GSAI
Glen Schnarr & Associates Inc.

Partners:
Glen Broll, MCIP, RPP
Colin Chung, MCIP, RPP
Jim Levac, MCIP, RPP
Jason Afonso, MCIP, RPP
Karen Bennett, MCIP, RPP

In Memoriam, Founding Partner:
Glen Schnarr

December 22, 2022 GSAI File: 656-002

(Via Email – minister.mah@ontario.ca)
Hon. Steven Clark
Ministry of Municipal Affairs and Housing
777 Bay Street, 17th Floor
Toronto, ON M5G 2E5

RE: ERO No: 019-5952
Waterloo Regional Official Plan Amendment No. 6
2163846 Ontario Inc.
2118 New Dundee Road, City of Kitchener, Region of Waterloo

Glen Schnarr & Associates Inc. (GSAI) are the planning consultants to 2163846 Ontario Inc. (the 'Owner') of the lands municipally known as 2118 New Dundee Road, in the City of Kitchener (the 'Subject Lands'). The Subject Lands are adjacent to the Region of Waterloo and City of Kitchener Urban Area as shown in the Aerial Context Map on the next page.

On behalf of the Owner, we are pleased to provide this Letter to you in response to the Environmental Registry of Ontario posting (ERO posting no. 019-5952) for comment on the Waterloo Regional Official Plan Amendment No. 6 ('ROPA 6').

ROPA 6 adds no new settlement area in Kitchener, despite identification of this area as a candidate urban expansion area

As outlined in previous correspondence provided to Waterloo Region, dated September 13, 2019, March 23, 2022, May 24, 2022, and July 26, 2022, included as Appendix I to this Letter, we have requested that the Subject Lands be included in an expanded Urban Area.

GSAI has been participating in the Region's Municipal Comprehensive Review ('MCR') process. We have reviewed the Waterloo Regional Official Plan Amendment No. 6 ('ROPA 6'), as adopted by Regional Council. Based on the adopted ROPA 6, the Regional Urban Boundary remains largely unchanged and intact until 2051 apart from small-scale, rounding out Settlement Area Boundary Expansions in the Townships and in the City of Cambridge.

Prior to the adoption of ROPA 6, the Subject Lands and surrounding lands in the Southwest Kitchener Policy Area ('SKPA'; see Area Context Map on page 3 of this Letter) were identified as the candidate lands for inclusion within an expanded Urban Area as new Community Area via a Settlement Area

GSAI
Glen Schnarr & Associates Inc.

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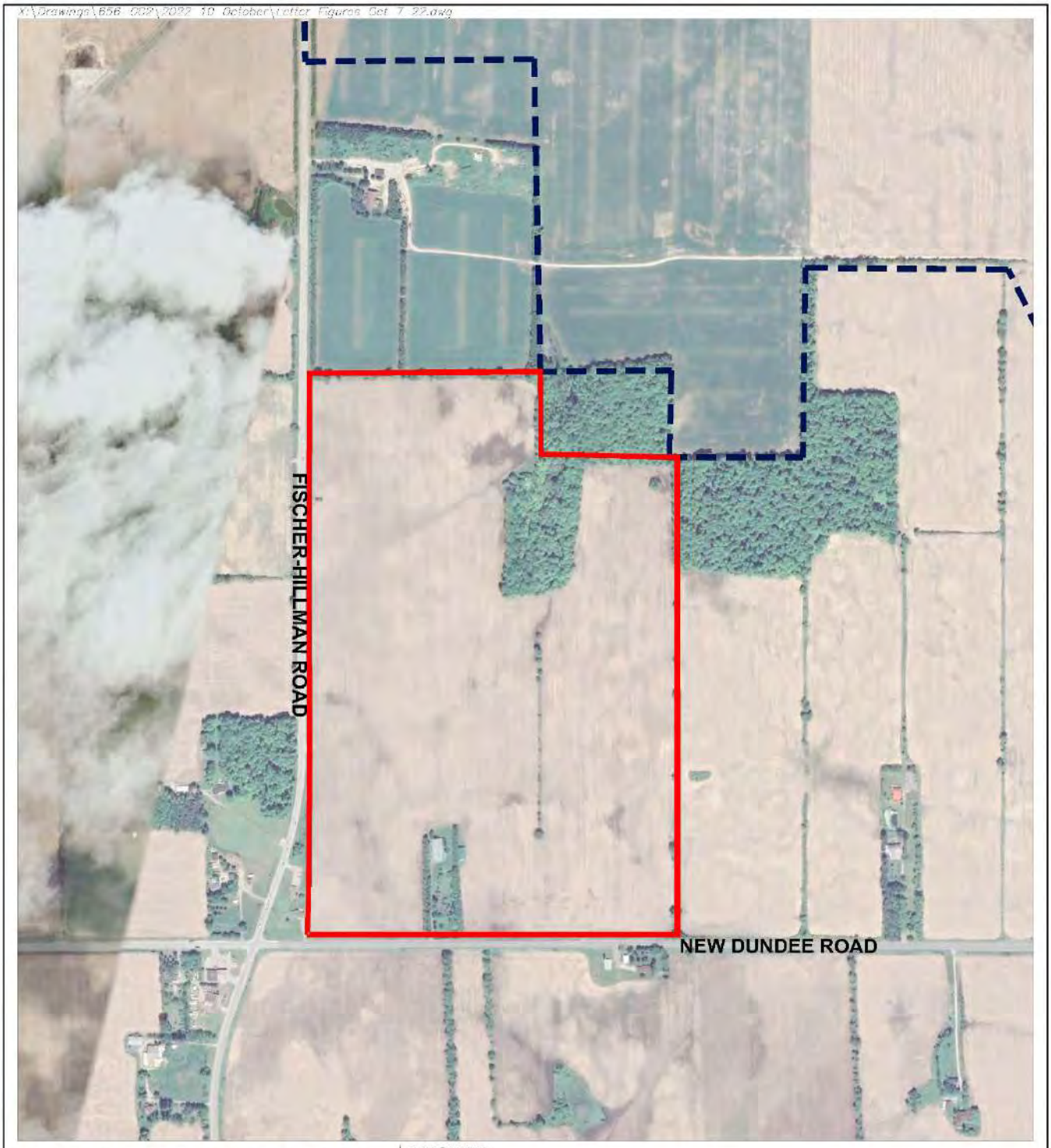

AERIAL CONTEXT MAP

2118 NEW DUNDEE ROAD
PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
CITY OF KITCHENER
REGIONAL MUNICIPALITY OF WATERLOO

LEGEND
- Subject Lands
- Urban Area Boundary

Scale: N.T.S.
October 7, 2022

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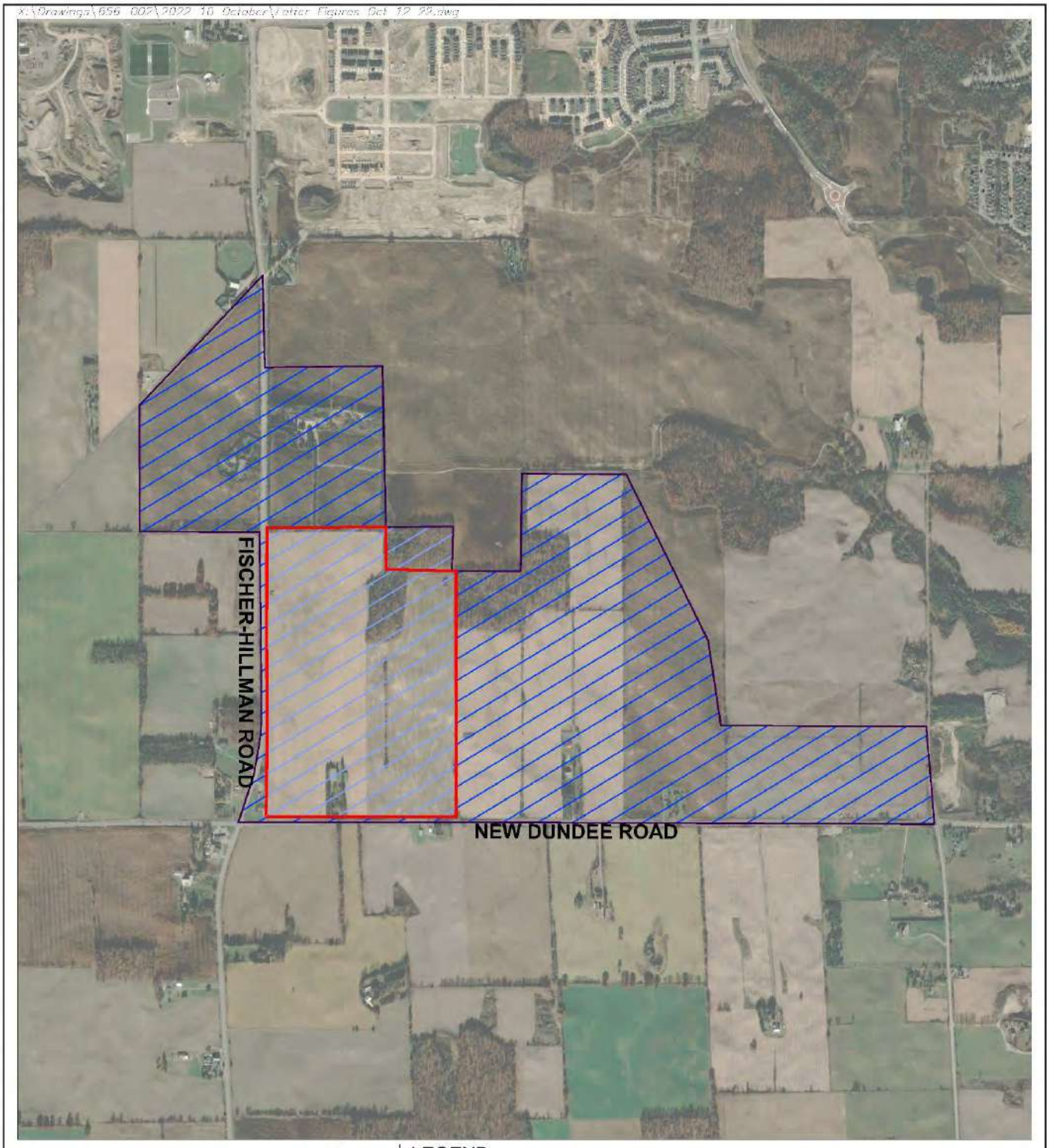
Glen Schnarr & Associates Inc.



AERIAL CONTEXT MAP

2118 NEW DUNDEE ROAD
PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
CITY OF KITCHENER
REGIONAL MUNICIPALITY OF WATERLOO

LEGEND

- Subject Lands
- Southwest Kitchener Policy Area

Scale: N.T.S.
October 12, 2022

GSAI
Glen Schnarr & Associates Inc.

Boundary Expansion in the Draft Land Needs Assessment, released by Regional Planning Staff in April 2022, attached as Appendix II of this Letter).

ROPA 6, as adopted, requires that the Subject Lands maintain its current designation as 'Prime Agricultural Area'.

ROPA 6 appropriately includes the Subject Lands on the developable side of the Countryside Line, and identifies that they are not in a Regional Recharge Area

We note that ROPA 6 has also established a Countryside Line and a delineated Regional Recharge Area. We support the current Countryside Line and the current delineation of the Regional Recharge Area. As background, the Subject Lands were considered for urban expansion as part of the previous Regional Official Plan Review ('ROPR') initiative. This previous initiative culminated in a Regional Official Plan Amendment and an Ontario Land Tribunal ('OLT') settlement with the Region, the Owner and surrounding landowners. In accordance with a Minutes of Settlement that was reached, the Owner was required to fulfill two (2) condition for the Subject Lands to be considered for expansion as part of the current MCR initiative. For clarity, these conditions were:

'The following criteria shall be used to determine whether the Regional Recharge Area designation shall apply to the lands:

i) Whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and
ii) Whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.'

As indicated in our Letters to the Region, dated March 25, 2022 and June 22, 2022 with expert technical analysis appended to these Letters, it was our opinion that the above-noted conditions had been fulfilled. Prior to ROPA 6 being considered by Regional Council for adoption, we were informed by Regional Planning staff that the conditions were fulfilled and the Subject Lands were removed from the proposed Regional Recharge Area delineation.

ROPA 6, as adopted, requires that notwithstanding the OLT Minutes of Settlement being satisfied, the Subject Lands are to remain outside of the Urban Area. In our opinion, exclusion of the Subject Lands and surrounding lands that collectively comprise SKPA is not good planning.

Regional Land Needs Assessment work includes the Growth Plan and Land Needs Assessment Methodology conformity option which requires 2,208 hectares of New Community Area

The Region's original Land Needs Assessment included three (3) options. However, only one of those options is in conformity with The Place to Grow: Growth Plan for the Greater Horseshoe, 2020 (the

'Growth Plan') and its Land Needs Assessment Methodology by providing a market-based supply of housing 'to the extent possible'. This requirement is reflected in Option 1 of the Region's Land Needs Assessment which also conforms with the Growth Plan's directive to provide 'a diverse range and mix of housing options…to meet projected needs of current and future residents' (Policy 2.2.6.1). Furthermore, Option 1 is also consistent with the Provincial Policy Statement, 2020 requirement that 'Planning authorities shall provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area (Policy 1.4.3).

To be clear, the Region's Option 1 included the Growth Plan's requirement for a 50% share of growth as intensification and a Designated Greenfield Area density of 50 persons and jobs per hectare. As such, Option 1 resulted in a requirement for 2,208 hectares of New Community Area land.

Southwest Kitchener Policy Area lands are an appropriate location for inclusion in the Waterloo Regional Urban Area

SKPA lands are an appropriate location for inclusion in an expanded 2051 Urban Area as new Community Area lands for the following reasons:

- SKPA lands are a natural and logical extension of growth in the City of Kitchener framed by existing major roads that could be used as a clear delineation of the 2051 urban boundary;
- SKPA lands could easily be serviced from a municipal water and sanitary sewer perspective without any substantive improvements or municipal costs;
- SKPA lands will support Provincial growth and housing supply delivery targets;
- SKPA lands enable the municipality to better plan a complete and comprehensive community that can deliver a greater number and mix of housing than including fractured and minor rounding out of remnant parcels that Regional Council decided to adopt; and,
- SKPA lands will enable the long-term preservation of the natural environment and Provincial Agricultural System.

ROPA 6 proposes to deliver a 50% increase in population with less than a 1% increase in Settlement Area

ROPA 6, as adopted, proposes to add only 150 hectares of New Community Area land across Waterloo Region. This represents an increase of less than one percent (1%) in the total land area of the existing Urban Area. Despite this minimal growth in area, the Region is proposing that its population is to increase within this constrained urban area by approximately 50%.

As contemplated, ROPA 6 will focus almost all growth in the existing Urban Area. This position is not a realistic reflection of market demand for a range of housing types, which according to Hemson, would require 62% of market demand being for grade-related housing.

A better reflection of a market-based mix of housing would result from Option 1 of the Region's initial Land Needs Assessment, with its 2,208 hectares of New Community Area lands being required.

Including the Southwest Kitchener Policy Area lands as Community Area Expansion is good planning

In our opinion, Regional Council's decision to maintain a firm urban boundary in the vicinity of Kitchener is not good planning and does not conform to the policy requirements outlined in the Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 (the 'Growth Plan'). Our opinion is consistent with the technical opinion from Malone Given Parsons (MGP) who have made their submission to the Minister on behalf of Schlegel Developments, and with the Region's own Option 1, Growth Plan conformity option.

Additionally, the Growth Plan establishes forecasts for the number of new residents a municipality is expected to plan for to the planning horizon of 2051. As discussed in the City of Kitchener Council Meetings on the Draft Land Needs Assessment and later on the Draft Preferred Growth Concept, it was the desire of the City of Kitchener to expand the Urban Area to provide for additional lands to accommodate projected residential growth. Inclusion of the Subject Lands would facilitate well-planned, compact development to occur and in a manner that supports Provincial, Regional and local objectives. A Conceptual Development Plan has been prepared and is provided in Appendix III of this Letter to demonstrate the development potential of the Subject Lands.

We are writing to request that you exercise your discretion under the Planning Act to modify Waterloo Regional Official Plan Amendment 6 to ensure that appropriate growth projected for the Region of Waterloo and City of Kitchener can be accommodated through expansion of the Urban Area to include the Subject Lands.

Thank you for the opportunity to provide these comments. We ask that we be provided with Notice of any decision that you make on this Official Plan Amendment.

Yours very truly,

GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Managing Partner

GSAI
Glen Schnarr & Associates Inc.

Appendix I / Previous Comment Letters

GLEN SCHNARR & ASSOCIATES INC.
URBAN & REGIONAL PLANNERS, LAND DEVELOPMENT CONSULTANTS

PARTNERS:
GLEN SCHNARR, MCIP, RPP
GLEN BROLL, MCIP, RPP
COLIN CHUNG, MCIP, RPP
JIM LEVAC, MCIP, RPP

September 13, 2019 Refer To File: 656-002

Region of Waterloo
150 Fredrick Street
Kitchener, ON
N2G 4J3

Attention: Region of Waterloo Clerk

Re: Region of Waterloo – Regional Official Plan Review
September 18, 2019 Public Meeting
Formal Response from 2163846 Ontario Inc. (Branthaven Homes)

Glen Schnarr & Associates Inc. (GSAI) represents 2163846 Ontario Inc. (Branthaven Homes), owner of approximately 80.87 hectares (150.41 acres) in the City of Kitchener, Region of Waterloo. The subject lands are located at the northeast corner of Fischer-Hallman Road and New Dundee Road and are municipally addressed as 2118 New Dundee Road. The subject lands are adjacent to the existing Regional Urban Area Boundary (see *Figure 1* enclosed). As previously discussed at a meeting with Regional Staff on May 22, 2019, our client is desirous of the inclusion of their lands into the 2041 Urban Area for residential purposes.

In the current Regional Official Plan, the subject lands are located within the Southwest Kitchener Policy Area (SKPA). Polices for the SKPA state that prior to future development, the boundary of the Protected Countryside is to be finalized based on the final boundary of the Regional Recharge Area within the Cedar Creek Subwatershed. The policies further state this is to be determined and implemented through the next municipal comprehensive review, which is currently underway.

The Region and the Grand River Conservation Authority have been working together to complete a Study of the Cedar Creek Subwatershed Study since April 2018. We wish to note that the most recent draft of the Scoped Subwatershed Study "*Phase 2: Impact Assessment and Preliminary Management Strategies*" dated July 2019 (Phase 2 Study), presented two land use scenarios for future growth and intensification within the detailed study area. Scenario 2 in the Phase 2 Study (and as presented at the Public Consultation Centre on June 19, 2019), shows the opportunity to fully urbanize the SKPA lands. Scenario 2 illustrates the subject lands as the following land uses: low rise residential, mid rise residential, open space and schools, with Natural Heritage System/Supporting Natural Heritage Features designations to protect natural features. The Phase 2 Study further states that the proposed land use concept in Scenario 2 implements Provincial and Municipal land use policy with respect to pedestrian friendly, transit-oriented communities.

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We would like to note our support for the Scenario 2 land use concept. Building out the SKPA lands for urban uses is appropriate and desirable, given the SKPA lands are adjacent to a designated community to the north and east, as well as community node areas along Fischer Hallman Road to the north. We feel that the inclusion of our client's lands into the Region's Urban Area would be a natural and logical continuation of the existing Urban Area and would be cost-effective and servicing efficient urban development to accommodate a future complete community.

Furthermore, the new Growth Plan - *A Place to Grow (2019)*, allocates the Region of Waterloo to accommodate an additional 93,000 people and 38,000 jobs from 2031-2041. Building out the SKPA lands, will assist the Region in meeting Provincial growth targets, while protecting farmland and sensitive natural areas. We request that you consider the inclusion of these lands as Urban Area to accommodate Provincial growth targets to 2041.

We look forward to the next steps in the Regional Official Plan Review process and to working with you. We kindly request you share this letter with members of Regional Council either prior to, or at the September 18, 2019 public meeting.

Thank you for your considerations. Please do not hesitate to contact the undersigned at extension 224, should you wish to discuss this further.

Yours very truly,

GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Partner

Cc: Michelle Sergi
Brenna MacKinnon
Alyssa Bridge

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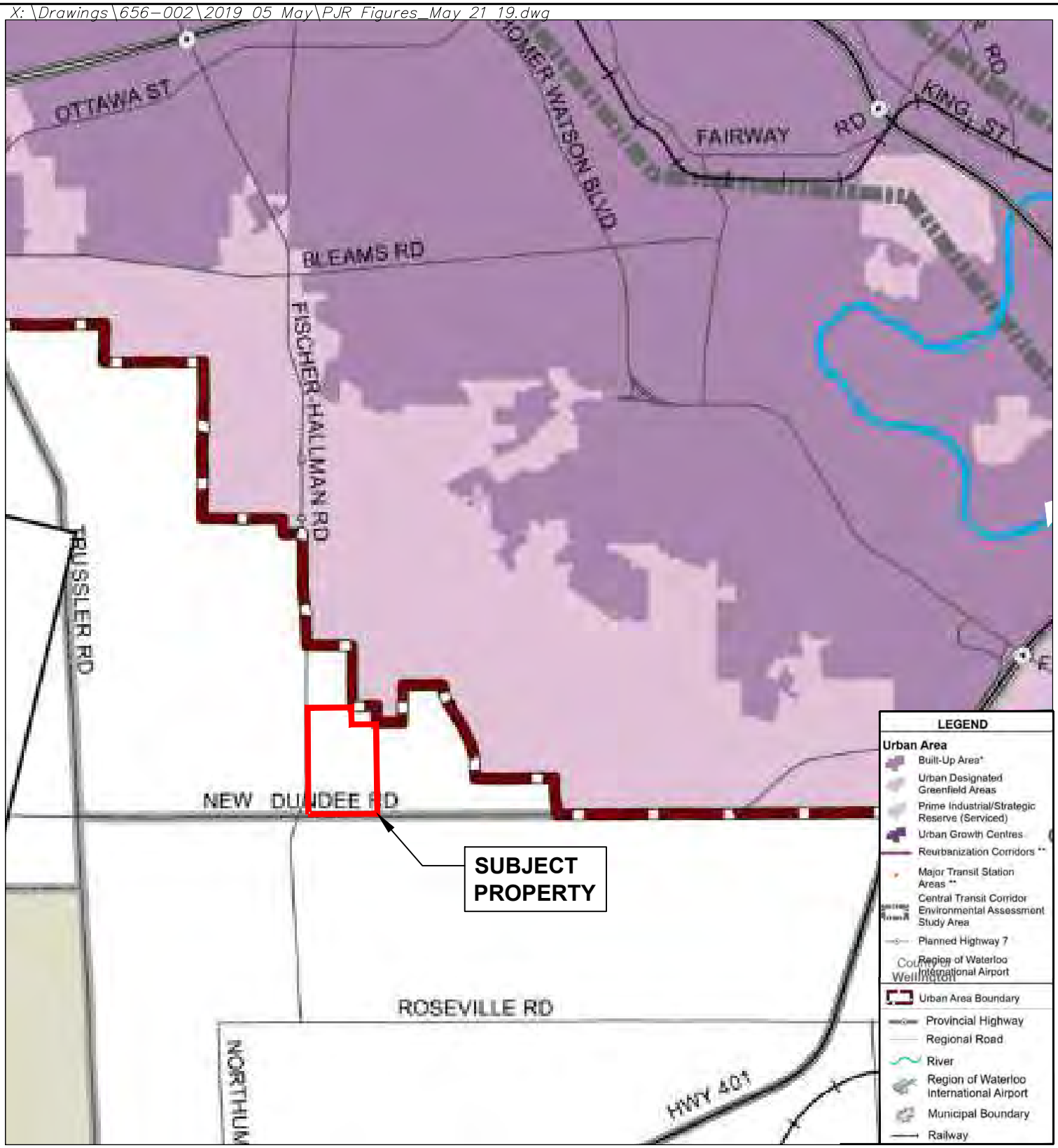

FIGURE 1
REGIONAL OFFICIAL PLAN OF WATERLOO MAP 3A 'THE URBAN AREA'

2118 New Dundee Road, Kitchener

LEGEND

Subject Property

Scale NTS
May 21, 2019

GSAI
Glen Schnarr & Associates Inc.

GLEN SCHNARR & ASSOCIATES INC.
URBAN & REGIONAL PLANNERS, LAND DEVELOPMENT CONSULTANTS

PARTNERS:
GLEN SCHNARR, MCIP, RPP
GLEN BROLL, MCIP, RPP
COLIN CHUNG, MCIP, RPP
JIM LEVAC, MCIP, RPP

March 25, 2022 GSAI File: 656-002

(Via Email)
Region of Waterloo
Community Planning Division
150 Fredrick Street
Kitchener, ON N2G 4J3

Attn: Brenna MacKinnon
Manager, Development Planning

Dear Brenna,

RE: Waterloo Regional Official Plan Review
2163846 Ontario Inc.
2118 New Dundee Road, City of Kitchener, Region of Waterloo

Glen Schnarr & Associates Inc. (GSAI) are the planning consultants to 2163846 Ontario Inc. (the 'Owner') of the lands municipally known as 2118 New Dundee Road, in the City of Kitchener (the 'Subject Lands' or 'Site'). On behalf of the Owner and further to our previous Comment Letter, dated July 16, 2021, we are pleased to provide this Comment Letter in relation to the ongoing Waterloo Regional Official Plan Review ('ROPR') initiative.

GSAI has been participating in the Region's ongoing ROPR initiative. We understand that when complete, it will culminate in a comprehensive Regional Official Plan Amendment ('ROPA') that will modify policy permissions for lands across Waterloo, including the Subject Lands.

The Subject Lands are located on the north side of New Dundee Road, east of Fischer-Hillman Road in the City of Kitchener. The Site consists of approximately 61.3 hectares (151.5 acres) of land and is situated adjacent to the in-effect Regional Urban Area (Map 3, Urban Area, Waterloo Regional Official Plan). The Site is also located within the Southwest Kitchener Policy Area ('SKPA') which was facilitated via the Minutes of Settlement ('MOS') Agreement with the Region and the Owner.

Furthermore, the MOS established two (2) approval conditions, that once satisfied, would facilitate consideration of the Subject Lands for inclusion within the Regional Urban Area.

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For clarity, Section 3(a), Schedule H of the MOS established the following two (2) conditions to be satisfied:

> *'i. whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and*
>
> *ii. whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.'*

The above-noted approval criteria have been considered. In our opinion, condition 3(a)(i) has previously been addressed through the completion of the Cedar Creek Subwatershed Study. The accompanying Stormwater Management Strategy, prepared by Stantec Consulting Ltd., dated March 25, 2022, has been prepared to address Condition 3(a)(ii).

Given the above and the Site's locational attributes, we request that you consider the Subject Lands for inclusion within the Regional Urban Area to facilitate future residential development to the year 2051. In our opinion, the inclusion of the Subject Lands is appropriate and supports good planning principles as the Site would:

- facilitate a natural and logical extension of planned development;
- would support achievement of Provincial growth targets;
- would support Provincial and Regional policy objectives for compact, complete communities; and
- would facilitate cost-efficient servicing.

Thank you for the opportunity to provide these comments. Our Client wishes to be included in the engagement for the Waterloo Regional Official Plan Review initiative and wishes to be informed of updates and future meetings.

We trust the above-noted materials for sufficient for your review and circulation. We look forward to being involved. Please feel free to call if there are any questions. Thank you.

Yours very truly,
GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Partner

cc. Cushla Matthews, Region of Waterloo
Tim Donegani, City of Kitchener

GLEN SCHNARR & ASSOCIATES INC.
URBAN & REGIONAL PLANNERS, LAND DEVELOPMENT CONSULTANTS

PARTNERS:
GLEN SCHNARR, MCIP, RPP
GLEN BROLL, MCIP, RPP
COLIN CHUNG, MCIP, RPP
JIM LEVAC, MCIP, RPP

May 24, 2022 GSAI File: 656-002

(Via Email)
Region of Waterloo
Community Planning Division
150 Frederick Street
Kitchener, ON N2G 4J3

Attn: Brenna MacKinnon
Manager, Development Planning

Dear Brenna,

RE: Waterloo Regional Official Plan Review
Draft Land Needs Assessment
2163846 Ontario Inc.
2118 New Dundee Road, City of Kitchener, Region of Waterloo

Glen Schnarr & Associates Inc. (GSAI) are the planning consultants to 2163846 Ontario Inc. (the 'Owner') of the lands municipally known as 2118 New Dundee Road, in the City of Kitchener (the 'Subject Lands' or 'Site').

We would firstly commend and complement Regional staff in their hard work and engagement with the stakeholders on this planning process. On behalf of the Owner and further to our previous correspondences dated July 16, 2021 and March 25, 2022, we are pleased to provide this Comment Letter in relation to the ongoing Waterloo Regional Official Plan Review ('ROPR') initiative.

GSAI has been participating in the Region's ongoing ROPR initiative. We understand that when complete, it will culminate in a comprehensive Regional Official Plan Amendment ('ROPA') that will modify policy permissions for lands across Waterloo, including the Subject Lands.

The Subject Lands are located on the north side of New Dundee Road, east of Fischer-Hillman Road in the City of Kitchener. The Site consists of approximately 61.3 hectares (151.5 acres) of land and is situated adjacent to the in-effect Regional Urban Area. The Site is also located within the Southwest Kitchener Policy Area ('SKPA').

As background, the Subject Lands were considered for urban expansion as part of the previous ROPR initiative when the Region was bringing its Official Plan in conformity with the 2041 growth forecast of the Provincial Growth Plan. At that time, a Minutes of Settlement was reached that provided 2 conditions to be fulfilled for the Subject Lands to be considered as part of the current ROPR initiative (see Appendix I

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of this Letter for extracts of the Minutes of Settlement). As indicated in our letter dated March 25, 2022 to the Region (see Appendix II of this Letter for a copy of the Letter), we feel that the 2 conditions have now been fulfilled to bring the Subject Lands as candidate for urban expansion lands as part of the 2051 growth forecast of the current Provincial Growth Plan.

The Province requires the Region to be consistent with the Provincial Land Needs Assessment Methodology in determining the future growth needs of the Region. We have reviewed the Region's Draft Land Needs Assessment ('LNA'), dated April 2022. Based on this Draft LNA, the Subject Lands are identified for inclusion in the Regional Urban Area as New Community Area under Option 1 – Growth Plan Minimum – 50% Intensification and 50 People and Jobs/ha at 2051 but not under Option 2 or Option 3. We understand that under Option 1, a balanced approach to growth is to be pursued to ensure that future growth is allocated to the existing urban area and in appropriately sized new urban expansion areas. To be clear, in Option 1, we understand that Settlement Area Boundary Expansion is contemplated in every local municipality of the Region of Waterloo, except the City of Waterloo.

We further understand that to accommodate the Province's population and employment forecast to 2051, a significant proportion (32%) of the population growth on a Region-wide basis to 2051 is to be allocated to the City of Kitchener. This would facilitate a balancing of growth between lands in the existing Regional Urban Area through appropriate intensification rates in areas that are supported by sufficient community services, infrastructure and amenities, while also facilitating future growth to occur in appropriate greenfield locations so that development can achieve compact, walkable and sustainable communities in the new expansion areas without overly stressing and causing the need for costly community services/amenities and municipal infrastructure and services in the existing built boundary.

We support the principle of balanced growth approach. The options to fix the urban boundary to allocate all future growth in the existing urban area:

- Is not good planning since it does not comply with the Provincial Land Needs Assessment Methodology;
- Does not justify how the much needed variety and diversity of new jobs forecasted by the Province can be adequately accommodated in the existing urban area;
- May significantly alter the character of existing communities in the built boundary;
- Is not financially responsible to ignore the cost to taxpayers and the need to provide the additional community amenities and services;
- Does not address the Minutes of Settlement reached between the Region and our client through the previous ROPR initiative.

For these reasons, between the 3 options provided in the Region's Land Needs Assessment, we support Option 1. As such, we respectfully recommend that Regional Council support Option 1 as the Preferred Growth Concept.

Inclusion of the Subject Lands' in the refined Regional Urban Area, as contemplated in Option 1, is desirable and appropriate as this will facilitate a natural and logical extension of development, protection of the natural environment, support achievement of Provincial growth targets, support Provincial policy

objectives for compact, complete communities and will facilitate cost-efficient servicing. In our opinion, Options 2 and 3 are not consistent with the Provincial Land Needs Assessment Methodology and would not facilitate a balance of growth that the Province requires.

As Regional Staff and Council are aware, the Province introduced Bill 109 which enabled rights of stakeholders to request the Minister to refer the ROPA resulting from the ROPR initiative to the Ontario Land Tribunal (OLT). Regional Council has the authority to adopt a ROPA that the Province will determine is consistent with the Provincial Land Needs Assessment Methodology that Regional Staff support.. Out of the 3 options provided in the Land Needs Assessment, Option 1 is the best Regional position in the event of a Ministerial referral to the OLT.

Thank you for the opportunity to provide these comments and we look forward to the continued professional working relationship with the Region and continued dialogue with Regional staff on their responses to our comments herein.

Our Client wishes to be included in the engagement for the Waterloo Regional Official Plan Review initiative and wishes to be informed of updates and future meetings. Please feel free to contact the undersigned if there are any questions.

Yours very truly,
GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Partner

cc. Cushla Matthews, Region of Waterloo
Tim Donegani, City of Kitchener
Owner

Appendix I / Minutes of Settlement Extracts

STOLL - 3710

PL110080

ONTARIO MUNICIPAL BOARD

IN THE MATTER OF subsection 17(36) of the Planning Act, R.S.O. 1990, c.P.13, as amended

Appellant:	1541179 Ontario Ltd. and Lea Silvestri Investments Ltd. (jointly)
Appellant:	1589805 Ontario Inc.
Appellant:	2115881 Ontario Limited
Appellant:	2140065 Ontario Inc. and others
Subject:	Proposed Official Plan
Municipality:	Regional Municipality of Waterloo Region
OMB Case No.:	PL110080
OMB File No.:	PL110080

MINUTES OF SETTLEMENT

WHEREAS the Council of The Regional Municipality of Waterloo ("Region") adopted a new Regional Official Plan (the "ROP") on June 16, 2009;

AND WHEREAS the ROP was subsequently modified and approved by the Minister of Municipal Affairs and Housing (the "MMAH") on December 22, 2010, with a Notice of Decision being issued by MMAH on January 4, 2011;

AND WHEREAS the decision of the MMAH relating to the various policies and mapping of the ROP was appealed to the Ontario Municipal Board (the "OMB") by the Region and by several parties;

AND WHEREAS several of the parties to the hearing of the appeals of the ROP referenced in Schedules "A" to "N" of Appendix "A" hereto (the "Settling Parties") and the Region wish to settle their appeals on the terms and conditions set out herein (the "Settlement");

NOW THEREFORE, the Region and the Settling Parties agree as follows:

1. The Region and the Settling Parties are those parties described in Appendix "A" hereto.

2. The Region and the Settling Parties agree to settle their respective appeals in accordance with these Minutes of Settlement including Appendix "B" and Schedules "A" through "O" attached hereto, which form part of these Minutes of Settlement.

3. The Region and the Settling Parties will request that the OMB approve the modifications to the ROP and all policies and mapping related thereto, in accordance with Appendix "B" and the maps attached thereto, and Appendix "C", and to approve the ROP as so modified, except in respect of those policies and site-specific mapping to be deferred as described in Appendix "C" and Appendix "D". The Region and the Settling Parties acknowledge and agree that there remain appeals by other parties in respect to the policies contained within Appendix "C", the appeals of which have yet to be resolved. Should the resolution of those appeals result in further proposed changes to the ROP, the Region will not agree to them without the prior approval of the Settling Parties.

4. The Region and the Settling Parties agree to the designation of 255 hectares as Urban Designated Greenfield Area for the purposes of this settlement and that this shall constitute the results of the fusing exercise in accordance with the OMB decision dated January 21, 2013. Further, the Settling Parties will not object to the Region designating an additional 170 hectares of Urban Designated Greenfield Area in the East Side as provided for in paragraph 6.

5. The Settling Parties also hereby agree to the use and applicability of the methodology set out in the Land Budget submitted by the Region to the OMB as part of the Phase 1 hearing (the "Land Budget") for the purposes of any other future calculations or determinations of expansion of the Urban Area or Township Urban Areas of the Region in the context of future municipal comprehensive reviews of the Regional Official Plan, subject to compliance with any future Provincial legislation or regulation, or binding policy issued by the Province pursuant to the Planning Act, Places to Grow Act, 2005 or other legislation or regulation, or any applicable technical guidance document of general application issued by the Province to implement any such legislation, regulation or policy. Without limiting the generality of the foregoing, the Settling Parties agree not to bring any appeal or participate in any appeal of any future Regional Official Plan or Regional Official Plan amendments resulting from a future municipal comprehensive review in respect to the use of such methodology, subject to compliance with any future Provincial legislation or regulation, or binding policy issued by the Province pursuant to the Planning Act, Places to Grow Act, 2005 or other legislation or regulation, or any applicable technical guidance document of general application issued by the Province to implement any such legislation, regulation or policy. The Region and the Settling Parties

hereby acknowledge that this term is only applicable to the geographic area of the Regional Municipality of Waterloo. The Region and the Settling Parties agree that this term only applies to the methodology used in the Land Budget, and not to the numerical assumptions, inputs, or calculations that might be applied to the methodology within a future land budget.

6. The Settling Parties agree not to oppose any amendments to the ROP to designate a maximum of 170 ha of land as Urban Designated Greenfield Area in the East Side which amendments are to take place based on the 2031B Growth Plan forecast prior to the next municipal comprehensive review of the ROP, including the location of such expansion, in accordance with policy 2.B.3 (d) as proposed to be modified (Modification No. H in Appendix "B"). The Settling Parties will not oppose a change to the boundaries of the PISR designation proposed by the Region, provided that the total area of PISR lands does not change and the total residential expansion, including any conversion of PISR lands to residential, is no more than 170 ha. These provisions do not apply to Breslau Properties Limited or Madison Homes Inc. in respect to the location of the lands included in the Urban Area expansion in the East Side as provided for in this paragraph, but Breslau Properties Limited shall not appeal the amendment described herein as it affects the lands of Madison Homes Inc. and Madison Homes Inc. shall not appeal the amendment described herein as it affects the lands of Breslau Properties Limited.

7. The Settling Parties agree not to oppose an amendment to the ROP to designate the lands within the Township of North Dumfries located between the permanent Countryside Line located coincident with the southern boundary of the South Boundary Road and the City of Cambridge municipal boundary as Urban Designated Greenfield Area, in accordance with policy 2.B.3 (k) as proposed to be modified (Modification No. M in Appendix "B").

8. The Settling Parties agree not to oppose any amendments to local official plans which implement the expansions to the Urban Area designations established by this Settlement either through immediate designation or through the future amendments contemplated by paragraphs 6 and 7 above, save and except where such amendments apply directly to their lands or have a direct relationship to their lands.

9. The Region and the Settling Parties agree not to participate in any hearing pertaining to any appeals relating to the ROP except as provided for in this Settlement. For greater certainty this clause shall not apply in respect of any future amendment to the ROP either by the Region or by an application filed by any person. Those Settling Parties that have appealed Amendment No. 30 to the Regional Official Policies Plan to the OMB will

withdraw such appeals, in their entirety, forthwith upon execution of these Minutes of Settlement by the Region and all Settling Parties.

10. The Region and the Settling Parties agree that modifications to the Official Plans of the City of Kitchener, the City of Cambridge, the City of Waterloo and the Township of North Dumfries will be required to implement the provisions of the ROP as modified pursuant to the Settlement, which modifications shall be implemented through the outstanding appeals of those Official Plans or through the modification and approval by the Region of parts of those Official Plans subject to existing deferrals. The relevant Settling Parties and the Region agree to engage in good faith discussions with the relevant lower-tier municipalities to attempt to settle the required modifications, and the Settling Parties agree to withdraw or scope their outstanding appeals of the lower-tier Official Plans, as appropriate, upon final approval by the OMB of the ROP as modified in accordance with this Settlement.

11. These Minutes of Settlement and the terms set out herein shall remain strictly confidential and shall not be disclosed by the Region or the Settling Parties to any person that is not a party to the Settlement until final approval by the OMB of the ROP as modified in accordance with Appendix "B". For greater certainty, disclosure of these Minutes of Settlement may occur prior to the final approval of the policies to be modified in accordance with Appendix C or final resolution of the deferrals contained in Appendix "C" and Appendix "D".

12. Notwithstanding paragraph 11 above, upon execution of these Minutes of Settlement by the Region and all Settling Parties, the agreed-upon modifications and deferrals to the policies and mapping of the ROP as set out in Appendix "B", Appendix "C" and Appendix "D" hereto may be disclosed to the public and to the OMB, together with a statement which indicates that minutes of settlement have been executed but which does not disclose any of the terms of these Minutes of Settlement save and except reference to the future use of the Region's Land Budget methodology. For greater certainty, the disclosure of the agreed-upon modifications to the policies and mapping of the ROP shall be deemed to be on a without prejudice basis until final approval thereof by the OMB, as described in paragraph 19 below.

13. The Region and the Settling Parties agree to jointly oppose all requests for party status in relation to the ROP appeals that are made by any person at the Prehearing Conference scheduled for June 16-19, 2015 or at any time after the execution of these Minutes of Settlement, and shall jointly request that the OMB issue an oral decision dismissing any

such requests for party status upon the completion of any such motion hearing. Notwithstanding paragraph 11 above, in the course of opposing any request for party status, the Region or any of the Settling Parties may advise the Board that these Minutes of Settlement contain terms that provide rights for the parties thereto to terminate the Settlement in the event that the Board schedules a contested hearing on the merits of components of the ROP that have been agreed upon through the Settlement.

14. If no requests for party status are made at the June 16-19 Prehearing Conference or if the OMB refuses all requests for party status, the Region and the Settling Parties agree that they will jointly present the ROP and all modifications thereto agreed to in these Minutes of Settlement to the OMB for approval as a package, during the Prehearing Conference scheduled for June 16-19, 2015, or as soon thereafter as the OMB determines, and shall therefore jointly ask the OMB to issue a decision approving the Settlement in its entirety and thereby allowing the appeals of the Settling Parties, in part, and approving the ROP and all modifications thereto agreed to in these Minutes of Settlement (without further change, unless agreed to by all parties).

15. If the OMB grants party status to any person after the date these Minutes of Settlement are executed (an "Added Party") that would only allow the Added Party to challenge part(s) of the maps (other than Maps 3 a-e), as proposed to be modified in accordance with Appendix "B" hereto or policies within the ROP (other than new Policy 2.D.33 (Modification No. S) as proposed in Appendix "B" hereto) on a site-specific basis in relation only to lands owned by the Added Party, and provided that such challenge will not prevent the OMB from otherwise approving the agreed-upon modifications to the policies and mapping of the ROP in accordance with Appendix "B" and Appendix "C" hereto, then the Region and the Settling Parties will proceed at the June 16-19, 2015 Prehearing Conference, or as soon thereafter as the OMB determines, to present to the OMB for approval, as a package in the same manner described in paragraph 14, the ROP and all modifications thereto agreed to in these Minutes of Settlement except those parts that are subject to the site-specific challenge. The OMB will be requested to establish a procedural order to deal with the site-specific matters in subsequent hearing events.

16. If the OMB grants party status to an Added Party that would allow the Added Party to challenge: (i) any part of Maps 3a-e of the ROP, as proposed to be modified in accordance with Appendix "B" hereto, on a site-specific basis or otherwise; (ii) any part of new Policy 2.D.33 (Modification No. S) as proposed in Appendix "B" hereto, on a site-specific basis or otherwise; or (iii)any part of any other map or policies within the ROP, as proposed to be modified in accordance with Appendix "B" hereto, except on a

site-specific basis in relation only to lands owned by such person; then the Region and each of the Settling Parties have a unilateral right to terminate this Settlement, which can only be exercised by providing written notice to all other parties hereto within five (5) business days of the OMB's decision granting party status. For greater certainty, all termination rights shall expire at 11:59 p.m. on the fifth business day after the OMB's decision granting party status. Upon termination these Minutes of Settlement shall be of no further force or effect and for greater certainty, shall be without prejudice to any party respecting future proceedings before the Board regarding the appeals of the ROP.

17. If the OMB grants party status to an Added Party in accordance with paragraph 16 above, and neither the Region nor any Settling Party terminates this Settlement pursuant to paragraph 16, then the Region and the Settling Parties shall cooperate to jointly request the OMB to approve those parts of the ROP, and all modifications thereto agreed to in these Minutes of Settlement, that are not the subject of the issues on which party status has been granted to the Added Party, as soon as the OMB may determine. The OMB will be requested to establish a procedural order to deal with the issues on which party status has been granted to the Added Party in subsequent hearing events as soon as is reasonably practicable.

18. During any hearing before the OMB the Region and the Settling Parties will cooperate to present evidence to the OMB in support of the Settlement herein and to provide such evidence, documents or witnesses as are deemed advisable by the Region and the Settling Parties, and neither the Region nor any of the Settling Parties shall make any submission or provide any evidence to the OMB, or provide any other statement or information to the public, that is inconsistent with the terms of this Settlement.

19. This Settlement is conditional on the OMB approving the ROP as modified in accordance with these Minutes of Settlement, except those parts to be deferred in accordance with paragraph 3 above and those parts that are to be the subject of a hearing to address issues raised by any Added Party in accordance with paragraphs 15 or 17 above, and such approval becoming final. For the purposes of these Minutes of Settlement, the OMB's approval shall be deemed to be final on the later to occur of 30 days after the decision or the final disposition of any request for leave to appeal/appeal, application for judicial review or application for review that is filed within 30 days of the OMB's decision. The Region and the Settling Parties will cooperate and participate to defend any OMB decision approving the ROP as modified in accordance with these Minutes of Settlement against any notice of motion for leave to appeal/appeal, judicial review or Section 43 review request. If, following the hearing before the OMB in which the Region and the

Settling Parties request the OMB to approve the Settlement as contemplated in paragraphs 14, 15 or 17 above either: (i) the OMB issues a decision in which it refuses to approve the ROP as modified in accordance with these Minutes of Settlement, except those parts to be deferred in accordance with paragraph 3 above and those parts that are to be the subject of a hearing to address issues raised by any Added Party in accordance with paragraphs 15 or 17 above; or (ii) any decision by the OMB approving the ROP as modified in accordance with these Minutes of Settlement does not become final as a result of any appeal, judicial review or Section 43 review respect being successful; then these Minutes of Settlement shall terminate and be at an end, and shall be of no further force or effect, upon the issuance of the determining court or OMB decision, as the case may be, and shall be without prejudice to any party respecting future proceedings before the Board regarding appeals of the ROP.

20. The Region and the Settling Parties agree not to seek any costs from the other in respect to their respective appeals or the hearing before the OMB provided that the Region and the Settling Parties adhere to their respective obligations under these Minutes of Settlement.

21. The Region and the Settling Parties shall take such further steps, execute such further documents or convene such further conferences or meetings as are reasonably necessary to implement these Minutes of Settlement.

22. Upon final approval by the OMB of the ROP as modified in accordance with these Minutes of Settlement, except in respect of parts to be deferred in accordance with paragraph 3 above and those parts that are to be the subject of a hearing to address issues raised by any Added Party in accordance with paragraphs 15 or 17 above, the Region shall forthwith withdraw all outstanding requests for review, motions for leave to appeal or judicial review applications in respect to the ROP hearing process on consent and without costs to or against the Region or any of the parties to such proceedings. This term does not apply to any award of costs made prior to the date of these Minutes of Settlement. Until such withdrawal, the Region shall adjourn and shall not take steps to advance nor seek to schedule proceedings respecting any requests for review, motions for leave to appeal or judicial review applications in respect of the ROP appeals unless required to do so in accordance with the Rules of Civil Procedure or in response to any steps taken by any other parties to such proceedings.

23. The Region and the Settling Parties agree that the terms and conditions of these Minutes of Settlement are binding upon the successors, assigns or transferees of the parties hereto,

and any affiliate (as defined by the *Business Corporations Act*, R.S.O. 1990, c.B.16) of the Settling Parties. The provisions of sections 6, 7 and 8 of these Minutes of Settlement shall also be binding against purchasers for value of any of the lands that are the subject of the modifications to mapping in Appendix "B" and to the lands owned by Madison Homes Inc. and Breslau Properties Limited within the East Side, and for that purpose upon the transfer of any such lands the subject Settling Party shall notify the transferee thereof of the terms and conditions of these Minutes of Settlement and shall obtain from the transferee an assumption agreement in favour of the Region and Settling Parties covenanting to be bound by the terms and conditions of these Minutes of Settlement, provided that the obligation to obtain such an assumption agreement shall terminate on the earlier to occur of: (i) the coming into force of the last local official plan amendment implementing the ROP amendments contemplated by both of sections 6 and 7 hereof; and (ii) 10 years from the date of these Minutes of Settlement.

24. The Region shall not support modifications to the ROP other than those set out in these Minutes of Settlement without the consent of the other Settling Parties. For greater certainty this clause shall not apply in respect of any future amendment to the ROP either by the Region or by an application filed by any person, provided that such amendment does not conflict with the modifications agreed to in Appendix 'B'.

25. The Region agrees that it will not, in any communication with the Province or otherwise, request, seek or otherwise support the inclusion of the following lands within the Greenbelt Plan, or the specific identification of the following lands in any other provincial plan or regulation that would restrict development thereon:

    (a) the lands in Southwest Kitchener that are proposed through this Settlement to be included in the Urban Area boundary or the Southwest Kitchener Policy Area boundary;

    (b) the lands in North Dumfries that are proposed through this Settlement to be included in the Urban Area Boundary;

    (c) the William Gies lands that are proposed through this Settlement to be included in the Urban Area boundary. and

    (d) the lands in North Dumfries that are proposed through this Settlement to be located inside the Countryside Line and to be brought inside the Urban Area boundary through a future amendment of the ROP.

If any lands within the Southwest Kitchener Policy Area are designated Protected Countryside in accordance with the provisions of sections A) 2 and 3 of Schedule 'A' and sections 2 and 3 of Schedules 'B', 'H' and 'K' through a final decision on the next municipal comprehensive review of the ROP, including a final decision on any appeal to the OMB in respect thereof, this clause shall cease to apply to such lands so designated.

26. In the event that these Minutes of Settlement are terminated pursuant to paragraph 16 above, the Region and the Settling Parties agree to negotiate in good faith to attempt to achieve a mutually acceptable alternative settlement.

27. All capitalized terms in these Minutes of Settlement shall have the same meaning, unless defined in these Minutes of Settlement, as set out in the ROP.

28. These Minutes of Settlement may be executed in counterparts, each of which shall be deemed to be an original, and such separate counterparts, upon execution by the Region and each Settling Party, shall constitute together one and the same instrument, notwithstanding the date of actual execution, and the said counterparts may be delivered via facsimile or email transmission to the parties' legal representative and shall thereupon be binding upon the parties.

Dated at the Region of Waterloo this ____ day of _____, 2015.

ACTIVA HOLDINGS INC.

Per: _____

I have authority to bind the corporation

STONEFIELD PROPERTIES CORP.

Per: _____

I have authority to bind the corporation

2163846 ONTARIO INC.
(BRANTHAVEN HOMES)

Per: _____
I have authority to bind the corporation

LEA SILVESTRI INVESTMENTS LTD.

Per: _____
I have authority to bind the corporation

1541179 ONTARIO LIMITED

Per: _____
I have authority to bind the corporation

MADISON HOMES LIMITED

Per: _____
I have authority to bind the corporation

APPENDIX "A"

Settling Party	Schedules of Related Terms and Conditions for Settlement
1. ACTIVA HOLDINGS INC.	A
2. STONEFIELD PROPERTIES CORP.	B
3. NORTHGATE LAND CORP.	C
4. HALLMAN CONSTRUCTION LIMITED	D
5. GATESTONE DEVELOPMENT CORP./BRIAN DOMM	E
6. 2079546 ONTARIO LIMITED (Mattamy Development Corporation)	F
7. PLAINS WESTMOUNT FARMS LIMITED	G
8. 2163846 ONTARIO INC. (Branthaven Homes)	H
9. LEA SILVESTRI INVESTMENTS LTD./1541179 ONTARIO LTD.	I
10. MADISON HOMES LIMITED	J
11. CONNIE BOGUSAT AND ROBERT BOGUSAT	K
12. BRESLAU PROPERTIES LIMITED	L
13. WM. J. GIES CONSTRUCTION LTD.	M
14. SELECT SAND & GRAVEL LIMITED ROBERT KIESWETTER IN TRUST B & B KIESWETTER EXCAVATING INC. KIESWETTER HOLDINGS LIMITED STAMM INVESTMENTS LIMITED	N

Schedule 'H'

2163846 Ontario Limited (Branthaven Homes)

1. That the ROP maps as approved by the Province on December 22, 2010 be modified as follows:

a) That the Southwest Kitchener Policy Area be established, including the entirety of the 2163846 Ontario Limited (Branthaven Homes) lands, as shown on Schedule H-1 below, modified Maps 4 (see Appendix 'B'), 6g (see Appendix 'B') and 7 (see Appendix 'B'), and new Map 7a (see Appendix 'B'). The Southwest Kitchener Policy Area identifies lands to which policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23, as proposed to be modified in accordance with this Settlement, apply (see Appendix 'B').

b) That the Regional Recharge Area designation applicable to the lands subject to the Southwest Kitchener Policy Area be deleted as shown on Schedule H-1 below, and modified Maps 4 (see Appendix 'B') and 6g (see Appendix 'B').

c) The Protected Countryside designation shall not apply to any portion of the lands that are subject to the Southwest Kitchener Policy Area.

2. That the ROP policies as approved by the Province on December 22, 2010 be modified as follows:

a) Policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23 (see Appendix 'B') to be modified to provide that on lands in the Southwest Kitchener Policy Area, the final extent of the Regional Recharge Area and Protected Countryside designations and the location of the Countryside Line are to be determined at a later date. Until such time as the final determination of the extent of the Regional Recharge Area and Protected Countryside designations are made, the Countryside Line shall be deemed to be the outside edge of the Southwest Kitchener Policy Area, beyond which the Protected Countryside and Regional Recharge Area designations shall continue to apply. The final extent of the Protected Countryside and Regional Recharge Area designations will be made through implementation of the Southwest Kitchener Policy Area policies as part of the next municipal comprehensive review to be undertaken not later than 2019. As part of the implementation of the Southwest Kitchener Policy Area policies, the final location of the

Countryside Line will be established coincident with the resulting edge of the Protected Countryside.

b) Policy 2.B.1 to be modified (see Appendix 'B') to provide that any lands not currently designated Protected Countryside will be considered as developable for the purposes of infrastructure planning, including any infrastructure master plan updates undertaken by the Region in accordance with the provisions of Chapter 5.

3. The Region agrees that the following shall apply in respect of the implementation of the provisions of Policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23 of the ROP, as modified in accordance with this Settlement, in respect of the 2164816 Ontario Inc. lands within the Southwest Kitchener Policy Area for which the final extent of the Countryside Line, Protected Countryside and Regional Recharge Area designations have not been determined:

a) The following criteria shall be used to determine whether the Regional Recharge Area designation shall apply to the lands;

(i) whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and

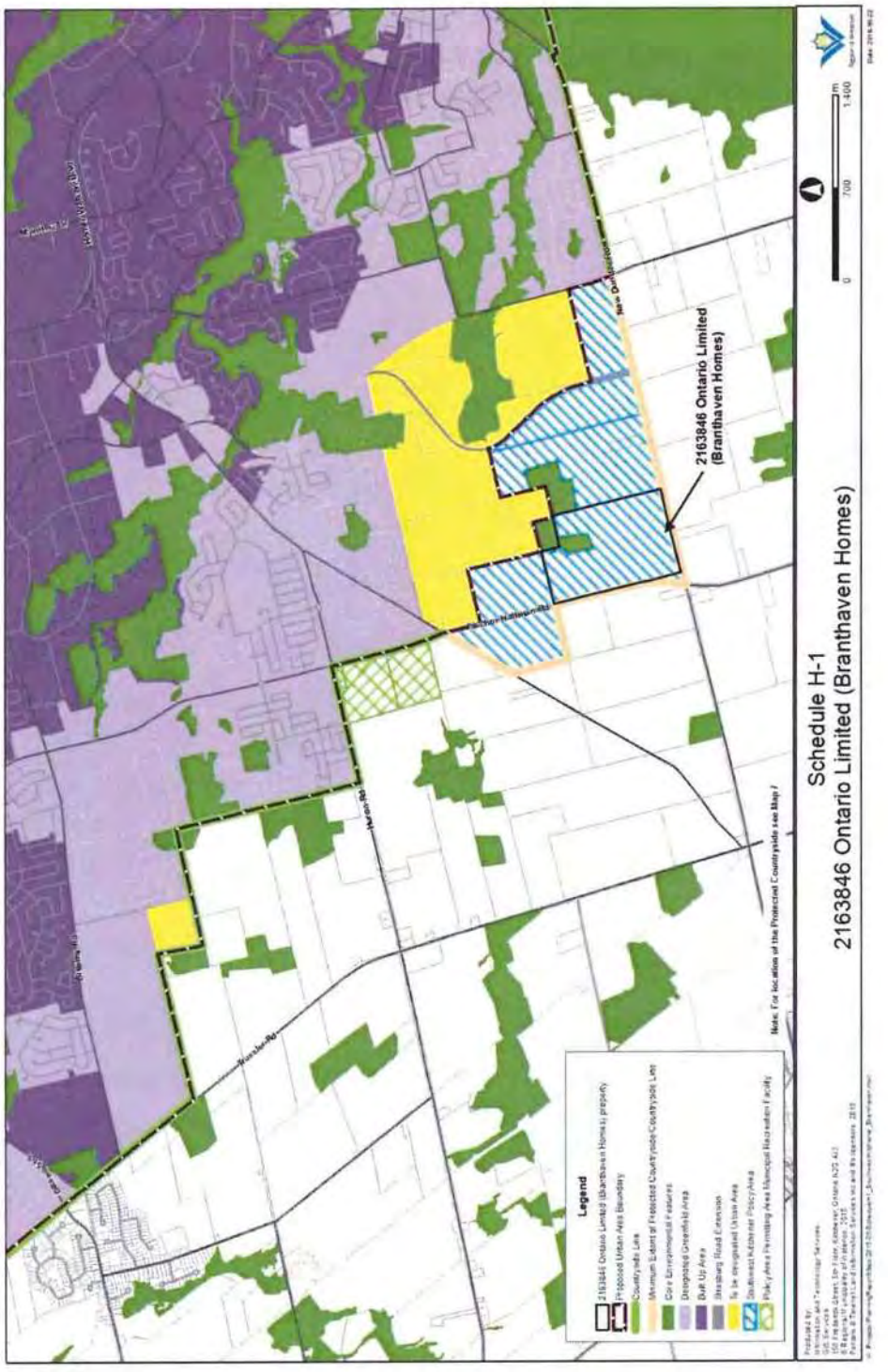
(ii) whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.

b) For those portions of the lands in respect of which the criteria in (a) above are satisfied, the Region will not propose the application of the Regional Recharge Area or the Protected Countryside designation to such lands, and the lands shall be included within the Countryside Line in the next municipal comprehensive review of the ROP.

c) The Region further agrees that in undertaking the assessment of whether the criteria in (a) above are met, any relevant hydrogeology field work and analysis undertaken by the Settling Parties prior to this settlement shall be used and shall not be considered to be outdated regardless of the delay between the time the work was undertaken and the decision. However, for greater certainty, this clause shall not preclude relevant work undertaken after these Minutes of Settlement by the Region or the Settling Parties from also being used in such assessment.

d) The Settling Parties agree that the criteria in (a) above are to only apply to those lands in

the Southwest Kitchener Policy Area in respect of which the final extent of the Countryside Line, Protected Countryside and the Regional Recharge Area have not been determined. These Minutes of Settlement do not govern decisions on the boundaries or the criteria to be applied to the Regional Recharge Area or Protected Countryside designations or the location of the Countryside Line in other parts of the Region.


Schedule H-1
2163846 Ontario Limited (Branthaven Homes)
2163846 Ontario Limited
(Branthaven Homes)
Legend
Countryside Line
Core Environmental Features
Designated Greenfield Area
Built Up Area
Strasburg Road Extension
To be designated Urban Area
Note: For location of the Protected Countryside see Map 1
0
700
1,400
m

Appendix II / March 25, 2022 Comment Letter

GLEN SCHNARR & ASSOCIATES INC.
URBAN & REGIONAL PLANNERS, LAND DEVELOPMENT CONSULTANTS

PARTNERS:
GLEN SCHNARR, MCIP, RPP
GLEN BROLL, MCIP, RPP
COLIN CHUNG, MCIP, RPP
JIM LEVAC, MCIP, RPP

March 25, 2022 GSAI File: 656-002

(Via Email)
Region of Waterloo
Community Planning Division
150 Fredrick Street
Kitchener, ON N2G 4J3

Attn: Brenna MacKinnon
Manager, Development Planning

Dear Brenna,

RE: Waterloo Regional Official Plan Review
2163846 Ontario Inc.
2118 New Dundee Road, City of Kitchener, Region of Waterloo

Glen Schnarr & Associates Inc. (GSAI) are the planning consultants to 2163846 Ontario Inc. (the 'Owner') of the lands municipally known as 2118 New Dundee Road, in the City of Kitchener (the 'Subject Lands' or 'Site'). On behalf of the Owner and further to our previous Comment Letter, dated July 16, 2021, we are pleased to provide this Comment Letter in relation to the ongoing Waterloo Regional Official Plan Review ('ROPR') initiative.

GSAI has been participating in the Region's ongoing ROPR initiative. We understand that when complete, it will culminate in a comprehensive Regional Official Plan Amendment ('ROPA') that will modify policy permissions for lands across Waterloo, including the Subject Lands.

The Subject Lands are located on the north side of New Dundee Road, east of Fischer-Hillman Road in the City of Kitchener. The Site consists of approximately 61.3 hectares (151.5 acres) of land and is situated adjacent to the in-effect Regional Urban Area (Map 3, Urban Area, Waterloo Regional Official Plan). The Site is also located within the Southwest Kitchener Policy Area ('SKPA') which was facilitated via the Minutes of Settlement ('MOS') Agreement with the Region and the Owner.

Furthermore, the MOS established two (2) approval conditions, that once satisfied, would facilitate consideration of the Subject Lands for inclusion within the Regional Urban Area.

10 KINGSBRIDGE GARDEN CIRCLE
SUITE 700
MISSISSAUGA, ONTARIO
L5R 3K6
TEL (905) 568-8888
FAX (905) 568-8894
www.gsai.ca

For clarity, Section 3(a), Schedule H of the MOS established the following two (2) conditions to be satisfied:

> *'i. whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and*
>
> *ii. whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.'*

The above-noted approval criteria have been considered. In our opinion, condition 3(a)(i) has previously been addressed through the completion of the Cedar Creek Subwatershed Study. The accompanying Stormwater Management Strategy, prepared by Stantec Consulting Ltd., dated March 25, 2022, has been prepared to address Condition 3(a)(ii).

Given the above and the Site's locational attributes, we request that you consider the Subject Lands for inclusion within the Regional Urban Area to facilitate future residential development to the year 2051. In our opinion, the inclusion of the Subject Lands is appropriate and supports good planning principles as the Site would:

- facilitate a natural and logical extension of planned development;
- would support achievement of Provincial growth targets;
- would support Provincial and Regional policy objectives for compact, complete communities; and
- would facilitate cost-efficient servicing.

Thank you for the opportunity to provide these comments. Our Client wishes to be included in the engagement for the Waterloo Regional Official Plan Review initiative and wishes to be informed of updates and future meetings.

We trust the above-noted materials for sufficient for your review and circulation. We look forward to being involved. Please feel free to call if there are any questions. Thank you.

Yours very truly,
GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Partner

cc. Cushla Matthews, Region of Waterloo
Tim Donegani, City of Kitchener

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

March 25, 2022

Project/File: 161414187

Arden Semper
2163846 Ontario Inc.
720 Oval Court
Burlington, ON L7L 6A9

Reference: Stormwater Management Strategy
2163846 Ontario Inc. ("Branthaven")
2118 New Dundee Road
Southwest Kitchener Policy Area

On behalf of 2163846 Ontario Inc. ("Branthaven"), Stantec Consulting Ltd. (Stantec) has prepared this technical memorandum summarizing a preliminary stormwater management strategy for the lands owned by Branthaven at 2118 New Dundee Road, Kitchener, ON, including consideration of the surrounding Cedar Creek Subcatchment areas within the Southwest Kitchener Policy Area. The strategy considers both stormwater storage and chloride loading estimates to groundwater resulting from development within the drainage area and it confirms that pre-development infiltration rates and subsequent recharging of the shallow groundwater system can be maintained.

Background

The proposed development is a 61.32 ha parcel located at the northeast corner of New Dundee Road and Fischer-Hallman Road within the Southwest Kitchener Policy Area (Subject Property) and Stantec understands that the Region of Waterloo (the "Region") is currently considering the inclusion of lands in this area into the urban boundary. There are several other plots of land owned by other independent developers in this same Policy area.

In accordance with the in-effect Waterloo Regional Official Plan ('ROP'), the Subject Property is located adjacent to the Regional Urban Area (Map 3a, Urban Area) and is further identified as being located within the Southwest Kitchener Policy Area ('SKPA', Map 7). It is also subject to a Minutes of Settlement ('MOS') Agreement, which states that the Subject Property can be re-designated as part of the Municipal Comprehensive Review ('MCR') process, provided the following two (2) approval conditions are met, as per Section 3.a of Schedule H of the MOS Agreement (Attachment C):

> *(i) whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and*
>
> *(ii) whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.*

Condition (i) was satisfied through MTE's 2014 report entitled "Detailed Hydrogeological Investigation for Southwest Kitchener". Condition (ii) is satisfied through this Stormwater Management Strategy.

Reference: Stormwater Management Strategy
2163846 Ontario Inc. ("Branthaven")
2118 New Dundee Road
Southwest Kitchener Policy Area

Furthermore, Chapter 2 of the ROP states that expansions to the Regional Urban Area may be considered as part of the MCR process. We note that the Region of Waterloo is currently completing the MCR process and once complete, this process will culminate in a comprehensive Regional Official Plan Amendment ('ROPA') that will modify policy permissions for lands across Waterloo. This Stormwater Management Strategy has been prepared in support of clearing the MOS Agreement conditions and to facilitate the consideration of the Subject Property for inclusion in the Regional Urban Area.

A preliminary development concept of the Subject Property consisting of residential areas, schools, parks, roads, and a stormwater management facility was developed by GSAI. Two scenarios were considered:

1) **Scenario 1** - Development of only the Subject Property (61.3 hectares (ha)), with one stormwater management (SWM) facility located in the southwest corner of the property occupying a total area of 8.5 ha.

2) **Scenario 2** - Development of the Subject Property in addition to all neighbouring development areas (118.9 ha, for a combined total area of 180.2 ha) draining to Cedar Creek. No preliminary design is available for the neighbouring development areas; subsequently, the proposed layout of the Subject Property was extrapolated to the neighbouring development areas to approximate development and road network areas for calculation purposes. In Scenario 2, Stantec assumed that the entire proposed development area would drain to a single SWM facility in the southwest corner of the Subject Property, occupying a total area of 18.5 ha (13.5 ha of which are located on the Subject Property).

Drawings in Attachment A illustrate the landholdings and development concepts.

Stormwater Management Strategy

Due to outlet limitations at the Subject Property, the only potential stormwater management strategy that does not require agreement from external landowners is to fully infiltrate all runoff from the proposed development area. To determine if this strategy is feasible, Stantec completed high level stormwater management (SWM) facility sizing and salt loading calculations for each development scenario.

The stormwater management strategy includes the creation of a stormwater infiltration facility at the downgradient edge of the Subject Property. The facility would be designed to retain and infiltrate all storm runoff from the tributary area so there is no surface discharge (the strategy could include multiple stormwater infiltration facilities, but for simplicity at the concept level it was assumed that only a single facility is provided). Based on the land uses contained in the development concept plans, a pond block area consisting of approximately 10% of the drainage area would be sufficient to retain all runoff generated from the tributary area (i.e., 100-Year storm: ~1.0 m deep pond block area; Regional Storm: ~3.0 m deep pond block area).

Scenario 1 – Subject Property Only – Branthaven (61.32 ha)

Regional Storm

- Precipitation = 285.0 mm

Reference: Stormwater Management Strategy
2163846 Ontario Inc. ("Branthaven")
2118 New Dundee Road
Southwest Kitchener Policy Area

- Runoff volume = 174,762 m^3 (285 mm over 61.32 ha)
- Pond block size 250 m x 250 m x 3 m deep (5:1 side slopes) provides storage volume of 165,950 m^3

100-Year Storm

- Precipitation = 87.07 mm
- Runoff volume = = 53,391 m^3 (87.07 mm over 61.32 ha)
- Pond block size 230 m x 230 m x 1 m deep (5:1 side slopes) provides storage volume of 50,650 m^3

Scenario 2 – Cedar Creek Subwatershed within the Southwest Kitchener Policy Area (180.23 ha)

Regional Storm

- Precipitation = 285.0 mm
- Runoff volume = 513,656 m^3 (285 mm over 180.23 ha)
- Pond block size 430 m x 430 m x 3 m deep (5:1 side slopes) provides storage volume of 516,950 m^3

100-Year Storm

- Precipitation = 87.07 mm
- Runoff volume = 156,926 m^3 (87.07 mm over 180.23 ha)
- Pond block size = 410 m x 410 m x 1 m deep (5:1 side slopes) provides storage volume of 164,050 m^3

Facility details (e.g., grading, servicing, specific infiltration rates and ponding levels) would be confirmed during the preliminary and detailed design stages.

Infiltration Testing

On November 3 and 13, 2021, Stantec personnel tested the infiltration potential of the soils that characterize the Subject Property using a Guelph Permeameter (a constant head permeameter designed to measure in-situ vertical hydraulic conductivities of a given substrate). Stantec personnel used a hand auger to drill 0.5 to 1.1 m deep, 50 mm diameter cylindrical holes into the native soil at seven locations for testing. The Guelph Permeameter was then filled with water, inserted into the hole while making a concerted effort to avoid knocking debris into the excavation, and stabilized against the substrate. Stantec personnel then proceeded to record the eventual steady-state rate of water recharge into the soil. The infiltration rate for each soil tested was converted from the measured vertical hydraulic conductivity using the established relationship between vertical hydraulic conductivity and infiltration rate presented in the Credit Valley

Reference: Stormwater Management Strategy
2163846 Ontario Inc. ("Branthaven")
2118 New Dundee Road
Southwest Kitchener Policy Area

Conservation and Toronto and Region Conservation (2010[1]) Low Impact Stormwater Management Planning and Design Guideline.

Subsurface deposits across the Subject Property range from clayey silt to fine to medium sand having corresponding vertical hydraulic conductivities in the range of 10^{-8} m/s to 10^{-6} m/s, respectively. Overall, calculated infiltration rates based on these vertical hydraulic conductivities range from 22 mm/hour to 75 mm/hour, for an average infiltration rate of 38 mm/hour. Based on these measured infiltration rates and typical safety factors, Stantec estimates that the drawdown time for the previously mentioned SWM facility will be approximately two to three days following a 100-year storm. Consequently, the soils that characterize the subsurface of the Subject Property are suitable for implementing the proposed stormwater management strategy.

Salt Loading Assessment

To estimate the total groundwater chloride concentration resulting from full infiltration of salt applications to the Subject Property post-development (i.e., Scenario 1), as well as the Subject Property combined with neighbouring development lands within the Southwest Kitchener Policy Area (i.e., Scenario 2), Stantec performed mass chloride loading calculations, which are presented in Tables B-1 and B-2, respectively (Attachment B).

Stantec assumed that chloride loading to groundwater within the development areas occurs from two sources: 1) precipitation and 2) road salt applications to the residential roads. The concentration of chloride in precipitation is assumed to be minimal at 2.5 mg/L.

Road salt is assumed to be applied at a rate of 10 tonnes/2-lane kilometer (km), which is based on Region supplied data for City of Kitchener application rates on city roads and is the average application rate from 2016 to 2020. This salt application rate is a conservative estimate as residential neighbourhoods do not often receive regular road salt applications. Salt application to driveways, parking lots and sidewalks are not considered in the analysis.

The rate of infiltration across the Subject Property was set at 808 mm/year based on reporting and available mapping for the Cedar Creek Study Area (Matrix *et al*., 2019[2]). The area is known to have a high rate of infiltration and groundwater recharge. The annual precipitation amount used in the calculations is 916 mm/year based on 30-year normals (1981-2010) obtained from the Waterloo Wellington 'A' climate station (ID 6149387).

Under each calculated scenario, the sources of water and/or chloride to groundwater were as follows:

[1] Credit Valley Conservation - Toronto and Region Conservation Authority (CVC-TRCA), 2010. Low Impact Development Stormwater Management Planning and Design Guide – Version 1.0.
[2] Matrix Solutions Inc., Wood Environment, Infrastructure Solutions, Natural Resource Solutions Inc., and SGL Planning and Design. 2019. Upper Cedar Creek – Scoped Subwatershed Study. Prepared for the Regional Municipality of Waterloo. October 2019.

Reference: Stormwater Management Strategy
2163846 Ontario Inc. ("Branthaven")
2118 New Dundee Road
Southwest Kitchener Policy Area

Runoff from Roadways to Stormwater Management Facility

Under Scenario 1 and 2, the total area and length of roadways in the tributary area were provided in the preliminary development concept drawings (Attachment A). In Scenario 2, the total area and length of roadways for the neighbouring development areas were extrapolated so that they represented the same percentage of coverage for the Subject Property development (excluding the SWM facility area from the calculations). For infiltration estimates, Stantec assumes impervious roadways associated with future development will cover approximately 69% of the roadway areas on the Subject Property and contribute direct runoff to the stormwater collection system and the SWM facility. This percentage is based on the City of Kitchener street design standards.

The chloride infiltration rate is the amount of chloride (from road salt) applied to ground surface that reaches the groundwater system, with the remainder assumed to go to the stormwater drainage system and ultimately the SWM facility. A chloride infiltration rate of 20 to 35% was previously estimated by Stanley (1998[3]). Testing detailed by Stantec (2005[4]) indicated an infiltration rate of up to 26% based on chloride mass distribution profiles and up to 33% based on vertical soil chloride profiles. For the Subject Property salt loading calculations, Stantec assumes that 70% of the total chloride (i.e., salt) applied to roadways will be directed to the SWM facility, with the remaining 30% "splashing" from the roadways to pervious surfaces and infiltrating to the groundwater system.

Stantec assumes that 90% of the precipitation falling on all impervious surfaces in the development (i.e., roadways and rooftops) ends up in the stormwater conveyance system and, ultimately, the SWM facility.

Direct Infiltration Across the Pervious Areas

As previously mentioned, an additional source of chloride loading is salt applied to residential roads that does not enter the stormwater system but instead ends up infiltrating on boulevards or lawns. Stantec assumes that 30% roadway salt applications "splashes" onto boulevards and/or lawns and ends up infiltrating directly into the groundwater system, with the remaining 70% of the salt applications running off the roadways to the SWM facility as previously described.

The infiltration rate across the pervious areas is assumed to be 808 mm/yr. as per Matrix *et al.* (2019[2]).

Direct Precipitation on the SWM Facility

The volume of water and mass of salt that ends up in the SWM facility due to road salt applications will be further diluted by precipitation falling directly on the SWM facility. For the purposes of the calculation, an annual infiltration rate of 808 mm/yr. is used (of the total 916 mm/yr. of precipitation) over the entire area of the SWM facility.

[3] Stanley Associates Ltd. 1998. Chloride Impact Assessment - Parkway and Strasburg Creek Well Fields - Final Report. Prepared for the Regional Municipality of Waterloo, September 1998.
[4] Stantec Consulting, Ltd. (Stantec). 2005. Road Salt management and Chloride Reduction Study, Phase 2: Evaluation of Chloride Reduction Options. Prepared for Regional Municipality of Waterloo, March 2004, Revised December 2005.

Reference: Stormwater Management Strategy
2163846 Ontario Inc. (“Branthaven”)
2118 New Dundee Road
Southwest Kitchener Policy Area

Direct Precipitation from Rooftops

Direct precipitation falling on residential rooftops will enter the groundwater system in one of two ways: via infiltration galleries installed at each residential home, or by directing the collected precipitation to the SWM conveyance system, which will then direct it to the SWM facility for infiltration. The route of entry will depend on the final design. Regardless of the route of entry, Stantec assumes that 90% of precipitation falling on the rooftop areas will be collected by the rooftop collection system, which will then be returned to the subsurface and become groundwater recharge. The annual precipitation rate used in the calculation is 916 mm/yr., consistent with the other calculations used in the analysis.

For the Scenario 2 calculation, the percentage of rooftop area covering the neighbouring development lands is assumed to be the same percentage of rooftop area that covers the Subject Property.

Reasonable Use Criteria

To assess impacts to downgradient receptors, the estimated chloride concentrations in groundwater were compared to the reasonable use criteria. Reasonable use was calculated and presented in the calculation spreadsheets presented in Attachment B using the following equation:

$C_m = C_b + x (C_r - C_b)$

Where:

C_m = the maximum concentration allowed at the property boundary (not concentration at the discharge source (mg/L)

C_b = existing background groundwater concentration (mg/L) (assumed to be 5 mg/L)

x = a constant that reduces contaminant to a concentration considered by the Ministry of Environment, Conservation and Parks (MECP) to have a negligible effect on the use of water (0.5)

C_r = Ontario Drinking Water Standard (ODWS) for chloride of 250 mg/L

The above calculation results in a reasonable use criteria concentration for chloride of 127.5 mg/L.

Results

Scenario 1 – Subject Property Only – Branthaven (61.32 ha)

Using the described assumptions and parameters mentioned previously, the chloride concentration calculated to be in groundwater flowing off the Subject Property at the downgradient property boundary (i.e., New Dundee Road) is 104 mg/L, which is below the reasonable use criteria of 127.5 mg/L (Attachment B-1).

Reference: Stormwater Management Strategy
2163846 Ontario Inc. (“Branthaven”)
2118 New Dundee Road
Southwest Kitchener Policy Area

Scenario 2 – Cedar Creek Subwatershed within the Southwest Kitchener Policy Area (180.23 ha)

Using the described assumptions and parameters mentioned previously, the chloride concentration calculated to be in groundwater flowing off the Subject Property at the downgradient property boundary (i.e., New Dundee Road) is 124 mg/L, which is below the reasonable use criteria of 127.5 mg/L (Attachment B-2).

Summary

Based on the assumptions and presented calculations, the stormwater management strategy of full infiltration within the Cedar Creek Subcatchment of the Southwest Kitchener Policy Area is a feasible solution for either the Subject Property alone, or for the Subject Property together with the surrounding properties tagged for development. Assuming that the stormwater management facilities are sufficiently sized, the chloride concentrations in groundwater resulting from road salt applications within the proposed residential community development areas will remain below reasonable use criteria. These calculations and estimates are based on preliminary designs and base assumptions, and are subject to change, but serve to provide a starting point for discussion purposes.

Regards,

STANTEC CONSULTING LTD.

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Senior Hydrogeologist
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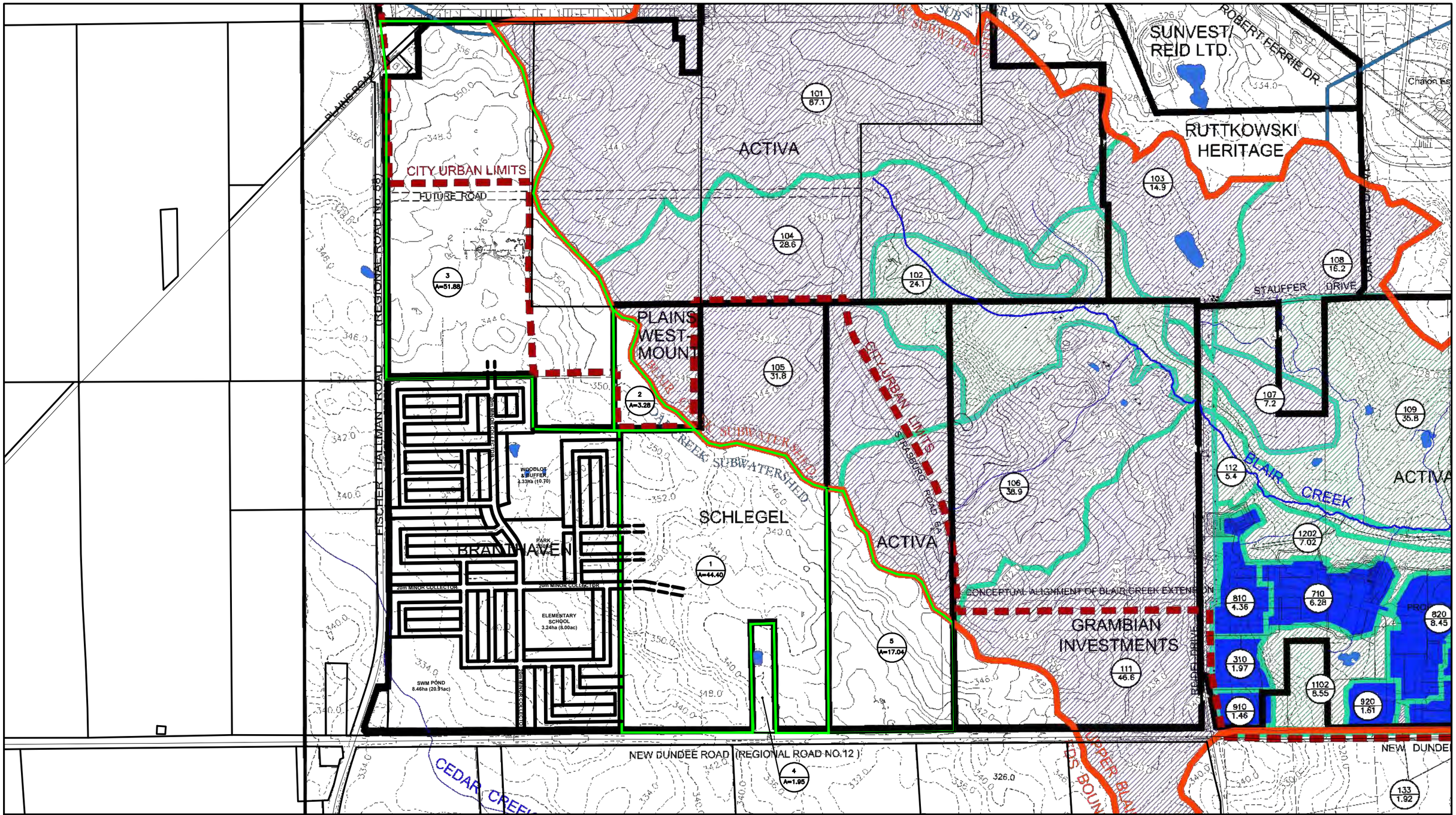
Surface Water Lead, Canada East
Phone: (519) 585-7446
Mobile: (519) 577-2551
steve.brown@stantec.com

Attachment: A – Preliminary Design Drawings
B – Salt Loading Calculations
C – Schedule H of the MOS Agreement

ATTACHMENT A

Preliminary Design Drawings



Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Notes

1 / A=44.40 — AREA ID / AREA IN ha

1:1000 — 0 10 30 50m

Client/Project

STOLL LANDS

Project No.
161414187

Title
Catchment Areas

Revision

Date
2021.12.07

Reference Sheet

Figure No.
1

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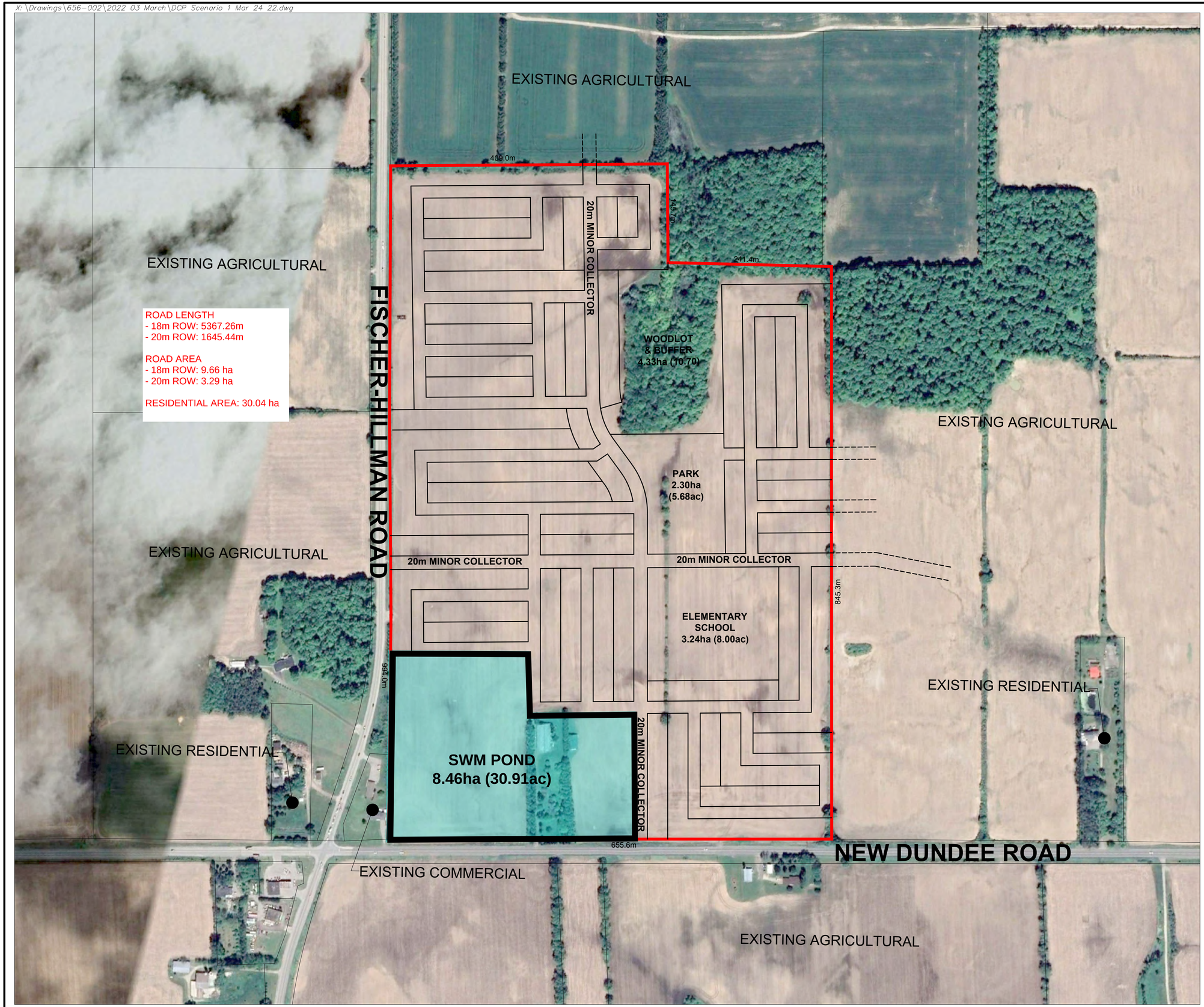
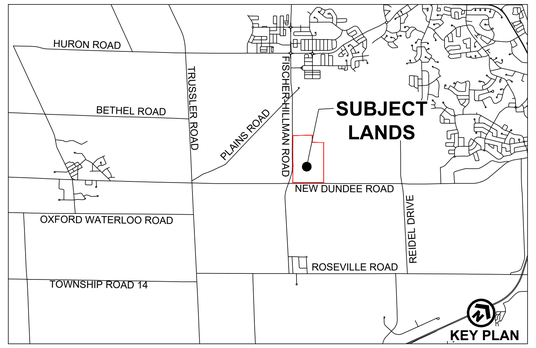


ROAD LENGTH
- 18m ROW: 5367.26m
- 20m ROW: 1645.44m

ROAD AREA
- 18m ROW: 9.66 ha
- 20m ROW: 3.29 ha

RESIDENTIAL AREA: 30.04 ha



DEVELOPMENT CONCEPT PLAN
SCENARIO 1
2118 NEW DUNDEE ROAD

PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
TOWN OF NEW DUNDEE
REGIONAL MUNICIPALITY OF WATERLOO

Development Concept Plan Statistics

Subject Property: ±61.32ha (151.52ac)

Notes
-all Local R.O.W.: 18m
-majority of lot depths: 30m
-Woodlot & Buffer Limits are ***approximate only***

FOR DISCUSSION PURPOSES ONLY

SCALE 1:2500
(24 x 36)
MARCH 24, 2022

GSAI

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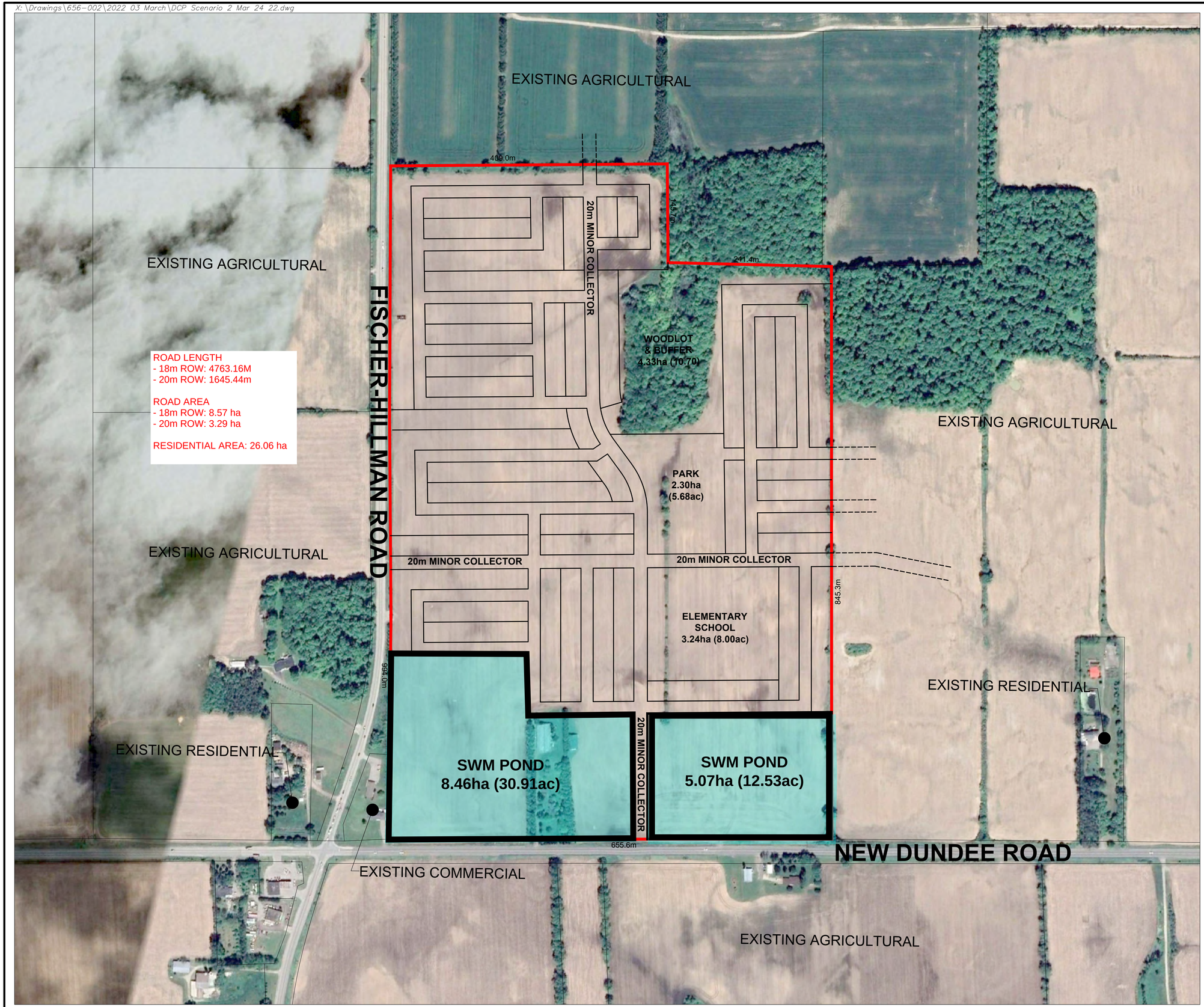
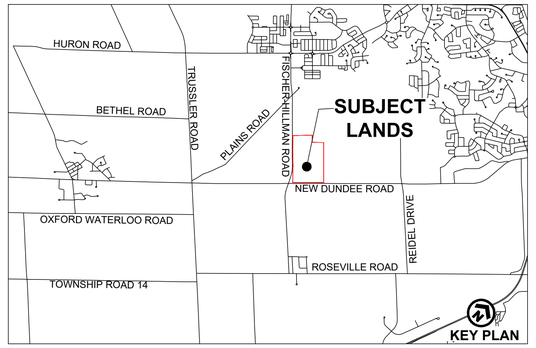




DEVELOPMENT CONCEPT PLAN
SCENARIO 2
2118 NEW DUNDEE ROAD

PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
TOWN OF NEW DUNDEE
REGIONAL MUNICIPALITY OF WATERLOO

Development Concept Plan Statistics

Subject Property: ±61.32ha (151.52ac)

Notes
-all Local R.O.W.: 18m
-majority of lot depths: 30m
-Woodlot & Buffer Limits are ***approximate only***

FOR DISCUSSION PURPOSES ONLY

SCALE 1:2500
(24 x 36)
MARCH 24, 2022

GSAI

ATTACHMENT B

Salt Loading Calculations

ATTACHMENT B-1
SCENARIO 1 - ROAD SALT LOADING IMPACT ASSESSMENT

Step 1: Estimation of Infiltration within area of proposed development footprint			
Sub Areas - Subject Property (Branthaven) Only	**Total Area Km^2**	**Infiltration m^3/yr**	Total Area = 61.32 ha **0.613** **km^2**
Pervious Area (i.e., landscaped and undeveloped areas)	0.216	174,623	Infiltration rate of 808 mm/yr (Matrix *et al.* , 2019)
SWM Pond Pervious Area (90% of facility size)	0.085	68,357	Infiltration rate of 808 mm/yr (Matrix *et al.* , 2019) - precipitation that falls directly on facility
Roadway Impervious Area	0.089	72,111	Road widths include sidewalks and boulevards - runoff directed to SWM facility
Rooftop Impervious Area (45% of total lot area)	0.135	123,825	Based on total annual precipitation of 916 mm/yr - runoff directed to SWM facility
Remaining Impervious Area (excluding roadways and rooftops)	0.088	0	Remaining Impervious areas across Subject Property
Total Area	**0.613**	**438,917**	Infiltration occurring via SWM facility (receiving runoff from roadways and rooftops) plus remaining pervious areas throughout property)

Notes:
1) Annual precipitation is 916 mm/yr as per 30-year normals (1981-2010) obtained from the Waterloo Wellington 'A' climate station (ID 6149387).
2) Assumed annual infiltration rate of 800 mm/yr to 850 mm/yr as reported in Matrix *et al* , 2019. The average infiltration rate of 808 mm/yr for the Cedar Creek Study Area is applied.

Step 2: Estimation of Road Network							
Road Salt Loading							
Road Type	**Road Length**	**Application Rate**				**Chloride Loading**	
	Total Study Area 2-ln-km (ha)	**Road Salt tonnes/2-ln-km**	**Chloride tonnes/2-ln-km**	**Total Chloride tonnes/yr**	**Diversion to SWM Pond %**	**Chloride to SWM Pond tonnes/yr**	**Chloride Infiltration via Residential tonnes/yr**
Road Network - Subject Property (Branthaven) Only							
Winter Maintained - Secondary - 18m wide	5.4	10	6	33	0.70	23	10
Winter Maintained - Secondary - 20m wide	1.6	10	6	10	0.70	7	3
Total	**7.01**			**42.5**		**29.7**	**12.7**

Notes:
1) Road salt application are rates based on application rates provided by the City of Kitchener for local roads. Average Rate from 2016-2020 based on data provided by the Region of Waterloo.
2) Chloride loading assumes a 30% infiltration / leaching factor; therefore, assume that 70% of salt applied flows into the storm sewer system and discharges to the SWM facility.
3) All roads assumed to be winter maintained.

Step 3: Chloride Loading From Background Sources (Assumed)		
Background Chloride Sources	**Chloride Concentration mg/L**	**Chloride Loading tonnes/yr**
Precipitation	2.5	1.10
Total		**1.10**

Step 4: Calculation of Groundwater Concentrations From SWM Pond Infiltration			
Groundwater Chloride Concentration			
Chloride Mass			
Background - Precipitation	1.10	tonnes/yr	
Chloride Loading to SWM Pond from Road Salt Application	29.75	tonnes/yr	
Chloride Loading to Groundwater from Road Salt Application	12.75	tonnes/yr	
Infiltration Volume			
Infiltration - Precipitation Falling Directly on SWM Pond	68,357	m^3/yr	Assumes infiltration rate matches the infiltration rate prescribed by the Cedar Creek Study
Infiltration - Precipitation Falling on Pervious Surfaces	174,623	m^3/yr	Assumes infiltration rate matches the infiltration rate prescribed by the Cedar Creek Study
Runoff From Roadway Impervious Surfaces - to SWM Pond	64,900	m^3/yr	Assumes 90% of precipitation falling on the impervious surfaces of the roadway is directed to Subject Property SWM facility
Rooftop precipitation directed to SWM pond or into groundwater system	111,442	m^3/yr	Assume 90% of precipitation falling onto rooftops is diverted directly to Subject Property SWM facility or is infiltrated
Chloride Concentration (with water from Residential Roofs)	**104.0**	**mg/L**	
COMPLIANCE WITH REASONABLE USE FOR CHLORIDE	**YES**		

Notes:
Ontario Drinking Water Standard (ODWS) for chloride is 250 mg/L
Reasonable Use Criteria for chloride is 127.5 mg/L

Reasonable Use Criteria Calculation (Downgradient Property Objective)
where, Cm = maximum concentration allowed at property boundary (not concentration at discharge source)
Cb = existing background concentration
Cr = ODWS for particular contaminant
x = constant that reduces contaminant to a concentration considered by MOE to have negligible effect on the use of water

Reasonable Use Calculation for Chloride

Cb =	5.0	mg/L
Cr =	250.0	mg/L
x =	0.5	
Cm =	127.5	mg/L

ATTACHMENT B-2
SCENARIO 2 - ROAD SALT LOADING IMPACT ASSESSMENT

Step 1: Estimation of Infiltration within area of proposed development footprint			
Sub Areas - Subject Property (Branthaven) Only	**Total Area Km^2**	**Infiltration m^3/yr**	
Pervious Area (i.e., landscaped and undeveloped areas)	0.171	138,351	Infiltration rate of 808 mm/yr (Matrix *et al.* , 2019)
SWM Pond Pervious Area (90% of facility size)	0.185	149,722	Infiltration rate of 808 mm/yr (Matrix *et al.* , 2019) - precipitation that falls directly on facility
Roadway Impervious Area	0.082	66,053	Road widths include sidewalks and boulevards - runoff directed to SWM facility
Rooftop Impervious Area (45% of total lot area)	0.095	86,809	Based on total annual precipitation of 916 mm/yr - runoff directed to SWM facility
Remaining Impervious Area (excluding roadways and rooftops)	0.080	0	Remaining Impervious areas across Subject Property
Total	**0.613**	**440,936**	Infiltration occurring via SWM facility (receiving runoff from roadways and rooftops) plus remaining pervious areas throughout Subject Property

Total Area = 61.32 ha
0.613 **km^2**

Sub Areas -Neighbouring Lands	**Total Area Km^2**	**Infiltration m^3/yr**	
Pervious Area (i.e., landscaped and undeveloped areas)	0.527	426,074	Infiltration rate of 808 mm/yr (Matrix *et al.* , 2019)
SWM Pond Area	0.000	0	
Roadway Impervious Area	0.227	183,555	Road widths include sidewalks and boulevards - runoff directed to Subject Property SWM facility
Rooftop Impervious Area (45% of total lot area)	0.263	241,236	Based on total annual precipitation of 916 mm/yr - runoff directed to Subject Property SWM facility
Impervious Area	0.171	0	Remaining impervious areas across the Neighbouring Lands
Total	**1.189**	**850,865**	

Total Area = 118.91 ha
1.189 **km^2**

Combined Infiltration of Subject Property and Neighbouring Lands **1,292,000** **m^3/yr**

Notes:
1) Annual precipitation is 916 mm/yr as per 30-year normals (1981-2010) obtained from the Waterloo Wellington 'A' climate station (ID 6149387).
2) Assumed annual infiltration rate of 800 mm/yr to 850 mm/yr as reported in Matrix *et al* , 2019. The average infiltration rate of 808 mm/yr for the Cedar Creek Study Area is applied.

Step 2: Estimation of Road Network
Road Salt Loading

Road Type	**Road Length**	**Application Rate**		**Chloride Loading**			
	Total Study Area 2-ln-km	**Road Salt tonnes/2-ln-km**	**Chloride tonnes/2-ln-km**	**Total Chloride tonnes/yr**	**Diversion to SWM Pond %**	**Chloride to SWM Pond tonnes/yr**	**Chloride Infiltration - Residential tonnes/yr**
Road Network - Subject Property (Branthaven) Only							
Winter Maintained - Secondary - 18m wide	4.8	10	6	29	0.70	20	9
Winter Maintained - Secondary - 20m wide	1.6	10	6	10	0.70	7	3
Road Network - Neighbouring Lands							
Winter Maintained - Secondary - 18m wide	13.2	10	6	80	0.70	56	24
Winter Maintained - Secondary - 20m wide	5.1	10	6	31	0.70	22	9
Total	**24.72**			**149.8**		**104.8**	**44.9**

Notes:
1) Road salt application are rates based on application rates provided by the City of Kitchener for local roads. Average Rate from 2016-2020 based on data provided by the Region of Waterloo.
2) Chloride loading assumes a 30% infiltration / leaching factor; therefore, assume that 70% of salt applied flows into the storm sewer system and discharges to the SWM facility.
3) All roads assumed to be winter maintained.

Step 3: Chloride Loading From Background Sources (Assumed)		
Background Chloride Sources	**Chloride Concentration mg/L**	**Chloride Loading tonnes/yr**
Precipitation	2.5	3.23
Total		**3.23**

ATTACHMENT B-2
SCENARIO 2 - ROAD SALT LOADING IMPACT ASSESSMENT

Step 4: Calculation of Groundwater Concentrations From SWM Pond Infiltration			
Groundwater Chloride Concentration			
Chloride Mass			
Background Chloride Loading - Precipitation	3.23	tonnes/yr	
Chloride Loading to SWM Pond from Road Salt Application	104.85	tonnes/yr	
Chloride Loading to Groundwater from Road Salt Application	44.93	tonnes/yr	
Infiltration Volume			
Infiltration - Precipitation Falling Directly on SWM Pond	149,722	m^3/yr	Assumes infiltration rate matches the infiltration rate prescribed by Matrix et al., 2019
Infiltration - Precipitation Falling on Pervious Surfaces	564,426	m^3/yr	Assumes infiltration rate matches the infiltration rate prescribed by Matrix et al., 2019
Runoff From Roadway Impervious Surfaces - to SWM Pond	224,647	m^3/yr	Assumes 90% of precipitation falling on the impervious area of the roadway is directed to SWM facility
Rooftop precipitation directed to SWM pond or into groundwater system	295,241	m^3/yr	Assume 90% of ppt falling onto rooftops is diverted directly to SWM facility or is infiltrated
Chloride Concentration in Groundwater	**124.0**	**mg/L**	
COMPLIANCE WITH REASONABLE USE FOR CHLORIDE	**YES**		

Notes:
Ontario Drinking Water Standard (ODWS) for chloride is 250 mg/L
Reasonable Use Criteria for chloride is 127.5 mg/L

Reasonable Use Criteria Calculation

where, Cm = maximum concentration allowed at property boundary (not concentration at discharge source)
Cb = existing background concentration
Cr = ODWS for particular contaminant
x = constant that reduces contaminant to a concentration considered by MECP to have negligible effect on the use of water

Reasonable Use Calculation for Chloride		
Cb =	5.0	mg/L
Cr =	250.0	mg/L
x =	0.5	
Cm =	127.5	mg/L

ATTACHMENT C

Schedule H of the MOS Agreement

Schedule 'H'

2163846 Ontario Limited (Branthaven Homes)

1. That the ROP maps as approved by the Province on December 22, 2010 be modified as follows:

a) That the Southwest Kitchener Policy Area be established, including the entirety of the 2163846 Ontario Limited (Branthaven Homes) lands, as shown on Schedule H-1 below, modified Maps 4 (see Appendix 'B'), 6g (see Appendix 'B') and 7 (see Appendix 'B'), and new Map 7a (see Appendix 'B'). The Southwest Kitchener Policy Area identifies lands to which policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23, as proposed to be modified in accordance with this Settlement, apply (see Appendix 'B').

b) That the Regional Recharge Area designation applicable to the lands subject to the Southwest Kitchener Policy Area be deleted as shown on Schedule H-1 below, and modified Maps 4 (see Appendix 'B') and 6g (see Appendix 'B').

c) The Protected Countryside designation shall not apply to any portion of the lands that are subject to the Southwest Kitchener Policy Area.

2. That the ROP policies as approved by the Province on December 22, 2010 be modified as follows:

a) Policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23 (see Appendix 'B') to be modified to provide that on lands in the Southwest Kitchener Policy Area, the final extent of the Regional Recharge Area and Protected Countryside designations and the location of the Countryside Line are to be determined at a later date. Until such time as the final determination of the extent of the Regional Recharge Area and Protected Countryside designations are made, the Countryside Line shall be deemed to be the outside edge of the Southwest Kitchener Policy Area, beyond which the Protected Countryside and Regional Recharge Area designations shall continue to apply. The final extent of the Protected Countryside and Regional Recharge Area designations will be made through implementation of the Southwest Kitchener Policy Area policies as part of the next municipal comprehensive review to be undertaken not later than 2019. As part of the implementation of the Southwest Kitchener Policy Area policies, the final location of the

Countryside Line will be established coincident with the resulting edge of the Protected Countryside.

b) Policy 2.B.1 to be modified (see Appendix 'B') to provide that any lands not currently designated Protected Countryside will be considered as developable for the purposes of infrastructure planning, including any infrastructure master plan updates undertaken by the Region in accordance with the provisions of Chapter 5.

3. The Region agrees that the following shall apply in respect of the implementation of the provisions of Policies 2.B.1, 6.B.1, 7.B.22 and 8.A.23 of the ROP, as modified in accordance with this Settlement, in respect of the 2164816 Ontario Inc. lands within the Southwest Kitchener Policy Area for which the final extent of the Countryside Line, Protected Countryside and Regional Recharge Area designations have not been determined:

a) The following criteria shall be used to determine whether the Regional Recharge Area designation shall apply to the lands;

(i) whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and

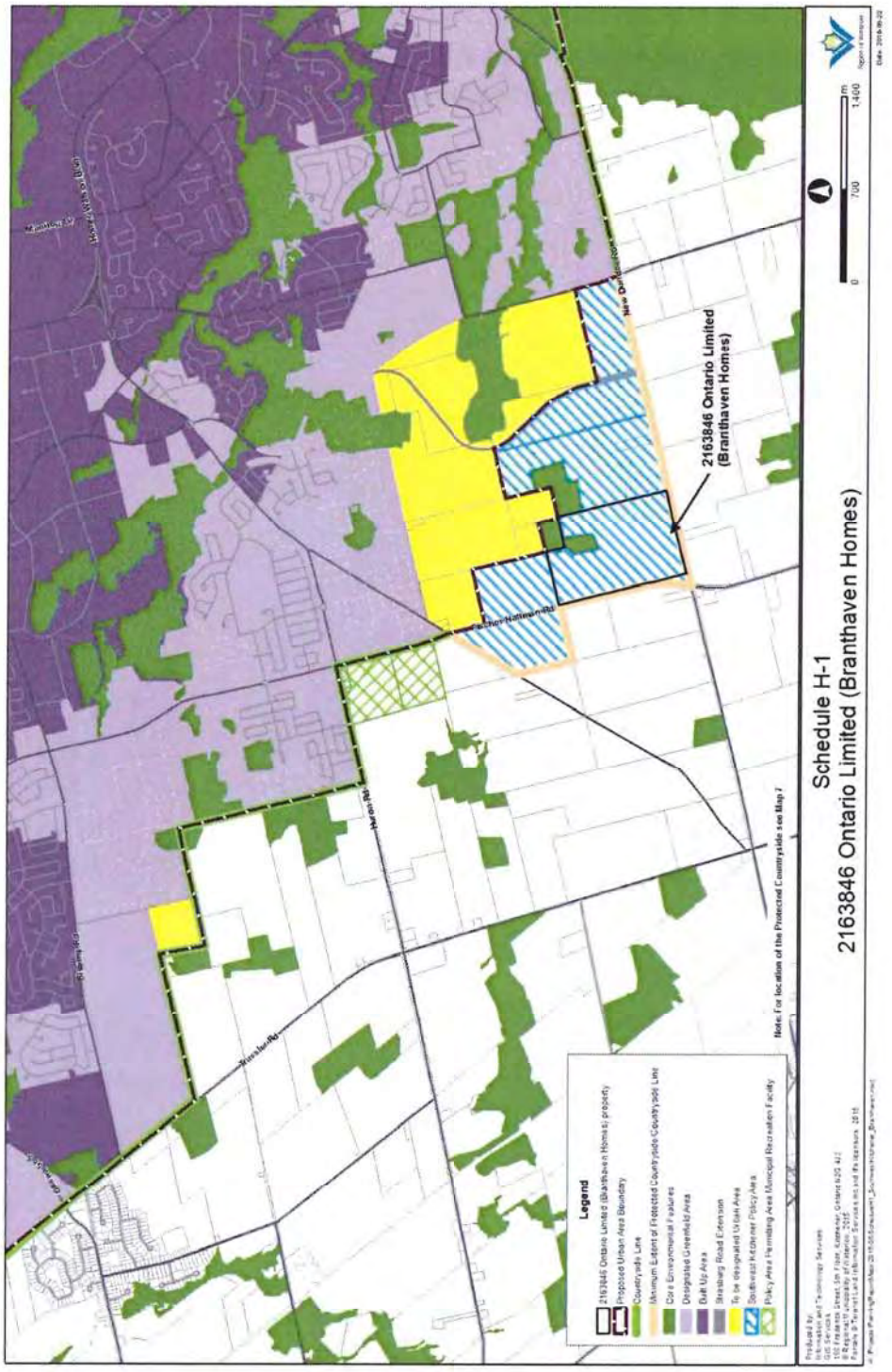
(ii) whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.

b) For those portions of the lands in respect of which the criteria in (a) above are satisfied, the Region will not propose the application of the Regional Recharge Area or the Protected Countryside designation to such lands, and the lands shall be included within the Countryside Line in the next municipal comprehensive review of the ROP.

c) The Region further agrees that in undertaking the assessment of whether the criteria in (a) above are met, any relevant hydrogeology field work and analysis undertaken by the Settling Parties prior to this settlement shall be used and shall not be considered to be outdated regardless of the delay between the time the work was undertaken and the decision. However, for greater certainty, this clause shall not preclude relevant work undertaken after these Minutes of Settlement by the Region or the Settling Parties from also being used in such assessment.

d) The Settling Parties agree that the criteria in (a) above are to only apply to those lands in

the Southwest Kitchener Policy Area in respect of which the final extent of the Countryside Line, Protected Countryside and the Regional Recharge Area have not been determined. These Minutes of Settlement do not govern decisions on the boundaries or the criteria to be applied to the Regional Recharge Area or Protected Countryside designations or the location of the Countryside Line in other parts of the Region.


Schedule H-1
2163846 Ontario Limited (Branthaven Homes)
2163846 Ontario Limited
(Branthaven Homes)
Legend
2163846 Ontario Limited (Branthaven Homes) property
Proposed Urban Area Boundary
Countryside Line
Minimum Extent of Protected Countryside/Countryside Line
Core Environmental Features
Designated Greenfield Area
Built Up Area
Strasburg Road Extension
To be designated Urban Area
Southwest Kitchener Policy Area
Policy Area Permitting Area Municipal Recreation Facility
Note: For location of the Protected Countryside see Map 7
Fischer-Hallman Rd
Strasburg Rd
New Dundee Rd
0
700
1,400
m

GLEN SCHNARR & ASSOCIATES INC.
URBAN & REGIONAL PLANNERS, LAND DEVELOPMENT CONSULTANTS

PARTNERS:
GLEN SCHNARR, MCIP, RPP
GLEN BROLL, MCIP, RPP
COLIN CHUNG, MCIP, RPP
JIM LEVAC, MCIP, RPP

July 26, 2022 GSAI File: 656-002

(Via Email)
Region of Waterloo
Community Planning Division
150 Fredrick Street
Kitchener, ON N2G 4J3

Attn: Brenna MacKinnon
Manager, Development Planning

Dear Brenna,

RE: Waterloo Regional Official Plan Review
2163846 Ontario Inc. (Branthaven Development)
2118 New Dundee Road, City of Kitchener, Region of Waterloo

Glen Schnarr & Associates Inc. (GSAI) are the planning consultants to 2163846 Ontario Inc. (the 'Owner') of the lands municipally known as 2118 New Dundee Road, in the City of Kitchener (the 'Subject Lands' or 'Site').

On behalf of the Owner and further to our previous correspondence dated September 13, 2019, March 25, 2022 and May 24, 2022, we are pleased to provide this Comment Letter in relation to the ongoing Waterloo Regional Official Plan Review ('ROPR') initiative.

GSAI has been participating in the Region's ongoing ROPR initiative. We understand that when complete, it will culminate in a comprehensive Regional Official Plan Amendment ('ROPA') that will modify policy permissions for lands across Waterloo, including the Subject Lands. We have reviewed the draft ROPA, released in June 2022. Based on the draft ROPA, we understand that the growth management strategy builds upon the recommended Preferred Growth scenario adopted by Regional Council on July 5, 2022. The Preferred Growth scenario permits modest urban expansion in specific locations, but does not include the Southwest Kitchener Policy Area ('SKPA') lands. We further understand that the draft ROPA has established a Countryside Line as well as delineated a Regional Recharge Area. We are concerned with the draft ROPA.

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In our opinion, Regional Council's decision to maintain a firm urban boundary in the vicinity of Kitchener to the year 2051 is not good planning. Specifically, SKPA lands are able to make better, higher use of existing land, infrastructure and resources. These lands would be a logical and seamless extension of the master planned Dundee North community that is immediately adjacent to SKPA lands. We are also concerned with the Region's determination of a Regional Recharge Area without providing stakeholders the opportunity to review the supporting technical analysis. As shown on the attached Aerial Context Map (Figure 1), the Regional Structure of the draft ROPA has identified a Regional Recharge Area as occupying a portion of the Subject Lands, which is part of a farm field and a woodlot.

We request that this Regional Recharge Area classification be removed on the Subject Lands. As background, the Subject Lands were considered for urban expansion as part of the previous ROPR initiative. This previous initiative culminated in a settlement with the Region, the Owner and surrounding landowners. In accordance with a Minutes of Settlement that was reached, the Owner was required to fulfill two (2) conditions in order for the Subject Lands to be considered as part of the current ROPR initiative. These conditions were:

'The following criteria shall be used to determine whether the Regional Recharge Area designation shall apply to the lands:

i) Whether a continuous aquitard separating the shallow and deep aquifers is present within the lands, resulting in no direct connection between the aquifers within the lands; and

ii) Whether pre-development rates and distribution of infiltration to the shallow aquifer can be adequately maintained.'

As indicated in our letter dated March 25, 2022 to the Region with expert technical analysis appended to the said letter, we feel that the above-noted conditions have been fulfilled. Given this, identification of the Subject Lands as part of a Regional Recharge Area is concerning and in our opinion, does not recognize or reflect the efforts undertaken to satisfy the Minutes of Settlement conditions.

We support a growth management strategy across Waterloo Region that conforms with the policies of the Growth Plan and that is consistent with the Provincial Land Needs Assessment Methodology. However, the proposed ROPA does not follow the Provincial Land Needs Assessment Methodology, and it is not in conformity with the Growth Plan for the Greater Golden Horseshoe.

We believe that inclusion of the Subject Lands and surrounding SKPA area lands is good planning as this will enable allocation of future growth through intensification that is supported by sufficient community services, infrastructure and amenities and new growth that can achieve compact, walkable and sustainable communities in the new urban expansion areas. We do not believe that the draft ROPA achieves a balancing of growth in appropriate locations.

Thank you for the opportunity to provide these comments. Our Client wishes to be informed of updates and future meetings. Please feel free to contact the undersigned if there are any questions.

Yours very truly,
GLEN SCHNARR & ASSOCIATES INC.

Colin Chung, MCIP, RPP
Managing Partner

Cc: Regional Clerk
The Chair and Members of Regional Council
Cushla Matthews, Region of Waterloo
Tim Donegani, City of Kitchener

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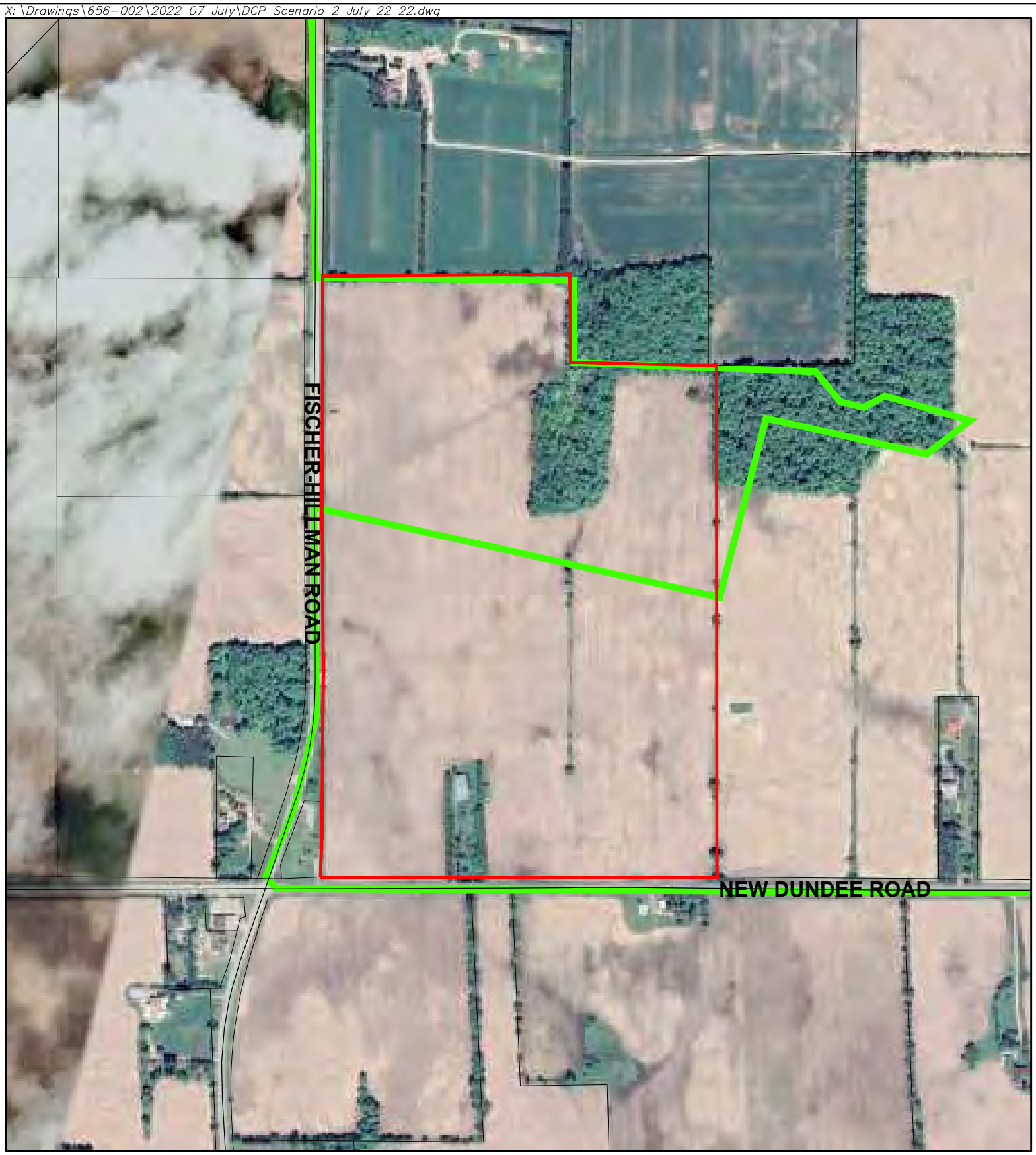

FIGURE 1

2118 NEW DUNDEE ROAD
PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
TOWN OF NEW DUNDEE
REGIONAL MUNICIPALITY OF WATERLOO

LEGEND

- Subject Lands
- Regional Recharge Area

Scale: N.T.S.
JULY 25, 2022

GSAI
Glen Schnarr & Associates Inc.

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Glen Schnarr & Associates Inc.

Appendix II / Region of Waterloo Draft Land Needs Assessment, April 2022

Region of Waterloo

Regional Official Plan Review

Land Needs Assessment

April 2022

Dillon Consulting Limited | Watson & Associates Economists Ltd.

Document Number: 3979259 Version: 1

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EXECUTIVE SUMMARY

Introduction

The Region of Waterloo is undertaking a review of its 2015 Regional Official Plan (ROP), a central guiding document that provides the framework for growth, development, and protection of built and natural heritage assets across the Region to 2031. The main purpose of the review is to bring the ROP into conformity with A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Growth Plan, 2019), which came into effect in May 2019 and was amended in August 2020. Among other matters, the Growth Plan, 2019 requires the Region and its Area Municipalities to plan for growth to 2051 in accordance with several new policies and targets to create a more compact, transit-supportive urban form.

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 2020 Provincial Policy Statement (PPS, 2020), and to conform with the Growth Plan, 2019.

This Report summarizes the preliminary results of the draft Regional Land Needs Assessment (LNA). The assessment is a key component of the ROP Review and determines the amount of urban land the Region requires to accommodate population and employment growth to 2051. The LNA has been prepared in accordance with the provincial Land Needs Assessment (LNA) Methodology for the Greater Golden Horseshoe (2020). The LNA Methodology outlines analytical components required to determine a municipality's land needs pursuant to policy 5.2.2.1. c) of the Growth Plan, 2019. Upper- and single-tier municipalities in the Greater Golden Horseshoe (GGH) are required to use the LNA Methodology in combination with the policies of the Growth Plan, 2019 to assess the quantity of land required to accommodate forecast growth.

The LNA is important because the Region needs to ensure there is enough urban land available to:

- Accommodate all segments of the housing market by age and income level;
- Avoid housing shortages;
- Accommodate a mix and range of business and employment opportunities; and
- Support the continued development of complete communities.

In accordance with Schedule 3 of the Growth Plan, 2019, the Region of Waterloo is required to plan for a minimum population of 923,000 and 470,000 jobs by 2051. The long-term growth population and employment forecast for the Region of Waterloo, as set out in the Growth Plan, 2019, has been comprehensively evaluated in supporting technical briefs prepared by the Consulting Team and Regional staff. Previous technical briefs prepared by the Consulting Team and Regional staff that support key assumptions in this LNA Report include:

- Region-Wide Long-Term Population and Housing Growth Analysis Technical Brief (released December 2020)
- Urban Structure Technical Brief (complete, released for municipal review September 2019)
- Employment Strategy Technical Brief (released August 2021)
- Intensification Strategy Technical Brief (released August 2021)
- Land Needs Assessment Report (this report)
- Municipal Comprehensive Review Document (to be completed).

In addition to the technical work prepared to date, a comprehensive consultation and community engagement program is also being undertaken to align input with key decision-making points in the process.

In 2021, the Growth Scenarios and Growth Scenario Evaluation Framework was presented to the public, key stakeholders, Area Municipalities and Council. Based on feedback received through the spring and summer of 2021. The results of the scenario evaluation, along with a recommended growth scenario, was presented to the Region's Committee of the Whole on November 9, 2021. Staff and the Committee received considerable feedback on the scenarios and evaluation, including a request to see additional, more ambitious scenarios, as well as a more comprehensive LNA work program for each scenario. Based on this feedback, staff and the Consulting Team presented their understanding of what was heard at the November 9 Committee of the Whole meeting and outlined the next steps in the ROP Review process at the ROP Steering Committee meeting on November 29 and then to Regional Council on December 15, 2021. At the December 15 meeting, Regional Council provided further clarity on expectations for the ROP Review project, emphasizing the importance in understanding the local implications of growth prior to selecting a preferred scenario. Specifically, Council asked that staff and the Consulting Team complete a full draft of the LNA Report prior to evaluating growth scenarios.

Land Needs Assessment Options

Based on Council direction, three LNA options have been prepared by the Consultant Team as summarized in this report including:

Option 1: Growth Plan Minimum – carried out in accordance with the minimum requirements of the Growth Plan, 2019 with respect to annual residential intensification and average greenfield density for designated greenfield areas (DGA). In accordance with the Growth Plan, 2019:

- the DGA minimum density target for the Region of Waterloo is 50 people and jobs combined per gross ha; and
- the minimum intensification target for the Region of Waterloo is 50% i.e., a minimum of 50% of all residential growth is to occur within the built-up area (BUA) annually between 2022 and 2051.

Option 2: Compact Development, Modest Community Area Expansion – Option 2 assumes an average DGA density target of 60 people and jobs per ha and an average residential intensification target of 60%.

Option 3: More Compact Development, No Urban Expansion of Community Areas – Option 3 assumes an average DGA density target of 66 people and jobs per ha and an average residential intensification target of 60%.

Community Area Land Needs Assessment

This report addresses urban land needs for Community Areas, which include delineated BUA and DGA, where most of the housing and population-related jobs required to accommodate forecast population are to be located, and Employment Areas, where most of the Region's industrial-type employment jobs are located. The result of the land needs assessment is a total quantum of land needed (or excess lands) at the upper- or single-tier municipal level. Refer to section 1.5, herein, for a definition of these aforementioned terms.

The Community Area LNA involves six components in accordance with the LNA Methodology. Provided below are the key components with key highlights.

Population Forecast (Component 1)

Component 1 includes a forecast of the population by age group, including permanent residents and non-permanent residents (NPR). Student population not included as either permanent or NPR population is also "layered" on top of the Census population.

Key highlights include the following:

- The Region's population is anticipated to grow faster than the Province as a whole. The Region's total population is forecast to grow to about 923,000 people, at an average annual population growth rate of 1.5% between 2016 and 2051.
- Comparatively, the population of the Province as a whole is forecast to increase at a rate of 1.1% between 2016 and 2046. Population growth will be primarily driven by the Region's labour force attraction across a diverse range of growing services-producing and goods-producing sectors, particularly sectors that are geared toward innovation and technology.
- While the Region's population 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.
- Over the 2016 to 2051 planning horizon, the 75+ age group is forecast to represent only 1% of total forecast net migration to the Region of Waterloo. This suggests that the strong population growth anticipated within the 75+ age group will still be achieved even if the long-term 2051 population forecast for the Region, as set out in the Growth Plan, 2019, is not fully realized as a result of lower net migration levels.

The results of the Region-wide population and total housing analysis is detailed in the Region of Waterloo Long-Term Population and Housing Growth Analysis Brief, December 2020.[1]

Housing Need (Component 2)

Housing need is derived from the population forecast by age group based on a headship rate analysis (household maintainers by population age group). Component 2 of the LNA also requires municipalities to forecast total housing needs by dwelling structure type based on forecast age-specific propensity rates. For the Region of Waterloo, housing propensity rates by structure type and tenure (i.e. ownership and rental housing) are addressed.

This approach uses current Census data, in this case 2016 Statistics Canada Census data, as a starting point to derive housing propensity rates by structure type to the Region of Waterloo population by age group. Using this data, historical and forward-looking patterns in housing propensity are examined for each option to determine forecast housing growth trends by structure type by population age group. Refer to Appendix B for additional details regarding the approach and results of the housing propensity analysis.

Key highlights of the Region-wide housing forecast:

- By 2031 the Region's Census housing base is forecast to reach approximately 268,100 total households.[2] The rate of housing growth is forecast to slow down moderately 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 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).
- 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.
- Housing choice for younger generations is critical to the sustained economic competitiveness of the Region. To ensure that economic growth is not constrained by future labour shortages, continued effort will be required by the Region and each of the Area Municipalities to attract and accommodate new working-age residents within a diverse range of urban housing options by structure type and tenure.
- Declining housing affordability combined with increasing demand driven by infrastructure investment, demographics and lifestyle choices represents key drivers of anticipated housing growth for medium- and high-density housing forms. Housing prices in the Region

[1] Region of Waterloo. Regional Official Plan Review. Long-Term Population and Housing Growth Analysis. December 2020. Dillon Consulting Limited. Watson & Associates Economists Ltd.

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

are rising considerably faster than household income levels. Between 2014 and 2022, average prices in the Region of Waterloo increased as follows:
    - Single detached units – 16.2% annually from $311,600 to $1,038,200;
    - Condominium units – 15.8% annually from $210,600 to $682,200; and
    - Townhouse units – 11.8% annually from $179,400 to $437,700.
- Over the past five-year Census period (2011 to 2016), average household incomes increased at an annual rate of 2.2%. As a result, housing affordability has steadily declined over the past decade across the Region, driving increased demand for more affordable forms of ownership housing and rental housing options. In addition, access and proximity to high-order transit (e.g. GO Transit, ION (the integrated public transportation network in Waterloo Region)) is an increasingly essential component of large-scale residential and non-residential intensification projects.

Presented below are the housing forecasts associated with Options 1 to 3.

OPTION 1 – GROWTH PLAN MINIMUM

As previously discussed, Option 1 is based on the following assumptions related to Community Areas for the Region of Waterloo:

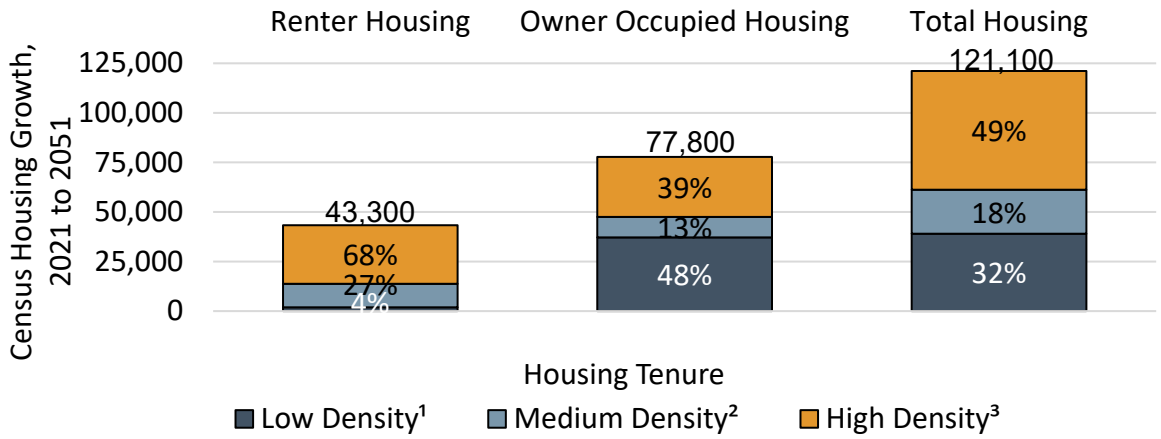
- 50% of annual housing growth from 2022 to 2051 allocated within the Region of Waterloo's BUA;[3] and
- Region-wide density target of 50 people and jobs per ha in the DGA.

Figure ES-1 summarizes the Option 1 housing growth forecast for the Region of Waterloo from 2021 to 2051 by structure type and tenure. Key observations include:

- Total forecast housing growth comprises 32% low-density, 18% medium-density and 49% high-density housing;
- Ownership housing is forecast to comprise 64% of total housing growth, while rental housing represents the remaining 36% of new households;
- Approximately 68% of the Region's rental housing demand is anticipated in the form of high-density housing and 32% in grade-related housing forms; and
- Approximately 39% of the Region's owner-occupied housing demand is anticipated in the form of high-density housing and 61% in grade-related housing forms.

[3] Excludes students not captured by the Census.

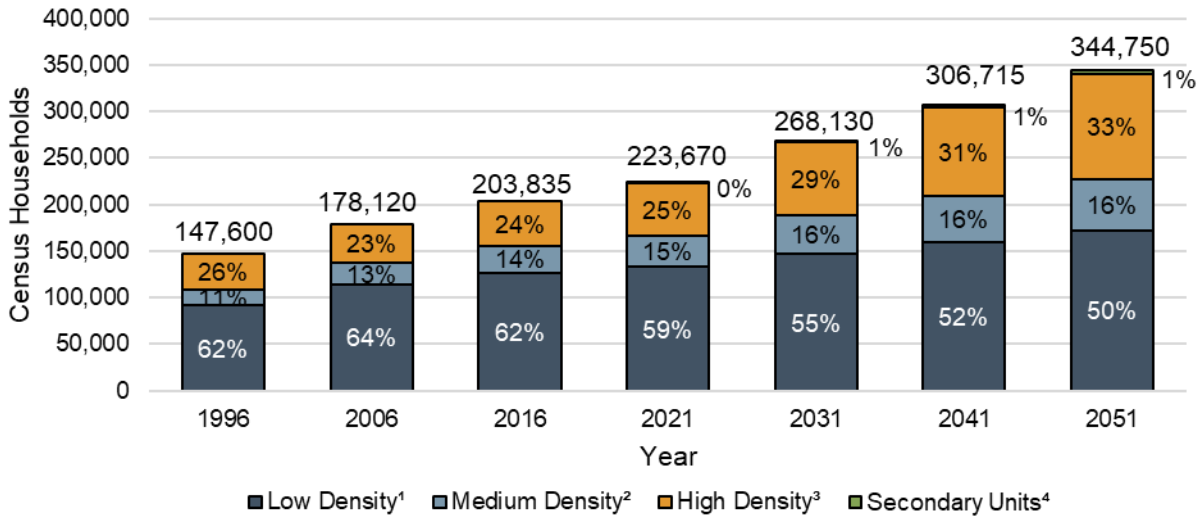
Figure ES-1: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Permanent Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Source: Watson & Associates Economists Ltd.

Figure ES-2 summarizes the Region's total housing forecast by structure type (including the Region's existing housing base) from 1996 to 2051. During the 1996 to 2021 period, the Region's housing base gradually shifted from low-density housing forms to medium- and high-density housing forms. Over the 2021 to 2051 forecast period, the Region's share of low-density housing is forecast to continue to decline from 59% to 50%. Conversely, the combined share of medium- and high-density housing forms and accessory units is forecast to increase from 41% to 50%.

Figure ES-2: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

OPTION 2 – COMPACT DEVELOPMENT, MODEST COMMUNITY AREA EXPANSION

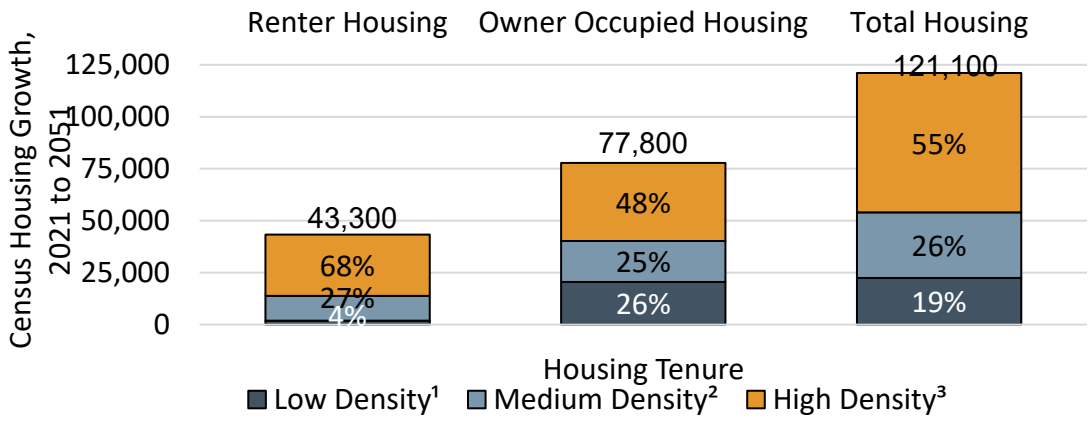
Option 2 is based on the following assumptions related to Community Areas for the Region of Waterloo:

- 60% of annual housing growth from 2022 to 2051 allocated within the Region of Waterloo's BUA; and
- Region-wide density target of 60 people and jobs per ha in the DGA.

Figure ES-3 summarizes the Option 2 housing forecast for the Region of Waterloo from 2021 to 2051 by structure type and tenure. Key observations include:

- Total forecast housing growth comprises 19% low-density, 26% medium-density and 55% high-density housing;
- Ownership housing is forecast to comprise 64% of total housing growth, while rental housing represents the remaining 36% of new households;
- Approximately 68% of the Region's rental housing demand is anticipated in the form of high-density housing and 32% in grade-related housing forms; and
- Approximately 48% of the Region's owner-occupied housing demand is anticipated in the form of high-density housing and 52% in grade-related housing forms.

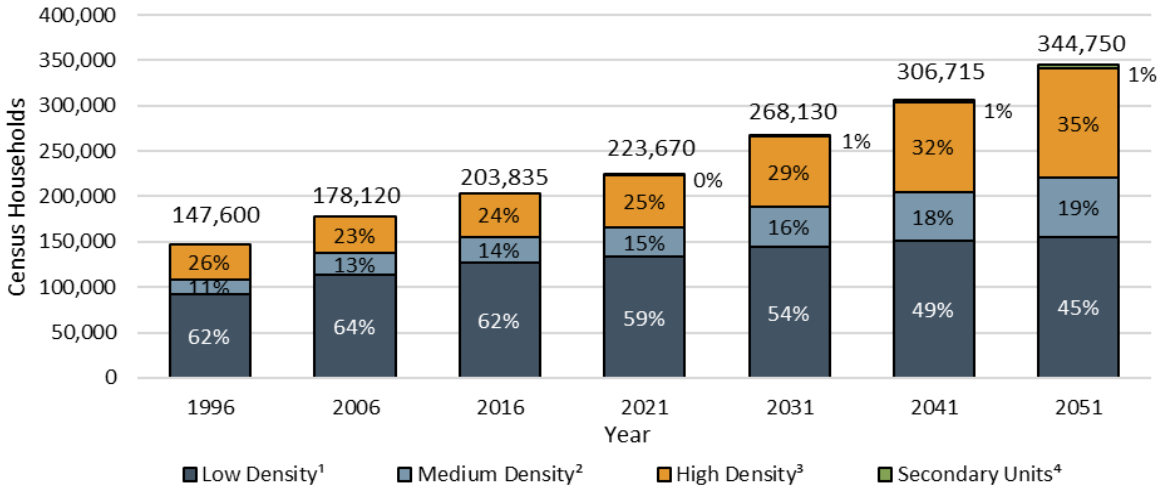
Figure ES-3: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Permanent Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Source: Watson & Associates Economists Ltd.

Figure ES-4 summarizes the Region's total housing forecast by structure type (including the Region's existing housing base) from 1996 to 2051 under Option 2. Under this option, the Region's share of low-density housing is forecast to decline from 59% to 45% over the 2021 to 2051 period. Conversely, the combined share of medium- and high-density housing forms is forecast to increase from 41% to 55%.

Figure ES-4: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.
[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.
Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

OPTION 3 – MORE COMPACT DEVELOPMENT, NO URBAN EXPANSION OF COMMUNITY AREAS

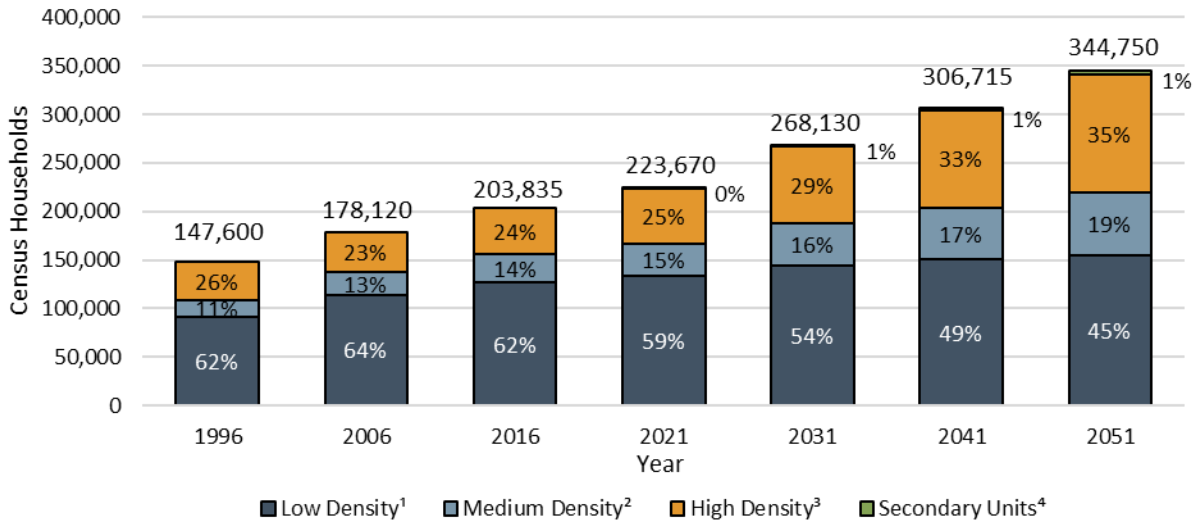
Option 3 is based on the following assumptions related to Community Areas for the Region of Waterloo:

- 60% of annual housing growth from 2022 to 2051 allocated within the Region of Waterloo BUA;[4] and
- Region-wide density target of 66 people and jobs per ha in the DGA.

The Region's total population forecast by housing structure type (including the Region's existing housing base) as of 2021 and 2051 is relatively consistent to Option 2, as illustrated in Figure ES-5.

Overall, Options 2 and 3 generate a relatively minor difference in the range of new housing options by structure type between 2021 and 2051. In addition to a slight increase in the share of new high-density housing from low-density housing, Option 3 is also achieved by moderately increasing the density of all new housing options by structure type within the DGA. Comparatively, Option 3 may provide less choice for certain traditional housing options within grade-related housing forms within the DGA, including larger lot single-detached units, bungalows, larger townhomes, etc., relative to Option 2 (refer to Appendix E-2). This issue may be particularly more pronounced in some of the Regions Township's.

Figure ES-5: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

[4] Excludes students not captured by the Census.

Allocation of Housing Needs (Component 3)

The allocation of housing needs involves distributing the total housing need by Planning Policy Area and Area Municipality by structure type. Housing allocations are based on a number of factors such as planned urban structure, anticipated real estate market demand, housing affordability, diversity of housing options, potential for intensification, and the availability of physical infrastructure to support growth, including water and wastewater services and public transit. The population and housing allocations by Area Municipality under each option were developed based on a detailed review of several local supply and demand factors, which are discussed in Chapter 3, section 3.6.

In summary, the population and employment growth allocations by Area Municipality for each option have regard to the broad planning principles of the Growth Plan, 2019, the PPS, 2020, the Region of Waterloo ROP and Area Municipal Official Plans. In addition, local supply and demand factors such as municipal servicing, available urban land supply and local real estate market outlook also represent key drivers with respect to the specific locations of future urban development. Key factors regarding the growth allocations by Area Municipality include:

1. **Existing and Planned Regional Urban Structure within Cities and Townships:**
    - Majority of urban development in the Region of Waterloo has been, and should continue to be, accommodated within the Cities under all development options. This recognizes that the City's provide the greatest opportunity to accommodate future urban development in locations within proximity to urban amenities, municipal services and large-scale existing/planned infrastructure investment.
    - The planned hierarchy and location of existing urban settlement areas in the Region of Waterloo represents a key guide to the orderly extension of future settlement area boundary expansions across the Region of Waterloo.
2. **Servicing Capacity and Growth Assimilation by Area Municipality:**
    - Municipal water and wastewater servicing capacity and potential long-term solutions to overcome constraints (where identified) has been determined based on discussions with Region of Waterloo staff.
    - How the allocations "fit" within the Region of Waterloo growth context is addressed in terms of historical/future annual growth population and employment growth rates. Significant changes to future growth rates and growth shares have been rationalized within the context of local supply and demand factors, which are anticipated to influence local growth trends.
    - The size/scale and density of potential urban development relative to existing conditions and urban/rural character of the urban settlements by Area Municipalities has been considered under each option.
3. **Potential Land Supply Opportunities for Urban Settlement Area Boundary Expansion:**
    - Potential developable land supply currently located outside of existing urban boundaries, but with municipal corporate boundaries by Area Municipality represents a

potential limitation for urban area expansion with the Region's Cities under a DGA-focused option (i.e. Option 1).

- Additional local land use constraints associated with regional infrastructure (i.e. provincial highways, Waterloo Region International Airport, other) may also impact land availability/suitability for Community Area and Employment Area expansion.

As further discussed in Chapter 5 of this report, each of the options will then be further evaluated based several key growth management themes prior to arriving at a preferred outcome.

While forecast population and housing growth rates vary significantly by geographic area, each of the Area Municipalities within the Region of Waterloo share a number of relatively common attributes with respect to long-term residential development and demographic trends.

- All Area Municipalities are anticipated to experience high levels of annual population and housing growth over the 2021 to 2051 forecast period relative to the past 20 years, except for the Township of Wellesley, in which long-term population growth is constrained by wastewater servicing capacity.
- As noted in the Region of Waterloo Long-Term Population and Housing Growth Analysis, higher levels of in-migration, largely from the GTHA, were observed for the Region of Waterloo as a whole, prior to the pandemic between 2015 and 2019. Strong population growth during this time period was largely driven by competitively priced housing options across the Region relative to the GTHA, combined with the gradual recovery of the local and regional economies since the 2008 global economic recession. During this time period, residential growth rates were stronger within the Region's Cities when compared to the Townships. Population growth related to NPR was also a key driver of housing demand, most notably in the City of Waterloo, and to a lesser extent, the City of Kitchener and the City of Cambridge.
- While COVID-19 has been disruptive to the local economy, particularly in retail, accommodation and food and tourism-based sectors, it has been a key driver of higher housing development activity experienced across the Region over the past two years in all Area Municipalities.
- Looking forward over the near term (i.e. the next one to five years), housing demand across all the Region's Area Municipalities is anticipated to remain strong relative to recent historical levels, fueled by continued outward growth pressure from the GTHA, expansion of Regional transportation infrastructure such as the ION, as well as continued local employment opportunities, particularly within the Region's growing knowledge-based economy. Continued housing appreciation and declining housing affordability, combined with a range of broader economic headwinds, including a gradual tightening of monetary policy (i.e. rising interest rates), persistently high inflation rates, rising household debt and increased geopolitical uncertainty are anticipated to moderate near-term housing demand (particularly ownership housing) relative to recent historical highs.
- Over the longer term (i.e. five to ten+ years), the average rate of annual housing development is anticipated to gradually slow across all Area Municipalities, relative to recent residential

development activity, driven by slower regional and provincial economic growth associated with an aging population and labour force.

- Future housing growth is anticipated to be balanced by a diverse range of housing forms; however, increasing market opportunities will exist for medium-density and high-density housing as the local and provincial population base continues to age and diversify.
- Average housing occupancy levels are forecast to decline over the long-term forecast period for all Area Municipalities. This demographic trend is largely associated with the aging of the Region's population base associated with Baby Boomers and Millennials.
- Forecast demographic trends across the Region suggest that the vast majority of future housing will continue to be in the urban areas as new families are attracted to the Region in search of affordably priced, ground-oriented housing options located within proximity to local urban amenities (i.e. schools, retail and personal services) and surrounding employment markets.
- Housing demands from the 55-74 age group (empty nesters/younger seniors) and the 75+ age group (older seniors) are also anticipated to drive the future need for urban housing across all Area Municipalities in the Region of Waterloo. As previously noted, housing demand associated with older seniors (75+), is largely anticipated from the existing population base as opposed to new residents.

Provided below is a summary of the population and housing allocations for Options 1 to 3 by Area Municipality.

OPTION 1 – GROWTH PLAN MINIMUM, ALLOCATION OF POPULATION AND HOUSING FORECAST BY LOCAL MUNICIPALITY AND PLANNING POLICY AREA

- The share of forecast population and housing growth across the Region is anticipated to follow a similar growth trend between the Cities and Townships relative to the 2001 to 2016 historical period. Between 2021 and 2051, 82% of the Region's population has been allocated to the Cities, while the remaining 18% has been allocated to the Townships.
- Driven by available greenfield supply to accommodate grade-related housing options, the City of Cambridge is anticipated to accommodate the largest share of population growth over the 2021 to 2051 forecast period with 40% of Region-wide growth, up from 17% between 2006 and 2021.
- The City of Kitchener is forecast to accommodate 32% of Region-wide population growth from 2021 to 2051, followed by the City of Waterloo (10%) and the Township of Woolwich (10%), the Township of Wilmot (4%), the Township of North Dumfries (2%) and the Township of Wellesley (1%).
- Housing intensification is largely concentrated in the Cities, accounting for approximately 93% of all housing growth allocated to the BUA between 2021 and 2051.

OPTION 2 – COMPACT DEVELOPMENT, MODEST COMMUNITY AREA EXPANSION, ALLOCATION OF POPULATION AND HOUSING FORECAST BY LOCAL MUNICIPALITY AND PLANNING POLICY AREA

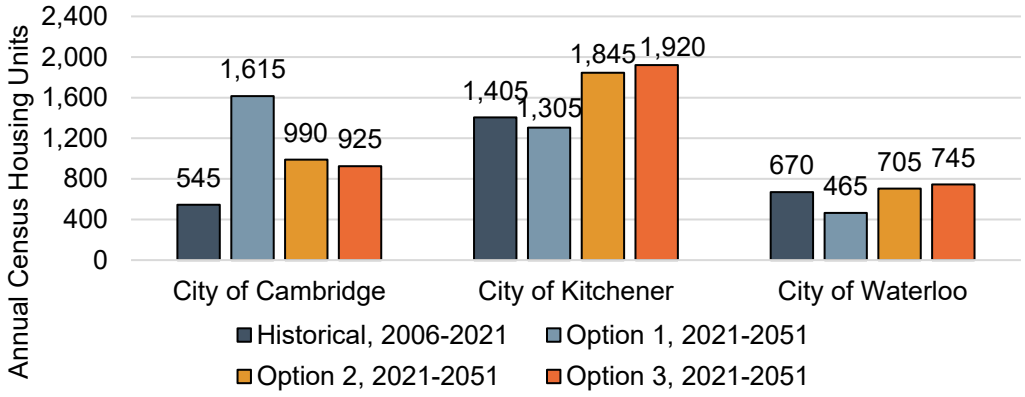
- Given the stronger residential intensification focus of Option 2, a greater share of forecast population and housing growth has been allocated to the Cities relative to the Townships under this option. Under Option 2, 87% of the Region's population has been allocated to the Cities, while the remaining 13% has been allocated to the Townships.
- The City of Kitchener is anticipated to accommodate the largest share of population growth over the 2021 to 2051 forecast period with 46% of Region-wide growth. This is followed by the City of Cambridge (24%), the City of Waterloo (17%), the Township of Woolwich (7%), the Township of North Dumfries (3%), the Township of Wilmot (2%), and the Township of Wellesley (1%).
- Given the increased housing intensification focus of Option 2, a greater share of forecast housing intensification between 2021 and 2051 (95%) has been allocated to the Cities.

OPTION 3 – MORE COMPACT DEVELOPMENT, NO URBAN EXPANSION OF COMMUNITY AREAS, ALLOCATION OF POPULATION AND HOUSING FORECAST BY LOCAL MUNICIPALITY AND PLANNING POLICY AREA

- Relative to Option 2, the overall difference in the share of population and housing allocated between the Cities and Townships under Option 3 is relatively minor.
- Under Option 3, the higher average DGA density target required to limit settlement area boundary expansions allows for additional greenfield development to be allocated to the City of Kitchener and the City of Waterloo from the City of Cambridge.
- Relatively minor adjustments to the population and housing allocations have also been made within the Townships as illustrated below.

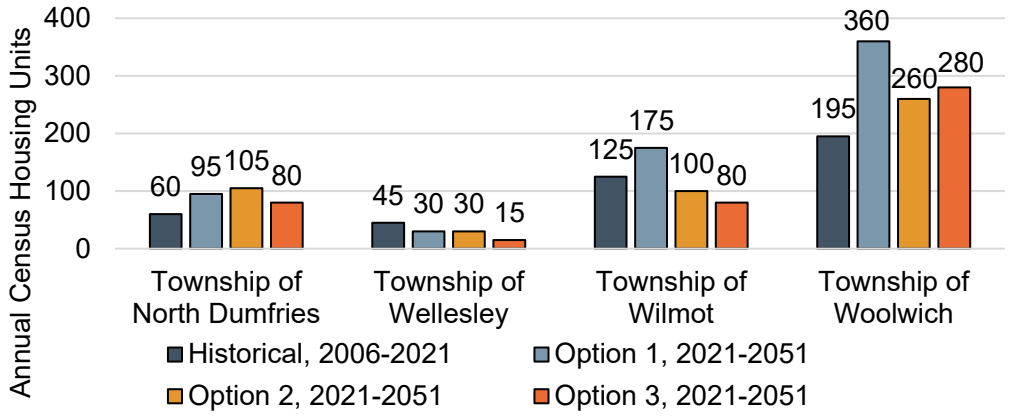
Figures ES-6 to ES-12 graphically illustrate Options 1 to 3 in terms of total annual housing growth and percent residential intensification from 2021 to 2051. Recent annual housing growth trends from 2006 to 2021 are also provided for historical context.

Figure ES-6: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



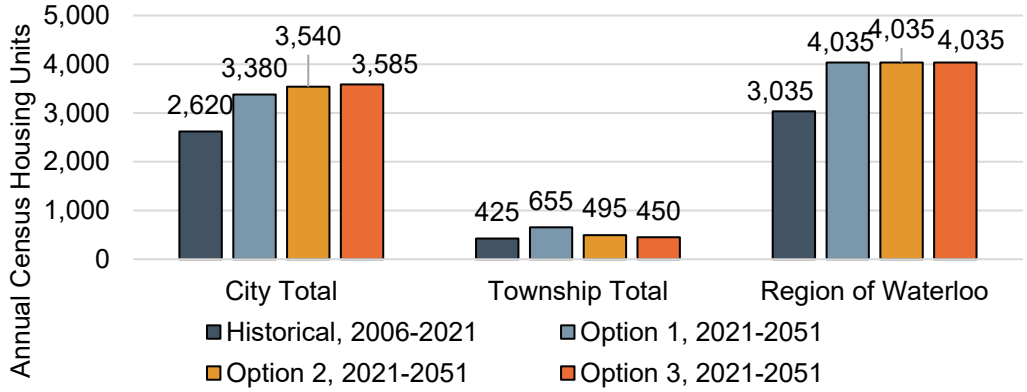
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure ES-7: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



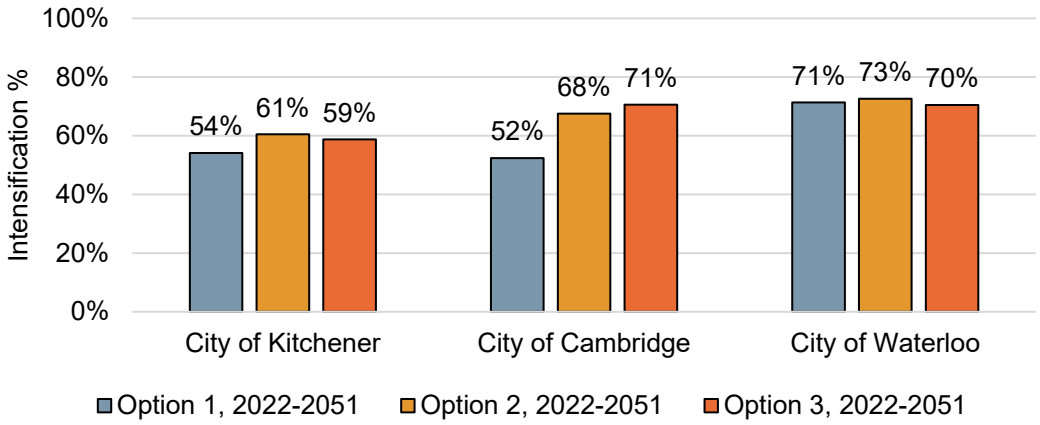
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure ES-8: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



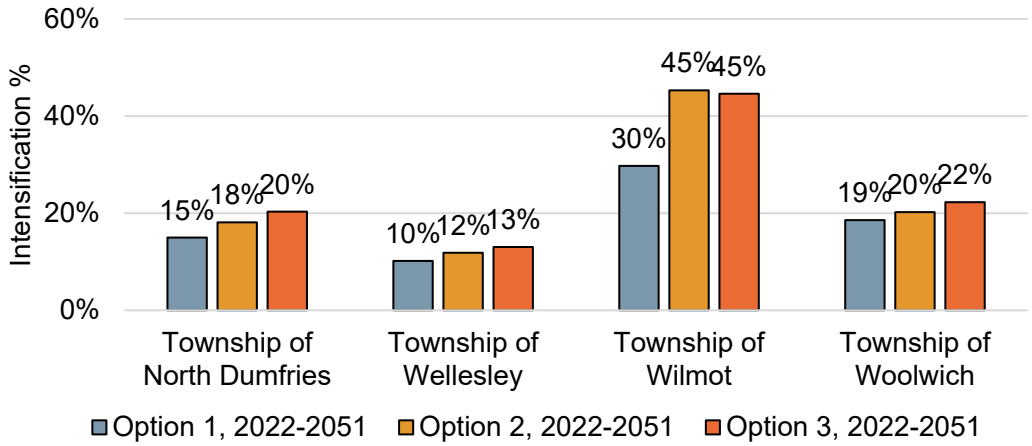
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure ES-9: Region of Waterloo, Options 1 to 3, Housing Intensification Growth by Area Municipality, 2022 to 2051



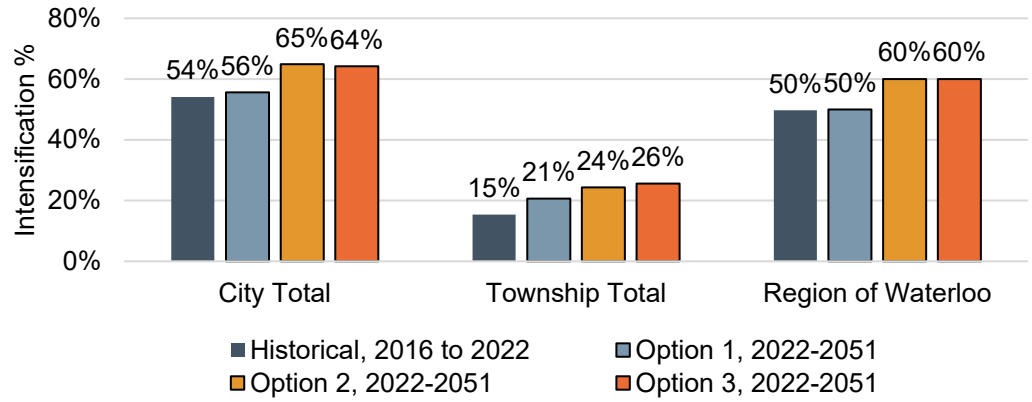
Source: Options 1 to 3 growth by Watson & Associates Economists Ltd.

Figure ES-10: Region of Waterloo, Options 1 to 3, Housing Intensification Growth by Area Municipality, 2022 to 2051



Source: Options 1 to 3 growth by Watson & Associates Economists Ltd.

Figure ES-11: Region of Waterloo, Options 1 to 3, Intensification Growth by Area Municipality, 2022 to 2051



Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data to 2019 and Watson & Associates Economists Ltd. from 2019 to 2022. Options 1 to 3 growth by Watson & Associates Economists Ltd.

Housing Supply Potential by Planning Policy Areas (Component 4)

Housing supply potential by Planning Policy Area involves estimating the potential housing supply that could accommodate future housing needs through intensification in the delineated BUA, DGA, and rural areas.

<u>Waterloo Region BUA Housing Supply Potential</u>

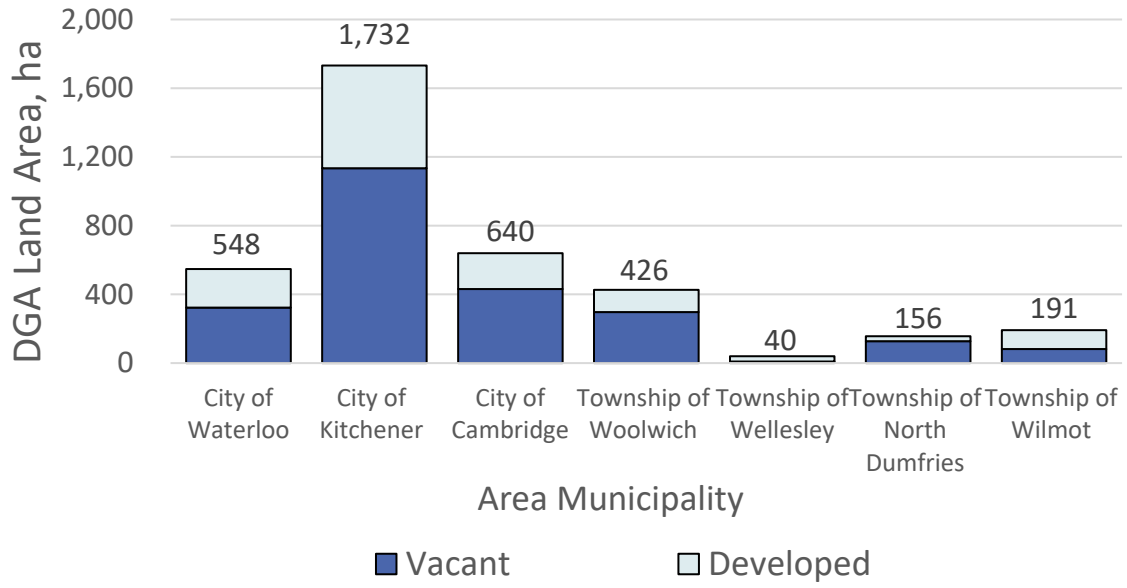
- Across the BUA, there is significant potential physical capacity for residential growth, for a total of 156,940 new housing units. The majority of potential new housing supply is in the form of high-density housing units (approximately 82% or 128,650 housing units).
- The Region of Waterloo Housing Intensification Technical Brief identified supply potential to accommodate an additional 316,000 people and jobs (or 173,000 people and 143,000 jobs) within the Region's BUA.

Waterloo Region DGA Housing Supply Potential

- The Region has a total DGA land supply of 3,730 gross ha. Approximately one-third of the Region's DGA lands are developed (36%) as of mid-2019, while the remaining 64% of DGA lands are vacant.
- The City of Kitchener has the largest land supply of vacant DGA lands within the Region of Waterloo totaling approximately 1,134 gross ha.
- The City of Cambridge has approximately 431 gross ha of vacant DGA lands, representing less than a quarter (431/2,519 = 17%) of the Region's vacant DGA land supply, largely located within the west end of the City.
- The Township of Woolwich has approximately 297 gross ha of vacant DGA lands, which are primarily concentrated within the urban settlement areas of Breslau and Elmira.
- The Township of North Dumfries has approximately 127 gross ha of vacant DGA lands, which are concentrated within the urban settlement area of Ayr. There is a small portion of lands (approximately 30 ha) in a special policy area (Special Policy Area 2.5.2 (b)) near the City of Cambridge that can accommodate modest growth (population of up to 1,400).
- The City of Waterloo has approximately 323 gross ha of vacant DGA lands, which are primarily concentrated in the City's northwest area.
- The Township of Wellesley has approximately 9 gross ha of vacant DGA lands.
- The Township of Wilmot has approximately 82 ha of vacant DGA land.

Provided below is a summary of the DGA land supply by status and Area Municipality.

Figure ES-12: Region of Waterloo, DGA Land Supply by Area (ha) Municipality, as of 2019



Source: Watson & Associates Economists Ltd. based on GIS data and additional information provided by the Region of Waterloo.

Community Area Jobs (Component 5)

Component 5 of the provincial LNA Methodology requires an assessment of the number of jobs to be accommodated in the Community Area by planning policy area (BUA and DGA) over the planning horizon. The Community Area employment component in the DGA is used as part of the DGA people and jobs density calculation.

As further discussed in Component 6, herein, the Region's Community Areas are anticipated to accommodate 102,300 jobs over the 2019 to 2051 period, approximately 40% of the Region's employment growth over that period. The Community Area employment is anticipated to comprise 30% Major Office Employment (MOE) and 70% Population-related Employment (PRE).

MOE in the Community Area is anticipated to be primarily accommodated in the BUA (approximately 89%) within the Cities of Kitchener, Waterloo and Cambridge where there is already an established MOE base to build upon, as well as transit opportunities. Regardless of the option, the DGA is anticipated to accommodate 3,400 MOE jobs over the forecast period, primarily within the DGA of Kitchener, Waterloo, and to a lesser extent Cambridge.

It is important to recognize that a large portion of PRE includes work at home employment. Over the forecast period, the Region is anticipated to add 1 work at home employment job for every 30 residents, or approximately 30% of the PRE over the 2019 to 2051 forecast period. While work at home employment does not consume urban land, it contributes towards the people and jobs density in the DGA.

The DGA is anticipated to require 1 PRE job per 7 to 8 residents depending on the option. PRE growth is largely driven by population growth, as well as the function of the PRE base in each Area Municipality. PRE jobs in the Cities play a regional role in serving the Region's population base. Figure ES-13 provides a summary of the DGA Community Area employment growth forecast under each option.

Figure ES-13: DGA Community Area Employment Growth, 2019 to 2051 by Option

Municipality	Option 1	Option 2	Option 3
Cambridge	12,800	6,300	5,400
Kitchener	8,500	10,800	11,600
Waterloo	3,100	5,200	5,700
North Dumfries	1,000	1,100	1,100
Wellesley	100	100	100
Wilmot	1,400	600	600
Woolwich	2,800	2,000	1,800
Total	**29,700**	**26,100**	**26,300**

Source: Watson & Associates Economists Ltd.

Need for Additional Land (Component 6)

The final component of the Community Area LNA involves converting forecast housing and Community Area job requirements into an amount of additional land needed to accommodate forecast population and employment growth. For the purposes of this report, a 2019 base year has been used in accordance with available housing data provided by the Region of Waterloo.

The following provides a discussion of the land need requirements by option. For each option the following was considered:

- Capacity of DGA and lands available for expansion (i.e., lands not located within the Protected Countryside) within the municipal boundaries;
- Historical and anticipated density trends; and
- Variation of the density target by Area Municipality to reflect local opportunities.

Refer to Appendix E for a map of the Urban Settlement Areas and the Countryside Line as well as a table of the estimated land area within the Urban Settlement Areas.

It is noted that an additional option that considers an alternative residential intensification target and DGA density target lower than the Growth Plan, 2019 minimum requirements is not considered appropriate for the following reasons:

1. The Region of Waterloo is currently achieving an average Community Area DGA density of 54 people/jobs per ha, which is higher than the Growth Plan, 2019 minimum of 50 people/jobs per ha. This average DGA density target has been achieved on developed DGA lands through a housing stock comprised of 96% grade-related households (refer to subsection 3.4.2); and
2. Since 2006, the Region of Waterloo has achieved an annual residential intensification rate of close to 50% with an increasing share of housing in the BUA accommodated through high-density housing forms.

As previously addressed, a Region-wide LNA was completed during the fall of 2021 and presented to the ROP Steering Committee meeting on November 29. The results of the Region-wide LNA and evaluation was further discussed with Region of Waterloo Council on December 15, 2021, which included six alternative LNA scenarios. Two of the six Region-wide LNA scenarios previous presented to the ROP Steering Committee and discussed with Region of Waterloo Council explored higher residential intensification and DGA density targets relative to current Options 1, 2 and 3 as follows:

- **Former Scenario 4** - 65% residential intensification and 65 people and jobs per ha – resulting in 610 ha of excess Community Area DGA lands by 2051; and
- **Former Scenario 5** - 70% residential intensification and 70 people and jobs per ha – resulting in 1,044 ha of excess Community Area DGA lands by 2051

Alternative LNA options which generate excess Community Area DGA lands by 2051 are not recommended for further assessment by the Region of Waterloo for the following reasons:

1. Former Scenario 4 and 5 would potentially impede the Region's ability to achieve its minimum Growth Plan population and employment allocation by 2051 by redirecting a portion of grade-related housing demand away from the Region of Waterloo to neighbouring municipalities within the surrounding market area;
2. Former Scenario 4 and 5 do not generate sufficient grade-related housing options to accommodate forecast housing market demand over the long-term planning horizon across all population age groups and income levels; and
3. Shifting the share of future housing towards high-density forms and away from low and medium-density housing options to the levels required under former Scenarios 4 and 5 is not anticipated to provide a viable long-term solution to housing affordability within the Region of Waterloo for two primary reasons. 1) Former Scenarios 4 and 5 are anticipated to constrain future demand for grade-related housing across the Region of Waterloo. 2) Larger apartments required under former scenarios 4 and 5 to accommodate demand associated with families would not necessarily represent more cost-effective housing options for existing and future residents when compared to grade-related alternatives, particularly medium-density housing forms.

Below is the LNA summary for Options 1, 2 and 3.

OPTION 1: GROWTH PLAN MINIMUM – 50% INTENSIFICATION AND 50 PEOPLE AND JOBS/HA

Under Option 1, 299,000 people and jobs have been allocated to DGA lands by 2051. In accordance with the Region's supply of vacant DGA lands, 191,400 people and jobs can be accommodated on Community Area DGA lands at an average of 50 people and jobs per ha; however, approximately 107,600 people and jobs cannot be accommodated on existing DGA lands. Accordingly, an urban boundary expansion is required for all Area Municipalities except the City of Waterloo, as summarized in Figure ES-14. Under Option 1, the Region would require urban settlement expansions totalling 2,208 ha to accommodate DGA urban land requirements. The additional urban land needs identified under Option 1 would require an adjustment of the Countryside Line to include all lands that are not identified as Protected Countryside in the City of Kitchener and the City of Cambridge.

This option assumes the Growth Plan, 2019 minimum of 50 people and jobs/ha, which is below what the Region has been achieving historically and is anticipated to achieve through active residential plans. In order to achieve an average density of 50 people and jobs over the entire DGA, the Region would require an average density of 49 people and jobs/ha on vacant lands over the 2019 to 2051 period.

Table ES-14: Option 1 – Growth Plan Minimum, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	99,800	51	1,950	640	(1,310)
Kitchener	105,800	55	1,924	1,732	(192)
Waterloo	28,500	52	549	549	0
North Dumfries	9,300	44	211	156	(55)
Wellesley	3,400	43	79	40	(38)
Wilmot	16,400	42	389	191	(197)
Woolwich	35,800	43	842	426	(416)
Total	299,000	50	5,944	3,735	(2,208)

Source: Watson & Associates Economists Ltd.

OPTION 2: COMPACT DEVELOPMENT, MODEST COMMUNITY AREA EXPANSION – 60% INTENSIFICATION AND 60 PEOPLE AND JOBS/HA

This option assumes more compact Community Area development when compared to Option 1. Under Option 2, 248,400 people and jobs have been allocated to DGA lands as of 2051. In accordance with the Region's supply of vacant DGA lands, 228,300 people and jobs can be accommodated on Community Area DGA lands an average of 60 people and jobs per ha, however, approximately 20,100 people and jobs cannot be accommodated on existing DGA lands. Under this option, the City of Cambridge, the Township of North Dumfries, the Township of Wellesley and the Township of Woolwich would require settlement area boundary expansions to accommodate this identified shortfall.

As summarized in Figure ES-15, the Region would require settlement area boundary expansions totalling 376 ha to accommodate DGA Community Area land requirements in Cambridge, North Dumfries, Woolwich and Wellesley. The land requirements in this option would not require an adjustment to the Countryside Line. This option anticipates a more compact DGA and requires an increase to average DGA densities relative to current DGA Community Areas density, especially for the Cities. Further, under this option a greater share of population and housing growth is directed to the BUA (60%) to make more efficient use of urban land and infrastructure investment as well as to support transit viability.

This option assumes a higher DGA density than the Growth Plan, 2019 minimum of 50 people and jobs/ha. The average DGA density under this option is also higher than what the Region has been

achieving historically and is anticipated to achieve through active plans. In order to achieve an average density of people and jobs over the entire DGA, the Region would require an average density of 63 people and jobs/ha on vacant lands over the 2019 to 2051 period, as summarized below.

Table ES-15: Option 2 – Compact Development, Modest Community Area Expansion, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	50,300	64	786	640	(146)
Kitchener	114,100	66	1,732	1,732	0
Waterloo	33,800	62	548	548	0
North Dumfries	9,800	53	185	156	(29)
Wellesley	3,400	52	65	40	(25)
Wilmot	9,800	51	191	191	0
Woolwich	27,200	45	603	426	(176)
Total	248,400	60	4,110	3,734	(376)

Source: Watson & Associates Economists Ltd.

OPTION 3 – MORE COMPACT DEVELOPMENT, NO URBAN EXPANSION OF COMMUNITY AREAS – 60% INTENSIFICATION AND 66 PEOPLE AND JOBS/HA

Under this option, the Area Municipalities are assumed to build out their entire DGA land supply; however, no urban boundary expansion has been identified. For the Area Municipalities with an identified Community Area shortfall in Option 2 an increase to their average DGA density has been assumed, thus eliminating their need for a settlement area boundary expansion. Within the DGA, this option assumes slightly more housing growth is allocated to the Cities largely due to the increased supply potential of the existing DGA land area assuming slightly higher average DGA densities. Under Option 3, the Region can accommodate 247,000 people and jobs on designated DGA lands.

This option assumes a higher DGA density than the Growth Plan, 2019 minimum of 50 people and jobs/ha. The average DGA density under this option is also higher than what the Region has been achieving historically and what is anticipated to be achieved through active plans. In order to achieve an average density of 66 people and jobs over the entire DGA, the Region would require an average density of 73 people and jobs/ha on vacant lands.

Table ES-16: Option 3 – More Compact Development, No Urban Expansion of Community Areas, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	44,300	69	640	640	0
Kitchener	120,100	69	1,732	1,732	0
Waterloo	36,500	67	548	548	0
North Dumfries	7,800	50	156	156	0
Wellesley	2,000	50	40	40	0
Wilmot	8,800	46	191	191	0
Woolwich	27,600	65	426	426	0
Total	247,100	66	3,734	3,734	0

Source: Watson & Associates Economists Ltd.

Table E-17 summarizes additional Community Area urban lands required through settlement boundary expansion under each option:

- Option 1 – Growth Plan Minimum:
  - **2,208 ha;**
- Option 2 – Compact Development, Modest Community Area Expansion:
  - **376 ha**; and
- Option 3 – More Compact Development, No Urban Expansion of Community Areas:
  - **No Community Area expansion required.**

Table E-17: Comparison of Community Area Land Needs Requirements by Option, ha

Area Municipality	Option 1	Option 2	Option 3
Cambridge	(1,310)	(146)	0
Kitchener	(192)	0	0
Waterloo	0	0	0
North Dumfries	(55)	(29)	0
Wellesley	(38)	(25)	0
Wilmot	(197)	0	0
Woolwich	(416)	(176)	0
Total	(2,208)	(376)	0

Source: Watson & Associates Economists Ltd.

Employment Area Land Needs Assessment

An Employment Area Land Needs Assessment (LNA) is provided in this Report for the Region of Waterloo based on the components of the provincial LNA methodology (Employment Area Components 1 through 4), which are referenced herein. The results of the Employment Area LNA build on the Region of Waterloo Employment Lands Technical Brief, July 19, 2021.

In total, two Employment Area options have been prepared as part the Region's LNA. These two options generate the same Employment Area land need for the Region as a whole. However, the two Employment Area options result in varying employment lands employment allocations by Area Municipality, subject to anticipated market demand and total land available for urban boundary expansion by Area municipality, including both Community Areas and Employment Areas under Options 1 and 2. Community Area Option 3 is not anticipated to result in a change to the Employment Area allocations. As such, only two options are presented for Employment Areas

Within each option, a range of Employment Area land need has been determined based on a varying Region-wide Employment Area intensification target ranging from 15% to 25%. These ranges within each Employment Area option are reflected as intensification scenarios, which have been assumed based on stakeholder feedback provided in response to the results of the Employment Strategy Technical Brief. It is noted that potential opportunities for higher Employment Area intensification (15% versus 25%) reduce the long-term need for urban Employment Area expansion by approximately 30%.

EMPLOYMENT FORECAST

In accordance with Schedule 3 of the Growth Plan, 2019, the Region of Waterloo's employment base is forecast to reach 470,000 jobs by 2051. This represents an increase of approximately 178,700 jobs

between 2019 and 2051, representing an average annual growth rate of 1.5% during this period, based on the current (2019) employment estimate for the Region of 292,300. For the purposes of this study, a 2019 base year has been used in accordance with available employment data provided by the Region of Waterloo.

The largest incremental increase in employment is anticipated over the 2021 to 2036 period with growth moderating post-2036. PRE growth is forecast to comprise over half (47%) the Region-wide employment growth from 2019 to 2051, followed by ELE (28%) and MOE (24%), while Rural employment growth is expected to be relatively limited (1%). The following provides a summary of employment growth by land-use category.

Population-Related Employment

PRE generally supports the local population base by providing convenient locations for businesses to serve local residents. Typically, as the population grows, the demand for this employment also increases to serve the needs of the Region. PRE also captures work from home employment.

PRE is anticipated to represent the largest share (47%) of employment growth within the Region over the forecast period (refer to Section 3.0 of the Region of Waterloo Employment Lands Technical Brief).[5]

Major Office Employment

MOE jobs are anticipated to experience steady growth over the long-term within the Region of Waterloo, primarily driven by growth in "knowledge-based" sectors, as discussed in Section 3.0 of the Region of Waterloo Employment Lands Technical Brief.

Employment Lands Employment

Over the forecast period, ELE jobs are expected to account for 28% of total employment growth (50,500 jobs) over the 2019 to 2051 period, reflecting growth largely in industrial-based sectors. Forecast growth in ELE is expected to be driven largely by continued development in several export-based industry clusters, particularly in the Region's growing knowledge-based sectors, as discussed in subsection 6.2 of the Region of Waterloo Employment Lands Technical Brief, including automotive, aerospace and defense, construction products and services, and transportation and logistics. Over the 2019 to 2051 forecast period, the share of Region-wide ELE jobs is forecast to decrease marginally from 34% to 32%.

Rural Employment

Rural-based employment, employment primarily consisting of primary sectors, is anticipated to represent 1% (1,200 jobs) of the Region's employment growth over the 2019 and 2051 period. This

[5] Region of Waterloo Regional Official Plan Review, Employment Lands Technical Brief, July 19, 2021, Dillon Consulting Limited & Watson & Associates Economists Ltd.

results in the rural-based share of Region-wide employment marginally decreasing from 4% in 2019 to 3% in 2051.

EMPLOYMENT AREA GROWTH FORECAST

Employment Areas in the Region of Waterloo provide opportunities to accommodate a wide variety of employment sectors and businesses within a range of building types and forms. Employment Areas in the Region of Waterloo are forecast to accommodate approximately 70,600 jobs over the 2019 to 2051 period.[6] This represents approximately 40% of the Region's total employment growth over that period. It is assumed that 93% of Region-wide ELE job growth will occur within Employment Areas, while 14% of the Region's PRE and 28% of MOE will be accommodated within Employment Areas. In accordance with the above assumptions, employment growth within Employment Areas is anticipated to comprise 67% ELE (47,200 jobs), 16% PRE (11,600 jobs) and 17% MOE (11,800 jobs).

EMPLOYMENT AREA ALLOCATION

Tables ES-18 to ES-21 summarize the long-term employment forecast by Area Municipality from 2021 to 2051 for Employment Option 1 and Option 2 under the 15% and 25% Employment Area intensification scenarios. The two Employment Area options result in varying employment lands employment allocations by Area Municipality, subject to anticipated local market demand and total land available for urban boundary expansion by Area municipality, including both Community Areas and Employment Areas under Options 1 and 2. Over this time period, the largest share of employment has been allocated to the City of Kitchener, followed by the City of Cambridge, the City of Waterloo and the Township of Woolwich. Relatively smaller shares of employment growth have been allocated to the remaining Townships.

[6] Including major office employment located on employment lands. Excluding major office, employment lands are forecast to accommodate 58,800 employees, representing 33% of employment growth to 2051.

Table ES-18: Region of Waterloo, Employment Option 1 – 15% Employment Area Land Intensification, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	118,100	167,900	112,800	12,200	6,700	12,100	40,300	470,000
Total Growth, 2021-2051	40,200	56,900	38,000	5,200	1,200	3,500	23,000	168,000
Growth Share, 2021-2051	24%	34%	23%	3%	1%	2%	14%	100%

Note: Figures may not add precisely due to rounding.

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

Table ES-19: Region of Waterloo, Employment Option 1 – 25% Employment Area Land Intensification, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	119,100	170,700	114,600	12,200	6,700	12,100	34,600	470,000
Total Growth, 2021-2051	41,200	59,700	39,800	5,200	1,200	3,500	17,300	168,000
Growth Share, 2021-2051	25%	36%	24%	3%	1%	2%	10%	100%

Note: Figures may not add precisely due to rounding.

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

Table ES-201: Region of Waterloo, Employment Option 2, 15% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	122,200	167,900	112,800	12,200	6,700	12,100	36,100	470,000
Total Growth, 2021-2051	44,300	56,900	38,000	5,200	1,200	3,500	18,800	168,000
Growth Share, 2021-2051	26%	34%	23%	3%	1%	2%	11%	100%

Note: Figures may not add precisely due to rounding.
Source: 2016 from Statistics Canada Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table ES-212: Region of Waterloo, Employment Option 2, 25% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	122,200	170,700	114,600	12,200	6,700	12,100	31,500	470,000
Total Growth, 2021-2051	44,300	59,700	39,800	5,200	1,200	3,500	14,200	168,000
Growth Share, 2021-2051	26%	36%	24%	3%	1%	2%	8%	100%

Note: Figures may not add precisely due to rounding.
Source: 2016 from Statistics Canada Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

EMPLOYMENT AREA LAND SUPPLY

As of 2019, there is a total of 1,072 ha of vacant employment land within Urban Employment Areas across the Region, which represents 26% percent of the vacant urban employment land inventory. Detailed mapping of vacant employments within Urban Employment Areas in the Region are provided, herein, in Appendix D.

Approximately half (552 ha) of the vacant urban employment inventory is within the City of Cambridge, 14% is in the Township of Woolwich, 12% in the City of Waterloo, 11% in the City of Kitchener, 8% in the Township of Wilmot, and the remaining 3% is in the Township of North Dumfries. There are no vacant urban employment lands in the Township of Wellesley.

It is recognized that a portion of forecast employment growth within Employment Areas will be accommodated through intensification. Moderate infill and redevelopment of sites within developed Employment Areas characterized by new business and employment growth have been occurring to date. It is recognized that identifying and evaluating employment intensification opportunities against market demand is challenging. The intensification potential of underutilized employment lands will largely be determined by future development plans of existing or future landowners, which are highly speculative. Infill and redevelopment of existing developed lands will occur over time, largely driven by market demand for industrial-type development.

Over the 2019 to 2051 period, an estimated 15% of employment growth within the Region's Employment Areas is expected to be accommodated through intensification as presented in Options 1 and 2. As previously mentioned, a higher intensification target of 25% is also considered in both options as an alternative scenario.

EMPLOYMENT AREA LAND NEEDS

The following provides a summary of the Employment Area components of the provincial LNA methodology. This includes an allocation of employment growth within Urban Employment Areas by Area Municipality based on a comprehensive review of forecast demand for ELE by local municipality, forecast density trends regarding ELE, and available land supply in Employment Areas including intensification opportunities.

Tables ES-22 to E-25 summarize the Region of Waterloo's Urban Employment Area land needs allocations to 2051 based on forecast employment land demand and available supply under the two Employment options. Within each option, Employment Area land needs range in accordance with the 15% and 25% Urban Employment Area land intensification scenarios discussed above. Key highlights include:

- Under Options 1 and 2 with 15% intensification, there is an identified Region-wide Urban Employment Area expansion requirement of 659 ha. Assuming the share of employment growth accommodated through intensification is increased from 15% to 25% the Region-wide Urban Employment Area land need would be reduced to 456 ha.
- Under Option 1, the largest Urban Employment Area settlement area expansion has been identified for the Township of Woolwich, followed by the City of Cambridge. While market demand for Employment Area expansion is anticipated to be strong for both the Township of Woolwich and the City of Cambridge, the ultimate supply of urban lands available for settlement area expansion, including both Community Area lands and Employment Area lands, limits the potential lands available for urban boundary expansion in the City of Cambridge under Option 1.
- Under Option 2, a greater amount of Employment Area expansion lands has been identified for the City of Cambridge. Under Option 2, reduced Community Area expansion requirements allows for increased opportunity for Employment Area expansion in Cambridge.

- The Cities of Kitchener and Waterloo have a significant amount of employment growth in both options, however, viable opportunities for Urban Employment Area expansion do not exist within these municipalities.
- Under Option 2 the allocation of Employment Area growth to the Township of Woolwich is reduced relative to Option 1 to accommodate the increased share of Employment Area employment growth allocated to the City of Cambridge.
- The Townships of North Dumfries and Wilmot have moderate employment growth on Urban Employment Area lands and have small Employment Area expansion requirements under both options; and
- Employment growth in the Township of Wellesley's Urban Employment Areas has not been identified due to a limited supply of vacant Urban Employment Area lands and constraints to municipal water/wastewater servicing. Employment growth on rural employment lands is anticipated for the Township of Wellesley.

Table ES-22: Region of Waterloo, Employment Option 1, 15% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	25,500	684	552	-132
City of Kitchener	10,200	122	122	0
City of Waterloo	11,900	129	129	0
Township of North Dumfries	2,700	122	36	-86
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	98	81	-17
Township of Woolwich	18,000	576	152	-424
Region of Waterloo	**70,600**	**1,731**	**1,072**	**-659**

Note: Employment land demand has been adjusted to account for 15% intensification.
Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Table ES-23-3: Region of Waterloo, Employment Option 1, 25% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	26,500	684	552	-132
City of Kitchener	13,000	122	122	0
City of Waterloo	13,700	128	129	0
Township of North Dumfries	2,700	114	36	-78
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	86	81	-5
Township of Woolwich	12,400	394	152	-242
Region of Waterloo	**70,600**	**1,528**	**1,072**	**-456**

Note: Employment land demand has been adjusted to account for 25% intensification.
Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Table ES-24-4: Region of Waterloo, Employment Option 2, 15% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	29,600	802	552	-250
Kitchener	10,200	122	122	0
City of Waterloo	11,900	129	129	0
Township of North Dumfries	2,700	122	36	-86
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	98	81	-17
Township of Woolwich	13,900	458	152	-306
Region of Waterloo	70,600	1,731	1,072	-659

Note: Employment land demand has been adjusted to account for 15% intensification.
Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Table ES-255: Region of Waterloo, Employment Option 2, 25% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	29,600	774	552	-221
City of Kitchener	13,000	122	122	0
City of Waterloo	13,700	128	129	0
Township of North Dumfries	2,700	114	36	-78
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	86	81	-5
Township of Woolwich	9,300	304	152	-152
Region of Waterloo	70,600	1,527	1,072	-456

Note: Employment land demand has been adjusted to account for 25% intensification.
Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Next Steps

The Region of Waterloo's LNA is an important milestone in the MCR process. The technical work documented herein is consistent with the Province's Land Needs Assessment Methodology document. The Region's LNA identifies the land need implications for future employment and community area growth. Specifically, the findings identify the quantity of land needed to accommodate forecasted growth to 2051 based on the minimum targets set out in the Growth Plan, along with two other possible growth concepts. As illustrated, the technical work shows that there are significant land need implications under each concept and depending on how the Region plans for its long-range growth, there could be a need for significant level of new urban lands – and with it, a number of financial, economic, social, environmental and climate change impacts. Given the range of potential implications associated with the growth concepts, the next step in the process is to prepare a high-level summary of implications for the different growth concepts and to consult with area municipalities, stakeholders and the public on the findings of the LNA. Based on the results of the consultation and engagement exercise, the Region will be in a position to make a recommendation on a preferred growth concept.

1.0 Introduction

1.1 Regional Official Plan Review Context

The Region of Waterloo is undertaking a review of its 2015 Regional Official Plan (ROP), a central guiding document that provides the framework for growth, development, and protection of built and natural heritage assets across the Region to 2031. The main purpose of the review is to bring the ROP into conformity with A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Growth Plan, 2019), which came into effect in May 2019 and was amended in August 2020. Among other matters, the Growth Plan, 2019 requires the Region and its area municipalities to plan for growth to 2051 in accordance with several new policies and targets to create a more compact, transit-supportive urban form.

This ROP Review builds on the 2015 ROP and includes a number of technical studies listed in subsection I.2.2 below, to inform the recommended approach for managing growth and intensification within the seven municipalities in the Region including the three cities: Cambridge, Kitchener and Waterloo; and the four Townships: Wilmot, North Dumfries, Wellesley and Woolwich.

The 2015 ROP contains 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. On December 22, 2010, the Province of Ontario approved the 2015 ROP with modifications; however, several parties subsequently appealed the Minister's decision to the Ontario Municipal Board (OMB Case No. PL110080).[7] The OMB issued an oral decision to approve the 2015 ROP in part, with modifications in June 2015, and the 2015 ROP came into effect on June 18, 2015.

Since 2015, the provincial policy framework in Ontario has continued to evolve. In 2017, the Province released an update to the Growth Plan and the Greenbelt Plan, and in 2020 a new Provincial Policy Statement (PPS, 2020) was released. On May 16, 2019, A Place to Growth: Growth Plan for the Greater Golden Horseshoe (Growth Plan, 2019) came into effect (followed subsequently by Amendment 1 in 2020). These provincial legislative documents provide policy direction for municipalities on land-use planning and where and how to plan for growth. Recent changes seek to address some of the growth-related challenges in the Greater Golden Horseshoe (GGH), including increased demand for infrastructure, increased traffic congestion resulting in delays in the movement of people and goods, housing affordability, urban sprawl, loss of agricultural lands and degradation of natural systems to name a few. In addition to these changes, Bill 108 introduces additional changes to the *Planning Act*, *Local Planning Tribunal Act*, *Development Charges Act*, and others.

[7] It is noted that the Ontario Municipal Board (OMB) is now referred to as the Ontario Land Tribunal (OLT).

1.2 Study Purpose and Process

1.2.1 Study Purpose

The overall purpose of the ROP Review is to comprehensively update the Region's current Official Plan to ensure it is consistent with the latest policies of the PPS, 2020 and conforms to the Growth Plan, 2019.

1.2.2 Study Process

The ROP Review will be updated to reflect matters of provincial interest under the *Planning Act*, to be consistent with the PPS, 2020, and to conform with the Growth Plan, 2019. The ROP review has four main phases as shown in **Figure 1-1.** A major component of the review includes a comprehensive growth analysis, referred to as a Municipal Comprehensive Review (MCR), to examine the Region's land needs to 2051, analyze various growth options, and identify strategic growth areas (SGAs) to achieve the Region's minimum intensification and density targets. The ROP is being undertaken in four phases as described below:

Figure 1-1: ROP Review in Four Phases

It is important to note that while Figure 1-1 shows a linear process, aspects of the process are highly integrated and iterative. For example, once a preferred growth option is selected, there is a need to confirm the land needs implications associated with the preferred option, finalize the associated urban structure plan, etc. In addition to the technical work, a comprehensive consultation and community engagement program is also being undertaken to align input with key decision-making points in the process. The outcomes of these activities and the associated technical work is documented in the following Technical Briefs and Reports:

1. Region-Wide Long-Term Population and Housing Growth Analysis Technical Brief (complete, released December 2020)
2. Urban Structure Technical Brief (complete, released for municipal review September 2019)
3. Employment Strategy Technical Brief (complete, released August 2021)

4. Intensification Strategy Technical Brief (complete, released August 2021)
5. Land Needs Assessment Report (this report)

Forthcoming work includes:

6. Growth Evaluation Technical Brief
7. Municipal Comprehensive Review Document
8. Official Plan Amendment

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

9. Natural Heritage Mapping and Policy Refinement
10. Aggregate Resource Mapping and Policy Refinement
11. Agricultural System Review

1.3 Lands Needs Assessment Report Purpose

The purpose of this report is to document the findings of the Region's Land Needs Analysis (LNA). The LNA is a critical element of ROP Review process and assesses future residential and employment urban land needs within the Region for the 2021 to 2051 planning horizon. As previously noted, in August of 2020, the Province released Amendment 1 to the Growth Plan, 2019, inclusive of a revised outcome-based LNA methodology for the GGH. The LNA results in a document that includes a technical analysis determining how much land would be needed throughout the Region to accommodate forecast population and employment growth to the year 2051. In accordance with the LNA Methodology, as provided by the Province, there are two categories of lands, Community Area (residential) and Employment Area. The LNA methodology includes six components towards establishing Community Area land needs and four components towards establishing Employment Area land needs. As noted in the methodology section of this report, the components are not required to be completed sequentially. Further details on the components of the LNA and the methodology are included in section 2.3. of this report.

1.3.1 A Brief Note About the Revised Approach

One of the key aspects of the initial work program was the completion of the LNA based on a Preferred Growth Scenario, where the municipal population and employment allocations would be prepared and finalized based on a Council-endorsed intensification target, designated greenfield density target and housing mix. This approach was intended to streamline the overall process and provide a cost-effective approach to examining the broader regional implications of growth.

In 2021, the Growth Scenarios and Growth Scenario Evaluation Framework were presented to the public, key stakeholders, area municipalities and Council. Based on feedback received through the spring and summer of 2021, the final key technical steps for completing Phases 2/3 of the ROP Review process were set into motion. The results of the scenario evaluation, along with a

recommended growth scenario were presented to the Region's Committee of the Whole on November 9, 2021. Staff and Committee received considerable feedback on the scenarios and evaluation, including a request to see additional, more ambitious, scenarios, as well as a more comprehensive LNA work program for each scenario. Based on this feedback, staff, Dillon Consulting Limited (Dillon) and Watson & Associates Economists Ltd. (Watson) presented their understanding of what was heard at the November 9 Committee of the Whole meeting and outlined the next steps in the ROP review process to the ROP Steering Committee meeting on November 29 and then to Regional Council on December 15, 2021. At the December 15 meeting, Regional Council provided further clarity on expectations for the ROP review project, emphasizing the importance of understanding the local implications of growth prior to selecting a preferred scenario. Council directed staff to consult with the public on a completed LNA prior to recommending any preferred growth scenario to Regional Council for decision. Based on Council direction, three fully completed Growth options have been prepared by the Consultant Team including:

Option 1: Growth Plan Minimum – carried out in accordance with the minimum requirements of the Growth Plan, 2019 with respect to annual residential intensification and average greenfield density for designated greenfield areas (DGA). In accordance with the Growth Plan, 2019:

- the DGA minimum density target for the Region of Waterloo is 50 people and jobs combined per gross ha; and
- the minimum intensification target for the Region of Waterloo is 50%, i.e., a minimum of 50% of all residential growth is to occur within the built-up area (BUA) annually between 2022 and 2051.

Option 2: Compact Development, Modest Community Area Expansion – Option 2 assumes an average DGA density target of 60 people and jobs per ha and an average residential intensification target of 60%.

Option 3: More Compact Development, No Urban Expansion of Community Areas – Option 3 assumes an average DGA density target of 66 people and jobs per ha and an average residential intensification target of 60%.

Each of the Concepts developed as part of the LNA will then be broadly assessed under a separate report taking into account the following key principles and considerations:

- **Growth Plan, 2019 Conformity** – guiding principles, targets and policies regarding:
    - Major Transit Station Areas (MTSAs), Urban Growth Centres (UGC) and DGA densities, residential intensification targets and employment densities.
- **Alignment with Regional Priorities**
    - Housing affordability and housing options, healthy and complete communities, economic prosperity and competitiveness, environment and climate action, sustainable development (social, environmental, financial) and alignment with regional infrastructure investment priorities.

- **Addressing Future Market Demand for Residential and Non-Residential Development**
    - Alignment of housing options by structure type with demand by major demographic groups (i.e., young adults, first-time home buyers, families, empty nesters and seniors, non-permanent residents);
    - Long-term housing propensity forecast by structure type; and,
    - Review of demographic and economic drivers and disruptors influencing housing demand by structure type and employment growth by sector.
- **Implementing ROP Policy Directions**
    - Review of options against current and emerging ROP policy directions.

1.4 Organization of Report

This report is organized into the following chapters:

- **Chapter 1** presents the introduction, the purpose of the ROP Review and the purpose of this report;
- **Chapter 2** outlines the policy context that is relevant to planning for Community Areas and Employment Areas in the Region of Waterloo;
- **Chapter 3** presents the Community Area LNA, under the "Growth Plan Minimum" Option 1; "Compact Development, Modest Community Area Expansion" Option 2; and "More Compact Development, No Urban Expansion of Community Areas" Option 3;
- **Chapter 4** provides the Employment Area LNA, including the allocation of Population-related Employment (PRE), under the "Growth Plan Minimum" Option 1; "Compact Development, Modest Community Area Expansion" Option 2; and "More Compact Development, No Urban Expansion of Community Areas" Option 3; and,
- **Chapter 5** presents recommendations and next steps for the study.

1.5 Terminology & Definitions

The following definitions are provided with respect to provincial policy and the provincial LNA Methodology.

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

The Growth Plan, 2019 is the Province of Ontario's plan to manage growth and development throughout the GGH that protects the environment and supports economic prosperity. The Growth Plan, 2019 sets out population and employment forecasts and targets for which municipalities are required to plan.

Land Needs Assessment Methodology for the Greater Golden Horseshoe (LNA Methodology)

The LNA Methodology outlines the steps required to determine a municipality's land needs pursuant to policy 5.2.2.1. c) of the Growth Plan, 2019. Upper- and single-tier municipalities in the GGH are

required to use the LNA Methodology in combination with the policies of the Growth Plan, 2019 to assess the quantity of land required to accommodate forecast growth.

Delineated Built Boundary

The limits of the developed urban area as defined by the Minister in consultation with affected municipalities for the purpose of measuring the minimum intensification target in this Plan.

Delineated Built-up Area

All land within the delineated built boundary.

Designated Greenfield Area

Lands within settlement areas (not including rural settlements) but outside of delineated BUAs that have been designated in an official plan for development and are required to accommodate forecast growth to the horizon of this Plan. Designated greenfield areas do not include excess lands.

Employment Areas

This report uses the definition from the Growth Plan, 2019 and from the PPS, 2020 as "areas designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities." Employment Area refers to a cluster of employment lands.

Employment Areas are defined in the Growth Plan, 2019 as "areas designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities." The Growth Plan, 2019 requires that all upper- and single-tier municipalities designate all Employment Areas in official plans and protect them for appropriate employment uses over the long term.

Employment Lands

Employment lands (also known as industrial lands) typically include a broad range of designated lands, including light, medium and heavy industrial lands, business parks and rural industrial lands. Employment lands accommodate primarily export-based employment, including a wide range of industrial uses (e.g., manufacturing, distribution/logistics, transportation services), as well as specific commercial and institutional uses (e.g., office, service, ancillary/accessory retail).

Employment Lands Employment

Employment Lands Employment (ELE) represents jobs accommodated in industrial-type buildings. This includes largely industrial-sector employment including manufacturing, wholesale trade, transportation and warehousing, construction and utilities as well as a limited amount of employment associated with office commercial and employment-supportive uses. ELE includes population-related employment but excludes major office.

Excess Lands

Vacant, unbuilt but developable lands within settlement areas but outside of delineated BUAs that have been designated in an official plan for development but are in excess of what is needed to accommodate forecast growth to the horizon of this Plan.

Intensification

The development of a property, site or area at a higher density than currently exists through:

a) redevelopment, including the reuse of brownfield sites;

b) the development of vacant and/or underutilized lots within previously developed areas;

c) infill development; and

d) the expansion or conversion of existing buildings**.**

No Fixed Place of Work

Statistics Canada defines no fixed place of work (NFPOW) 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."

Major Office Employment

In the Growth Plan, 2019, major office is described as "freestanding office buildings of approximately 4,000 square metres of floor space or greater, or with approximately 200 jobs or more." Major Office Employment (MOE) is comprised of employment accommodated in office buildings greater than 1,900 sq.m (20,000 sq.ft.). In this report, the phrase "major office" is generally used regarding buildings that accommodate MOE and are aligned with office inventories. Major office functions are often concentrated in downtown areas or established suburban office parks. Typically, MOE includes knowledge-based sectors found in standalone multi-storey buildings including finance and insurance; information and cultural industries; management of companies; professional, scientific and technical services; and real estate, rental and leasing sectors.

Major Transit Station Area

The Growth Plan, 2019 defines Major Transit Station Areas (MTSAs) as "the area including and around any existing or planned high order transit station or stop within a settlement area; or the area including and around a major bus depot in an urban core. Major transit station areas generally are defined as the area within an approximate 500 to 800 metre radius of a transit station, representing about a 10-minute walk."

Population-Related Employment

Population-related Employment (PRE) includes employment in institutional and commercial sectors not accommodated in major office buildings (MOE) or within industrial buildings (ELE). Work at home employment is also captured as PRE. PRE is located within the Region's urban and settlement areas and largely accommodated in downtown areas, commercial corridors and nodes,

neighbourhood plazas, institutional campuses and schools, and standalone institutional and retail buildings. A limited share of PRE is accommodated in Employment Areas within standalone institutional and retail commercial buildings.

Provincially Significant Employment Zones

The Province may provide more specific direction for planning in these employment zones. Provincially Significant Employment Zones have been identified and defined by the Province for the purpose of long-term planning for job creation and economic development. They can consist of Employment Areas and mixed-use areas that contain a significant number of jobs. The three Provincially Significant Employment Zones identified in the Region of Waterloo include:

- Zone 22: Cambridge East;
- Zone 23: Cambridge North; and
- Zone 24: Waterloo.

Rural Area Employment

Rural Area Employment reflects jobs accommodated in locations outside the Region's urban and settlement areas. Rural Area Employment consists primarily of primary sectors (e.g., agriculture, mineral aggregate extraction) within the countryside as well as PRE outside urban or settlement areas and rural Employment Areas.

Strategic Growth Area

Within settlement areas, nodes, corridors, and other areas that have been identified by municipalities or the Province are to be the focus for accommodating intensification and higher-density mixed uses in a more compact built form. SGAs include urban growth centres, MTSAs, and other major opportunities that may include infill, redevelopment, brownfield sites, the expansion or conversion of existing buildings, or greyfields. Lands along major roads, arterials, or other areas with existing or planned frequent transit service or higher-order transit corridors may also be identified as SGAs.

Urban Growth Centre

The Growth Plan, 2019 defines Urban Growth Centres (UGCs) as "existing or emerging downtown areas shown in Schedule 4" of the Growth Plan, 2019.

The Growth Plan, 2019 Policy 2.2.3 identifies UGCs as the primary focus for intensification within a city and are focal areas for investment including commercial, recreational, cultural and entertainment uses. They should attract a range of significant employment uses.

In addition to the above key terms and definitions, the LNA refers to several types of housing categories. The definition of these categories are as follows:

- Singles and Semi-detached: Includes all single and semi-detached houses as per Statistics Canada.
- Multiples: Includes townhouses, back-to-back townhouses and apartments in duplexes.

- Apartments: Includes all multi-storey apartments and stacked townhouses.
- Other: “Other” detached houses as per Statistics Canada are part of low-density housing with singles and semi-detached houses.
- Secondary Units: A secondary unit represents a self-contained unit within an existing home/primary dwelling unit. Statistics Canada does not implicitly identify accessory apartments in the Census housing categories. They are embedded within the Census housing categories but are not reported based on the amount or in which categories they are embedded. Secondary units have high-density occupancy but a grade-related built form. For the purposes of the LNA, they have been forecast from 2016 to 2051. Please refer to the housing categories and footnotes presented in the tables of this report on how they are captured in the forecast.

2.0 Policy Context

As noted in the introduction, growth planning in Ontario is guided by a number of interrelated provincial documents, plans, guidelines and supporting documents. These documents provide the legislative requirements and general direction which informs the way municipalities plan for growth over the long term.

The *Planning Act,* R.S.O. 1990*,* establishes the legislative framework for land-use planning in Ontario. It sets out the statutory requirements for municipal planning documents and processes and identifies matters of provincial interest in a number of key areas, including the orderly development of safe and healthy communities, the appropriate location of growth and development, and the promotion of public transit and pedestrian-oriented development that is sustainable.

To implement the *Planning Act*, the Province of Ontario issues policy statements and provincial plans which provide further detail and policy direction to municipalities on how to conduct land-use planning to achieve provincial objectives. The PPS, 2020 and the Growth Plan, 2019 are the two key policy documents that provide direction and guidance respecting the LNA. Each of these policy documents is described in greater detail in the following sections.

2.1 Provincial Policy Statement

The PPS, 2020 is issued under section 3 of the *Planning Act* and came into effect on May 1, 2020. It provides high-level policy direction on matters of provincial interest related to land-use planning and development within Ontario. All decisions that affect land-use planning for municipalities throughout Ontario must be consistent with the PPS, 2020.

The PPS, 2020 establishes the vision for development within Ontario's communities. It provides policy direction on efficient land-use patterns to support strong, livable, healthy and resilient communities. The PPS, 2020 further identifies that land-use planning, growth management, transit-supportive development, intensification and infrastructure planning should be integrated and coordinated to ensure for the optimization of land use and to minimize consumption and servicing costs.

The PPS, 2020 requires that sufficient land be made available to accommodate an appropriate range and mix of land uses to meet projected needs for a time horizon of up to 25 years, where growth is to be directed to settlement areas through intensification and redevelopment, designated growth areas, and greenfield areas. Planning authorities are permitted to plan beyond 25 years for employment growth, infrastructure and public service facilities.

Within Employment Areas, the PPS, 2020 directs that planning authorities plan for, protect and preserve Employment Areas for current and future uses and ensure the necessary infrastructure is provided to support current and projected needs. The PPS, 2020 also directs that an appropriate range and mix of employment, institutional and mixed uses are provided to meet long-term needs; and, that a choice of suitable sites for employment uses is available.

With respect to housing, the PPS, 2020 directs that planning authorities maintain at all times the ability to accommodate residential growth for a minimum of 15 years through residential intensification and redevelopment and, if necessary, lands which are designated and available for residential development. In addition, where new development is to occur, planning authorities must always maintain land with servicing capacity to provide at least a three-year supply of residential units.

In terms of intensification and growth, existing land, resources, infrastructure and public service facilities are to be optimized and targets for intensification and redevelopment, including minimum targets, are to be established by the municipality. This optimization and these targets should be met before expansion of settlement area boundaries is permitted. In a scenario where it is determined there is insufficient land to meet the anticipated growth, expansions to settlement areas may be permitted subject to criteria which are set out in the PPS, 2020.

The LNA process is intended to address these elements of the PPS, 2020 and ensure consistency with the policy directions contained therein.

2.2 A Place to Grow

The Growth Plan, 2019 outlines where and how growth and development within the GGH should occur between now and 2051. As previously noted, the Growth Plan, 2019 came into effect on May 16, 2019, with a subsequent amendment (Amendment 1) taking effect on August 28, 2020.

The Growth Plan, 2019 establishes several guiding principles regarding where and how land is developed, resources are managed and protected, and public monies are invested. The Growth Plan, 2019 identifies that building compact and complete communities is an important objective considering the broader policies of the Plan related to climate change, the protection of agricultural lands, water resources and natural areas.

As set out in subsection 1.2 of the Growth Plan, 2019, the vision for the GGH is characterized by complete communities that are vibrant, livable and offer a sufficient housing supply that reflects market demand and what is needed in local communities. This vision for GGH communities is further described under subsection 2.1 of the Growth Plan, 2019, which addresses the need to plan for a range and mix of housing options, including additional residential units, affordable housing and higher-density housing options. The Plan also recognizes transit as a priority and seeks to align transit with growth by directing growth to Major Transit Station Areas (MTSAs) and other SGAs, including Urban Growth Centres (UGCs).

As previously noted, the Growth Plan, 2019 provides long-term growth forecasts for single- and upper-tier GGH municipalities, which are set out in Schedule 3 of the Plan. As per Amendment 1 to the Growth Plan, 2019, the applicable time horizon for land-use planning within the GGH 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.[8] In accordance with Schedule 3, the Region of Waterloo is forecast to grow to a population of 923,000 and accommodate 470,000 jobs by 2051. The Growth Plan, 2019 also provides guidance on a variety of other elements of the ROP, including:

- Delineated BUAs are to accommodate a minimum of 50% of all residential development on an annual basis;
- DGA lands (not including Employment Areas) are to be planned to achieve an overall minimum density of 50 residents and jobs per ha within the horizon of the Plan (2051);
- Downtown Kitchener, Uptown Waterloo and Downtown Cambridge are considered UGCs and by 2031 or earlier will be planned to achieve a minimum density target of 200 residents and jobs per ha (for Downtown Kitchener and Uptown Waterloo) and 150 residents and jobs per ha (for Downtown Cambridge); and
- Planning and the delineations of MTSAs is to be transit-supportive and promote multi-modal development, and conform to the Ministry of Transportation's minimum density threshold for rapid transit service (ION LRT) of 160 people and jobs per ha.[9]

While no specific target for employment densities is set out in the Growth Plan, 2019, a density target of 25 jobs per ha has been established for this Employment Area in the 2015 ROP (Policy 2.D.17.iii). Based on the technical work completed as part of the ROP Review, the MCR Document may include recommendations for a new Employment Area density target.

2.3 Provincial Land Needs Methodology

The Growth Plan, 2019, as amended, contains policy direction that the Minister establish a methodology to assess land needs for the GGH, which is to be applied by municipalities in their implementation of the Growth Plan, 2019 through the MCR process. As previously noted, the LNA Methodology for the GGH, 2020 was released on August 28, 2020. The Region and Area Municipalities in the GGH are required to use the LNA Methodology in combination with the policies and Schedule 3 of the Growth Plan, 2019 to assess the quantity of land required to accommodate the forecast growth and to achieve the intensification and DGA targets established in the Plan.

The growth forecasts established in the Growth Plan, 2019 reflect the Growth Plan Minimum reference scenario to be used by municipalities to form the basis for establishing a market-based supply of housing. Lower projections for population, dwellings by type or employment are not permitted; however, municipalities may develop and use an alternate growth scenario in the LNA

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

[9] MTSA boundaries and densities were previously brought forward and endorsed by Council on April 21, 2021. As part of this work, it was determined alternate targets below 160 people and jobs per ha would be required for Laurier-Waterloo Park (City of Waterloo), Block Line (City of Kitchener), and Delta (City of Cambridge). An information package providing rationale for the MTSA alternate targets has been provided to the Province.

that exceeds the forecast provided in Schedule 3. In applying an alternate scenario, municipalities must be able to demonstrate conformity with the Growth Plan, 2019 and justify the scenario based on local and provincial trends and conditions. As noted previously, the LNA Methodology does not require the components to be completed in sequential order, provided all the necessary steps are completed.

The LNA is to consider the land needs for Community Areas that include delineated BUA and DGA, where most of the housing and population-related jobs required to accommodate forecast population are to be located; and, Employment Areas, where most of the employment land employment jobs required to accommodate the employment projection are to be located. The result of the LNA is a total quantum of land needed (or excess lands) at the upper- or single-tier municipal level.

As previously identified, the LNA Methodology includes six components to establishing Community Area land needs and four components to establishing Employment Area land needs, which are summarized below.

2.3.1 Community Area Land Needs Assessment

The Community Area LNA allocates the Schedule 3 forecast into housing within the delineated BUA and DGA, along with Community Area jobs, and translates this into appropriate densities to ensure the intensification and greenfield targets will be achieved. The Community Area LNA involves the following six components:

Population Forecast (Component 1) – projects population by age group, including permanent residents and non-permanent residents (NPR). Post-secondary student population not included as permanent and NPR population is also "layered" on top of the Census population. The results of the Region-wide population and total housing analysis are detailed in the Region of Waterloo Long-Term Population and Housing Growth Analysis Brief, December 2020.[10]

Housing Need (Component 2) – derived from the population forecast by age group based on a headship rate analysis (household maintainers by age). Component 2 of the LNA requires municipalities to forecast total housing needs by age and dwelling type by applying age-specific propensities to choose different types of dwellings to the forecast of households by age. In planning for Community Areas, the provincial LNA Methodology states:

> "Recognizing that local needs are diverse, the Methodology provides the key components to be completed as municipalities plan to ensure that sufficient land is available to:
>
> - accommodate all housing market segments;
> - avoid housing shortages;
> - consider market demand;

[10] Region of Waterloo. Regional Official Plan Review. Long-Term Population and Housing Growth Analysis. December 2020. Dillon Consulting Ltd. Watson & Associates Economists Ltd.

- accommodate all employment types including those that are evolving; and plan for all infrastructure that is needed to meet the complete communities objectives to the horizon of the Plan." p. 4

Allocation of Housing Needs (Component 3) – involves distributing the total housing need by Planning Policy Area and Area Municipality by structure type. Housing allocations are based on a number of factors such as planned urban structure, anticipated real estate market demand, housing affordability, diversity of housing options, potential for intensification, and the availability of physical infrastructure to support growth, including water and wastewater services and public transit.

Housing Supply Potential by Policy Areas (Component 4) – involves estimating the potential housing supply that could accommodate future housing needs through intensification in the delineated BUA, DGA, and rural areas;

Community Area Jobs (Component 5) – involves determining the number of jobs to be located in Community Areas, including the allocated portion of jobs to the DGA; and,

Need for Additional Land (Component 6) – involves converting housing and Community Area job need requirements into the amount of additional land needed to accommodate the forecast growth. In completing this component, there are technically three potential outcomes:

- Additional urban lands are required to be designated for a new Community Area through expansion of the settlement area in order to accommodate the forecast housing need;
- The existing urban land supply is sufficient to accommodate forecast housing need and there is no need for additional land to be designated for a new Community Area; or
- A surplus of urban land is identified which is not required to accommodate forecast housing needs (also known as "excess lands"). This outcome would require the Region to 1) identify which lands would be "excess lands" based on its proposed hierarchy of urban areas; and 2) introduce development prohibitions in the ROP on all excess lands to the 2051 horizon.

The LNA Methodology requires municipalities to conform with the intensification and DGA targets and Growth Plan, 2019 policies as the basis for assessing the need for land. If developing their own assumptions for these targets (e.g. alternative intensification and DGA density targets which are lower than the prescribed minimums), municipal staff should consult with provincial staff and utilize their own or other data sources.

The Growth Plan, 2019 establishes several guiding principles regarding how land is developed, resources are managed and protected, and public dollars are invested. The following guiding principles of the Growth Plan, 2019 directly, or indirectly, relate to housing needs:

- "Support the achievement of complete communities that are designed to support healthy and active living and meet people's needs for daily living throughout an entire lifetime.
- Prioritize intensification and higher densities in strategic growth areas to make efficient use of land and infrastructure and support transit viability.

- Support a range and mix of housing options, including additional residential units and affordable housing, to serve all sizes, incomes, and ages of households."

As set out in subsection 1.2 of the Growth Plan, 2019, the vision for the GGH is characterized by complete communities that are vibrant, livable and offer sufficient housing supply that reflects market demand and what is needed in local communities. The Plan also recognizes transit as a priority and seeks to align transit with growth by directing growth to MTSAs and other SGAs, including UGCs, and promoting transit investments in these areas.

This vision for GGH communities is further described under subsection 2.1 of the Growth Plan, 2019 which addresses the need to plan for a range and mix of housing options, including additional residential units and affordable housing and, in particular, higher-density housing options that can accommodate a range of household sizes in locations that can provide access to transit and other amenities. The Growth Plan, 2019 identifies that building compact and complete communities is an important objective considering the broader policies of the Plan related to climate change, the protection of agricultural lands, water resources and natural areas.

Subsection 2.1, p. 12 of the Growth Plan, 2019 states:

> "It is important to optimize the use of the existing urban land supply as well as the existing building and housing stock to avoid over-designating land for future urban development while also providing flexibility for local decision-makers to respond to housing need and market demand. This Plan's emphasis on the optimization of existing urban land supply and represents and intensification first approach to development and city-building, one which focuses on making better use of our existing infrastructure and public service facilities, and less on continuously expanding the urban area."

In accordance with the requirements of both the Growth Plan, 2019 and the provincial LNA Methodology, as it relates to providing a range and mix of housing options, this report provides a detailed assessment of forecast Region-wide housing propensity (i.e., demand) by age of household maintainer (i.e., head of household) and by structure type over the 2021 to 2051 planning horizon. Additional details are also provided with respect to housing propensity by tenure (i.e., ownership and rental housing) by age of household maintainer and by structure type, to provide additional context with respect to anticipated changes in housing demand by structure type for the Region of Waterloo over the next three decades.

2.3.2 Employment Area Land Needs Assessment

With respect to the Employment Area LNA, the methodology relies on the employment forecasts contained in Schedule 3 of the Growth Plan, 2019. As with the Community Area land needs assessment, not all components are sequential in the Employment Area LNA. The following components are involved in the Employment Area LNA:

- **Employment Forecasts (Component 1)** – involves forecasting future employment by type;
- **Employment Allocation (Component 2)** – involves allocating the future employment by type to rural lands, Community Areas and Employment Areas;
- **Existing Employment Area Potential (Component 3)** – involves determining the employment potential of existing lands and employment uses; and
- **Need for Additional Land (Component 4)** – involves estimating the potential amount of additional land required to accommodate the forecast employment through settlement boundary expansion, if necessary.

The results of the Community Area and Employment Area analysis are detailed herein in Chapters 3 and 4.

3.0 Community Area Land Needs Assessment

This chapter summarizes the results of the Community Area LNA by Area Municipality for the Region of Waterloo. This assessment has been carried out in accordance with the requirements of the provincial LNA Methodology for Community Area lands (Components 1 to 6) as previously discussed in section 2.5.

It is important to note that Statistics Canada 2021 Census data for total population and total private dwellings occupied by usual residents has not been incorporated into the LNA forecast and analysis. Comparing the 2021 Census to the population and housing forecast established in the Region of Waterloo Long-Term Population and Housing Growth Analysis, December 2020, the 2021 MCR population of 617,000 is 1.0% higher than the 2021 Census population of 610,700 (adjusted for 4% undercount). The Region's estimated housing base is 0.5% higher at 223,700 (MCR), compared to 222,400 (2021 Census). Given how closely aligned the MCR forecast is to the 2021 Census population and total housing, the long-term population and housing forecasts for the Region of Waterloo remain unchanged from the 2021 estimates generated from the previous Technical Briefs.

3.1 Region-wide Population Forecast to 2051 (Community Area Component 1 of the LNA Methodology)

This section summarizes the long-term population growth forecast for the Region of Waterloo to the year 2051 in five-year increments derived from Schedule 3 of the Growth Plan, 2019. These details are provided to inform and give input into the Community Area Component 1 of the provincial LNA Methodology.[11] 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 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. Please refer to subsection 5.2.1 in the Region of Waterloo Long-Term Population and Housing Growth Analysis for a detailed review of these factors and the rationalization of the preferred long-term population and employment growth scenario for the Region of Waterloo to the

[11] 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.

year 2051.[12] It is also noted that 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.

3.1.1 Region of Waterloo Total Population Growth Forecast

Figure 3-1 summarizes the Region of Waterloo total population growth forecast over the 2016 to 2051 forecast period relative to historical population between 1986 and 2016.[13] As identified, the Region of Waterloo total population base is forecast to steadily increase between 2016 and 2051. By 2051, the Region of Waterloo's total population base is forecast to grow to approximately 923,000 persons.[14] This represents an increase in population of approximately 366,400 permanent residents and 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.[15]

As previously discussed in sections 2.2 and 4 of the Region of Waterloo Long-Term Population and Housing Growth Analysis Brief, population growth will be primarily driven by the Region's labour force attraction across a diverse range of growing services-producing 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 area.

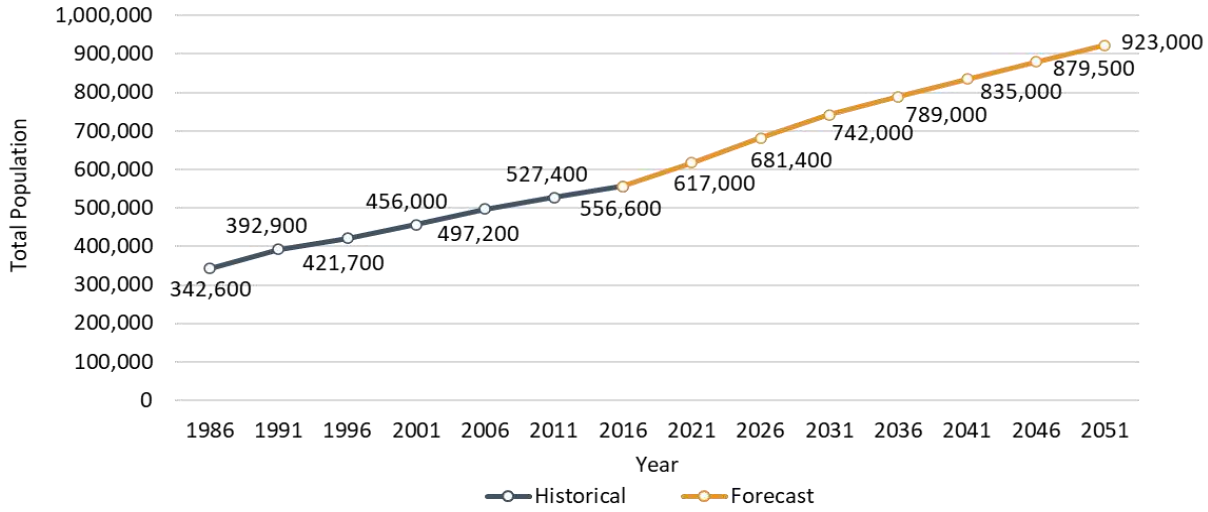
[12] Region of Waterloo Long-Term Population and Housing Growth Analysis, December 2020.

[13] Total population includes the Census population (permanent and non-permanent residents) adjusted for the net Census undercount of 4%. Post-secondary students are not included in the total population.

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

[15] The total population refers to the Census population adjusted upwards to account for Census net undercoverage (Census undercount). The Census population includes both permanent and non-permanent population.

Figure 3-1: Region of Waterloo, Total Long-Term Forecast Population, 2016 to 2051



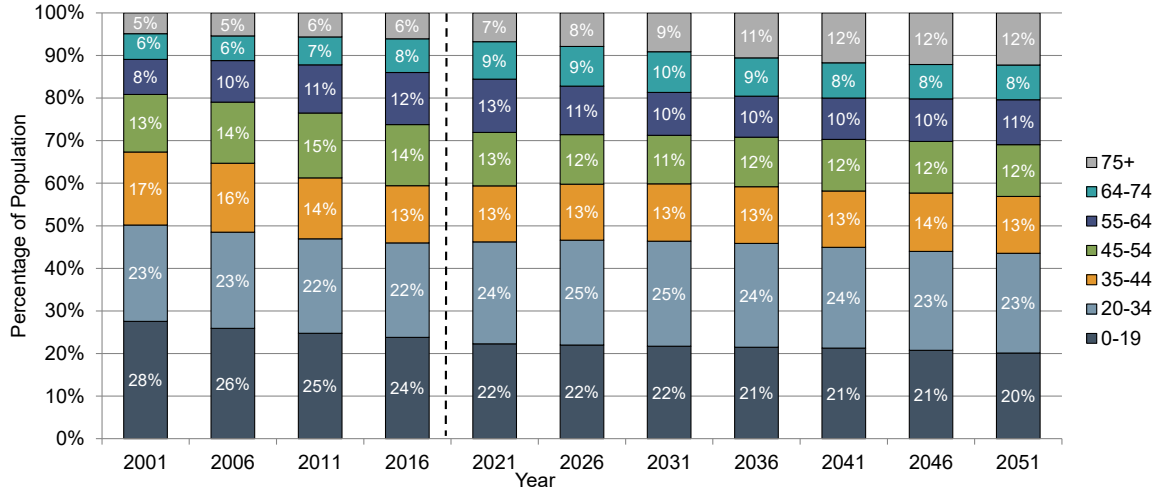
Note: Population includes net Census undercount of 4%.
Source: Historical data derived from Statistics Canada Census, 1986-2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020. 2051 conforms with Schedule 3 from A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office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

3.1.2 Region of Waterloo Total Population Growth Forecast by Major Age Group

Figure 3-2 summarizes the total population growth forecast for the Region of Waterloo by the percentage population by major age group. 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.

Figure 3-2: 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.

3.1.3 Region of Waterloo Student Population Forecast

Based on anticipated growth trends in enrollment by geographic location and local residency patterns, it is anticipated that approximately 20% (9,300 of 38,600 students) of anticipated full-time post-secondary enrolment growth over the 2016 to 2051 period will reflect students not captured in the Census. These domestic students are not captured in the local population as they are already counted elsewhere in Canada in accordance with their permanent place of residence; however, they require local housing (both on-campus and off-campus) while attending a post-secondary institution in the Region of Waterloo.

International students, on the other hand, represent part of the NPR population and are already captured in the Statistics Canada 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. The residual (72% or 6,700 students) is anticipated to be accommodated in off-campus housing. Please refer to section 5.5 of the Region of Waterloo Long-Term Population and Housing Growth Analysis for a detailed analysis of student enrolment and the corresponding population growth forecast to 2051.[16] Refer to subsection 3.2.4 for a further discussion regarding the impacts of NPR population on the Region's forecast population growth potential.

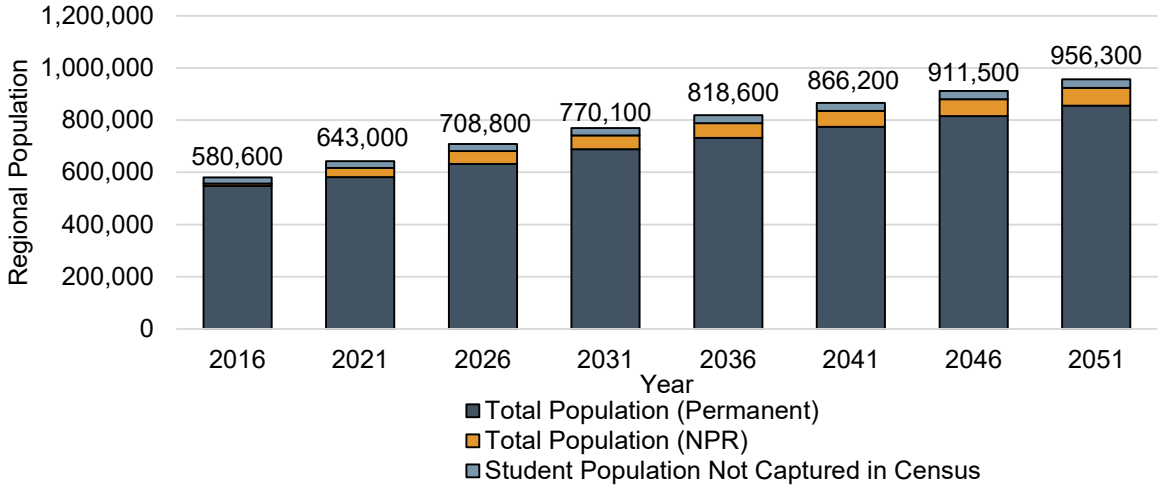
3.1.4 Region of Waterloo Regional Population Growth Forecast

Figure 3-3 summarizes the Regional population which includes the total population (permanent and NPR adjusted for the net Census undercount) and students not captured by the Census, while Figure 3-4 identifies incremental population growth from 2016 to 2051 by population category (permanent, non-permanent, students not captured by the Census). Over the 35-year forecast

[16] Region of Waterloo Long-Term Population and Housing Growth Analysis, December 2020.

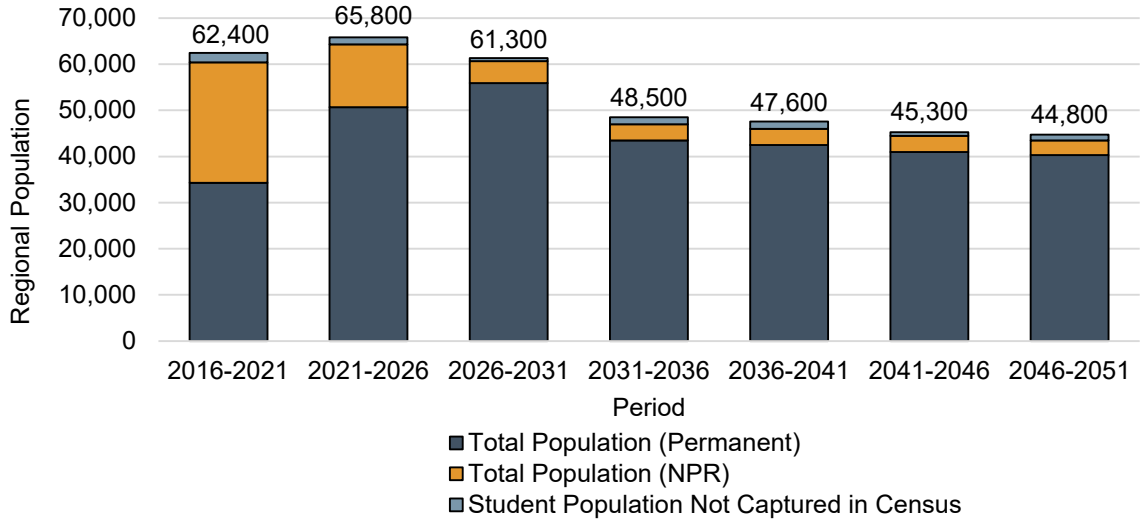
period, the total population in the Region of Waterloo is forecast to grow by 366,000, or 1.5% annually, whereas the student population[17] is forecast to grow by 9,300, or 0.9% annually. Overall, the Regional population is forecast to increase by 376,000, or 1.4% annually.

Figure 3-3: 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.

Figure 3-4: 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.

[17] Refers to students not captured in Census.

3.2 Drivers of Long-Term Housing Demand by Structure Type in the Region of Waterloo

As previously discussed in sections 3 and 4 and subsection 5.2.5 of the Region of Waterloo Long-Term Population and Housing Growth Analysis Technical Brief and section 4 of the Region of Waterloo Housing Intensification Strategy Technical Brief, a broad range of economic, socio-economic, demographic and other factors are anticipated to drive future housing growth throughout the Region over the near- and longer-term planning horizon across all housing types. Future direction and decisions related to federal immigration, trade policy, regional/local infrastructure investment, as well as provincial, regional and local planning policy are also important to consider regarding their influence on future housing demand by structure type and tenure. Building on the analysis provided in the aforementioned Technical Briefs, this report provides additional context with respect to housing trends in the Region of Waterloo by family type and tenure by major age group.

3.2.1 Demographic Drivers of Long-Term Housing Demand by Structure Type in the Region of Waterloo

3.2.1.1 The Region of Waterloo's Population Base by Family Type is Changing

Consistent with the broader objectives of the Growth Plan, 2019, a key objective of the Region of Waterloo ROP is to ensure that new housing construction by structure type, built form (i.e. density) and tenure (i.e. rental vs. ownership) is well aligned with anticipated housing demand. Ultimately, this requires a broad range of new housing products to be provided throughout the Region to accommodate a growing population across a diverse range of age groups, family types and income levels. The following section summarizes recent trends in the Region of Waterloo with respect to age and family type. Figure 3-5 and Figure 3-6 summarize recent trends regarding the share and size (i.e. average number of people per household) of total households as well as households by family type in the Region of Waterloo compared to the Province of Ontario. Key observations include:

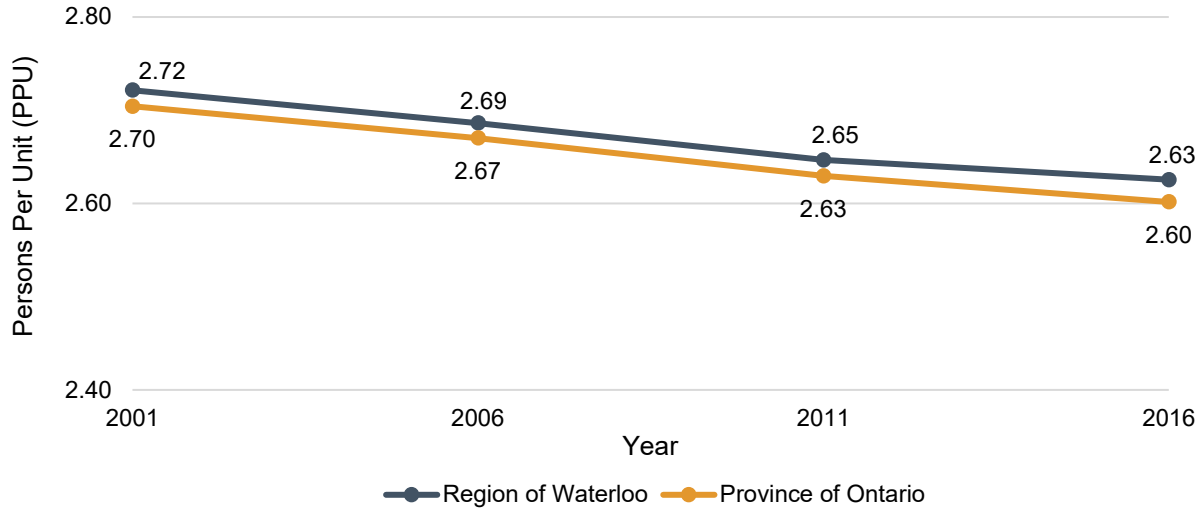
Average Household Sizes in the Region of Waterloo are Comparable to the Provincial Average

- In accordance with 2016 Statistics Canada Census data, the average size of a household in the Region of Waterloo was 2.63 people, compared to 2.6 people for the Province as a whole. For both the Region of Waterloo and the Province, average household sizes have been steadily declining over the past 15 years. These trends are discussed in further detail below within the context of recent trends related to Census family and non-family households.

The Composition of Households within the Region of Waterloo is Steadily Shifting from Census Families to Census Non-Families

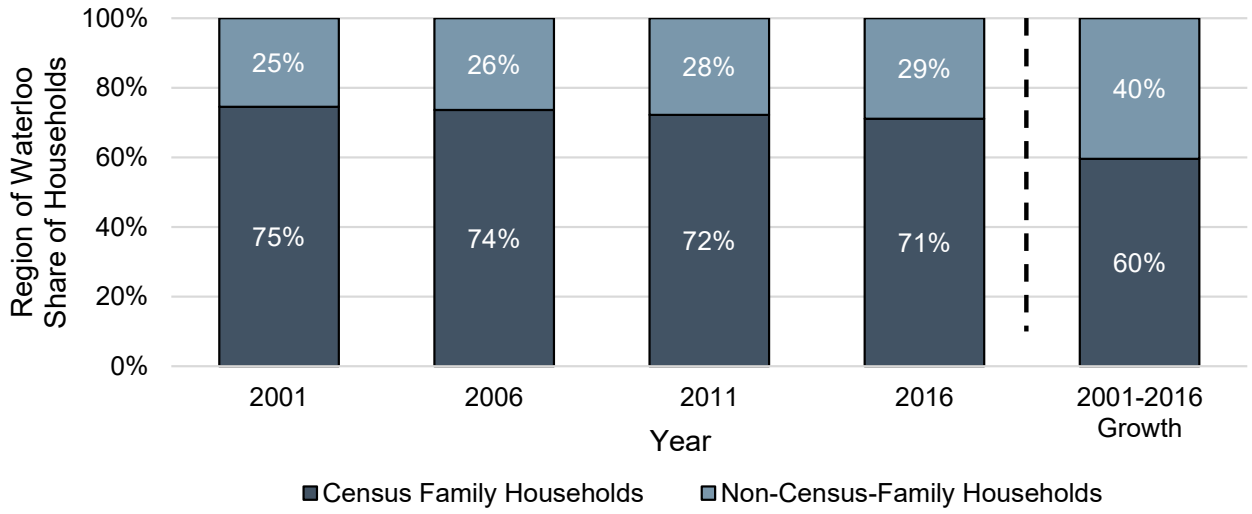
- Region of Waterloo households are largely occupied by Census families, representing 71% of all households in 2016, but down from 75% in 2001. The Region of Waterloo has a comparable ratio of Census families to Census non-families with the Province as a whole; however, the Region of Waterloo has experienced a faster shift towards Census non-families relative to the provincial average. Over the next several decades, the percentage of non-family Census households in the Region of Waterloo is forecast to steadily increase. This is important to recognize because Census non-family households have a much lower average housing occupancy when compared to Census family households. The growing share of Census non-family households emphasizes the importance of providing a broader range of households by structure type and built form to accommodate anticipated growth in both families and non-family households.
- As of 2016, the average size of Census non-family households in the Region of Waterloo was 1.15 people in 2016, compared to 3.00 for Census families. Over the long-term forecast period, the average size of Census non-family households is anticipated to remain relatively consistent, while the average occupancy of Census family households is forecast to steadily decline. This overall decline in the average household size of Census family households in the Region of Waterloo can be largely attributed to the aging of the population.

Figure 3-5: Region of Waterloo, Historical Household Size, 2001 to 2016



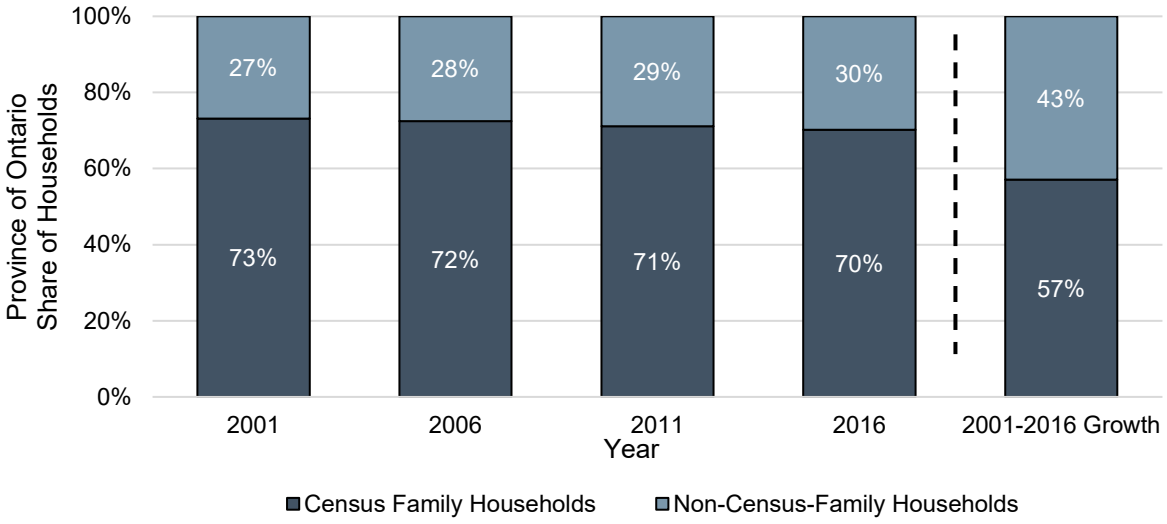
Note: PPU calculated using population excluding the net Census undercount.
Source: Derived from Statistics Canada Census data, 2001 to 2016, by Watson & Associates Economists Ltd., 2021.

Figure 3-6a: Region of Waterloo, Historical Households by Family-Structure Type, 2001 to 2016



Source: Derived from Statistics Canada Census data, 2001 to 2016, by Watson & Associates Economists Ltd., 2021.

Figure 3-6b: Province of Ontario, Historical Households by Family-Structure Type, 2001 to 2016



Source: Derived from Statistics Canada Census data, 2001 to 2016, by Watson & Associates Economists Ltd., 2021.

3.2.2 Housing Choice for Younger Generations is Critical to the Sustained Economic Competitiveness of the Region

Accommodating younger generations, such as Millennials and Generation Z, and other working-age adults is a key policy objective for the Region of Waterloo, recognizing that the accommodation of skilled labour and the attraction of new businesses are inextricably linked and positively reinforce

one another.[18] To ensure that economic growth is not constrained by future labour shortages, continued effort is required by the Region of Waterloo and its Area Municipalities to explore ways to attract and accommodate new skilled and unskilled working-age residents to the Region within a diverse range of housing options by structure type, tenure and location. Labor force attraction efforts must also be linked to housing accommodation (both ownership and rental), infrastructure, municipal services, amenities, as well as quality of life attributes that appeal to the younger mobile population, while not detracting from the Region's attractiveness to older population segments.

As previously identified in the Region of Waterloo Long-term Population and Housing Analysis Study, a key driver of ownership housing demand associated with many Millennials is the desire for additional floor space and a yard to accommodate a growing family. Recent requirements to work at home, resulting from COVID-19 government-imposed lockdowns in 2020 and 2021 have also created a growing need for increased floor space to accommodate home offices. Over the past 18 months, COVID-19 has accelerated housing demand across the Region's urban and rural areas, led by a combination of factors, many of which were already place prior to the pandemic, including a strengthening regional economy, increased opportunities for work at home and hybrid at home/at office work models largely driven from the growing knowledge-based employment sector, as well as affordable housing options in Waterloo Region relative to the Greater Toronto Hamilton Area (GTHA).

Housing demand associated with younger generations in the Region of Waterloo is anticipated to be strong across a range of housing types that are affordable to new home buyers/renters and cater to a broad range of lifestyle preferences towards urban, suburban and rural living. This includes housing options such as townhouses (including back-to-back townhouses, stacked townhouses), higher density developments (i.e. purpose-built apartments and condominiums), and to a lesser extent, low-density housing forms. Demand for low-density housing is anticipated to be strongest for "move-up" home buyers with growing families, typically approaching the 40+ age group.

As discussed in the Employment Strategy Technical Brief, the Region of Waterloo is recognized on an international scale as a hub for innovation.[19] This has helped the Region in its efforts to connect local companies to a large and growing local talent pool of skilled workers. These workers are particularly attracted by the urban appeal and amenities of the Region's urban centres and mixed-used areas over traditional suburban locations. This is especially the case for younger population segments. This underscores the option of "place making" as an increasingly recognized and important planning approach to creating diverse and vibrant communities, which in turn can help attract local population and job growth as long as other necessary infrastructure requirements, community services and amenities are provided.

[18] Millennials are typically defined as the segment of the population which reached adulthood during the 2000s. While there is no standard age group associated with the Millennial generation, persons born between 1980 and 1992 (currently 29 to 41 years of age in 2021) best fit the definition of this age group. For the purposes of this study, we have assumed that those born between 1993 and 2005 (16 to 28 years of age as of 2020) comprise Generation Z.

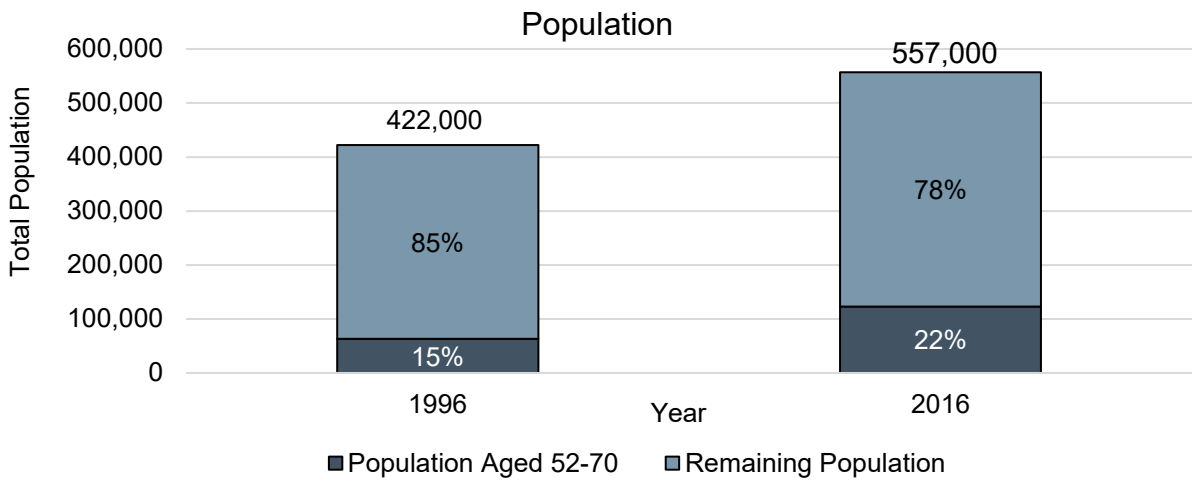
[19] Region of Waterloo, Regional Official Plan Review, Employment Strategy Technical Brief, January 2020.

3.2.3 To Accommodate the Region's Aging Population the Region will Require a Broader Range of Housing Options

Forecast trends in population age structure are important to address as these demographic trends directly influence the rate of future population growth as well as future housing needs, infrastructure requirements and community services for the Region of Waterloo. For Canadian municipalities, including the Region of Waterloo, the influence of the Baby Boomer generation on real estate market demand over the next several decades is particularly important to address.[20]

As previously discussed in the Region of Waterloo Long-Term Population and Housing Growth Analysis Brief, the Region of Waterloo population base is getting older. Today, the share of older adults in the Region of Waterloo is much higher now than it was several decades ago as a result of the Region's high concentration of Baby Boomers. As of 2021, the Baby Boomer generation is between 57 and 75 years of age and comprises 19% of the Region's population base.[21] Figure 3-7 indicates that the Baby Boomer generation in the Region of Waterloo represented approximately 22% of the total population and 34% of all household maintainers as of 2016.[22] Comparably, this same age group represented only about 15% of the Region's population and 22% of total household maintainers in 1996.

Figure 3-7: Region of Waterloo, Percentage of Population and Household Maintainers Represented by Baby Boomers (52-70 Years of Age as of 2016)

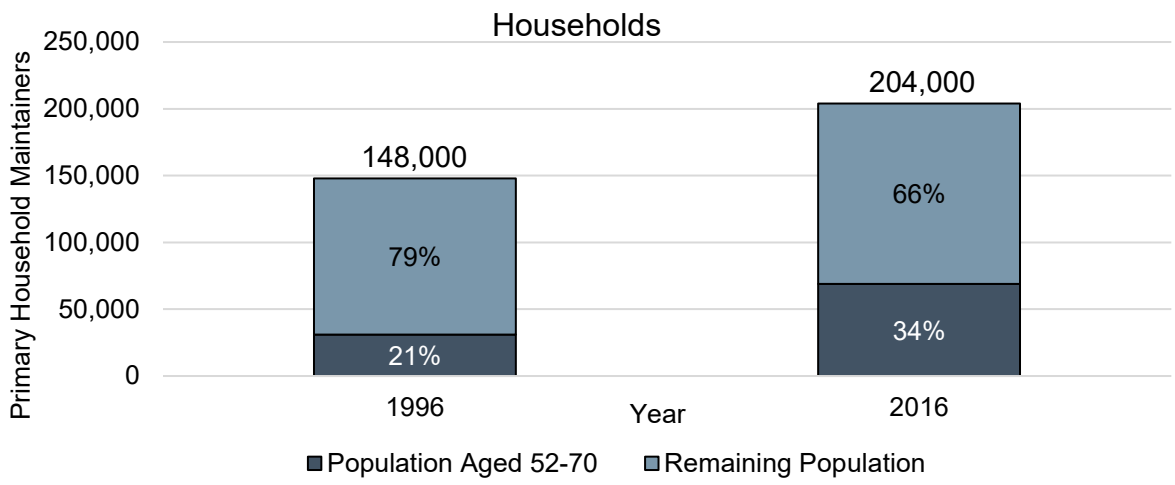


Note: Population includes net Census undercount of 4%.
Source: Derived from Statistics Canada Census data, 1996 and 2016, by Watson & Associates Economists Ltd.

[20] Baby Boomers are typically defined as those born between 1946 and 1964.

[21] It is noted that at the time of the 2016 Census, the Baby Boom population was between 52 and 70 years of age.

[22] 2016 Statistics Canada Census data.



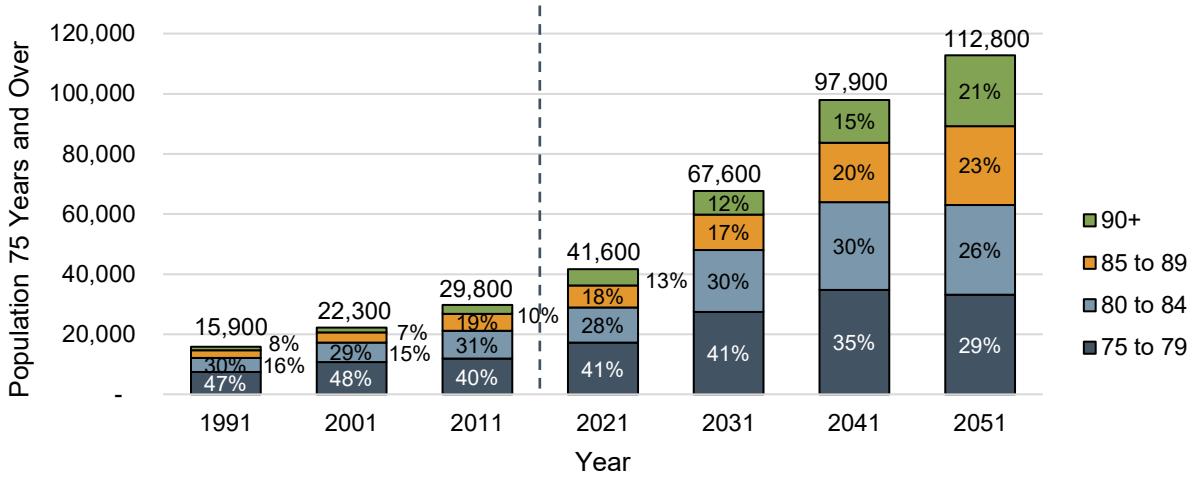
Source: Derived from Statistics Canada Census data, 1996 and 2016, by Watson & Associates Economists Ltd.

As the Region's Baby Boomer population continues to age over the next several decades, the number and percentage of older seniors (i.e. seniors 75 years of age and older) is anticipated to steadily increase from approximately 41,600 in 2021 to 112,800 in 2051, as summarized in Figure 3-8. This represents a forecast annual population growth rate for the 75+ age group of 3.4%, compared to 1.4% for the entire population.[23]

Within the 75+ age group, the growing share of people 85 years of age and older is particularly important to note. In 1991, the 85+ age group represented approximately 1% of the Region's population, or about 3,800 residents. By 2051, the Region's 85+ population is forecast to grow to approximately 49,800 persons, representing 5% of the Region's total population base. Forecast population growth associated with the 75+ age group will be largely driven by the aging of the existing Baby Boom population within the Region of Waterloo, as opposed to net-migration of older residents to the Region. Over the 2016 to 2051 planning horizon, the 75+ age group is forecast to represent only 1% of total forecast net migration to the Region of Waterloo. This suggests that the strong population growth anticipated within the 75+ age group will still be achieved even if the long-term 2051 population forecast for the Region, as set out in the Growth Plan, 2019, is not fully realized as a result of lower net migration levels.

[23] Region of Waterloo Long-Term Population and Housing Growth Analysis. December 2020.

Figure 3-8: Region of Waterloo, Forecast Growth in 75+ Population Age Group, 1991 to 2051



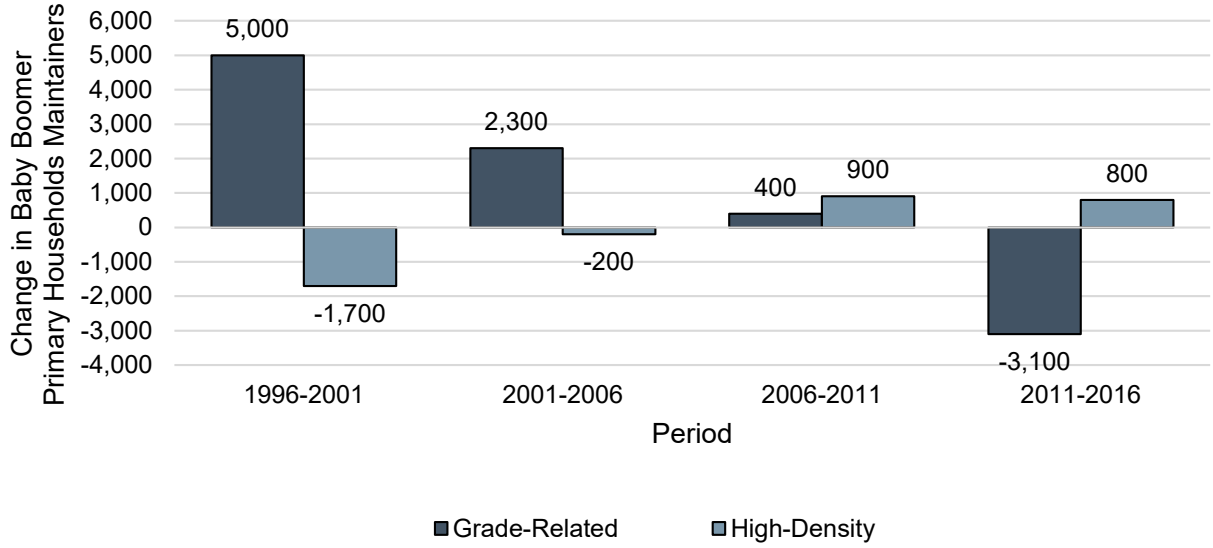
Note: Population includes net Census undercount estimated at 4%.
Source: Population forecast by age derived from 1991 to 2016 Statistics Canada Census by Watson & Associates Economists Ltd. 2016 to 2051prepared by Watson & Associates Economists Ltd.

The aging of the Baby Boomer generation is anticipated to influence both demands for new housing as well as the supply of existing housing stock across the Region of Waterloo. Figure 3-9 summarizes the changing housing preferences of Baby Boomers by structure type over the 1996 to 2016 period. Key observations include:

- Between 1996 and 2006, housing demand within the Region of Waterloo associated with the Baby Boomer generation was largely concentrated in grade-related units, particularly low-density ownership housing; and
- Between 2006 and 2016, the number of grade-related dwellings occupied by Baby Boomers steadily declined by 2,700 units. During the same time, high-density dwellings occupied by Baby Boomers increased by 1,700 units.

This trend identifies a significant shift in Baby Boomer housing preferences over the 1996 to 2016 period away from grade-related dwellings and towards high-density housing forms. This trend is expected to continue in the Region of Waterloo as Baby Boomers continue to age, placing increasing demands on a variety of high-density housing forms across the Region of Waterloo.

Figure 3-9: Region of Waterloo, Total Housing Growth by Structure Type, Associated with the Baby Boomer Generation, 1996 to 2016



Note: Figures have been rounded
Grade-related inculdes low-density (singles and semis) and medium-density (rows and apartments in duplexes) households.
High-density includes bachelor, 1 and 2+ bedroom rental and condo apartments.

Source: Derived from Statistics Canada Census data, 1996 to 2016, by Watson & Associates Economists Ltd., 2021.

Not only is the Baby Boomer age group large in terms of its population share in the Region of Waterloo, but the group is also diverse with respect to age, income, health, mobility, and lifestyle/life stage. While a large share of Baby Boomers are anticipated to "age in place" within their existing low-density houses, it is anticipated that a portion of these older residents, particularly those 85+, will require alternative housing options such as accessible forms of medium-density townhouses, purpose-built rental apartments, high-density ownership condominiums, secondary units, as well as various forms of seniors' housing and affordable housing. Providing such local housing options is important to allow these older residents to remain in their communities when responding to life changes. The overarching message around "aging in place" is that seniors require housing choice as well as access to community services and amenities with the goal to age with some level of independence "within the community," as opposed to simply "aging at home."[24]

3.2.4 Strong Forecast Growth in Non-Permanent Residents is Anticipated to Place Increasing Demands on High-Density Housing within the Region of Waterloo

Non-permanent residents (NPR) 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,

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

the humanitarian population such as refugees and other temporary residents.[25] The Region of Waterloo NPR population is represented by a temporary cohort which is typically concentrated between the age of 15 and 34.

Most of the NPR population in the Region of Waterloo comprises 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 the proximity to post-secondary institutions and major employers. Looking forward, the NPR population is expected to represent a more significant component of future population growth in the Region of Waterloo, relative 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.

Over the forecast period, the NPR population in the 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, the 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 previously discussed in the Region of Waterloo Long-Term Population and Housing Growth Analysis Brief and section 4.4 of the Intensification Strategy Technical Brief, 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. Many of those associated with the NPR population will continue to be accommodated within high-density households. Given the significant increase in NPR population forecast for the Region of Waterloo over the 2021 to 2051 planning horizon, these residents are anticipated to place increasing needs for high-density households across the Region, largely within the Cities of Waterloo, Kitchener and Cambridge.

3.2.5 Declining Housing Affordability Combined with Infrastructure Investment also Represents a Key Driver of Medium- and High-Density Housing Demand in the Region of Waterloo

3.2.5.1 Housing Prices in the Region of Waterloo are Rising Considerably Faster than Household Income Levels

Trends in housing prices and housing affordability within the Region of Waterloo and the broader market area are discussed in the Region of Waterloo Long-Term Population and Housing Growth Analysis Technical Brief as well as the Intensification Strategy Technical Brief. Housing affordability

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

plays a key role in influencing housing demand by structure type. Between January 2014 and January 2022, average prices in the Region of Waterloo increased as follows:[26]

- Single detached units – 16.2% annually from $311,600 to $1,038,200;
- Townhouse/row units – 15.8% from $210,600 to $682,200; and
- Apartment units – 11.8%. from $179,400 to $437,700.

It is important to recognize that while the average sale price of condominiums is lower than freehold townhouses and single detached houses, condominiums, which largely represent high-density units are not necessarily the most affordable housing units in all cases. On average, the carrying cost of condominiums can often be higher (most notably when compared to freehold townhouses) when condominium fees and other charges (e.g. parking fees) are factored into the analysis.

As previously noted in the Long-Term Population and Growth Analysis Technical Brief, average household income growth across Waterloo Region has not kept pace with housing price appreciation over the past several decades.[27] During the past five-year Census period (2011 to 2016), average household incomes increased at an annual rate of 2.2%, which is well below annual housing appreciation rates experienced over this same time period. As a result, housing affordability has steadily declined over the past decade across the Region of Waterloo, driving increased demand for more affordable forms of ownership housing as well as rental housing options.

3.2.5.2 Access/Proximity to High-Order Transit

As identified in the Region of Waterloo Long-Term Population and Growth Analysis Technical Brief, 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, particularly within the BUA. Access and proximity to high-order transit (i.e. GO Transit, Waterloo Region ION – LRT and BRT) is an increasingly essential component of large-scale residential and non-residential intensification projects, particularly office and mixed-use development. Across the Region of Waterloo, downtown areas, MTSAs and some Employment Areas will be supported by direct access to high-order transit, ION LRT and BRT. According to the 2019 growth monitoring report from the Region of Waterloo, as of 2019 one in five people in the Region live in the Central Transit Corridor (CTC). From 2011 to 2019, the CTC accommodated 22,000 new residents which is equal to one-third of Region-wide population growth and double the population growth rate outside the CTC. From 2018 to 2019, 42% of the Region's

[26] Average housing prices derived from the CREA MLS HPI Tool for the Kitchener-Waterloo Area: Kitchener-Waterloo Market Area, as defined by the Kitchener-Waterloo Real Estate Board, includes the Cities of Kitchener and Waterloo and adjacent Townships (i.e. excludes City of Cambridge and Township of North Dumfries).

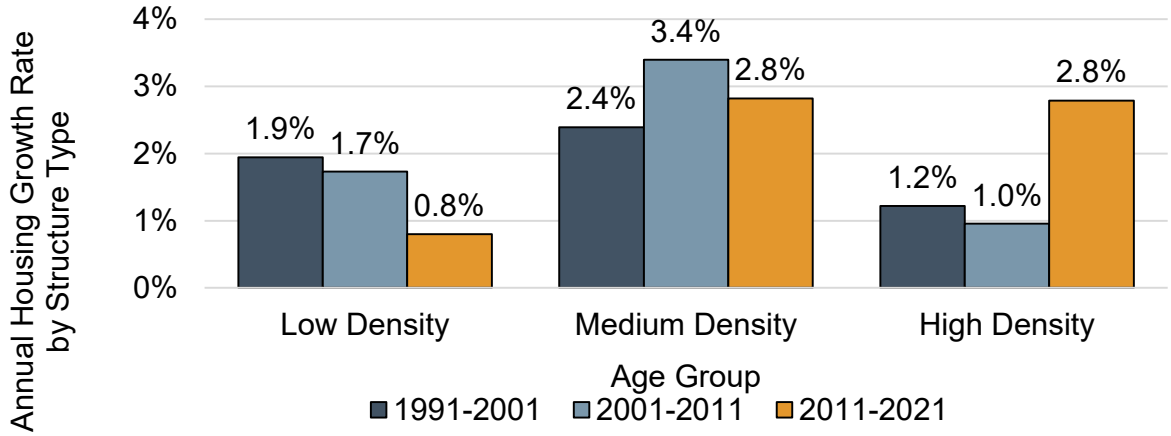
[27] Region of Waterloo, Regional Official Plan Review, Long-Term Population and Housing Growth Analysis Technical Brief, January 2020.

population growth occurred in the CTC.[28] Along the ION LRT corridor, demand for residential and commercial (retail and office) development is anticipated to be greatest near the LRT stations in Kitchener and Waterloo, given the anticipated level of service and ridership rates compared to the BRT in Cambridge.[29]

3.2.5.3 The Rate of Low-Density Housing Growth in the Region of Waterloo has been Steadily Declining over the Past 30 Years

The demographic and socio-economic trends discussed in this chapter help explain housing trends by structure type experienced within the Region of Waterloo over the past 30 years and provide insights with respect to future housing growth patterns by density-type over the next 30 years. As summarized in Figure 3-10, the annual rate of low-density housing growth has steadily declined in the Region of Waterloo between 1991 and 2021 for each of the historical 10-year intervals examined based on available Statistics Census data and Region of Waterloo housing occupancy data from 2016 to 2019.[30] Conversely, annual growth associated with high-density households has increased over the past 30 years, while the annual growth rate for medium-density households peaked during the 2001 to 2011 period. The housing growth drivers summarized in this chapter suggest that the trends identified in Figure 3-10 will continue over the next 30 years.

Figure 3-10: Region of Waterloo, Housing Growth Rate by Structure Type, Annual Population Growth Rates by Household Maintainer by Structure Type, 1991 to 2021



Low density represents singles and semi-detached.
Medium density includes townhouses and apartments in duplexes.
High density includes all apartments.
Source: 1991 to 2016 data from Statistics Canada Census, and 2021 by Watson & Associates Economists Ltd.

[28] Region of Waterloo Report: PDL-CPL-20-31, Monitoring Change in the Central Transit Corridor, 2019 Report, December 8, 2020.

[29] ION Stage 1 and 2.

[30] It is noted that total housing growth between 2016 and 2021 has been estimated by Watson & Associates Economists Ltd. based on housing occupancy data provided by the Region of Waterloo from 2016 to 2019.

3.2.6 Observations

To achieve its 2051 population allocation as set out in Schedule 3 of the Growth Plan, 2019, the Region of Waterloo will require a broad choice of new housing products which appeal to a diverse range of demographic groups by family and non-family type, structure type, location, age, and income level. In addition to a steady supply of new grade-related housing in both planned and new greenfield areas, increased housing options will also be required regarding mixed-use development planned within intensification nodes and corridors, including secondary suites, live/work units, seniors' housing, and a range of affordable housing opportunities that are pedestrian oriented and transit supportive.

Planning for Both Families and Non-Families

Comparatively, the Region of Waterloo has a comparable share of Census families relative to the provincial average. Over the forecast period, the percentage share of non-family Census households in the Region of Waterloo is forecast to steadily increase, including households occupied by NPR. As such, it is important for the Region to continue to plan for a broad range of housing options by structure type and building size to accommodate anticipated growth in both family and non-family households.

Planning for Population Growth Across a Diverse Range of Age Groups and Income Levels

As previously discussed, it is recognized that the accommodation of skilled labour is critical to the attraction of new businesses and local economic development. To ensure that economic growth is not constrained by future labour shortages, continued effort is required by the Region of Waterloo and its local municipalities to explore ways to attract and accommodate new skilled and unskilled working residents to the Region's Cities and Townships across a diverse range of housing options by structure type and tenure.

The aging of the Baby Boomer population is anticipated to influence both the demand for new housing as well as the supply of existing housing stock across the Region of Waterloo. As the Baby Boom generation continues to get older, housing demand within this demographic group is anticipated to continue to shift from grade-related housing types to high-density housing forms. Providing local housing options for aging Baby Boomers is important to allow these older residents to remain in their communities when responding to life changes.

Planning for Both Housing Intensification and Greenfield Development

Since 2006, an increasing share of residential development, particularly higher-density housing, has been constructed within the BUA. As previously mentioned in the Region of Waterloo Intensification Strategy, major transit infrastructure investments associated with the ION LRT and BRT have been key factors in the Region's success related to housing intensification over the past decade.

3.3 Region-wide Housing Forecast by Structure Type to 2051 (Community Area Component 2 of the LNA Methodology)

Building on the Region of Waterloo Long-Term Population and Housing Growth Analysis and Region of Waterloo Intensification Analysis, this section provides the long-term housing growth forecast for the Region of Waterloo to the year 2051 by housing type to inform and provide input into Component 2 of the provincial LNA Methodology.[31]

3.3.1 Trends in Headship Rates

Total housing needs are determined by the rate of household formation by population age group within a municipality over a specific time period. Household formation rates, also known as household headship rates, are defined as the ratio of primary household maintainers, or heads of households, by major population age group (i.e. cohort).[32] Between 1996 and 2016, the Region of Waterloo's total headship rate increased modestly from 34% to 37% (refer to Appendix A for additional details). An understanding of historical headship rate trends is important because this information provides insights into household formation trends associated with population growth by age, family type and family structure. While major fluctuations in headship rates are not common over time, the ratio of household maintainers per capita varies by population age group. For example, a municipality with a higher percentage of seniors will typically have a higher household maintainer ratio per capita (i.e. headship rate) compared to a municipality with a younger population. This is because households occupied by seniors typically have fewer children than households occupied by adults under 65 years of age. Accordingly, forecast trends in population age structure provide important insights into future headship rates and average persons per unit (PPU) trends for the Region of Waterloo. It is important to note that headship rates by major age group are anticipated to remain relatively stable over the long-term forecast period.

3.3.2 Trends in Average Persons Per Unit (PPU)

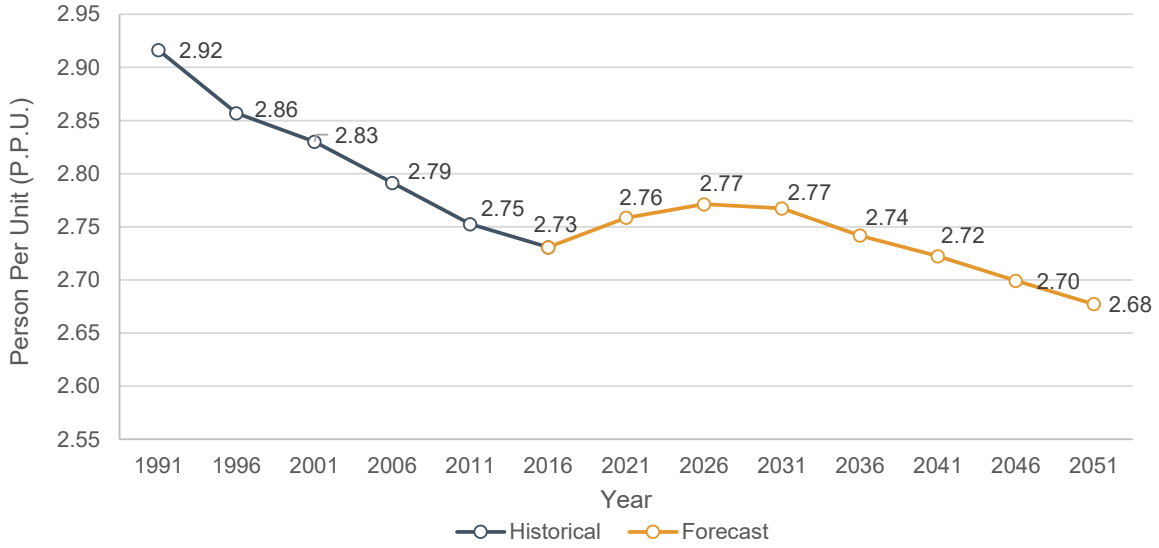
Figure 3-11Figure 3-11 summarizes anticipated long-term forecast housing occupancy trends (i.e. PPU) for the Region of Waterloo from 2016 to 2051 within the context of historical trends from 1991 to 2016. As previously discussed, the PPU forecast is based on a headship rate analysis (refer to

[31] This forecast is prescribed by the Province in Schedule 3 of A Place to Grow: Growth Plan for the Greater Golden Horseshoe, August 2020 Office Consolidation, and municipalities are required to plan and manage growth using this forecast.

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

Appendix A for additional details).[33] 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 new housing construction. It is important to note that the high growth of the NPR population during the 2016 to 2026 period also 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.[34] 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 3-11: 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.

3.3.3 Region of Waterloo Census Housing Forecast to 2051

Figure 3-12 Figure 3-12summarizes 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.[35] 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

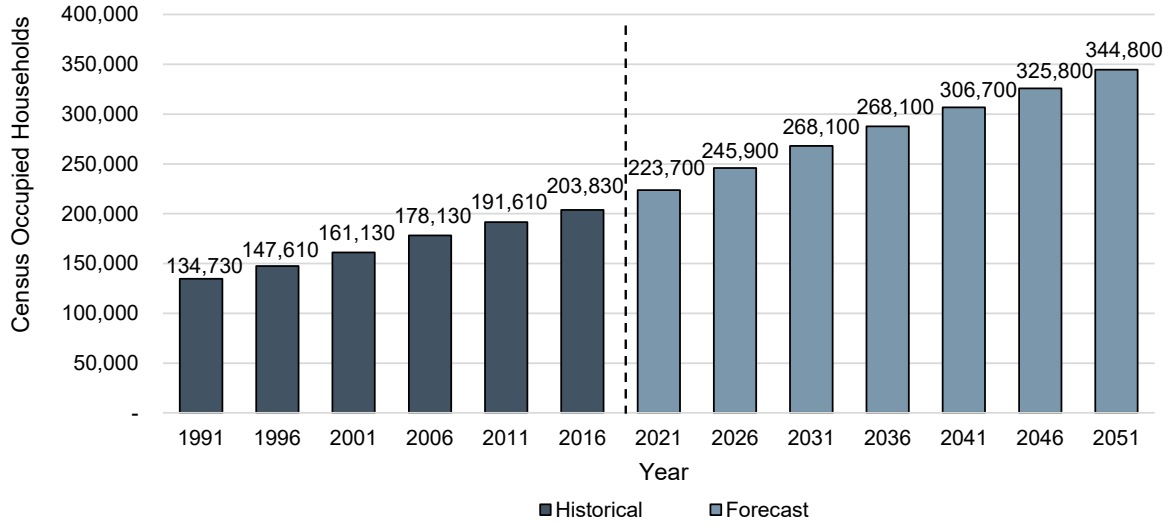
[33] A headship rate is defined as the number of primary household maintainers or heads of households by major population age group. The headship forecast forms the basis for determining the demand for new households generated from population growth. Dividing total units over population generates the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

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

[35] 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 3-12: Region of Waterloo, Census Housing Forecast, 2016 to 2051

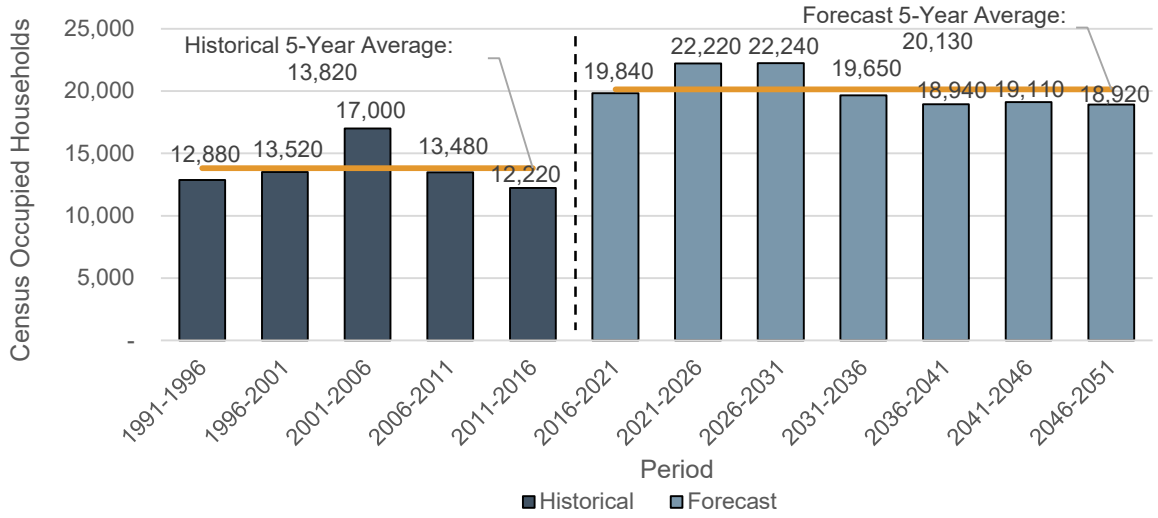


Source: Historical data from Statistics Canada Census Profiles, 1991 to 2016, and 2016 to 2051 forecast by Watson & Associates Economists Ltd., 2020.

Figure 3-13 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.[36] 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).

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

Figure 3-13: 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.

3.3.4 Total Housing Forecast by Structure Type, 2021 to 2051

This section summarizes the long-term housing growth forecast for the Region of Waterloo to the year 2051. Forecast housing by structure type is based on a housing propensity analysis by population age, housing structure type and housing tenure (i.e. ownership versus rental). This approach uses current Census data, in this case 2016 Statistics Canada Census data, as a starting point to derive housing propensity rates by structure type for the Region of Waterloo by population age group. Based on a review of historical trends over the past 20 years, combined with a review of forward-looking socio-economic trends, major infrastructure investments and policy objectives (which are anticipated to influence future housing demand by density type), forecast propensity rates by housing structure type and tenure have been prepared for each option. Refer to Appendix B for additional details regarding the approach and results of the housing propensity analysis.

There are a multitude of factors that continue to influence housing propensity by structure type as previously discussed herein in section 3.2. These factors include, but are not limited to, housing affordability, demographics and socio-economics (e.g. housing demand associated with families, aging of the population, cultural diversity), lifestyle choices, the changing nature of work. The 2021 to 2051 housing forecast by age group (age of primary household maintainer) and housing type for each of the three residential growth options is provided below.

Presented below is a summary of the housing forecasts for Options 1 to 3. To provide context related to each of the housing forecasts by option, it is noted that the Region of Waterloo has achieved an intensification rate of 53% from 2013 to 2019, as identified in the Region of Waterloo Intensification Strategy, August 2021. Over the forecast period, demand for high-density housing within the Region's BUA is anticipated to strengthen, driven by the demographic and socio-economic factors discussed herein in section 3.2. Furthermore, the Region is currently achieving an average DGA density of 54 people and jobs per gross ha on occupied lands almost entirely by way of

grade-related housing forms (refer to subsection 3.4.2, herein). Accordingly, a request for alternative targets below the Growth Plan Minimum option is not supported from a technical perspective.

3.3.4.1 Option 1 – Growth Plan Minimum

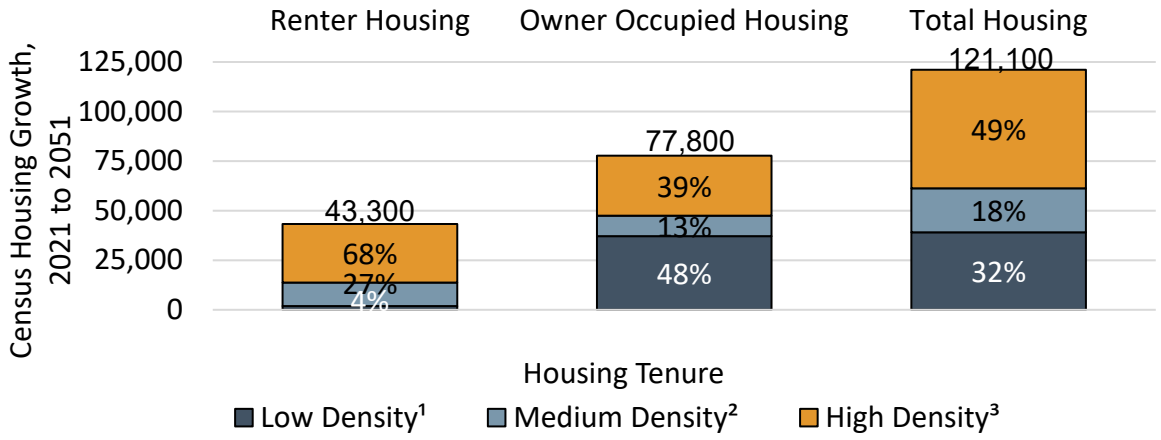
As previously discussed in subsection 1.2.3 herein, Option 1 is based on the following assumptions related to Community Areas for the Region of Waterloo:

- 50% of annual housing growth from 2022 to 2051 allocated within Region of Waterloo BUAs;[37] and
- Region-wide density target of 50 people and jobs per ha in DGAs.

Figure 3-14 and Table 3-1 summarize the Option 1 housing growth forecast for the Region of Waterloo from 2021 to 2051 by structure type and tenure. Key observations include:

- Total forecast housing growth comprises 32% low-density, 18% medium-density and 49% high-density housing forms;
- Ownership housing is forecast to comprise 64% of total housing growth, while rental housing represents the remaining 36% of new households;
- Approximately 68% of the Region's rental housing demand is anticipated in the form of high-density housing and 32% in grade-related housing forms; and
- Approximately 39% of the Region's owner-occupied housing demand is anticipated in the form of high-density housing and 61% in grade-related housing forms.

Figure 3-14: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Permanent Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Source: Watson & Associates Economists Ltd.

[37] Excludes students not captured by the Census.

Table 3-1: Region of Waterloo, Option 1 – Growth Plan Minimum, Permanent Housing Growth by Housing Structure Type and Tenure, 2021 to 2051

Housing Tenure	Low-Density Housing[1]	Medium-Density Housing[2]	High-Density Housing[3]	Total Housing	Percentage Housing Share
Total Renter-Occupied Housing Forecast	**1,900**	**11,900**	**29,500**	**43,300**	**36%**
Total Owner-Occupied Housing Forecast[4]	**37,200**	**10,300**	**30,300**	**77,800**	**64%**
Total Household Forecast	**39,100**	**22,200**	**59,800**	**121,100**	**100%**
Total Household Forecast by Structure Type	**32%**	**18%**	**49%**	**100%**	

[1] Low density represents singles and semi-detached.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes all apartments.

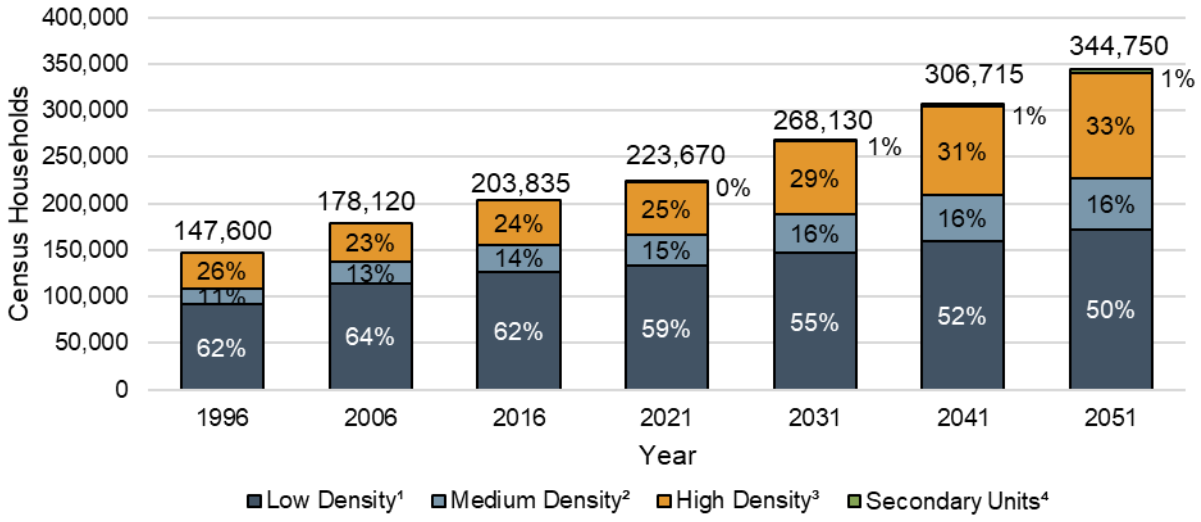
[4] Includes freehold and condominium units.

Note: Figures may not sum precisely due to rounding. Secondary units are captured as high density for the purposes of this figure.

Source: Watson & Associates Economists Ltd.

Table 3-15 summarizes the Region's total housing forecast by structure type (including the Region's estimated housing base) from 1996 to 2051. During the 1996 to 2021 period, the Region's housing base gradually shifted from low-density housing forms to medium- and high-density housing forms. Over the 2021 to 2051 forecast period, the Region's share of low-density housing is forecast to continue to decline from 59% to 50%. Conversely, the combined share of medium- and high-density housing forms and accessory units is forecast to increase from 41% to 50%.

Figure 3-15: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

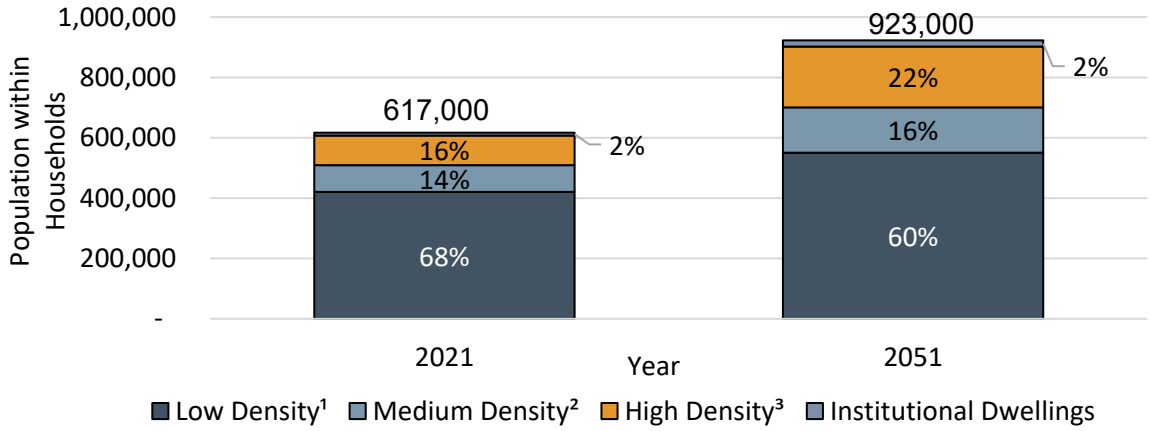
[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

Figure 3-16 summarizes the Region's total population forecast by housing structure type as of 2021 and 2051 under Option 1. As of 2021, 68% of the Region's permanent population base is estimated to be accommodated in grade-related households (i.e. low density and medium density). Under Option 1, low-density households are anticipated to still accommodate most of the Region's population representing 60% of the forecast population base by 2051, while the share of population accommodated in medium- and high-density households is forecast to gradually increase from 30% to 38%.

Figure 3-16: Region of Waterloo, Option 1 – Growth Plan Minimum, Permanent Population by Housing Structure Type, 2021 & 2051



[1] Low density represents singles and semi-detached.

[2] Medium density includes townhouses, and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments.

Note: Figures may not add precisely due to rounding. Population includes net Census undercount of 4%. Secondary units are embedded within the housing categories above.

Source: Watson & Associates Economists Ltd.

3.3.4.2 Option 2 – Compact Development, Modest Community Area Expansion

As previously discussed in subsection 1.2.3, Option 2 is based on the following assumptions related to Community Areas for the Region of Waterloo:

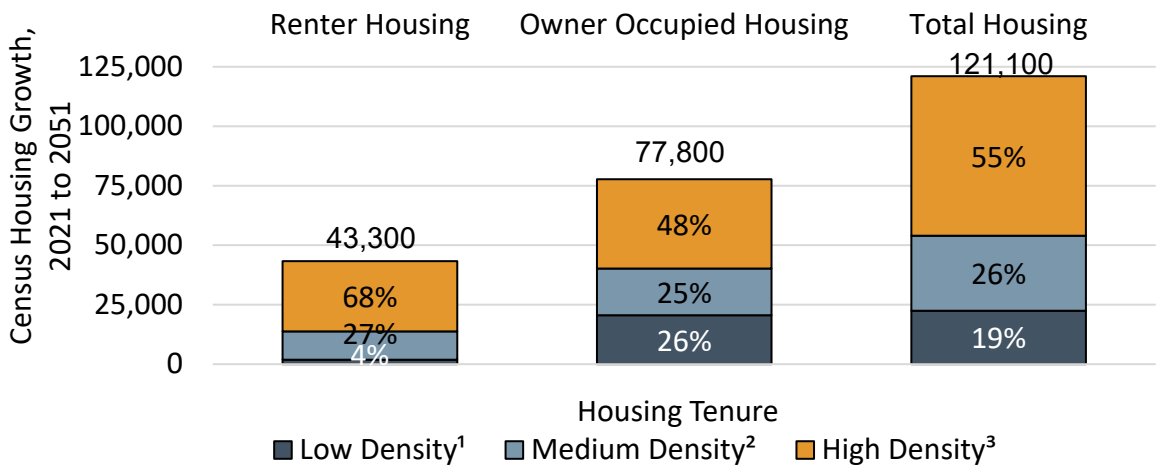
- 60% of annual housing growth from 2022 to 2051 allocated within Region of Waterloo BUAs; and
- Region-wide density target of 60 people and jobs per ha in DGAs.

Figure 3-17 and Table 3-2 summarize the Option 2 housing forecast for the Region of Waterloo from 2021 to 2051 by structure type and tenure. Key observations include:

- Total forecast housing growth comprises 19% low-density, 26% medium-density and 55% high-density housing forms;
- Ownership housing is forecast to comprise 64% of total housing growth, while rental housing represents the remaining 36% of new households;
- Approximately 68% of the Region's rental housing demand is anticipated in the form of high-density housing and 32% in grade-related housing forms; and

- Approximately 48% of the Region's owner-occupied housing demand is anticipated in the form of high-density housing and 52% in grade-related housing forms.

Figure 3-17: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Permanent Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Source: Watson & Associates Economists Ltd.

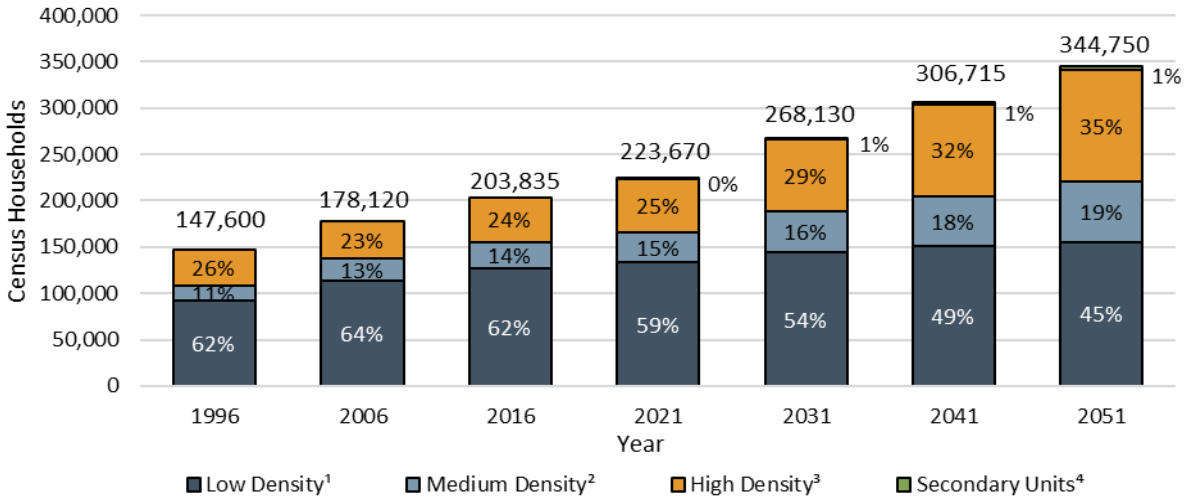
Table 3-2: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Permanent Housing Growth by Housing Structure Type and Tenure, 2021 to 2051

Housing Tenure	Low-Density Housing[1]	Medium-Density Housing[2]	High-Density Housing[3]	Total Housing	Percentage Housing Share
Total Renter-Occupied Housing Forecast	**1,900**	**11,900**	**29,500**	**43,300**	**36%**
Total Owner-Occupied Housing Forecast[4]	**20,500**	**19,700**	**37,600**	**77,800**	**64%**
Total Household Forecast	**22,400**	**31,600**	**67,100**	**121,100**	**100%**
Total Household Forecast by Structure Type	**19%**	**26%**	**55%**	**100%**	

[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Note: Figures may not sum precisely due to rounding. Secondary units are captured as high density for the purposes of this figure.
Source: Watson & Associates Economists Ltd.

Figure 3-18 summarizes the Region's total housing forecast by structure type from 1996 to 2051 under Option 2. Under Option 2, the Region's share of low-density housing is forecast to continue to decline from 59% to 45% over the 2021 to 2051 forecast period. Conversely, the combined share of medium- and high-density housing forms is forecast to increase from 41% to 55%.

Figure 3-18: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

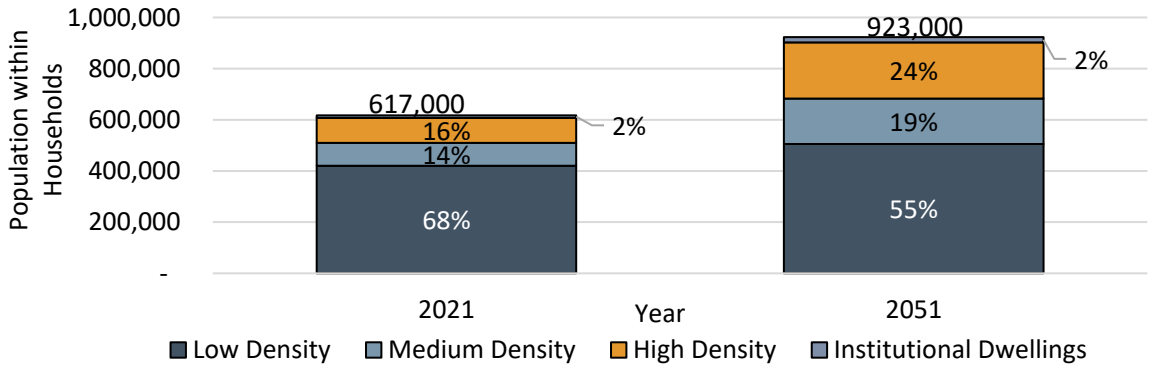
[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

Figure 3-19 summarizes the Region's total population forecast by housing structure type as of 2021 and 2051. As of 2021, 68% of the Region's permanent population base is estimated to be accommodated in grade-related households (i.e. low density and medium density). Under Option 2, low-density households are anticipated to still accommodate most of the Region's population, representing 55% of the forecast population base by 2051, while the share of population accommodated in medium- and high-density households is forecast to steadily increase from 30% to 43%.

Figure 3-19: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Permanent Population by Housing Structure Type, 2021 & 2051



[1] Low density represents singles and semi-detached.

[2] Medium density includes townhouses, and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments.

Note: Figures may not add precisely due to rounding. Population includes net Census undercount of 4%. Secondary units are embedded within the housing categories above.

Source: Watson & Associates Economists Ltd.

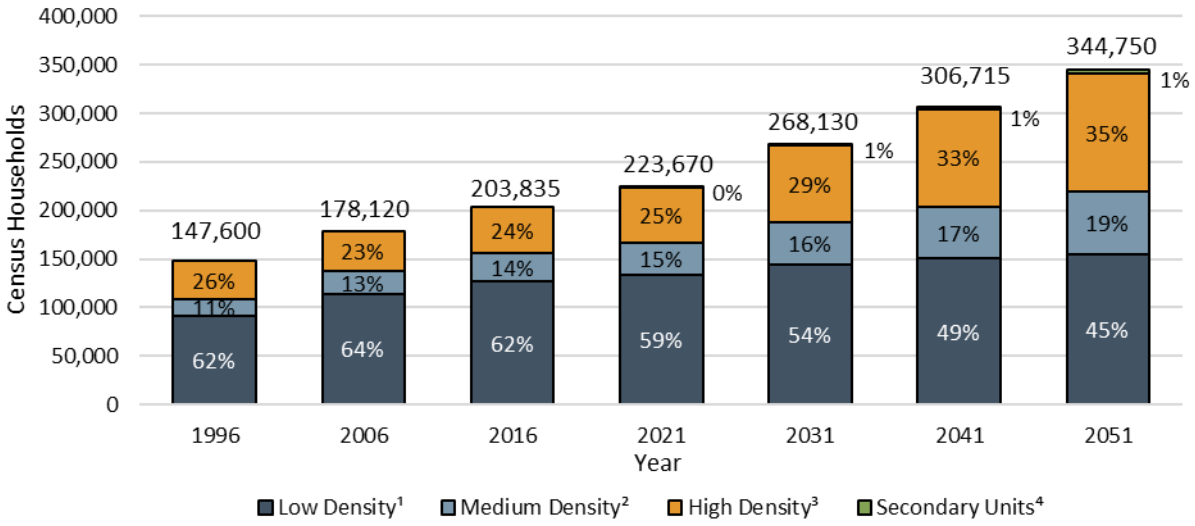
3.3.4.3 Option 3 – More Compact Development, No Urban Expansion of Community Areas

As previously discussed in subsection 1.2.3, Option 3 is based on the following assumptions related to Community Areas for the Region of Waterloo:

- 60% of annual housing growth from 2022 to 2051 allocated within Region of Waterloo BUAs;[38] and
- Region-wide density target of 64 people and jobs per ha in DGAs.

Figure 3-20 summarizes the Region's total housing forecast by structure type from 1996 to 2051 under Option 3. Forecast housing demand by structure type is anticipated to remain generally consistent under this option relative to Option 2. The Region's total population forecast by housing structure type as of 2021 and 2051 is also relatively consistent with Option 2, as illustrated in Figure 3-19.

Figure 3-20: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Total Permanent Housing by Structure Type, 1996 to 2051



[1] Low density includes singles and semis.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.
[4] From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051, secondary units are captured as their own category, based on incremental growth.
Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

3.3.5 Greater Golden Horseshoe Forecasts to 2051 Technical Report

As previously noted, the Growth Plan, 2019 came into effect in May 2019 and was amended in August 2020. A key amendment was to extend the growth forecast to 2051 for which upper- and

[38] Excludes students not captured by the Census.

single-tier municipalities are required to plan. As background to the Growth Plan, 2019, Hemson Consulting Ltd. prepared the Greater Golden Horseshoe Forecasts to 2051 Technical Report, June 16, 2020 (Technical Report to the Growth Plan, 2019). The technical report includes a population, housing and employment forecast for each of the upper- and single-tier GGH municipalities.

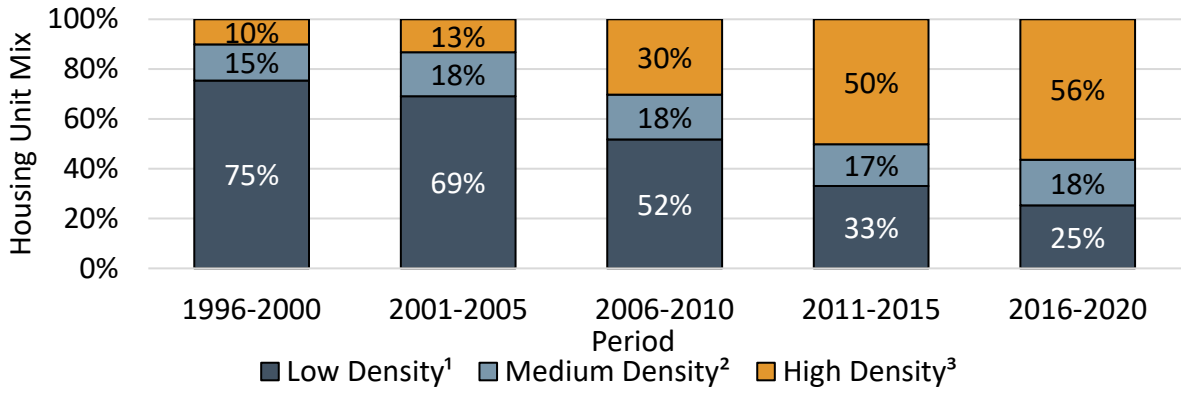
It is important to note that the Technical Report to the Growth Plan, 2019 does not represent the required housing mix to provide conformity with the Growth Plan, 2019. The subject report states:

> *"The housing forecast does not replicate/predict the housing mix that would be determined through each municipality's APTG* [A Place to Grow (Growth Plan, 2019)] *conformity work. Planned housing mixes will continue to be decided by municipalities through their local planning processes"* p. 51

Page 78 of the Technical Report to the Growth Plan, 2019 details the population, housing by structure type, and employment by category growth to 2051 for the Region of Waterloo. From 2021 to 2051, the housing unit mix is comprised of 64% grade-related housing units (44% single and semi-detached houses, 18% rows and 2% accessory units) and 36% apartment units.

Over the past two and a half decades, the residential real estate market across the Region of Waterloo, most notably in the Cities, has been transitioning towards high-density development. As illustrated in Figure 3-21, the Region-wide share of high-density housing units derived from building permits has increased from 10% in 1996 to 2000, to 56% in 2016 to 2020.

Figure 3-21: Region of Waterloo, Residential Building Permit Activity Housing Unit Mix by Structure Type, 1996 to 2020



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments.

Source: Derived from Region of Waterloo building permit data by Watson & Associates Economists Ltd.

With respect to the Region's near-term housing supply, 49% of housing units in active draft plans of subdivision or condominium are in high-density forms, and 91% of housing units within site plan applications, zoning by-law amendments, and Official Plan amendments are represented by multiple

and apartment units.[39] Lastly, as previously stated in subsection 3.3.4 of this report, the Region of Waterloo has achieved an intensification rate of 53% from 2013 to 2019.

Based on the above analysis, the housing forecast by structure type prepared in the Technical Report to the Growth Plan, 2019 forecast is not supported by recent and anticipated market housing trends. Further, the forecast would not conform with the requirements of the Growth Plan, 2019 with respect to the minimum 50% intensification target. This is due to the low-density housing focus of the Technical Report to the Growth Plan, 2019 which would require greater demand on DGA lands and less focus on housing growth in the BUA relative to the Growth Plan Minimum option. This would result in a BUA intensification target under 50%, which is not technically supported.

3.3.6 Exploring Additional Alternations for More Compact Urban Development within the Region of Waterloo

As previously addressed, a Region-wide LNA was completed during the fall of 2021 and presented to the ROP Steering Committee meeting on November 29. The results of the Region-wide LNA and evaluation was further discussed with Region of Waterloo Council on December 15, 2021, which included six alternative LNA scenarios. Two of the six Region-wide LNA scenarios previous presented to the ROP Steering Committee and discussed with Region of Waterloo Council explored higher residential intensification and DGA density targets relative to current Options 1, 2 and 3 as follows:

- **Former Scenario 4** - 65% residential intensification and 65 people and jobs per ha – resulting in 610 ha of excess Community Area DGA lands by 2051; and
- **Former Scenario 5** - 70% residential intensification and 70 people and jobs per ha – resulting in 1,044 ha of excess Community Area DGA lands by 2051

Alternative LNA options which generate excess Community Area DGA lands by 2051 are not recommended for further assessment for the following reasons:

1. Former Scenario 4 and 5 would potentially impede the Region's ability to achieve its minimum Growth Plan population and employment allocation by 2051 by redirecting a portion of grade-related housing demand away from the Region of Waterloo to neighbouring municipalities within the surrounding market area;
2. Former Scenario 4 and 5 do not generate sufficient grade-related housing options to accommodate forecast housing market demand over the long-term planning horizon across all population age groups and income levels; and
3. Shifting the share of future housing towards high-density forms and away from low and medium-density housing options to the levels required under former Scenarios 4 and 5 is not anticipated to provide a viable long-term solution to housing affordability within the Region of Waterloo for two primary reasons. 1) Former Scenarios 4 and 5 are anticipated to constrain future demand for grade-related housing across the Region of Waterloo. 2)

[39] Region of Waterloo Long-Term Population and Housing Growth Analysis, December 2020. Subsection 3.2.10.

Larger apartments required under former scenarios 4 and 5 to accommodate demand associated with families would not necessarily represent more cost-effective housing options for existing and future residents when compared to grade-related alternatives, particularly medium-density housing forms.

3.4 Region-Wide Housing Forecast by Structure Type by Planning Policy Area – Options 1 to 3

This section summarizes long-term housing growth forecasts under Options 1 to 3 by structure type and planning policy area to the year 2051. As previously noted, this analysis addresses Component 2 of the provincial LNA Methodology. The results of this analysis are summarized in Table 3-3 to Table 3-5. Key observations include:

- All options deliver the same number of total households as determined through the headship rate analysis previously discussed in subsection 3.3.1. Under each option, the population age structure of the Region is assumed to remain constant, which in turn delivers the same amount of housing under each option.
- Option 1 generates the maximum amount of future low-density housing in accordance with the minimum requirements of the Growth Plan, 2019, which would almost exclusively be accommodated in the DGA.
- All options provide a greater mix of medium- and high-density housing options relative to the current trends; however, Options 2 and 3 provide a greater shift of housing from low-density housing to medium- and high-density housing forms.
- Options 2 and 3 allocate approximately 11,700 additional households to the BUA, largely achieved through medium-density housing, and to a lesser extent, high-density housing. For Options 2 and 3, accommodating an increasing share of the population base within medium-density housing forms (i.e. “missing middle”) within the BUA is a key objective. The growth drivers summarized in section 3.2 support this objective from a real-estate market standpoint.
- Option 3 does not generate a meaningful change in forecast housing growth by structure type from Option 2. A further discussion regarding the urban land need impacts of Option 3 is discussed in subsection 3.8.4.
- Relative to Option 1, Options 2 and 3 produce a significant shift in the share of housing by structure type in the DGA towards medium- and high-density housing forms.

For each option, approximately 99% of housing growth has been allocated to the urban areas within the Region’s Cities and Townships, and the remaining 1% to the rural areas.

Table 3-3: Region of Waterloo, Option 1- Growth Plan Minimum, Housing Forecast by Structure Type and Planning Policy Area, 2021 to 2051

Total Census Housing

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**133,080**	**33,230**	**56,760**	**600**	**223,670**
Built-Up Area, 2021-2051	420	5,500	51,360	3,060	60,330
Designated Greenfield Area, 2021-2051	37,710	16,710	4,890	510	59,810
Rural, 2021-2051	950	- 0	- 0	- 0	950
Total, 2021-2051	**39,060**	**22,210**	**56,250**	**3,570**	**121,080**
Total, 2051	**172,140**	**55,440**	**113,010**	**4,170**	**344,750**

Total Census Housing Shares

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**59%**	**15%**	**25%**	**0%**	**100%**
Built-Up Area, 2021-2051	1%	9%	85%	5%	100%
Designated Greenfield Area, 2021-2051	63%	28%	8%	1%	100%
Rural, 2021-2051	100%	0%	0%	0%	100%
Total, 2021-2051	**32%**	**18%**	**46%**	**3%**	**100%**
Total, 2051	**50%**	**16%**	**33%**	**1%**	**100%**

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] Until 2016, secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051, secondary units are captured as their own category, based on incremental growth.

Note: Figures may not sum precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Table 3-4: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Housing Forecast by Structure Type and Planning Policy Area, 2021 to 2051

Total Census Housing

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**133,080**	**33,230**	**56,790**	**580**	**223,670**
Built-Up Area, 2021-2051	420	14,250	54,570	2,760	71,990
Designated Greenfield Area, 2021-2051	21,090	17,320	9,290	450	48,150
Rural, 2021-2051	950	0	0	0	950
Total, 2021-2051	**22,440**	**31,570**	**63,870**	**3,210**	**121,080**
Total, 2051	**155,520**	**64,800**	**120,650**	**3,790**	**344,750**

Total Census Housing Shares

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**59%**	**15%**	**25%**	**0%**	**100%**
Built-Up Area, 2021-2051	1%	20%	76%	4%	100%
Designated Greenfield Area, 2021-2051	44%	36%	19%	1%	100%
Rural, 2021-2051	100%	0%	0%	0%	100%
Total, 2021-2051	**19%**	**26%**	**53%**	**3%**	**100%**
Total, 2051	**45%**	**19%**	**35%**	**1%**	**100%**

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] Until 2016, secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051, secondary units are captured as their own category, based on incremental growth.

Note: Figures may not sum precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Table 3-5: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Housing Forecast by Structure Type and Planning Policy Area, 2021 to 2051

Total Census Housing

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**133,080**	**33,230**	**56,790**	**580**	**223,670**
Built-Up Area, 2021-2051	420	14,250	54,580	2,760	72,000
Designated Greenfield Area, 2021-2051	20,470	16,800	10,420	450	48,140
Rural, 2021-2051	950	0	- 0	0	950
Total, 2021-2051	**21,830**	**31,050**	**65,000**	**3,210**	**121,080**
Total, 2051	**154,910**	**64,280**	**121,790**	**3,790**	**344,750**

Total Census Housing Shares

Area	Low Density[1]	Medium Density[2]	High Density[3]	Secondary Units[4]	Total
Total, 2021	**59%**	**15%**	**25%**	**0%**	**100%**
Built-Up Area, 2021-2051	1%	20%	76%	4%	100%
Designated Greenfield Area, 2021-2051	43%	35%	22%	1%	100%
Rural, 2021-2051	100%	0%	0%	0%	100%
Total, 2021-2051	**18%**	**26%**	**54%**	**3%**	**100%**
Total, 2051	**45%**	**19%**	**35%**	**1%**	**100%**

Note: Figures may not sum precisely due to rounding.

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

[4] Until 2016, secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051, secondary units are captured as their own category, based on incremental growth.

Source: Watson & Associates Economists Ltd.

3.5 Housing Supply Potential by Area Municipality by Planning Policy Area (Community Area Component 4 of the LNA Methodology)

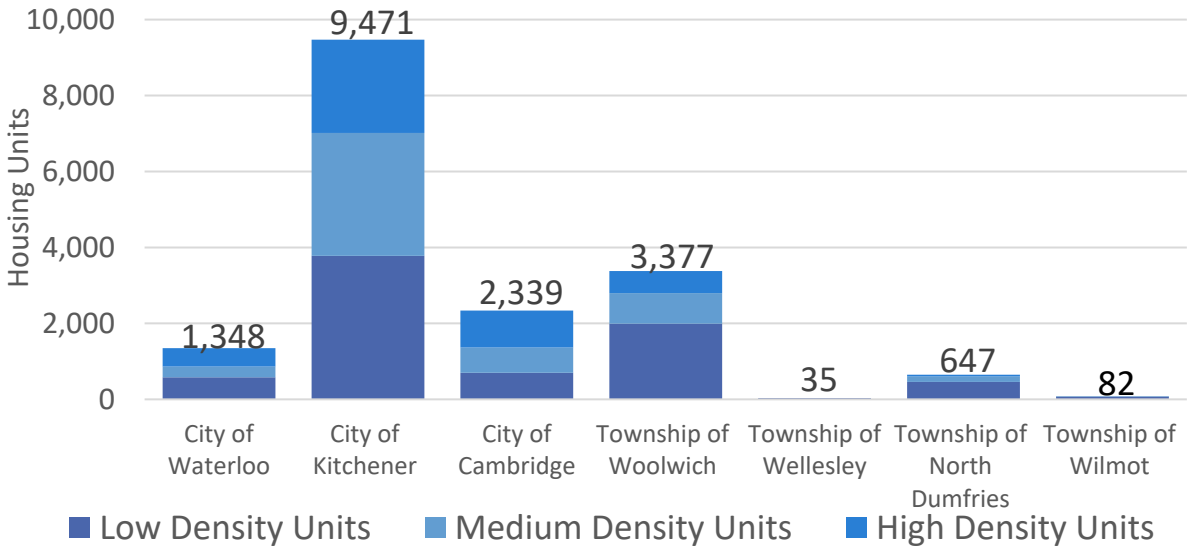
The following section provides a summary of the housing supply potential by the following planning policy area including BUA, DGA and the rural area for each Area Municipality in accordance with **Component 4** of the LNA Methodology document. The objective of this section is three-fold:

- Identify the near-term market demand for housing by type based on approved developments (registered unbuilt and draft approved);
- Categorize DGA land area by development status, including DGA lands that are developed, lands subject to approval, draft approved and pending development applications as well as DGA lands that are vacant, designated and available to receive development applications; and
- Assess the potential to accommodate the intensification target of the Growth Plan, 2019 (50%) or a higher target based on an estimate of housing supply within the BUA.

3.5.1 DGA Housing Supply Demand by Structure Type

The Region of Waterloo has approximately 17,300 potential housing units that are registered unbuilt and draft approved as of 2019. Figure 3-22 summarizes the supply of registered and draft-approved housing units by Area Municipality. Approximately 55% of approved housing units are in the City of Kitchener, followed by the Township of Woolwich at 20%. The Region's approved/draft-approved housing supply comprises the following housing structure types: 44% low density; 30% medium density; and 26% high density.

Figure 3-22: Region of Waterloo, Registered Unbuilt and Draft Approved Housing Unit Supply, 2019



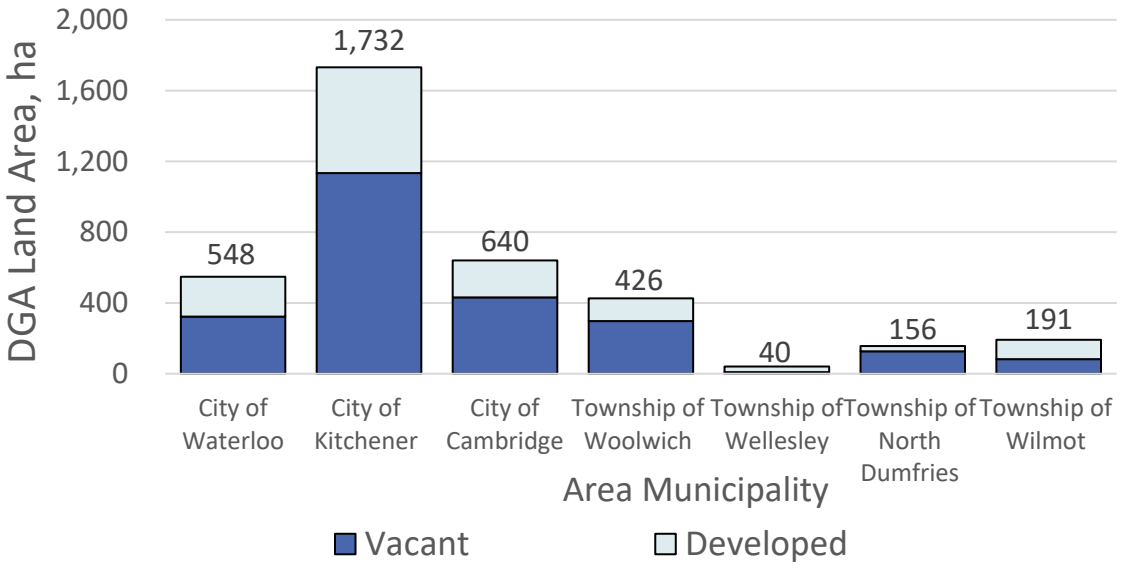
Source: Watson & Associates Economists Ltd. based on GIS data and additional information provided by the Region of Waterloo.

3.5.2 Community Area DGA Land Supply

This section provides a summary of developed and vacant DGA land within Community Areas. The Region has a total DGA land supply of 3,734 gross ha. Figure 3-23 summarizes the DGA land supply by Area Municipality according to development status: developed and vacant. Approximately one-third of the Region's DGA lands are developed (36%). Key findings include:

- The City of Kitchener has the largest land supply of vacant DGA lands within the Region of Waterloo. Vacant DGA lands within the City of Kitchener are primarily concentrated in the City's southwest area, the Rosenburg/Southwest Kitchener Secondary Plan Area, which is planned to accommodate residential and non-residential uses;
- The City of Cambridge has approximately 431 gross ha of vacant DGA lands, representing less than one-quarter (431/2,519 = 17%) of the Region's vacant DGA land supply, largely located within the west end of the City;
- The Township of Woolwich has approximately 297 gross ha of vacant DGA lands which are primarily concentrated within the urban settlement areas of Breslau and Elmira;
- The Township of North Dumfries has approximately 127 gross ha of vacant DGA lands, which are concentrated within the urban settlement area of Ayr. A small portion of lands (approximately 30 ha) in a special policy area (Special Policy Area 2.5.2 (b)) near the City of Cambridge can accommodate some growth (population of up to 1,400);
- The City of Waterloo has approximately 323 gross ha of vacant DGA lands, which are primarily concentrated in the City's northwest;
- The Township of Wellesley has approximately 9 gross ha of vacant DGA lands; and
- The Township of Wilmot has approximately 82 ha of vacant DGA land.

Figure 3-23: Region of Waterloo, DGA Land Supply by Area (ha) Municipality, as of 2019



Source: Watson & Associates Economists Ltd. based on GIS data and additional information provided by the Region of Waterloo.

It is important to recognize that the density of Community Areas is measured across the entire DGA and includes components of the DGA land supply that already have an established density (developed) as well as vacant lands.[40]

For the purposes of this analysis, vacant DGA lands have been organized into two categories:

1) vacant DGA lands that are approved (registered but unbuilt) and draft approved for development; and

2) vacant DGA lands that are not approved/draft approved for development. These two groups have been established because vacant lands, which include approved (unbuilt) and draft-approved development, provide a greater degree of certainty with respect to average forecast residential density, while the remaining vacant DGA lands provide greater opportunity to adjust average density levels. It is important to recognize that a portion of the vacant DGA lands includes lands that fall within Secondary Plan Areas (e.g. the City of Kitchener, Rosenburg/Southwest Kitchener Secondary Plan) and are planned to accommodate an established population and employment base.

Summarized below are the key components of the DGA lands.

Vacant Designated Greenfield Areas:

- Category 1 – Approved (registered but unbuilt) and draft approved; and
- Category 2 – Remaining Vacant DGA Lands: includes all other vacant DGA lands that have pending plans as well as inactive DGA lands.[41]

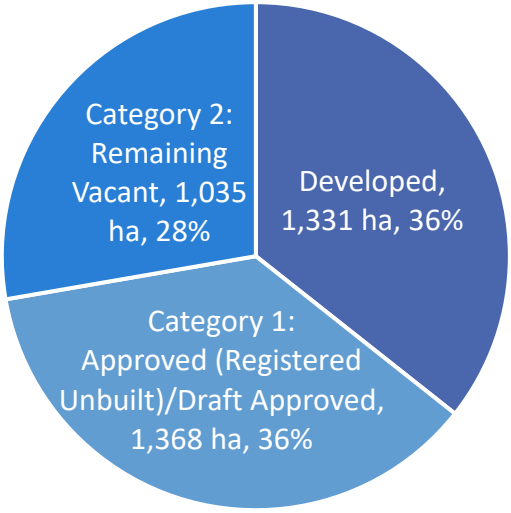
Figure 3-24 and Figure 3-25 provide further details regarding the vacant DGA land supply. Key findings include:

- As summarized in Figure 3-24, approximately 36% of the vacant DGA lands comprise sites that are approved (registered but unbuilt) and draft approved;
- Vacant DGA lands within the City of Waterloo, Township of Wellesley, Township of Wilmot and Township of Woolwich are primarily classified as category 1; and
- Vacant DGA lands within the City of Cambridge and the Township of North Dumfries largely comprise vacant category 2 lands.

[40] Developed: land that is developed or a building permit has been issued as of year-end 2019.

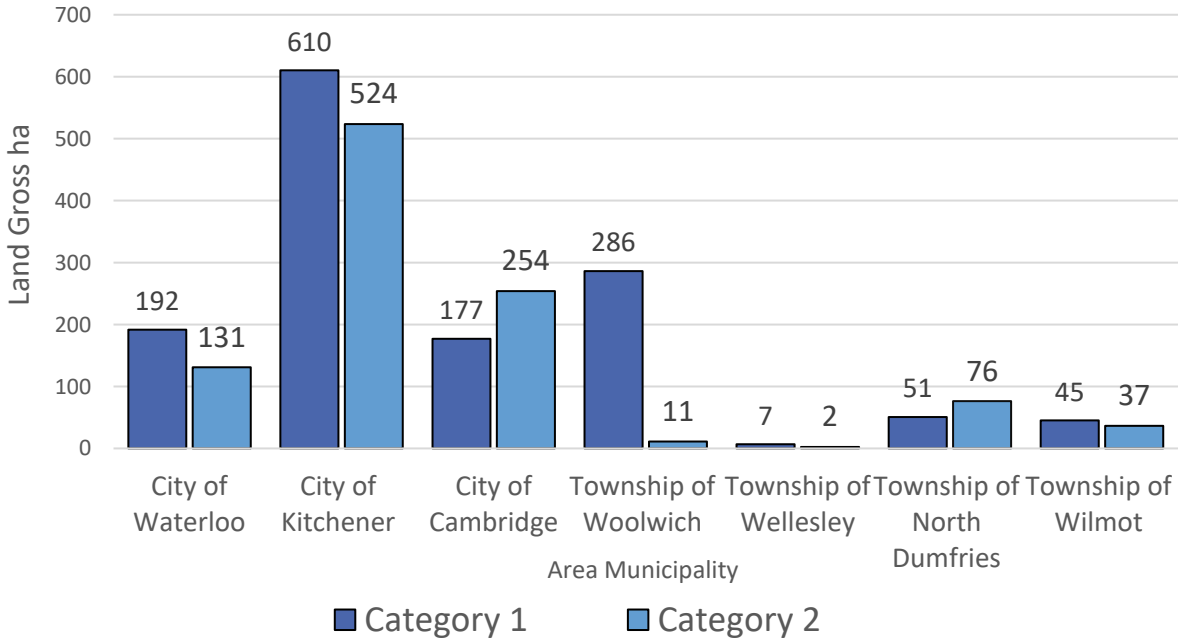
[41] Rural lots (primarily built prior to 2006) within the DGA are included in this category.

Figure 3-24: Region of Waterloo, DGA Land Supply (ha) by Area Municipality, as of 2019



Source: Watson & Associates Economists Ltd. based on GIS data and additional information provided by the Region of Waterloo.

Figure 3-25: Region of Waterloo, Vacant DGA Land Supply by Area (ha) Municipality, as of 2019



Source: Watson & Associates Economists Ltd. based on GIS data and additional information provided by the Region of Waterloo.

3.5.3 Housing Intensification BUA Supply

The Intensification Strategy Technical Brief was released in August of 2021. The Technical Brief demonstrated the Region has the capacity within the BUA to achieve and potentially exceed the Province's minimum intensification target of 50%. The Technical Brief includes the following components:

- A review of the policy context for intensification;
- An analysis of opportunities and constraints for intensification, including an estimate of potential capacity within the BUA;
- An analysis of demographic and socio-economic drivers of intensification;
- A review of historic intensification trends and housing forecast;
- A review of supply and demand; and,
- Policy directions for intensification.

The Technical Brief also demonstrates that there is potential to achieve the Province's minimum density target of 160 people and jobs per hectare for 21 of the 24 MTSAs along the ION rapid transit corridor. The Intensification Strategy Technical Brief also identifies four new objectives to be used in guiding growth in the Region's BUA:

1. Direct the greatest amount of intensification along the ION corridor within MTSAs;
2. Lay a foundation for future transit corridors to better complete the transit network by identifying Major Intensification Corridors;
3. Promote locally designated nodes and corridors; and,
4. Promote opportunities for gentle intensification across the BUA.

From a supply perspective, the Intensification Technical Brief identified a potential to accommodate an additional 316,000 people and jobs within the Region's BUA. This supply estimate is based on a comprehensive review of the Region's physical capacity to accommodate additional growth and development through intensification, both in strategic growth areas and more generally throughout the delineated built-up area. The Intensification Technical Brief's supply estimate is expressed as people and jobs for the purposes of understanding whether or not the various MTSA targets could be met. In order to complete Component 4 of the LNA, the supply estimates from the Intensification Strategy Technical Brief have been updated and are expressed in housing units[42]. The following subsections summarize the potential housing supply within the BUA for each area municipality in the following categories:

- Housing supply within MTSAs;
- Housing supply within Other Strategic Growth Areas (Nodes and Corridors outside of MTSAs, Township Urban Core Areas);
- Housing supply within the Rest of the Built-Up Area; and,
- Housing supply from employment land conversations.

[42] Refer to Chapter 3 of the Intensification Strategy Technical Brief for additional details on assumptions, methodology and key findings.

An overall total estimated housing supply combining the above-noted categories is provided at the end of this sub-section.

3.5.3.1 Housing Supply within Major Transit Station Areas and Urban Growth Centres

MTSAs are to be planned to achieve higher densities that provide opportunities for living and working close to higher-order transit, and to support transit investment across the Region. The MTSAs will play an important role in the Region's Urban Structure, have a significant impact on the Region's ability to achieve the intensification target and in many cases are already being planned to achieve significant density. The estimated supply of future intensification within the Region's MTSAs was derived based on an analysis of area specific plans/secondary plans and OP policies which demonstrated that 21 of 24 MTSAs are planned to achieve or exceed 160 people and jobs per hectare[43]. Table 3-6 presents the estimated full build-out potential for the Region's 24 MTSAs:

Table 3-6: Housing Supply within MTSAs (including UGCs)[44]

Municipality	Low Density	Medium Density	High Density	Sub-Total
City of Waterloo	0	2,764	20,007	22,770
City of Kitchener	0	1,323	58,212	59,535
City of Cambridge	0	4,596	23,237	27,832
Sub-total	0	8,682	101,455	110,137
Proportion of Supply	**0%**	**8%**	**92%**	**100%**

Source: Dillon Consulting Limited.

As summarized in Table 3-6, above, there is significant potential capacity for growth within the MTSAs, primarily in the form of high density development (92%). There is potential for an additional 8,682 medium density dwellings. The total supply is estimated to be 110,137 units. It is not anticipated that any of the MTSAs will provide opportunities for the development of additional single or semi-detached dwellings, given the focus on planning for higher density forms of housing in close proximity to transit. It is also recognized that this estimate represents the upper limit of

[43] See section 3.2 of the Intensification Strategy Technical Brief.

[44] Note that the estimate of population and employment potential presented in the Intensification Strategy Technical Brief is based on the assumption that 12 MTSAs would achieve the minimum, two MTSAs would exceed the minimum (Allen and Victoria Park/Kitchener City Hall, and the remainder (10) would be below the target. The estimates presented in Table 3-6 represent the estimated build-out potential of the MTSAs as a number of the MTSAs have plans and also physical potential to greatly exceed the minimum density target of 160 people and jobs per ha.

potential capacity and the total number of potential will change over time, as the areas grow and plans for the MTSAs are updated[45]

3.5.3.2 Housing Supply within Other Strategic Growth Areas

In accordance with the 2019 Growth Plan, within settlement areas, nodes, corridors and other areas that have been identified by municipalities or the Province are the focus for accommodating intensification and higher-density mixed uses in a more compact built form. In addition to MTSAs, these "strategic growth areas" (SGAs) can include lands along major roads or other areas with existing or planned frequent transit service (e.g. frequent bus service). The Intensification Strategy Technical Brief evaluated opportunities within locally designated nodes and corridors; and township urban core areas as forming other SGAs (since MTSA are being classified as a separate category). Similar to the MTSA analysis, the evaluation of intensification potential within other SGAs was derived based on local Area Municipal OPs and Secondary Plans, where applicable. Table 3-7presents the estimated supply of units within other SGAs:

Table 3-7: Housing Supply within Other Strategic Growth Areas

Municipality	Low Density	Medium Density	High Density	Sub-Total
City of Waterloo	0	1,278	3,039	4,317
City of Kitchener	0	7,255	15,316	22,571
City of Cambridge	0	940	4,177	5,116
Township of Woolwich	0	10	109	120
Township of Wilmot	0	55	328	382
Township of North Dumfries	0	8	47	55
Township of Wellesley	0	8	45	53
Sub-total	**0**	**9,553**	**23,061**	**32,614**
Proportion of Supply	**0**	**29%**	**71%**	**100%**

Source: Dillon Consulting Limited.

As summarized in Table 3-7 above, there is capacity within the other strategic growth areas for a mix of medium and high density dwellings, with a Region-wide mix of 29% medium density (9,553 units) and 71% high density (23,061 units). Based on the analysis, the total intensification potential in the other SGAs is 32,614 units. Most of this residential intensification potential lies within the City of Kitchener. Regarding the Township Urban Areas, the Township of Wilmot has the most physical

[45] Both Kitchener and Waterloo have implemented land use plans and policies for their MTSAs. Cambridge is in the process of finalizing secondary plans for each of its MTSAs.

potential to accommodate additional intensification, with a total potential 382 housing units, primarily in the high density category, while North Dumfries and Wellesley could potentially add between 55 and 53 units each. Woolwich has potential for 120 units.

3.5.3.3 Housing Supply within the Rest of the Built-Up Area

While the intent of the Growth Plan is that most of the intensification is to be focused within MTSAs and other SGAs, additional opportunities for adding housing supply across the rest of the BUA through infilling and redevelopment, as well as through the introduction of accessory units in existing single detached, semi-detached and townhouse built forms, which is permitted by the Planning Act. The estimated supply of these opportunities was derived through an historic trend analysis; a point-in-time review of vacant parcels located outside of MTSAs and strategic growth areas with ability to accommodate gentle intensification; and an assessment of opportunities for the provision of additional accessory units[46]. Table 3-8 presents the estimated supply of units for the rest of the BUA:

Table 3-8: Housing Supply throughout the BUA outside of Strategic Growth Areas

Municipality	Low Density	Medium Density	High Density	Accessory Units[47]	Sub-Total
City of Waterloo	30	421	553	970 (6.2%)	1,974
City of Kitchener	60	842	1,105	1,985 (9.2%)	3,993
City of Cambridge	30	421	553	1,876 (8.8%)	2,880
Township of Woolwich	8	105	138	132 (2.2%)	383
Township of Wilmot	8	105	138	105 (2.2%)	356
Township of North Dumfries	8	105	138	68 (2.2%)	319
Township of Wellesley	8	105	138	44 (2.2%)	262
Sub-total	**151**	**2,105**	**2,763**	**5,181**	**10,200**
Proportion of Supply	**1%**	**21%**	**27%**	**51%**	**N/A**

Source: Dillon Consulting Limited.

[46] Refer to section 3.4 of the Intensification Strategy Technical Brief for additional details.

[47] Table 3-9 of the Intensification Strategy Technical Brief assumed 3.1% of all existing single detached within the BUA would have potential to yield an additional 3,010 accessory units. This assumption was refined to reflect specific area municipal trends, resulting in an increased overall yield. Area municipal assumptions are noted in Table 3-8 in brackets. Refer to CMHC's *Housing Market Insight: Secondary Units in Ontario, June 2021* for additional details.

As summarized in Table 3-8 above, there is potential to add 10,200 units throughout the BUA across each of the Region's seven area municipalities. Based on the analysis, this would include 5,181 accessory units, 2,763 high density units, 2,105 medium density units, and 151 low-density units. It is important to note that the estimate of potential intensification across the rest of the BUA is relatively conservative, as this category is heavily influenced by local policies which mainly target nodes/corridors for intensification. There may be additional opportunities throughout the rest of the BUA beyond what has been estimated in Table 3-8 as municipalities update local plans and zoning to broadly promote opportunities for gentle intensification throughout the BUA.

3.5.3.4 Residential Supply from Employment Conversions

In addition to the supply opportunities within MTSAs, other SGAs and the rest of the BUA, there also exists some modest potential for additional capacity through the recently proposed employment land conversions that were included in the Employment Strategy Technical Brief. As a result of the employment conversion work undertaken by the Region in 2021, there are 17 sites, totalling approximately 152 hectares that are to be removed from the Region's Employment Areas and have some potential to accommodate future residential infilling and intensification.

Table 3-9: Intensification Potential Resulting from Employment Land Conversion

Municipality	Low Density	Medium Density	High Density	Sub-Total
City of Waterloo	14	243	305	562
City of Kitchener	255	669	245	1169
City of Cambridge	194	1243	823	2260
Township of Woolwich	0	0	0	0
Township of Wilmot	0	0	0	0
Township of North Dumfries	0	0	0	0
Township of Wellesley	0	0	0	0
Sub-total	**463**	**2,155**	**1,373**	**3,991**
Proportion of Supply	**12%**	**54%**	**34%**	**N/A**

Source: Dillon Consulting Limited.

3.5.3.5 Intensification Potential – Total Capacity in the BUA

Adding the various components of the BUA residential intensification capacity analysis presented in Table 3-6 through Table 3-9, Table 3-10, below, provides the combined totals of the capacity for a full picture of the residential intensification potential across the BUA.

Table 3-10: Region of Waterloo, Total Capacity in the BUA

Municipality	Low Density	Medium Density	High Density	Accessory Units	Subtotal	Proportion by Municipality
City of Waterloo	44	4,706	23,903	970	29,623	**18.9%**
City of Kitchener	316	10,089	74,879	1,985	87,268	**55.6%**
City of Cambridge	224	7,199	28,789	1,876	38,089	**24.3%**
Township of Woolwich	8	116	247	132	503	**0.3%**
Township of Wilmot	8	160	466	105	738	**0.5%**
Township of North Dumfries	8	113	185	68	374	**0.2%**
Township of Wellesley	8	113	183	44	347	**0.2%**
Sub-total	**615**	**22,495**	**128,653**	**5,181**	**156,943**	**100.0%**
Proportion of Supply	**0%**	**14%**	**82%**	**3%**	**100%**	

Source: Dillon Consulting Limited.

Across the BUA, there is significant potential physical capacity for residential growth, with a total of 156,943 new units. Most of these new units would be in the high density category, which accounts for 82% of the estimated supply. There is also potential a variety of medium density developments, representing approximately 14% or 22,495 units. The estimated potential supply for residential development in the BUA is generally a reflection of existing local plans and policies which promote intensification in BUA. The majority of potential is located in the MTSA, which accounts for an estimated 64% of the total supply. The significant potential for redevelopment within the Cities of Kitchener, Cambridge and Waterloo is a reflection of the number of existing and on-going initiatives that each of the municipalities has undertaken to proactively plan for redevelopment (e.g. most of the MTSAs have secondary plans in place or are being prepared). It is important to note that while there is a fairly robust potential supply for intensification across the Region there are also a number of factors which could influence the overall uptake, such as market demand, local infrastructure capacity, political dynamics and ownership considerations to name a few.

3.6 Allocation of Population and Housing Forecast by Local Municipality and Planning Policy Area (Community Area Component 3 of the LNA Methodology)

This section summarizes the long-term population and housing growth allocations by Area Municipality by planning policy area under Options 1 to 3 to the year 2051. As previously noted, this analysis addresses Component 3 of the provincial LNA Methodology. Additional details regarding the local municipal growth allocations area are provided in Appendix C.

3.6.1 Growth Allocation Approach and Key Assumptions

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

Local Supply Factors:

- Supply of potential future housing stock in the development approvals process by housing structure type, approval status and location (i.e. BUA and DGA lands);
- Local residential intensification opportunities by housing structure type relative to planning policy targets;
- Current inventory of net vacant designated urban "greenfield" lands not currently in the development approvals process;
- Potential available land for urban expansion by Area Municipality;
- Consideration with respect to municipal water and wastewater servicing capacity and potential long-term solutions to overcome constraints (where identified) based on discussions with Region of Waterloo staff; and
- Provincial, Regional and local policy direction regarding forecast residential growth by urban and rural area as well as by planning policy area.

Demand Factors:

- Historical population, housing and employment trends based on 2001 to 2016 Statistics Canada (Census) data and by Area Municipality and planning policy area;
- A review of recent residential and non-residential building permit and housing occupancy activity based on the Region of Waterloo "ResPoints" data by housing structure type, Area Municipality and planning policy area;[48]

[48] ResPoints is a comprehensive residential dataset the Region of Waterloo maintains that tracks a multitude of housing activity metrics including but not limited to housing units from building permit activity and housing occupancy by housing type and location.

- Historical commuting trends and anticipated employment growth opportunities within the surrounding market area;
- A review of local employment opportunities;
- Market demand for residential intensification by local municipality; and
- The Region's market appeal to young adults, families and empty nesters/seniors.

While forecast population and housing growth rates vary significantly by geographic area, each of the Area Municipalities within the Region of Waterloo share a number of relatively common attributes with respect to long-term residential development and demographic trends.

- Most of the Area Municipalities are anticipated to experience high levels of annual population and housing growth over the 2021 to 2051 forecast period relative to the past 20 years, except for the Township of Wellesley, in which long-term population growth is constrained by wastewater servicing capacity.
- As noted in the Region of Waterloo Long-Term Population and Housing Growth Analysis, higher levels of in-migration, largely from the GTHA, were observed for the Region of Waterloo as a whole prior to the pandemic between 2015 and 2019. Strong population growth during this time period was largely driven by competitively priced housing options across the Region relative to the GTHA, combined with the gradual recovery of the local and regional economies since the 2008 global economic recession. During this time period, residential growth rates were stronger within the Region's Cities when compared to the Townships. Population growth related to NPR was also a key driver of housing demand, most notably in the City of Waterloo, and to a lesser extent, the City of Kitchener and the City of Cambridge.
- While COVID-19 has been disruptive to the local economy, particularly in retail, accommodation and food and tourism-based sectors, it has been a key driver of higher housing development activity experienced across the Region over the past two years in all Area Municipalities.
- Looking forward over the near term (i.e. the next one to five years), housing demand across all the Region's Area Municipalities is anticipated to remain strong relative to recent historical levels, fueled by continued outward growth pressure from the GTHA, expansion of Regional transportation infrastructure such as ION, as well as continued local employment opportunities, particularly within the Region's growing knowledge-based economy. Continued housing appreciation and declining housing affordability, combined with a range of broader economic headwinds, including a gradual tightening of monetary policy (i.e. rising interest rates), persistently high inflation rates, rising household debt and increased geopolitical uncertainty are anticipated to moderate housing demand (particularly ownership housing) in the near term relative to recent historical highs.
- Over the longer term (i.e. five to 10+ years), the average rate of annual housing development is anticipated to gradually slow across all Area Municipalities, relative to recent residential development activity, driven by slower regional and provincial economic growth associated with an aging population and labour force.

- Future housing growth is anticipated across a diverse range of housing forms. Increased market demand, however, is anticipated over the next three decades for medium-density and high-density housing as the local and provincial population base continues to age and diversify. As previously noted, declining housing affordability also represents a key driver of a portion of medium- and high-density housing forms.
- Average housing occupancy levels are forecast to decline over the long-term forecast period for all Area Municipalities. This demographic trend is largely associated with the aging of the Region's population base associated with Baby Boomers and Millennials.
- Forecast demographic trends across the Region suggest that the vast majority of future housing will continue to be in the urban areas as new families are attracted to the Region in search of relatively affordably priced, ground-oriented housing located within proximity to local urban amenities (i.e. schools, retail, personal service uses) and surrounding employment markets.
- Housing demands from the 55-74 age group (empty nester/younger seniors) and the 75+ age group (older seniors) are also anticipated to drive the future need for urban housing across all Area Municipalities in the Region of Waterloo. As previously noted, housing demand associated with older seniors (75+), is largely anticipated from the existing population base as opposed to new residents.

3.6.2 Region of Waterloo, Option 1 – Growth Plan Minimum, Allocation of Population and Housing Forecast by Local Municipality and Planning Policy Area

Table 3-11 through Table 3-14 summarize the Region's long-term population and Census housing forecast by Area Municipality over the 2021 to 2051 planning horizon for Option 1. The following trends can be observed:

- The share of forecast population and housing growth across the Region is anticipated to follow a similar growth trend between the Cities and Townships relative to the 2001 to 2016 historical period. Between 2021 and 2051, 82% of the Region's population has been allocated to the Cities, while the remaining population (18%) has been allocated to the Townships.
- Option 1 has a lower DGA density and intensification target relative to Options 2 and 3, resulting in more focus on DGA development. The Area Municipal growth allocations take into account land availability both on DGA lands as well as future urban expansion potential to inform where future growth can be directed.
- The City of Cambridge is anticipated to accommodate the largest share of population growth over the 2021 to 2051 forecast period with 40% of Region-wide growth, up from 17% from 2006 to 2021.
- The City of Kitchener is forecast to accommodate 32% of Region-wide population growth from 2021 to 2051, followed by the City of Waterloo (10%) and the Township of Woolwich

(10%), the Township of Wilmot (4%), the Township of North Dumfries (2%) and the Township of Wellesley (1%).

- Housing intensification is largely concentrated in the Cities, accounting for approximately 93% of all housing growth allocated to the BUA between 2021 and 2051.

Table 3-11: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Population and Census Housing Forecast, 2021 to 2051

Total Population and Total Census Housing

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	125,200	146,000	267,900	**20,800**	**121,900**	43,280	51,420	99,860	**8,140**	**48,440**
City of Kitchener	212,900	269,100	368,500	**56,200**	**99,400**	79,380	100,490	139,610	**21,110**	**39,120**
City of Waterloo	101,400	127,300	159,200	**25,900**	**31,900**	36,780	46,850	60,750	**10,070**	**13,900**
Township of North Dumfries	9,400	11,300	18,800	**1,900**	**7,500**	3,060	3,920	6,740	**860**	**2,820**
Township of Wellesley	10,200	11,900	14,000	**1,700**	**2,100**	2,840	3,480	4,350	**640**	**870**
Township of Wilmot	17,800	22,700	36,400	**4,900**	**13,700**	6,090	8,000	13,200	**1,910**	**5,200**
Township of Woolwich	20,400	28,700	58,200	**8,300**	**29,500**	6,590	9,520	20,250	**2,930**	**10,730**
Region of Waterloo	**497,200**	**617,000**	**923,000**	**119,800**	**306,000**	**178,120**	**223,680**	**344,760**	**45,560**	**121,080**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-12: Region of Waterloo, Option 1 – Growth Plan Minimum, Total Population and Census Housing Forecast Shares, 2021 to 2051

Total Population and Total Census Housing Shares

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	25%	24%	29%	**17%**	**40%**	24%	23%	29%	**18%**	**40%**
City of Kitchener	43%	44%	40%	**47%**	**32%**	45%	45%	40%	**46%**	**32%**
City of Waterloo	20%	21%	17%	**22%**	**10%**	21%	21%	18%	**22%**	**11%**
Township of North Dumfries	2%	2%	2%	**2%**	**2%**	2%	2%	2%	**2%**	**2%**
Township of Wellesley	2%	2%	2%	**1%**	**1%**	2%	2%	1%	**1%**	**1%**
Township of Wilmot	4%	4%	4%	**4%**	**4%**	3%	4%	4%	**4%**	**4%**
Township of Woolwich	4%	5%	6%	**7%**	**10%**	4%	4%	6%	**6%**	**9%**
Region of Waterloo	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-13: Region of Waterloo, Option 1 – Growth Plan Minimum, Census Housing Unit Growth by Housing Type and Area Municipality, 2021 to 2051

Area Municipality	Low Density, 2021-2051 Total[1]	Medium Density, 2021-2051 Total[2]	High Density, 2021-2051 Total[3]	Secondary Units, 2021-2051 Total	2021-2051 Total	Low Density, 2021-2051 Share	Medium Density, 2021-2051 Share	High Density, 2021-2051 Share	Secondary Units, 2021-2051 Share	2021-2051 Share
City of Cambridge	14,450	9,970	23,000	1,020	48,440	30%	21%	47%	2%	100%
City of Kitchener	11,580	5,820	20,270	1,460	39,120	30%	15%	52%	4%	100%
City of Waterloo	2,650	1,600	8,960	700	13,910	19%	12%	64%	5%	100%
Township of North Dumfries	1,700	690	370	60	2,820	60%	24%	13%	2%	100%
Township of Wellesley	660	170	20	30	870	76%	20%	2%	3%	100%
Township of Wilmot	2,770	950	1,370	130	5,210	53%	18%	26%	2%	100%
Township of Woolwich	5,270	3,020	2,280	170	10,730	49%	28%	21%	2%	100%
Region of Waterloo	**39,060**	**22,210**	**56,250**	**3,570**	**121,080**	**32%**	**18%**	**46%**	**3%**	**100%**

Note: Figures may not add precisely due to rounding.

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

Source: Watson & Associates Economists Ltd.

Table 3-14: Region of Waterloo, Option 1 – Growth Plan Minimum, Census Housing Unit Growth by Planning Policy Area and Area Municipality, 2021 to 2051

Area Municipality	Built Up Area, 2021-2051 Total	Designated Greenfield Area, 2021-2051 Total	Rural, 2021-2051 Total	2021-2051 Total	Built Up Area, 2021-2051 Share	Designated Greenfield Area, 2021-2051 Share	Rural, 2021-2051 Share	2021-2051 Share
City of Cambridge	25,300	23,000	130	48,435	52%	47%	0%	100%
City of Kitchener	21,110	18,020	0	39,120	54%	46%	0%	100%
City of Waterloo	9,920	4,000	0	13,905	71%	29%	0%	100%
Township of North Dumfries	42042	2,130	270	2,815	15%	76%	10%	100%
Township of Wellesley	90	590	200	870	10%	68%	23%	100%
Township of Wilmot	1,540	3,530	130	5,205	30%	68%	2%	100%
Township of Woolwich	1,970	8,570	210	10,730	18%	80%	2%	100%
Region of Waterloo	**60,330**	**59,810**	**950**	**121,080**	**50%**	**49%**	**1%**	**100%**

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

3.6.3 Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Allocation of Population and Housing Forecast by Local Municipality and Planning Policy Area

Table 3-15 through Table 3-18 summarize the Region's long-term population and Census housing forecast by Area Municipality over the 2021 to 2051 planning horizon for Option 2. The following trends can be observed:

- Given the stronger residential intensification focus of Option 2, a greater share of forecast population and housing growth has been allocated to the Cities relative to the Townships under this option. Under Option 2, 87% of the Region's population has been allocated to the Cities, while the remaining 13% has been allocated to the Townships.
- With more focus on intensification in Option 2 relative to Option 1, a greater share of growth is allocated to the Cities of Kitchener and Waterloo where market demand for residential intensification is strongest. Furthermore, both Cities are able to accommodate a greater share of housing on DGA lands at higher densities.
- Under Option 2, additional housing growth opportunities within the Cities of Kitchener and Waterloo are shifted, particularly in future greenfield areas, from the City of Cambridge, the Township of Woolwich and the Township of Wilmot.
- The City of Kitchener is anticipated to accommodate the largest share of population growth over the 2021 to 2051 forecast period with 46% of Region-wide growth. This is followed by the City of Cambridge (24%), the City of Waterloo (17%), the Township of Woolwich (7%), the Township of North Dumfries (3%), the Township of Wilmot (2%), and the Township of Wellesley (1%).
- Given the increased housing intensification focus of Option 2, a greater share of forecast housing intensification (95% of total housing allocated to the BUA) has been allocated to the Cities from 2021 to 2051.

Table 3-15 Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Population and Census Housing Forecast, 2021 to 2051

Total Population and Total Census Housing

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	125,200	146,000	219,300	**20,800**	**73,300**	43,280	51,420	81,180	**8,140**	**29,760**
City of Kitchener	212,900	269,100	410,700	**56,200**	**141,600**	79,380	100,490	155,790	**21,110**	**55,300**
City of Waterloo	101,400	127,300	179,500	**25,900**	**52,200**	36,780	46,850	68,010	**10,070**	**21,160**
Township of North Dumfries	9,400	11,300	19,600	**1,900**	**8,300**	3,060	3,920	7,080	**860**	**3,160**
Township of Wellesley	10,200	11,900	14,000	**1,700**	**2,100**	2,840	3,480	4,360	**640**	**880**
Township of Wilmot	17,800	22,700	30,300	**4,900**	**7,600**	6,090	8,000	11,030	**1,910**	**3,030**
Township of Woolwich	20,400	28,700	49,500	**8,300**	**20,800**	6,590	9,520	17,330	**2,930**	**7,810**
Region of Waterloo	**497,200**	**617,000**	**923,000**	**119,800**	**306,000**	**178,120**	**223,680**	**344,760**	**45,560**	**121,080**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-16: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Total Population and Census Housing Forecast Shares, 2021 to 2051

Total Population and Total Census Housing Shares

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	25%	24%	24%	**17%**	**24%**	24%	23%	24%	**18%**	**25%**
City of Kitchener	43%	44%	44%	**47%**	**46%**	45%	45%	45%	**46%**	**46%**
City of Waterloo	20%	21%	19%	**22%**	**17%**	21%	21%	20%	**22%**	**17%**
Township of North Dumfries	2%	2%	2%	**2%**	**3%**	2%	2%	2%	**2%**	**3%**
Township of Wellesley	2%	2%	2%	**1%**	**1%**	2%	2%	1%	**1%**	**1%**
Township of Wilmot	4%	4%	3%	**4%**	**2%**	3%	4%	3%	**4%**	**3%**
Township of Woolwich	4%	5%	5%	**7%**	**7%**	4%	4%	5%	**6%**	**6%**
Region of Waterloo	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-17: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Census Housing Unit Growth by Housing Type and Area Municipality, 2021 to 2051

Area Municipality	Low Density, 2021-2051 Total[1]	Medium Density, 2021-2051 Total[2]	High Density, 2021-2051 Total[3]	Secondary Units, 2021-2051 Total	2021-2051 Total	Low Density, 2021-2051 Share	Medium Density, 2021-2051 Share	High Density, 2021-2051 Share	Secondary Units, 2021-2051 Share	2021-2051 Share
City of Cambridge	4,920	6,940	17,030	870	29,760	17%	23%	57%	3%	100%
City of Kitchener	8,660	14,420	30,870	1,350	55,300	16%	26%	56%	2%	100%
City of Waterloo	1,920	5,970	12,640	640	21,170	9%	28%	60%	3%	100%
Township of North Dumfries	1,670	950	480	60	3,160	53%	30%	15%	2%	100%
Township of Wellesley	670	130	50	30	880	76%	15%	6%	3%	100%
Township of Wilmot	1,220	700	1,000	120	3,040	40%	23%	33%	4%	100%
Township of Woolwich	3,400	2,460	1,800	150	7,810	44%	31%	23%	2%	100%
Region of Waterloo	**22,440**	**31,570**	**63,870**	**3,210**	**121,080**	**19%**	**26%**	**53%**	**3%**	**100%**

Note: Figures may not add precisely due to rounding.

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

Source: Watson & Associates Economists Ltd.

Table 3-18: Region of Waterloo, Option 2 – Compact Development, Modest Community Area Expansion, Census Housing Unit Growth by Planning Policy Area and Area Municipality, 2021 to 2051

Area Municipality	Built Up Area, 2021-2051 Total	Designated Greenfield Area, 2021-2051 Total	Rural, 2021-2051 Total	2021-2051 Total	Built Up Area, 2021-2051 Share	Designated Greenfield Area, 2021-2051 Share	Rural, 2021-2051 Share	2021-2051 Share
City of Cambridge	19,820	9,800	130	29,760	67%	33%	0%	100%
City of Kitchener	33,290	22,020	0	55,300	60%	40%	0%	100%
City of Waterloo	15,360	5,820	0	21,170	73%	27%	0%	100%
Township of North Dumfries	560	2,320	270	3,160	18%	73%	9%	100%
Township of Wellesley	100	570	200	880	11%	65%	23%	100%
Township of Wilmot	1,340	1,560	130	3,040	44%	51%	4%	100%
Township of Woolwich	1,550	6,060	210	7,810	20%	78%	3%	100%
Region of Waterloo	**71,990**	**48,150**	**950**	**121,080**	**59%**	**40%**	**1%**	**100%**

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

3.6.4 Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Allocation of Population and Housing Forecast by Local Municipality and Planning Policy Area

Table 3-19 through Table 3-22 summarize the Region's long-term population and Census housing forecast by Area Municipality over the 2021 to 2051 planning horizon for Option 3. Relative to Option 2, the overall difference in the share of population and housing allocated between the Cities and Townships under Option 3 is relatively minor. Under Option 3, the higher average DGA density target required to limit settlement area boundary expansions allows for additional greenfield development to be allocated to the City of Kitchener and the City of Waterloo from the City of Cambridge. Relatively minor adjustments to the population and housing allocations have also been made within the Townships as illustrated below.

Overall, Options 2 and 3 generate a relatively minor difference in the range of new housing options by structure type between 2021 and 2051. In addition to a slight increase in the share of new high-density housing from low-density housing, Option 3 is also achieved by moderately increasing the density of all new housing options by structure type within the DGA (refer to Table E-2 in Appendix E). Comparatively, Option 3 may provide less choice for certain traditional housing options within grade-related housing forms, including larger lot single-detached units, bungalows, larger townhomes, etc., relative to Option 2. This challenge may be particularly more pronounced in some of the Regions Township's.

Table 3-19: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Total Population and Census Housing Forecast, 2021 to 2051

Total Population and Total Census Housing

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	125,200	146,000	213,400	**20,800**	**67,400**	43,280	51,420	79,110	**8,140**	**27,690**
City of Kitchener	212,900	269,100	417,500	**56,200**	**148,400**	79,380	100,490	158,050	**21,110**	**57,560**
City of Waterloo	101,400	127,300	182,900	**25,900**	**55,600**	36,780	46,850	69,170	**10,070**	**22,320**
Township of North Dumfries	9,400	11,300	17,200	**1,900**	**5,900**	3,060	3,920	6,270	**860**	**2,350**
Township of Wellesley	10,200	11,900	12,400	**1,700**	**500**	2,840	3,480	3,860	**640**	**380**
Township of Wilmot	17,800	22,700	28,800	**4,900**	**6,100**	6,090	8,000	10,440	**1,910**	**2,440**
Township of Woolwich	20,400	28,700	50,800	**8,300**	**22,100**	6,590	9,520	17,890	**2,930**	**8,370**
Region of Waterloo	**497,200**	**617,000**	**923,000**	**119,800**	**306,000**	**178,010**	**223,680**	**344,760**	**45,670**	**121,080**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-20: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Total Population and Census Housing Forecast Shares, 2021 to 2051

Total Population and Total Census Housing Shares

Area Municipality	Population, 2006	Population, 2021	Population, 2051	Population, 2006-2021	Population, 2021-2051	Housing, 2006	Housing, 2021	Housing, 2051	Housing, 2006-2021	Housing, 2021-2051
City of Cambridge	25%	24%	23%	**17%**	**22%**	24%	23%	23%	**18%**	**23%**
City of Kitchener	43%	44%	45%	**47%**	**48%**	45%	45%	46%	**46%**	**48%**
City of Waterloo	20%	21%	20%	**22%**	**18%**	21%	21%	20%	**22%**	**18%**
Township of North Dumfries	2%	2%	2%	**2%**	**2%**	2%	2%	2%	**2%**	**2%**
Township of Wellesley	2%	2%	1%	**1%**	**<1%%**	2%	2%	1%	**1%**	**<1%%**
Township of Wilmot	4%	4%	3%	**4%**	**2%**	3%	4%	3%	**4%**	**2%**
Township of Woolwich	4%	5%	6%	**7%**	**7%**	4%	4%	5%	**6%**	**7%**
Region of Waterloo	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Figures may not add precisely due to rounding. Total population includes net Census undercount of 4%.

Source: 2006 from Statistics Canada 2006 Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 3-21: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Census Housing Unit Growth by Housing Type and Area Municipality, 2021 to 2051

Area Municipality	Low Density, 2021-2051 Total[1]	Medium Density, 2021-2051 Total[2]	High Density, 2021-2051 Total[3]	Secondary Units, 2021-2051 Total	2021-2051 Total	Low Density, 2021-2051 Share	Medium Density, 2021-2051 Share	High Density, 2021-2051 Share	Secondary Units, 2021-2051 Share	2021-2051 Share
City of Cambridge	3,970	5,680	17,190	860	27,690	14%	21%	62%	3%	100%
City of Kitchener	9,490	15,100	31,600	1,380	57,560	16%	26%	55%	2%	100%
City of Waterloo	2,330	6,390	12,960	650	22,320	10%	29%	58%	3%	100%
Township of North Dumfries	1,250	670	380	50	2,345	53%	29%	16%	2%	100%
Township of Wellesley	320	50	10	10	380	84%	13%	3%	3%	100%
Township of Wilmot	990	560	780	110	2,440	41%	23%	32%	5%	100%
Township of Woolwich	3,500	2,620	2,090	160	8,370	42%	31%	25%	2%	100%
Region of Waterloo	**21,830**	**31,050**	**65,000**	**3,210**	**121,080**	**18%**	**26%**	**54%**	**3%**	**100%**

Note: Figures may not add precisely due to rounding.

[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.

Source: Watson & Associates Economists Ltd.

Table 3-22: Region of Waterloo, Option 3 – More Compact Development, No Urban Expansion of Community Areas, Census Housing Unit Growth by Planning Policy Area and Area Municipality, 2021 to 2051

Area Municipality	Built Up Area, 2021-2051 Total	Designated Greenfield Area, 2021-2051 Total	Rural, 2021-2051 Total	2021-2051 Total	Built Up Area, 2021-2051 Share	Designated Greenfield Area, 2021-2051 Share	Rural, 2021-2051 Share	2021-2051 Share
City of Cambridge	19,230	8,340	130	27,690	69%	30%	0%	100%
City of Kitchener	33,660	23,890	0	57,560	58%	42%	0%	100%
City of Waterloo	15,730	6,600	0	22,320	70%	30%	0%	100%
Township of North Dumfries	460	1,600	270	2,350	20%	68%	11%	100%
Township of Wellesley	50	130	200	380	13%	34%	53%	100%
Township of Wilmot	1,050	1,250	130	2,440	43%	51%	5%	100%
Township of Woolwich	1,830	6,340	210	8,370	22%	76%	3%	100%
Region of Waterloo	**72,000**	**48,140**	**950**	**121,080**	**59%**	**40%**	**1%**	**100%**

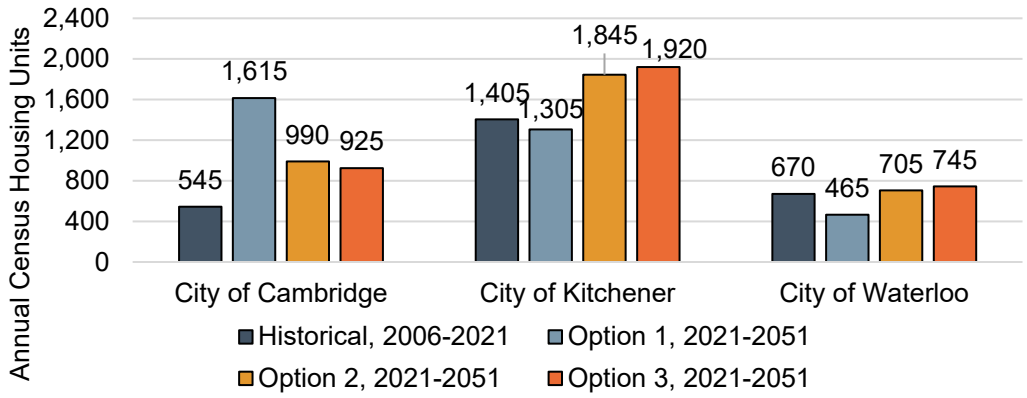
Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

3.6.5 Summary of Census Housing Growth by Area Municipality

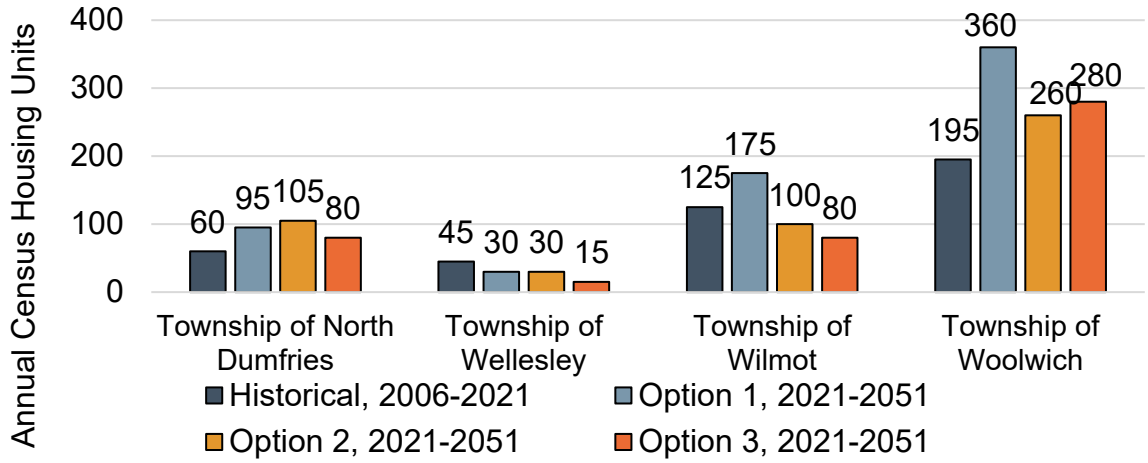
Figure 3-26 to Figure 3-31 graphically illustrate the information presented in subsections 3.6.2. to 3.6.4, comparing total annual housing growth by Area Municipality and annual housing intensification rates by Area Municipality between Options 1, 2 and 3.

Figure 3-26: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



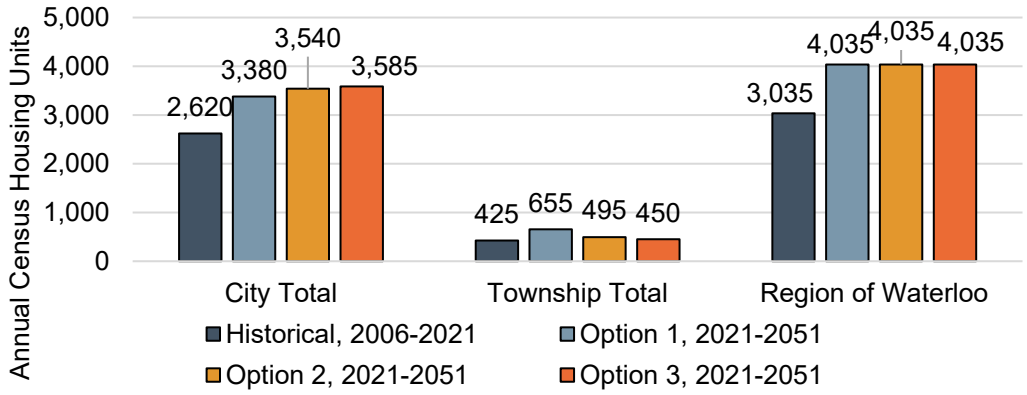
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure 3-27: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



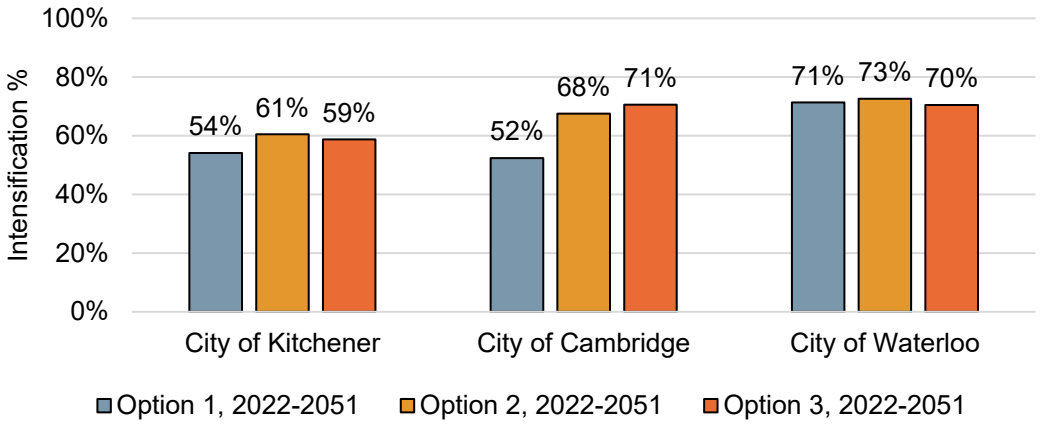
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure 3-28: Region of Waterloo, Options 1 to 3, Annual Total Housing Growth by Area Municipality



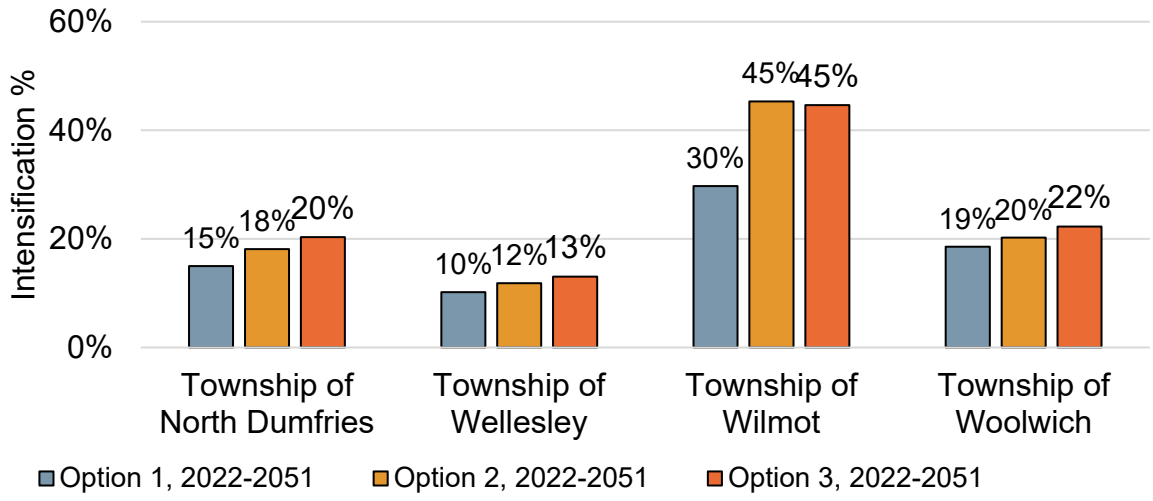
Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd. forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure 3-29: Region of Waterloo, Options 1 to 3, Intensification Growth by Area Municipality, 2022 to 2051



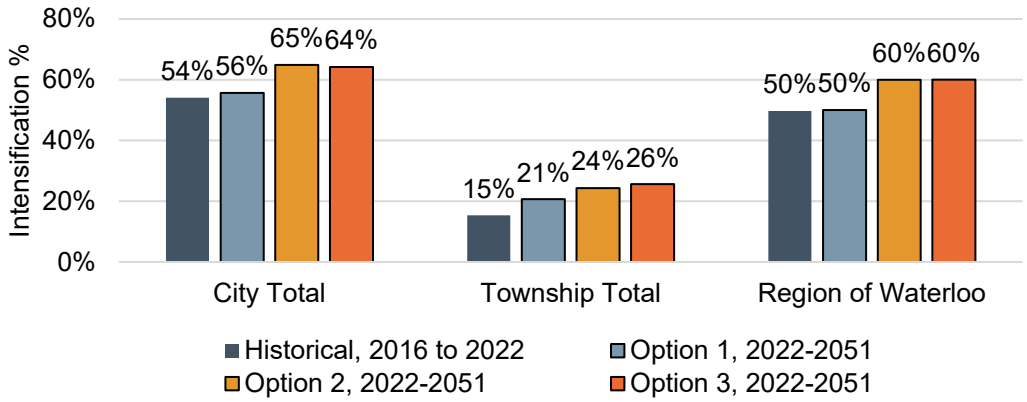
Source: Options 1 to 3 growth by Watson & Associates Economists Ltd.

Figure 3-30: Region of Waterloo, Options 1 to 3, Housing Intensification Growth by Area Municipality, 2022 to 2051



Source: Options 1 to 3 growth by Watson & Associates Economists Ltd.

Figure 3-31: Region of Waterloo, Options 1 to 3, Intensification Growth by Area Municipality, 2022 to 2051



Note: Figures may not add precisely due to rounding.
Source: Historical derived from Region of Waterloo ResPoints data to 2019 and Watson & Associates Economists Ltd. from 2019 to 2022. Options 1 to 3 growth by Watson & Associates Economists Ltd.

3.7 Community Area Jobs (Community Area Component 5 of the LNA Methodology)

Component 5 of the provincial LNA Methodology requires an assessment of the number of jobs to be accommodated in the Community Area by planning policy area (BUA, DGA and remaining rural area) over the planning horizon. The Community Area employment component in the DGA then forms part of the DGA people and jobs density calculation.

As discussed later in Chapter 4, the Community Area is anticipated to accommodate 102,300 jobs over the 2019 to 2051 period, approximately 40% of the Region's employment growth over that period. The Community Area employment is anticipated to comprise 30% Major Office Employment (MOE) and 70% Population-related Employment (PRE).

MOE in the Community Area is anticipated to be primarily accommodated in the BUA (approximately 89%) of the Cities of Kitchener, Waterloo and Cambridge where there is already an established MOE base to build upon, as well as transit opportunities. Regardless of the option, the DGA is anticipated to accommodate 3,400 MOE between 2019 and 2051, primarily within the DGA of Kitchener, Waterloo, and to a lesser extent Cambridge.

With respect to PRE, the Region is forecast to add 1 PRE job for approximately every 3 residents in the Community Area. It is important to recognize that a large portion of PRE includes work at home employment. Over the forecast period, the Region is anticipated to add 1 work at home employment job for every 30 residents, or approximately 30% of the PRE over the 2019 to 2051 period. While work at home employment does not consume urban land, it contributes towards the people and jobs density in the DGA. Given that PRE is driven by population growth, the PRE allocation to the DGA differs for each option. Provided below is a brief summary of the PRE allocated to the DGA Community Area under each Concept.

Option 1 – Growth Plan Minimum

Under Option 1, the Community Area in the DGA is anticipated to accommodate **26,200 PRE** over the 2019 to 2051 period or approximately 1 job for every 7.5 residents. While the DGA is required to expand under this option, it is assumed that the BUA will still accommodate a larger share of PRE employment (59%) given the existing commercial base to build upon. More PRE growth is allocated to Cambridge and the Townships in this option compared to other options due to the relatively higher share of population growth allocated under Option 1. Under this option, Cambridge represents 46% of the DGA PRE jobs, compared to 25% under Option 2. Table 3-23 provides the Community Area employment growth over the 2019 to 2051 period to the DGA Community Area by Area Municipality.

Table 3-23: Option 1- Growth Plan Minimum, DGA Community Area Employment, 2019 to 2051

Option 1	DGA Community Area Jobs	DGA Major Office Jobs	DGA PRE Jobs	PRE Ratio
Cambridge	12,800	700	12,100	6.3
Kitchener	8,500	1,400	7,100	8.6
Waterloo	3,100	1,400	1,700	8.2
North Dumfries	1,000	0	1,000	6.9
Wellesley	100	0	100	19.0
Wilmot	1,400	0	1,400	7.6
Woolwich	2,800	0	2,800	9.4
Total	**29,700**	**3,500**	**26,200**	**7.5**

Source: Watson & Associates Economists Ltd. 2022

Option 2 – Compact Development, Modest Community Area Expansion

Under Option 2, the Community Area in the DGA is anticipated to accommodate **22,600 PRE** over the 2019 to 2051 period or approximately 1 job for every 6.6 residents. Table 3-24 provides the Community Area employment growth over the 2019 to 2051 period to the DGA Community Area by Area Municipality.

Table 3-24: Option 2 – Compact Development, Modest Community Area Expansion, DGA Community Area Employment, 2019 to 2051

Option 2	DGA Community Area Jobs	DGA Major Office Jobs	DGA PRE Jobs	PRE Ratio
Cambridge	6,300	700	5,600	5.9
Kitchener	10,800	1,400	9,400	7.2
Waterloo	5,200	1,400	3,800	4.5
North Dumfries	1,100	0	1,100	6.6
Wellesley	100	0	100	19.0
Wilmot	600	0	600	8.2
Woolwich	2,000	0	2,000	9.2
Total	**26,100**	**3,500**	**22,600**	**6.6**

Source: Watson & Associates Economists Ltd.

Option 3 – More Compact Development, No Urban Expansion of Community Areas

Under Option 3, the Community Area in the DGA is anticipated to accommodate **22,800 PRE** jobs over the 2019 to 2051 period or approximately 1 job for every 6.5 residents. Under this option the Community Area requirement is similar to Option 2. Compared to Option 2, a slightly higher PRE is forecast, and more emphasis is placed on PRE opportunities in the Cities of Kitchener and Waterloo, including opportunities for mixed-use developments. Table 3-25 summarizes the Community Area employment growth over the 2019 to 2051 period to the DGA Community Area by Area Municipality.

Table 3-25: Option 3 – More Compact Development, No Urban Expansion of Community Areas, DGA Community Area Employment, 2019 to 2051

Option 3	DGA Community Area Jobs	DGA Major Office Jobs	DGA PRE Jobs	PRE Ratio (1 PRE Job per Resident)
Cambridge	5,400	700	4,700	6.0
Kitchener	11,600	1,400	10,200	7.1
Waterloo	5,700	1,400	4,300	4.5
North Dumfries	1,100	0	1,100	4.3
Wellesley	100	0	100	5.0
Wilmot	600	0	600	6.5
Woolwich	1,800	0	1,800	11.2
Total	**26,300**	**3,500**	**22,800**	**6.5**

Source: Watson & Associates Economists Ltd.

3.8 Community Area Land Needs Assessment (Community Area Component 6 of the LNA Methodology)

3.8.1 Introduction

The following section represents the final component of the Community Land Needs Assessment, **Component 6**, which reviews the need for Community Area lands. This section reviews the target people and jobs density for the Region of Waterloo (50 people and jobs/ha), and the capacity of the DGA Community Area to accommodate growth. The Community Area Land Needs Assessment is reviewed under each of the three options.

3.8.2 Community Area DGA Density Analysis

As previously mentioned, approximately 1,330 gross ha of DGA lands within the Region are developed. As summarized in Table 3-26, these lands accommodate approximately 72,200 people and jobs and generate an average Region-wide people and jobs density of 54 jobs/gross ha.[49]

[49] Density for people and jobs is defined as per the Growth Plan, 2019.

Table 3-26: Region of Waterloo, Average DGA Community Area Density by Area Municipality

Area Municipality	DGA Developed Land Area, Gross ha	Existing Population and Jobs on Developed DGA Lands	Existing People and Jobs Density (gross/ha)
	A	B	C = B / A
City of Waterloo	225	11,500	51
City of Kitchener	598	36,000	60
City of Cambridge	209	10,800	52
Sub-total Cities	1,033	58,300	56
Township of Woolwich	129	6,800	53
Township of Wellesley	31	1,400	45
Township of North Dumfries	29	1,400	49
Township of Wilmot	109	4,300	39
Sub-total Townships	298	13,900	47
Region of Waterloo – DGA Community Areas	1,331	72,200	54

Source: Watson & Associates Economists Ltd. 2022

Table 3-27, below, summarizes the housing unit mix on developed residential DGA lands. As summarized, existing developed residential DGA community lands are primarily comprised of grade-related housing (singles/semi-detached and townhouses), representing 96% of the housing stock on DGA lands. It is important to recognize that the Region has achieved a higher average people and jobs density than the Growth Plan, 2019 target through the construction of predominately grade-related housing.

Table 3-27: Region of Waterloo, Existing Density (Residential and Non-Residential) on Developed DGA Lands

Area	Singles/ Semi-Detached	Townhouses	Apartments	Total
	A	B	C	D = A + B + C
Cities	**11,240**	**4,170**	**750**	**16,160**
Cities Housing Unit Mix	70%	26%	5%	100%
Townships	**3,420**	**410**	**40**	**3,870**
Township Housing Unit Mix	88%	11%	1%	100%
Region	**14,660**	**4,580**	**790**	**20,030**
Region Housing Unit Mix	73%	23%	4%	100%

Source: Watson & Associates Economists Ltd.

Table 3-28 provides a summary of the average DGA density related to developed and Category 1 vacant DGA lands. As summarized below, it is anticipated that the Region can readily maintain an average people and jobs density of 50 people and jobs/ha. Developed lands plus Category 1 vacant DGA lands represent approximately 70% of the DGA land supply within the Region.

Table 3-28: Region of Waterloo, DGA People and Jobs Density (Developed, Approved and Draft Approved – Category 1)

Area Municipality	Total Housing Units	Total Land Area, Gross ha	Population and Employment	Density: People and Jobs/Gross ha	Housing Units per Gross ha
	A	B	C	**D = C / B**	E = A / B
City of Waterloo	4,070	417	21,900	**53**	11
City of Kitchener	19,660	1,209	68,500	**57**	17
City of Cambridge	5,590	386	17,600	**46**	15
Sub-total Cities	29,320	2,012	108,000	**54**	16
Township of Woolwich	5,180	415	20,200	**49**	14
Township of Wellesley	410	38	1,700	**45**	11
Township of North Dumfries	1,070	80	3,400	**43**	13
Township of Wilmot	1,350	155	5,100	**33**	9
Sub-total Townships	8,010	687	30,400	**44**	12
Total Region of Waterloo	37,330	2,699	138,400	**51**	15

Source: Watson & Associates Economists Ltd.

3.8.3 Residents and Jobs to be Accommodated in Existing Designated Greenfield Area

The following provides the people and jobs capacity at 2051 on DGA lands by option.

Option 1: Growth Plan Minimum – 50% Intensification and 50 People and Jobs/ha at 2051

As illustrated in Table 3-29, under Option 1, 299,000 people and jobs have been allocated to DGA lands as of 2051. In accordance with the Region's supply of vacant DGA lands, 191,400 people and jobs can be accommodated on Community Area DGA lands, an average of 50 people and jobs per

ha; however, approximately 107,600 people and jobs cannot be accommodated on existing DGA lands. Accordingly, expansion is required for all Area Municipalities except the City of Waterloo.[50]

Table 3-29: Option 1 – Growth Plan Minimum, People and Jobs Capacity and People and Jobs Not Accommodated on Existing DGA Lands

Area Municipality	People and Jobs Forecast	People and Jobs Capacity	People and Jobs on Developed Lands	Capacity on Designated Vacant DGA Lands	Not Accommodated on Designated DGA Lands
	A	B	C	D = B - C	E = A - D
Cambridge	99,800	32,800	10,800	22,000	67,000
Kitchener	105,800	95,300	36,000	59,300	10,500
Waterloo	28,500	28,500	11,500	17,000	0
North Dumfries	9,300	6,900	1,400	5,500	2,400
Wellesley	3,400	1,700	1,400	300	1,700
Wilmot	16,400	8,100	4,300	3,800	8,300
Woolwich	35,800	18,100	6,800	11,300	17,700
Total	299,000	191,400	72,200	119,200	107,600

Source: Watson & Associates Economists Ltd.

Option 2: Compact Development, Modest Community Area Expansion – 60% Intensification and 60 People and Jobs/ha at 2051

This option assumes more compact development compared to Option 1. As illustrated in Table 3-30, under Option 2, 248,400 people and jobs have been allocated to DGA lands as of 2051. In accordance with the Region's supply of vacant DGA lands, 228,300 people and jobs can be accommodated on Community Area DGA lands at an average of 60 people and jobs per ha; however, approximately 20,100 people and jobs cannot be accommodated on existing DGA lands. Under this option, the City of Cambridge, the Township of North Dumfries, the Township of Wellesley and the Township of Woolwich would require settlement area boundary expansions to accommodate this identified shortfall.

[50] It is noted that for the City of Waterloo, additional urban expansion lands are not available within the City's corporate boundary.

Table 3-30: Option 2 – Compact Development, Modest Community Area Expansion, People and Jobs Capacity and People and Jobs Not Accommodated on Existing DGA Lands

Area Municipality	People and Jobs Forecast	People and Jobs Capacity	People and Jobs on Developed Lands	Capacity on Designated Vacant DGA Lands	Not Accommodated on Designated DGA Lands
	A	B	C	D = B - C	E = A - D
Cambridge	50,300	41,000	10,800	30,200	9,300
Kitchener	114,100	114,100	36,000	78,100	0
Waterloo	33,800	33,800	11,500	22,300	0
North Dumfries	9,800	8,300	1,400	6,900	1,500
Wellesley	3,400	2,100	1,400	700	1,300
Wilmot	9,800	9,800	4,300	5,500	0
Woolwich	27,200	19,200	6,800	12,400	8,000
Total	248,400	228,300	72,200	156,100	20,100

Source: Watson & Associates Economists Ltd.

Option 3: More Compact Development, No Urban Expansion of Community Areas – 60% and 66 People and Jobs/ha

Under this option, the Area Municipalities are assumed to build out their entire DGA land supply. For the Area Municipalities with an identified Community Area shortfall in Option 2, their DGA land supply potential has increased based on a modest increase to their average DGA density, thus eliminating the need for a settlement area boundary expansion. Within the DGA, this option assumes slightly more housing growth is allocated to the Cities largely due to the increased supply potential of the existing DGA land area assuming slightly higher average DGA densities. As illustrated in Table 3-31, under Option 3, the Region can accommodate 247,100 people and jobs on designated DGA lands.

Table 3-31: Option 3 – More Compact Development, No Urban Expansion of Community Areas, People and Jobs Capacity and People and Jobs Not Accommodated on Existing DGA Lands

Area Municipality	People and Jobs Forecast	People and Jobs Capacity	People and Jobs on Developed Lands	Capacity on Designated Vacant DGA Lands	Not Accommodated on Designated DGA Lands
	A	B	C	D = B - C	E = A - D
Cambridge	44,300	44,300	10,800	33,500	0
Kitchener	120,100	120,100	36,000	84,100	0
Waterloo	36,500	36,500	11,500	25,000	0
North Dumfries	7,800	7,800	1,400	6,400	0
Wellesley	2,000	2,000	1,400	600	0
Wilmot	8,800	8,800	4,300	4,500	0
Woolwich	27,600	27,600	6,800	20,800	0
Total	247,100	247,100	72,200	174,900	0

Source: Watson & Associates Economists Ltd.

3.8.4 DGA Community Area Land Need

The following provides a discussion of the land need requirements by option. For each option the following was considered:

- Capacity of DGA and lands available for expansion by Area Municipality (i.e., lands not identified within the Region's natural heritage system) within municipal boundaries;
- Historical and anticipated density trends; and
- Variation of the density target by Area Municipality to reflect local opportunities.

Refer to Appendix E for a map of the Urban Settlement Areas and the Countryside Line as well as a table showing the estimated land area within the Urban Settlement Areas potentially available for urban expansion.

Option 1: Growth Plan Minimum – 50% Intensification and 50 People and Jobs/ha

Under Option 1, the Region would require urban settlement expansion areas totalling 2,208 ha to accommodate identified DGA urban land requirements. As previously identified, all Area Municipalities except the City of Waterloo are identified to require urban settlement area expansions under Option 1. The additional urban land needs identified in this option would require all available lands (both within and outside the current Countryside Line) not identified within the City of Kitchener's natural heritage system, but within the City's corporate boundary. For the City of Cambridge, the results of Option 1 would require most of the available lands within its municipal boundary. The remaining available lands that are not identified within the City of Cambridge's natural heritage system (approximately 132 ha) would be required for future Employment Area (refer to Chapter 4).

Table 3-32: Option 1 – Growth Plan Minimum, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	99,800	51	1,950	640	(1,310)
Kitchener	105,800	55	1,924	1,732	(192)
Waterloo	28,500	52	549	549	0
North Dumfries	9,300	44	211	156	(55)
Wellesley	3,400	43	79	40	(38)
Wilmot	16,400	42	389	191	(197)
Woolwich	35,800	43	842	426	(416)
Total	299,000	50	5,944	3,735	(2,208)

Source: Watson & Associates Economists Ltd.

This option assumes the Growth Plan, 2019 minimum of 50 people and jobs/ha, which is below what the Region has been achieving historically and is anticipated to achieve through active residential plans. In order to achieve an average density of 50 people and jobs over the entire DGA, the Region would require an average density of 49 people and jobs/ha on vacant lands, as shown in Table 3-34.

Table 3-33: Option 1 – Growth Plan Minimum, Community Area Land Expansion Requirement, 2019 to 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Vacant DGA Community Area Land, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	89,000	51	1,741	431	(1,310)
Kitchener	69,800	53	1,325	1,134	(192)
Waterloo	17,000	53	324	323	0
North Dumfries	7,900	43	183	127	(55)
Wellesley	2,000	42	47	9	(38)
Wilmot	12,100	43	279	82	(197)
Woolwich	29,000	41	714	297	(416)
Total	226,800	49	4,613	2,403	(2,208)

Source: Watson & Associates Economists Ltd.

Option 2: Compact Development, Modest Community Area Expansion – 60% Intensification and 60 People and Jobs/ha

Under Option 2, the Region would require settlement area boundary expansions totalling 290 ha to accommodate DGA Community Area land requirements in Cambridge, Woolwich and Wellesley. The land requirements in this option would not require an adjustment to the Countryside Line. This option anticipates a more compact DGA and requires an increase to average DGA densities relative to current DGA Community Area densities, especially for the Cities. Furthermore, under this option a greater share of population and housing growth is directed to the BUA (60%) to make more efficient use of land and infrastructure as well as to support increased transit viability.

Table 3-34: Option 2 – Compact Development, Modest Community Area Expansion, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	50,300	64	786	640	(146)
Kitchener	114,100	66	1,732	1,732	0
Waterloo	33,800	62	548	548	0
North Dumfries	9,800	53	185	156	(29)
Wellesley	3,400	52	65	40	(25)
Wilmot	9,800	51	191	191	0
Woolwich	27,200	45	603	426	(176)
Total	248,400	60	4,110	3,734	(376)

Source: Watson & Associates Economists Ltd.

This option assumes a higher density than the Growth Plan, 2019 minimum of 50 people and jobs/ha and what the Region has been achieving historically and is anticipated to achieve through active plans. In order to achieve an average density of people and jobs over the entire DGA, the Region would require an average density of 63 people and jobs/ha on vacant lands, as summarized below.

Table 3-35: Option 2 – Compact Development, Modest Community Area Expansion, 2019 to 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Vacant DGA Community Area Land, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	39,500	68	577	431	(146)
Kitchener	78,100	69	1,134	1,134	0
Waterloo	22,300	69	323	323	0
North Dumfries	8,400	54	156	127	(29)
Wellesley	2,000	59	34	9	(25)
Wilmot	5,500	67	82	82	0
Woolwich	20,400	43	474	297	(176)
Total	176,200	63	2,779	2,403	(376)

Source: Watson & Associates Economists Ltd.

Option 3 – More Compact Development, No Urban Expansion of Community Areas – 60% Intensification and 66 People and Jobs/ha

Under Option 3, an increase to the average Community Area DGA density is assumed to eliminate the need for urban settlement area boundary expansion. This option is similar to Option 2; however, additional population is directed largely to the City of Kitchener from the City of Cambridge given the potential for additional population growth on vacant DGA lands through slightly higher densities. It is noted that approximately 45% of the Region of Waterloo's vacant DGA land area is located in the City of Kitchener, as previously noted in subsection 3.5.2.

Table 3-36: Option 3 – More Compact Development, No Urban Expansion of Community Areas, Community Area Land Expansion Requirement, 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Total Designated DGA Community Area Land Area, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	44,300	69	640	640	0
Kitchener	120,100	69	1,732	1,732	0
Waterloo	36,500	67	548	548	0
North Dumfries	7,800	50	156	156	0
Wellesley	2,000	50	40	40	0
Wilmot	8,800	46	191	191	0
Woolwich	27,600	65	426	426	0
Total	247,100	66	3,734	3,734	0

Source: Watson & Associates Economists Ltd.

This option assumes a higher density than the Growth Plan, 2019 minimum of 50 people and jobs/ha and what the Region has been achieving historically and is anticipated to achieve through active plans. In order to achieve an average density of 66 people and jobs over the entire DGA, the Region would require an average density of 73 people and jobs/ha on vacant lands, as summarized below.

Table 3-37: Option 3 – More Compact Development, No Urban Expansion of Community Areas, Community Area Land Expansion Requirement, 2019 to 2051

Area Municipality	People and Jobs	People and Jobs Density	Land Area Demand, ha	Vacant DGA Community Area Land, ha	Land Required, Expansion, ha
	A	B	C = A / B	D	E = D - C
Cambridge	33,500	78	431	431	0
Kitchener	84,100	74	1,134	1,134	0
Waterloo	25,000	77	323	323	0
North Dumfries	6,400	50	127	127	0
Wellesley	600	67	9	9	0
Wilmot	4,500	55	82	82	0
Woolwich	20,800	70	297	297	0
Total	174,900	73	2,403	2,403	0

Source: Watson & Associates Economists Ltd.

The following summarizes the Community Area land needs by option. Based on the options, the following land area is required through settlement boundary expansion:

- Option 1 – Growth Plan Minimum:
  - **2,208 ha**;
- Option 2 – Compact Development, Modest Community Area Expansion:
  - **376 ha**; and
- Option 3 -More Compact Development, No Urban Expansion of Community Areas:
  - **No Community Area expansion required**.

Table 3-38: Comparison of Community Area Land Needs Requirements by Option, ha

Area Municipality	Option 1	Option 2	Option 3
Cambridge	(1,310)	(146)	0
Kitchener	(192)	0	0
Waterloo	0	0	0
North Dumfries	(55)	(29)	0
Wellesley	(38)	(25)	0
Wilmot	(197)	0	0
Woolwich	(416)	(176)	0
Total	(2,208)	(376)	0

Source: Watson & Associates Economists Ltd.

Refer to Appendix E for a summary of housing growth and associated density.

4.0 Employment Area Land Needs Assessment

Future demand for Employment Areas within Waterloo Region is ultimately driven by forecast employment growth. Building on the Region's Employment Lands Strategy, this chapter summarizes the long-term employment forecast for the Region of Waterloo, growth allocations, and the corresponding Employment Area LNA.

4.1 Approach

An Employment Area LNA is provided in this chapter for the Region of Waterloo based on the Components of the provincial LNA Methodology (Employment Area Components 1 through 4), which are referenced herein. The results of the Employment Area LNA build on the Region of Waterloo Employment Lands Technical Brief, July 19, 2021.

In total, two Employment Area options have been prepared as part of the Region's LNA. These two options generate the same Employment Area land need for the Region as a whole. The two Employment Area options, however, result in varying ELE allocations by Area Municipality, subject to anticipated local market demand and total land available for urban boundary expansion, including both Community Areas and Employment Areas under Options 1 and 2. Community Area Option 3 is not anticipated to result in a change to the Employment Area allocations. As such, only two options are presented for Employment Areas.

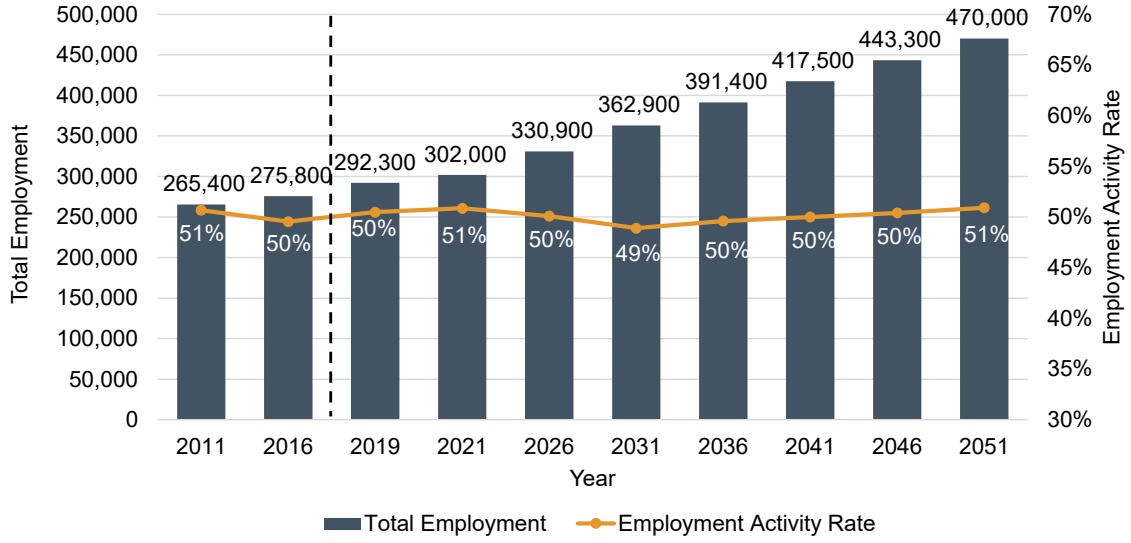
Within each Concept, a range of Employment Area land need has been determined based on adjustment to the assumed Region-wide Employment Area intensification target from 15% to 25%. These ranges within each Employment Area Concept are reflected as intensification scenarios, which has been assumed based on stakeholder feedback provided in response to the results of the Employment Strategy Technical Brief. It is noted that potential opportunities for higher Employment Area intensification (15% versus 25%) reduce the long-term need for urban Employment Area expansion by approximately 30%.

4.2 Employment Forecast (Employment Area Component 1 of the LNA Methodology)

In accordance with Schedule 3 of the Growth Plan, 2019, the Region of Waterloo's employment base is forecast to reach 470,000 jobs by 2051, as illustrated in Figure 4-1. This represents an increase of approximately 178,700 jobs between 2019 and 2051, representing an average annual growth rate of 1.5% during this period, based on the current (2019) employment estimate for the Region of 292,300.

Figure 4-1 summarizes the long-term employment forecast for the Region of Waterloo by total employment and employment activity rate (ratio of jobs per population) in comparison to recent historical trends. Since 2011, the Region of Waterloo's employment activity rate has remained relatively stable ranging between 50% and 51%. Over the forecast horizon, the employment activity rate is forecast to continue to remain stable at 51% to 2051. The following provides a summary of employment growth by land-use category as previously defined in section 1.5.

Figure 4-1: Region of Waterloo – Historical and Forecast Employment and Activity Rate, 2011 to 2051



Note: 2011 and 2016 based on Statistics Canada Place of Work data as summarized by Region of Waterloo. 2051 forecast employment based on A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca/growthplanning.
Source: Watson & Associates Economists Ltd.

Table 4-1 provides a summary of the employment growth forecast to 2051 by employment category in five-year increments over the 2016 to 2051 period. The largest incremental increase in employment is anticipated over the 2021 to 2036 period with growth moderating post-2036. PRE growth is forecast to comprise over half (47%) the Region-wide employment growth from 2019 to 2051, followed by ELE (28%) and MOE (24%), while rural employment growth is expected to be relatively limited (1%). The following provides a summary of employment growth by land-use category.

Population-Related Employment

PRE generally supports the local population base by providing convenient locations for businesses to serve local residents. Typically, as the population grows, the demand for this employment also increases to serve the needs of the Region. PRE also captures work from home employment.

The Region of Waterloo population is anticipated to increase by approximately 344,000 people between 2019 and 2051.[51] Forecast population growth in the Region of Waterloo is anticipated to drive demand for future PRE growth in the Region. This includes employment growth in retail, personal services, accommodation and food, health and social services, and educational services sectors. PRE growth over the 2019 to 2051 period is expected to total 83,200, representing 47% of overall employment growth in the Region. The PRE share of Region-wide employment is expected to marginally decrease from 49% in 2019 to 48% in 2051. PRE is anticipated to represent the largest share (47%) of employment growth within the Region over the forecast period. The primary causes of this are discussed in section 3.0 of the Region of Waterloo Employment Lands Technical Brief.[52]

Major Office Employment

MOE in the Region of Waterloo is forecast to increase by approximately 42,800 jobs over the 2019 to 2051 period. This represents 24% of the Region's total employment growth over the forecast period. MOE growth in the Region will be driven largely by growth in key knowledge-based industry clusters discussed in section 6.2 of the Region of Waterloo Employment Lands Technical Brief, including Information Technology and Analytical Instruments and Business Services. This results in an increase in the share of Region-wide MOE from 14% in 2019 to 18% by 2051. MOE is anticipated to represent the highest increase in existing employment share within the Region, as discussed in section 3.0 of the Region of Waterloo Employment Lands Technical Brief.

It is important to note that COVID-19 has accelerated work from home trends and placed downward pressure on employment accommodated in Major Office as government-imposed physical distancing requirements were in place. As previously stated, long-term demand for MOE is anticipated to be strong due to the Region being a technology and innovation hub with growth in "knowledge-based sectors." As COVID-19 restrictions continue to ease, this sector is anticipated to steadily recover.

Employment Lands Employment

Over the forecast period, ELE is expected to account for 28% of total employment growth (50,500 jobs) over the 2019 to 2051 period and reflects growth largely in industrial-based sectors. Growth in ELE is expected to be driven largely by continued development in key industry clusters as previously discussed in section 6.2 of the Region of Waterloo Employment Lands Technical Brief, including automotive; aerospace and defense; construction products and services; and transportation and logistics. The ELE share of Region-wide employment is forecast to decrease marginally from 34% in 2019 to 32% in 2051.

[51] Region of Waterloo Regional Official Plan Review – Long-Term Population and Housing Growth Analysis, December 2020, Dillon Consulting Limited and Watson & Associates Economists Ltd.

[52] Region of Waterloo Regional Official Plan Review, Employment Lands Technical Brief, July 19, 2021, Dillon Consulting Limited & Watson & Associates Economists Ltd.

Rural Employment

Rural-based employment, employment primarily consisting of primary sectors, is anticipated to represent 1% (1,200 jobs) of the Region's employment growth over the 2019 and 2051 period. This results in the rural-based share of Region-wide employment to marginally decrease from 4% in 2019 to 3% in 2051.

Table 4-1: Region of Waterloo – Employment Forecast to 2051

Total Employment

Planning Period[1]	Rural-Based Employment	Population-Related Employment	Major Office Employment	Employment Lands Employment	Total Employment
2011	10,400	124,700	33,300	96,900	**265,400**
2016	11,100	135,000	35,900	94,000	**275,800**
2019	11,600	142,000	39,600	99,100	**292,300**
2021	11,800	145,500	42,200	102,700	**302,000**
2026	12,100	159,900	48,200	110,900	**330,900**
2031	12,400	177,400	54,300	119,000	**362,900**
2036	12,500	191,900	60,500	126,700	**391,400**
2041	12,600	203,900	66,800	134,400	**417,500**
2046	12,700	214,900	73,800	142,100	**443,300**
2051	12,700	225,200	82,400	149,600	**470,000**
2019-2051	1,100	83,200	42,800	50,500	**177,700**

Share of Region-wide Employment

Planning Period[1]	Rural-Based Employment	Population-Related Employment	Major Office Employment	Employment Lands Employment	Total Employment
2019	4%	49%	14%	34%	100%
2051	3%	48%	18%	32%	100%
2019-2051	1%	47%	24%	28%	100%

[1]MCR base year is mid-2019. 2011 and 2016 employment is derived from Statistics Canada, Census.

2019 employment is based on an estimate by Watson & Associates Economists Ltd.

2051 employment is derived from A Place to Grow: Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020. Ontario.ca/growthplanning. Schedule 3.

Note: Numbers may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

4.2.1 Forecast Employment Growth within Employment Areas

Employment Areas in the Region of Waterloo provide opportunities to accommodate a wide variety of employment sectors and businesses within a range of building types and forms. As illustrated, Employment Areas in the Region of Waterloo are forecast to accommodate approximately 70,600 jobs over the 2019 to 2051 period.[53] This represents approximately 40% of the Region's total employment growth over that period. It is assumed that 93% of Region-wide ELE growth will occur within Employment Areas, while 14% of the Region's PRE and 28% of MOE will be accommodated within Employment Areas. In accordance with the above assumptions, employment growth within Employment Areas is anticipated to comprise 67% ELE (47,200 jobs), 16% PRE (11,600 jobs) and 17% MOE (11,800 jobs).

[53] Including Major Office Employment located on employment lands. Excluding Major Office, employment lands are forecast to accommodate 58,800 employees, representing 33% of employment growth to 2051.

Table 4-2: Region of Waterloo Employment Growth by Sector and Location, 2019 to 2051

Employment Type	Region-Wide Employment, 2019-2051	Employment Areas, 2019-2051	Rural Area, 2019-2051	Community Areas, 2019-2051	Share of Region-Wide Employment Growth within Employment Areas, 2019-2051
Employment Land Employment (ELE)	50,500	47,200	3,400	0	93%
Population-Related Employment (PRE)	83,200	11,600	300	71,300	14%
Major Office Employment (MOE)	42,800	11,800	0	31,000	28%
Rural-Based Employment	1,200	0	1,200	0	0%
Total Employment Growth	**177,700**	**70,600**	**4,800**	**102,300**	**40%**
Employment Areas Excluding Major Office	-	**58,800**	-	-	**33%**

Note: Numbers may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

4.3 Employment Allocation (Employment Area Component 2 of the LNA Methodology)

Table 4-3 to Table 4-6 summarize the long-term employment forecast by Area Municipality from 2021 to 2051 for Employment Option 1 and Option 2 under the 15% and 25% Employment Area intensification scenarios. As previously discussed, the two Employment Area options result in varying ELE allocations by Area Municipality, subject to total land available for urban boundary expansion by Area Municipality, including both Community Areas and Employment Areas under Options 1 and 2.

Over the forecast period, approximately 34% to 36% of forecast employment growth has been allocated to the City of Kitchener, followed by 24% to 26% for the City of Cambridge, 23% to 24% for the City of Waterloo, 8% to 14% for the Township of Woolwich, 3% for the Township of North Dumfries, 2% for the Township of Wilmot and 1% for the Township of Wellesley.

Table 4-3: Region of Waterloo, Employment Option 1, 15% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	118,100	167,900	112,800	12,200	6,700	12,100	40,300	470,000
Total Growth, 2021-2051	40,200	56,900	38,000	5,200	1,200	3,500	23,000	168,000
Growth Share, 2021-2051	24%	34%	23%	3%	1%	2%	14%	100%

Note: Figures may not add precisely due to rounding.

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

Table 4-4: Region of Waterloo, Employment Option 1, 25% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	119,100	170,700	114,600	12,200	6,700	12,100	34,600	470,000
Total Growth, 2021-2051	41,200	59,700	39,800	5,200	1,200	3,500	17,300	168,000
Growth Share, 2021-2051	25%	36%	24%	3%	1%	2%	10%	100%

Note: Figures may not add precisely due to rounding.

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

Table 4-55: Region of Waterloo, Employment Option 2, 15% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	122,200	167,900	112,800	12,200	6,700	12,100	36,100	470,000
Total Growth, 2021-2051	44,300	56,900	38,000	5,200	1,200	3,500	18,800	168,000
Growth Share, 2021-2051	26%	34%	23%	3%	1%	2%	11%	100%

Note: Figures may not add precisely due to rounding.
Source: 2016 from Statistics Canada Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table 4-66: Region of Waterloo, Employment Option 2, 25% Employment Area Land Intensification Scenario, Total Employment Forecast by Area Municipality

Period	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich	Region of Waterloo
2016	71,900	102,100	67,200	6,300	4,800	7,800	15,900	275,800
2021	77,900	111,000	74,800	7,000	5,500	8,600	17,300	302,000
2051	122,200	170,700	114,600	12,200	6,700	12,100	31,500	470,000
Total Growth, 2021-2051	44,300	59,700	39,800	5,200	1,200	3,500	14,200	168,000
Growth Share, 2021-2051	26%	36%	24%	3%	1%	2%	8%	100%

Note: Figures may not add precisely due to rounding.
Source: 2016 from Statistics Canada Census, and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

4.3.1 Employment Area Density

There are several macro-economic trends that are influencing average density levels on employment lands. Generally, average density levels on employment lands are declining in the manufacturing sector, as domestic manufacturers focus efforts on increased efficiency and competitiveness through automation. This trend is coupled with increasing demand for large, land-extensive warehousing and logistics facilities to support distribution and transportation of goods throughout the expanding urban population base.

On the other hand, growing demand within the multi-tenant and standalone office sector in the Region of Waterloo is anticipated to have an upward influence on average employment densities on employment lands. Office employment on employment lands also generates demand for on-site and off-site employment amenities that also tend to have an upward influence on average employment density on employment lands.

Reflective of anticipated trends in employment density by sector, as discussed in the Region Waterloo Employment Lands Strategy, and the employment forecast by category presented herein, it is anticipated that employment growth on employment lands expected to be absorbed within the Region's Employment Areas over the 2019 to 2051 period will average 43 jobs/net ha (17 jobs/net acre) or 35 jobs/gross ha (14 jobs/gross acre). This is moderately higher than the density achieved over the 2011 to 2018 period.[54]

4.4 Existing Employment Area Potential (Employment Area Component 3 of the LNA Methodology)

There is a total of 4,108 ha of designated land within Urban Employment Areas across the Region. Much of this land is occupied with active employment uses. As the Region of Waterloo continues to grow, there is a need to accommodate additional employment uses to support complete communities across the Region.

Employment Land Supply

As shown in Table 4-77-7, there is a total of 1,072 ha of vacant employment land within the Urban Employment Areas across the Region, which represents 26% of the urban employment land inventory as being vacant. Detailed mapping of vacant employment land within the Urban Employment Areas in the Region is provided in Appendix D.

Approximately half (552 ha) the vacant urban employment land inventory is in the City of Cambridge, with 14% in the Township of Woolwich, 12% in the City of Waterloo, 11% in the City of Kitchener, 8% in the Township of Wilmot, and the remaining 3% in the Township of North Dumfries. There are no vacant urban employment lands in the Township of Wellesley.

Of the 1,072 ha of vacant employment lands within the Urban Area, only 195 ha (18%) are within the BUA and the remaining 876 ha (82%) are outside the BUA, within the DGA. Most of the vacant land that is within the BUA is in the City of Kitchener (46%), followed by 42% in the City of Cambridge, 5% in the Township of Woolwich, 3% in the Township of Wilmot, 2% in the City of Waterloo and the remaining 2% in the Township of North Dumfries. Over half (54%) the vacant DGA land is in the City of Cambridge, followed by 16% in the Township of Woolwich, 14% in the City of Waterloo, 9% in the Township of Wilmot, 4% in the City of Kitchener and 4% in the Township of North Dumfries.

[54] It is noted that employment density targets for DGA are reported on a gross basis herein, in accordance with subsection 2.2.7.3 of the Growth Plan, 2019.

Table 4-77: Region of Waterloo, Status of Urban Employment Lands

Area Municipality	Occupied Urban Employment Lands, ha	Vacant Urban Employment Lands, ha	Total Urban Employment Lands, ha
City of Cambridge	1,365	552	1,918
City of Kitchener	794	122	916
City of Waterloo	470	129	599
Township of North Dumfries	56	36	92
Township of Wilmot	87	81	168
Township of Woolwich	264	152	416
Township of Wellesley	0	0	0
Region of Waterloo	**3,036**	**1,072**	**4,108**

Source: Derived from data provided by the Region and Waterloo and Dillon Consulting Limited, by Watson & Associates Economists Ltd.

Potential for Intensification within Employment Areas

In addition to the vacant employment land supply outlined above, there are opportunities for intensification or infill development within the developed/occupied Urban Employment Areas over the long term. Moderate infill and redevelopment of sites within developed Employment Areas characterized by new business and employment growth have been occurring to date.

Over the 2011 to 2018 period, expansions and new construction net of demolition in developed Employment Areas also accounted for approximately 34% of building gross floor area (GFA), as illustrated in Table 4-8. This suggests that a notable share of recent development activity within Employment Areas is being accommodated through intensification of underutilized properties. Redevelopment activity has been limited with the majority related to expansion activity of existing businesses (approximately 91% of building GFA over the 2011 to 2018 period).

Table 4-88: Region of Waterloo Distribution of Non-Residential Development within Employment Areas, 2011 to 2018

Non-Residential Development within Employment Areas, 2011-2018		
Absorbed Employment Lands, 2011-2018	3,153,900	66%
Intensification of Existing Developed Lands (pre-2011)	1,608,900	34%
Total within Employment Areas	**4,762,800**	**100%**

Source: Derived from Region of Waterloo non-residential building permit data by Watson & Associates Economists Ltd., 2022.

Based on a detailed review of development trends and broader employment growth trends in the Region, it is estimated that the Region's Employment Areas employment base expanded by approximately 10,400 over the 2011 to 2019 period. Over that time, it is estimated that 69% of employment growth was accommodated on employment lands absorbed over the period and 29% of

this employment growth through intensification, on pre-2011 occupied employment lands, as illustrated in Table 4-99-9.

Table 4-99: Employment Growth Within Employment Areas, 2011-2019

	Employment Growth	
Employment Growth within Absorbed Employment Lands, 2011-2019	7,400	71%
Intensification of Pre-2011 Occupied Employment Lands	3,000	29%
Total within Employment Areas 2011-2019	**10,400**	**100%**

Source: Derived from Region of Waterloo non-residential building permit data by Watson & Associates Economists Ltd., 2022.

To better understand the potential for intensification and infilling, an analysis was undertaken of existing occupied lands. This analysis examined parcels with potential for on-site expansion or lot severances based on the presence of underutilized areas of a given site (e.g. vacant land, open space, etc.).

Parcels that are being used for municipal infrastructure (e.g., stormwater management pond) or recreational facilities were not included as opportunities for intensification. The preliminary analysis of the occupied lands was provided to the Region and Area Municipalities for review and input before finalizing. This analysis included a review of all occupied lands, which includes Urban employment lands (within the BUA and DGA[55]) and Rural employment lands.

A number of intensification/infill opportunities were identified within each of the Area Municipalities. As presented in Table 4-1010, a total of 15% (457 ha) of the occupied Urban employment lands was identified with opportunities for intensification in the long term. This includes approximately 301 ha of land identified with intensification potential that is within the BUA and approximately 156 ha in the DGA.

[55] Given that the Built Boundary was identified by the Province in 2006, the Designated Greenfield Area includes lands that are currently occupied.

Table 4-1010: Region of Waterloo, Employment Growth Within Employment Areas, 2011 to 2019

Area Municipality	Built-Up Area Intensification/Infill Potential (ha)	Designated Greenfield Area Intensification/Infill Potential (ha)	Total
City of Cambridge	43	29	72
City of Kitchener	146	48	194
City of Waterloo	36	49	85
Township of North Dumfries	12	1	13
Township of Wellesley	0	0	0
Township of Wilmot	25	1	26
Township of Woolwich	40	27	67
Region of Waterloo	**301**	**156**	**457**

Source: Derived from Region of Waterloo and Dillon Consulting Limited data, by Watson & Associates Economists Ltd.

Identifying and evaluating intensification opportunities against market demand is challenging. The intensification potential of the underutilized employment lands will largely be determined by future development plans of existing or future landowners, which are highly speculative. Infill and redevelopment of existing developed lands will occur over time, largely driven by market demand for land development opportunities. Intensification trends are expected to accelerate over the forecast period, based on the intensification opportunities identified above and market demand considerations.

Over the 2019 to 2051 period, an estimated 15% of employment growth within the Region's Employment Areas is expected to be accommodated through intensification as presented in Option 1. Based on the feedback from stakeholders, the impact of a higher Employment Area intensification target of 25% is also considered.

4.5 Need for Additional Land (Employment Area Component 4 of the LNA Methodology)

The following provides a summary of Employment Area Component 4 of the provincial LNA Methodology. The allocation of employment growth within Urban Employment Areas by local municipality is based on a comprehensive review of forecast demand for ELE by local municipality, forecast density trends regarding ELE, and available land supply in Employment Areas including intensification opportunities.

Table 4-11 to Table 4-1414 summarize the Region of Waterloo's Urban Employment Area land needs allocations to 2051 based on forecast employment land demand and available supply under the two Employment options. Within each option, Employment Area land needs range in accordance with the

15% and 25% Urban Employment Area land intensification scenarios discussed above. Key highlights include:

- Under Options 1 and 2 with 15% intensification, there is an identified Region-wide Urban Employment Area expansion requirement of 659 ha. Assuming the share of employment growth accommodated through intensification is increased from 15% to 25%, the Region-wide Urban Employment Area land need would be reduced to 456 ha.
- Under Option 1, the largest Urban Employment Area settlement area expansion has been identified for the Township of Woolwich, followed by the City of Cambridge. While market demand for Urban Employment Area expansion is anticipated to be strong for both the Township of Woolwich and the City of Cambridge, the ultimate supply of urban lands available for settlement area expansion, including both Community Area lands and Employment Area lands, limits the potential lands available for urban boundary expansion in the City of Cambridge under Option 1.
- Under Option 2, a greater amount of Urban Employment Area expansion lands has been identified for the City of Cambridge. Under Concept 2, reduced Community Area expansion requirements allow for increased opportunity for Urban Employment Area expansion in Cambridge.
- The Cities of Kitchener and Waterloo have significant employment growth in both options; however, viable opportunities for Urban Employment Area expansion do not exist within these municipalities.
- Under Option 2, the allocation of Employment Area growth to the Township of Woolwich is reduced relative to Option 1 to accommodate the increased share of Urban Employment Area employment growth allocated to the City of Cambridge.
- The Townships of North Dumfries and Wilmot have moderate employment growth on Urban Employment Area lands and have small Urban Employment Area expansion requirements under both options; and
- Employment growth in the Township of Wellesley's Urban Employment Areas has not been identified due to a limited supply of vacant Urban Employment Area lands and constraints to municipal water/wastewater servicing. Employment growth on rural employment lands is anticipated for the Township of Wellesley.

Employment Area Land Demand Allocations and land needs by Area Municipality for Options 1 and 2 under 15% and 25% intensification scenario tables are summarized below.

Table 4-11: Region of Waterloo, Employment Option 1, 15% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	25,500	684	552	-132
City of Kitchener	10,200	122	122	0
City of Waterloo	11,900	129	129	0
Township of North Dumfries	2,700	122	36	-86
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	98	81	-17
Township of Woolwich	18,000	576	152	-424
Region of Waterloo	**70,600**	**1,731**	**1,072**	**-659**

Note: Employment land demand has been adjusted to account for 15% intensification.

Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Table 4-1212: Region of Waterloo, Employment Option 1, 25% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	26,500	684	552	-132
City of Kitchener	13,000	122	122	0
City of Waterloo	13,700	128	129	0
Township of North Dumfries	2,700	114	36	-78
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	86	81	-5
Township of Woolwich	12,400	394	152	-242
Region of Waterloo	**70,600**	**1,528**	**1,072**	**-456**

Note: Employment land demand has been adjusted to account for 25% intensification.

Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Table 4-1313: Region of Waterloo, Employment Option 2, 15% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	29,600	802	552	-250
Kitchener	10,200	122	122	0
City of Waterloo	11,900	129	129	0
Township of North Dumfries	2,700	122	36	-86
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	98	81	-17
Township of Woolwich	13,900	458	152	-306
Region of Waterloo	70,600	1,731	1,072	-659

Note: Employment land demand has been adjusted to account for 15% intensification.

Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Table 4-1414: Region of Waterloo, Employment Option 2, 25% Employment Area Land Intensification Scenario, Employment Area Land Demand Allocations and Land Needs by Area Municipality

Area Municipality	Total Jobs on Employment Areas, 2019 to 2051	Employment Land Demand (Gross ha)	Urban Employment Land Inventory (Gross ha)	Employment Land Surplus/Deficit (Gross ha)
City of Cambridge	29,600	774	552	-221
City of Kitchener	13,000	122	122	0
City of Waterloo	13,700	128	129	0
Township of North Dumfries	2,700	114	36	-78
Township of Wellesley	0	0	0	0
Township of Wilmot	2,300	86	81	-5
Township of Woolwich	9,300	304	152	-152
Region of Waterloo	70,600	1,527	1,072	-456

Note: Employment land demand has been adjusted to account for 25% intensification.

Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

5.0 Next Steps

The Region of Waterloo's LNA is an important milestone in the MCR process. The technical work documented herein is consistent with the Province's Land Needs Assessment Methodology document. The Region's LNA identifies the land need implications for future employment and community area growth. Specifically, the findings identify the quantity of land needed to accommodate forecasted growth to 2051 based on the minimum targets set out in the Growth Plan, along with two other possible growth concepts. As illustrated, the technical work shows that there are significant land need implications under each concept and depending on how the Region plans for its long-range growth, there could be a need for significant level of new urban lands – and with it, a number of financial, economic, social, environmental and climate change impacts. Given the range of potential implications associated with the growth concepts, the next step in the process is to prepare a high-level summary of implications for the different growth concepts and to consult with area municipalities, stakeholders and the public on the findings of the LNA. Based on the results of the consultation and engagement exercise, the Region will be in a position to make a recommendation on a preferred growth concept.

Appendices

Appendix A

Region of Waterloo Housing Headship Rates, 2006 to 2051

Figure A-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 B

Region of Waterloo Propensity Analysis: Long-Term Housing Growth Outlook by Tenure and Structure Type

B-1 Region of Waterloo Long-Term Housing Growth Outlook by Tenure and Structure Type

B-1.1 Approach

The Region of Waterloo housing forecast by structure type has been further examined using a customized housing forecast modelling framework, which assesses future trends in age structure by tenure (i.e. ownership vs. rental) and structure type (i.e. single and semi-detached, townhouses and apartments) over the 2021 to 2051 planning horizon. The approach encompasses the following steps and is summarized in Figure B-1.

Figure B-1: Region of Waterloo, Housing Forecast Modelling Framework

B-1.2 Housing Forecast by Population Major Age Group, 2021 to 2051

As discussed in Chapter 3, the Region of Waterloo is anticipated to experience strong housing growth over the long term. The 2021 to 2051 housing forecast by age group (age of primary household maintainer) is summarized in Figure B-2. Over the 2021 to 2051 planning horizon, the Region of Waterloo housing stock is forecast to increase by approximately 121,100 households. The largest share

of housing demand is anticipated to be generated from the 35-54 age group (32% of total housing growth) and the 75+ age group (also 32% of total housing growth). Further details regarding the Region's housing forecast by structure type and tenure are provided in Appendix B, section B-2. Key observations from this analysis are summarized below:

Figure B-2: Region of Waterloo, 2021 to 2051 Housing Forecast by Age Group and Housing Type

Age Cohort	Households	
	Total	Share (%)
Under 25	4,400	4%
25-34	15,400	13%
35-44	20,500	17%
45-54	18,600	15%
55-64	11,200	9%
65-74	11,900	10%
75+	39,100	32%
Total	**121,100**	**100%**

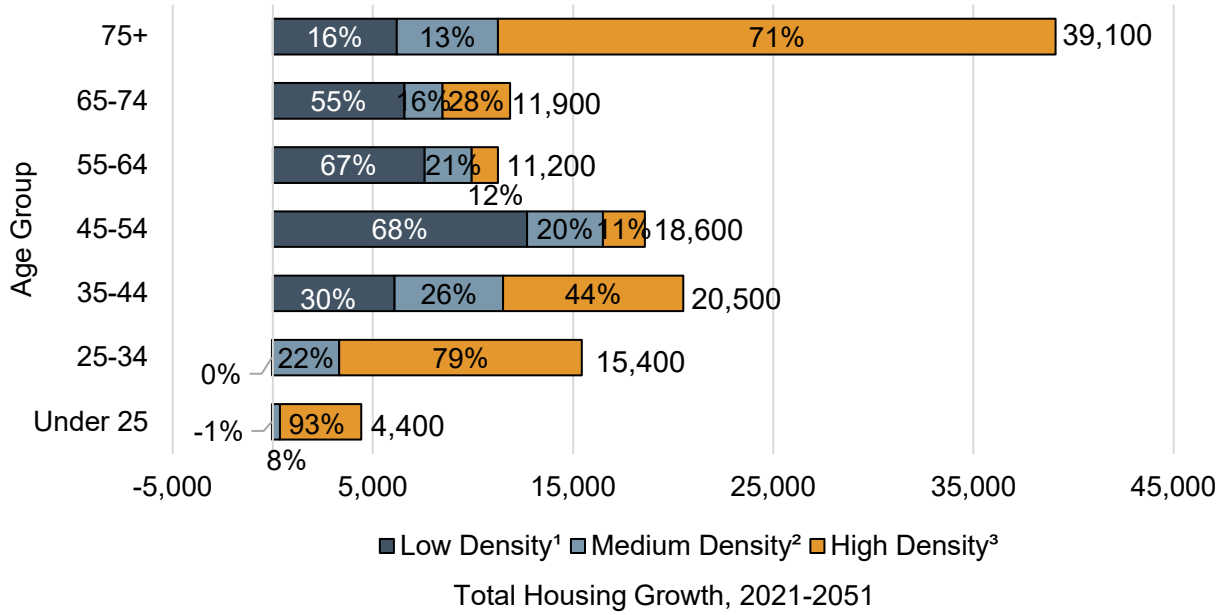
Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

B-1.3 Region of Waterloo Housing Forecast by Structure Type, 2021 to 2051

Figures B-3 and B-4 summarize the housing forecast for the Region of Waterloo from 2021 to 2051 by population age group and structure type for Options 1 and 2, respectively (refer to section B-2 in Appendix B for further details). Key observations include:

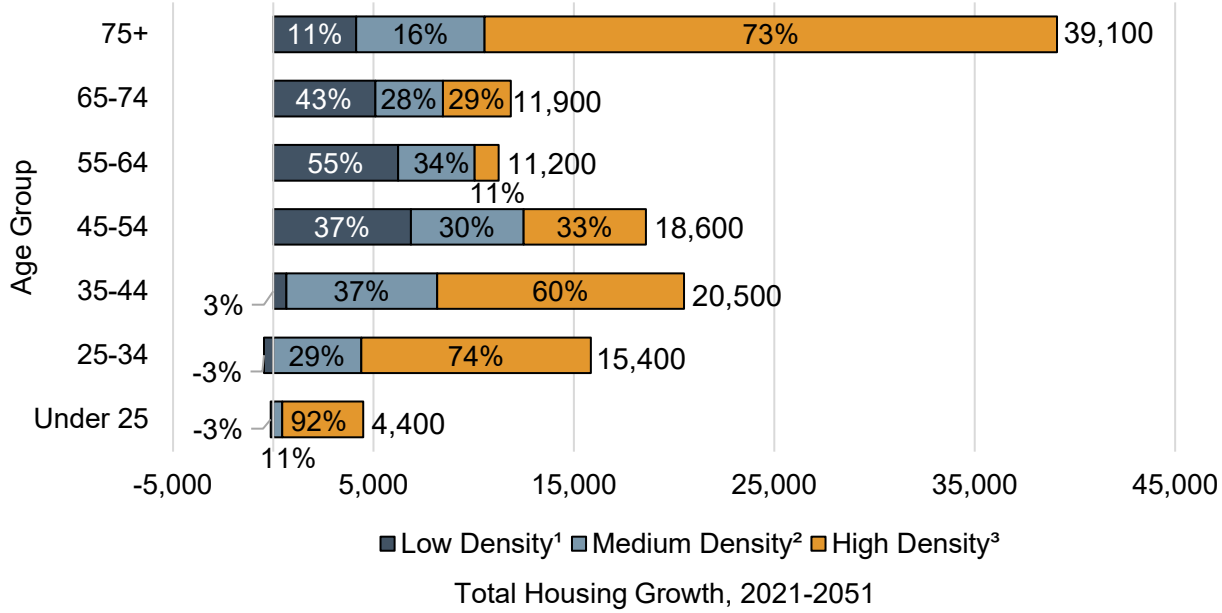
- Young adults (34 years of age and under) are anticipated to comprise approximately 27% of total demand for high-density housing in Option 1 and 23% in Option 2, including both ownership and rental high-density housing forms;
- In Option 1, 69% of low-density housing growth is associated with adults between 45 and 74 years of age, and in Option 2, 81% of low-density housing growth is associated with this age group. Similarly, approximately 36% of medium-density housing growth is associated with this age group in Option 1, compared to 41% in Option 2; and
- The aging of the Region's population is anticipated to place increasing demand on the need for a range of new housing options by type and built form, largely geared towards condominiums, rental apartments, seniors' housing, affordable housing and social housing products. Approximately 47% in Option 1 and 43% in Option 2 of future high-density housing demand in the Region of Waterloo is anticipated to be generated from households maintained by persons aged 75 years of age and older. This represents a total of approximately 27,900 new high-density households (or 930 households annually) over the long-term planning horizon in Option 1 and 28,600 new high-density households (or 950 households annually) in Option 2.

Figure B-3: Region of Waterloo, Option 1, Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments and stacked townhouses.
Secondary units are embedded within the categories above.
Source: Watson & Associates Economists Ltd

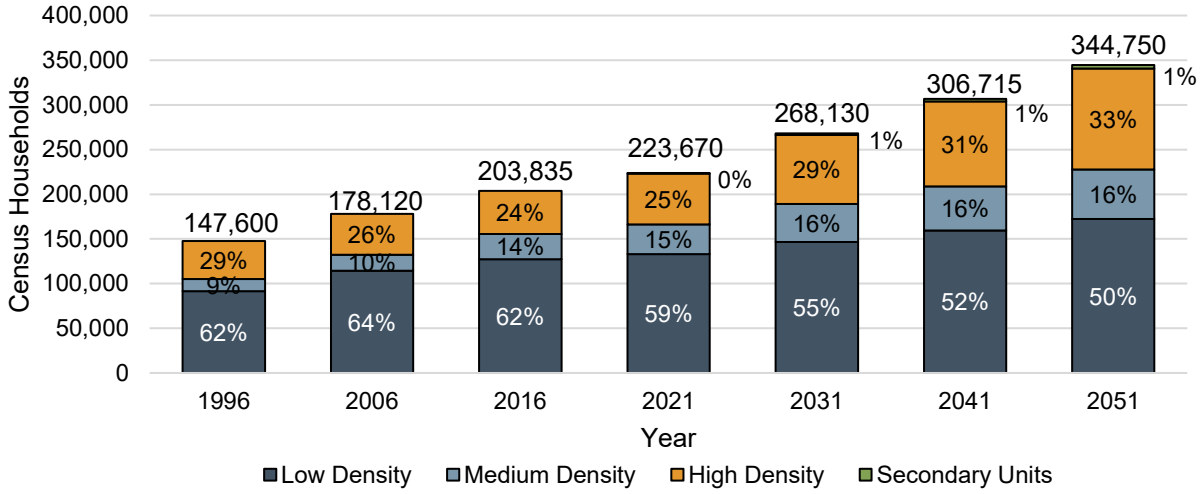
Figure B-4: Region of Waterloo, Option 2, Housing Forecast by Structure Type by Age Group, 2021 to 2051



[1] Low density represents singles and semi-detached.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
Secondary units are embedded within the categories above.
Source: Watson & Associates Economists Ltd.

Figure 3-3 summarizes the long-term total Census housing forecast by structure type for the Region of Waterloo in five-year increments from 1996 to 2051. By 2051, the Region's housing base is forecast to reach 344,750, an increase of 121,100 from 2021. In Option 1 the share of high-density housing is forecast to steadily increase from 25% in 2021 to 33% in 2051, while the grade-related share is forecast to decline from 75% to 67%. Under Option 2, the share of high-density housing is forecast to steadily increase from 25% in 2021, to 35% in 2051, while the grade-related share is forecast to decline from 75% to 65%.

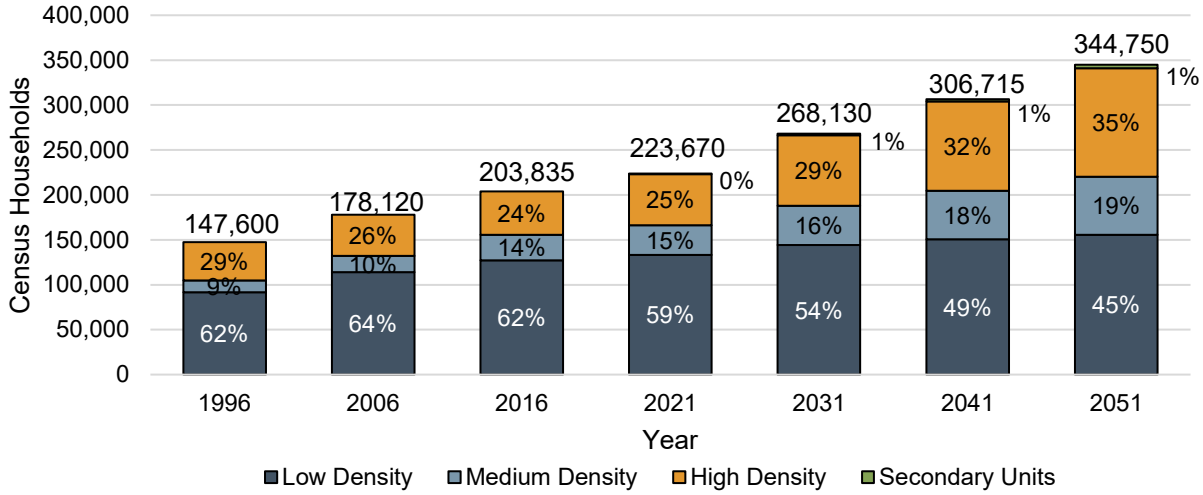
Figure B-5: Region of Waterloo, Option 1, Total Census Housing Forecast by Structure Type, 1996 to 2051



Note:
- Low density includes singles and semis.
- Medium density includes townhouses and apartments in duplexes.
- High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.
- From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

Figure B-6: Region of Waterloo, Option 2, Total Census Housing Forecast by Structure Type, 1996 to 2051



Note:
- Low density includes singles and semis.
- Medium density includes townhouses and apartments in duplexes.
- High density includes bachelor, 1-bedroom and 2-bedroom+ apartments and stacked townhouses.
- From 1996 to 2016 secondary units are embedded in the low-, medium- and high-density Census housing categories. From 2016 to 2051 secondary units are captured as their own category, based on incremental growth.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2016 to 2051 by Watson & Associates Economists Ltd.

B-1.4 Rental Housing Outlook and Needs Analysis

The availability of rental housing is a key factor in attracting and retaining people and businesses to a community. As previously noted, steady market demand for rental housing in the Region of Waterloo across all age groups will continue to be driven by a number of factors, including population growth driven by immigration (including non-permanent residents (NPR)), the erosion in housing ownership affordability, changing demographics (e.g. aging population) and lifestyle preferences. Between 2021 and 2051, rental housing is anticipated to represent 36% of total regional housing growth. The Region's current rental housing stock is highly concentrated by high-density households. This trend is anticipated to remain over the 2021 to 2051 planning horizon. Given the significant share of forecast rental to total housing growth and the strong propensity of rental housing towards high-density households, the influence of rental housing demand is important to consider when determining total housing demand by structure type over the forecast period.

This section provides a 30-year (2021 to 2051) rental housing needs assessment for the Region of Waterloo within the context of historical trends between 1996 and 2001. The Region of Waterloo rental housing needs analysis has been informed by historical regional housing propensity (demand) rates, anticipated growth by age cohort, household formation patterns, and anticipated trends in household income.

B-1.5 Overview of the Region of Waterloo Rental Market

The Region of Waterloo has approximately 64,800 renter households as of 2016. The housing rental market can be characterized by both a primary and secondary market as follows:

- **Primary rental market** – Canadian Mortgage and Housing Corporation (CMHC) identifies the primary rental market as structures that have at least three rental units. These properties are typically operated by an owner, manager, or building superintendent.
- **Secondary rental market** – CMHC identifies rented condominiums, subsidized rental housing, and rentals in structures of less than three units as part of the secondary rental market. In fact, all rentals – except privately initiated, purpose-built rental structures of three units or more – are included in the secondary rental market.

For the purposes of the analysis in this section, the rental market is composed of the Kitchener-Cambridge-Waterloo Census Metropolitan Area (KCW CMA) because CMHC does not track rental housing outside CMAs.[56] As of 2016, the KCW CMA rental market has approximately 64,400 units, which comprise approximately 33,800 (52%) units in the primary rental market and 30,600 (48%) units in the secondary rental market.[57] The KCW CMA relies on the secondary market to accommodate just under half its renter households. For comparison, approximately 43% of renter households are accommodated in primary rental units at the Province-wide level.

Over half (54%) the KCW CMA primary rental housing stock was constructed over the 1960 to 1980 period, and since that time the Region has experienced moderate purpose-built rental development to 2012. More recently over the 2013 to 2020 period, new purpose-built rental housing stock accounted for approximately 20% (equal to 7,800 units) of new housing units.[58] The rental vacancy rate for purpose-built rental housing in the KCW CMA is currently at 2.0% (compared to the provincial average of 3.2%), indicative of a very tight market in purpose-built rentals. Over the 2006 to 2016 period, tenant occupied households within the KCW CMA increased by 24%, a noticeably higher percentage increase than the provincial average of 19%.

The recent growth in renter households in the KCW CMA has been accommodated largely through the secondary rental market. Over the 2006 to 2016 period, renter household growth was accommodated in a range of building typologies including 51% in high-density units, 21% in medium-density units and 28% in low-density units. Just over half the renter household growth over the period was accommodated in high-density housing. Of the renter household growth over the 2006 to 2016 period in high-density

[56] The KCW CMA includes the City of Cambridge, City of Kitchener, City of Waterloo, Township of North Dumfries, Township of Wilmot and Township of Woolwich. The Township of Wellesley is not included.

[57] The total rental housing supply includes primary rental market of 33,800 units (based on the rental universe from CMHC data for the Kitchener-Cambridge-Waterloo CMA). The secondary market is estimated based on the remaining units (renter households less CMHC primary rental total).

[58] Based on CMHC housing completions data by tenure before 1960 to 2020.

households, approximately 54% was accommodated through condominium rentals.[59] Condominium units in the Region being rented to tenants are anticipated to continue to be an important contributor to the rental market.

Achieving a stronger rate of rental housing growth in the Region of Waterloo to meet anticipated needs will require that a steady supply of new rental housing opportunities is provided across both the primary and secondary rental markets. While the secondary market continues to be an important supplier of rental housing, it is recognized that increasing the supply of rental housing in the market will likely require greater participation by the private-sector development community and non-profit organizations to construct purpose-built rental housing.[60]

Purpose-built rentals offer key advantages over units in the secondary market. Unlike the secondary rental market, the primary rental market is not subject to broader market fluctuations and variability in housing tenure. This provides for greater housing security as individual tenants have guarantees on longer-term rental accommodation. Purpose-built units also tend to have lower market rents than comparable secondary market units and offer opportunities to incorporate non-market units in housing mix. Finally, purpose-built developments are often designed with amenities oriented to renter households.

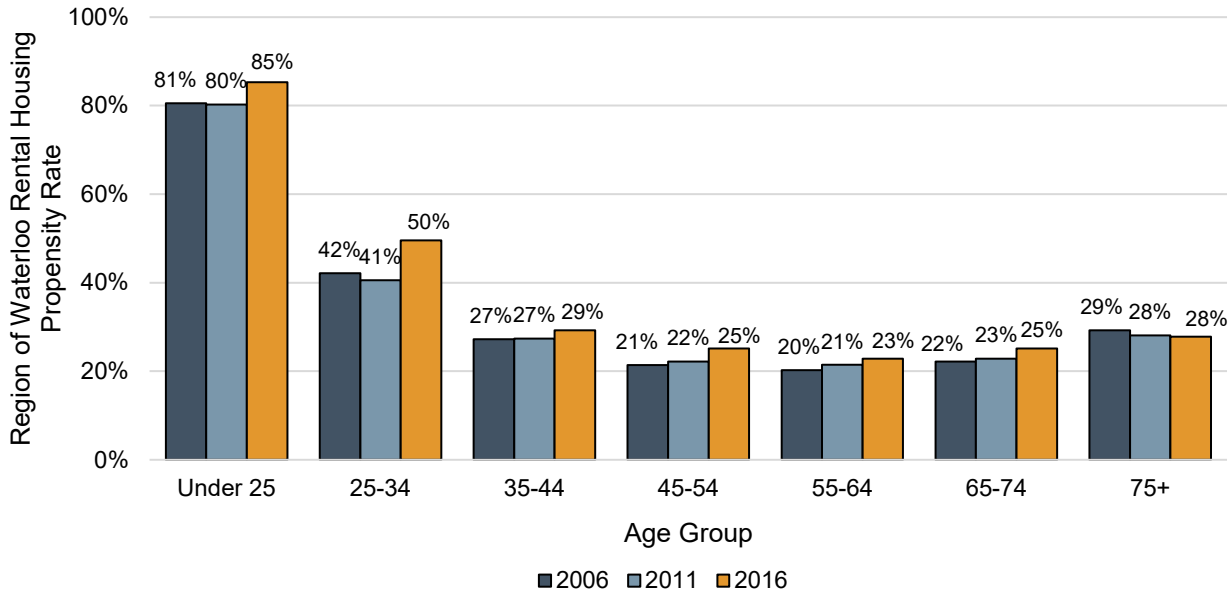
B-1.6 How is the Rental Market Evolving?

As illustrated in Figure B-7, between 2006 and 2016, propensity rates for rental housing in the Region of Waterloo increased for every age group except the 75+ cohort. Propensity rates in 2016 for rental housing are highest for households maintained by those under the age of 25 (85%) and are generally lowest for households maintained by those between 55 and 64 years of age (23%).

[59] Based on data from 2006 and 2016 Census renter household data growth and CMHC growth in the purpose-built rental market inventory over the period.

[60] 10-Year Housing and Homelessness Plan. Five-Year Review. Region of Waterloo.

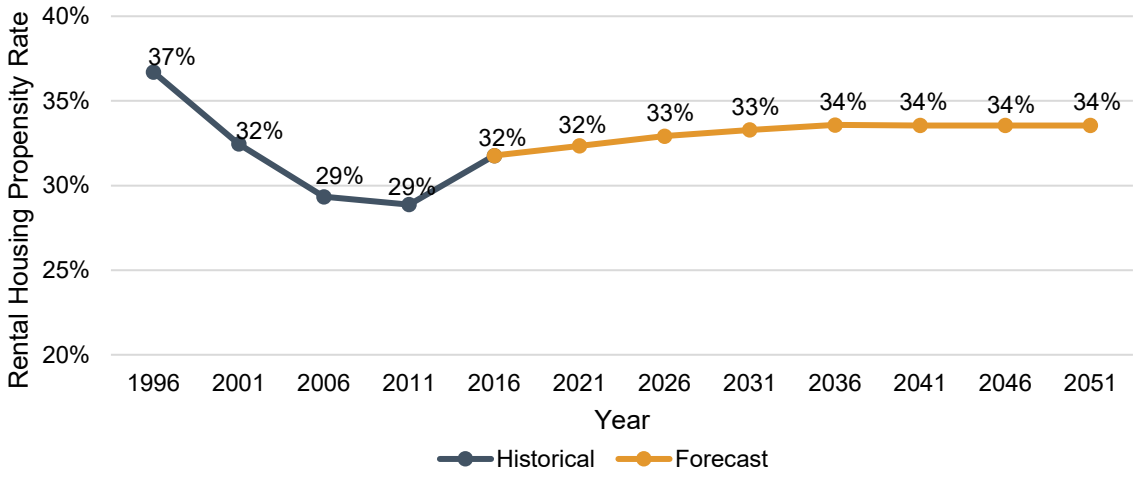
Figure B-7: Region of Waterloo, Rental Housing Propensity Rates, 2006 to 2016



Source: Derived from Statistics Canada Census data, 2006 to 2016, Watson & Associates Economists Ltd.

As illustrated in Figure B-8, rental housing propensity rates in the Region of Waterloo are expected to moderately increase over the forecast period from 32% in 2016 to 34% in 2051. This assumption builds on broader regional growth trends in the GGH rental market as well as the demographic and socio-economic trends previously discussed for the Region of Waterloo in Chapter 2.

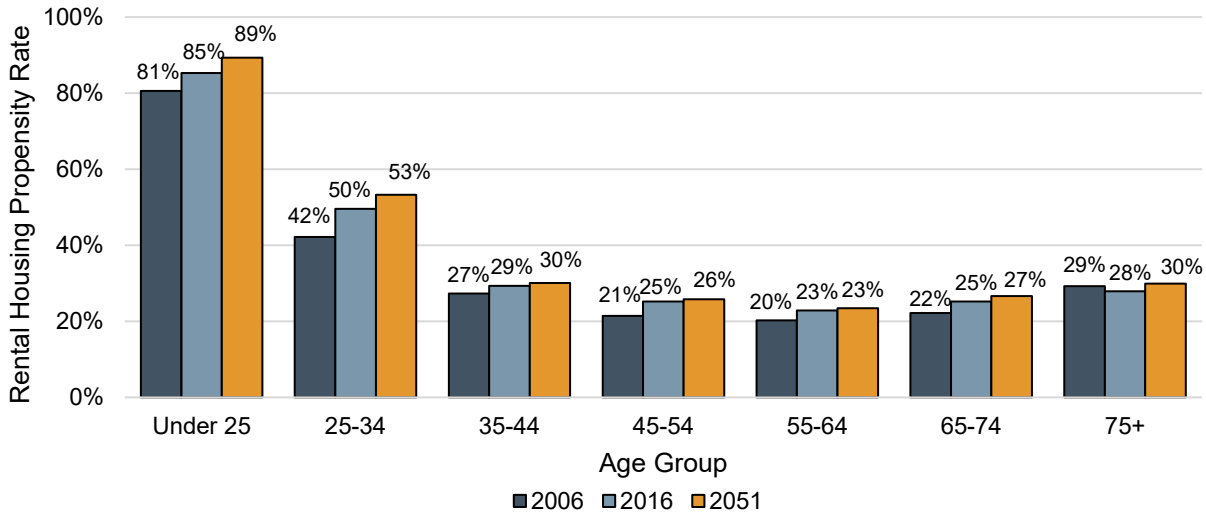
Figure B-8: Region of Waterloo, Rental Housing Propensity Rates, 1996 to 2051



Source: 1996 to 2016 derived from Statistics Canada Census data, and 2016 to 2051 forecast by Watson & Associates Economists Ltd.

Rental propensity rates in the Region of Waterloo are expected to gradually increase across all age cohorts (primary household maintainers) over the 2016 to 2051 period, as summarized in Figure B-9.

Figure B-9: Region of Waterloo, Rental Housing Propensity Rates by Age Group, Historical and Forecast



Source: 2006 to 2016 derived from Statistics Canada Census data, 2051 forecast by Watson & Associates Economists Ltd.

Based on the propensity rates identified in Figure B-9 above, demand for rental housing in the Region of Waterloo is expected to total approximately 43,300 units over the 2021 to 2051 period. As illustrated in Figure B-10, about 32% of forecast demand for rental housing in the Region of Waterloo is anticipated from households maintained by those aged 34 and under, followed by 28% for households maintained by those aged 75+. A significant share of rental housing demand is also anticipated from adults aged 35-54 (27%).

Figure B-10: Region of Waterloo, Rental Housing Forecast by Age Group, 2021 to 2051

Age Cohort	Households	
	Total	Share (%)
Under 25	4,200	10%
25-34	9,300	22%
35-44	6,400	15%
45-54	5,000	12%
55-64	2,800	7%
65-74	3,500	8%
75+	12,100	28%
Total	**43,300**	**100%**

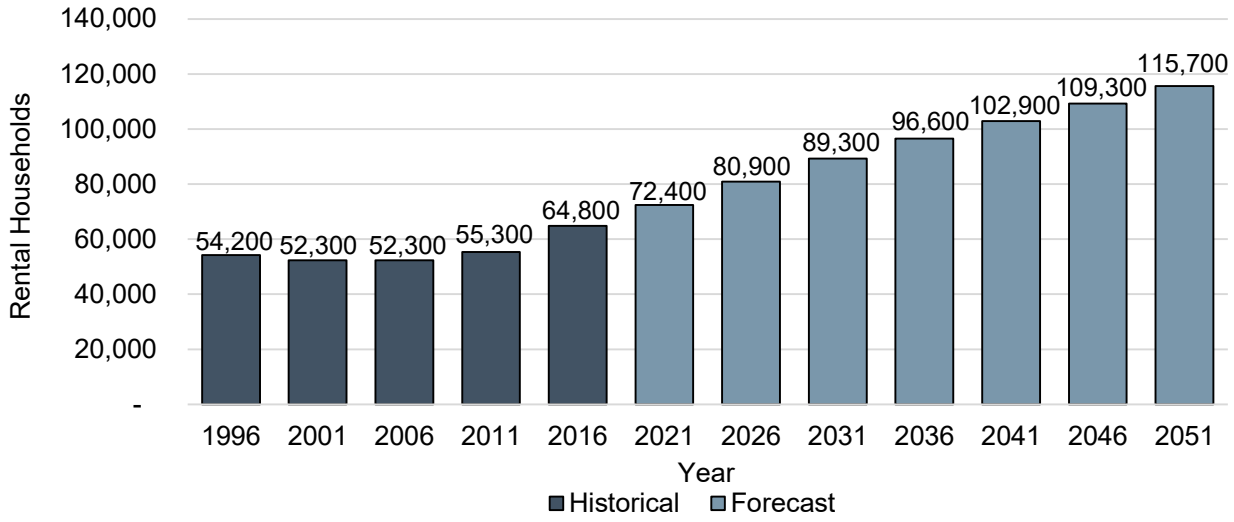
Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

B-1.7 Rental Housing Needs by Structure Type to 2051

Based on the rental housing propensity analysis presented above, demand for rental housing in the Region of Waterloo is expected to increase from 72,400 units in 2021 to 115,700 in 2051, as shown in Figure B-11. This represents growth of approximately 43,300 rental housing units over the period, accounting for approximately 36% of total housing growth over the forecast period, as previously noted.

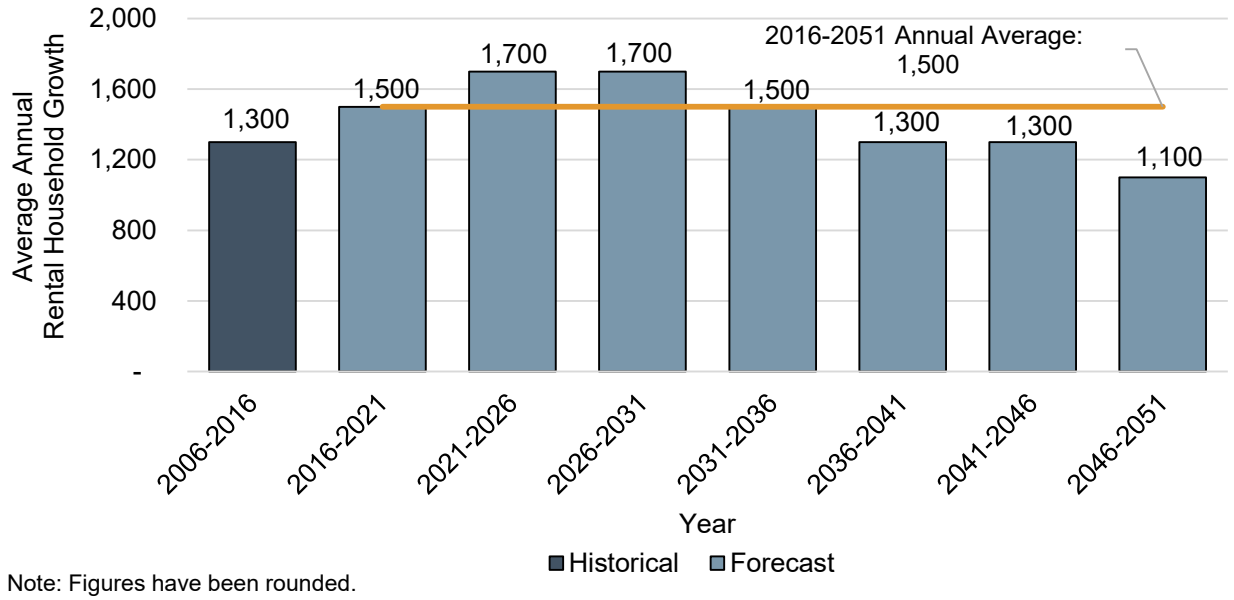
Figure B-11: Region of Waterloo, Rental Household Forecast, 2021 to 2051



Note: Figures have been rounded.
Source: Historical derived from Statistics Canada Census data and forecast by Watson & Associates Economists Ltd.

Historical and forecast average annual rental housing growth in the Region of Waterloo is illustrated in Figure B-12. As shown, rental housing growth in the Region is expected to average 1,500 units per year over the 2021 to 2051 period, moderately higher than the 1,300 units averaged over the 2006 to 2016 period, with the highest housing growth levels anticipated between 2021 and 2031. Forecast rental housing growth is expected to increase at a stronger rate relative to ownership housing in the Region of Waterloo over the next 30 years.

Figure B-12: Region of Waterloo, Rental Housing Incremental Growth, 2016 to 2051



Note: Figures have been rounded.
Source: Historical derived from Statistics Canada Census data and forecast by Watson & Associates Economists Ltd.

Based on the rental housing forecast prepared above, an allocation of rental housing growth by housing type over the 2021 to 2051 period was prepared. This was informed by historical rental housing

propensity rates in the Region of Waterloo by housing type and the overall growth outlook in rental housing prospects in the Region. Of the total rental housing forecast summarized above, approximately, 68% (29,500 housing units) are anticipated to be in the form of high-density dwellings (apartments). In comparison, low-density (single and semi-detached) and medium-density (townhouse) dwellings are expected to account for 4% (1,900 housing units) and 27% (11,900 housing units) of the total rental housing forecast, respectively, as summarized in Figure B-13. As illustrated in Figure B-14, the Region's rental housing base is expected to shift slightly towards high-density housing forms over the forecast period. In 2016, grade-oriented housing accounted for 36% of the Region's rental housing mix; however, this is expected to decline slightly to 34% by 2051, driven by a decreasing share of low-density rental housing units over the forecast period.

FigureB-13: Region of Waterloo, Rental Housing Forecast by Housing Type, 2021 to 2051

Density	Units	% Share
Low Density	1,900	4%
Medium Density	11,900	27%
High Density	29,500	68%
Total	**43,300**	**100%**

Source: Watson & Associates Economists Ltd.

Figure B-14: Region of Waterloo, Renter Housing by Housing Density Type, 1996, 2006, 2016, 2021 and 2051

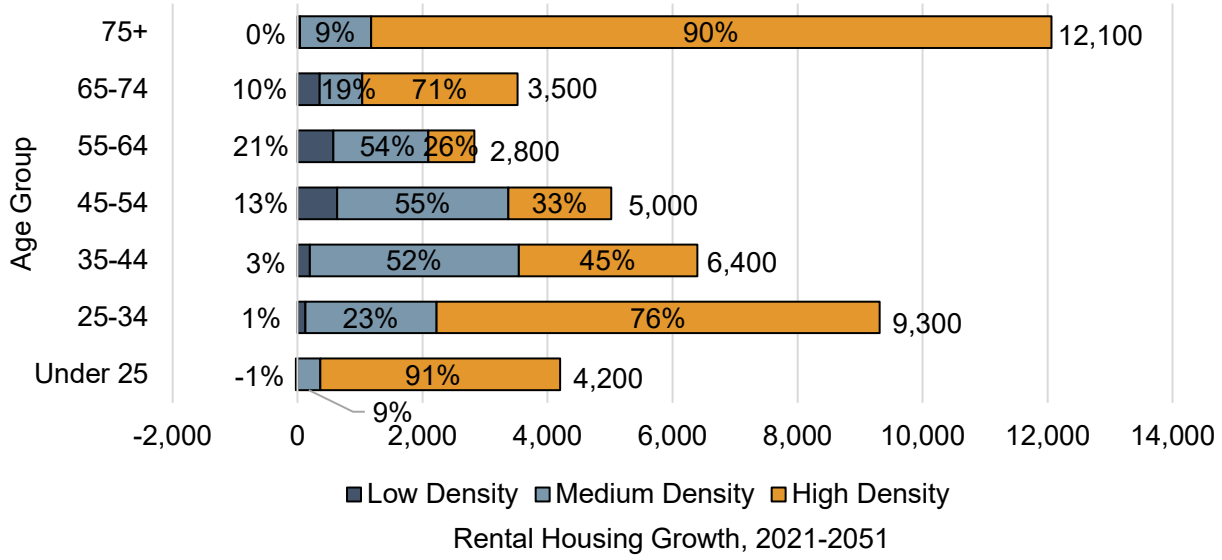
Density	1996	2006	2016	2021	2051
Low Density	14%	13%	16%	15%	11%
Medium Density	20%	20%	20%	20%	23%
High Density	66%	67%	64%	64%	66%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Watson & Associates Economists Ltd.

Figure B-16 presents the forecast of renter household growth by dwelling type and age group over the 2021 to 2051 forecast period for Options 1 and 2. Of the total rental housing growth forecast of 121,100 units, approximately 30% (26,000) is anticipated to be needed from households maintained by those aged 75+. Rental housing demand from the 75+ age group is anticipated to be strongest in central urban locations that are in proximity to urban amenities, public transit, health care services and other community facilities. With respect to housing density and built form, rental housing demand from the 75+ age group is anticipated to be concentrated in high-density units, but widely distributed across the affordability spectrum.

Renter household growth will also be largely driven by households maintained by those aged 25-54, comprising a total of 45,000 units. Rental housing demand associated with the 25-54 age group, is anticipated to be driven by a range of family types, including single individuals as well as couples with and without children across varying levels of income, generating demand for medium- and high-density rental units in both urban and suburban locations.

Figure B-16: Region of Waterloo, Options 1 and 2, Rental Housing Forecast by Age Group and Housing Type, 2021 to 2051



[1] Low density includes singles and semis.

[2] Medium density includes townhouses and apartments in duplexes.

[3] High density includes all apartments.

Source: Watson & Associates Economists Ltd.

B-1.8 Home Ownership Housing Forecast, 2021 to 2051

The Region of Waterloo is expected to continue to have a strong home-ownership market, building on the market trends observed over the past several decades. Notwithstanding this anticipated trend, the ownership market is expected to become older and more diverse, driving demand for a greater share of medium- and higher-density units. As illustrated in Figure B-17, Waterloo Region's owner-occupied households are expected to expand by 77,700 units over the 2021 to 2051 period, with demand from a broad range of age groups. As shown, home-ownership growth is expected to be driven largely by households maintained by residents aged 35-54 and the 75+ age group.

Figure B-17: Region of Waterloo, Owner-Occupied Housing Growth by Age Group, 2021 to 2051

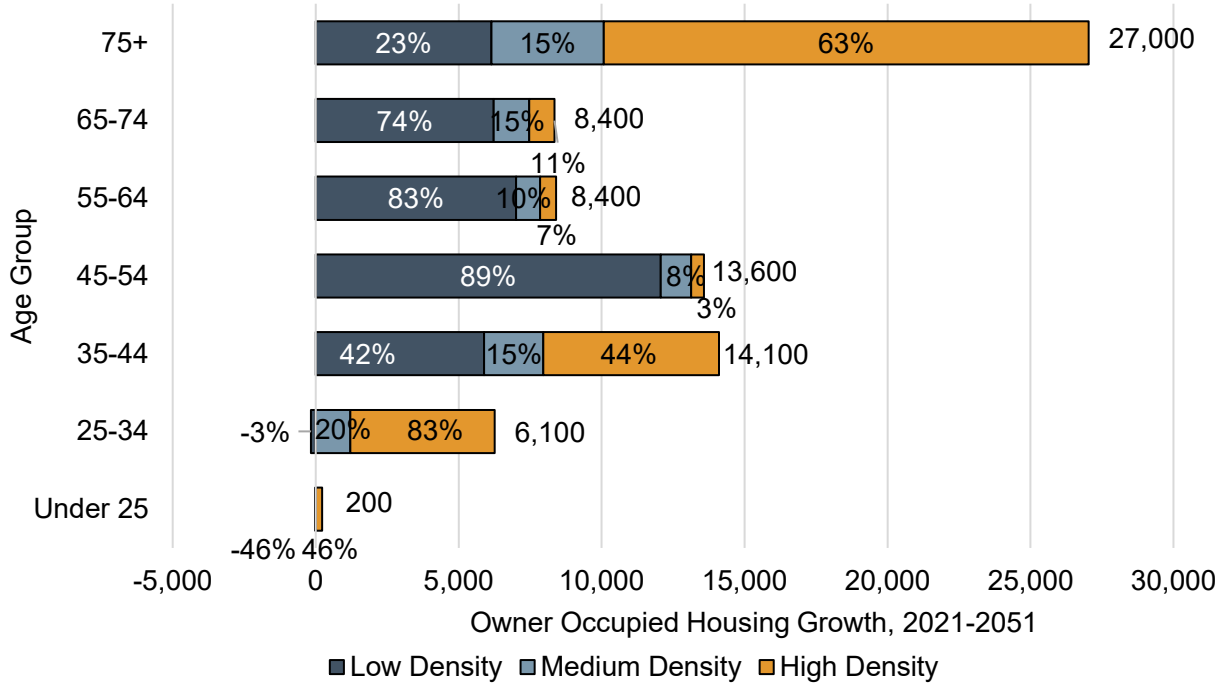
Age Cohort	Households	
	Total	Share (%)
Under 25	200	0%
25-34	6,100	8%
35-44	14,100	18%
45-54	13,600	18%
55-64	8,400	11%
65-74	8,300	11%
75+	27,000	35%
Total	**77,700**	**100%**

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

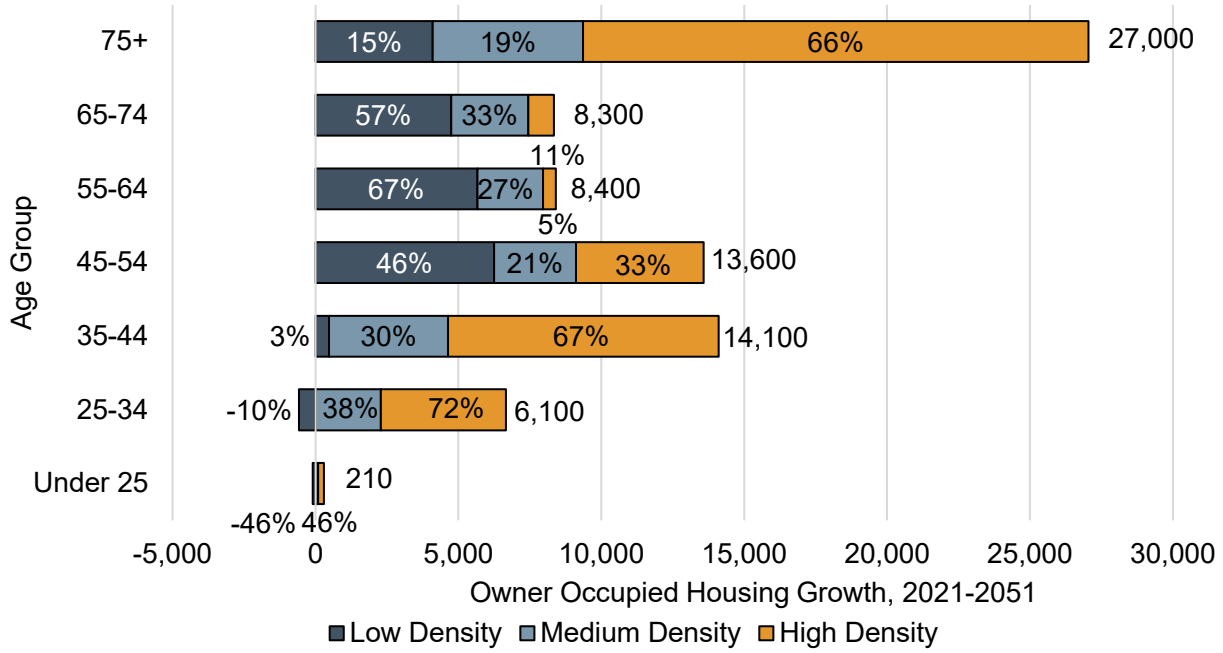
Figures B-18 and B-19 summarize forecast owner-occupied housing growth by age group and housing type over the 2021 to 2051 forecast period, prepared based on trends in historical and anticipated propensity rates. Households maintained by residents aged 75+ are anticipated to account for the largest share of owner-occupied housing growth, totalling 27,000 units, with 63% in high-density units in Option 1 and 66% in Option 2.

Figure B-18: Region of Waterloo, Option 1, Owner-Occupied Housing Forecast by Age Group and Housing Type, 2021 to 2051



Source: Watson & Associates Economists Ltd.

Figure B-19: Region of Waterloo, Option 2, Owner-Occupied Housing Forecast by Age Group and Housing Type, 2021 to 2051



Source: Watson & Associates Economists Ltd.

As illustrated in Figure B-20, in Option 1, 37,200 (48%) of forecast owner-occupied households are anticipated to be accommodated in low-density housing, 10,300 in medium-density housing (13%), and 30,000 (39%) in high-density units. Under Option 2, 20,500 (26%) of forecast owner-occupied households are anticipated to be accommodated in low-density housing, 19,700 in medium-density housing (25%), and 37,500 (48%) in high-density units.

Figure B-20: Region of Waterloo, Owner-Occupied Housing Growth by Housing Density Type, 2021 to 2051

Option	Low Density[1]	Medium Density[2]	High Density[3]	Total
Owner-Occupied Households (Option 1)[4]	**37,200**	**10,300**	**30,300**	**77,800**
% Share (Option 1)	**48%**	**13%**	**39%**	**100%**
Owner-Occupied Households (Option 2)[4]	**20,500**	**19,700**	**37,600**	**77,800**
% Share (Option 2)	**26%**	**25%**	**48%**	**100%**

[1] Low density includes singles and semis.
[2] Medium density includes townhouses and apartments in duplexes.
[3] High density includes all apartments.
[4] Includes freehold and condominium units.
Secondary units are embedded in the categories above.
Source: Watson & Associates Economists Ltd.

The Region of Waterloo's owner-occupied housing base is expected to continue to diversify, gradually shifting to an increasing share of medium- and high-density housing types, as illustrated in Figure B-21. This includes medium-density housing products such as stacked and back-to-back townhouses as well as other low-rise hybrid buildings, which are price competitive, transit-supportive and located in amenity

rich areas of the Region. As such, these additional medium-density housing units should be targeted to SGAs within the BUA throughout the Region as well as appropriate areas within the BUA outside of SGAs (i.e. gentle intensification) subject to surrounding land uses and planning policy objectives.

As shown, low density, as a share of total owner-occupied units, is expected to decline from 84% in 2016 to 69% in 2051 under Option 1 and 62% under Option 2, following a trend observed in the previous two decades. In contrast, medium-density units are expected to increase from 11% of owner-occupied units in 2016, to 13% in 2051 in Option 1 and 17% in Option 2. Similarly, the high-density unit share is anticipated to increase from 5% to 18% over the same period in Option 1 and 21% in Option 2.

Figure B-21: Region of Waterloo, Option 1, Owner-Occupied Housing Mix by Density Type, 1996, 2016 and 2051

Housing Type	1996	2016	2051
Option 1			
Low Density[1]	90%	84%	69%
Medium Density[2]	7%	11%	13%
High Density[3]	4%	5%	18%
Total	**100%**	**100%**	**100%**
Option 2			
Low Density[1]	90%	84%	62%
Medium Density[2]	7%	11%	17%
High Density[3]	4%	5%	21%
Total	**100%**	**100%**	**100%**

[1] Low density represents singles and semi-detached.

[2] Medium density includes townhouses and duplexes.

[3] High density includes all apartments.

Includes freehold and condominium units.

Secondary units are embedded in the categories above.

Source: 1996 to 2016 derived from Statistics Canada Census, and 2051 by Watson & Associates Economists Ltd.

B-1.9 Summary of Total Housing Forecast by Structure Type and Tenure, 2021 to 2051

Refer to section 3.4, herein, for a summary of results.

B-2 Detailed Propensity Analysis: Total, Renter and Owner-Occupied Housing from 1996 to 2051 by Age-Group and Housing Structure Type

B-2.1 Option 1 – Growth Plan Minimum: Total, Renter and Owner-Occupied Housing from 1996 to 2051 by Age-Group and Housing Structure Type

Figure B-22: Region of Waterloo, Housing Propensity Rate Forecast by Age Group and Housing Tenure, 1996 to 2051

Renter Households

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	89%	85%	81%	80%	85%	**86%**	**89%**
25-34	53%	48%	42%	41%	50%	**50%**	**53%**
35-44	33%	29%	27%	27%	29%	**29%**	**30%**
45-54	25%	23%	21%	22%	25%	**25%**	**26%**
55-64	22%	21%	20%	21%	23%	**23%**	**23%**
65-74	26%	25%	22%	23%	25%	**25%**	**27%**
75+	40%	32%	29%	28%	28%	**28%**	**30%**
Total	**37%**	**32%**	**29%**	**29%**	**32%**	**32%**	**34%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Owner-Occupied Households

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	11%	15%	19%	20%	15%	**14%**	**11%**
25-34	47%	52%	58%	59%	50%	**50%**	**47%**
35-44	67%	71%	73%	73%	71%	**71%**	**70%**
45-54	75%	77%	79%	78%	75%	**75%**	**74%**
55-64	78%	79%	80%	79%	77%	**77%**	**77%**
65-74	74%	75%	78%	77%	75%	**75%**	**73%**
75+	60%	68%	71%	72%	72%	**72%**	**70%**
Total	**63%**	**68%**	**71%**	**71%**	**68%**	**68%**	**66%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Table B-23: Region of Waterloo, Housing Forecast by Age Group and Housing Type, All Tenures, 1996 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	6,825	6,515	7,500	7,255	7,575	8,240	12,620
25-34	31,955	29,375	30,090	31,015	31,930	37,825	53,220
35-44	36,330	40,290	40,955	38,810	37,250	39,460	59,960
45-54	27,730	33,680	38,940	44,245	44,060	41,965	60,560
55-64	18,045	21,240	27,620	33,095	38,525	42,665	53,910
65-74	15,855	16,470	17,055	20,365	25,515	30,655	42,515
75+	10,865	13,570	15,965	16,820	18,975	22,860	61,965
Total	**147,605**	**161,140**	**178,125**	**191,605**	**203,830**	**223,670**	**344,750**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,195	1,360	1,610	1,565	1,350	1,320	1,275
25-34	15,770	14,980	15,735	16,315	15,010	15,665	15,620
35-44	24,505	28,250	28,195	26,815	25,360	26,715	32,805
45-54	20,425	24,535	28,565	32,205	31,170	29,140	41,840
55-64	13,220	15,495	19,735	22,845	26,860	29,375	36,960
65-74	10,720	11,055	11,280	13,420	16,300	19,240	25,815
75+	5,810	7,840	9,060	9,715	11,030	11,625	17,820
Total	**91,645**	**103,515**	**114,180**	**122,880**	**127,080**	**133,080**	**172,140**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,175	1,105	1,590	1,370	1,215	1,215	1,580
25-34	5,460	4,770	5,525	5,480	6,035	7,250	10,560
35-44	4,980	4,955	5,520	5,405	5,630	6,285	11,700
45-54	2,685	3,570	4,550	5,295	5,885	6,305	10,105
55-64	1,410	1,830	2,895	3,980	4,825	5,780	8,130
65-74	860	1,165	1,700	2,210	3,080	4,025	5,935
75+	345	620	1,235	1,420	1,860	2,370	7,430
Total	**16,915**	**18,015**	**23,015**	**25,160**	**28,530**	**33,230**	**55,440**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	4,455	4,050	4,300	4,320	5,010	5,705	9,765
25-34	10,725	9,625	8,830	9,220	10,885	14,910	27,040
35-44	6,845	7,085	7,240	6,590	6,260	6,460	15,455
45-54	4,620	5,575	5,825	6,745	7,005	6,520	8,610
55-64	3,415	3,915	4,990	6,270	6,840	7,510	8,820
65-74	4,275	4,250	4,075	4,735	6,135	7,395	10,765
75+	4,710	5,110	5,670	5,685	6,085	8,865	36,715
Total	**39,045**	**39,610**	**40,930**	**43,565**	**48,220**	**57,360**	**117,170**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Low Density Propensity (Low Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	18%	21%	21%	22%	18%	16%	10%
25-34	49%	51%	52%	53%	47%	41%	29%
35-44	67%	70%	69%	69%	68%	68%	55%
45-54	74%	73%	73%	73%	71%	69%	69%
55-64	73%	73%	71%	69%	70%	69%	69%
65-74	68%	67%	66%	66%	64%	63%	61%
75+	53%	58%	57%	58%	58%	51%	29%
Total	**62%**	**64%**	**64%**	**64%**	**62%**	**59%**	**50%**

Medium Density Propensity (Medium Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	17%	17%	21%	19%	16%	15%	13%
25-34	17%	16%	18%	18%	19%	19%	20%
35-44	14%	12%	13%	14%	15%	16%	20%
45-54	10%	11%	12%	12%	13%	15%	17%
55-64	8%	9%	10%	12%	13%	14%	15%
65-74	5%	7%	10%	11%	12%	13%	14%
75+	3%	5%	8%	8%	10%	10%	12%
Total	**11%**	**11%**	**13%**	**13%**	**14%**	**15%**	**16%**

High Density Propensity (High Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	65%	62%	57%	60%	66%	69%	77%
25-34	34%	33%	29%	30%	34%	39%	51%
35-44	19%	18%	18%	17%	17%	16%	26%
45-54	17%	17%	15%	15%	16%	16%	14%
55-64	19%	18%	18%	19%	18%	18%	16%
65-74	27%	26%	24%	23%	24%	24%	25%
75+	43%	38%	36%	34%	32%	39%	59%
Total	**26%**	**25%**	**23%**	**23%**	**24%**	**26%**	**34%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Figure B-24: Region of Waterloo, Housing Forecast by Age Group and Housing Type, Renter Households, 1996 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	6,065	5,520	6,040	5,820	6,460	7,090	11,265
25-34	16,925	14,185	12,675	12,585	15,830	19,015	28,330
35-44	11,815	11,780	11,165	10,625	10,900	11,605	18,000
45-54	6,955	7,855	8,340	9,820	11,085	10,610	15,630
55-64	3,955	4,470	5,595	7,100	8,790	9,785	12,620
65-74	4,125	4,115	3,785	4,655	6,420	7,800	11,315
75+	4,330	4,390	4,665	4,725	5,280	6,450	18,510
Total	**54,170**	**52,315**	**52,265**	**55,330**	**64,765**	**72,350**	**115,665**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	595	615	625	640	735	760	735
25-34	2,725	2,075	1,600	1,725	2,610	2,910	3,035
35-44	2,110	2,320	1,705	2,130	2,395	2,635	2,830
45-54	1,300	1,375	1,425	1,415	2,080	2,050	2,685
55-64	510	580	710	760	1,325	1,565	2,140
65-74	310	485	365	400	730	865	1,220
75+	225	335	310	260	320	285	325
Total	**7,775**	**7,785**	**6,740**	**7,330**	**10,195**	**11,065**	**12,965**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,055	970	1,210	1,060	945	950	1,315
25-34	3,900	3,060	2,990	2,655	3,480	4,025	6,125
35-44	3,295	2,945	2,905	2,560	2,955	3,155	6,500
45-54	1,530	1,695	1,870	2,395	2,830	3,045	5,785
55-64	605	665	845	1,040	1,825	2,215	3,730
65-74	275	315	425	510	735	915	1,595
75+	115	135	275	275	365	450	1,585
Total	**10,775**	**9,785**	**10,520**	**10,495**	**13,135**	**14,755**	**26,635**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	4,415	3,925	4,205	4,110	4,780	5,380	9,215
25-34	10,300	9,045	8,080	8,195	9,740	12,080	19,170
35-44	6,410	6,510	6,550	5,935	5,550	5,815	8,670
45-54	4,125	4,790	5,050	6,010	6,175	5,515	7,160
55-64	2,840	3,225	4,030	5,285	5,640	6,005	6,745
65-74	3,540	3,315	2,990	3,735	4,955	6,015	8,500
75+	3,990	3,920	4,090	4,195	4,595	5,720	16,605
Total	**35,620**	**34,730**	**34,995**	**37,465**	**41,435**	**46,535**	**76,065**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Total Renter Propensity (Renter Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	89%	85%	81%	80%	85%	86%	89%
25-34	53%	48%	42%	41%	50%	50%	53%
35-44	33%	29%	27%	27%	29%	29%	30%
45-54	25%	23%	21%	22%	25%	25%	26%
55-64	22%	21%	20%	21%	23%	23%	23%
65-74	26%	25%	22%	23%	25%	25%	27%
75+	40%	32%	29%	28%	28%	28%	30%
Total	**37%**	**32%**	**29%**	**29%**	**32%**	**32%**	**34%**

Low Density Renter Propensity
(Low Density Renter Households / Total Low Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	50%	45%	39%	41%	54%	58%	58%
25-34	17%	14%	10%	11%	17%	19%	19%
35-44	9%	8%	6%	8%	9%	10%	9%
45-54	6%	6%	5%	4%	7%	7%	6%
55-64	4%	4%	4%	3%	5%	5%	6%
65-74	3%	4%	3%	3%	4%	4%	5%
75+	4%	4%	3%	3%	3%	2%	2%
Total	**8%**	**8%**	**6%**	**6%**	**8%**	**8%**	**8%**

Medium Density Renter Propensity
(Medium Density Renter Households / Total Medium Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	90%	88%	76%	77%	78%	78%	83%
25-34	71%	64%	54%	48%	58%	56%	58%
35-44	66%	59%	53%	47%	52%	50%	56%
45-54	57%	47%	41%	45%	48%	48%	57%
55-64	43%	36%	29%	26%	38%	38%	46%
65-74	32%	27%	25%	23%	24%	23%	27%
75+	33%	22%	22%	19%	20%	19%	21%
Total	**64%**	**54%**	**46%**	**42%**	**46%**	**44%**	**48%**

High Density Renter Propensity
(High Density Renter Households / Total High Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	99%	97%	98%	95%	95%	94%	94%
25-34	96%	94%	92%	89%	89%	81%	71%
35-44	94%	92%	90%	90%	89%	90%	56%
45-54	89%	86%	87%	89%	88%	85%	83%
55-64	83%	82%	81%	84%	82%	80%	76%
65-74	83%	78%	73%	79%	81%	81%	79%
75+	85%	77%	72%	74%	76%	65%	45%
Total	**91%**	**88%**	**85%**	**86%**	**86%**	**81%**	**65%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Figure B-25: Region of Waterloo: Housing Forecast by Age Group and Housing Type, Owner-Occupied Households, 2016 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	760	995	1,460	1,435	1,115	1,150	1,355
25-34	15,030	15,190	17,415	18,430	16,100	18,810	24,890
35-44	24,515	28,510	29,790	28,185	26,350	27,855	41,960
45-54	20,775	25,825	30,600	34,425	32,975	31,355	44,930
55-64	14,090	16,770	22,025	25,995	29,735	32,880	41,290
65-74	11,730	12,355	13,270	15,710	19,095	22,855	31,200
75+	6,535	9,180	11,300	12,095	13,695	16,410	43,455
Total	**93,435**	**108,825**	**125,860**	**136,275**	**139,065**	**151,320**	**229,085**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	600	745	985	925	615	560	540
25-34	13,045	12,905	14,135	14,590	12,400	12,755	12,585
35-44	22,395	25,930	26,490	24,685	22,965	24,080	29,975
45-54	19,125	23,160	27,140	30,790	29,090	27,090	39,160
55-64	12,710	14,915	19,025	22,085	25,535	27,810	34,820
65-74	10,410	10,570	10,915	13,020	15,570	18,370	24,600
75+	5,585	7,505	8,750	9,455	10,710	11,345	17,495
Total	**83,870**	**95,730**	**107,440**	**115,550**	**116,885**	**122,015**	**159,175**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	120	135	380	310	270	265	265
25-34	1,560	1,710	2,535	2,825	2,555	3,225	4,435
35-44	1,685	2,010	2,615	2,845	2,675	3,135	5,200
45-54	1,155	1,875	2,680	2,900	3,055	3,260	4,320
55-64	805	1,165	2,050	2,940	3,000	3,565	4,400
65-74	585	850	1,275	1,700	2,345	3,105	4,340
75+	230	485	960	1,145	1,495	1,920	5,845
Total	**6,140**	**8,230**	**12,495**	**14,665**	**15,395**	**18,475**	**28,805**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	40	125	95	210	230	325	550
25-34	425	580	750	1,025	1,145	2,825	7,875
35-44	435	575	690	655	710	640	6,785
45-54	495	785	775	735	830	1,000	1,450
55-64	575	690	960	985	1,200	1,510	2,070
65-74	735	935	1,085	1,000	1,180	1,380	2,265
75+	720	1,190	1,580	1,490	1,490	3,145	20,110
Total	**3,425**	**4,880**	**5,935**	**6,100**	**6,785**	**10,825**	**41,105**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Total Owner-Occupied Propensity
(Owner-Occupied Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	11%	15%	19%	20%	15%	14%	11%
25-34	47%	52%	58%	59%	50%	50%	47%
35-44	67%	71%	73%	73%	71%	71%	70%
45-54	75%	77%	79%	78%	75%	75%	74%
55-64	78%	79%	80%	79%	77%	77%	77%
65-74	74%	75%	78%	77%	75%	75%	73%
75+	60%	68%	71%	72%	72%	72%	70%
Total	**63%**	**68%**	**71%**	**71%**	**68%**	**68%**	**66%**

Low Density Propensity
(Low Density Owner-Occupied Households / Total Low Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	50%	55%	61%	59%	46%	42%	42%
25-34	83%	86%	90%	89%	83%	81%	81%
35-44	91%	92%	94%	92%	91%	90%	91%
45-54	94%	94%	95%	96%	93%	93%	94%
55-64	96%	96%	96%	97%	95%	95%	94%
65-74	97%	96%	97%	97%	96%	95%	95%
75+	96%	96%	97%	97%	97%	98%	98%
Total	**92%**	**92%**	**94%**	**94%**	**92%**	**92%**	**92%**

Medium Density Propensity
(Medium Density Owner-Occupied Households / Total Medium Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	10%	12%	24%	23%	22%	22%	17%
25-34	29%	36%	46%	52%	42%	44%	42%
35-44	34%	41%	47%	53%	48%	50%	44%
45-54	43%	53%	59%	55%	52%	52%	43%
55-64	57%	64%	71%	74%	62%	62%	54%
65-74	68%	73%	75%	77%	76%	77%	73%
75+	67%	78%	78%	81%	80%	81%	79%
Total	**36%**	**46%**	**54%**	**58%**	**54%**	**56%**	**52%**

High Density Propensity
(High Density Owner-Ocucpied Households / Total High Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1%	3%	2%	5%	5%	6%	6%
25-34	4%	6%	8%	11%	11%	19%	29%
35-44	6%	8%	10%	10%	11%	10%	44%
45-54	11%	14%	13%	11%	12%	15%	17%
55-64	17%	18%	19%	16%	18%	20%	23%
65-74	17%	22%	27%	21%	19%	19%	21%
75+	15%	23%	28%	26%	24%	35%	55%
Total	**9%**	**12%**	**15%**	**14%**	**14%**	**19%**	**35%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

B-2.2 Option 2 – Compact Development, Modest Community Area Expansion: Total, Renter and Owner-Occupied Housing from 1996 to 2051 by Age-Group and Housing Structure Type

Figure B-26: Region of Waterloo, Housing Propensity Rate Forecast by Age Group and Housing Tenure, 1996 to 2051

Renter Households

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	89%	85%	81%	80%	85%	**86%**	**89%**
25-34	53%	48%	42%	41%	50%	**50%**	**53%**
35-44	33%	29%	27%	27%	29%	**29%**	**30%**
45-54	25%	23%	21%	22%	25%	**25%**	**26%**
55-64	22%	21%	20%	21%	23%	**23%**	**23%**
65-74	26%	25%	22%	23%	25%	**25%**	**27%**
75+	40%	32%	29%	28%	28%	**28%**	**30%**
Total	**37%**	**32%**	**29%**	**29%**	**32%**	**32%**	**34%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Owner-Occupied Households

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	11%	15%	19%	20%	15%	**14%**	**11%**
25-34	47%	52%	58%	59%	50%	**50%**	**47%**
35-44	67%	71%	73%	73%	71%	**71%**	**70%**
45-54	75%	77%	79%	78%	75%	**75%**	**74%**
55-64	78%	79%	80%	79%	77%	**77%**	**77%**
65-74	74%	75%	78%	77%	75%	**75%**	**73%**
75+	60%	68%	71%	72%	72%	**72%**	**70%**
Total	**63%**	**68%**	**71%**	**71%**	**68%**	**68%**	**66%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Figure B-27: Region of Waterloo, Housing Forecast by Age Group and Housing Type, All Tenures, 1996 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	6,825	6,515	7,500	7,255	7,575	8,240	12,620
25-34	31,955	29,375	30,090	31,015	31,930	37,825	53,220
35-44	36,330	40,290	40,955	38,810	37,250	39,460	59,960
45-54	27,730	33,680	38,940	44,245	44,060	41,965	60,560
55-64	18,045	21,240	27,620	33,095	38,525	42,665	53,910
65-74	15,855	16,470	17,055	20,365	25,515	30,655	42,515
75+	10,865	13,570	15,965	16,820	18,975	22,860	61,965
Total	**147,605**	**161,140**	**178,125**	**191,605**	**203,830**	**223,670**	**344,750**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,195	1,360	1,610	1,565	1,350	1,320	1,200
25-34	15,770	14,980	15,735	16,315	15,010	15,665	15,210
35-44	24,505	28,250	28,195	26,815	25,360	26,715	27,380
45-54	20,425	24,535	28,565	32,205	31,170	29,140	36,015
55-64	13,220	15,495	19,735	22,845	26,860	29,375	35,615
65-74	10,720	11,055	11,280	13,420	16,300	19,240	24,335
75+	5,810	7,840	9,060	9,715	11,030	11,625	15,770
Total	**91,645**	**103,515**	**114,180**	**122,880**	**127,080**	**133,080**	**155,520**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,175	1,105	1,590	1,370	1,215	1,215	1,675
25-34	5,460	4,770	5,525	5,480	6,035	7,250	11,640
35-44	4,980	4,955	5,520	5,405	5,630	6,285	13,800
45-54	2,685	3,570	4,550	5,295	5,885	6,305	11,920
55-64	1,410	1,830	2,895	3,980	4,825	5,780	9,590
65-74	860	1,165	1,700	2,210	3,080	4,025	7,400
75+	345	620	1,235	1,420	1,860	2,370	8,765
Total	**16,915**	**18,015**	**23,015**	**25,160**	**28,530**	**33,230**	**64,795**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	4,455	4,050	4,300	4,320	5,010	5,705	9,745
25-34	10,725	9,625	8,830	9,220	10,885	14,910	26,370
35-44	6,845	7,085	7,240	6,590	6,260	6,460	18,780
45-54	4,620	5,575	5,825	6,745	7,005	6,520	12,620
55-64	3,415	3,915	4,990	6,270	6,840	7,510	8,705
65-74	4,275	4,250	4,075	4,735	6,135	7,395	10,780
75+	4,710	5,110	5,670	5,685	6,085	8,865	37,435
Total	**39,045**	**39,610**	**40,930**	**43,565**	**48,220**	**57,360**	**124,435**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Low Density Propensity (Low Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	18%	21%	21%	22%	18%	16%	10%
25-34	49%	51%	52%	53%	47%	41%	29%
35-44	67%	70%	69%	69%	68%	68%	46%
45-54	74%	73%	73%	73%	71%	69%	59%
55-64	73%	73%	71%	69%	70%	69%	66%
65-74	68%	67%	66%	66%	64%	63%	57%
75+	53%	58%	57%	58%	58%	51%	25%
Total	**62%**	**64%**	**64%**	**64%**	**62%**	**59%**	**45%**

Medium Density Propensity (Medium Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	17%	17%	21%	19%	16%	15%	13%
25-34	17%	16%	18%	18%	19%	19%	22%
35-44	14%	12%	13%	14%	15%	16%	23%
45-54	10%	11%	12%	12%	13%	15%	20%
55-64	8%	9%	10%	12%	13%	14%	18%
65-74	5%	7%	10%	11%	12%	13%	17%
75+	3%	5%	8%	8%	10%	10%	14%
Total	**11%**	**11%**	**13%**	**13%**	**14%**	**15%**	**19%**

High Density Propensity (High Density Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	65%	62%	57%	60%	66%	69%	77%
25-34	34%	33%	29%	30%	34%	39%	50%
35-44	19%	18%	18%	17%	17%	16%	31%
45-54	17%	17%	15%	15%	16%	16%	21%
55-64	19%	18%	18%	19%	18%	18%	16%
65-74	27%	26%	24%	23%	24%	24%	25%
75+	43%	38%	36%	34%	32%	39%	60%
Total	**26%**	**25%**	**23%**	**23%**	**24%**	**26%**	**36%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Figure B-28: Region of Waterloo, Housing Forecast by Age Group and Housing Type, Renter Households, 1996 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	6,065	5,520	6,040	5,820	6,460	7,090	11,265
25-34	16,925	14,185	12,675	12,585	15,830	19,015	28,330
35-44	11,815	11,780	11,165	10,625	10,900	11,605	18,000
45-54	6,955	7,855	8,340	9,820	11,085	10,610	15,630
55-64	3,955	4,470	5,595	7,100	8,790	9,785	12,620
65-74	4,125	4,115	3,785	4,655	6,420	7,800	11,315
75+	4,330	4,390	4,665	4,725	5,280	6,450	18,510
Total	**54,170**	**52,315**	**52,265**	**55,330**	**64,765**	**72,350**	**115,665**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	595	615	625	640	735	760	735
25-34	2,725	2,075	1,600	1,725	2,610	2,910	3,035
35-44	2,110	2,320	1,705	2,130	2,395	2,635	2,830
45-54	1,300	1,375	1,425	1,415	2,080	2,050	2,685
55-64	510	580	710	760	1,325	1,565	2,140
65-74	310	485	365	400	730	865	1,220
75+	225	335	310	260	320	285	325
Total	**7,775**	**7,785**	**6,740**	**7,330**	**10,195**	**11,065**	**12,965**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1,055	970	1,210	1,060	945	950	1,315
25-34	3,900	3,060	2,990	2,655	3,480	4,025	6,125
35-44	3,295	2,945	2,905	2,560	2,955	3,155	6,500
45-54	1,530	1,695	1,870	2,395	2,830	3,045	5,785
55-64	605	665	845	1,040	1,825	2,215	3,730
65-74	275	315	425	510	735	915	1,595
75+	115	135	275	275	365	450	1,585
Total	**10,775**	**9,785**	**10,520**	**10,495**	**13,135**	**14,755**	**26,635**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	4,415	3,925	4,205	4,110	4,780	5,380	9,215
25-34	10,300	9,045	8,080	8,195	9,740	12,080	19,170
35-44	6,410	6,510	6,550	5,935	5,550	5,815	8,670
45-54	4,125	4,790	5,050	6,010	6,175	5,515	7,160
55-64	2,840	3,225	4,030	5,285	5,640	6,005	6,745
65-74	3,540	3,315	2,990	3,735	4,955	6,015	8,500
75+	3,990	3,920	4,090	4,195	4,595	5,720	16,605
Total	**35,620**	**34,730**	**34,995**	**37,465**	**41,435**	**46,535**	**76,065**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Total Renter Propensity (Renter Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	89%	85%	81%	80%	85%	86%	89%
25-34	53%	48%	42%	41%	50%	50%	53%
35-44	33%	29%	27%	27%	29%	29%	30%
45-54	25%	23%	21%	22%	25%	25%	26%
55-64	22%	21%	20%	21%	23%	23%	23%
65-74	26%	25%	22%	23%	25%	25%	27%
75+	40%	32%	29%	28%	28%	28%	30%
Total	**37%**	**32%**	**29%**	**29%**	**32%**	**32%**	**34%**

Low Density Renter Propensity
(Low Density Renter Households / Total Low Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	50%	45%	39%	41%	54%	58%	61%
25-34	17%	14%	10%	11%	17%	19%	20%
35-44	9%	8%	6%	8%	9%	10%	10%
45-54	6%	6%	5%	4%	7%	7%	7%
55-64	4%	4%	4%	3%	5%	5%	6%
65-74	3%	4%	3%	3%	4%	4%	5%
75+	4%	4%	3%	3%	3%	2%	2%
Total	**8%**	**8%**	**6%**	**6%**	**8%**	**8%**	**8%**

Medium Density Renter Propensity
(Medium Density Renter Households / Total Medium Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	90%	88%	76%	77%	78%	78%	79%
25-34	71%	64%	54%	48%	58%	56%	53%
35-44	66%	59%	53%	47%	52%	50%	47%
45-54	57%	47%	41%	45%	48%	48%	49%
55-64	43%	36%	29%	26%	38%	38%	39%
65-74	32%	27%	25%	23%	24%	23%	22%
75+	33%	22%	22%	19%	20%	19%	18%
Total	**64%**	**54%**	**46%**	**42%**	**46%**	**44%**	**41%**

High Density Renter Propensity
(High Density Renter Households / Total High Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	99%	97%	98%	95%	95%	94%	95%
25-34	96%	94%	92%	89%	89%	81%	73%
35-44	94%	92%	90%	90%	89%	90%	46%
45-54	89%	86%	87%	89%	88%	85%	57%
55-64	83%	82%	81%	84%	82%	80%	77%
65-74	83%	78%	73%	79%	81%	81%	79%
75+	85%	77%	72%	74%	76%	65%	44%
Total	**91%**	**88%**	**85%**	**86%**	**86%**	**81%**	**61%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Figure B-29: Region of Waterloo: Housing Forecast by Age Group and Housing Type, Owner-Occupied Households, 2016 to 2051

Total

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	760	995	1,460	1,435	1,115	1,150	1,355
25-34	15,030	15,190	17,415	18,430	16,100	18,810	24,890
35-44	24,515	28,510	29,790	28,185	26,350	27,855	41,960
45-54	20,775	25,825	30,600	34,425	32,975	31,355	44,930
55-64	14,090	16,770	22,025	25,995	29,735	32,880	41,290
65-74	11,730	12,355	13,270	15,710	19,095	22,855	31,200
75+	6,535	9,180	11,300	12,095	13,695	16,410	43,455
Total	**93,435**	**108,825**	**125,860**	**136,275**	**139,065**	**151,320**	**229,085**

Low Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	600	745	985	925	615	560	465
25-34	13,045	12,905	14,135	14,590	12,400	12,755	12,175
35-44	22,395	25,930	26,490	24,685	22,965	24,080	24,550
45-54	19,125	23,160	27,140	30,790	29,090	27,090	33,335
55-64	12,710	14,915	19,025	22,085	25,535	27,810	33,475
65-74	10,410	10,570	10,915	13,020	15,570	18,370	23,115
75+	5,585	7,505	8,750	9,455	10,710	11,345	15,445
Total	**83,870**	**95,730**	**107,440**	**115,550**	**116,885**	**122,015**	**142,555**

Medium Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	120	135	380	310	270	265	360
25-34	1,560	1,710	2,535	2,825	2,555	3,225	5,515
35-44	1,685	2,010	2,615	2,845	2,675	3,135	7,305
45-54	1,155	1,875	2,680	2,900	3,055	3,260	6,135
55-64	805	1,165	2,050	2,940	3,000	3,565	5,860
65-74	585	850	1,275	1,700	2,345	3,105	5,805
75+	230	485	960	1,145	1,495	1,920	7,180
Total	**6,140**	**8,230**	**12,495**	**14,665**	**15,395**	**18,480**	**38,160**

High Density

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	40	125	95	210	230	325	530
25-34	425	580	750	1,025	1,145	2,825	7,200
35-44	435	575	690	655	710	640	10,110
45-54	495	785	775	735	830	1,000	5,460
55-64	575	690	960	985	1,200	1,510	1,960
65-74	735	935	1,085	1,000	1,180	1,380	2,280
75+	720	1,190	1,580	1,490	1,490	3,145	20,830
Total	**3,425**	**4,880**	**5,935**	**6,100**	**6,785**	**10,830**	**48,370**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Total Owner-Occupied Propensity
(Owner-Occupied Households / Total Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	11%	15%	19%	20%	15%	14%	11%
25-34	47%	52%	58%	59%	50%	50%	47%
35-44	67%	71%	73%	73%	71%	71%	70%
45-54	75%	77%	79%	78%	75%	75%	74%
55-64	78%	79%	80%	79%	77%	77%	77%
65-74	74%	75%	78%	77%	75%	75%	73%
75+	60%	68%	71%	72%	72%	72%	70%
Total	**63%**	**68%**	**71%**	**71%**	**68%**	**68%**	**66%**

Low Density Propensity
(Low Density Owner-Occupied Households / Total Low Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	50%	55%	61%	59%	46%	42%	39%
25-34	83%	86%	90%	89%	83%	81%	80%
35-44	91%	92%	94%	92%	91%	90%	90%
45-54	94%	94%	95%	96%	93%	93%	93%
55-64	96%	96%	96%	97%	95%	95%	94%
65-74	97%	96%	97%	97%	96%	95%	95%
75+	96%	96%	97%	97%	97%	98%	98%
Total	**92%**	**92%**	**94%**	**94%**	**92%**	**92%**	**92%**

Medium Density Propensity
(Medium Density Owner-Occupied Households / Total Medium Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	10%	12%	24%	23%	22%	22%	21%
25-34	29%	36%	46%	52%	42%	44%	47%
35-44	34%	41%	47%	53%	48%	50%	53%
45-54	43%	53%	59%	55%	52%	52%	51%
55-64	57%	64%	71%	74%	62%	62%	61%
65-74	68%	73%	75%	77%	76%	77%	78%
75+	67%	78%	78%	81%	80%	81%	82%
Total	**36%**	**46%**	**54%**	**58%**	**54%**	**56%**	**59%**

High Density Propensity
(High Density Owner-Ocucpied Households / Total High Density Households)

Age Cohort	Year						
	1996	2001	2006	2011	2016	2021	2051
Under 25	1%	3%	2%	5%	5%	6%	5%
25-34	4%	6%	8%	11%	11%	19%	27%
35-44	6%	8%	10%	10%	11%	10%	54%
45-54	11%	14%	13%	11%	12%	15%	43%
55-64	17%	18%	19%	16%	18%	20%	23%
65-74	17%	22%	27%	21%	19%	19%	21%
75+	15%	23%	28%	26%	24%	35%	56%
Total	**9%**	**12%**	**15%**	**14%**	**14%**	**19%**	**39%**

Source: 1996 to 2016 derived from Statistics Canada Census data and 2021 to 2051 forecast by Watson & Associates Economists Ltd.

Appendix C

Region of Waterloo Residential Forecast Details

Option 1 – Growth Plan Minimum: 50% Intensification & 50 People and Jobs per Hectare in Designated Greenfield Areas

Figure C-1: Region of Waterloo, Region-wide Population and Census Housing Forecast, 2016 to 2051 – Option 1

	Year	Population (Including Census undercount)[1]	Excluding Census Undercount			Housing Units						Persons Per Unit (PPU) with undercount	Person Per Unit (PPU): without undercount
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	Equivalent Institutional Households		
Historical	*Mid-2006*	497,200	478,100	7,400	470,700	113,720	23,030	40,900	480	178,120	6,740	2.79	2.68
	Mid-2011	527,400	507,100	7,500	499,600	122,320	25,430	43,180	680	191,610	6,810	2.75	2.65
	Mid-2016	556,600	535,200	7,800	527,300	126,590	28,550	48,210	490	203,840	7,100	2.73	2.63
Forecast	*Mid-2021*	617,000	593,300	8,700	584,600	132,590	33,230	57,360	490	223,670	7,880	2.76	2.65
	Mid-2026	681,400	655,200	9,600	645,600	138,810	38,340	68,250	490	245,890	8,700	2.77	2.66
	Mid-2031	742,000	713,500	10,400	703,000	145,930	42,570	79,150	490	268,130	9,470	2.77	2.66
	Mid-2036	789,000	758,700	11,100	747,600	152,610	45,910	88,770	490	287,770	10,070	2.74	2.64
	Mid-2041	835,000	802,900	11,700	791,200	159,050	49,130	98,050	490	306,720	10,660	2.72	2.62
	Mid-2046	879,500	845,700	12,300	833,300	165,400	52,320	107,610	490	325,830	11,230	2.70	2.60
	Mid-2051	923,000	887,500	13,000	874,500	171,650	55,440	117,170	490	344,750	11,780	2.68	2.57
Incremental	**Mid-2006 to Mid-2011**	30,200	29,000	100	28,900	8,600	2,400	2,280	200	13,490	70		
	Mid-2011 to Mid-2016	29,200	28,100	300	27,700	4,270	3,120	5,030	-190	12,230	290		
	Mid-2016 to Mid-2021	60,400	58,100	900	57,300	6,000	4,680	9,150	0	19,830	780		
	Mid-2021 to Mid-2031	125,000	120,200	1,700	118,400	13,340	9,340	21,790	0	44,460	1,590		
	Mid-2021 to Mid-2041	218,000	209,600	3,000	206,600	26,460	15,900	40,690	0	83,050	2,780		
	Mid-2021 to Mid-2051	306,000	294,200	4,300	289,900	39,060	22,210	59,810	0	121,080	3,900		

[1] Census undercount estimated at approximately 4.0%. Note population including the undercount has been rounded. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

[2] Includes townhouses, back-to-back townhouses, and apartments in duplexes.

[3] Includes bachelor, 1-bedroom and 2-bedroom + apartments, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Figure C-2: Region of Waterloo, Total Population and Census Housing Growth by Area Municipality, 2021 to 2051 – Option 1

City of Cambridge

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	135,100	32,020	7,350	8,880	48,250	2.80
2021	146,000	33,250	8,605	9,565	51,420	2.84
2051	267,900	47,700	18,575	33,580	99,855	2.68
2021-2051	**121,900**	**14,450**	**9,970**	**24,015**	**48,435**	

City of Kitchener

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	242,600	50,290	14,195	27,725	92,210	2.63
2021	269,100	52,705	16,975	30,810	100,490	2.68
2051	368,500	64,280	22,795	52,535	139,610	2.64
2021-2051	**99,400**	**11,575**	**5,820**	**21,725**	**39,120**	

City of Waterloo

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	109,200	24,265	5,855	10,260	40,380	2.70
2021	127,300	25,255	6,160	15,430	46,845	2.72
2051	159,200	27,905	7,755	25,090	60,750	2.62
2021-2051	**31,900**	**2,650**	**1,595**	**9,660**	**13,905**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	10,600	3,170	235	130	3,535	3.00
2021	11,300	3,380	360	180	3,920	2.88
2051	18,800	5,080	1,050	605	6,735	2.79
2021-2051	**7,500**	**1,700**	**690**	**425**	**2,815**	

Township of Wellesley

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	11,700	3,150	70	115	3,335	3.51
2021	11,900	3,285	75	120	3,480	3.42
2051	14,000	3,940	240	170	4,350	3.22
2021-2051	**2,100**	**655**	**165**	**50**	**870**	

Township of Wilmot

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	21,400	6,645	370	505	7,520	2.85
2021	22,700	7,035	410	550	7,995	2.84
2051	36,400	9,800	1,355	2,045	13,200	2.76
2021-2051	**13,700**	**2,765**	**945**	**1,495**	**5,205**	

Township of Woolwich

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	26,000	7,390	520	700	8,610	3.02
2021	28,700	8,015	695	810	9,520	3.01
2051	58,200	13,280	3,715	3,255	20,250	2.87
2021-2051	**29,500**	**5,265**	**3,020**	**2,445**	**10,730**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	486,900	106,575	27,400	46,865	180,840	2.69
2021	542,400	111,210	31,740	55,805	198,755	2.73
2051	795,600	139,885	49,125	111,205	300,215	2.65
2021-2051	**253,200**	**28,675**	**17,385**	**55,400**	**101,460**	

Township Total

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	69,700	20,355	1,195	1,450	23,000	3.03
2021	74,600	21,715	1,540	1,660	24,915	2.99
2051	127,400	32,100	6,360	6,075	44,535	2.86
2021-2051	**52,800**	**10,385**	**4,820**	**4,415**	**19,620**	

Region of Waterloo

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	556,600	126,930	28,595	48,315	203,840	2.73
2021	617,000	132,930	33,280	57,465	223,675	2.76
2051	923,000	171,990	55,485	117,280	344,755	2.68
2021-2051	**306,000**	**39,060**	**22,205**	**59,815**	**121,080**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Figure C-3: Region of Waterloo, Census Housing Intensification Forecast by Area Municipality, 2022 to 2051 – Option 1

City of Cambridge

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	45,375	2,555	325	48,250	
2022	46,910	5,500	370	52,770	
2051	71,565	27,790	495	99,855	
2016-2022	**1,535**	**2,945**	**45**	**4,520**	**34%**
2022-2051	**24,655**	**22,290**	**125**	**47,085**	**52%**

City of Kitchener

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	84,460	7,715	35	92,210	
2022	89,245	13,060	35	102,340	
2051	109,410	30,170	35	139,610	
2016-2022	**4,785**	**5,345**	**0**	**10,130**	**47%**
2022-2051	**20,165**	**17,110**	**0**	**37,270**	**54%**

City of Waterloo

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	38,480	1,890	10	40,380	
2022	43,815	3,450	10	47,280	
2051	53,425	7,320	10	60,750	
2016-2022	**5,335**	**1,560**	**0**	**6,900**	**77%**
2022-2051	**9,610**	**3,870**	**0**	**13,470**	**71%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	1,600	320	1,615	3,535	
2022	1,725	700	1,680	4,100	
2051	2,120	2,675	1,940	6,735	
2016-2022	**125**	**380**	**65**	**565**	**22%**
2022-2051	**395**	**1,975**	**260**	**2,635**	**15%**

Township of Wellesley

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	820	320	2,195	3,335	
2022	830	430	2,250	3,515	
2051	915	990	2,445	4,350	
2016-2022	**10**	**110**	**55**	**180**	**6%**
2022-2051	**85**	**560**	**195**	**835**	**10%**

Township of Wilmot

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	3,970	1,060	2,485	7,520	
2022	4,115	1,555	2,545	8,205	
2051	5,600	4,930	2,670	13,200	
2016-2022	**145**	**495**	**60**	**685**	**21%**
2022-2051	**1,485**	**3,375**	**125**	**4,995**	**30%**

Township of Woolwich

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	4,605	1,380	2,620	8,610	
2022	4,745	2,485	2,675	9,910	
2051	6,665	10,715	2,875	20,250	
2016-2022	**140**	**1,105**	**55**	**1,300**	**11%**
2022-2051	**1,920**	**8,230**	**200**	**10,340**	**19%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.

Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	168,315	12,160	370	180,840	
2022	179,970	22,010	415	202,390	
2051	234,400	65,280	540	300,215	
2016-2022	**11,655**	**9,850**	**45**	**21,550**	**54%**
2022-2051	**54,430**	**43,270**	**125**	**97,825**	**56%**

Township Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	10,995	3,080	8,915	23,000	
2022	11,415	5,170	9,150	25,730	
2051	15,300	19,310	9,930	44,535	
2016-2022	**420**	**2,090**	**235**	**2,730**	**15%**
2022-2051	**3,885**	**14,140**	**780**	**18,805**	**21%**

Region of Waterloo

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	179,310	15,240	9,290	203,840	
2022	191,380	27,180	9,560	228,120	
2051	249,700	84,585	10,470	344,755	
2016-2022	**12,070**	**11,940**	**270**	**24,280**	**50%**
2022-2051	**58,320**	**57,405**	**910**	**116,635**	**50%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Option 2 – Compact Development, Modest Community Area Expansion: 60% Intensification & 60 People and Jobs per Hectare in Designated Greenfield Areas

Figure C-5: Region of Waterloo, Region-wide Population and Census Housing Forecast, 2016 to 2051 – Option 2

	Year	Population (Including Census undercount)[1]	Excluding Census Undercount			Housing Units						Persons Per Unit (PPU) with undercount	Person Per Unit (PPU): without undercount
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	Equivalent Institutional Households		
Historical	*Mid-2006*	497,200	478,100	7,400	470,700	113,720	23,030	40,900	480	178,120	6,740	2.79	2.68
	Mid-2011	527,400	507,100	7,500	499,600	122,320	25,430	43,180	680	191,610	6,810	2.75	2.65
	Mid-2016	556,600	535,200	7,800	527,300	126,590	28,550	48,210	490	203,840	7,100	2.73	2.63
Forecast	*Mid-2021*	617,000	593,300	8,700	584,600	132,590	33,230	57,360	490	223,670	7,880	2.76	2.65
	Mid-2026	681,400	655,200	9,600	645,600	138,810	38,340	68,250	490	245,890	8,700	2.77	2.66
	Mid-2031	742,000	713,500	10,400	703,000	143,700	43,790	80,150	490	268,130	9,470	2.77	2.66
	Mid-2036	789,000	758,700	11,100	747,600	147,240	48,900	91,150	490	287,780	10,070	2.74	2.64
	Mid-2041	835,000	802,900	11,700	791,200	150,270	54,010	101,940	490	306,720	10,660	2.72	2.62
	Mid-2046	879,500	845,700	12,300	833,300	152,940	59,310	113,090	490	325,830	11,230	2.70	2.60
	Mid-2051	923,000	887,500	13,000	874,500	155,030	64,790	124,430	490	344,750	11,780	2.68	2.57
Incremental	**Mid-2006 to Mid-2011**	30,200	29,000	100	28,900	8,600	2,400	2,280	200	13,490	70		
	Mid-2011 to Mid-2016	29,200	28,100	300	27,700	4,270	3,120	5,030	-190	12,230	290		
	Mid-2016 to Mid-2021	60,400	58,100	900	57,300	6,000	4,680	9,150	0	19,830	780		
	Mid-2021 to Mid-2031	125,000	120,200	1,700	118,400	11,110	10,560	22,790	0	44,460	1,590		
	Mid-2021 to Mid-2041	218,000	209,600	3,000	206,600	17,680	20,780	44,580	0	83,050	2,780		
	Mid-2021 to Mid-2051	306,000	294,200	4,300	289,900	22,440	31,560	67,070	0	121,080	3,900		

[1] Census undercount estimated at approximately 4.0%. Note population including the undercount has been rounded. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

[2] Includes townhouses, back-to-back townhouses, and apartments in duplexes.

[3] Includes bachelor, 1-bedroom and 2-bedroom + apartments, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Figure C-6: Region of Waterloo, Total Population and Census Housing Growth by Area Municipality, 2021 to 2051 – Option 2

City of Cambridge

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	135,100	32,020	7,350	8,880	48,250	2.80
2021	146,000	33,250	8,605	9,565	51,420	2.84
2051	219,300	38,165	15,545	27,465	81,175	2.70
2021-2051	**73,300**	**4,915**	**6,940**	**17,900**	**29,755**	

City of Kitchener

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	242,600	50,290	14,195	27,725	92,210	2.63
2021	269,100	52,705	16,975	30,810	100,490	2.68
2051	410,700	61,365	31,395	63,025	155,785	2.64
2021-2051	**141,600**	**8,660**	**14,420**	**32,215**	**55,295**	

City of Waterloo

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	109,200	24,265	5,855	10,260	40,380	2.70
2021	127,300	25,255	6,160	15,430	46,845	2.72
2051	179,500	27,175	12,130	28,705	68,010	2.64
2021-2051	**52,200**	**1,920**	**5,970**	**13,275**	**21,165**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	10,600	3,170	235	130	3,535	3.00
2021	11,300	3,380	360	180	3,920	2.88
2051	19,600	5,050	1,310	720	7,080	2.77
2021-2051	**8,300**	**1,670**	**950**	**540**	**3,160**	

Township of Wellesley

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	11,700	3,150	70	115	3,335	3.51
2021	11,900	3,285	75	120	3,480	3.42
2051	14,000	3,955	205	200	4,360	3.21
2021-2051	**2,100**	**670**	**130**	**80**	**880**	

Township of Wilmot

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	21,400	6,645	370	505	7,520	2.85
2021	22,700	7,035	410	550	7,995	2.84
2051	30,300	8,255	1,110	1,665	11,030	2.75
2021-2051	**7,600**	**1,220**	**700**	**1,115**	**3,035**	

Township of Woolwich

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	26,000	7,390	520	700	8,610	3.02
2021	28,700	8,015	695	810	9,520	3.01
2051	49,500	11,415	3,155	2,755	17,325	2.86
2021-2051	**20,800**	**3,400**	**2,460**	**1,945**	**7,805**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	486,900	106,575	27,400	46,865	180,840	2.69
2021	542,400	111,210	31,740	55,805	198,755	2.73
2051	809,500	126,705	59,070	119,195	304,970	2.65
2021-2051	**267,100**	**15,495**	**27,330**	**63,390**	**106,215**	

Township Total

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	69,700	20,355	1,195	1,450	23,000	3.03
2021	74,600	21,715	1,540	1,660	24,915	2.99
2051	113,400	28,675	5,780	5,340	39,795	2.85
2021-2051	**38,800**	**6,960**	**4,240**	**3,680**	**14,880**	

Region of Waterloo

Year	Population (Including Census Undercount)[1]	Households				Persons Per Unit (PPU)
		Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	556,600	126,930	28,595	48,315	203,840	2.73
2021	617,000	132,930	33,280	57,465	223,675	2.76
2051	923,000	155,370	64,845	124,540	344,755	2.68
2021-2051	**306,000**	**22,440**	**31,565**	**67,075**	**121,080**	

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Figure C-7: Region of Waterloo, Census Housing Intensification Forecast by Area Municipality, 2022 to 2051 – Option 2

City of Cambridge

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	45,375	2,555	325	48,250	
2022	46,910	5,500	370	52,770	
2051	66,090	14,590	495	81,175	
2016-2022	**1,535**	**2,945**	**45**	**4,520**	**34%**
2022-2051	**19,180**	**9,090**	**125**	**28,405**	**68%**

City of Kitchener

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	84,460	7,715	35	92,210	
2022	89,245	13,060	35	102,340	
2051	121,585	34,170	35	155,785	
2016-2022	**4,785**	**5,345**	**0**	**10,130**	**47%**
2022-2051	**32,340**	**21,110**	**0**	**53,445**	**61%**

City of Waterloo

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	38,480	1,890	10	40,380	
2022	43,815	3,450	10	47,280	
2051	58,865	9,135	10	68,010	
2016-2022	**5,335**	**1,560**	**0**	**6,900**	**77%**
2022-2051	**15,050**	**5,685**	**0**	**20,730**	**73%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	1,600	320	1,615	3,535	
2022	1,725	700	1,680	4,100	
2051	2,265	2,870	1,940	7,080	
2016-2022	**125**	**380**	**65**	**565**	**22%**
2022-2051	**540**	**2,170**	**260**	**2,980**	**18%**

Township of Wellesley

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	820	320	2,195	3,335	
2022	830	430	2,250	3,515	
2051	930	975	2,445	4,360	
2016-2022	**10**	**110**	**55**	**180**	**6%**
2022-2051	**100**	**545**	**195**	**845**	**12%**

Township of Wilmot

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	3,970	1,060	2,485	7,520	
2022	4,115	1,555	2,545	8,205	
2051	5,395	2,965	2,670	11,030	
2016-2022	**145**	**495**	**60**	**685**	**21%**
2022-2051	**1,280**	**1,410**	**125**	**2,825**	**45%**

Township of Woolwich

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	4,605	1,380	2,620	8,610	
2022	4,745	2,485	2,675	9,910	
2051	6,245	8,205	2,875	17,325	
2016-2022	**140**	**1,105**	**55**	**1,300**	**11%**
2022-2051	**1,500**	**5,720**	**200**	**7,415**	**20%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	168,315	12,160	370	180,840	
2022	179,970	22,010	415	202,390	
2051	246,540	57,895	540	304,970	
2016-2022	**11,655**	**9,850**	**45**	**21,550**	**54%**
2022-2051	**66,570**	**35,885**	**125**	**102,580**	**65%**

Township Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	10,995	3,080	8,915	23,000	
2022	11,415	5,170	9,150	25,730	
2051	14,835	15,015	9,930	39,795	
2016-2022	**420**	**2,090**	**235**	**2,730**	**15%**
2022-2051	**3,420**	**9,845**	**780**	**14,065**	**24%**

Region of Waterloo

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	179,310	15,240	9,290	203,840	
2022	191,380	27,180	9,560	228,120	
2051	261,365	72,920	10,470	344,755	
2016-2022	**12,070**	**11,940**	**270**	**24,280**	**50%**
2022-2051	**69,985**	**45,740**	**910**	**116,635**	**60%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Option 3 – More Compact Development, No Urban Expansion of Community Areas: 60% Intensification & 64 People and Jobs per Hectare in Designated Greenfield Areas – No Urban Boundary Expansion

Figure C-8: Region of Waterloo, Region-wide Population and Census Housing Forecast, 2016 to 2051 – Option 3

	Year	Population (Including Census undercount)[1]	Excluding Census Undercount			Housing Units						Persons Per Unit (PPU) with undercount	Person Per Unit (PPU): without undercount
			Population	Institutional Population	Population Excluding Institutional Population	Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	Equivalent Institutional Households		
Historical	*Mid-2006*	497,200	478,100	7,400	470,700	113,720	23,030	40,900	480	178,120	6,740	2.79	2.68
	Mid-2011	527,400	507,100	7,500	499,600	122,320	25,430	43,180	680	191,610	6,810	2.75	2.65
	Mid-2016	556,600	535,200	7,800	527,300	126,590	28,550	48,210	490	203,840	7,100	2.73	2.63
Forecast	*Mid-2021*	617,000	593,300	8,700	584,600	132,590	33,230	57,360	490	223,670	7,880	2.76	2.65
	Mid-2026	681,400	655,200	9,600	645,600	138,810	38,340	68,250	490	245,890	8,700	2.77	2.66
	Mid-2031	742,000	713,500	10,400	703,000	143,700	43,680	80,260	490	268,130	9,470	2.77	2.66
	Mid-2036	789,000	758,700	11,100	747,600	147,040	48,590	91,650	490	287,780	10,070	2.74	2.64
	Mid-2041	835,000	802,900	11,700	791,200	149,880	53,610	102,730	490	306,720	10,660	2.72	2.62
	Mid-2046	879,500	845,700	12,300	833,300	152,370	58,870	114,110	490	325,830	11,230	2.70	2.60
	Mid-2051	923,000	887,500	13,000	874,500	154,410	64,270	125,570	490	344,750	11,780	2.68	2.57
Incremental	**Mid-2006 to Mid-2011**	30,200	29,000	100	28,900	8,600	2,400	2,280	200	13,490	70		
	Mid-2011 to Mid-2016	29,200	28,100	300	27,700	4,270	3,120	5,030	-190	12,230	290		
	Mid-2016 to Mid-2021	60,400	58,100	900	57,300	6,000	4,680	9,150	0	19,830	780		
	Mid-2021 to Mid-2031	125,000	120,200	1,700	118,400	11,110	10,450	22,900	0	44,460	1,590		
	Mid-2021 to Mid-2041	218,000	209,600	3,000	206,600	17,290	20,380	45,370	0	83,050	2,780		
	Mid-2021 to Mid-2051	306,000	294,200	4,300	289,900	21,820	31,040	68,210	0	121,080	3,900		

[1] Census undercount estimated at approximately 4.0%. Note population including the undercount has been rounded. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table

[2] Includes townhouses, back-to-back townhouses, and apartments in duplexes.

[3] Includes bachelor, 1-bedroom and 2-bedroom + apartments, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd.

Figure C-9: Region of Waterloo, Total Population and Census Housing Growth by Area Municipality, 2021 to 2051 – Option 3

City of Cambridge

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	135,100	32,020	7,350	8,880	48,250
2021	146,000	33,250	8,605	9,565	51,420
2051	213,400	37,215	14,285	27,605	79,105
2021-2051	**67,400**	**3,965**	**5,680**	**18,040**	**27,685**

City of Kitchener

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	242,600	50,290	14,195	27,725	92,210
2021	269,100	52,705	16,975	30,810	100,490
2051	417,500	62,195	32,070	63,785	158,050
2021-2051	**148,400**	**9,490**	**15,095**	**32,975**	**57,560**

City of Waterloo

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	109,200	24,265	5,855	10,260	40,380
2021	127,300	25,255	6,160	15,430	46,845
2051	182,900	27,580	12,550	29,035	69,165
2021-2051	**55,600**	**2,325**	**6,390**	**13,605**	**22,320**

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	10,600	3,170	235	130	3,535
2021	11,300	3,380	360	180	3,920
2051	17,200	4,625	1,025	615	6,265
2021-2051	**5,900**	**1,245**	**665**	**435**	**2,345**

Township of Wellesley

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	11,700	3,150	70	115	3,335
2021	11,900	3,285	75	120	3,480
2051	12,400	3,600	120	140	3,860
2021-2051	**500**	**315**	**45**	**20**	**380**

Township of Wilmot

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	21,400	6,645	370	505	7,520
2021	22,700	7,035	410	550	7,995
2051	28,800	8,025	965	1,445	10,435
2021-2051	**6,100**	**990**	**555**	**895**	**2,440**

Township of Woolwich

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	26,000	7,390	520	700	8,610
2021	28,700	8,015	695	810	9,520
2051	50,800	11,515	3,315	3,055	17,885
2021-2051	**22,100**	**3,500**	**2,620**	**2,245**	**8,365**

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	486,900	106,575	27,400	46,865	180,840
2021	542,400	111,210	31,740	55,805	198,755
2051	813,800	126,990	58,905	120,425	306,320
2021-2051	**271,400**	**15,780**	**27,165**	**64,620**	**107,565**

Township Total

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	69,700	20,355	1,195	1,450	23,000
2021	74,600	21,715	1,540	1,660	24,915
2051	109,200	27,765	5,425	5,255	38,445
2021-2051	**34,600**	**6,050**	**3,885**	**3,595**	**13,530**

Region of Waterloo

Year	Population (Including Census Undercount)[1]	Households			
		Low Density[2]	Medium Density[3]	High Density[4]	Total
2016	556,600	126,930	28,595	48,315	203,840
2021	617,000	132,930	33,280	57,465	223,675
2051	923,000	154,755	64,325	125,675	344,755
2021-2051	**306,000**	**21,825**	**31,045**	**68,210**	**121,080**

[1] Population undercount estimated at 4%.

[2] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[3] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding. Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Figure C-10: Region of Waterloo, Census Housing Intensification Forecast by Area Municipality, 2022 to 2051 – Option 3

City of Cambridge

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	45,375	2,555	325	48,250	
2022	46,910	5,500	370	52,770	
2051	65,495	13,125	495	79,105	
2016-2022	**1,535**	**2,945**	**45**	**4,520**	**34%**
2022-2051	**18,585**	**7,625**	**125**	**26,335**	**71%**

City of Kitchener

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	84,460	7,715	35	92,210	
2022	89,245	13,060	35	102,340	
2051	121,960	36,045	35	158,050	
2016-2022	**4,785**	**5,345**	**0**	**10,130**	**47%**
2022-2051	**32,715**	**22,985**	**0**	**55,710**	**59%**

City of Waterloo

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	38,480	1,890	10	40,380	
2022	43,815	3,450	10	47,280	
2051	59,240	9,920	10	69,165	
2016-2022	**5,335**	**1,560**	**0**	**6,900**	**77%**
2022-2051	**15,425**	**6,470**	**0**	**21,885**	**70%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	1,600	320	1,615	3,535	
2022	1,725	700	1,680	4,100	
2051	2,165	2,150	1,940	6,265	
2016-2022	**125**	**380**	**65**	**565**	**22%**
2022-2051	**440**	**1,450**	**260**	**2,165**	**20%**

Township of Wellesley

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	820	320	2,195	3,335	
2022	830	430	2,250	3,515	
2051	875	535	2,445	3,860	
2016-2022	**10**	**110**	**55**	**180**	**6%**
2022-2051	**45**	**105**	**195**	**345**	**13%**

Township of Wilmot

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	3,970	1,060	2,485	7,520	
2022	4,115	1,555	2,545	8,205	
2051	5,110	2,650	2,670	10,435	
2016-2022	**145**	**495**	**60**	**685**	**21%**
2022-2051	**995**	**1,095**	**125**	**2,230**	**45%**

Township of Woolwich

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	4,605	1,380	2,620	8,610	
2022	4,745	2,485	2,675	9,910	
2051	6,520	8,485	2,875	17,885	
2016-2022	**140**	**1,105**	**55**	**1,300**	**11%**
2022-2051	**1,775**	**6,000**	**200**	**7,975**	**22%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

City Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	168,315	12,160	370	180,840	
2022	179,970	22,010	415	202,390	
2051	246,695	59,090	540	306,320	
2016-2022	**11,655**	**9,850**	**45**	**21,550**	**54%**
2022-2051	**66,725**	**37,080**	**125**	**103,930**	**64%**

Township Total

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2016	10,995	3,080	8,915	23,000	
2022	11,415	5,170	9,150	25,730	
2051	14,670	13,820	9,930	38,445	
2016-2022	**420**	**2,090**	**235**	**2,730**	**15%**
2022-2051	**3,255**	**8,650**	**780**	**12,715**	**26%**

Year	Households by Policy Area				% Intensification
	BUA	DGA	Rural	Total	
2022	191,380	27,180	9,560	228,120	
2051	261,370	72,915	10,470	344,755	
2016-2022	**12,070**	**11,940**	**270**	**24,280**	**50%**
2022-2051	**69,990**	**45,735**	**910**	**116,635**	**60%**

Note: Figures may not add precisely due to rounding. Students are currently not included in the intensification share. Page 30 of the LNA indicates students can be added to intensification target.
Source: Watson & Associates Economists Ltd., 2022.

Figure C-11: Region of Waterloo, Region-Wide Incremental Population and Housing Growth by Planning Policy Area, 2021 to 2051 – Options 1 to 3

	Period	Region-wide Total						BUA						DGA						Rural					
		Population		Households				Population		Households				Population		Households				Population		Households			
		Including Census Undercount[1]	Excluding Census Undercount	Low Density	Medium Density	High Density	Total	Including Census Undercount[1]	Excluding Census Undercount	Low Density	Medium Density	High Density	Total	Including Census Undercount[1]	Excluding Census Undercount	Low Density	Medium Density	High Density	Total	Including Census Undercount[1]	Excluding Census Undercount	Low Density	Medium Density	High Density	Total
2021																									
Total	2021	617,000	593,300	132,930	33,280	57,465	223,675	506,100	486,700	107,025	26,655	55,695	189,375	79,500	76,500	16,785	6,525	1,465	24,775	31,300	30,100	9,115	105	305	9,525
Shares	2021			59%	15%	26%	100%			57%	14%	29%	100%			68%	26%	6%	100%			96%	1%	3%	100%
Option 1: 50% Intensification &50 p&J/ha																									
Total	2051	923,000	887,500	171,990	55,485	117,280	344,755	626,600	602,500	107,440	32,150	110,110	249,700	262,800	252,700	54,490	23,235	6,860	84,585	33,600	32,300	10,060	100	310	10,470
	2021-2051	306,000	294,200	39,060	22,205	59,815	121,080	120,500	115,800	415	5,495	54,415	60,325	183,300	176,200	37,705	16,710	5,395	59,810	2,300	2,200	945	-5	5	945
Shares	2051			50%	16%	34%	100%			43%	13%	44%	100%			64%	27%	8%	100%			96%	1%	3%	100%
	2021-2051			32%	18%	49%	100%			1%	9%	90%	100%			63%	28%	9%	100%			100%	-1%	1%	100%
Option 2: 60% Intensification & 60 p&J/ha																									
Total	2051	923,000	887,500	155,370	64,845	124,540	344,755	647,900	673,800	107,440	40,900	113,025	261,365	215,600	207,300	37,875	23,845	11,200	72,920	33,600	32,300	10,055	105	310	10,470
	2021-2051	306,000	294,200	22,440	31,565	67,075	121,080	141,800	187,100	415	14,245	57,330	71,990	136,100	130,800	21,090	17,320	9,735	48,145	2,300	2,200	940	0	5	945
Shares	2051			45%	19%	36%	100%			41%	16%	43%	100%			52%	33%	15%	100%			96%	1%	3%	100%
	2021-2051			19%	26%	55%	100%			1%	20%	80%	100%			44%	36%	20%	100%			99%	0%	1%	100%
Option 3: 60% Intensification & 66 p&j/ha (No Urban Boundary Expansion)																									
Total	2051	923,000	887,500	154,755	64,325	125,675	344,755	675,000	649,000	107,440	40,900	113,030	261,370	214,000	206,000	37,255	23,325	12,335	72,915	34,000	32,000	10,060	105	310	10,470
	2021-2051	306,000	294,200	21,825	31,045	68,210	121,080	168,900	162,300	415	14,245	57,335	71,995	134,500	129,500	20,470	16,800	10,870	48,140	2,700	1,900	945	0	5	945
Shares	2051			45%	19%	36%	100%			41%	16%	43%	100%			51%	32%	17%	100%			96%	1%	3%	100%
	2021-2051			18%	26%	56%	100%			1%	20%	80%	100%			43%	35%	23%	100%			100%	0%	1%	101%

[1] Population undercount estimated at 4%.

- Low density includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.
- Medium density includes townhouses, back-to-back townhouses and apartments in duplexes.
- High density includes all apartments with less than or greater than five storeys, and stacked townhouses.
- Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Note: Figures may not add precisely due to rounding.

Source: Watson & Associates Economists Ltd., 2022.

Figure C-12: Region of Waterloo, Housing Growth by Structure Type, Planning Policy Area and Area Municipality, 2021 to 2051 Growth Increment – Options 1 to 3

City of Cambridge

Year	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	14,450	9,970	24,015	48,435	260	2,070	22,965	25,295	14,055	7,900	1,045	23,000	130	-	-	130
Option 2	4,915	6,940	17,900	29,755	260	3,100	16,460	19,820	4,520	3,840	1,440	9,800	130	-	-	130
Option 3	3,965	5,680	18,040	27,685	260	2,975	15,990	19,225	3,575	2,710	2,050	8,335	130	-	-	130
Option 2 - Option 1	**(9,535)**	**(3,030)**	**(6,115)**	**(18,680)**	**-**	**1,030**	**(6,505)**	**(5,475)**	**(9,535)**	**(4,060)**	**395**	**(13,200)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(10,485)**	**(4,290)**	**(5,975)**	**(20,750)**	**-**	**905**	**(6,975)**	**(6,070)**	**(10,480)**	**(5,190)**	**1,005**	**(14,665)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(950)**	**(1,260)**	**140**	**(2,070)**	**-**	**(125)**	**(470)**	**(595)**	**(945)**	**(1,130)**	**610**	**(1,465)**	**-**	**-**	**-**	**-**

City of Kitchener

Year	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	11,575	5,820	21,725	39,120	110	1,905	19,095	21,110	11,460	3,920	2,635	18,015	-	-	-	-
Option 2	8,660	14,420	32,215	55,295	115	6,485	26,685	33,285	8,545	7,935	5,535	22,015	-	-	-	-
Option 3	9,490	15,095	32,975	57,560	110	6,560	26,990	33,660	9,370	8,535	5,985	23,890	-	-	-	-
Option 2 - Option 1	**(2,915)**	**8,600**	**10,490**	**16,175**	**5**	**4,580**	**7,590**	**12,175**	**(2,915)**	**4,015**	**2,900**	**4,000**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(2,085)**	**9,275**	**11,250**	**18,440**	**-**	**4,655**	**7,895**	**12,550**	**(2,090)**	**4,615**	**3,350**	**5,875**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**830**	**675**	**760**	**2,265**	**(5)**	**75**	**305**	**375**	**825**	**600**	**450**	**1,875**	**-**	**-**	**-**	**-**

City of Waterloo

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Concept 1	2,650	1,595	9,660	13,905	20	965	8,930	9,915	2,630	635	735	4,000	-	-	-	-
Concept 2	1,920	5,970	13,275	21,165	20	3,810	11,525	15,355	1,900	2,165	1,750	5,815	-	-	-	-
Concept 3	2,325	6,390	13,605	22,320	20	3,885	11,825	15,730	2,305	2,515	1,780	6,600	-	-	-	-
Concept 2 - Concept 1	**(730)**	**4,375**	**3,615**	**7,260**	**-**	**2,845**	**2,595**	**5,440**	**(730)**	**1,530**	**1,015**	**1,815**	**-**	**-**	**-**	**-**
Concept 3 - Concept 1	**(325)**	**4,795**	**3,945**	**8,415**	**-**	**2,920**	**2,895**	**5,815**	**(325)**	**1,880**	**1,045**	**2,600**	**-**	**-**	**-**	**-**
Concept 3 - Concept 2	**405**	**420**	**330**	**1,155**	**-**	**75**	**300**	**375**	**405**	**350**	**30**	**785**	**-**	**-**	**-**	**-**

[1] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[2] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[3] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Township of North Dumfries

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	1,700	690	425	2,815	10	50	355	415	1,420	635	70	2,125	270	-	-	270
Option 2	1,670	950	540	3,160	10	155	395	560	1,385	790	145	2,320	270	-	-	270
Option 3	1,245	665	435	2,345	10	125	325	460	960	530	110	1,600	270	-	-	270
Option 2 - Option 1	**(30)**	**260**	**115**	**345**	**-**	**105**	**40**	**145**	**(35)**	**155**	**75**	**195**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(455)**	**(25)**	**10**	**(470)**	**-**	**75**	**(30)**	**45**	**(460)**	**(105)**	**40**	**(525)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(425)**	**(285)**	**(105)**	**(815)**	**-**	**(30)**	**(70)**	**(100)**	**(425)**	**(260)**	**(35)**	**(720)**	**-**	**-**	**-**	**-**

Township of Wellesley

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	655	165	50	870	-	35	50	85	455	130	-	585	200	-	-	200
Option 2	670	130	80	880	-	45	55	100	465	80	25	570	200	-	-	200
Option 3	315	45	20	380	-	25	20	45	115	15	-	130	200	-	-	200
Option 2 - Option 1	**15**	**(35)**	**30**	**10**	**-**	**10**	**5**	**15**	**10**	**(50)**	**25**	**(15)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(340)**	**(120)**	**(30)**	**(490)**	**-**	**(10)**	**(30)**	**(40)**	**(340)**	**(115)**	**-**	**(455)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(355)**	**(85)**	**(60)**	**(500)**	**-**	**(20)**	**(35)**	**(55)**	**(350)**	**(65)**	**(25)**	**(440)**	**-**	**-**	**-**	**-**

Township of Wilmot

Year	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	2,765	945	1,495	5,205	5	130	1,405	1,540	2,630	815	80	3,525	125	-	5	130
Option 2	1,220	700	1,115	3,035	5	295	1,035	1,335	1,080	410	70	1,560	125	-	5	130
Option 3	990	555	895	2,440	5	245	800	1,050	850	310	85	1,245	125	-	5	130
Option 2 - Option 1	**(1,545)**	**(245)**	**(380)**	**(2,170)**	**-**	**165**	**(370)**	**(205)**	**(1,550)**	**(405)**	**(10)**	**(1,965)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(1,775)**	**(390)**	**(600)**	**(2,765)**	**-**	**115**	**(605)**	**(490)**	**(1,780)**	**(505)**	**5**	**(2,280)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(230)**	**(145)**	**(220)**	**(595)**	**-**	**(50)**	**(235)**	**(285)**	**(230)**	**(100)**	**15**	**(315)**	**-**	**-**	**-**	**-**

Township of Woolwich

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	5,265	3,020	2,445	10,730	5	350	1,615	1,970	5,060	2,670	835	8,565	205	-	-	205
Option 2	3,400	2,460	1,945	7,805	5	365	1,180	1,550	3,190	2,095	770	6,055	205	-	-	205
Option 3	3,500	2,620	2,245	8,365	5	435	1,385	1,825	3,290	2,185	860	6,335	205	-	-	205
Option 2 - Option 1	**(1,865)**	**(560)**	**(500)**	**(2,925)**	**-**	**15**	**(435)**	**(420)**	**(1,870)**	**(575)**	**(65)**	**(2,510)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(1,765)**	**(400)**	**(200)**	**(2,365)**	**-**	**85**	**(230)**	**(145)**	**(1,770)**	**(485)**	**25**	**(2,230)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**100**	**160**	**300**	**560**	**-**	**70**	**205**	**275**	**100**	**90**	**90**	**280**	**-**	**-**	**-**	**-**

[1] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[2] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[3] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

City Total

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	28,675	17,385	55,400	101,460	390	4,940	50,990	56,320	28,145	12,455	4,415	45,015	130	-	-	130
Option 2	15,495	27,330	63,390	106,215	395	13,395	54,670	68,460	14,965	13,940	8,725	37,630	130	-	-	130
Option 3	15,780	27,165	64,620	107,565	390	13,420	54,805	68,615	15,250	13,760	9,815	38,825	130	-	-	130
Option 2 - Option 1	**(13,180)**	**9,945**	**7,990**	**4,755**	**5**	**8,455**	**3,680**	**12,140**	**(13,180)**	**1,485**	**4,310**	**(7,385)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(12,895)**	**9,780**	**9,220**	**6,105**	**-**	**8,480**	**3,815**	**12,295**	**(12,895)**	**1,305**	**5,400**	**(6,190)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**285**	**(165)**	**1,230**	**1,350**	**(5)**	**25**	**135**	**155**	**285**	**(180)**	**1,090**	**1,195**	**-**	**-**	**-**	**-**

Township Total

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	10,385	4,820	4,415	19,620	20	565	3,425	4,010	9,565	4,250	985	14,800	800	-	-	805
Option 2	6,960	4,240	3,680	14,880	20	860	2,665	3,545	6,120	3,375	1,010	10,505	800	-	-	805
Option 3	6,050	3,885	3,595	13,530	20	830	2,530	3,380	5,215	3,040	1,055	9,310	800	-	-	805
Option 2 - Option 1	**(3,425)**	**(580)**	**(735)**	**(4,740)**	**-**	**295**	**(760)**	**(465)**	**(3,445)**	**(875)**	**25**	**(4,295)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(4,335)**	**(935)**	**(820)**	**(6,090)**	**-**	**265**	**(895)**	**(630)**	**(4,350)**	**(1,210)**	**70**	**(5,490)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(910)**	**(355)**	**(85)**	**(1,350)**	**-**	**(30)**	**(135)**	**(165)**	**(905)**	**(335)**	**45**	**(1,195)**	**-**	**-**	**-**	**-**

Region of Waterloo

Concept	Total Households				BUA Households				DGA Households				Rural Households			
	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total	Low Density[1]	Medium Density[2]	High Density[3]	Total
Option 1	39,060	22,205	59,815	121,080	415	5,495	54,415	60,325	37,705	16,710	5,395	59,810	945	-	-	945
Option 2	22,440	31,565	67,075	121,080	415	14,245	57,330	71,990	21,090	17,320	9,735	48,145	945	-	-	945
Option 3	21,825	31,045	68,210	121,080	415	14,245	57,335	71,995	20,470	16,800	10,870	48,140	945	-	-	945
Option 2 - Option 1	**(16,620)**	**9,360**	**7,260**	**-**	**-**	**8,750**	**2,915**	**11,665**	**(16,615)**	**610**	**4,340**	**(11,665)**	**-**	**-**	**-**	**-**
Option 3 - Option 1	**(17,235)**	**8,840**	**8,395**	**-**	**-**	**8,750**	**2,920**	**11,670**	**(17,235)**	**90**	**5,475**	**(11,670)**	**-**	**-**	**-**	**-**
Option 3 - Option 2	**(615)**	**(520)**	**1,135**	**-**	**-**	**-**	**5**	**5**	**(620)**	**(520)**	**1,135**	**(5)**	**-**	**-**	**-**	**-**

[1] Includes all single and semi-detached houses as well as "other" detached houses as per Statistics Canada.

[2] Includes townhouses, back-to-back townhouses and apartments in duplexes.

[3] Includes all apartments with less than or greater than five storeys, and stacked townhouses.

Note: Figures may not add precisely due to rounding.

Secondary units in 2016 are embedded in the Census housing categories, and 2016 to 2051 secondary unit growth is captured as high density for the purposes of this table.

Source: Watson & Associates Economists Ltd., 2022.

Figure C-13: Region of Waterloo, Population Summary by Area Municipality, 2021 to 2051 – Options 1 to 3

Period	Area Municipality							City Total	Township Total	Region of Waterloo
	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich			
2006	125,200	212,900	101,400	9,400	10,200	17,800	20,400	439,500	57,800	497,200
2011	131,800	227,900	102,700	9,700	11,100	20,000	24,100	462,400	64,900	527,400
2021	146,000	269,100	127,300	11,300	11,900	22,700	28,700	542,400	74,600	617,000
Option 1, 2051	267,900	368,500	159,200	18,800	14,000	36,400	58,200	795,600	127,400	923,000
Option 2, 2051	219,300	410,700	179,500	19,600	14,000	30,300	49,500	809,500	113,400	923,000
Option 3, 2051	213,400	417,500	182,900	17,200	12,400	28,800	50,800	813,800	109,200	923,000
Annual Population Growth										
2006-2011	1,320	3,000	260	60	180	440	740	4,580	1,420	6,040
2011-2016	660	2,940	1,300	180	120	280	380	4,900	960	5,840
2016-2021	2,180	5,300	3,620	140	40	260	540	11,100	980	12,080
Option 1, 2021-2051	4,060	3,310	1,060	250	70	460	980	8,440	1,760	10,200
Option 2, 2021-2051	2,440	4,720	1,740	280	70	250	690	8,900	1,290	10,200
Option 3, 2021-2051	2,250	4,950	1,850	200	20	200	740	9,050	1,150	10,200
Incremental Population Growth Shares										
2006-2011	22%	50%	4%	1%	3%	7%	12%	76%	24%	100%
2011-2016	11%	50%	22%	3%	2%	5%	7%	84%	16%	100%
2016-2021	18%	44%	30%	1%	0%	2%	4%	92%	8%	100%
Option 1, 2021-2051	40%	32%	10%	2%	1%	5%	10%	83%	17%	100%
Option 2, 2021-2051	24%	46%	17%	3%	1%	2%	7%	87%	13%	100%
Option 3, 2021-2051	22%	49%	18%	2%	0%	2%	7%	89%	11%	100%
Annual Population Growth Rate										
2006-2011	1.0%	1.4%	0.3%	0.6%	1.7%	2.4%	3.4%	1.0%	2.3%	1.2%
2011-2016	0.5%	1.3%	1.2%	1.8%	1.1%	1.4%	1.5%	1.0%	1.4%	1.1%
2016-2021	1.6%	2.1%	3.1%	1.3%	0.3%	1.2%	2.0%	2.2%	1.4%	2.1%
Option 1, 2021-2051	2.0%	1.1%	0.7%	1.7%	0.5%	1.6%	2.4%	1.3%	1.8%	1.4%
Option 2, 2021-2051	1.4%	1.4%	1.2%	1.9%	0.5%	1.0%	1.8%	1.3%	1.4%	1.4%
Option 3, 2021-2051	1.3%	1.5%	1.2%	1.4%	0.1%	0.8%	1.9%	1.4%	1.3%	1.4%

Note: Figures may not add precisely due to rounding.

Source: 2006 to 2016 from Statistics Canada Census, 2021 estimated from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd.'s forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure C-14: Region of Waterloo: Total Population Growth Percentage Change by Area Municipality, 2021 to 2051 – Options 1 to 3

Period	Area Municipality							City Total	Township Total	Region of Waterloo
	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich			
2021	146,000	269,100	127,300	11,300	11,900	22,700	28,700	542,400	74,600	617,000
Option 1, 2051	267,900	368,500	159,200	18,800	14,000	36,400	58,200	795,600	127,400	923,000
Option 2, 2051	219,300	410,700	179,500	19,600	14,000	30,300	49,500	809,500	113,400	923,000
Option 3, 2051	213,400	417,500	182,900	17,200	12,400	28,800	50,800	813,800	109,200	923,000
Total Population Growth Percentage Change from 2021 to 2051 [(2051-2021)/2021]										
Option 1, 2021-2051	83%	37%	25%	66%	18%	60%	103%	47%	71%	50%
Option 2, 2021-2051	50%	53%	41%	73%	18%	33%	72%	49%	52%	50%
Option 3, 2021-2051	46%	55%	44%	52%	4%	27%	77%	50%	46%	50%

Note: Figures may not add precisely due to rounding.

Source: 2006 to 2016 from Statistics Canada Census, 2021 estimated from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd.'s forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure C-15: Region of Waterloo, Total Census Housing Summary by Area Municipality, 2021-2051 – Options 1 to 3

Period	Area Municipality							City Total	Township Total	Region of Waterloo
	City of Cambridge	City of Kitchener	City of Waterloo	Township of North Dumfries	Township of Wellesley	Township of Wilmot	Township of Woolwich			
2006	43,280	79,380	36,780	3,055	2,835	6,090	6,590	159,440	18,570	178,120
2011	46,460	86,375	37,515	3,230	3,145	6,965	7,915	170,350	21,255	191,610
2021	51,420	100,490	46,845	3,920	3,480	7,995	9,520	198,755	24,915	223,675
Option 1, 2051	99,855	139,610	60,750	6,735	4,350	13,200	20,250	300,215	44,535	344,755
Option 2, 2051	81,175	155,785	68,010	7,080	4,360	11,030	17,325	304,970	39,795	344,755
Option 3, 2051	79,105	158,050	69,165	6,265	3,860	10,435	17,885	306,320	38,445	344,755
Annual Housing Growth										
2006-2011	635	1,400	145	35	60	175	265	2,180	535	2,700
2011-2016	360	1,165	575	60	40	110	140	2,100	350	2,445
2016-2021	635	1,655	1,295	75	30	95	180	3,585	385	3,965
Option 1, 2021-2051	1,615	1,305	465	95	30	175	360	3,380	655	4,035
Option 2, 2021-2051	990	1,845	705	105	30	100	260	3,540	495	4,035
Option 3, 2021-2051	925	1,920	745	80	15	80	280	3,585	450	4,035
Incremental Housing Growth Shares										
2006-2011	24%	52%	5%	1%	2%	6%	10%	81%	20%	100%
2011-2016	15%	48%	24%	2%	2%	4%	6%	86%	14%	100%
2016-2021	16%	42%	33%	2%	1%	2%	5%	90%	10%	100%
Option 1, 2021-2051	40%	32%	12%	2%	1%	4%	9%	84%	16%	100%
Option 2, 2021-2051	25%	46%	17%	3%	1%	2%	6%	88%	12%	100%
Option 3, 2021-2051	23%	48%	18%	2%	0%	2%	7%	89%	11%	100%
Annual Housing Growth Rate										
2006-2011	1.4%	1.7%	0.4%	1.1%	2.1%	2.7%	3.7%	1.3%	2.7%	1.5%
2011-2016	0.8%	1.3%	1.5%	1.8%	1.2%	1.5%	1.7%	1.2%	1.6%	1.2%
2016-2021	1.3%	1.7%	3.0%	2.1%	0.9%	1.2%	2.0%	1.9%	1.6%	1.9%
Option 1, 2021-2051	2.2%	1.1%	0.9%	1.8%	0.7%	1.7%	2.5%	1.4%	2.0%	1.5%
Option 2, 2021-2051	1.5%	1.5%	1.3%	2.0%	0.8%	1.1%	2.0%	1.4%	1.6%	1.5%
Option 3, 2021-2051	1.4%	1.5%	1.3%	1.6%	0.3%	0.9%	2.1%	1.5%	1.5%	1.5%

Note: Figures may not add precisely due to rounding.

Source: 2006 to 2016 from Statistics Canada Census, 2021 estimated from Region of Waterloo ResPoints data and Watson & Associates Economists Ltd.'s forecast, and Options 1 to 3 by Watson & Associates Economists Ltd.

Figure C-15: Region of Waterloo, Total Secondary Unit Summary by Area Municipality, 2021-2051 – Options 1 to 3

Area Municipality	Secondary Units (2021-2051) Option 1	Secondary Units (2021-2051) Option 2	Secondary Units (2021-2051) Option 3
City of Cambridge	1,020	870	860
City of Kitchener	1,460	1,350	1,380
City of Waterloo	700	640	650
Township of North Dumfries	60	60	50
Township of Wellesley	30	30	10
Township of Wilmot	130	120	110
Township of Woolwich	170	150	160
Region of Waterloo	**3,570**	**3,210**	**3,210**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Appendix D

Region of Waterloo Non-Residential Forecast Details

Employment Option 1: 15% Employment Area Land Intensification

Figure D-1: Region of Waterloo, Employment Option 1 – 15% Employment Area Land Intensification: Employment Forecast by Area Municipality, 2021 to 2051

City of Cambridge

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	3,000	35,400	27,700	600	**66,800**
2016	3,500	38,500	29,300	600	**71,900**
2021	4,600	41,900	30,700	700	**77,900**
2051	8,600	60,800	47,700	900	**118,100**

City of Kitchener

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	10,700	28,600	58,700	0	**98,000**
2016	12,100	28,200	61,700	0	**102,100**
2021	14,400	30,700	65,900	0	**111,000**
2051	29,000	34,800	104,000	0	**167,900**

City of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	19,600	22,700	28,800	0	**71,200**
2016	20,200	15,200	31,800	0	**67,200**
2021	23,100	16,500	35,200	0	**74,800**
2051	44,700	16,800	51,300	0	**112,800**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Township of North Dumfries

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	3,400	600	1,200	**5,200**
2016	100	4,000	900	1,300	**6,300**
2021	100	4,400	1,100	1,400	**7,000**
2051	100	8,600	1,900	1,700	**12,200**

Township of Wellesley

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	700	300	2,300	**3,300**
2016	0	1,100	1,000	2,600	**4,800**
2021	0	1,400	1,200	2,900	**5,500**
2051	0	2,300	1,400	3,000	**6,700**

Township of Wilmot

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	2,000	2,500	2,500	**7,000**
2016	0	2,300	3,100	2,300	**7,800**
2021	0	2,600	3,500	2,500	**8,600**
2051	0	4,600	4,800	2,700	**12,100**

Township of Woolwich

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	4,000	6,200	3,700	**13,900**
2016	0	4,600	7,100	4,100	**15,900**
2021	0	5,100	7,900	4,300	**17,300**
2051	0	21,700	14,000	4,600	**40,300**

Note: Figures may not add precisely due to rounding
Source: Watson & Associates Economists Ltd.

City Total

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	86,800	115,200	600	**235,900**
2016	35,800	81,900	122,800	600	**241,100**
2021	42,100	89,100	131,900	700	**263,700**
2051	82,400	112,500	203,000	900	**398,700**

Township Total

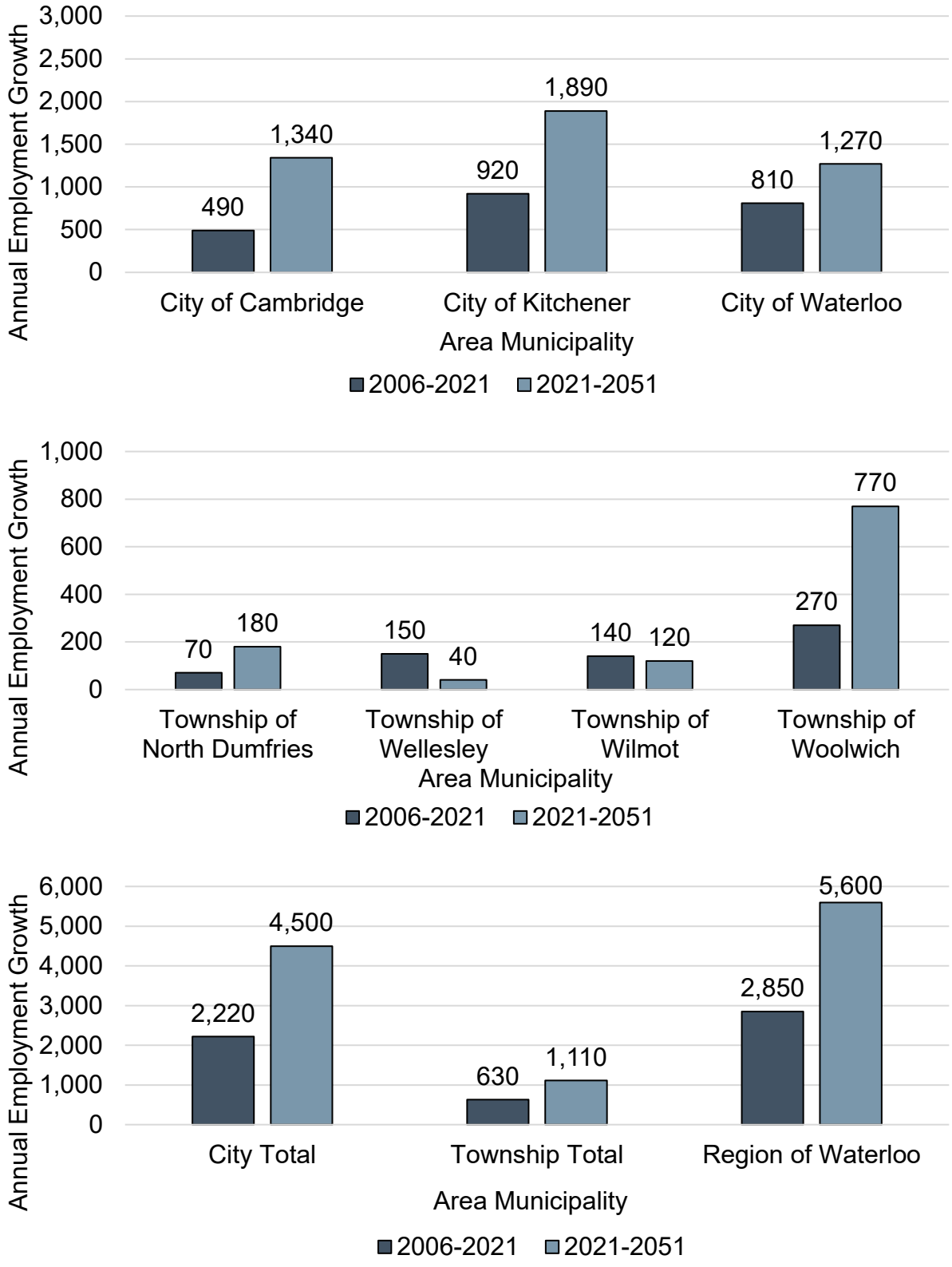
Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	10,100	9,500	9,800	**29,500**
2016	100	12,100	12,100	10,400	**34,700**
2021	100	13,600	13,600	11,100	**38,300**
2051	100	37,200	22,200	11,800	**71,300**

Region of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	96,900	124,700	10,400	**265,400**
2016	35,900	94,000	135,000	11,100	**275,800**
2021	42,200	102,700	145,500	11,800	**302,000**
2051	82,400	149,600	225,200	12,700	**470,000**

Note: Figures may not add precisely due to rounding
Source: Watson & Associates Economists Ltd.

Figure D-2: Region of Waterloo, Employment Option 1 – 15% Employment Area Land Intensification: Annual Total Employment Growth by Area Municipality, 2021-2051



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

Employment Option 1: 25% Employment Area Land Intensification

Figure D-3: Region of Waterloo, Employment Option 1 – 25% Employment Area Land Intensification: Employment Forecast by Area Municipality, 2021 to 2051

City of Cambridge

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	3,000	35,400	27,700	600	**66,800**
2016	3,500	38,500	29,300	600	**71,900**
2021	4,600	41,900	30,700	700	**77,900**
2051	8,600	61,800	47,700	900	**119,100**

City of Kitchener

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	10,700	28,600	58,700	0	**98,000**
2016	12,100	28,200	61,700	0	**102,100**
2021	14,400	30,700	65,900	0	**111,000**
2051	29,000	37,700	104,000	0	**170,800**

City of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	19,600	22,700	28,800	0	**71,200**
2016	20,200	15,200	31,800	0	**67,200**
2021	23,100	16,500	35,200	0	**74,800**
2051	44,700	18,600	51,300	0	**114,600**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Township of North Dumfries

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	3,400	600	1,200	**5,200**
2016	100	4,000	900	1,300	**6,300**
2021	100	4,400	1,100	1,400	**7,000**
2051	100	8,600	1,900	1,700	**12,200**

Township of Wellesley

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	700	300	2,300	**3,300**
2016	0	1,100	1,000	2,600	**4,800**
2021	0	1,400	1,200	2,900	**5,500**
2051	0	2,300	1,400	3,000	**6,700**

Township of Wilmot

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	2,000	2,500	2,500	**7,000**
2016	0	2,300	3,100	2,300	**7,800**
2021	0	2,600	3,500	2,500	**8,600**
2051	0	4,600	4,800	2,700	**12,100**

Township of Woolwich

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	4,000	6,200	3,700	**13,900**
2016	0	4,600	7,100	4,100	**15,900**
2021	0	5,100	7,900	4,300	**17,300**
2051	0	16,100	14,000	4,600	**34,600**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

City Total

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	86,800	115,200	600	**235,900**
2016	35,800	81,900	122,800	600	**241,100**
2021	42,100	89,100	131,900	700	**263,700**
2051	82,400	118,100	203,000	900	**404,400**

Township Total

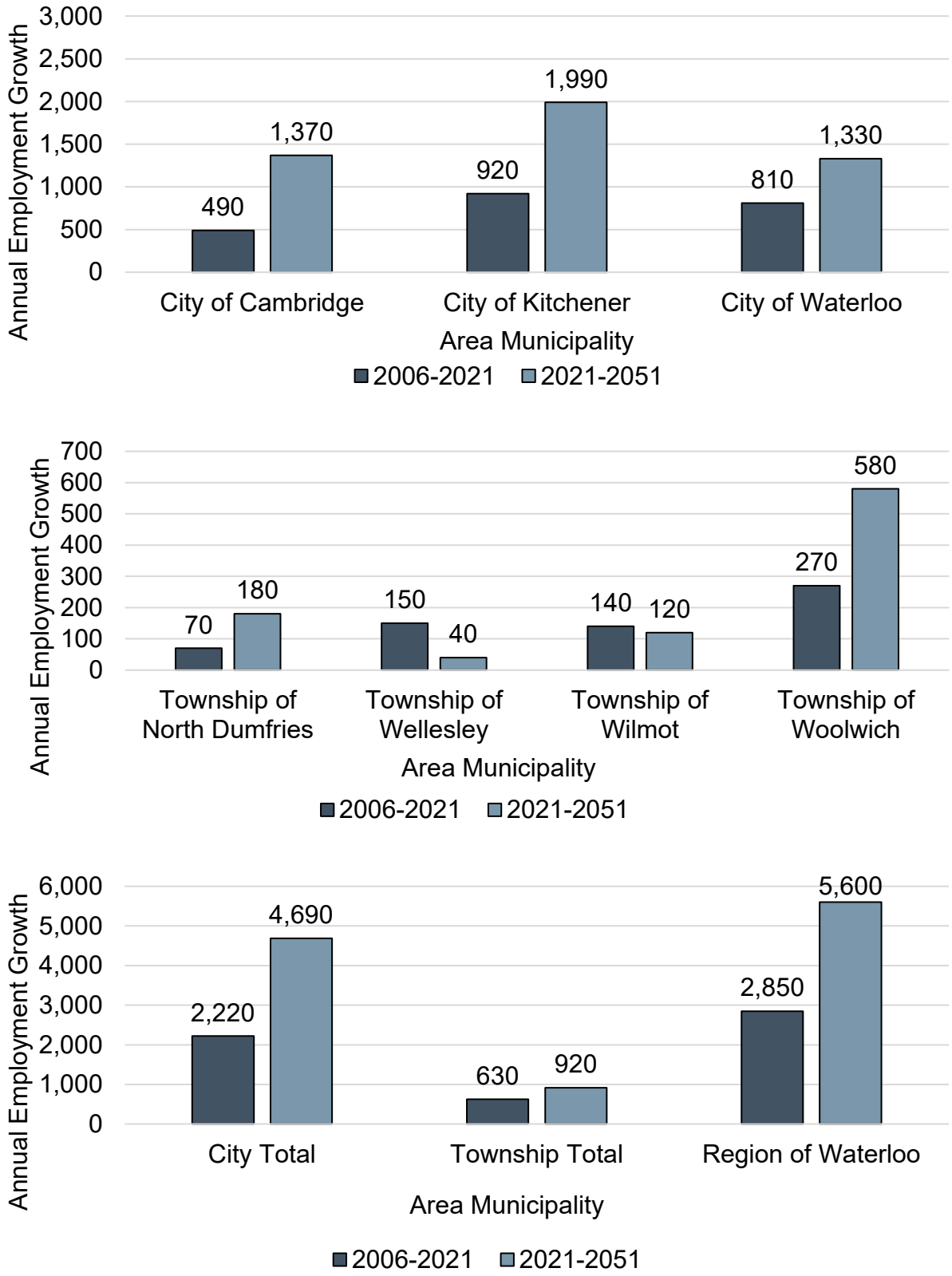
Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	10,100	9,500	9,800	**29,500**
2016	100	12,100	12,100	10,400	**34,700**
2021	100	13,600	13,600	11,100	**38,300**
2051	100	31,500	22,200	11,800	**65,600**

Region of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	96,900	124,700	10,400	**265,400**
2016	35,900	94,000	135,000	11,100	**275,800**
2021	42,200	102,700	145,500	11,800	**302,000**
2051	82,400	149,600	225,200	12,700	**470,000**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure D-4: Region of Waterloo, Employment Option 1 – 25% Employment Area Land Intensification: Annual Total Employment Growth by Area Municipality, 2021-2051



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

Employment Option 2: 15% Employment Area Land Intensification

Figure D-1: Region of Waterloo, Employment Option 2 – 15% Employment Area Land Intensification: Employment Forecast by Area Municipality, 2021 to 2051

City of Cambridge

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	3,000	35,400	27,700	600	**66,800**
2016	3,500	38,500	29,300	600	**71,900**
2021	4,600	41,900	30,700	700	**77,900**
2051	8,600	65,000	47,700	900	**122,200**

City of Kitchener

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	10,700	28,600	58,700	0	**98,000**
2016	12,100	28,200	61,700	0	**102,100**
2021	14,400	30,700	65,900	0	**111,000**
2051	29,000	34,800	104,000	0	**167,900**

City of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	19,600	22,700	28,800	0	**71,200**
2016	20,200	15,200	31,800	0	**67,200**
2021	23,100	16,500	35,200	0	**74,800**
2051	44,700	16,800	51,300	0	**112,800**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Township of North Dumfries

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	3,400	600	1,200	**5,200**
2016	100	4,000	900	1,300	**6,300**
2021	100	4,400	1,100	1,400	**7,000**
2051	100	8,600	1,900	1,700	**12,200**

Township of Wellesley

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	700	300	2,300	**3,300**
2016	0	1,100	1,000	2,600	**4,800**
2021	0	1,400	1,200	2,900	**5,500**
2051	0	2,300	1,400	3,000	**6,700**

Township of Wilmot

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	2,000	2,500	2,500	**7,000**
2016	0	2,300	3,100	2,300	**7,800**
2021	0	2,600	3,500	2,500	**8,600**
2051	0	4,600	4,800	2,700	**12,100**

Township of Woolwich

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	4,000	6,200	3,700	**13,900**
2016	0	4,600	7,100	4,100	**15,900**
2021	0	5,100	7,900	4,300	**17,300**
2051	0	17,600	14,000	4,600	**36,100**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

City Total

Year	Major Office	Employment Land Employment	Population Related Employment	Rural Based	Total
2011	33,300	86,800	115,200	600	**235,900**
2016	35,800	81,900	122,800	600	**241,100**
2021	42,100	89,100	131,900	700	**263,700**
2051	82,400	116,600	203,000	900	**402,900**

Township Total

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	10,100	9,500	9,800	**29,500**
2016	100	12,100	12,100	10,400	**34,700**
2021	100	13,600	13,600	11,100	**38,300**
2051	100	33,000	22,200	11,800	**67,100**

Region of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	96,900	124,700	10,400	**265,400**
2016	35,900	94,000	135,000	11,100	**275,800**
2021	42,200	102,700	145,500	11,800	**302,000**
2051	82,400	149,600	225,200	12,700	**470,000**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure D-2: Region of Waterloo, Employment Option 2 – 15% Employment Area Land Intensification: Annual Total Employment Growth by Area Municipality, 2021-2051

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

Employment Option 2: 25% Employment Area Land Intensification

Figure D-3: Region of Waterloo, Employment Option 2 – 25% Employment Area Land Intensification: Employment Forecast by Area Municipality, 2021 to 2051

City of Cambridge

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	3,000	35,400	27,700	600	**66,800**
2016	3,500	38,500	29,300	600	**71,900**
2021	4,600	41,900	30,700	700	**77,900**
2051	8,600	65,000	47,700	900	**122,200**

City of Kitchener

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	10,700	28,600	58,700	0	**98,000**
2016	12,100	28,200	61,700	0	**102,100**
2021	14,400	30,700	65,900	0	**111,000**
2051	29,000	37,700	104,000	0	**170,800**

City of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	19,600	22,700	28,800	0	**71,200**
2016	20,200	15,200	31,800	0	**67,200**
2021	23,100	16,500	35,200	0	**74,800**
2051	44,700	18,600	51,300	0	**114,600**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Township of North Dumfries

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	3,400	600	1,200	**5,200**
2016	100	4,000	900	1,300	**6,300**
2021	100	4,400	1,100	1,400	**7,000**
2051	100	8,600	1,900	1,700	**12,200**

Township of Wellesley

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	700	300	2,300	**3,300**
2016	0	1,100	1,000	2,600	**4,800**
2021	0	1,400	1,200	2,900	**5,500**
2051	0	2,300	1,400	3,000	**6,700**

Township of Wilmot

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	2,000	2,500	2,500	**7,000**
2016	0	2,300	3,100	2,300	**7,800**
2021	0	2,600	3,500	2,500	**8,600**
2051	0	4,600	4,800	2,700	**12,100**

Township of Woolwich

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	0	4,000	6,200	3,700	**13,900**
2016	0	4,600	7,100	4,100	**15,900**
2021	0	5,100	7,900	4,300	**17,300**
2051	0	12,900	14,000	4,600	**31,500**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

City Total

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	86,800	115,200	600	**235,900**
2016	35,800	81,900	122,800	600	**241,100**
2021	42,100	89,100	131,900	700	**263,700**
2051	82,400	121,300	203,000	900	**407,600**

Township Total

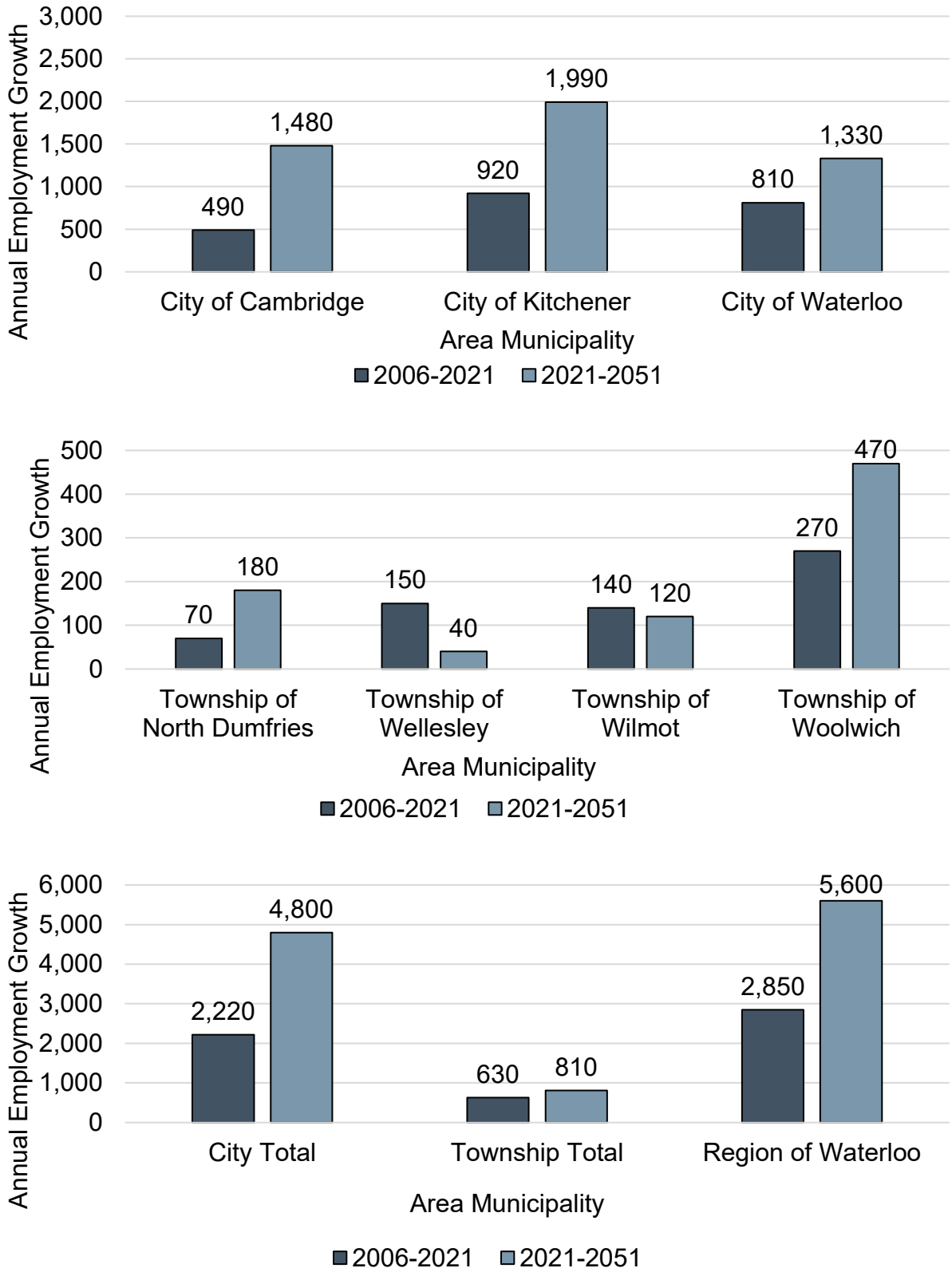
Year	Major Office	Employment Land Employment	Population Related Employment	Rural Based	Total
2011	0	10,100	9,500	9,800	**29,500**
2016	100	12,100	12,100	10,400	**34,700**
2021	100	13,600	13,600	11,100	**38,300**
2051	100	28,300	22,200	11,800	**62,400**

Region of Waterloo

Year	Major Office Employment	Employment Land Employment	Population-Related Employment	Rural-Based Employment	Total
2011	33,300	96,900	124,700	10,400	**265,400**
2016	35,900	94,000	135,000	11,100	**275,800**
2021	42,200	102,700	145,500	11,800	**302,000**
2051	82,400	149,600	225,200	12,700	**470,000**

Note: Figures may not add precisely due to rounding.
Source: Watson & Associates Economists Ltd.

Figure D-4: Region of Waterloo, Employment Option 2 – 25% Employment Area Land Intensification: Annual Total Employment Growth by Area Municipality, 2021-2051



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

Appendix E

Region of Waterloo, Urban Settlement Area Lands and Countryside Line

Figure E-1: Region of Waterloo, Urban Settlement Area Lands and Countryside Line

Table E-1: Region of Waterloo, Cities, Estimated Settlement Area Boundary Expansion (SABE) Potential, Lands Available for Urban Expansion, Land Area, ha

Urban Settlement Area	Cambridge	Waterloo	Kitchener	Cities
SABE Potential, within Countryside Line	572	0	135	707
SABE Potential, outside Countryside Line, Excluding Protected Countryside	963	0	70	1,033
Total Expansion Potential, ha	1,535	0	205	1,740

Note: Townships are not as constrained by SABE opportunities.

Source: Based on information from the Region of Waterloo by Watson & Associates Economists Ltd.

Table E-2: Region of Waterloo, Housing Growth and Associated Density, 2019 to 2051

Options	People and Jobs, 2019 to 2051	Density (people and jobs/ha) 2019 to 2051	DGA Land Demand, 2019 to 2051 (Gross Ha)	Net Residential Land Area (45%)	Low Density Units	Medium Density Units	High Density Units	Total
	A	B	C = A / B	D = C x 45%	E	F	G	H = Units / D
Option 1: 50% & 50 p&J/ha	226,800	**49**	4,613	2,076				
Units, 2019 to 2051					39,832	18,660	5,527	64,019
Housing Mix					62%	29%	9%	100%
Units Per Net Hectare					25	43	100	**31**
Net Residential Land Area					1,591	430	55	2,076
Option 2: 60% & 60 p&J/ha	176,200	**63**	2,779	1,251				
Units, 2019 to 2051					23,217	19,270	9,931	52,418
Housing Mix					44%	37%	19%	100%
Units Per Net Hectare					29	52	114	**42**
Net Residential Land Area					793	371	87	1,251
Option 3: 60% & 66 p&J/ha	174,800	**73**	2,403	1,081				
Units, 2019 to 2051					22,597	18,750	11,066	52,413
Housing Mix					43%	36%	22%	100%
Units Per Net Hectare					30	77	130	**48**
Net Residential Land Area					753	243	85	1,081

Note: May not add up precisely due to rounding. Secondary units excluded from land needs.
Source: Watson & Associates Economists Ltd.

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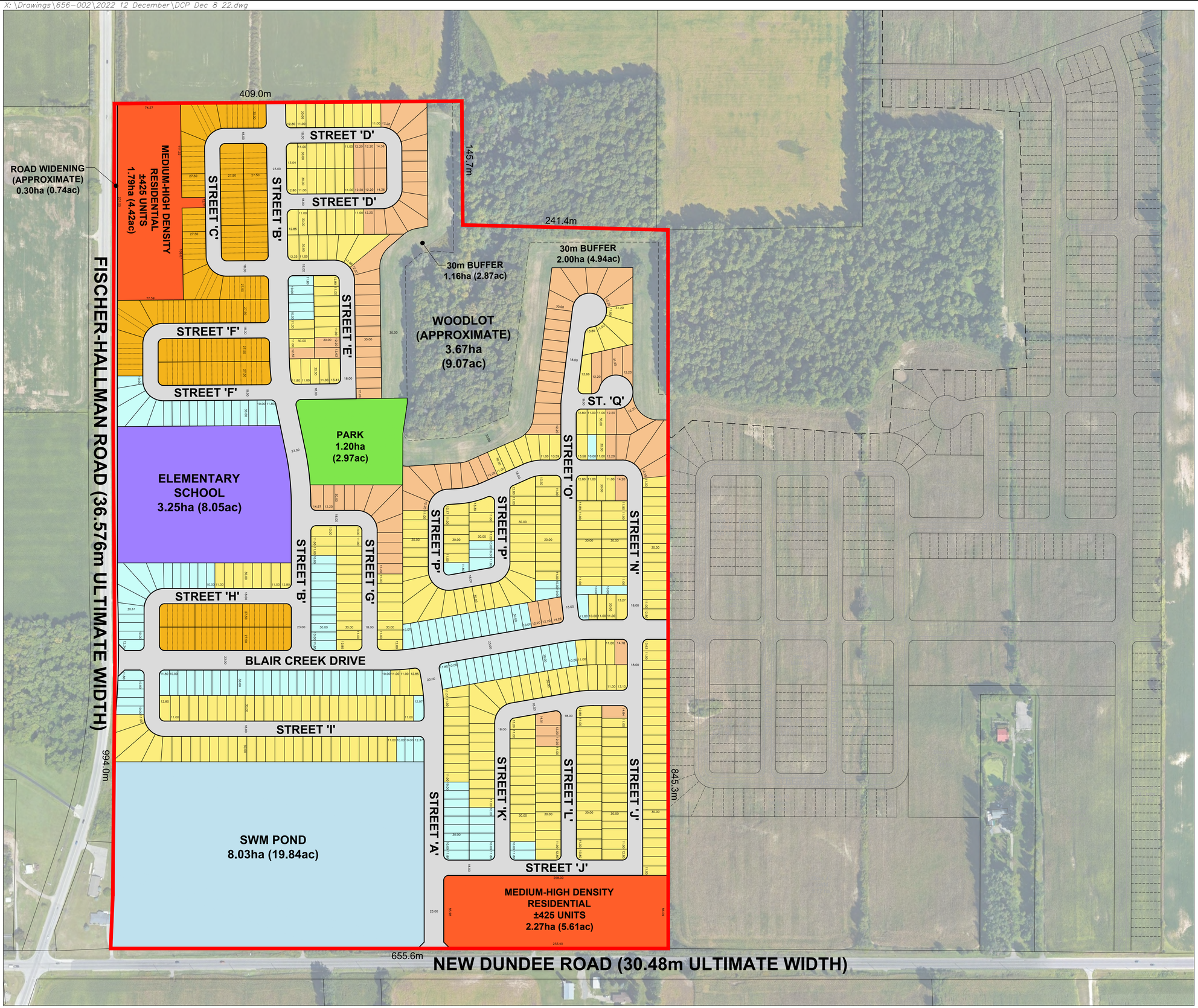
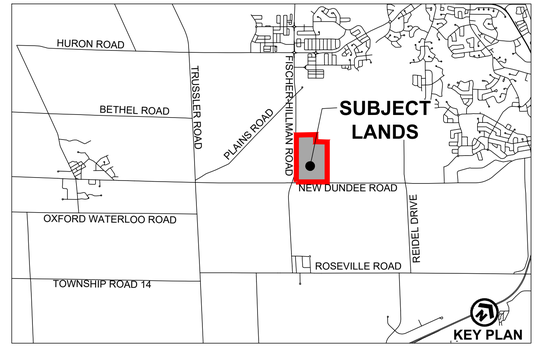
Glen Schnarr & Associates Inc.

Appendix III / Conceptual Development Plan, December 2022

X:\Drawings\656-002\2022 12 December\DCP Dec 8 22.dwg





DEVELOPMENT CONCEPT PLAN
2118 NEW DUNDEE ROAD

PART OF LOT 7, BEASLEY'S NEW SURVEY TWP
TOWN OF NEW DUNDEE
REGIONAL MUNICIPALITY OF WATERLOO

DEVELOPMENT STATISTICS

TOTAL AREA:	**61.32ha (151.52ac)**
TOTAL RESIDENTIAL AREA:	**30.35ha (75.00ac)**
TOTAL UNITS:	**±1,653 UNITS**
TOTAL DENSITY:	**54.5 upha**

UNIT BREAKDOWN

MED.-HIGH DENSITY RES.:	**±850 UNITS (51.4%)**
6.15m (20') STREET TH:	**196 UNITS (11.9%)**
10.00m (33') DETACHED:	**143 UNITS (8.7%)**
11.00m (36') DETACHED:	**370 UNITS (22.3%)**
12.20m (40') DETACHED:	**94 UNITS (5.7%)**
TOTAL:	**±1,653 UNITS (100%)**

SCALE 1:2000
(24 x 36)
DECEMBER 8, 2022

GSAI