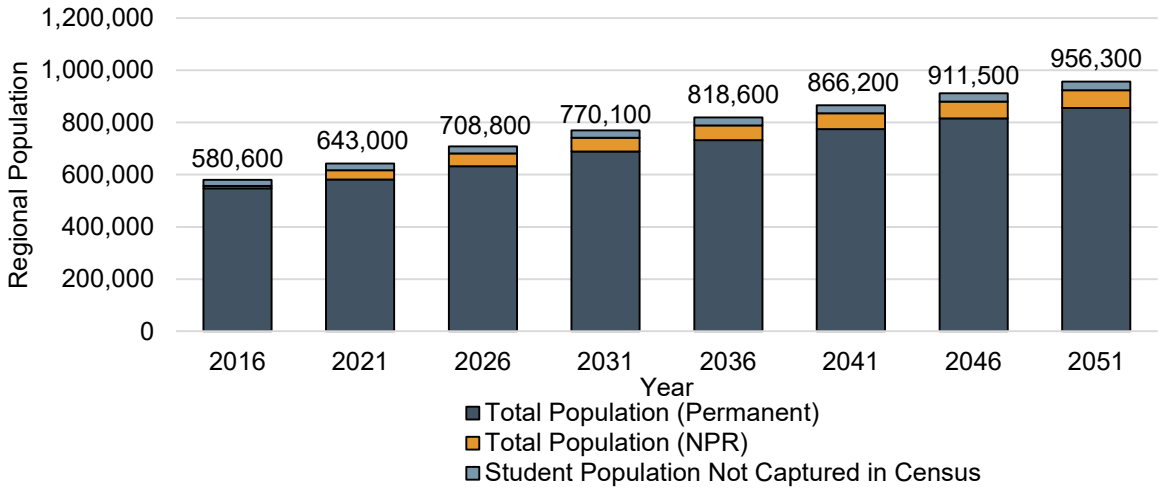
Note: Student population and housing forecast based on enrollment projections prepared by Watson & Associates Economists Ltd., 2020.

[86] Based on a review of active housing development applications in the Region of Waterloo as well as consideration of student housing trends within other Ontario municipalities with a large student population, it is assumed that most new off-campus student housing will be in the form of apartments.

5.6 Regional Population and Housing Growth Forecast

Figure 5-24 summarizes the Regional population which includes the total population (permanent and non-permanent residents adjusted for the net Census undercount) and students not captured by the Census, while Figure 5-25 identifies the incremental population growth from 2016 to 2051 by population category (permanent, non-permanent, students not captured by the Census). Over the 35-year forecast period, the total population in the Region of Waterloo is forecast to grow by 366,000, or 1.5% annually, whereas the student population[87] is forecast to grow by 9,300, or 0.9% annually. Overall, the Regional population is forecast to increase by 376,000, or 1.4% annually.

Figure 5-24: Region of Waterloo, Regional Population (Includes Population Not Captured in Census), 2016 to 2051



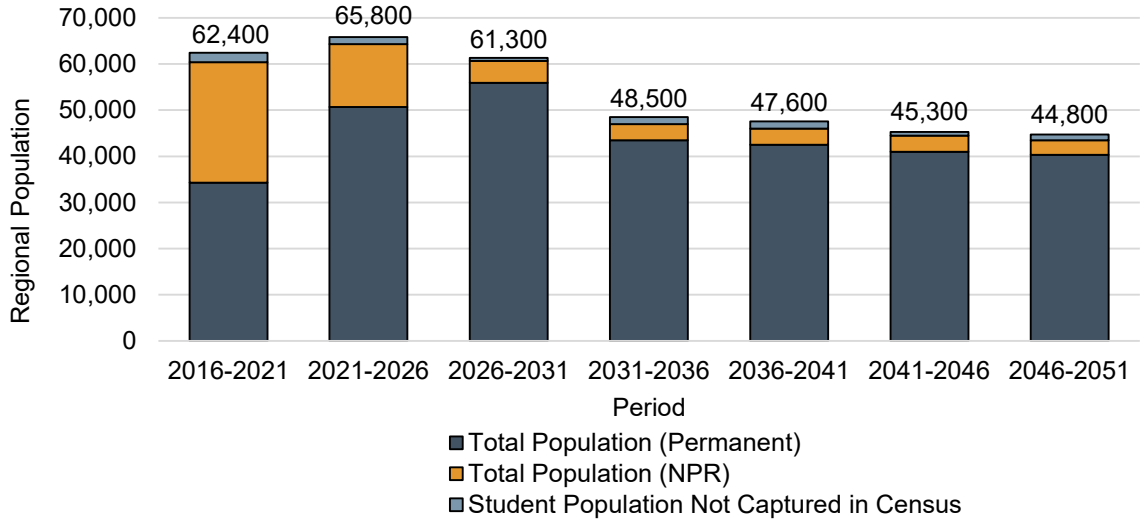
Note: The 2021 period is informed by Statistics Canada components of population change estimates from 2016 to 2018.
Source: Watson & Associates Economists Ltd., 2020.

	2016	2021	2026	2031	2036	2041	2046	2051
Total Population (Permanent)	547,200	581,500	632,200	688,100	731,600	774,100	815,100	855,400
Total Population (NPR)	9,400	35,500	49,100	53,900	57,400	60,900	64,400	67,600
Total Population	**556,600**	**617,000**	**681,300**	**742,000**	**789,000**	**835,000**	**879,500**	**923,000**
Student Population Not Captured in Census	24,000	26,000	27,500	28,100	29,600	31,200	32,000	33,300
Regional Population	**580,600**	**643,000**	**708,800**	**770,100**	**818,600**	**866,200**	**911,500**	**956,300**

Source: 2016 derived from Statistics Canada Census data, and 2021 to 2051 by Watson & Associates Economists Ltd., 2020.
Note: Figures may not sum to totals due to rounding.

[87] Refers to students not captured in Census.

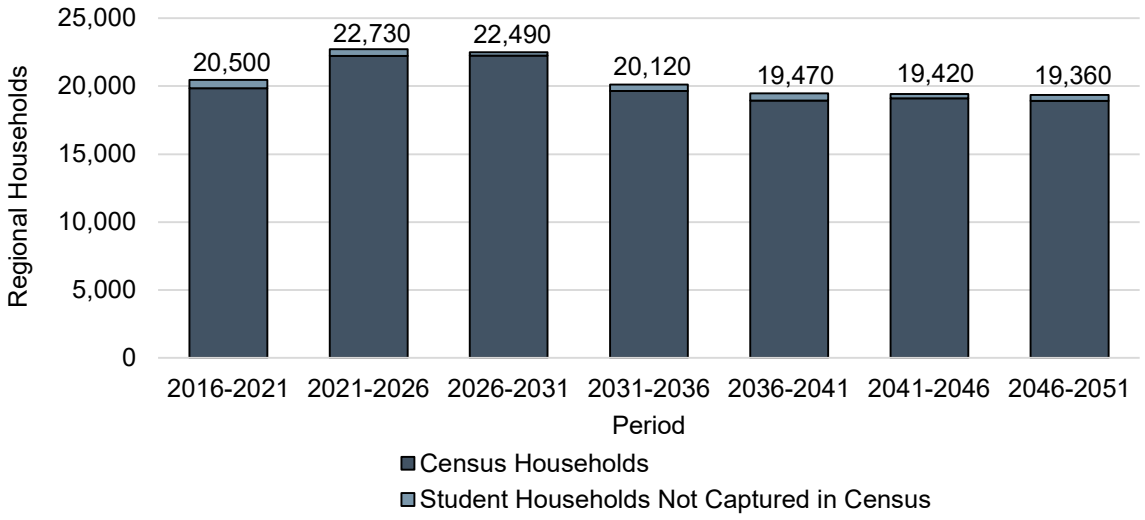
Figure 5-25: Region of Waterloo, Regional Population Growth (Includes Population Not Captured in Census), 2016 to 2051



Note: The 2016 to 2021 period is informed by Statistics Canada components of population change estimates from 2016 to 2018.
Source: Watson & Associates Economists Ltd., 2020.

Figure 5-26 summarizes the Regional housing forecast in five-year increments from 2016 to 2051. Region of Waterloo Census households are expected to grow by an additional 140,900 units over the 35-year period, while student housing not captured in the Census is expected to increase by 2,700 units during the same time frame. Over the 35-year forecast period, Census housing is expected to average approximately 4,025 new households annually or by an average of 20,100 households every five years. Student housing not captured in the Census is expected to grow roughly at 77 new units per year or an average of 384 housing units over each five-year period.

Figure 5-26: Region of Waterloo, Annual Housing Forecast Growth, (Census Households and Student Households Not Captured in Census), 2016 to 2051



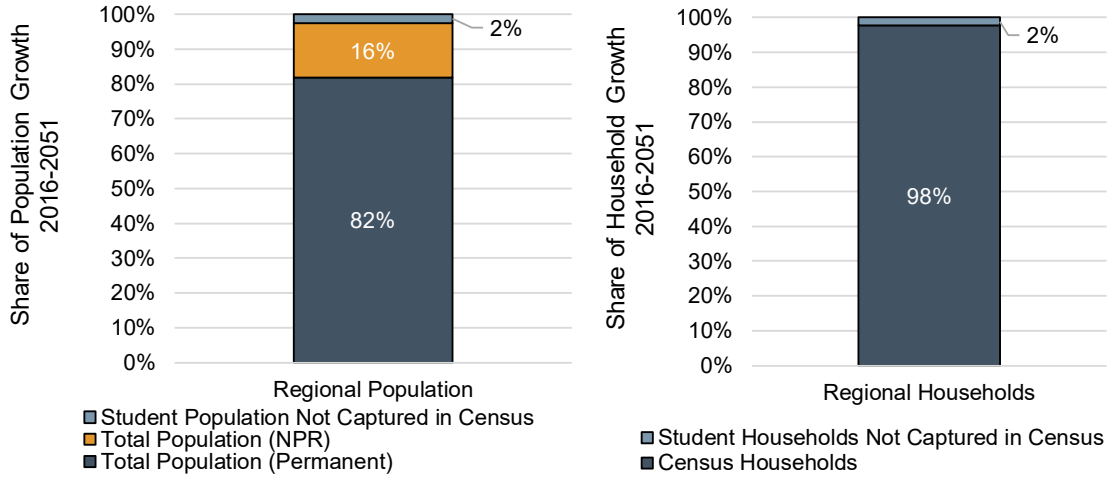
Source: Watson & Associates Economists Ltd., 2020.

	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Census Households	19,840	22,220	22,250	19,650	18,940	19,120	18,920
Student Households Not Captured in Census	590	430	190	430	460	230	360
Total	**20,430**	**22,650**	**22,440**	**20,080**	**19,400**	**19,350**	**19,280**

Source: Watson & Associates Economists Ltd., 2020.
Note: Figures may not sum to totals due to rounding.

Figure 5-27 summarizes the Regional population and housing growth over the 35-year forecast period. Regional population growth is forecast to comprise 98% of total population growth (82% permanent and 16% non-permanent) from 2016 to 2051, while the student population not captured in the Census is forecast to account for the remaining 2%. Student housing accounts for 2% of the total housing growth over the same period (refer to Appendix A for additional details).

Figure 5-27: Region of Waterloo, Share of Population and Housing Growth – Permanent and Students Not Captured in Census, 2016 to 2046



Source: Watson & Associates Economists Ltd., 2020.

5.7 Observations

By 2051, the Region of Waterloo total population base is forecast to grow to approximately 923,000 persons as per Schedule 3 of the Growth Plan, 2019. This represents an increase of approximately 366,400 permanent residents and NPR population between 2016 and 2051, or an average annual population growth rate of 1.5% during this time period. Comparatively, the population of the Province as a whole is forecast to increase at a rate of 1.1% over the 2016 to 2046 period.

As previously indicated, population growth will be primarily driven by the Region's labour force attraction across a diverse range of growing service providing and goods producing sectors, particularly sectors which are geared toward innovation and technology. Looking forward, the Region of Waterloo's distinction as a "complete" and competitive community is anticipated to

represent a key driver of the future economic success and population growth potential of this Region.

It is important to recognize that while the Region's population base is growing it also is getting older. Between 2016 and 2051, the 75+ age group is forecast to represent the fastest growing population age group with an average annual population growth rate of 3.5%. 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 Region of Waterloo 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 of both permanent and NPR. Net migration in the Region of Waterloo associated with NPR is anticipated to be particularly strong over the next 10 years.

Accommodating forecast total population growth in the Region of Waterloo will require approximately 140,900 new Census households, or just over 4,000 new Census households annually. An additional 2,700 off-campus dwelling units will also be required to accommodate post-secondary students not captured in the Census over the 2016 to 2051 period. To adequately accommodate future housing demand across a diverse selection of demographic and socio-economic groups, a range of new housing typologies will be required with respect to built-form, location and affordability across the Region.

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

6.0 Recommendations and Next Steps

This Technical Brief forms an important foundational report for each of the Technical Briefs to follow as part of the Region's MCR and ROP review process. In accordance with the comprehensive analysis provided as part of this Brief, the Growth Plan, 2019 is recommended as the preferred long-term growth scenario for the Region of Waterloo. As such, a higher long-term population and employment forecast for the Region of Waterloo is not supported for the purposes of long-term growth management and urban land needs analysis.

The next Technical Brief to immediately follow this Population and Housing Growth Analysis report will provide a comprehensive Employment Analysis from a Regional perspective. This will be followed by an Intensification Analysis as well as a Density and Urban Land Needs Analysis. These Technical Briefs will collectively form the background materials required to support the Region's MCR report, which is anticipated to be completed in 2021.

Appendix A

Region of Waterloo Student Population Forecast, 2016 to 2051

Figure A-1: Region of Waterloo, Forecast Full-Time Post-Secondary Enrollment by Origin, 2016 to 2051

Year			2006	2011	2015	2016	2021	2026	2031	2036	2041	2046	2051
Total Post-Secondary	Full-time		43,400	54,400	59,200	59,900	76,200	85,900	89,800	93,900	98,500	101,900	106,000
	Total	Domestic			51,200	50,300	53,200	55,800	57,200	59,500	62,300	63,800	66,000
		International			8,000	9,600	23,000	30,100	32,600	34,400	36,200	38,100	40,000
	Share	Domestic			86%	84%	70%	65%	64%	63%	63%	63%	62%
		International			14%	16%	30%	35%	36%	37%	37%	37%	38%
Non-Permanent Resident Population (Full-Time Post-Secondary Students Only)					**7,400**	**8,800**	**19,600**	**25,300**	**27,300**	**28,800**	**30,300**	**31,800**	**33,200**

Source: 2006 to 2016 derived from Region of Waterloo data. 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.
Note: Figures may not add precisely due to rounding.

Figure A-2: Region of Waterloo, Post-Secondary School Off-Campus Housing Need, 2016 to 2051

Post-Secondary Institution	Total Full-Time Domestic Enrollment Growth	% Enrollment Growth Requring Student Housing in Region of Waterloo	Domestic Enrollment Growth Requring Student Housing in Region of Waterloo	% Housed on Campus	% Off-Campus	On-Campus Student Population	Off-Campus Student Population Growth
	(A)	(B)	(A) x (B) = (C)	(D)	(E)	(C) x (D) = (F)	(C) x (E) = (G)
University of Waterloo	11,740	94%	10,990	20%	80%	2,200	8,800
Wilfrid Laurier University	750	94%	700	20%	80%	140	560
Conestoga College	3,400	73%	2,490	10%	90%	250	2,240
Region of Waterloo Total	**15,890**	**89%**	**14,180**	**18%**	**82%**	**2,590**	**11,600**

Post-Secondary Institution	Off-campus Domestic Student Population Growth Not Captured in the Census	Off-Campus Domestic Students Not Captured in Census	Total Students Not Captured in Census	Off-Campus Housing PPU	Off-Campus Student Housing Need, 2016-2051	Off-Campus Domestic Students Not in Census Housing Need, 2016-2051
	(H)	(G) x (H) = (I)	(F) x (I) = (J)	(K)	(G) / (K) = (L)	(I) / (K) = (M)
University of Waterloo	67%	5,890	8,090	2.5	3,500	2,360
Wilfrid Laurier University	67%	380	520	2.5	200	150
Conestoga College	20%	450	700	2.5	900	180
Region of Waterloo Total	**58%**	**6,720**	**9,310**	**2.5**	**4,600**	**2,690**

Note: Figures may not equal sums due to rounding.
Source: Watson & Associates Economists Ltd.

Appendix B

Region of Waterloo Housing Headship Rates, 2006 to 2051

Figure B-1: Region of Waterloo, Housing Headship Rates, 2016 to 2051

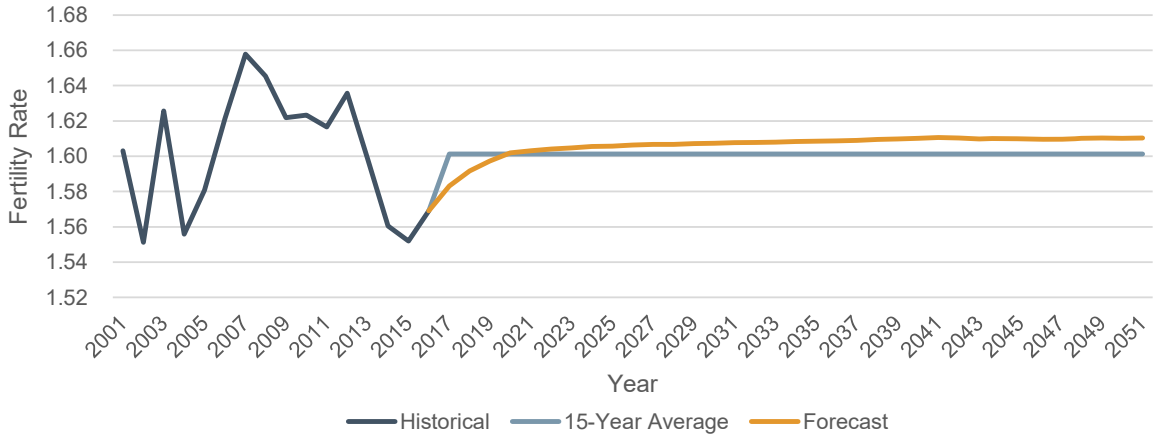
	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-24	0.1011	0.0951	0.0968	0.0946	0.0946	0.0946	0.0946	0.0946	0.0946	0.0946
25-34	0.4097	0.4043	0.3969	0.3879	0.3879	0.3879	0.3879	0.3879	0.3879	0.3879
35-44	0.5095	0.5137	0.4975	0.4862	0.4862	0.4862	0.4862	0.4862	0.4862	0.4862
45-54	0.5445	0.5504	0.5531	0.5406	0.5406	0.5406	0.5406	0.5406	0.5406	0.5406
55-64	0.5691	0.5558	0.5655	0.5527	0.5527	0.5527	0.5527	0.5527	0.5527	0.5527
65-74	0.5952	0.5891	0.5776	0.5645	0.5645	0.5645	0.5645	0.5645	0.5645	0.5645
75+	0.5940	0.5645	0.5619	0.5491	0.5491	0.5491	0.5491	0.5491	0.5491	0.5491

Source: 2006 to 2016 derived from Statistics Canada Census of Population data. 2021 to 2041 forecast prepared by Watson & Associates Economists Ltd., 2020.

Appendix C

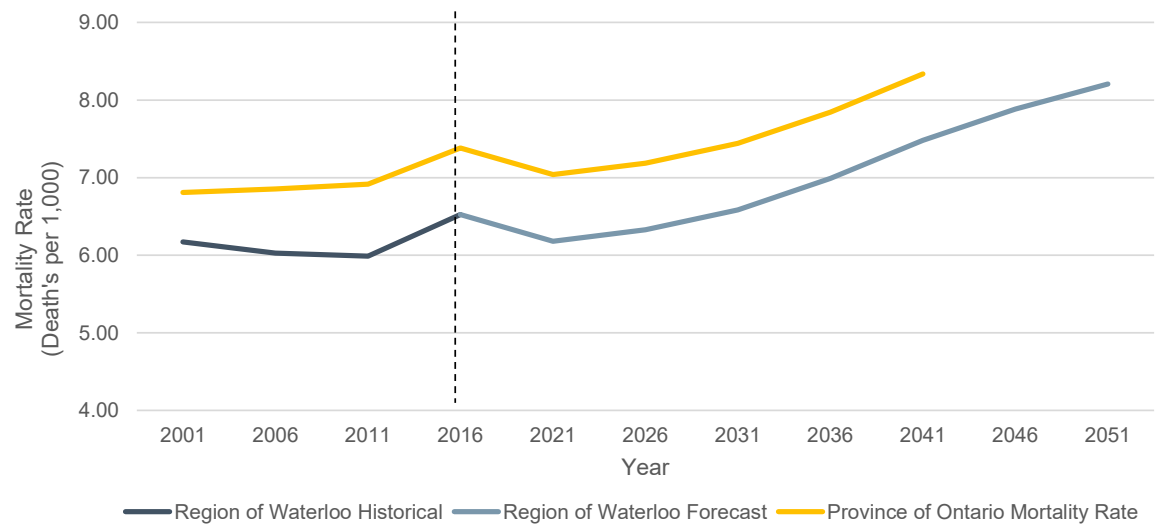
Region of Waterloo Population and Housing Forecast, 2016 to 2051

Figure C-1: Region of Waterloo, Fertility Rates, 2016 to 2051



Source: Historical fertility rate data by age of mother provided by Vital Statistics, Ontario, Office of the Registrar General. Total fertility rate data provided by Statistics Canada Demography Division (Catalogue no. 91C0005). Fertility rate forecast prepared by Watson & Associates Economists Ltd., 2020.
Note: Province of Ontario fertility rate forecast (reference scenario) is assumed to increase from 1.49 to 1.55 between 2017 and 2046, in accordance with Ministry of Finance (MoF), Ontario Population Projections Update, Summer 2020.

Figure C-2: Region of Waterloo, Mortality Rates, 2016 to 2051



Source: Statistics Canada Demography Division (Catalogueno. 91C0005). Region of Waterloo mortality rate from 2016 to 2041 forecast prepared by Watson & Associates Economists Ltd., 2019. Province of Ontario mortality rate forecast derived from Ministry of Finance (MoF), Ontario Population Projections Update, Spring 2018.

Figure C-3: Region of Waterloo, Total Population Forecast (Permanent and Non-Permanent Residents), 2016 to 2051

Total Population Growth							
	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Permanent Population	34,300	50,700	55,900	43,500	42,500	41,000	40,300
Non-Permanent Residents (NPR)	26,200	13,600	4,700	3,500	3,500	3,500	3,200
NPR Full-Time Post-Secondary International Students	*10,800*	*5,700*	*2,000*	*1,500*	*1,500*	*1,500*	*1,400*
NPR Other (All Students Except Full-Time Post-Secondary Students, Workers and other Non-Permanent Population)	*15,400*	*7,900*	*2,700*	*2,000*	*2,000*	*2,000*	*1,800*
Total	**60,400**	**64,400**	**60,600**	**47,000**	**46,000**	**44,500**	**43,500**

Total Population Growth Shares							
	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
Permanent Population	57%	79%	92%	92%	92%	92%	93%
Non-Permanent Residents (NPR)	43%	21%	8%	8%	8%	8%	7%
NPR Full-Time Post-Secondary International Students	*18%*	*9%*	*3%*	*3%*	*3%*	*3%*	*3%*
NPR Other (All Students Except Full-Time Post-Secondary Students, Workers and other Non-Permanent Population)	*25%*	*12%*	*4%*	*4%*	*4%*	*4%*	*4%*
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Permanent Resident (NPR) Population Growth							
	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
NPR Full-Time Post-Secondary International Students	10,800	5,700	2,000	1,500	1,500	1,500	1,400
NPR All Other Students [1]	3,600	1,800	600	400	400	400	400
Total Students	**14,400**	**7,500**	**2,600**	**1,900**	**1,900**	**1,900**	**1,800**
NPR Workers, Asylum Seekers and other remaining	11,800	6,100	2,100	1,600	1,600	1,600	1,400
Total	**26,200**	**13,600**	**4,700**	**3,500**	**3,500**	**3,500**	**3,200**

Non-Permanent Resident (NPR) Population Growth Shares							
	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
NPR Full-Time Post-Secondary International Students	41%	42%	42%	42%	43%	43%	43%
NPR All Other Students [1]	14%	13%	13%	13%	12%	12%	12%
Total Students	**55%**	**55%**	**55%**	**55%**	**55%**	**55%**	**55%**
NPR Workers, Asylum Seekers and other remaining	45%	45%	45%	45%	45%	45%	45%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Total Population								
	2016	2021	2026	2031	2036	2041	2046	2051
Permanent Population	547,200	581,500	632,200	688,100	731,600	774,100	815,100	855,400
Non-Permanent Residents (NPR) [2]	9,400	35,500	49,100	53,900	57,400	60,900	64,400	67,600
NPR Full-Time Post-Secondary International Students [3]	*8,800*	*19,600*	*25,300*	*27,300*	*28,800*	*30,300*	*31,800*	*33,200*
NPR Other (All Students Except Full-Time Post-Secondary Students, Workers and other Non-Permanent Population) [3]	*600*	*15,900*	*23,800*	*26,600*	*28,600*	*30,600*	*32,600*	*34,400*
Total Population	**556,600**	**617,000**	**681,400**	**742,000**	**789,000**	**835,000**	**879,500**	**923,000**

Non-Permanent Resident Share of Total Population								
	2016	2021	2026	2031	2036	2041	2046	2051
Share	2%	6%	7%	7%	7%	7%	7%	7%

[1] All none full-time post-secondary students and all non-post secondary full-time and part-time students including elementary and secondary schools.

[2] 2016 base provided by Region of Waterloo and based on 2016 Statistics Canada Census data.

[3] 2016 base estimated by Watson & Associates Economists Ltd.

Note: Figures may not add precisely due to rounding. A 55%/45% ratio for total NPR students to all other NPR is assumed for incremental growth over the forecast period. It is also assumed the share of full-time post-secondary students to all other students will increase over the forecast period as post-secondary institution enrollment of international students increases.

Source: 2016 from Statistics Canada Census and Region of Waterloo data. 2021 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

Figure C-4: Region of Waterloo, Total Population Forecast by Major Age Group, 2016 to 2051

Permanent Population

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	130,900	131,500	141,700	152,200	159,900	167,600	171,800	174,600
20-34	117,400	124,200	135,500	147,300	154,400	157,500	161,900	171,500
35-44	74,000	77,800	84,900	95,000	99,900	104,700	114,400	116,900
45-54	79,200	75,900	76,800	82,000	88,800	98,000	103,400	108,700
55-64	68,000	76,600	76,800	73,800	75,100	80,200	87,000	96,500
64-74	44,100	54,000	62,900	70,400	70,600	68,400	70,300	74,700
75+	33,700	41,500	53,600	67,400	82,900	97,600	106,400	112,500
Total	**547,200**	**581,500**	**632,200**	**688,100**	**731,600**	**774,100**	**815,100**	**855,400**

Non-Permanent Resident (NPR) Population

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	1,600	5,900	8,100	8,900	9,500	10,100	10,700	11,200
20-34	6,200	23,500	32,500	35,600	38,000	40,300	42,600	44,700
35-44	900	3,400	4,600	5,100	5,400	5,800	6,100	6,400
45-54	500	1,700	2,400	2,600	2,800	3,000	3,200	3,300
55-64	200	600	800	900	900	1,000	1,000	1,100
64-74	100	300	400	500	500	500	500	600
75+	-	200	200	300	300	300	300	300
Total	**9,400**	**35,500**	**49,100**	**53,900**	**57,400**	**60,900**	**64,400**	**67,600**

Total Population

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	132,400	137,400	149,800	161,100	169,400	177,600	182,400	185,800
20-34	123,500	147,700	168,000	183,000	192,300	197,800	204,400	216,200
35-44	74,900	81,200	89,600	100,100	105,300	110,400	120,500	123,300
45-54	79,700	77,600	79,200	84,700	91,600	101,000	106,600	112,000
55-64	68,100	77,200	77,600	74,700	76,000	81,200	88,000	97,500
64-74	44,200	54,300	63,400	70,900	71,100	69,000	70,900	75,300
75+	33,800	41,600	53,800	67,600	83,200	97,900	106,700	112,800
Total	**556,600**	**617,000**	**681,400**	**742,000**	**789,000**	**835,000**	**879,500**	**923,000**

Note: Figures may not add to totals due to rounding. Population includes net Census undercount of 4%.

Source: 2016 derived from Statistics Canada Census and Demography Division data. 2016 to 2051 derived by Watson & Associates Economists Ltd., 2020.

Figure C-5: Region of Waterloo, Total Population Forecast Shares by Major Age Group, 2016 to 2051

Permanent Population Share

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	24%	23%	22%	22%	22%	22%	21%	20%
20-34	21%	21%	21%	21%	21%	20%	20%	20%
35-44	14%	13%	13%	14%	14%	14%	14%	14%
45-54	14%	13%	12%	12%	12%	13%	13%	13%
55-64	12%	13%	12%	11%	10%	10%	11%	11%
64-74	8%	9%	10%	10%	10%	9%	9%	9%
75+	6%	7%	8%	10%	11%	13%	13%	13%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Non-Permanent Resident (NPR) Population Share

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	17%	17%	16%	17%	17%	17%	17%	17%
20-34	66%	66%	66%	66%	66%	66%	66%	66%
35-44	10%	10%	9%	9%	9%	10%	9%	9%
45-54	5%	5%	5%	5%	5%	5%	5%	5%
55-64	2%	2%	2%	2%	2%	2%	2%	2%
64-74	1%	1%	1%	1%	1%	1%	1%	1%
75+	0%	1%	0%	1%	1%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

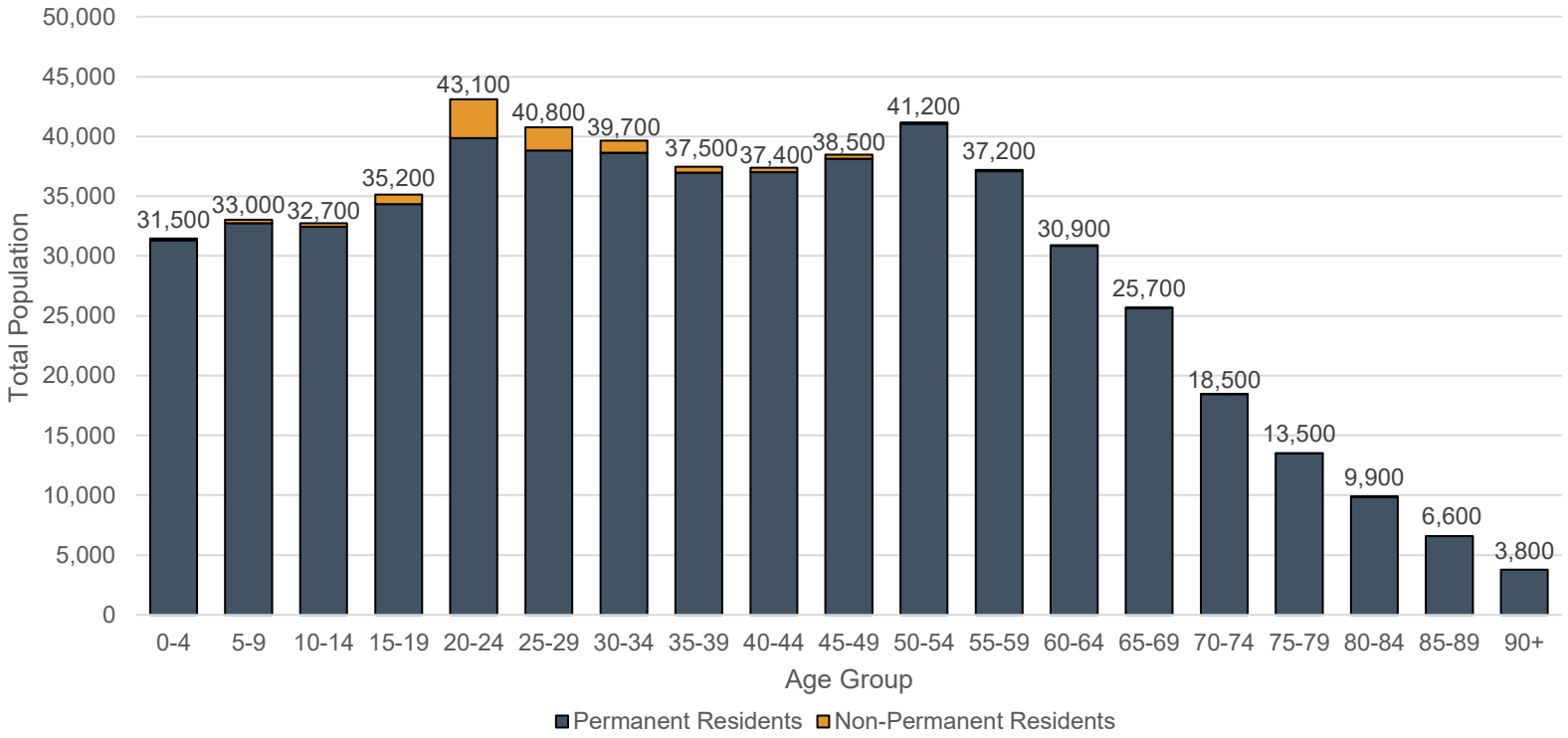
Total Population Share

	2016	2021	2026	2031	2036	2041	2046	2051
0-19	24%	22%	22%	22%	21%	21%	21%	20%
20-34	22%	24%	25%	25%	24%	24%	23%	23%
35-44	13%	13%	13%	13%	13%	13%	14%	13%
45-54	14%	13%	12%	11%	12%	12%	12%	12%
55-64	12%	13%	11%	10%	10%	10%	10%	11%
64-74	8%	9%	9%	10%	9%	8%	8%	8%
75+	6%	7%	8%	9%	11%	12%	12%	12%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Figures may not add to totals due to rounding. Population includes net Census undercount of 4%.

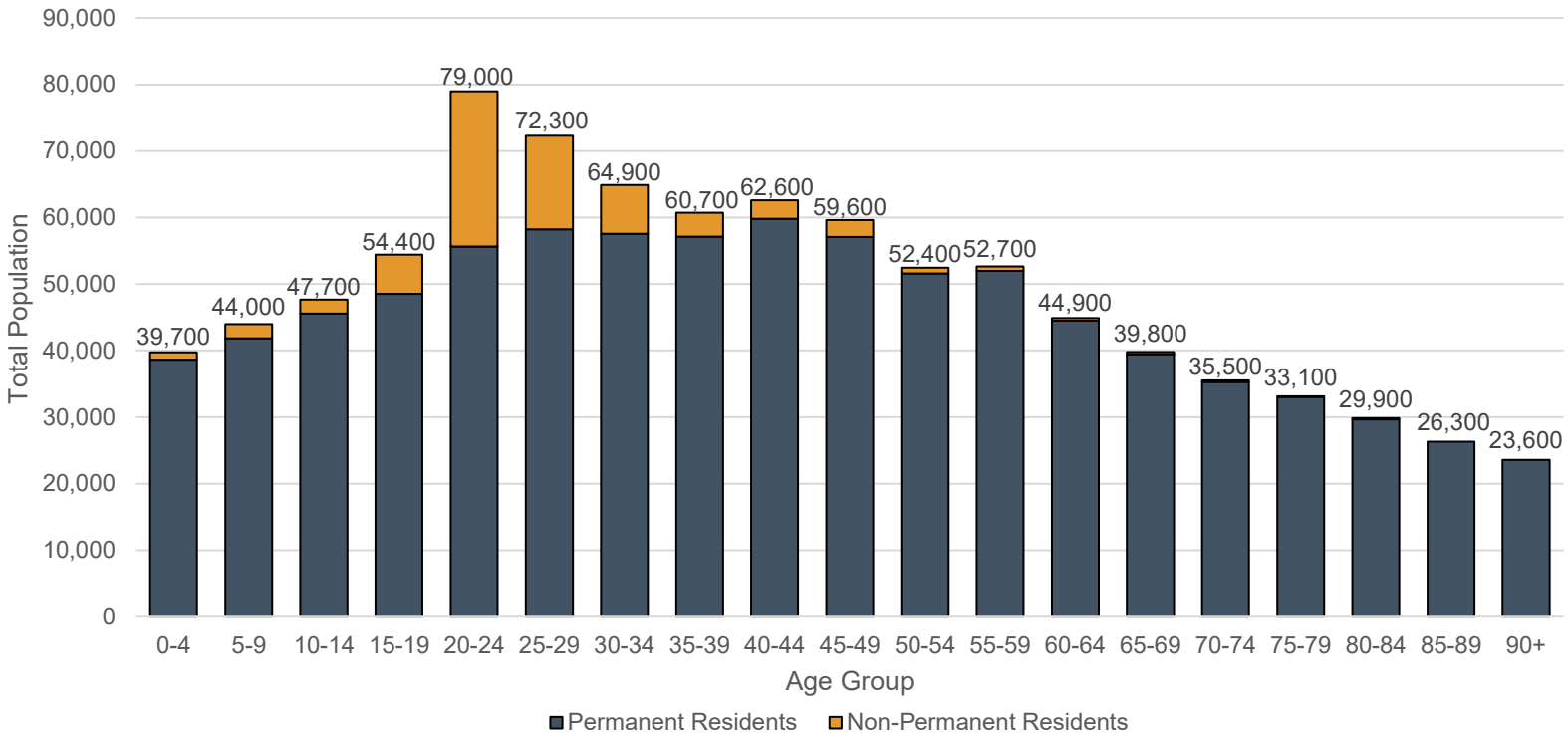
Source: 2016 derived from Statistics Canada Census and Demography Division data. 2016 to 2051 derived by Watson & Associates Economists Ltd., 2020.

Figure C-6: Region of Waterloo, Total Population Age Structure by Type, 2016



Note: Population includes net Census undercount of 4.0%. Figures have been rounded.
Source: Derived from Statistics Canada 2016 Census and Statistics Canada Table 17-10-0139-01 by Watson & Associates Economists Ltd., 2020.

Figure C-7: Region of Waterloo, Total Population Age Structure by Type, 2051



Note: Population includes net Census undercount of 4.0%. Figures have been rounded.
Source: Watson & Associates Economists Ltd., 2020.

Figure C-8: Region of Waterloo, Total Census Household Forecast by Age Cohort, 2016 to 2051

Age Cohort	Population By Age									
	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-14	93,624	94,556	97,261	100,481	107,713	116,951	123,815	129,088	131,388	131,372
15-24	74,208	76,304	78,253	87,090	102,905	111,921	112,815	118,459	125,178	133,395
25-34	73,443	76,706	80,446	97,512	107,224	115,169	125,146	127,907	130,281	137,193
35-44	80,378	75,549	74,879	81,156	89,556	100,064	105,322	110,432	120,457	123,327
45-54	71,513	80,387	79,654	77,630	79,243	84,694	91,594	101,038	106,595	112,020
55-64	48,531	59,543	68,123	77,196	77,553	74,698	76,041	81,170	88,040	97,541
65-74	28,654	34,569	44,175	54,308	63,352	70,878	71,086	68,969	70,896	75,311
75+	26,876	29,794	33,772	41,627	53,817	67,625	83,180	97,937	106,666	112,841
Total population including Census undercount	**497,227**	**527,408**	**556,563**	**617,000**	**681,362**	**742,000**	**789,000**	**835,000**	**879,500**	**923,000**
Total population excluding Census undercount (Rounded)	**478,100**	**507,100**	**535,200**	**593,300**	**655,200**	**713,500**	**758,700**	**802,900**	**845,700**	**887,500**

Age Cohort	Household Headship Rates									
	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-14	-	-	-	-	-	-	-	-	-	-
15-24	0.10107	0.09508	0.09680	0.09461	0.09461	0.09461	0.09461	0.09461	0.09461	0.09461
25-34	0.40971	0.40434	0.39691	0.38792	0.38792	0.38792	0.38792	0.38792	0.38792	0.38792
35-44	0.50953	0.51371	0.49747	0.48620	0.48620	0.48620	0.48620	0.48620	0.48620	0.48620
45-54	0.54452	0.55040	0.55314	0.54061	0.54061	0.54061	0.54061	0.54061	0.54061	0.54061
55-64	0.56912	0.55582	0.56552	0.55271	0.55271	0.55271	0.55271	0.55271	0.55271	0.55271
65-74	0.59520	0.58911	0.57759	0.56450	0.56450	0.56450	0.56450	0.56450	0.56450	0.56450
75+	0.59402	0.56454	0.56186	0.54913	0.54913	0.54913	0.54913	0.54913	0.54913	0.54913
Total	**0.35824**	**0.36330**	**0.36623**	**0.36251**	**0.36087**	**0.36136**	**0.36473**	**0.36732**	**0.37047**	**0.37351**

Age Cohort	Total Household by Age of Primary Maintainer									
	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051
0-14	-	-	-	-	-	-	-	-	-	-
15-24	7,500	7,255	7,575	8,240	9,735	10,590	10,675	11,205	11,845	12,620
25-34	30,090	31,015	31,930	37,825	41,595	44,675	48,545	49,620	50,540	53,220
35-44	40,955	38,810	37,250	39,460	43,540	48,650	51,205	53,690	58,565	59,960
45-54	38,940	44,245	44,060	41,965	42,840	45,785	49,515	54,620	57,625	60,560
55-64	27,620	33,095	38,525	42,665	42,865	41,285	42,030	44,865	48,660	53,910
65-74	17,055	20,365	25,515	30,655	35,760	40,010	40,130	38,935	40,020	42,515
75+	15,965	16,820	18,975	22,860	29,550	37,135	45,675	53,780	58,575	61,965
Total	**178,125**	**191,605**	**203,830**	**223,670**	**245,885**	**268,130**	**287,775**	**306,715**	**325,830**	**344,750**

Persons Per Unit (P.P.U.) (Including net Census undercount)	**2.79**	**2.75**	**2.73**	**2.76**	**2.77**	**2.77**	**2.74**	**2.72**	**2.70**	**2.68**
Persons Per Unit (P.P.U.) (Excluding net Census undercount)	**2.68**	**2.65**	**2.63**	**2.65**	**2.66**	**2.66**	**2.64**	**2.62**	**2.60**	**2.57**

Annual Households	2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	2046-2051
	2,696	2,445	3,968	4,443	4,449	3,929	3,788	3,823	3,784

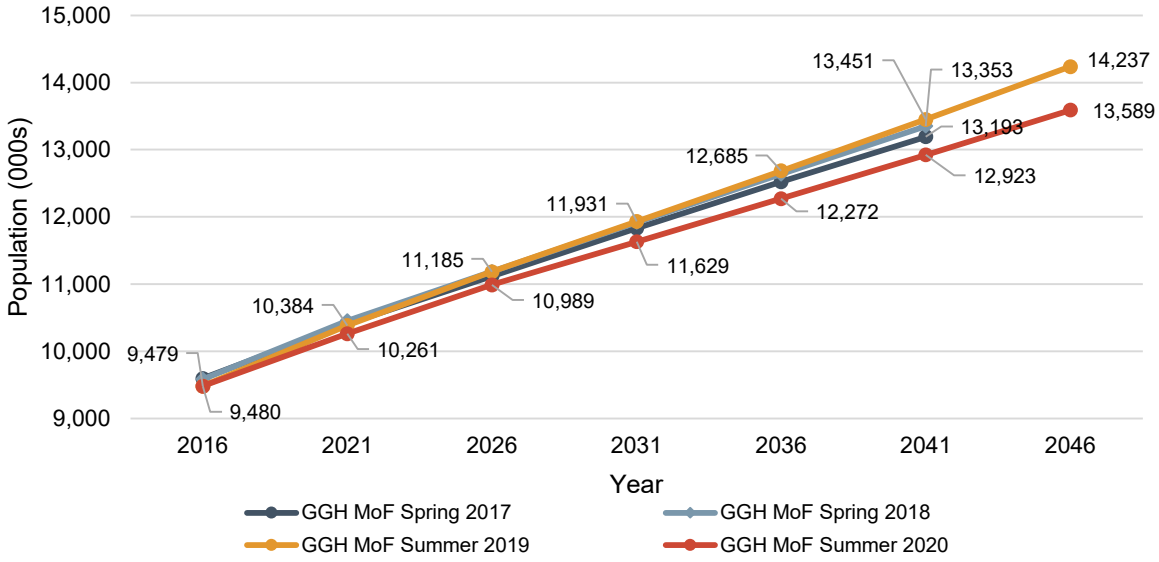
Total Household Growth, 2016 to 2051	140,920

Annual household forecast derived from headship rate approach, which differs from annual housing units forecast using market forecast approach.
Note: Statistics Canada headship rate data applied to both permanent population and NPR population. Household forecast figures have been rounded.
Source: 2016 headship rate data provided from Statistics Canada Demography Division. Headship rate forecast provided by Watson & Associates Economists Ltd., 2020.

Appendix D

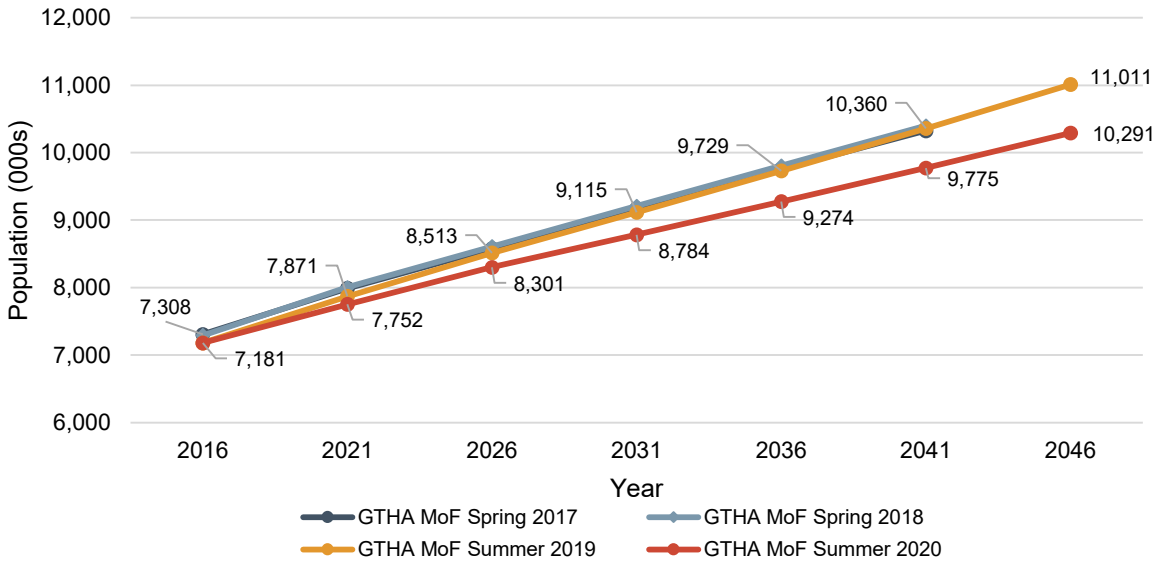
Region of Waterloo 2051 Forecast Background Information

Figure D-1: Ministry of Finance GGH Population Projections



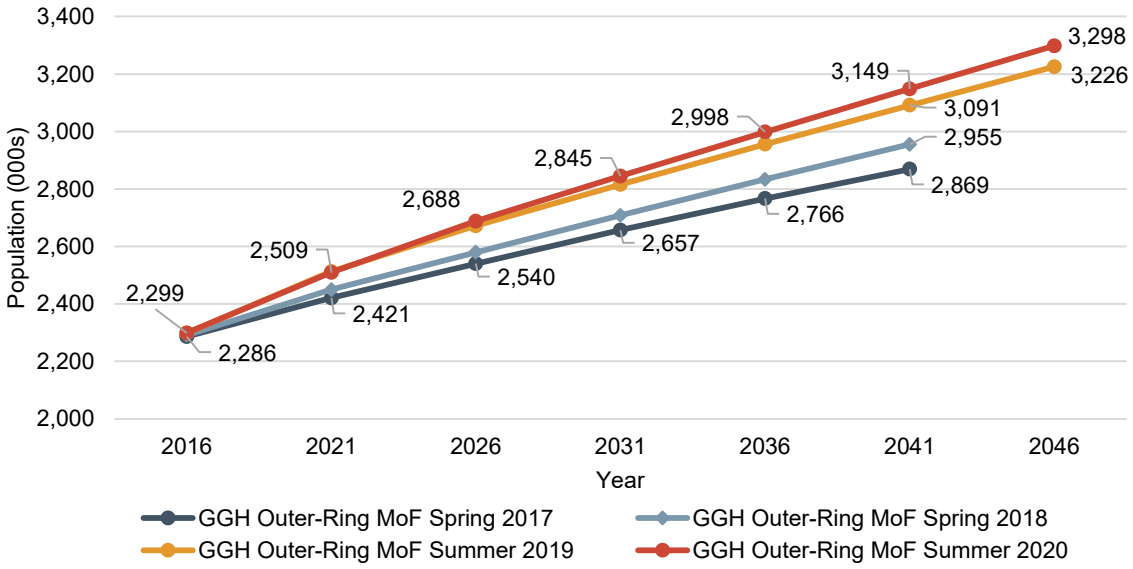
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017, Spring 2018, Summer 2019 and Summer 2020 releases, by Watson & Associates Economists Ltd., 2020.

Figure D-2: Ministry of Finance GTHA Population Projections



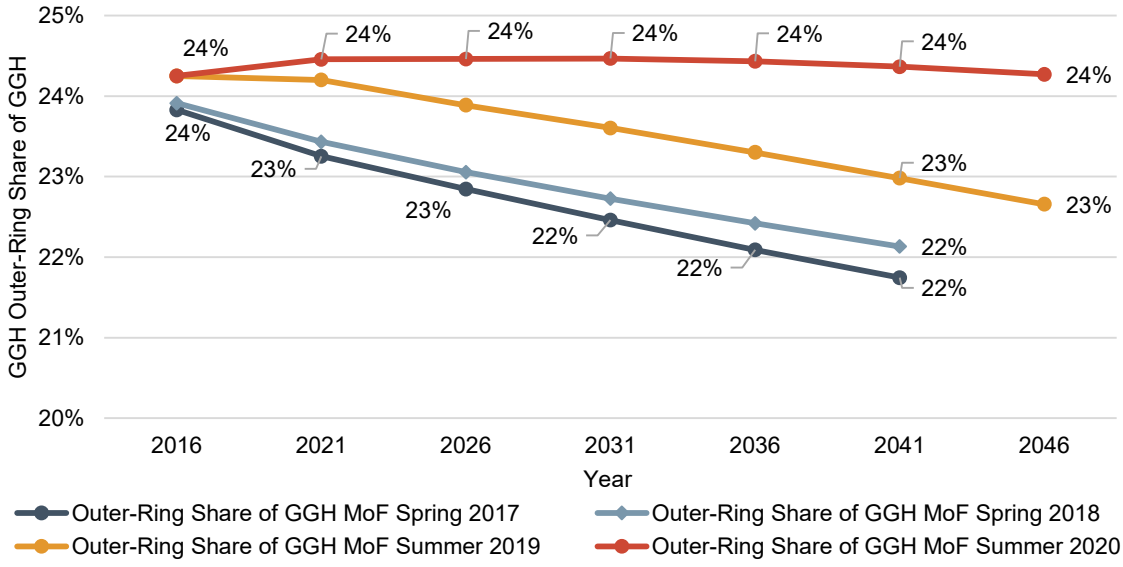
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017, Spring, 2018, Summer 2019 and Summer 2020 releases, by Watson & Associates Economists Ltd., 2020.

Figure D-3: Ministry of Finance GGH Outer Ring Population Projections



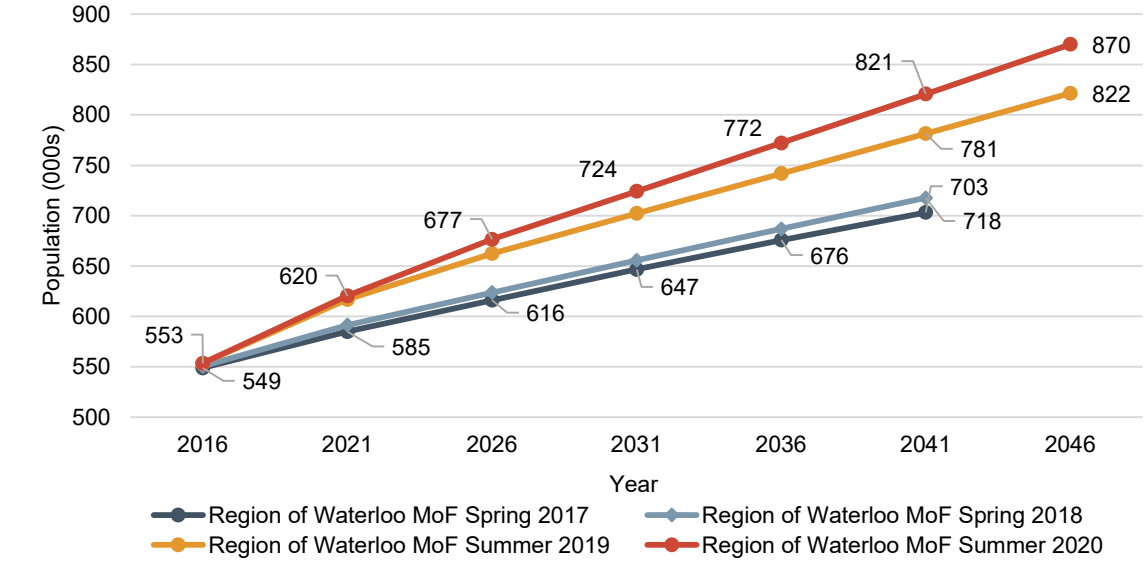
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017, Spring 2018, Summer 2019 and Summer 2020 releases, by Watson & Associates Economists Ltd., 2020.

Figure D-4: Ministry of Finance GGH Outer Ring Share of GGH Population Projections



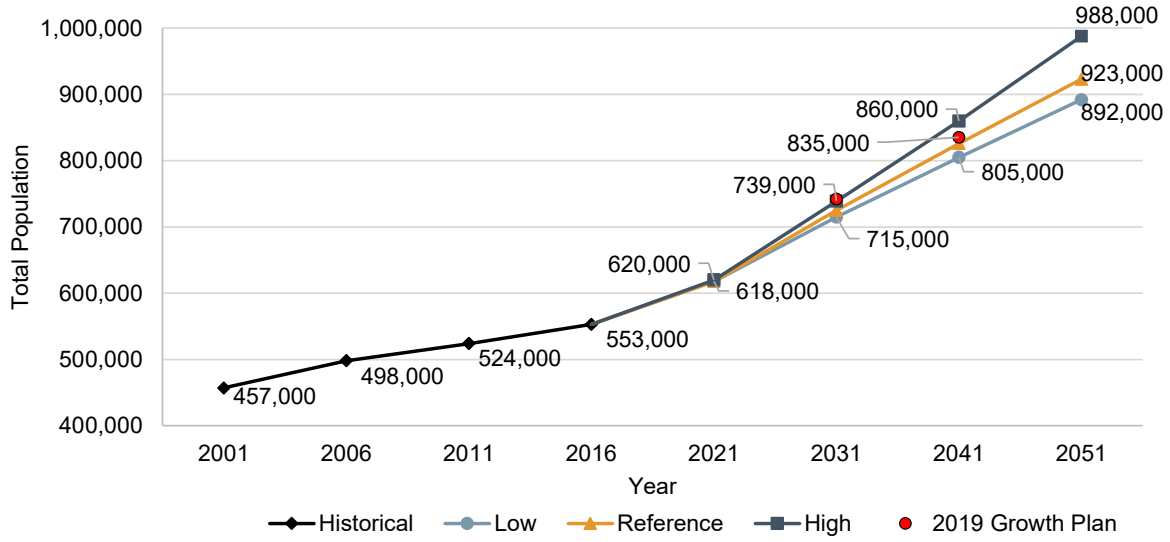
Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017, Spring 2018, Summer 2019 and Summer 2020 releases, by Watson & Associates Economists Ltd., 2020.

Figure D-5: Ministry of Finance Region of Waterloo Population Projections



Source: Derived from Ministry of Finance Ontario Population Projections Spring 2017, Spring 2018, Summer 2019 and Summer 2020 releases, by Watson & Associates Economists Ltd., 2020.

Figure D-6: Region of Waterloo Population Projections, 2020 Technical Report and 2019 Growth Plan (May, 2019)



Note: Population includes net Census undercount estimated at approximately 3%.
Source: Historical, Low, Reference and High scenarios from Greater Golden Horseshoe Growth Forecasts to 2051 Technical Report, June 16, 2020, Hemson Consulting Ltd. 2019 Growth Plan from A Place to Grow, Growth Plan for the Greater Golden Horseshoe, May 2019.
Figure by Watson & Associates Economists Ltd., 2020.