TO:	**CHAIR AND MEMBERS STRATEGIC PRIORITIES AND POLICY COMMITTEE MEETING OF FEBRUARY 12, 2018**
FROM:	**GEORGE KOTSIFAS, P.ENG. MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE SERVICES & CHIEF BUILDING OFFICIAL**
SUBJECT:	**2019 DEVELOPMENT CHARGES (DC) STUDY - GROWTH PROJECTIONS**

RECOMMENDATION

That, on the recommendation of the Managing Director, Development and Compliance Services & Chief Building Official, the following actions **BE TAKEN** with respect to the 2019 Development Charges Study growth forecast:

(a) The following report on the Growth Projections Sensitivity Analysis **BE RECEIVED** for information;

(b) The attached updated final report prepared by Watson and Associates Economists entitled "City of London Population, Housing and Employment Growth Forecast Update, 2016 to 2044" (Appendix "B") **BE RECEIVED** for information; and

(c) The housing and non-residential reference growth scenarios outlined in the updated final report prepared by Watson and Associates Economists entitled "City of London Population, Housing and Employment Growth Forecast Update, 2016 to 2044" **BE ENDORSED** for use in the 2019 Development Charges Study.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

December 11, 2017 "2019 Development Charges Study – Growth Projections", Strategic Priorities and Policy Committee

August 29. 2016 "2019 Development Charge Study - Policy Review Scoping Report", Strategic Priorities and Policy Committee

BACKGROUND

On December 11, 2017, the Strategic Priorities and Policy Committee (SPCC) received a staff report and growth forecasts prepared by Watson and Associates. Staff recommended Council endorse the reference housing and non-residential growth scenarios outlined in the report for use in the 2019 Development Charges Study.

Committee referred the report back to Staff to undertake a sensitivity analysis showing the financial impact of alternate housing scenarios on DC revenues. Concerns were raised regarding the financial implications of a future housing mix that may differ from the recommended reference housing growth scenario; particularly over the first DC period (2019-2024), given the trends that were experienced during the 2011-2016 period.

Since the SPPC meeting, 2016 census employment figures have become available. The Watson report has been updated to reflect this information as discussed in this report.

SENSITIVITY ANALYSIS

In order to undertake the sensitivity analysis, certain assumptions have been made. To calculate housing type demand, total housing units as identified by Watson for the 2019-2024 period have been proportioned for low, medium and high density units to create three scenarios as follows:

Scenario A: 2019 Forecast – this scenario applies the low (48%), medium (23%) and high (30%) density housing mix as identified in the 2019 forecast for the 2019-2024 period.

Scenario B: 2014 Forecast – this scenario applies the low (53%), medium (17%) and high (30%) density housing mix for the 2019-2024 period as identified in the 2014 forecast that was used in the 2014 Development Charges study.

Scenario C: 2011-2016 Actuals – this scenario applies the low (35%), medium (20%) and high (45%) density housing mix as experienced as an average over the 2011-2016 period.

To calculate expected revenue for each scenario, the 2014 Development Charge rates (indexed to 2018) have been used as new rate calculations cannot be developed until projections are adopted and a corresponding infrastructure plan prepared.

Results

To determine the estimated financial impact for each scenario, the alternative housing mixes have been multiplied by the 2018 Development Charge rates for each unit type. Figure 1 shows the results for each scenario over the 2019-2024 DC period:

FIGURE 1: ILLUSTRATIVE 2019-2024 REVENUES BY SCENARIO

	Annual Single/Semi		Annual Rowhouses		Annual Apartments		Illustrative 5-Year Period Revenues*
	%	*#*	*%*	*#*	*%*	*#*	*2019-2024*
Scenario A	**47%**	1088	**23%**	517	**30%**	684	**$283,212,180**
Scenario B	**54%**	1217	**16%**	376	**30%**	696	**$287,765,001**
Scenario C	**35%**	802	**20%**	458	**45%**	1031	**$262,537,892**

* Revenues based on 2018 DC Rates: $30,435 for single/semi; $22,829 for row; $14,162 for apt. < 2 bdrms; $19,110 for apt. >= 2 bdrms.

Based on the assumptions, the 2019 forecast (Scenario 'A') would result in $283,212,180 in revenues between 2019 and 2024. Alternatively, the 2014 forecast scenario would result in an additional $4,552,821 over the 5-year period, and the 2011-2016 scenario would result in $20,674,288 less revenue over the 5-year period given the higher proportion of high density units.

Growth and Revenue Monitoring Between Studies

Development Charge (DC) growth forecasts and rate setting occur on a five year cycle, as provided for in the *Development Charges Act*. All growth forecasts represent an informed estimation based on research, acquired technical knowledge and established projections methods. While every effort is made to develop accurate projections, they cannot be considered precise predictions of the future. Inevitably there will be variations between forecasted growth and revenues and actual growth and revenues that will be experienced in the future.

Between DC studies, the City has adopted several tools to respond on an annual basis to positive or negative changes in market conditions and the financial status of DC reserve funds. In particular:

- **DC Rate Monitoring** – involves an annual analysis of actual and projected costs and growth assumptions as compared to estimates used in setting DC rates. DC rate monitoring provides evidence about how suitable the current DC rates are in recovering the actual costs of growth being experienced.

- **Growth Management Implementation Strategy (GMIS)** – used to coordinate growth infrastructure with the pace of growth across the City in a financially practical manner. The GMIS is reviewed and updated annually to allow for adjustments to the schedule of works between DC background studies so that it continues to align growth needs with DC revenues.

Together these tools are designed to provide Council with the ability to annually review and respond to variations in growth and revenue. For example, the 2016 GMIS process resulted in the deferral of several projects in response to actual growth and revenues below what was forecasted in the 2014 Development Charges Study. These adjustments effectively realigned DC timing and expenditures to correspond with growth and revenues being experienced at that time.

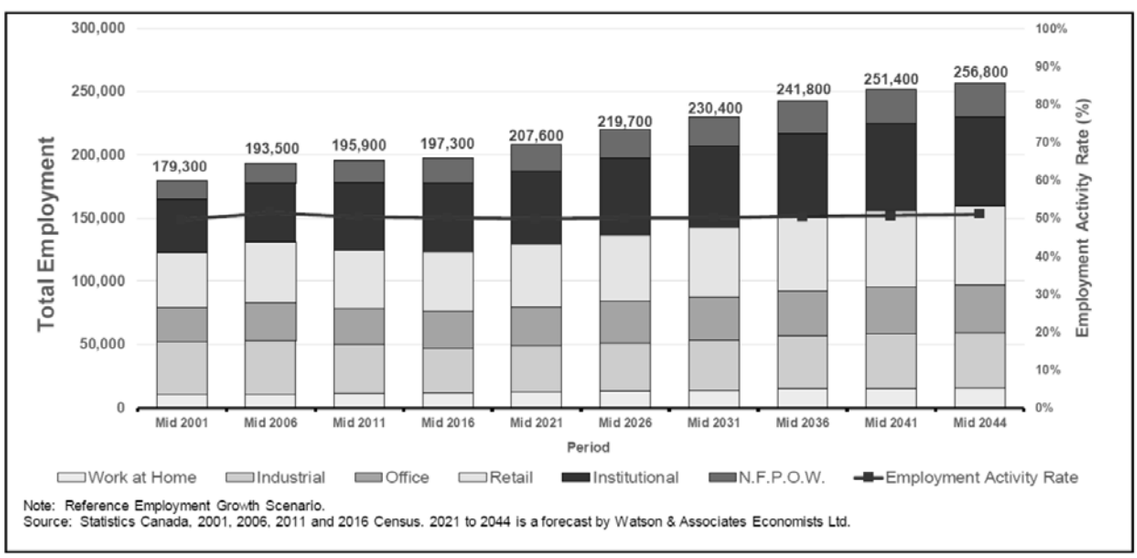
CHANGES SINCE THE NOVEMBER 2017 WATSON REPORT

While 2016 census population and dwelling type baseline data were released in May 2017 and were incorporated into the November 2017 Watson Report previously before Committee, employment data had not yet been released and was unavailable at the time the report was prepared. As such, Watson included a 2016 estimate for employment in lieu of the census data consistent with the approach of previous growth forecasts.

Since the December 11, 2017 SPPC meeting, Statistics Canada has released the 2016 census employment data for the City. With the Statistics Canada data release, Watson has been able to update the final report by adjusting their employment estimate of 213,300 to reflect the actual 2016 employment of 197,300. This adjustment is mainly due to 2011-2016 institutional and industrial actual employment growth being lower than was anticipated. The updated final report is attached as Appendix 'B'.

Over the planning horizon, Watson has maintained their employment growth and industrial, commercial and institutional floor space requirement increments as forecasted in their November 2017 report. While the 2016 baseline may be lower than estimated, London's long-term economic and employment growth potential remain unchanged. The revised forecasted employment by major sector and employment activity rates by 5-year period are shown on Figure 1:

FIGURE 1: EMPLOYMENT FORECAST BY MAJOR SECTOR (2016-2044) AND EMPLOYMENT ACTIVITY RATE



No amendments have been made to the Watson projections for population and housing by dwelling type as the 2016 Statistics Canada population and dwelling census data was used in the November 2017 Watson report. The 2016 Census employment figures do not impact these projections.

CONCLUSION

The sensitivity analysis is intended to provide Council with illustration regarding the financial implications of a future housing mix that may differ from the recommended Watson reference housing growth scenario, particularly over the first DC period (2019-2024). It is noted that whatever future scenario may emerge, City Council has a set of tools through the annual GMIS process that are designed to ensure infrastructure timing and expenditures are constantly being reviewed and realigned with growth and revenues.

The Watson & Associates employment, population, housing and non-residential space projections provide an important basis for the 2019 Development Charge Background Study. The projections have used a methodology that is consistent with provincial guidelines and similar studies prepared for other municipalities across Ontario.

For the purposes of determining the anticipated amount and type of development as required by

the *Development Charges Act*, it is recommended that the housing and non-residential reference growth scenarios identified in the Watson report be used in the City's 2019 Development Charges Study.

PREPARED BY:	**SUBMITTED BY:**
KEVIN EDWARDS, MCIP, RPP **MANAGER, DEVELOPMENT FINANCE** **DEVELOPMENT & COMPLIANCE SERVICES**	**PAUL YEOMAN, RPP, PLE** **DIRECTOR, DEVELOPMENT SERVICES**

RECOMMENDED BY:
GEORGE KOTSIFAS, P. ENG **MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE SERVICES AND CHIEF BUILDING OFFICIAL**

February 5, 2018

cc. John Fleming, Managing Director, Planning and City Planner
Anna Lisa Barbon, Managing Director, Corporate Services and City Treasurer
Kelly Scherr, Managing Director, Environmental & Engineering Services and City Engineer
Edward Soldo, Director - Roads and Transportation
Scott Mathers, Director - Water and Wastewater
Gregg Barrett, Manager, Long Range Planning and Research
Donna Baxter, Manager, Policy and Planning Support, Neighbourhood Services

Appendix 'A':'2019 Development Charges (DC) Study – Growth Projections' Staff Report to Special Priorities and Policy Committee, December 11, 2017
Appendix 'B':'City of London Population, Housing and Employment Growth Forecast, 2016 to 2044 Final Report' prepared by Watson and Associates

APPENDIX ‘A’

‘2019 Development Charges (DC) Study – Growth Projections’ Staff Report to Special Priorities and Policy Committee, December 11, 2017

TO:	**CHAIR AND MEMBERS STRATEGIC PRIORITIES AND POLICY COMMITTEE MEETING OF DECEMBER 11, 2017**
FROM:	**GEORGE KOTSIFAS, P.ENG. MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE SERVICES & CHIEF BUILDING OFFICIAL**
SUBJECT:	**2019 DEVELOPMENT CHARGES (DC) STUDY - GROWTH PROJECTIONS**

RECOMMENDATION

That, on the recommendation of the Managing Director, Development and Compliance Services & Chief Building Official, the following actions **BE TAKEN** with respect to the Development Charges study growth forecast:

(a) The attached final report prepared by Watson and Associates Economists entitled “City of London Population, Housing and Employment Growth Forecast, 2016 to 2044” (Appendix “A”) **BE RECEIVED** for information; and

(b) The housing and non-residential reference growth scenarios outlined in the Watson report **BE ENDORSED** for use in the 2019 Development Charges Study.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

August 29. 2016 “2019 Development Charge Study - Policy Review Scoping Report”, Strategic Priorities and Policy Committee

BACKGROUND

The Development Charges legislation in Ontario requires that municipal Development Charge By-laws be reviewed at least every five (5) years. The current City By-law will expire on August 4, 2019. The compilation of a detailed background study reviewing forecasted growth and infrastructure requirements to service anticipated new residential and non-residential development needs to occur prior to completion of a new DC by-law coming into force.

Section 5(1) of the Development Charges Act identifies the methodology that must be used when preparing a Development Charges By-law. The first step requires that the “anticipated amount, type and location of development, for which development charges can be imposed, must be estimated.”

To satisfy this requirement, in November 2016 Development Finance retained Watson & Associates Economists through a Request for Proposals process to prepare growth forecasts for population, employment, housing and non-residential construction (industrial, commercial and institutional) to the year 2044. The growth forecasts provide an important foundation for the 2019 Development Charges Study and associated engineering master servicing plans to determine infrastructure requirements.

OVERVIEW OF GROWTH FORECASTS

Growth forecasts represent an informed estimation of future conditions. Forecasted results are based on past and present economic, demographic and construction trends. Assumptions are made about changes that are likely to take place over time to produce future estimates. These assumptions are based on research, acquired technical knowledge, and established projections methods. While every effort is made to develop accurate projections, they cannot be considered precise predictions of the future. A full description of methods, data and results is provided in the attached draft report. The following represents highlights of the report and its findings.

Methods Used to Prepare Growth Forecasts

Watson uses a combined forecasting approach to derive growth projections, which incorporates both the traditional "top-down" cohort-survival forecast methodology and a "bottom-up" household formation methodology. The methods used for these models are well accepted in the industry and have been used by Watson & Associates to model growth in many other cities across Canada.

In general, the forecast begins with an examination of the London economy within the context of the international, national, provincial, regional and local economy. Prospects for growth are considered by economic sector and an employment forecast is prepared. The employment forecast largely determines the population projections since employment is the key motivation for migration, which drives population growth.

Forecasts for future population are based on a cohort survival model (births minus deaths plus net migration by sex for five year age groups) that is consistent with the population projection methodology guidelines established by the Ministry of Municipal Affairs. Population forecasts are converted through Watson's housing demand model to project anticipated household growth for the City. Potential household growth is a function of the projected population by age using headship rates (number of people in each age group who are projected to head up a household). Watson also considered demand by structure type using historical housing activity and the relationship between family type, dwelling type and housing preferences as the population ages.

With respect to non-residential growth, the employment forecast also informs the anticipated future industrial, commercial and institutional floor space demand by the use of floor space to employment ratios.

Results

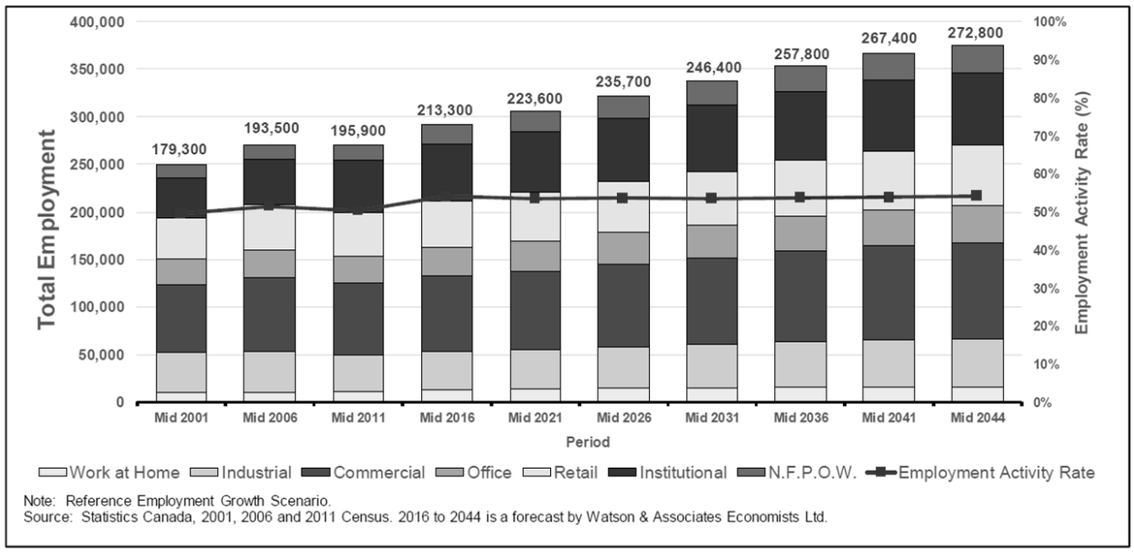
The projections report contains results for employment growth, population growth, residential growth by dwelling type, industrial, commercial and institutional floor space requirements, as well as high growth and low growth scenarios for the projection period of 2016 to 2044.

<u>Employment Projections</u>

Labour force growth is a key driver for increases in population as new job opportunities (both locally and within the City's commuter shed) support growth in migration to the City. Based on labour force trends and future local employment growth prospects, Watson recommends using the baseline or 'Reference' employment growth scenario which forecasts an average increase of approximately 2,100 jobs annually within the City. A summary of key findings include:

- Employment growth is expected across a wide range of sectors driven by continued diversity of the regional and local economic base and steady local population growth.
- It is forecasted that the employment base will increase by 33,100 by 2031 or an annual growth rate of 1.0%. During the latter portion of the period, the annual employment growth rate is forecast to slow, largely as a result of the aging population and labour force base.
- Over the period, the City's employment activity rate (ratio of jobs to population) is forecast to remain relatively stable at 56%.
- Forecasted employment by major sector and employment activity rates by 5-year period are shown on Figure 1.

FIGURE 1: EMPLOYMENT FORECAST BY MAJOR SECTOR (2016-2044) AND EMPLOYMENT ACTIVITY RATE

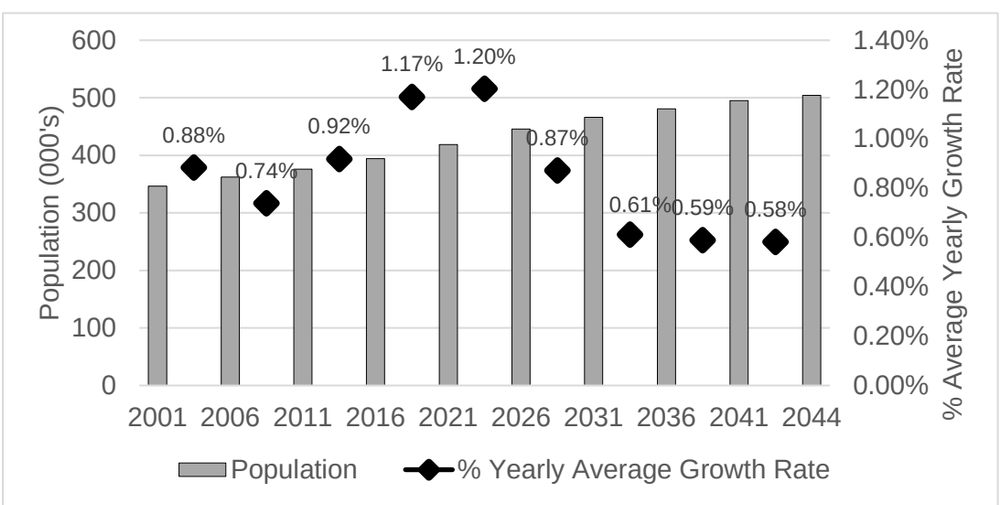


Population Growth

Watson also recommends using the Reference population growth scenario which forecasts London's population to continue to grow throughout the forecast period at an annual average rate of 0.9% to 2044. Figure 2 provides total anticipated population in 5 year increments as well as the projected yearly growth rate for each 5 year period. The following is of note:

- Population growth associated with natural increase (births less deaths) is forecast to steadily decline due to the continued aging of the City's population.
- Net migration represents the primary driver of long-term population growth. This will be largely driven by economic growth prospects in the regional economy together with the City's attractiveness as a place to live and work.
- The City is anticipated to experience relatively strong net migration across all major age groups, particularly between 2016 and 2031 that result in a higher annual population growth rate during this period. An average of approximately 3,500 net migrants are expected annually to 2041.
- The City's annual population growth rate between 2016 and 2031 is forecast to average 1.1% annually, declining to 0.6% during the 2031 to 2044 period as the population and labour force base ages.

FIGURE 2: POPULATION FORECAST (2016-2044) AND ANNUAL GROWTH RATE



Residential Construction

Within the forecast period of 2016 to 2044, construction of London's new housing stock is anticipated to diversify by structure type. Figure 3 shows the forecasted amount and type of residential growth by 5-year period. In summary:

- Watson anticipates that there will be a need for 59,600 new residential units to 2044, an average of over 2,100 annually.
- An increased demand for housing units is forecasted from 2016-2026 in response to higher average growth rates during this period. This is primarily due to forecasted strong net migration and increases in the labour force base.
- Over the projection period, an increase in demand toward medium density (townhouse) and high density (apartment) housing is forecasted. Housing demand is forecast to be comprised of 44% low-density housing, 23% medium-density housing and 33% high-density housing between 2016 and 2044.

FIGURE 3: ANNUAL RESIDENTIAL GROWTH FORECAST SUMMARY (2016-2044)

Annual Household Growth, City of London, 1996 - 2044

Census Periods		Singles and Semis	Row	Apartments and Other	Total
		Occupied Dwellings Units			
1996-2001	a	1,083	34	501	1,618
2001-2006	a	625	636	293	1,554
2006-2011	a	1,181	46	408	1,635
2011-2016	a	662	378	861	1,901
2016-2021	e	1,128	516	704	2,348
2021-2026	f	1,062	518	670	2,250
2026-2031	f	894	466	670	2,030
2031-2036	f	892	500	686	2,078
2036-2041	f	772	474	732	1,978
2041-2044	f	693	490	857	2,040
2016-2044					
Avg. Annual		922	494	710	2,126
Total		25,819	13,840	19,881	59,540
		Percent Distribution			
Census Periods					
1996-2001	a	67%	2%	31%	100%
2001-2006	a	40%	41%	19%	100%
2006-2011	a	72%	3%	25%	100%
2011-2016	a	35%	20%	45%	100%
2016-2021	e	48%	22%	30%	100%
2021-2026	f	47%	23%	30%	100%
2026-2031	f	44%	23%	33%	100%
2031-2036	f	43%	24%	33%	100%
2036-2041	f	39%	24%	37%	100%
2041-2044	f	34%	24%	42%	100%
2016-2044		43%	23%	33%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
e: Estimates based on actual building permit data from City of London
f: Forecasts by Watson & Associates Economists Ltd.

Source: Watson & Associates Economists Ltd based on data from Statistics Canada Census and from City of London building permit data

Industrial, Commercial and Institutional Floor Space Requirements

Non-residential construction for the projection period is based upon industrial, office, commercial and institutional space demand derived from projected employment for each land use category.

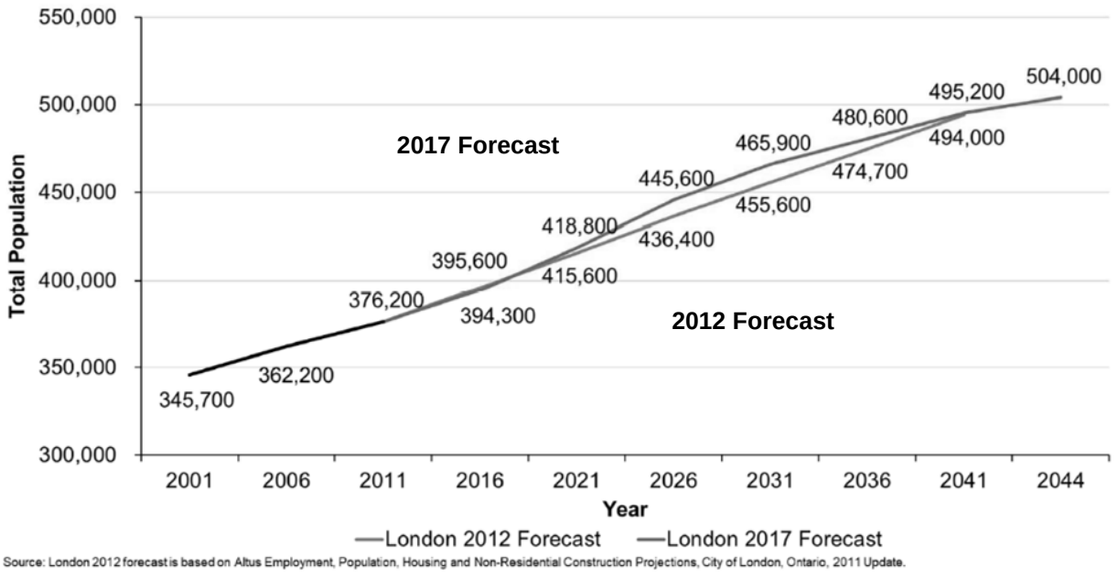
- Industrial: Watson anticipates continued demand for new industrial space over the forecast period, with an additional 8,692,000 square feet in total required by 2044. This equates to an average of 308,600 square feet per year.
- Commercial/Office: This sector is largely driven by local and regional population growth. Employment growth is forecast to increase by approximately 23,200 jobs over the 2016 to 2044 period, accounting for 39% of total employment growth. This would result in an additional 8,077,000 square feet in total required by 2044, which equates to an average of 358,400 square feet per year.

- Institutional: The City's institutional employment base is anticipated to steadily increase, largely driven by the need for increased health services, education and other institutional facilities associated with steady population growth. An average of 393,800 square feet of space is anticipated annually.

Comparison with 2014 Development Charge Forecast

The following chart shows the forecast population relative to the previous London 2012 forecast. As shown on the chart below, the 2017 Watson forecast anticipates a slightly higher population for the City between 2021 and 2041. This increase is attributed to an improved mid-term economic outlook when compared to when the last projections were completed in 2012.

FIGURE 4: 2012 vs. 2017 POPULATION FORECAST (2016-2044)



Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update.

Stakeholder Consultation

On July 25 2017, Watson presented a draft growth forecast report to the Development Charges External Stakeholder Committee as represented by the Urban League, London Development Institute and the London Home Builder's Association. The draft report was distributed and comments and a peer review were subsequently received from the stakeholders. In summary, the stakeholder comments requested further review of the following elements:

- modelling at the Middlesex County census area level;
- natural change analysis (anticipated births and deaths);
- anticipated headship rates and the propensity model that was used;
- the magnitude of the anticipated long-term housing forecast shift from low- to medium- and high density units; and
- anticipated employment, particularly in the later part of the forecast horizon.

The stakeholder comments and responses from Watson are included in Appendix B and C.

Following this dialogue, Watson prepared revised growth forecasts that were presented to the external stakeholders again on October 10 2017. Relative to the draft July 2017 report, the revised forecast reflects the following changes:

- a slightly higher long-term population and housing forecast reflective of higher population at the Middlesex County level (including the City of London) and stronger labour force growth relative to historical trends;
- a minor increase in the share of population derived from natural increase (births less deaths);
- an increased share of forecasted housing growth derived from low-density households; and
- higher forecasted labour force and employment growth as well as associated gross floor area.

The final report has been distributed to the stakeholders. No further comments have been received at the time of the preparation of this report.

In addition, the growth forecasts have been discussed with an Internal Steering Committee comprised of the City Treasurer, City Planner, Manager-Long Range Planning and Research, City Engineer, Director of Transportation, Director of Water and Wastewater, and Managing Director, Development and Compliance Services and Chief Building Official.

CONCLUSION

The Watson & Associates employment, population, housing and non-residential space projections provide important basis for the 2019 Development Charges Background Study. The projections have used a methodology that is consistent with provincial guidelines and similar studies prepared for other municipalities across Ontario.

For the purposes of determining the anticipated amount and type of development as required by the Development Charges Act, it is recommended that the housing and non-residential reference growth scenarios identified in the Watson report be used in the City's 2019 Development Charges Study.

PREPARED BY:	**REVIEWED BY:**
KEVIN EDWARDS, MCIP, RPP **MANAGER, DEVELOPMENT FINANCE** **DEVELOPMENT & COMPLIANCE SERVICES**	**PAUL YEOMAN, RPP, PLE** **DIRECTOR, DEVELOPMENT SERVICES**
REVIEWED BY:	**RECOMMENDED BY:**
GREGG BARRETT, AICP **MANAGER, LONG RANGE PLANNING AND RESEARCH**	**GEORGE KOTSIFAS, P. ENG** **MANAGING DIRECTOR, DEVELOPMENT & COMPLIANCE SERVICES AND CHIEF BUILDING OFFICIAL**

February 5, 2018

cc. John Fleming, Managing Director, Planning and City Planner
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Edward Soldo, Director - Roads and Transportation
Scott Mathers, Director - Water and Wastewater
Gregg Barrett, Manager, Long Range Planning and Research
Donna Baxter, Manager, Policy and Planning Support, Neighbourhood Services

Appendix 'A': 'City of London Population, Housing and Employment Growth Forecast, 2016 to 2044 Final Report' prepared by Watson and Associates
Appendix 'B': Memo from Watson "re: Altus Peer Review Comments on City of London Growth Projections", October 5 2017
Appendix 'C': Memo from Watson "re: Comments from Sandy Levin of the Urban League of London"

APPENDIX ‘B’

‘City of London Population, Housing and Employment Growth Forecast, 2016 to 2044 Final Report’ prepared by Watson and Associates

City of London Population, Housing and Employment Growth Forecast, 2016 to 2044

Final Report

February 1, 2018

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Planning for growth

Contents

Executive Summary

The City of London retained Watson & Associates Economists Ltd. (Watson) to undertake a Growth Projections Study as background to the City's upcoming 2019 Development Charges (D.C.) Background Study. The purpose of this study is to provide an updated population, housing, and employment growth forecast to the year 2044 for the City based on a detailed assessment of provincial, regional and local economic trends influencing long-term local growth potential and development patterns. The long-term growth forecasts provided herein represent an update of the City's 2012 growth projections completed by Altus Group.[1] The City has identified the following key issues to be addressed as part of this study:

- What is the City's long-term labour force and employment growth potential in five-year increments for the period 2016 to 2044? What are the employment trends by sector for the London Census Metropolitan Area (CMA) and the City of London? Where are these residents travelling to/from for work?
- What is the City's long-term population growth potential in five-year increments to 2044? How is the City's population age structure forecast anticipated to change over the long-term projection period? What is the projected natural increase and what are the overall net migration trends for the City of London?
- Based on a range of long-term population growth forecast scenarios (i.e. low, reference and high growth scenarios), what level of future housing growth is the City of London likely to achieve? What are the anticipated trends in forecast household formation?
- What are the main demographic, economic and socio-economic forces driving the amount, type, timing and location of future housing development and non-residential space needs by major sector?

As part of the study process, detailed discussions were held with the Development Charges External Stakeholder Committee, during the summer of 2017, with respect to the draft report findings. This was followed up with a presentation of the final results of the study to the Stakeholder Committee in the fall of 2017 in response to comments and correspondences received by this group on the draft projections.

The results of this analysis are intended to guide decision making and policy development specifically related to planning and growth management, municipal finance

[1] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Altus Group Economic Consulting. 2012

and infrastructure planning carried out for the City of London. More specifically, this growth projections study will be used as a background to the City's 2019 Development Charges (D.C.) Background Study. The following provides a summary of the key findings of this report with respect to long-term forecast population, housing and employment trends for the City of London.

Approach and Methodology

The population, household and employment forecast methodology adopted for this study is based on a combined approach, which incorporates both the traditional "top-down" cohort-survival forecast methodology (i.e. population by age-cohort) and a "bottom-up" household formation methodology. This combined approach is adopted to ensure that both regional economic/demographic trends and local housing market conditions are adequately assessed in determining the City's long-term residential and non-residential growth potential.

Macro-Economic Trends

The 2008/2009 global economic downturn hit Ontario relatively hard, with significant declines in manufacturing output particularly in the auto sector and in construction. While the Ontario economy has experienced a rebound in economic activity since 2009, this recovery has been relatively slow to materialize. That said, provincial Gross Domestic Product (G.D.P.) levels have sharply rebounded since 2014 and are forecast to remain above the national average in 2018/2019. Stronger provincial economic growth is attributed, in part, to steady improvement in the economic outlook for the United States (U.S.) and an improving export market due, in part, to a lower-valued Canadian dollar.[1]

Situated between Toronto and Detroit, the City of London serves as a regional economic hub across a broad range of goods-producing and services-producing sectors. The City of London has a strong concentration of employment sectors in manufacturing, health care and social services, education, and finance and insurance. Combined, these sectors create a strong and diverse employment base for the City.

The Province of Ontario, the London CMA and the City of London economies have experienced significant structural changes over the past 15 years. Over this time period, the economic base at both the provincial and regional levels has shifted from the goods-producing sector (i.e. manufacturing) to the services-producing sector.

[1] Valued at approximately $0.81 U.S. as of January, 2018.

Within the London CMA and the City of London, the industrial sector was hit particularly hard over the past 15 years; however, in recent years this sector has started to show signs of stabilization and recovery. Continued local industrial employment opportunities are anticipated in advanced manufacturing, and the transportation and warehousing sector, driven by the City's competitive development environment as well as rail and highway connections between southern Ontario and the U.S. border.

Similar to the provincial economy, regional and local employment growth prospects within the City of London are anticipated to be strongest in the knowledge-based industry. A few emerging sectors within the City's knowledge-based or "creative-class" economy have shown strong employment growth over the past decade and are anticipated to experience steady growth over the long term. This includes sectors such as professional, scientific and technical services, health care and social assistance, education, information, cultural and recreation, finance, insurance, real estate and leasing, and public administration. These sectors are also anticipated to generate continued spin-off effects on the City's growing industrial and commercial business base.

Recent Demographic and Housing Market Trends within the City of London

Over the past 25 years, the City of London has experienced moderate to steady population growth across all major demographic groups (i.e. children, adults and seniors), largely driven by steady net migration across all ages as well as steady population growth from natural increase (i.e. births less deaths). Over the past several decades, residential development activity within the City of London has been strongly weighted towards ground-oriented housing forms, concentrated within the City's greenfield areas; however, the City has experienced a gradual increase in the share of medium- and high-density development over the past decade.

The City's population is getting older on average due to the aging of the Baby Boomers. The first wave of this demographic group turned 70 years of age in 2016. Between 2016 and 2041, the population that is 65 years of age and older will increase from 16% to 23% within the City of London. This represents an increase of just over 48,000 people over this time period.

Not only is the Baby Boom age group large in population, but it is also diverse with respect to age, income, health, mobility, and lifestyle/life stage. Accommodating older seniors is a key planning issue across Ontario municipalities including the City of London, as a growing percentage of the population will reach 75 years of age and older over the next 15 years. The continued aging of the City's population is anticipated to

drive the need for seniors' housing and other housing forms geared to an aging population (i.e. assisted living, affordable housing, adult lifestyle housing) over the next several decades.

Future housing needs in the City of London will also be increasingly impacted by the "Millennial" generation. This cohort represents a large percentage share of the City of London population. Given the age and size of this cohort, Millennials play a key role regarding future housing demand as well by providing a growing labour force supply for the City in both traditional industries and emerging knowledge-based sectors.

As the City's designated urban lands continue to mature, a growing share of new residential development is expected to occur within the City's intensification nodes, corridors, and other redevelopment areas within existing built-up areas. This shift in development patterns, along with the demographic trends discussed above, are anticipated to result in a gradual increase in the share of high-density housing forms (i.e. low-, medium- and high-rise apartments) within the City over the medium and long term.

Residential and Non-Residential Land Supply

A major factor in the future competitiveness of London's economic base, which is largely controllable by the City, relates to the supply of its serviced and serviceable vacant residential and non-residential lands. The City of London has a significant supply of future housing within its vacant lands inventory totalling just over 67,000 potential housing units. This level of housing supply is more than sufficient to accommodate the City-wide housing forecast to the year 2044. London also contains a sufficient City-wide supply of housing units across a wide-range of housing types which are currently identified in active development plans. Further consideration, however, will need to be given to the location of the City's housing supply in accordance with anticipated short- to medium-term housing demand. This assessment will help inform and prioritize the phasing of the City's future greenfield planning areas.

The City of London also has an ample supply of designated vacant employment lands to accommodate industrial growth over the long term, estimated at just over 1,200 ha (2,965 acres). Notwithstanding the adequacy of the City's supply of vacant designated employment lands, London's inventory of "shovel-ready" employment lands[1] is limited to

[1] Shovel-ready employment lands are defined as employment lands that are designated, serviced and have the potential to be developed within a short timeframe (within 6 months).

approximately 146 ha (361 acres). To ensure that employment development on employment lands is not unduly constrained, the City should explore options which would encourage the servicing of additional privately owned industrial lands.

Population, Household and Employment Growth Scenarios

Future population, housing and employment growth within the City of London is dependent in large measure by the following:

- The success of the broader provincial economy in attracting new investment and retaining existing business;
- The growth and competitiveness of the regional export-based economy (i.e. London CMA) and surrounding primary and secondary commuter-shed;
- The ability of the City to position itself as a hub for innovation to capitalize on the human capital that currently exists within the region, while encouraging ongoing entrepreneurship, small business development and investment retention;
- The City's attractiveness to families, which are drawn to the City in search of competitively priced, ground-oriented housing within proximity to local and regional employment markets;
- The City's attractiveness to the 55+ age group as a retirement/future retirement destination; and
- The timing planned for major infrastructure improvement/expansions.

The above factors will each contribute to the level of potential growth in labour, employment, net migration, and new housing development expected across the City of London over the next several decades. The following provides a summary of the key findings of this report with respect to forecast population, housing, and employment trends for the City of London.

Building on the demographic and economic analysis provided throughout this report, a total of three long-term population, housing and employment growth scenarios have been prepared for the City of London: 1) Low Population Growth Scenario; 2) High Population Growth Scenario; and 3) Reference Population Growth Scenario. A range of long-term City-wide population, housing and employment growth has been generated from these respective scenarios, largely based on varying assumptions regarding future labour force growth potential, corresponding annual net migration and annual demand for new housing non-residential development. Figure 6-4 graphically summarizes the two alternative long-term population growth forecasts for the City of London as well as

the Reference Population Growth Scenario. Each of these three long-term growth scenarios is briefly described below and summarized in Figure ES-1.

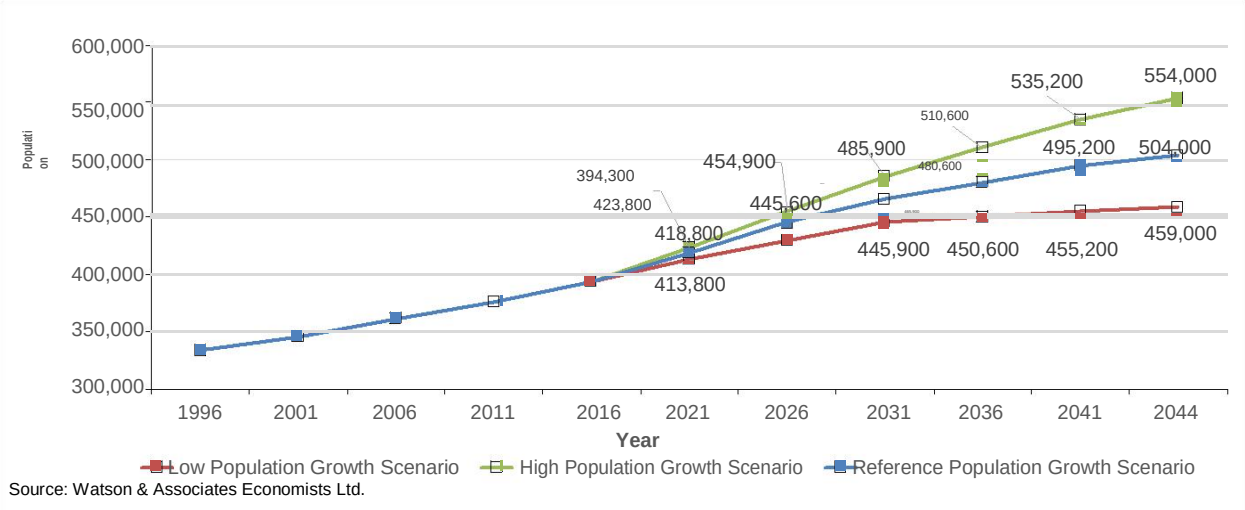
Low Population Growth Scenario: The Low Population Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year. This scenario assumes that net migration will not significantly rise relative to historical trends. As a result of declining natural increase, the City's population growth rate is forecast to steadily decline from 1.0% (2016 to 2021) to 0.5% (2016 to 2044) over the long-term planning horizon.

High Population Growth Scenario: Under the High Population Growth Scenario the City's population is forecast to grow at an average annual rate of 1.2% per year. This represents an average annual growth rate which is slightly higher than what the City has achieved in relatively high growth periods such as 2001 to 2006 and 2011 to 2016.

Reference Population Growth Scenario: Assumes that the City of London will achieve a 2044 population forecast of 504,000,[1] which represents an annual population growth rate of 0.9%. Comparatively, the population for the Province is forecast to increase at an annual rate of 1.0% between 2016 and 2041. In accordance with historical labour force and population growth trends within the London CMA, and the City of London, as well as a review of forecast economic growth and net migration potential for the City of London, the Reference Population Growth Scenario is recommended as the preferred long-term growth scenario.

[1] Population figures have been upwardly adjusted for the Census undercount by approximately 2.7%.

Figure ES-1
City of London
Population Growth Projection Scenarios, 2016 to 2044



Source: Watson & Associates Economists Ltd.

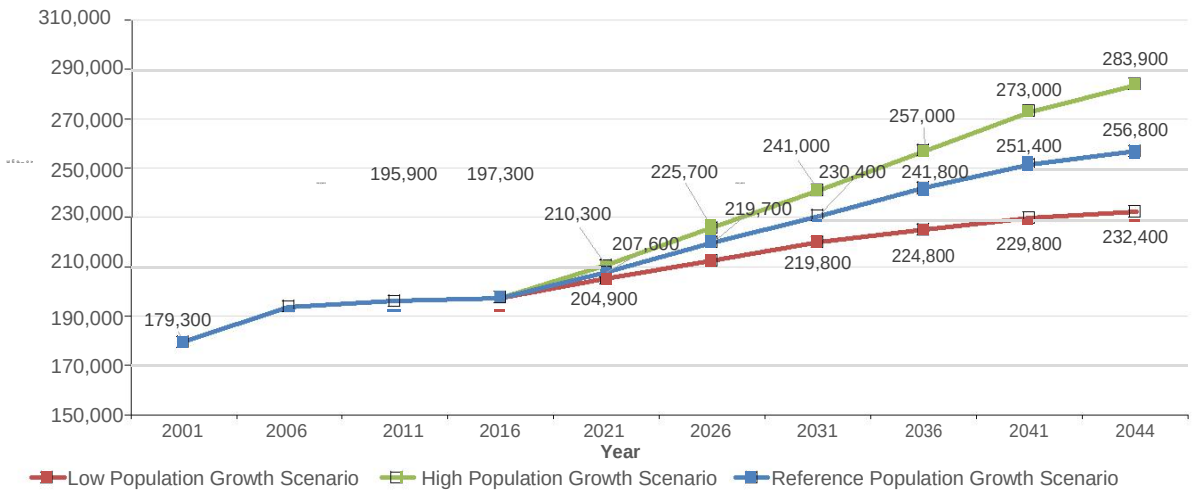
Similar to the residential growth forecast, three long-term employment growth scenarios have been developed for the City of London: 1) Low Employment Growth Scenario; 2) High Employment Growth Scenario; 3) Reference Employment Growth Scenario. Each of these three long-term growth scenarios is briefly described below and summarized in Figure ES-2.

Low Employment Growth Scenario: The Low Employment Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year and add approximately 1,250 jobs annually.

High Employment Growth Scenario: Under the High Employment Growth Scenario, the City's employment base is forecast to grow at an average annual rate of 1.1% per year or 3,090 jobs annually. This represents an average annual growth rate which is slightly lower than what the City has achieved over the past fifteen years (2001 to 2016).

Reference Employment Growth Scenario: The Reference Employment Scenario assumes that the City will grow at an average annual growth rate of 0.9% per year and add 2,130 jobs annually. This represents an average annual growth rate which is lower than what the City has achieved over the past fifteen years (2001 to 2016). Over the 2001 to 2016 period, the City grew at an annual employment growth rate of 0.6% and added 1,200 jobs annually. In accordance with forecast labour force trends by age and future employment growth prospects, by major sector, the Reference Employment Growth Scenario is recommended as the preferred long-term growth scenario.

Figure ES-2
City of London
Employment Growth Projection Scenarios, 2016 to 2044



Source: Watson & Associates Economists Ltd.

1. Introduction

1.1 Terms of Reference

The City of London retained Watson & Associates Economists Ltd. (Watson) to undertake a Growth Projections Study as background to the City's upcoming 2019 Development Charges (D.C.) Background Study. The purpose of this study is to provide an updated population, housing, employment growth and non-residential floor space forecast to the year 2044 for the City based on a detailed assessment of provincial, regional and local economic trends influencing long-term local growth potential and development patterns. The long-term growth forecasts provided herein represent an update of the City's 2012 growth projections completed by Altus Group.[1] The City has identified the following key issues to be addressed as part of this study:

1) What is the City's long-term labour force and employment growth potential in five-year increments for the period 2016 to 2044? What are the employment trends by sector for the London Census Metropolitan Area (CMA) and the City of London? Where are these residents travelling to/from for work?

2) What is the City's long-term population growth potential in five-year increments to 2044? How is the City's population age structure forecast anticipated to change over the long-term projection period? What is the projected natural increase and what are the overall net migration trends for the City of London?

3) Based on a range of long-term population growth forecast scenarios (i.e. low, reference and high growth scenarios), what level of future housing growth is the City of London likely to achieve? What are the anticipated trends in forecast household formation?

4) What are the main demographic, economic and socio-economic forces driving the amount, type, timing and location of future housing development and non-residential space needs by major sector?

As part of the study process, detailed discussions were held with the Development Charges External Stakeholder Committee, during the summer of 2017, with respect to the draft report findings. This was followed up with a presentation of the final results of

[1] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Altus Group Economic Consulting. 2012

the study to the Stakeholder Committee in the fall of 2017 in response to comments and correspondences received by this group on the draft projections.

1.2 Report Structure

To assist the City in assessing its long-term growth forecast, this report addresses the following major discussion topics:

- Review of macro-economic and demographic trends influencing residential and non-residential development patterns in the Province of Ontario, the London CMA and the City of London;
- Forecast population growth by age cohort, 2016 to 2044;
- Anticipated housing growth by structure type (low, medium and high density), 2016 to 2044;
- Forecast employment growth by major employment sector/category (primary, industrial, commercial, institutional, work at home and no fixed place of work); and
- Forecast non-residential space needs by industrial, commercial and institutional employment sector, 2016 to 2044.

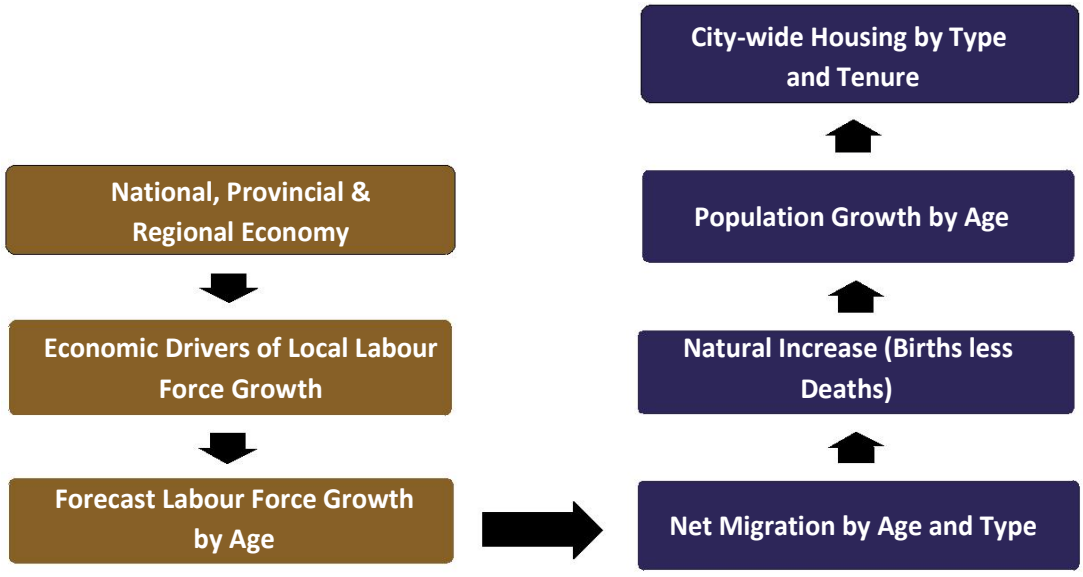
2. Approach and Methodology

The population, household and employment forecast methodology adopted for this study utilizes a combined forecasting approach, which incorporates both the traditional "top-down" cohort-survival forecast methodology (i.e. population by age-cohort) and a "bottom-up" household formation methodology. This combined approach is adopted to ensure that both regional economic/demographic trends and local housing market conditions are adequately assessed in developing the City's long-term growth potential.

2.1 Economic Base Model

Local/regional economic activities can be divided into two categories: those that are "export-based," and those that are "community-based." The export-based sector is comprised of industries (i.e. economic clusters) which produce goods that reach markets outside the community (e.g. agriculture and primary resources, manufacturing, research and development). Export-based industries also provide services to temporary and seasonal residents of the municipality (hotels, restaurants, tourism-related sectors, colleges and universities) or to businesses outside the municipality (specialized financial, professional, scientific and technical services). Community-based industries produce services that primarily meet the needs of the residents in the City (retail, medical, primary and secondary education, and personal and government services). Ultimately, future population and housing growth within the City of London has been determined in large measure by the competitiveness of the export-based economy within the City and the surrounding market area. In developing the long-term labour force and population forecast for the City of London, a review of key regional and local economic growth drivers was also considered. The approach is illustrated schematically in Figure 2-1.

Figure 2-1
Population and Household Project Model



2.2 Cohort-Survival Population and Household Forecast Methodology

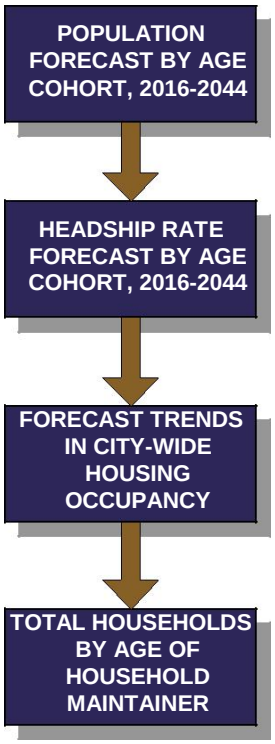
The cohort-survival population forecast methodology uses, as its base, population age groups by sex, and ages each group over time, taking into consideration age-specific death rates and age-specific fertility rates for the female population in the appropriate years (to generate new births). To this total, an estimated rate of net migration is added (in-migration to the municipality, less out-migration, by age group).

Forecast trends in population age structure provide important insights with respect to future housing needs based on forecast trends in average household occupancy. Total housing growth is generated from the population forecast by major age group using a headship rate forecast.

A headship rate is defined as the number of primary household maintainers or heads of households by major population age group (i.e. cohort). Average headship rates do not tend to vary significantly over time by major age group; however, the number of maintainers per household varies by population age group. For example, the ratio of household maintainers per total housing occupants is higher on average for households occupied by older cohorts (i.e. 55+ years of age) as opposed to households occupied by adults 29 to 54 years of age. This is important because, as the City's population ages,

the ratio of household maintainers is anticipated to increase. The average headship rate represents the inverse of the average number of persons per unit (P.P.U.). As such, as the City's population ages over time, the average P.P.U. is forecast to steadily decline as the ratio of household maintainers per total housing occupants increases. Figure 2-2 summarizes the cohort-survival forecast methodology, which is a provincially accepted approach to projecting population and corresponding total household formation.[1]

Figure 2-2
Cohort-Survival Population and Household Forecast Methodology



As a requirement of the development charge calculation, the population forecast has been allocated between existing and new households. This forecasting approach has been developed in accordance with the Provincial Projection Methodology Guidelines and industry best practices.[2] This approach focuses on the rate of historical housing construction in the City of London and surrounding area, adjusted to incorporate supply and demand factors by geographic area, such as servicing constraints, housing units in the development process, as well as historical housing demand. Population is then

[1] Projection Methodology Guideline. A Guide to Projecting Population, Housing Need, Employment and Related Land Requirements. 1995.
[2] Ibid.

forecast by developing assumptions on average household size by unit type, taking into consideration the higher average occupancy of new housing units and the decline in P.P.U. over time within existing households.

2.3 Forecast Households by Structure Type

Forecast households have been categorized by the following structure types:

- Low density (singles/semi-detached);
- Medium density (townhouses); and
- High density (apartments).

Forecast housing growth by structure type has been developed based on the following supply and demand factors:

Supply Factors

- Supply of potential future housing stock in the development process by housing type and approval status;
- Lag-time between housing starts and completions;
- Housing intensification opportunities;
- Current inventory of net vacant designated urban “greenfield” lands not currently in the development approvals process; and
- Provincial and local planning policy.

Demand Factors

- Historical housing activity based on building permit activity/housing completions;
- Propensity trends by structure type for the City of London;
- Commuting trends and access to surrounding employment markets;
- Market demand for housing intensification;
- Appeal to families, empty-nesters and seniors; and
- Major infrastructure improvements and expansions.

2.4 Employment Forecast

The long-term employment growth potential for the City of London has been developed from the labour force growth forecast discussed in section 2.1, which considers both the rate and age structure of forecast labour force growth over the 2016 to 2044 planning horizon. A long-term employment growth forecast by major employment sector/

category (i.e. primary, industrial, commercial, institutional, work at home and no fixed place of work (N.F.P.O.W.)) was then established using the employment "activity rate" method.[1]

When forecasting long-term employment, it is important to understand how growth in the City's major employment categories (i.e. industrial, commercial and institutional) is impacted by forecast labour force and population growth. Population-related employment (i.e. retail, schools, service and commercial) is generally automatically attracted to locations convenient to residents. Typically, as the population grows, the demand for population-related employment also increases to service the needs of the local community. Forecast commercial and institutional activity rates have been based on historical activity rates and employment trends, as well as future commercial and institutional employment prospects within a local and regional context. Similar to population-related employment, home-based employment is also anticipated to generally increase in proportion to population growth.[2]

Industrial and office commercial employment (export-based employment), on the other hand, is not closely linked to population growth and tends to be more influenced by broader market conditions (i.e. economic competitiveness, transportation access, access to labour, and distance to employment markets), as well as local site characteristics, such as servicing capacity, highway access and exposure, site size/ configuration, physical conditions and site location within existing and future employment areas throughout the City and the surrounding market area. As such, industrial employment (employment lands employment) is not anticipated to increase in direct proportion to population growth and has been based on a review of the following:

- Macro-economic trends influencing employment lands development (i.e. industrial and office employment) within the City of London and the surrounding market area);
- Historical employment trends (i.e. review of established and emerging employment clusters), non-residential construction activity and recent employment land absorption rates;
- Availability of serviced employment land supply (i.e. shovel-ready employment land) and future planned greenfield development opportunities on vacant

[1] An employment activity rate is defined as the number of jobs in a municipality divided by the number of residents.

[2] Due to further advancements in telecommunications technology, it is anticipated that home-based employment activity rates may increase over the forecast period for the City.

designated employment lands within the City of London and the surrounding market area;

- Recent land sales of municipally-owned vs. privately-owned industrial lands within the City of London and the surrounding market area; and
- Recent trends in industrial land prices and overall cost competitiveness on employment lands.

3. Overview of Macro-Economic Outlook and Regional Employment Trends

The following chapter provides a summary of the macro-economic trends influencing regional labour force and employment trends within the London Census Metropolitan Area (CMA) as well as the City of London over the past two decades. It is noted that historical time periods examined within this chapter vary due to data availability.

3.1 Global Economic Trends

In its latest World Economic Outlook, the International Monetary Fund (I.M.F.) is forecasting global economic growth to strengthen from 3.1% in 2016 to 3.5% in 2017 and 3.8% in 2018. For advanced economies, the I.M.F.'s forecast for 2017 and 2018 has slightly improved from its October 2016 projection with growth of 2.0% in 2017 and 2018. Growth prospects for emerging markets and developing economies are much more varied, but overall have weakened slightly from the I.M.F.'s October 2016 outlook, due to weaker economic conditions in key export markets.[1]

Within the United States (U.S.), real Gross Domestic Product (G.D.P.) grew by a relatively moderate 1.6% in 2016, the weakest increase in the past three years. For the remainder of 2017 and all of 2018, U.S. growth is projected to improve to 2.3%, with household spending, business investment and residential construction being key contributors to overall growth. Notwithstanding these predictions for stronger U.S. economic growth in the near term, the lack of specific details on the new U.S. administration's proposed policies has raised the risks associated with the current U.S. outlook. Over the next five years, U.S. economic growth rates, as measured through G.D.P., are forecast to moderate from 2.3% to 2.1% annually.

3.2 Provincial and National Economic Trends

3.2.1 Ontario Economic Outlook within the Canadian Context

The Ontario economy is facing significant structural changes. Over the past several decades, the provincial economic base, as measured by G.D.P. output, has shifted from the goods-producing sector (i.e. manufacturing and primary resources) to the services-producing sector. Much of this shift has occurred during the past decade, driven by

[1] Economic and Fiscal Outlook. Financial Accountability Office of Ontario (F.A.O.). Assessing Ontario's Medium-Term Prospects. Spring 2017.

G.D.P. declines in the manufacturing sector which were most significant immediately following the 2008/2009 global economic downturn. In contrast, service-based sectors, such as financial and business services, have seen significant increases in G.D.P. over the past several years. Growth in the service-based sectors has been driven by strong growth in domestic demand, particularly in consumer spending.

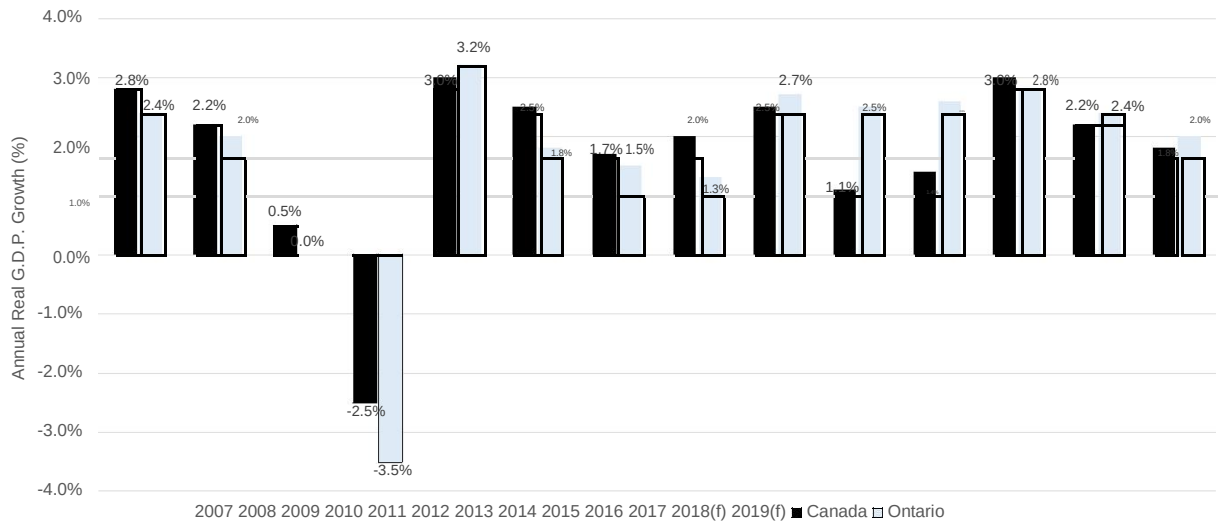
The economic recession hit Ontario relatively hard, with significant declines in manufacturing output particularly in the auto sector and in construction. While the Ontario economy has experienced a rebound in economic activity since the 2008/2009 downturn, this recovery has been relatively slow to materialize. That said, provincial G.D.P. levels have sharply rebounded since 2013 and are forecast to remain above the national average in 2018/2019. Stronger provincial economic growth is attributed, in part, to steady improvement in the economic outlook for the U.S. and an improving export market due, in part, to a lower-valued Canadian dollar, refer to Figure 3-1.[1]

While the performance of the Ontario economy is anticipated to remain strong over the near term, there are potential risks to the national and provincial economies which are important to recognize. This includes risks with respect to the proposed renegotiation of the North American Free Trade Agreement (N.A.F.T.A.), the adoption of protectionist trade measures in the U.S., as well as other proposed changes to U.S. fiscal and industrial policies. Domestically, the housing market continues to pose a significant risk to the overall economy. The sharp rise in Ontario housing prices – particularly in the Greater Toronto Area (G.T.A.) – has contributed to record consumer debt loads and eroded housing affordability.[2]

[1] Valued at approximately $0.81 U.S. as of January, 2018.

[2] Economic and Fiscal Outlook. Financial Accountability Office of Ontario (F.A.O.). Assessing Ontario's Medium-Term Prospects. Spring 2017.

Figure 3-1
Annual Real G.D.P. Growth, Ontario and Canada
Historical (2006 to 2017), Forecast (2018-2019)



Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, January, 2018 by Watson & Associates Economists Ltd.
Note: 2018 and 2019 are forecast by BMO Capital Markets Economics.

The trend towards more knowledge-intensive and creative forms of economic activity is evident across many sectors within both the broader national and provincial economies and within London's own economy. This trend includes growth in financial services, information technology, business services, health care and social services, government, advanced manufacturing, energy, information and cultural industries, education, training and research, agri-business and tourism. In planning for long-term growth, these sectors are anticipated to be amongst the key growth areas of London's knowledge-based economy.

Recent structural changes in the economy away from traditional goods-producing sectors have also hit the London CMA particularly hard, given London's labour force concentration in traditional manufacturing sectors. This highlights the need to gear economic development initiatives in London towards established and emerging growth sectors of the economy, with a specific emphasis on technology and innovation.

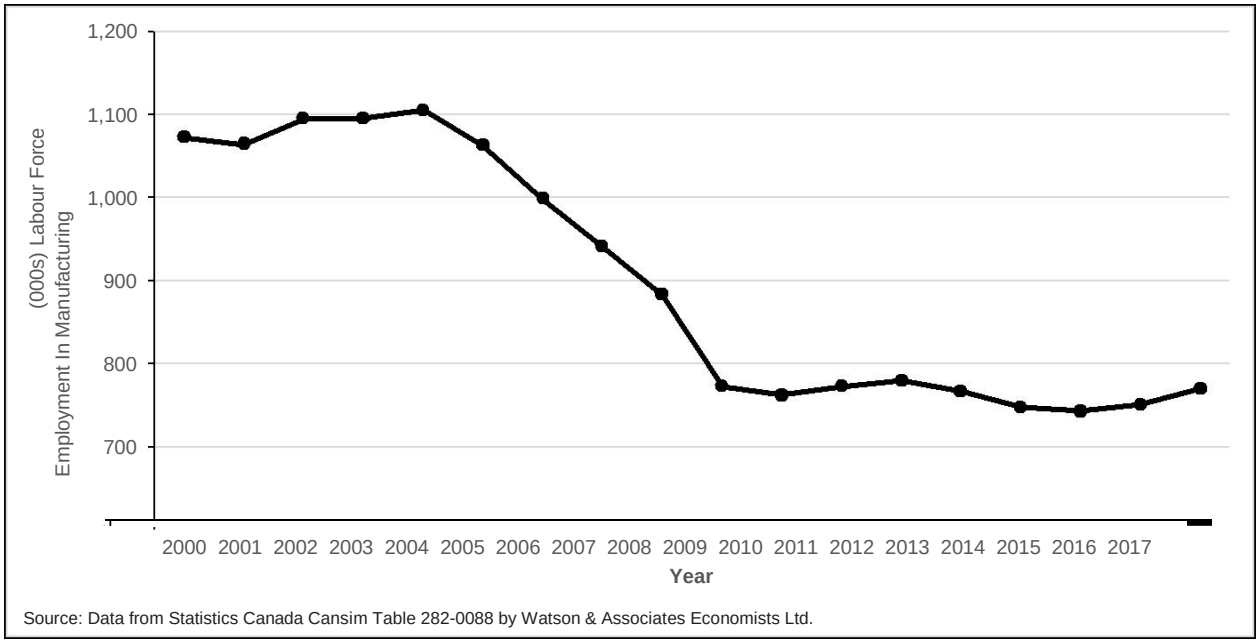
3.2.2 Outlook for Provincial and Regional Manufacturing Sectors

While manufacturing remains vitally important to the provincial economy with respect to jobs and economic output, this sector is not anticipated to generate significant labour-force growth across the Province. In general, globalization has led to increased outsourcing of production processes to overseas manufacturers. While there will

continue to be a manufacturing focus in Ontario, industrial processes have become more capital/technology intensive and automated. The highly competitive nature of the manufacturing sector will require production to be increasingly cost effective and value-added oriented, which bodes well for firms that are specialized and capital/technology intensive.

As summarized in Figure 3-2, the manufacturing sector in Ontario experienced significant declines between 2004 and 2009. Between 2009 and 2017, provincial labour force levels have stabilized in the manufacturing sector. Looking forward, modest labour force growth is anticipated in this sector across the Province of Ontario, as well as more regionally across the London CMA.

Figure 3-2
Manufacturing Labour Force Employment in Ontario, 2000 to 2017



Source: Data from Statistics Canada Cansim Table 282-0088 by Watson & Associates Economists Ltd.

3.3 Regional Economic Trends

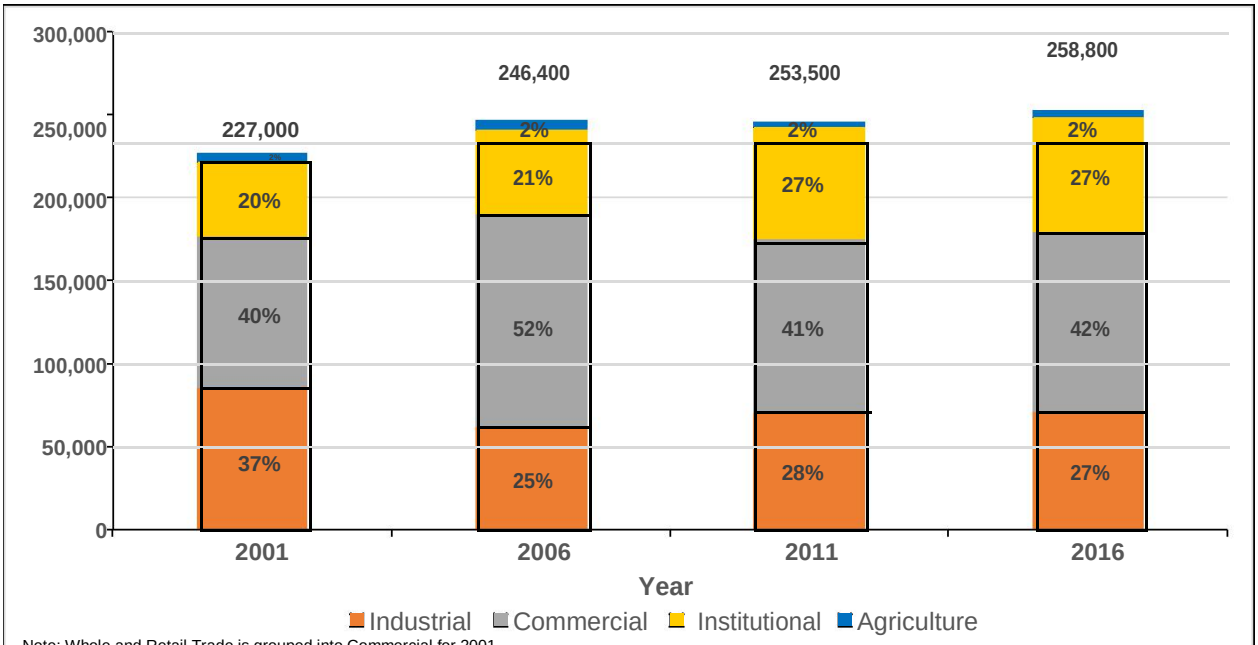
3.3.1 Regional Labour Force Trends, London C.M.A., 2001 to 2016

Figure 3-3 summarizes historical labour force trends within the London CMA over the 2001 to 2016 period. During this period, the London CMA labour force base increased at a rate of 0.7% per year. During the 2001 to 2006 period, the London CMA experienced a steady increase in total labour force of approximately 1.7% annually. This was followed by a slight labour force increase between 2006 and 2011 of approximately 7,100. During the 2011 to 2016 period, the London CMA labour force

experienced relatively slower growth, increasing by approximately 5,300 or approximately 0.4% annually growth.

Over the past 15 years, the share of labour force within the London CMA has gradually shifted from industrial and agricultural/primary resource sectors towards commercial and institutional sectors. As of 2016, approximately 69% of the City's labour force base is comprised of commercial and institutional sectors. The industrial and agricultural sectors represent approximately 27% and 2% of the regional labour force base, respectively.

Figure 3-3
London CMA
Labour Force by Major Sector, 2001 to 2016



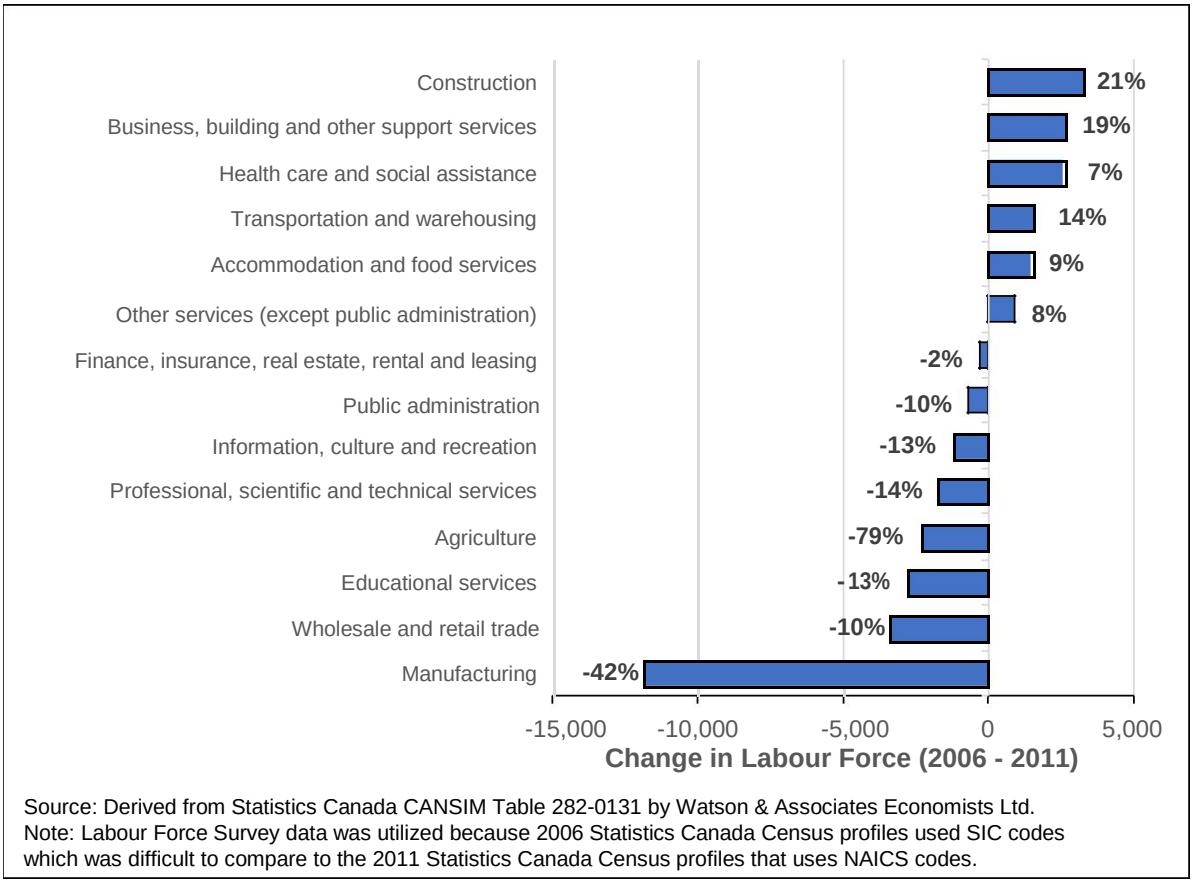
Note: Whole and Retail Trade is grouped into Commercial for 2001.
Source: Derived from Statistics Canada Census profiles 2001 to 2016 by Watson & Associates Economists Ltd.

Figure 3-4 summarizes recent labour force trends for the London CMA by sub-sector over the past 10 years. During the 2006 to 2011 period, the London CMA experienced significant labour force declines in manufacturing, education, wholesale and retail trade, and agriculture. These declines were partially offset by strong growth in construction, business services, health care, transportation and warehousing, as well as accommodation and food.

During the 2011 to 2016 period, the London CMA has continued to experience strong to moderate labour force growth in a number of knowledge-based sectors including health care, professional, scientific and technical services, and educational services. During

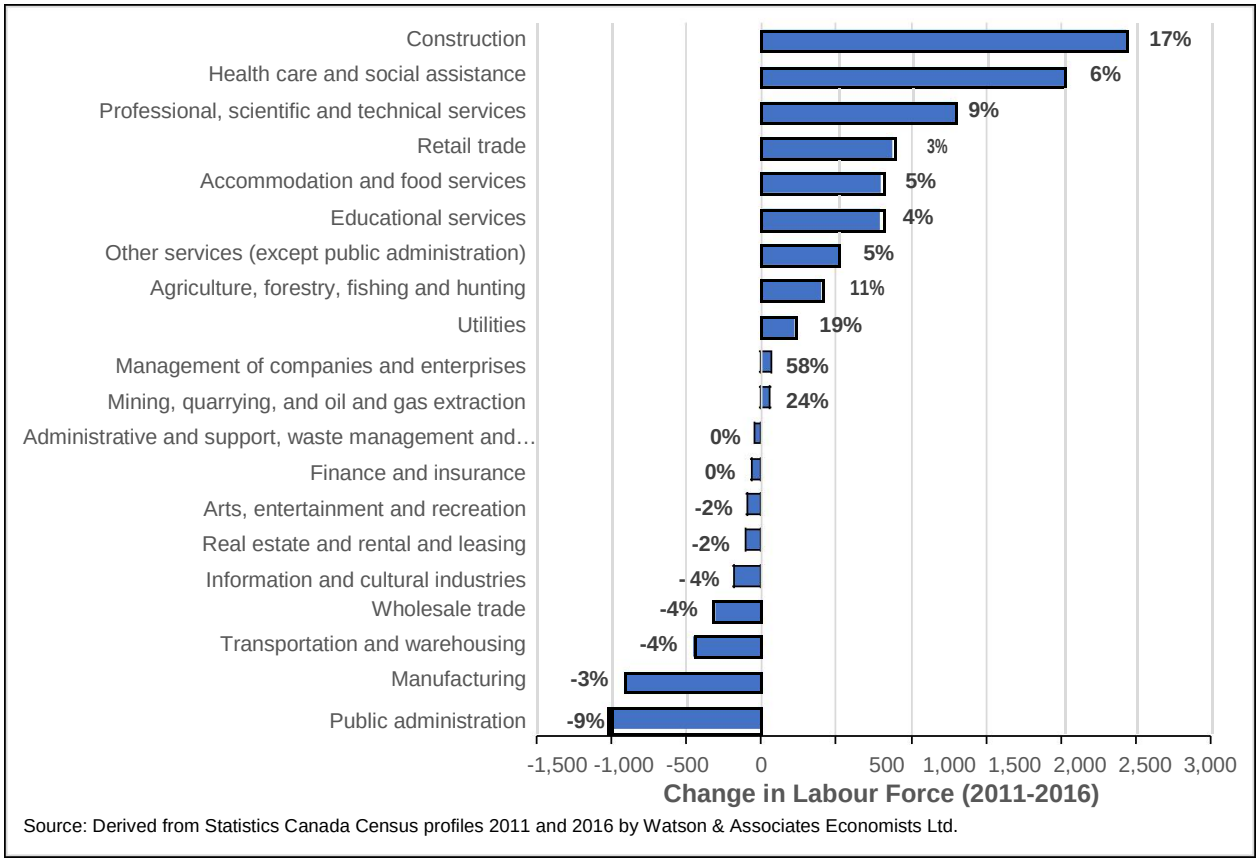
the past five years, the London CMA has also shown strong labour force growth in construction, retail trade, accommodation and food services, agriculture, and other services. Labour force growth in these sectors was largely offset by a decline in wholesale and trade, transportation and warehousing, manufacturing, and public administration.

Figure 3-4a
City of London in Relation to London CMA
Change in Labour Force Growth, 2006 to 2011



Source: Derived from Statistics Canada CANSIM Table 282-0131 by Watson & Associates Economists Ltd.
Note: Labour Force Survey data was utilized because 2006 Statistics Canada Census profiles used SIC codes which was difficult to compare to the 2011 Statistics Canada Census profiles that uses NAICS codes.

Figure 3-4b
City of London in Relation to London CMA
Change in Labour Force Growth, 2011 to 2016



Source: Derived from Statistics Canada Census profiles 2011 and 2016 by Watson & Associates Economists Ltd.

3.4 Middlesex County Historical Demographic Trends

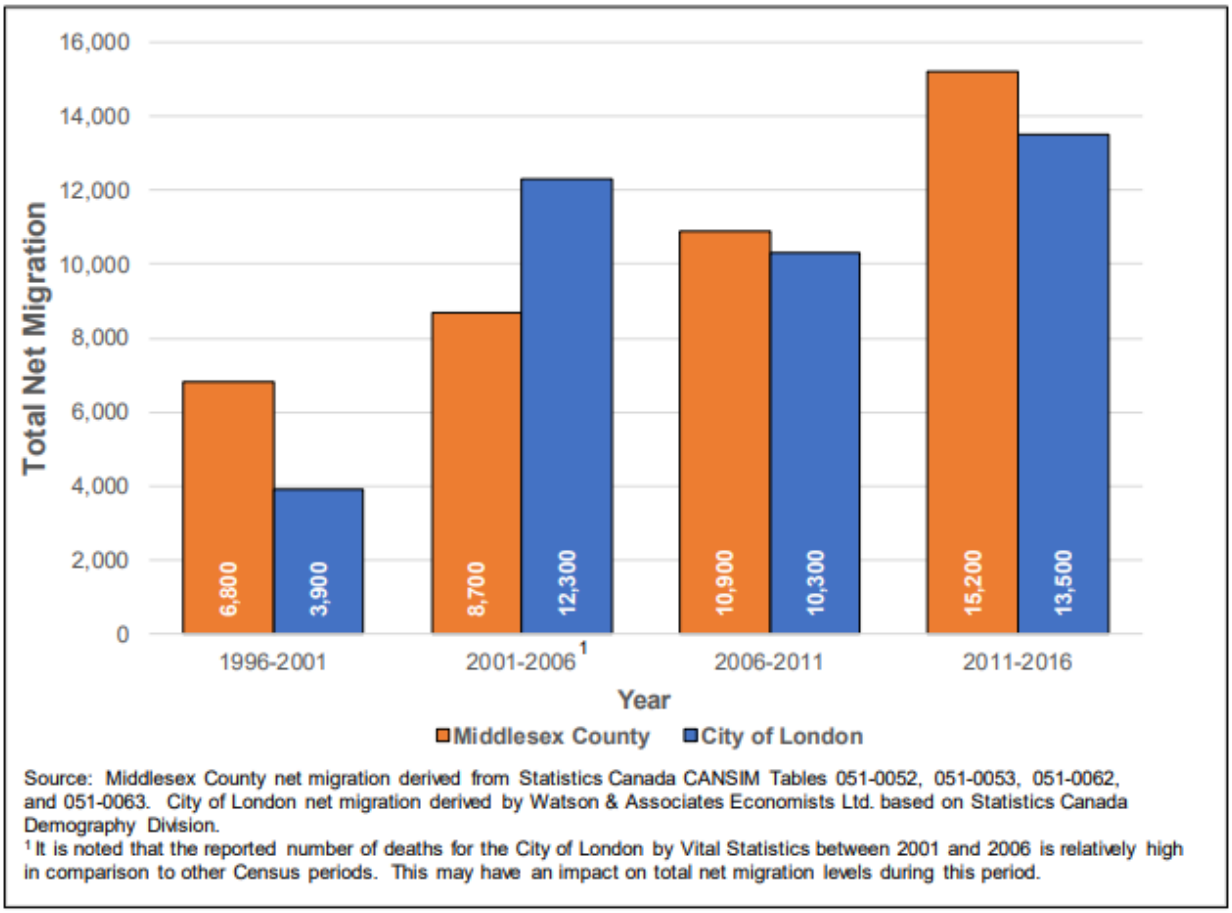
This section provides an overview of historical net migration trends for Middlesex County[1] over the past 20 years.

3.4.1 Middlesex County Historical Net Migration Trends by Type

Figure 3-5 illustrates historical net migration trends over the past 20 years. Between 1996 and 2016, approximately 95% of net migration within Middlesex County occurred within the City of London. From 1996 to 2001, the City of London experienced relatively lower levels of net migration, accounting for 57% of Middlesex's total net migration. In the following period, from 2001 to 2006, the City of London experienced higher levels of net migration than the entire County. Between 2006 to 2011, London's share of total net migration was 94%, which more recently declined to 89% from 2011 to 2016.

[1] For the purpose of this analysis, Middlesex County includes the City of London.

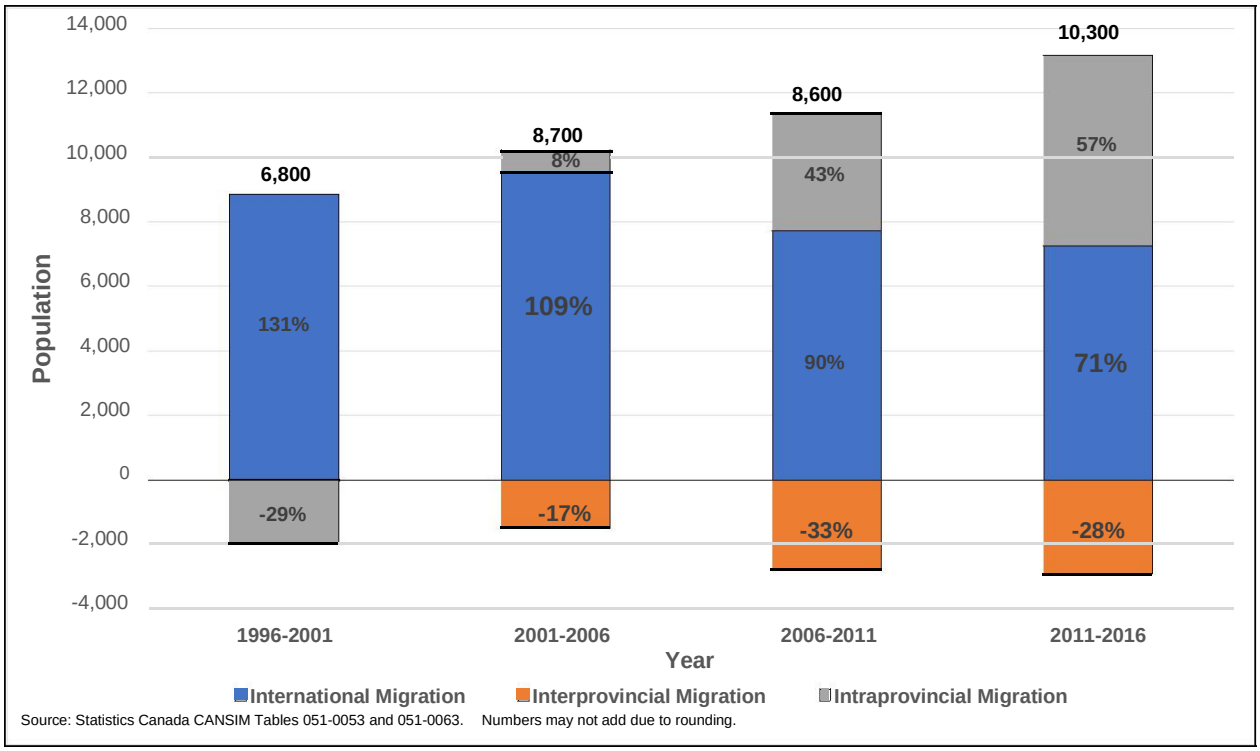
Figure 3-5
Middlesex County & City of London
Historical Net Migration Trends



Source: Middlesex County net migration derived from Statistics Canada CANSIM Tables 051-0052, 051-0053, 051-0062, and 051-0063. City of London net migration derived by Watson & Associates Economists Ltd. based on Statistics Canada Demography Division.
[1] It is noted that the reported number of deaths for the City of London by Vital Statistics between 2001 and 2006 is relatively high in comparison to other Census periods. This may have an impact on total net migration levels during this period.

Figure 3-6 summarizes net migration trends in Middlesex County by type over the 20-year period. International migration represents the largest component of net migration, ranging from 131% from 1996 to 2001, to 71% from 2011 to 2016. It is noted, however, that the City's share of international migration has been consistently falling over the past two decades. Similarly, interprovincial migration (represents movement between provinces or territories involving a change in the usual place of residence) has steadily declined over the past 20 years. In contrast, the share of intraprovincial migration within the City of London (represents movement between Census subdivisions, but residents remain in the same province or territory) has consistently grown over the past 15 years between 1996 to 2001.

Figure 3-6
Middlesex County
Historical Net Migration Trends



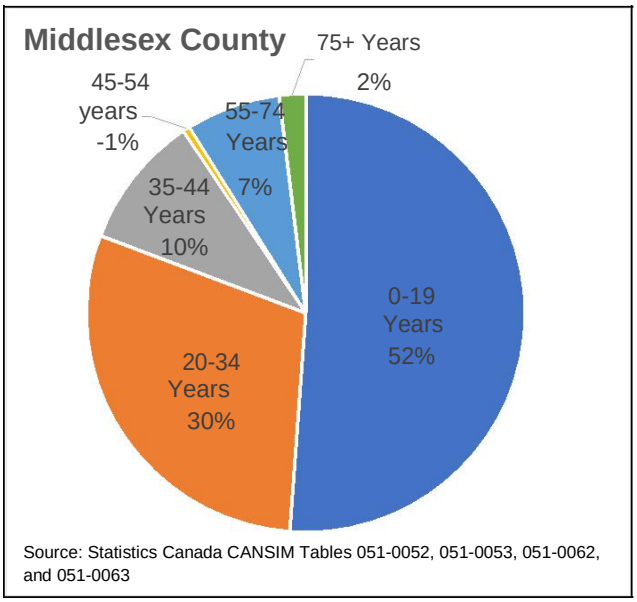
Source: Statistics Canada CANSIM Tables 051-0053 and 051-0063. Numbers may not add due to rounding.

3.4.2 Middlesex County Historical Net Migration Trends by Age

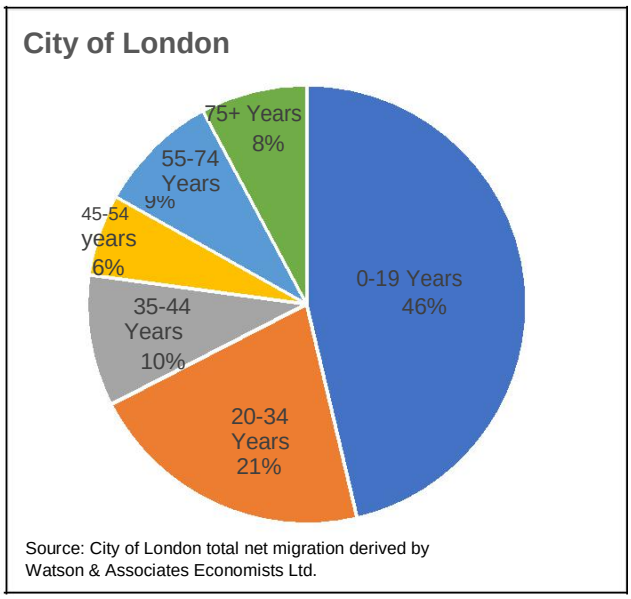
Figure 3-7 summarizes historical net migration by age for both Middlesex County and the City of London over the past 10 years. For Middlesex County,[1] the 0-19 age group represents the largest cohort with 52% of overall net migration between 2006 and 2016. This is followed by the 20-34 and 35-44 age groups which collectively comprised 40% of overall net migration within Middlesex County. Remaining adults and seniors (45+ age group) represented 8% of total net migration within Middlesex County. In general, the City of London shows a similar pattern relative to the County as a whole, however, the share of net migration by age is more heavily weighted towards adults and seniors.

[1] For the purpose of this analysis, Middlesex County includes the City of London.

Figure 3-7
Middlesex County[1] and the City of London
Historical Net Migration Trends by Age Cohort (2006 to 2016)



Source: Statistics Canada CANSIM Tables 051-0052, 051-0053, 051-0062, and 051-0063



Source: City of London total net migration derived by Watson & Associates Economists Ltd.

3.5 City of London Economic and Non-Residential Development Trends

3.5.1 City of London, Labour Force by Place of Work, 2001 to 2016

Figure 3-8 summarizes the historical change in total and employed labour force for the City of London over the 2001 through 2016 period. Labour force data represents the number of London residents who live in the City of London and are within the labour force, regardless of where they work. This includes residents who live and work within the City of London, including those who work from home, and those who commute outside the City for work. The following observations are identified:

- As of 2016, the City of London total labour force is estimated at approximately 199,800, which represents approximately 77% of the total London CMA labour force base;
- Between 2001 and 2016, the City's share of the London CMA labour force base has remained stable at 77%, which indicates that the London economy has been growing approximately at the same rate as the surrounding municipalities, when comparing the remainder of the London CMA;

[1] For the purpose of this analysis, Middlesex County includes the City of London.

- Over the 2001 to 2016 period, the City's total labour force base has increased at an annual rate of 0.8%;
- Similar to the London CMA, the City of London employed labour force base declined during the 2006 to 2011 period; however, since 2011, the City has experienced a gradual employed labour force recovery; and
- The unemployment rate within the City of London was recorded at approximately 7.9% in 2016. Comparatively, the Ontario unemployment rate was estimated at 7.4% as of mid-2016. Currently, as of December 2017, the City of London and the Province of Ontario unemployment rate is estimated at 6.2% and 5.0%, respectively.[1]

Figure 3-8
City of London
Labour Force Trends, 2001 to 2016

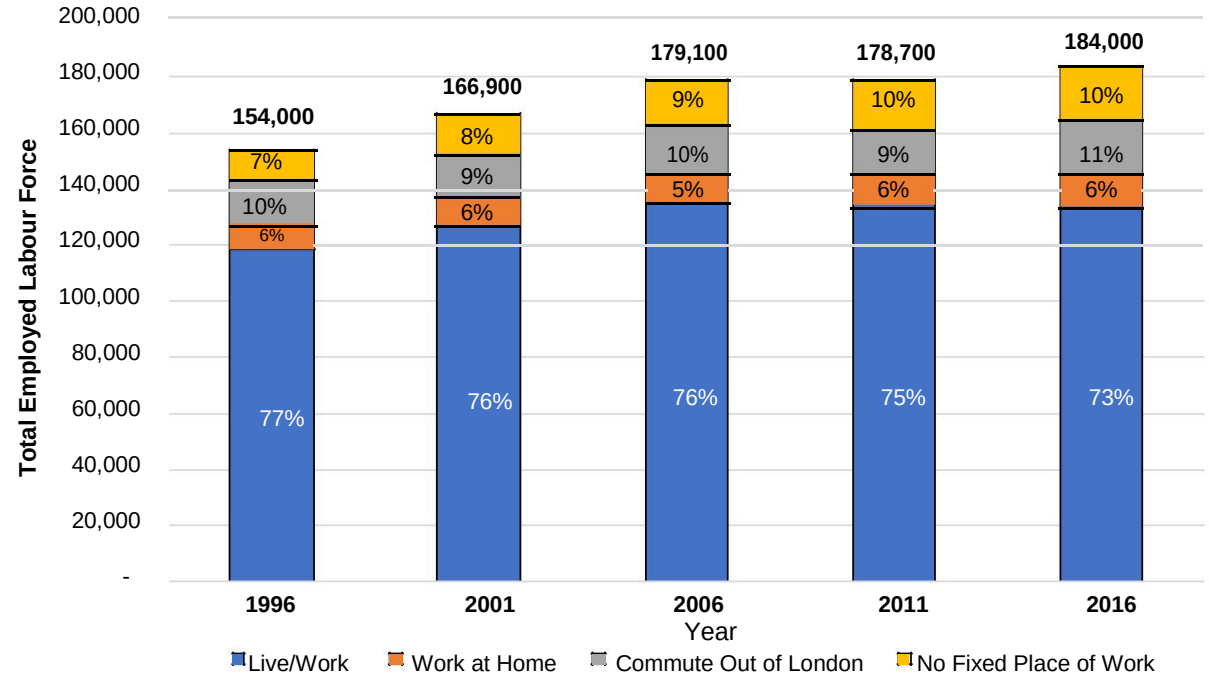
City of London Historical Labour Force				
Year	Total Labour Force	Employed Labour Force	Unemployment Rate (%)	Participation Rate (%)
2001	176,100	166,900	5.2%	63%
2006	191,600	179,100	6.5%	64%
2011	196,400	178,700	9.0%	62%
2016	199,800	184,000	7.9%	60%

Source: Derived from 2001-2016 Statistics Canada Census, and Place of Work data by Watson & Associates Economists Ltd.

Figure 3-9 summarizes historical trends in the City of London labour force base by place of work. As illustrated below, the London labour force base is highly concentrated within the City. As of 2016, approximately 79% of the City's labour force base live and work within the City or work from home within the City of London. Over the past 20 years, however, the share of live/work labour force has gradually declined from 77% to 73%, due to an increase in the percentage of labour force with N.F.P.O.W.

[1] 2017 unemployment rates from Statistics Canada Labour Force Survey as of December 2017.

Figure 3-9
City of London
Employed Labour by Place of Work, 1996 to 2016



Source: Derived from 1996 to 2016 Statistics Canada Labour Force and Place of Work data by Watson & Associates Economists Ltd.

3.5.2 City of London Employment Trends by Place of Work

Figure 3-10 summarizes the historical change in the City of London employment base by usual place of work during the 2001 to 2016 period. Employment represents the number of jobs located within the City of London. This includes the live/work labour force, including work at home employees, as well as in-commuters. Figure 3-11 provides a summary of employment trends within the City by major sector over the same period. Key observations include:

- The City of London serves as an employment centre to the surrounding communities within the London CMA and beyond. With an estimated total employment base of 197,300 in 2016, the City's job base is approximately 13,300 higher (approximately 8%) than its employed labour force base;
- Of the City's 2016 employment base, approximately 90% of employees are reported as having a usual place of work. The remaining 10% work from home or are reported as having N.F.P.O.W. Over the past 15 years, the share of London's employment base with no usual place of work has steadily increased from 23,900 to 30,600. Within the City of London, the number of work at home

and N.F.P.O.W. employees has increased at a faster rate than employees with a usual place of work; and

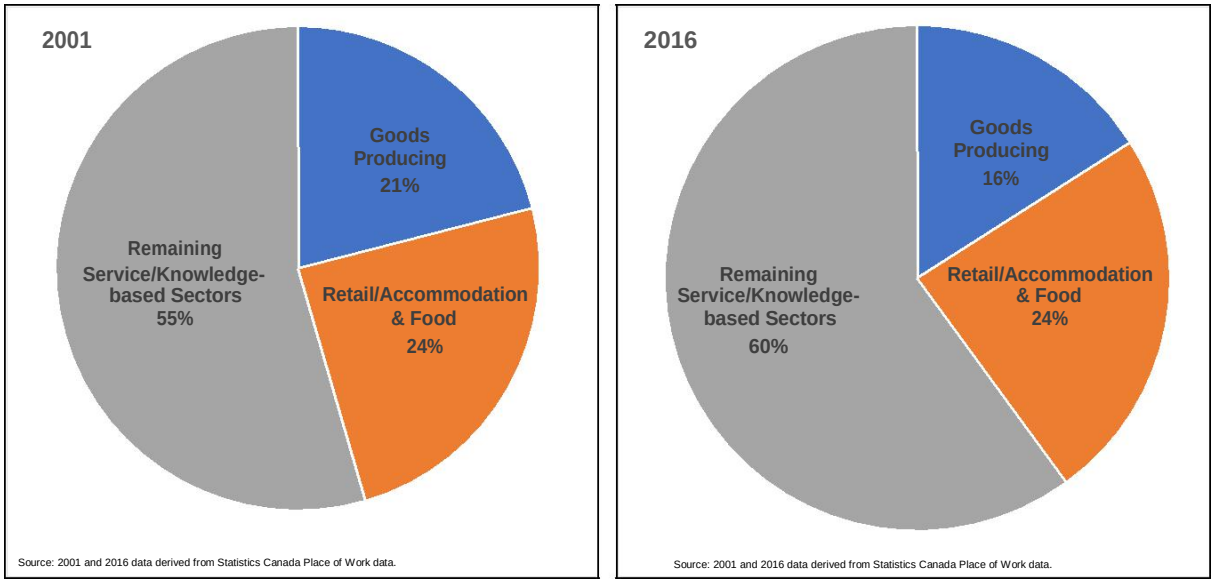
- Similar to the Province, the structure of the City of London economy has steadily shifted away from traditional good-producing sectors to the retail sector and knowledge-based economy. As summarized in Figure 3-11, the service sector currently comprises approximately 60% of the City's employment base, up from 55% in 2001.

Figure 3-10
City of London
Employment by Place of Work, 2001 to 2016

City of London Historical Employment						Relationship of Employment to Employed Labour Force	
Year	Employed Labour Force	Employment (Usual Place of Work)	Work from Home	No Fixed Place Of Work (N.F.P.O.W.)	Total Employment (Including N.F.P.O.W. and Work at Home)	Difference (Employed Labour Force less Total Employment)	Employment as % of Labour Force
2001	166,900	165,200	9,700	14,200	179,300	12,400	107%
2006	179,100	177,600	9,800	15,900	193,500	14,400	108%
2011	178,700	178,700	10,500	17,200	195,900	17,200	110%
2016	184,000	178,000	11,300	19,300	197,300	13,300	107%

Source: Derived from 2001 to 2016 Statistics Canada Place of Workdata by Watson & Associates Economists Ltd.
2011 Labour Force Survey has a sample size of 30% and 2016 Labour Force Survey has a sample size of 25%.

Figure 3-11
City of London Employment Trends by Major Sector, 2001 to 2016

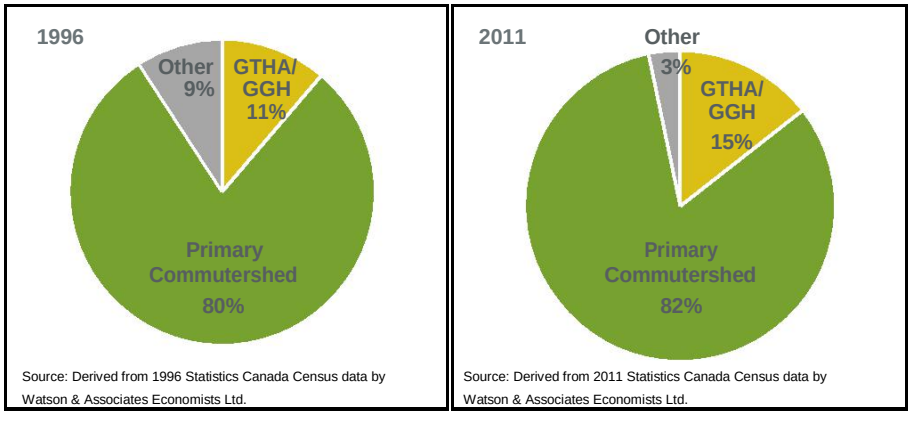


3.5.3 City of London Commuting Trends

Figure 3-12 summarizes historical commuting patterns within the City of London between 1996 and 2011. As illustrated, approximately 82% of City of London out-commuters work within the "primary commuter-shed" located within the upper-tier/single-tier municipalities within the surrounding area. At 15%, the western portion of the Greater Golden Horseshoe (G.G.H.) and Greater Toronto Hamilton Area (G.T.H.A.) comprise a relatively small component of the City's share of total out-commuters. It is important, however, to note that these municipalities represent a growing share of London's out-commuters, up from 11% in 1996. Given the relatively higher forecast employment growth rates of the G.G.H. municipalities relative to London's primary commuter-shed, it is anticipated that the City's share of out-commuters will continue to gradually shift towards the G.G.H.[1]

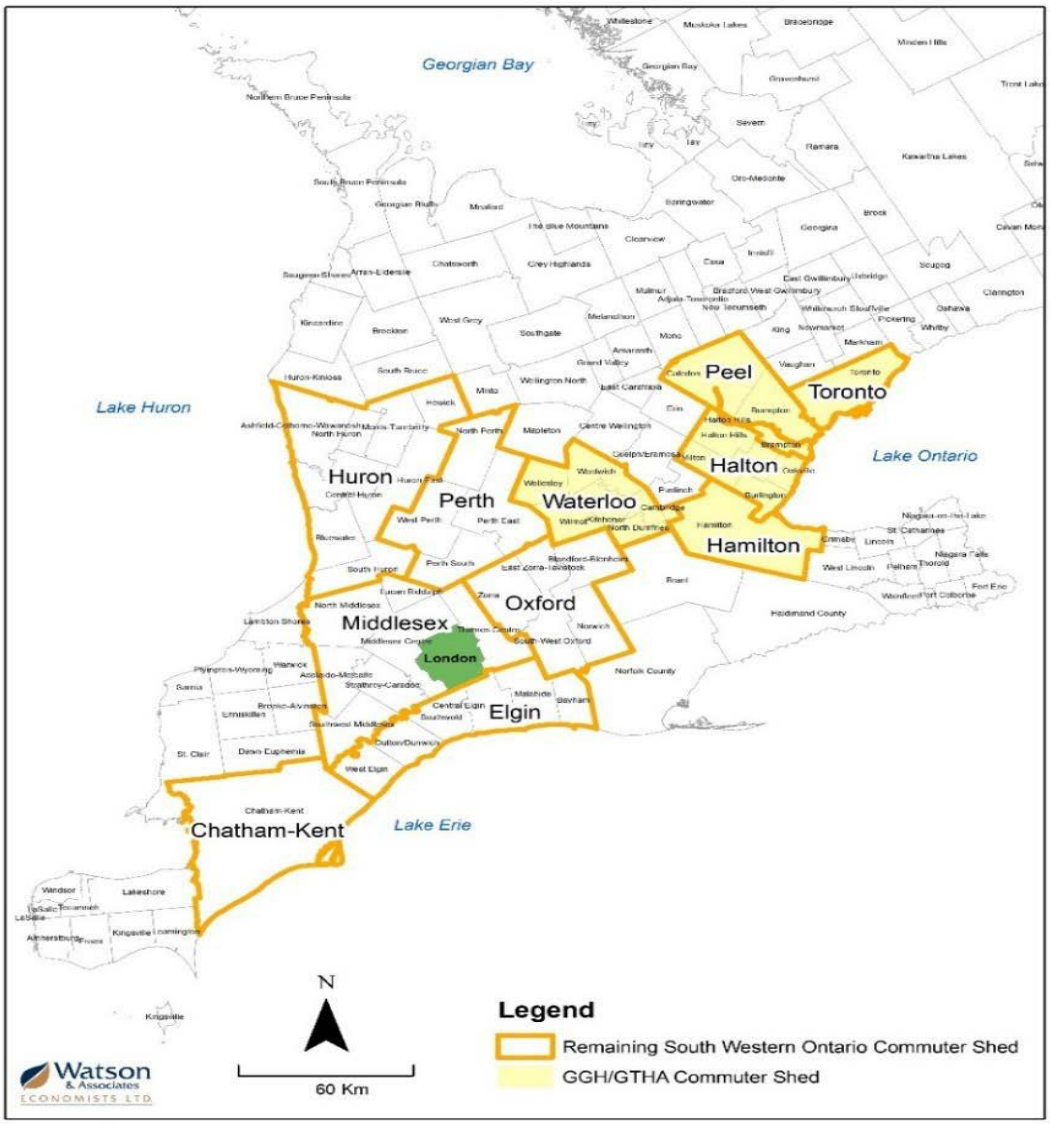
As of 2011, the employment base within the City of London's primary and secondary commuter-shed was approximately 2.9 million.[2] In 2011, City of London commuters comprised approximately 0.5% of this employment base, representing approximately 15,300 jobs. The employment base within the City of London commuter-shed (excluding the City of London) is forecast to increase from approximately 2.9 million in 2011 to 4.2 million by 2044. Assuming that the proportion of City of London commuters remains relatively stable at 0.5%, this represents a potential labour force increase of approximately 7,700 for the City of London by 2044.

Figure 3-12
City of London
Commuting Trends, 1996 to 2011



[1] In accordance with the 2016 Statistics Canada Census, the City of London commuting trends by geographic area has remained relatively consistent with 2011 Census.
[2] Statistics Canada 2011 Census.

Figure 3-13
Map of London Commuter-Shed



3.5.4 City of London Employment Trends by Sub-sector, 2006 to 2016

Figures 3-14a and 3-14b graphically summarize the City of London's employment concentrations and historical growth rates relative to Ontario, based on a Location Quotient (L.Q.) analysis. This analysis has been summarized by goods-producing sectors and services-producing sectors. L.Q.s are a commonly used tool in regional

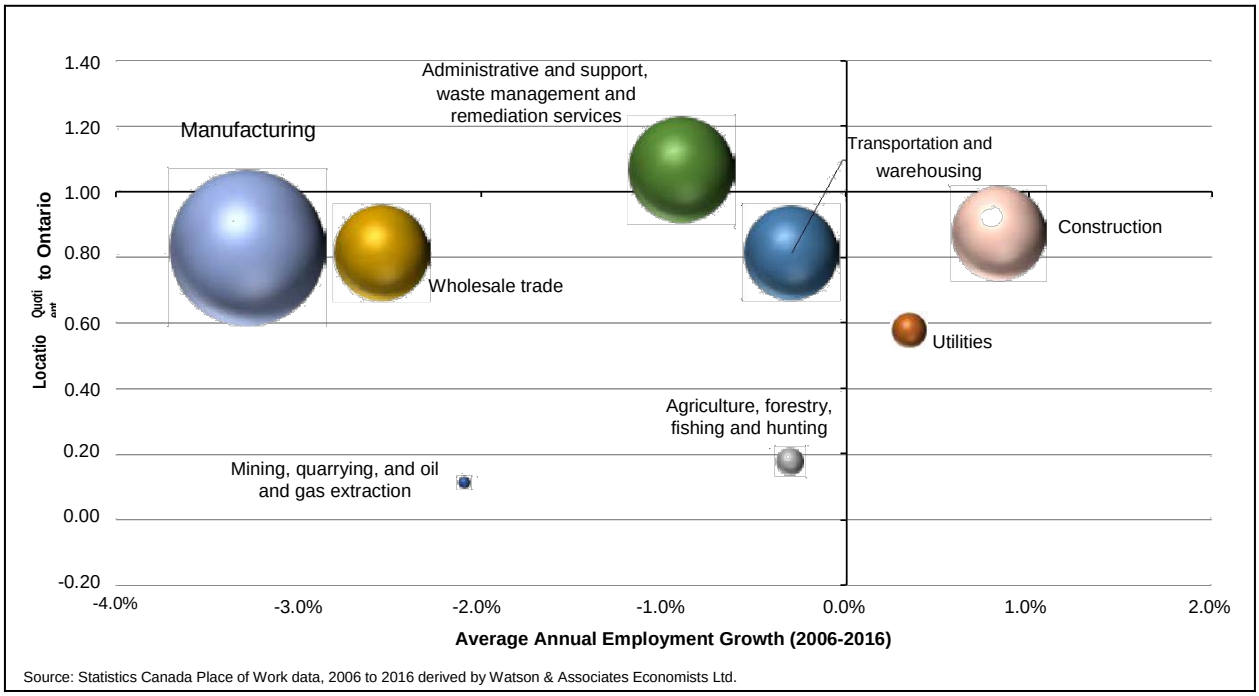
economic analysis to identify and assess the relative strength of industry clusters.[1] They assess the concentration of economic activities within a smaller area relative to the overarching region in which it resides. The L.Q. for a given municipality or local geographic area is calculated by dividing the percentage of total local employment by sector, by the percentage of total broader employment base by sector. An L.Q. of 100% identifies that the concentration of employment by sector is consistent with the broader employment base average. An L.Q. greater than 100% identifies that the concentration of employment in a given employment sector is higher than the broader base average, which suggests a relatively high concentration of a particular employment sector. Employment sectors with a relatively high L.Q. generally serve both the local population base as well as employment markets which extend beyond the boundaries of the municipality. Alternatively, employment sectors with an L.Q. of less than 100% identify employment sectors which have a relatively lower concentration of employment and are generally under-servicing the needs of the local economy.

The results of this analysis indicate the following:

- The City of London has a relatively high concentration of growing industries in local/regional population servicing sectors related to retail, accommodation and food services, and arts and entertainment and recreation.
- London also has a steadily growing construction sector;
- Similar to the Province, the manufacturing sector has experienced negative employment growth over the past decade, but is now beginning to show signs of a gradual recovery;
- Employment sectors geared towards the office market typically have a relatively high employment concentration within the City of London relative to the Province. These sectors have also experienced moderate to strong employment growth over the past 10 years. This includes several knowledge-based sectors such as, professional, scientific and technical services, finance and insurance, public administration, educational services, and health care and social assistance.

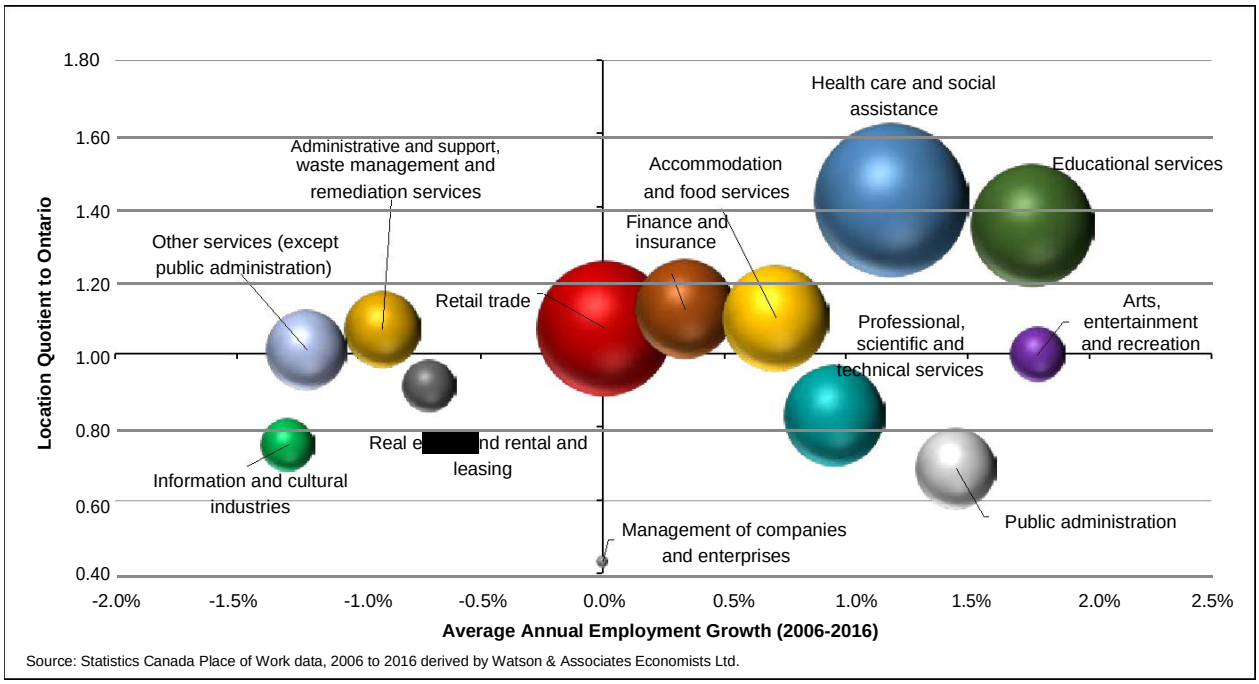
[1] An employment cluster is defined as a set of inter-linked, private-sector industries and public-sector institutions, whose final production reaches markets outside the region. Thus, the cluster approach to economic development reflects, in some way, a more traditional focus on the export base of a region.

Figure 3-14a
City of London Relative to Ontario
Goods-Producing Industries' Cluster Size and Growth Matrix



Source: Statistics Canada Place of Work data, 2006 to 2016 derived by Watson & Associates Economists Ltd.

Figure 3-14b
City of London Relative to Ontario
Services-Producing Industries' Cluster Size and Growth Matrix

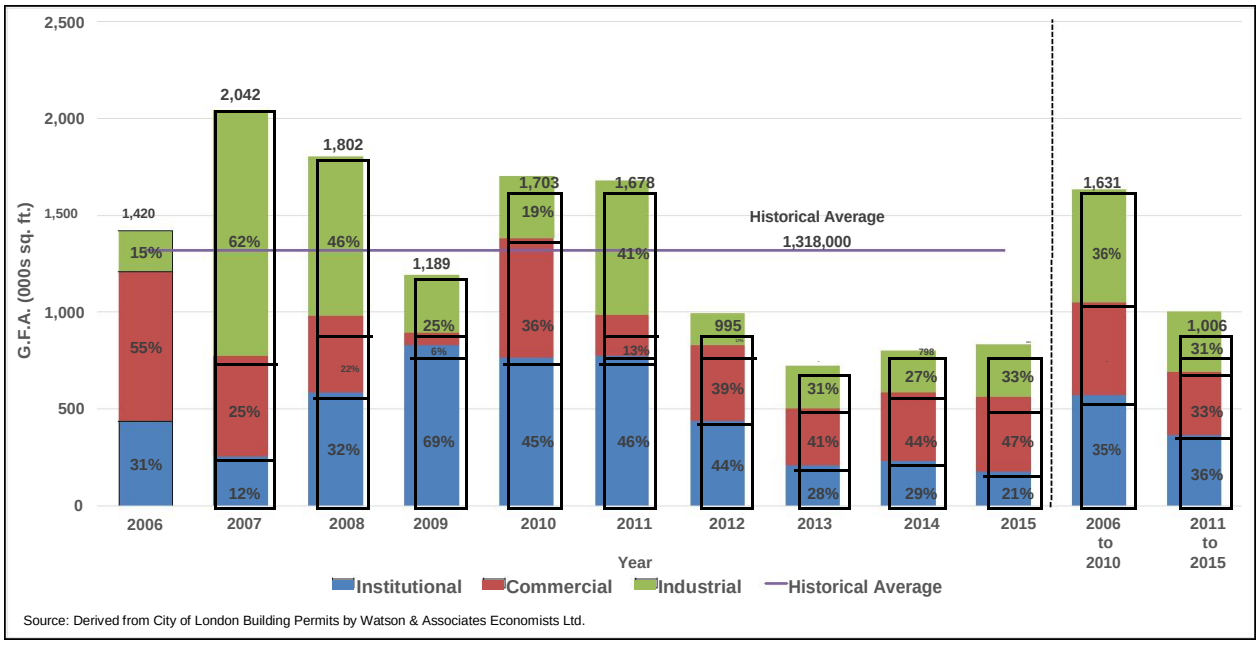


Source: Statistics Canada Place of Work data, 2006 to 2016 derived by Watson & Associates Economists Ltd.

3.5.5 Non-residential Building Permit Activity by Major Sector, 2006 to 2015

Figure 3-15 summarizes non-residential building construction by industrial, commercial and institutional sector (ICI) for the City of London during the 2006 to 2015 period, expressed in gross floor area (G.F.A.) in square feet (sq.ft.). As shown, the City of London has averaged 1,318,500 sq.ft. of non-residential building activity over the 2006 to 2015 period. Non-residential construction activity has moderated over the past four years at a level below the 10-year historical average. Construction of industrial buildings accounted for 31% of recent non-residential activity, while construction activity related to commercial (primarily retail) and institutional development accounted for 33% and 36%, respectively.

Figure 3-15
City of London
Non-residential Building Permit Activity by ICI, 2006 to 2015



Source: Derived from City of London Building Permits by Watson & Associates Economists Ltd.

3.6 Overview of Key Regional Economic Growth Drivers within the City of London

3.6.1 Building on the City's Diverse Employment Base

Situated between Toronto and Detroit, the City of London serves as a regional economic hub across a broad range of goods-producing and services-producing sectors. The City of London has a strong concentration of employment sectors in manufacturing, health care and social services, education, and finance and insurance. Combined, these sectors create a strong and diverse employment base for the City.

Continued employment growth in both traditional and knowledge-based sectors has been identified as a major driver of economic growth within the City of London Community Road Map.[1] This report looks at various ways in which the City of London can harness its local opportunities, including talent attraction and retention, innovation and technology commercialization, and the impact of public sector institutions. Post-secondary institutions, hospitals, and research institutions represent London's largest single employers, and provide a stabilizing effect on the local economy. Collectively, the London Health Science Centre and St. Joseph's Health Care London, employ over 15,000 people. Similarly, Western University and Fanshawe College are responsible for over 20,000 local jobs. These institutions inject billions of dollars into the London economy while spearheading and supporting local and regional innovation.

3.6.2 Regional Infrastructure Improvements

The City of London's Transportation Master Plan (T.M.P.) outlines plans for a Bus Rapid Transit (B.R.T.) network running both north and south through the Richmond and Wellington areas and another line that runs east-west through Oxford and Dundas.[2] The implementation of the City of London rapid transit initiative (Shift) is anticipated to result in a significant improvement in London's public transit system. The proposed B.R.T. project will help shape the future development patterns within the City, encourage intensification and regeneration, and stimulate economic growth over the next several decades.[3]

In addition to a B.R.T., the Province of Ontario announced earlier this year that they are moving forward with plans for a high-speed rail from Toronto to Windsor. This project would utilize tracks that are already in place, such as the VIA Rail lines, as well as new rail lines dedicated for the high-speed rail.[4] One of the major stops would include the City of London. This high-speed rail would be conducted in two phases. The first phase would construct a new two-track corridor connecting Kitchener to London

[1] London's Community Economic Roadmap, Inspire, Innovative, Implement and Economic Strategy 2015-2020. November 2015.

[2] City of London 2030 Transportation Master Plan: SmartMoves. A New Mobility Transportation Master Plan for London. Final Report: Volume 2. Prepared by AECOM. May, 2013.

[3] Rapid Transit Alternative Corridor Review. Chair and Members Strategic Priorities and Policy Committee Meeting, May 3, 2017.

[4] High Speed Rail in Ontario: Transforming mobility, connecting communities, integrating centres of innovation and fostering regional economic growth and development. Special Advisor for High Speed Rail: Final Report. December 2016.

adjacent to the existing hydro corridor. The second and final phase would connect London to Windsor.

According to the Province, a new multimodal station would be constructed in the downtown London area adjacent to the existing VIA Rail station. By spring 2018, the Province will be establishing a high-speed rail planning advisory board, and environmental assessments will follow shortly thereafter. The high-speed rail between Toronto and London could be completed as early as 2025. Further developments on this key regional infrastructure will be closely monitored by the City of London.

3.6.3 Cost of Industrial Development

A significant factor influencing business decisions on where to locate is the cost competitiveness (both capital investment and operating costs) of industrial development in relation to market demand and potential return on investment. In addition to the regional locational attributes, there are several financial factors which also influence the market demand and the general competitiveness of non-residential development within the City of London, such as industrial land prices, industrial development charge subsidies, tax rates, water/sewer rates and construction costs. Collectively, these financial factors impact the overall cost of industrial development and the competitive position of the City of London. The City of London represents a cost competitive location for industrial and commercial development, most notably when compared to municipalities within the western portion of the G.G.H. This competitive advantage has been, and will continue to be, a key driver of the City's attractiveness in accommodating future export-based industries on its employment lands.

3.6.4 Quality of Life

Quality of life is a factor influencing the residential location decisions of individuals and their families. It is also a factor considered by companies in relocation decisions. Typically, quality of life encompasses several sub-factors such as employment opportunities, cost of living, housing affordability, crime levels, quality of schools, transportation, recreational opportunities, climate, arts and culture, entertainment, amenities and population diversity. The importance of such factors, however, will vary considerably depending on life stage and individual preferences.

The City of London has a reputation for being a vibrant, growing, affordable, low-crime location in which to live in Ontario, with access to a wide range of recreational opportunities within the City and surrounding countryside. Furthermore, given the City's strategic location between major markets such as Toronto, Kitchener-Waterloo and

Detroit, and its proximity to two major 400-series highways, London is well position to develop and expand its economic base.

3.7 Observations

As identified in this chapter, the Province of Ontario, the London CMA and the City of London economies have experienced significant structural changes over the past 15 years. Over this time period, the economic base at both the provincial and regional levels has shifted from the goods-producing sector (i.e. manufacturing) to the services-producing sector.

Within the London CMA and the City of London, the industrial sector was hit particularly hard over the past 15 years; however, in recent years this sector has started to show signs of stabilization and recovery. Local industrial employment opportunities are anticipated in advanced manufacturing, and the transportation and warehousing sector, driven by the City's competitive development environment as well as rail and highway connections between southern Ontario and the U.S. border.

Similar to the broader regional and provincial economy, local employment growth prospects within the City of London are anticipated to be strongest in the knowledge-based industry. A number of emerging sectors within the City have shown strong employment growth over the past decade and support the continued growth of the City's creative-class economy.

4. Historical Demographic and Housing Trends within the City of London and the Surrounding Market Area

The following chapter explores historical demographic and housing trends within the City of London and the surrounding market area based on recent Statistics Canada data and other available information sources. It is noted that the historical time period investigated varies throughout this chapter, subject to data availability.

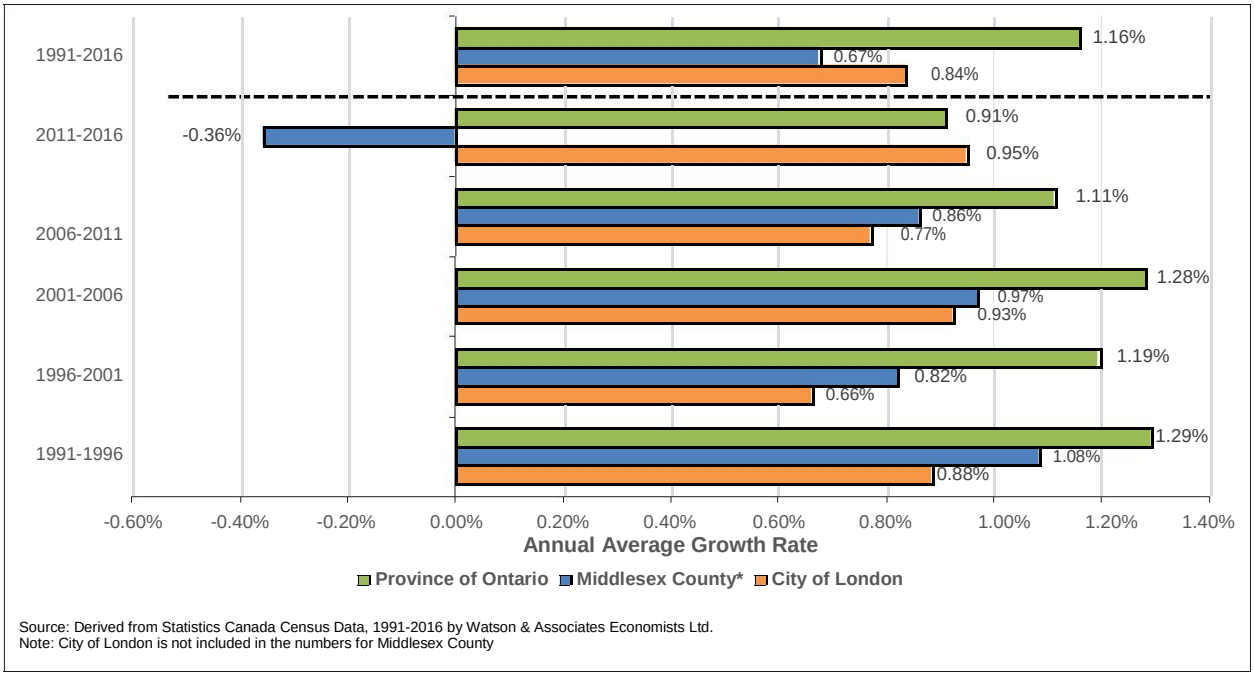
4.1 Review of Recent Demographic Trends, City of London

4.1.1 Historical Population Trends, 1991 to 2016

Figure 4-1 summarizes historical population growth rates for the City of London during the 1991 to 2016 period in accordance with Statistics Canada Census data. For comparative purposes, historical population growth rates have also been provided for Middlesex County and the Province of Ontario. Key observations include the following:

- Over the past 25 years, the population base within the City of London has increased by 72,200 persons, or approximately 0.8% per year;
- Comparatively, the population base for the Province of Ontario as a whole grew at a slightly faster rate (1.2% annually) during the same time period; however, during the past five years, the annual rate of population growth within the City of London has slightly outpaced the Province; and
- Historically, population growth within Middlesex County has also increased at a slightly faster rate than the City of London. During the most recent 2016 Census period, however, the population within Middlesex County declined by approximately 1,300 persons or -0.4% annually.

Figure 4-1
City of London
Historical Population Growth Rates, 1991 to 2016



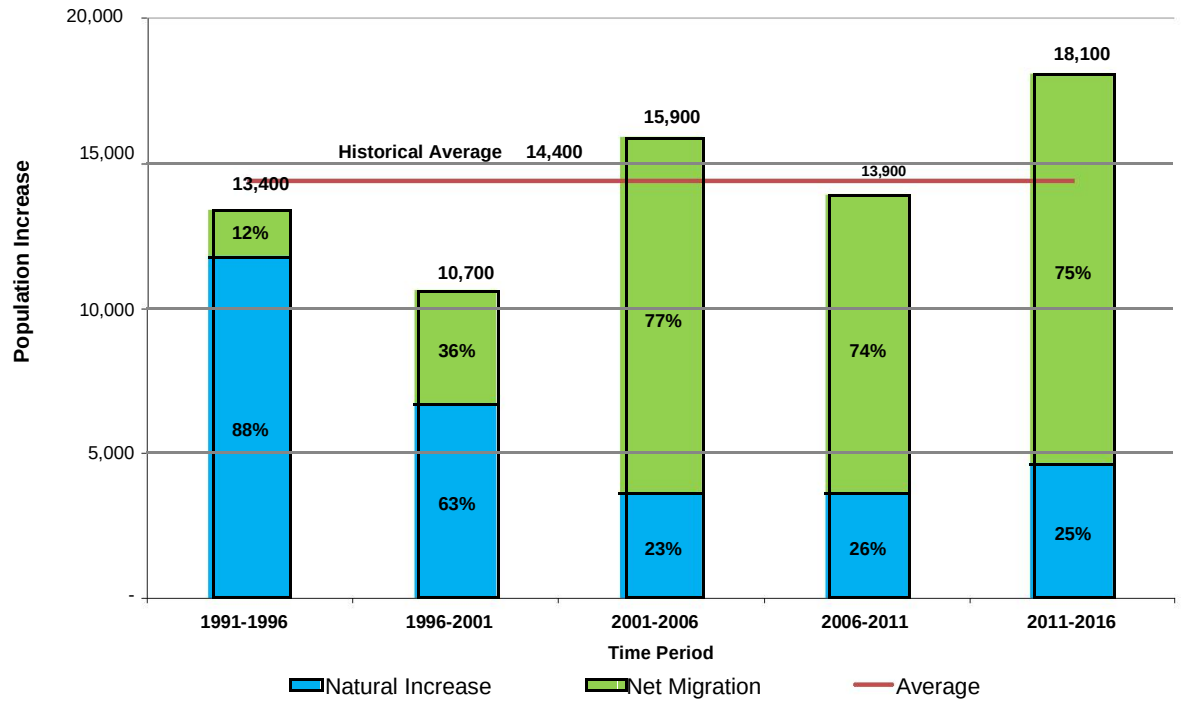
Source: Derived from Statistics Canada Census Data, 1991-2016 by Watson & Associates Economists Ltd.
Note: City of London is not included in the numbers for Middlesex County

4.1.2 City of London Components of Population Growth, 1991 to 2016

There are two primary components of population growth: natural increase (i.e. births less deaths), and net migration. Figure 4-2 summarizes historical trends regarding natural increase and net migration for London. Key observations include the following:

- During the 1991 to 2016 period, net migration as a percentage of population growth rapidly increased from 12% to 75%;
- During the 2001 to 2016 period, the share of population growth attributed to natural increase has gradually declined as a result of declining fertility rates and the aging of the City's Baby Boomer population (i.e. persons born between 1946 and 1964);
- Between 2001 and 2016, net migration has represented a key driver of population growth. During this period, net migration averaged approximately 2,400 persons per year;
- Over the past 15 years (2001 to 2016) net migration within the City of London has been primarily driven by the youth (0-19) and the young adult (20-34) age groups. This trend is anticipated to continue over the forecast period; and
- Similar to provincial trends, net migration within the City of London is forecast to represent an increasing component of forecast population growth.

Figure 4-2
City of London
Component of Population Growth, 1991 to 2016



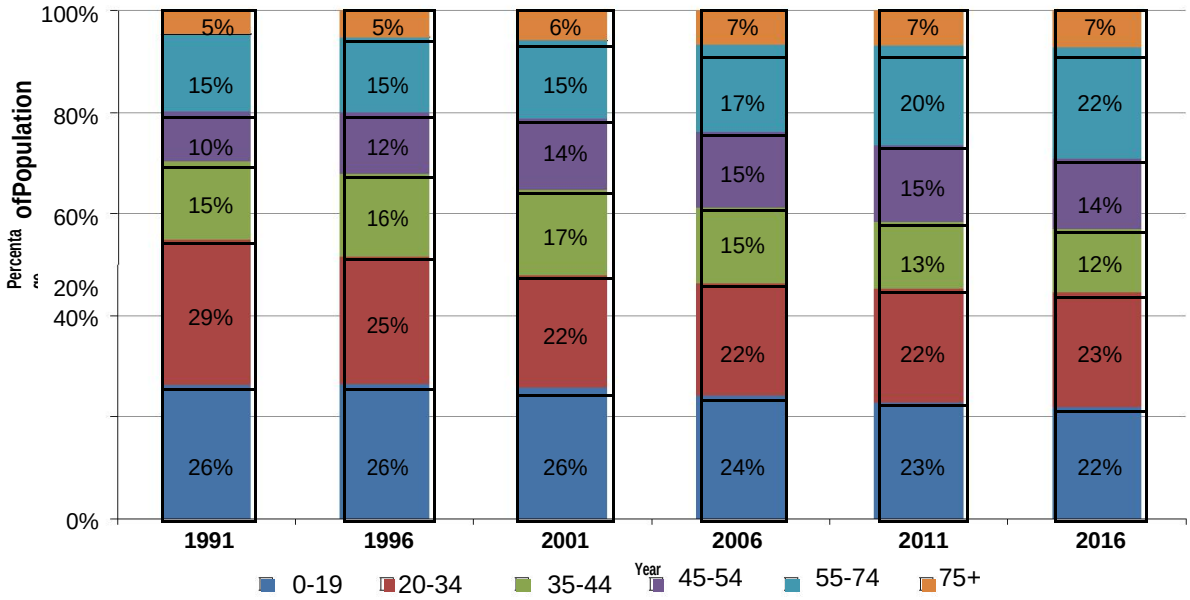
Source: Watson & Associates derived from Statistics Canada data. 2011-2016 estimated by Watson & Associates Economists Ltd., includes Census undercount of approximately 2.73%.

Figure 4-3 summarizes historical trends in population structure by age cohort over the 1991 to 2016 period by major age group. Figure 4-4 summarizes the 2016 population age structure in the City of London compared to Middlesex County and the Province. Key observations regarding the City of London population forecast by age include the following:

- In 2016, the 0-19 age cohort (youth population) in London accounted for 22% of the total population. Proportionately, the population share of this age cohort has decreased from 26% in 1991;
- Similarly, London's young adult/adult population (20-54 years of age) has declined moderately over the same time period, comprising approximately 49% of the population in 2016:
    - The 20-34 age cohort (young adults), comprised an estimated 24% of the population in 2016, which is a decrease from 29% in 1991;
    - The 35-44 age group decreased from 15% in 1991 to 13% in 2016; and
    - Adults 45-54 years old account for 15% of the 2016 population, up from 10% in 1991;

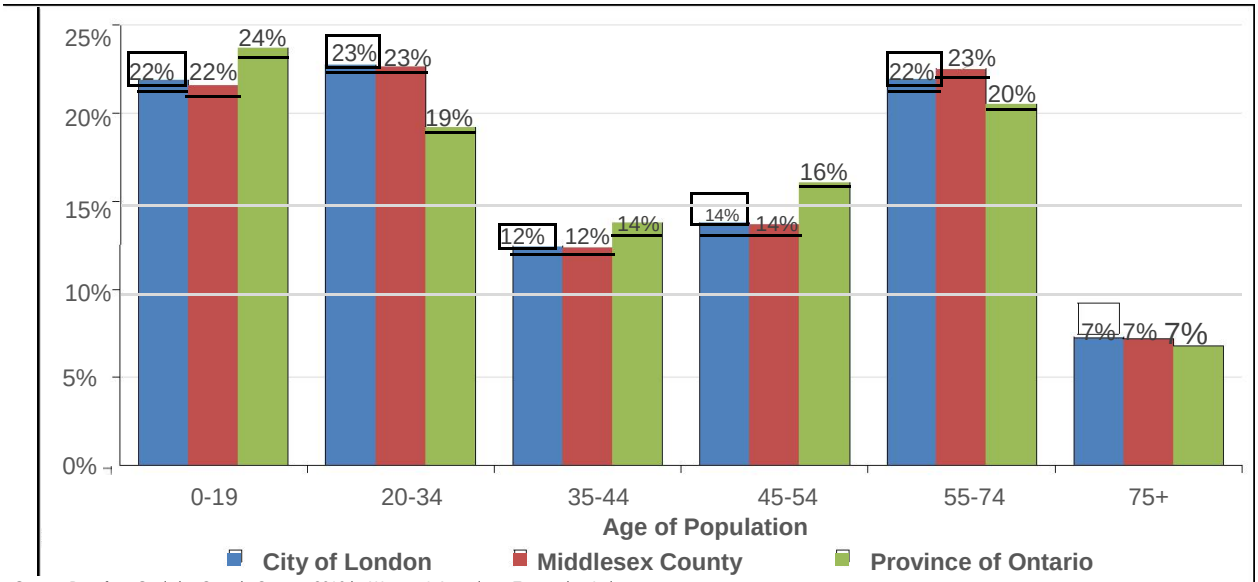
- The 55-74 age group (empty-nesters/younger seniors) increased by 5 percentage points between 1991 and 2011, from 15% to 20%, with much of the increase occurring between 2006 and 2011;
- The 75+ age group (older seniors) has increased from 5% in 1991 to 7% in 2016; and
- Comparably, the City of London has a proportionally higher share of young adults (20-34) relative to the Province, which is offset by a slightly lower share of population in the 35-44 and 45-54 age groups.

Figure 4-3
City of London
Population by Age Cohort, 1991 to 2016



Source: Derived from Statistics Canada 1991-2011 Census by Watson & Associates Economists Ltd.
Includes an undercount of approximately 2.73%

Figure 4-4
City of London
Population Age Structure Relative to Middlesex County and the Province of Ontario, 2016



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

Demographic trends strongly influence both housing need and form. Across the City of London, the population is getting older on average due to the aging of the Baby Boomers. The first wave of this demographic group turned 70 years of age in 2016. Between 2016 and 2044, the 75+ age cohort is forecast to increase from 7.3% to 14.3% within the City of London. This represents an increase of 43,400 people over this time period.

Not only is the Baby Boom age group large in population, but it is also diverse with respect to age, income, health, mobility, and lifestyle/life stage. Accommodating older seniors is a key planning issue across Ontario municipalities including the City of London, as a growing percentage of the population will reach 75 years of age and older over the next 15 years. The aging of the City's population is anticipated to drive the need for seniors' housing and other housing forms geared to older adults (i.e. assisted living, affordable housing, adult lifestyle housing).

The physical and socio-economic characteristics of the 75+ age group (on average) are considerably different than those of younger seniors, empty-nesters and working-age adults. On average, older seniors have less mobility, less disposable income and typically have increased health issues compared to younger seniors. Typically, these characteristics associated with this age group drive their relatively higher propensity for

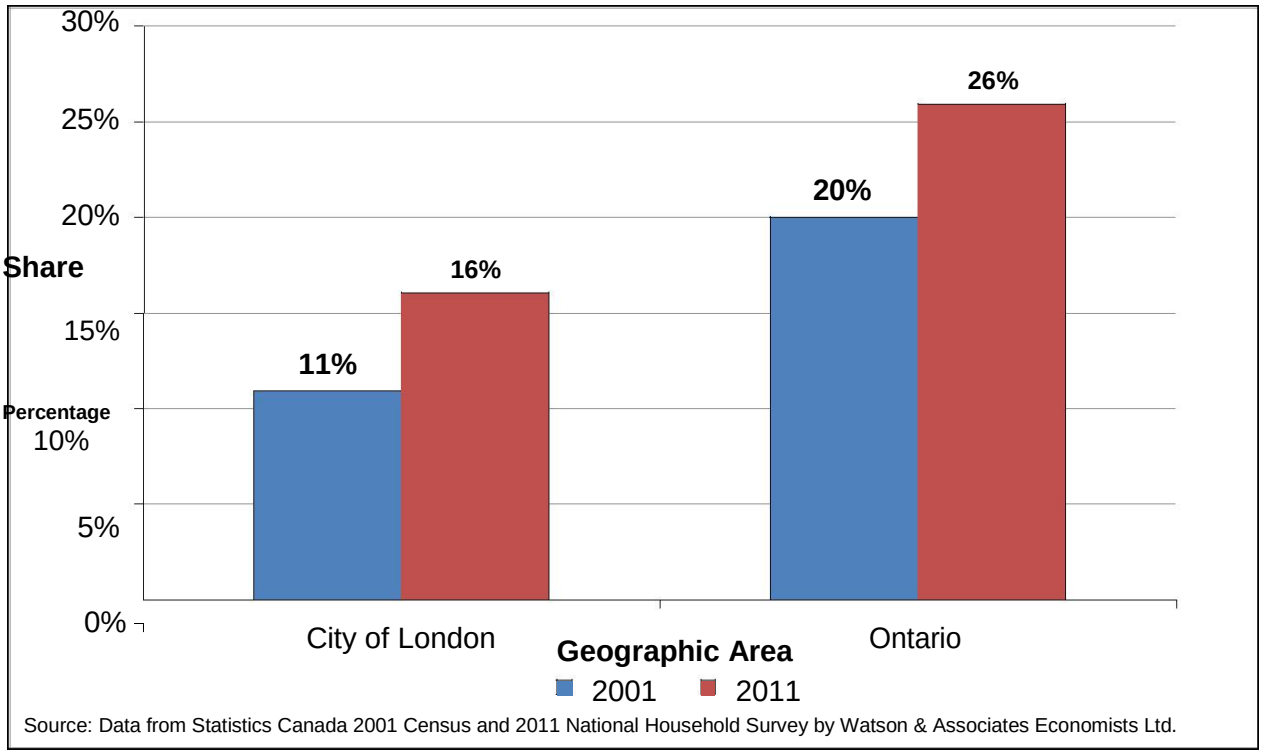
medium- and high-density housing forms that are in proximity to urban amenities (e.g. hospitals/health care facilities and other community facilities geared towards seniors).

Future housing needs in the City of London will also be increasingly impacted by the "Millennial" generation. This cohort represents a large and growing percentage share of the G.G.H. population. While there is no standard age group associated with the Millennial generation, persons born between 1980 and 1992 best fit the definition of this age group. As of 2016, the Millennial population in the City of London represented 21% of the total population base (i.e. population between 19 and 31 years of age). Comparatively, this percentage is significantly higher than Middlesex County and the provincial average. Given the age and size of this cohort, Millennials play a key role for the City of London regarding labour force supply and future housing demand.

4.1.3 The Impacts of Increasing Ethnic Diversity on Future Housing Market Trends

The changing ethnic make-up of the City of London is also anticipated to influence future housing needs associated with population growth. Figure 4-5 identifies the percentage total of population categorized as "visible minorities" according to the 2001 Census and 2011 National Household Survey (N.H.S.), within the City of London and the Province. Between 2001 and 2011, the percentage of visible minorities increased by 5% in the City of London. The growing share of visible minorities within the City of London stresses the importance to address and monitor housing needs as well as municipal service requirements related to this growing demographic segment.

Figure 4-5
City of London
Percentage Share of Population that is a Visible Minority, 2001 and 2011



Source: Data from Statistics Canada 2001 Census and 2011 National Household Survey by Watson & Associates Economists Ltd.

4.2 Review of Recent Housing Trends, City of London

4.2.1 Historical Residential Building Permit Activity by Dwelling Type for the City of London, 2006 to 2016

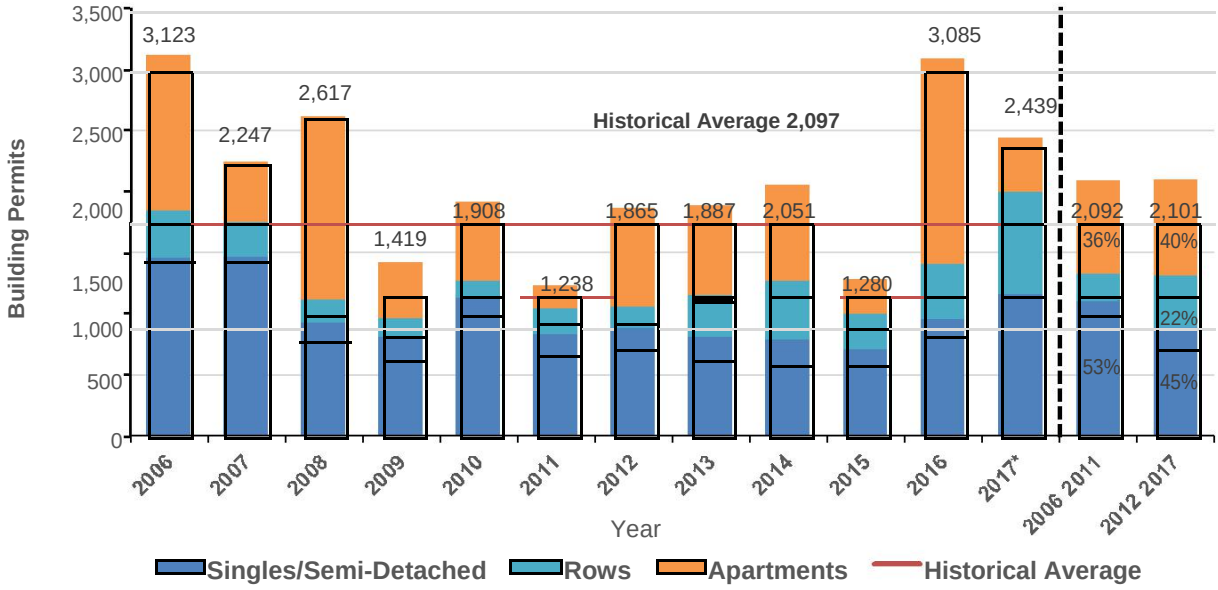
Figure 4-6 summarizes trends in historical residential building permit activity (new units only) for the City of London during the 2006 to 2016 period. Over the past decade:

- The City of London issued an average of approximately 2,060 residential building permits per year for new housing units;
- The average rate of residential building permit activity has modestly declined over the past five years relative to the 2006 to 2010 period;
- The share of residential building permits issued for low-density housing has decreased from 51% during the 2006 to 2011 period, to 40% during the 2011 to 2016 period;
- During this same period, the City has also reported a modest decrease in the share of residential building permits issued for high-density dwellings. This

decrease was off-set by a sharp increase in the share of building permits issued for new medium-density dwellings over the same time period; and

- The number of new residential building permits issued in 2016 rose sharply to 3,117, largely driven by a large number of permits issued for new high-density residential dwellings.

Figure 4-6
City of London
Residential Building Permit Activity by Dwelling Type, 2006 to 2017



Source: Data from the City of London, 2017 is based up to June 30, 2017 that has been annualized by Watson & Associates Economists Ltd.

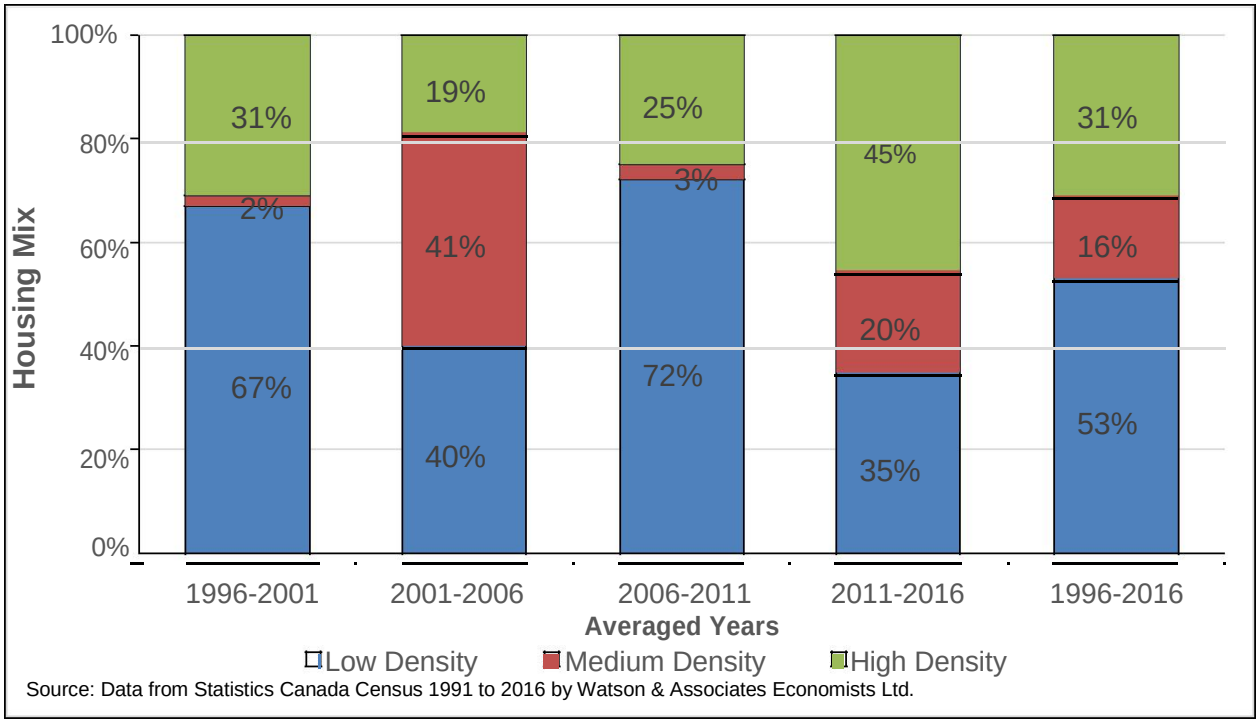
4.2.2 Housing Growth by Structure Type, 1996 to 2016

Figure 4-7 summarizes historical housing growth by structure type from 1996 to 2016 by Census period for the City of London. Key observations include:

- Low-density housing represents the largest share of new households occupied within the City of London over the past 20 years, comprising 53% of total household growth;
- The proportion of housing growth by structure type has fluctuated widely over the past 20 years, most notably for townhouses, and to a lesser extent for low and high-density households;
- Medium-density housing has historically made up a relatively small amount of housing growth in London over the past two decades; and

- Over the forecast period, medium-density housing is anticipated to comprise a growing share of the City's housing market given the relative affordability of medium-density households compared to single/semi-detached units.

Figure 4-7
City of London
Housing Growth by Structure Type, 1996 to 2016



Source: Data from Statistics Canada Census 1991 to 2016 by Watson & Associates Economists Ltd.

4.2.3 Housing Headship Rates, 1991 to 2016

A headship rate is defined as the ratio of primary household maintainers, or heads of households, by major population age group (i.e. cohort).[1] Between 1991 and 2016, the City's total headship rate increased modestly from 0.37 to 0.41 (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. 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

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

years of age. Accordingly, forecast trends in population age structure provide important insights into future headship rates and persons per unit (P.P.U.) trends for the City of London.

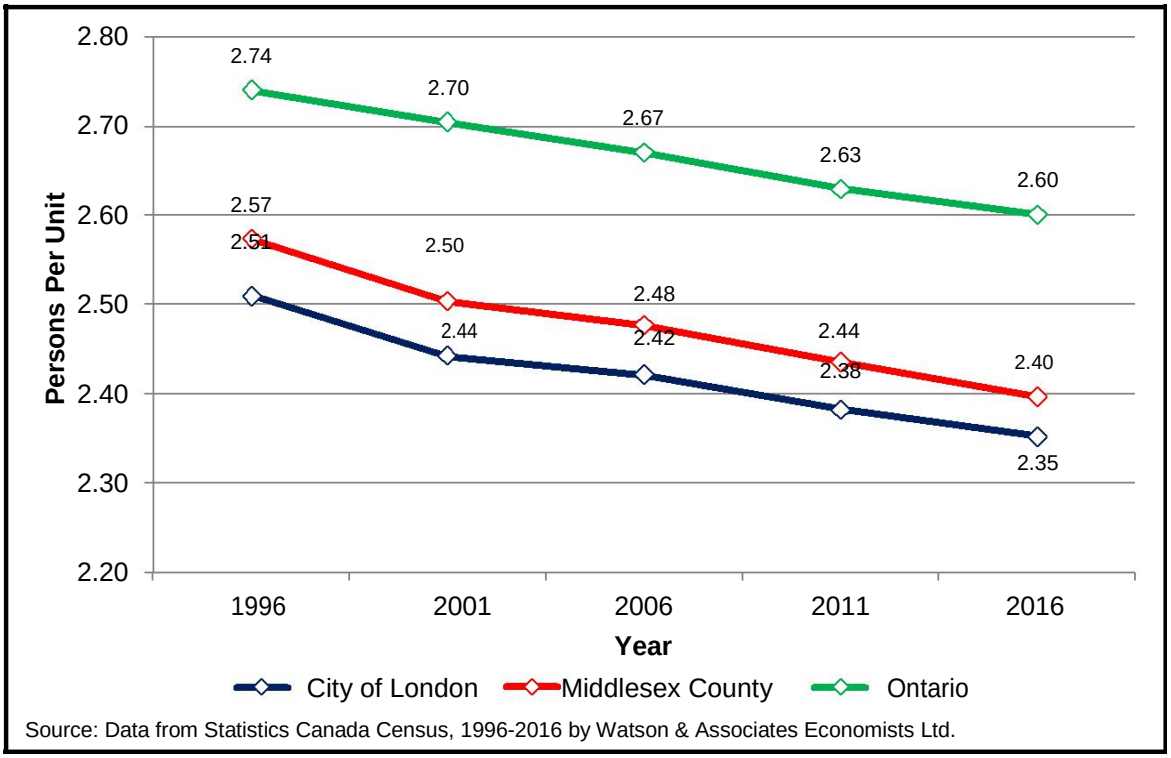
4.2.4 Persons Per Housing Unit, 1991 to 2016

Figure 4-8 summarizes the historical P.P.U. for the City of London from 1991 to 2016 in accordance with Statistics Canada Census data. For comparative purposes, P.P.U. data for Middlesex County and the Province of Ontario has also been provided. Key observations include:

- The average P.P.U. for the City of London has been steadily declining over the 1991 to 2016 period;
- This trend was also observed in Middlesex County and for the Province during this period;
- Both Middlesex County and the City of London experienced a slightly steeper P.P.U. decline than the Province as whole during the 1991 to 2011 period; and
- In 2016, the average P.P.U. for the City of London was 2.35, which is lower than the Middlesex County average of 2.40, and well below the provincial average of 2.60.

The average P.P.U. for the City of London is forecast to continue to decline over the long term. This downward trend in housing occupancy is expected to be driven by the continued aging of the population, which increases the proportionate share of empty-nester and single occupancy households. Over the medium to longer term (i.e. post-2021), the City's P.P.U. decline rate is anticipated to be moderate, driven by increasing trends towards higher occupancy ground-oriented households and a modest increase in multi-family dwellings.

Figure 4-8
City of London
Historical Average Persons Per Unit



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

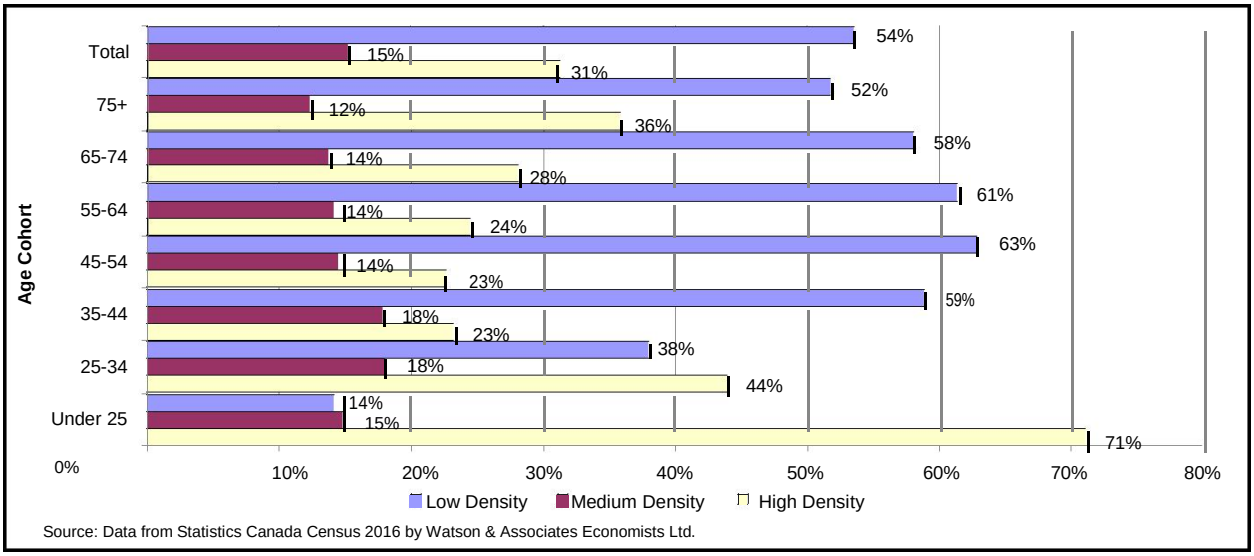
4.2.5 Historical Housing Propensity Trends by Structure Type, 2016

Figure 4-9 summarizes historical housing propensity trends by structure type for the City of London based on 2011 Statistics Canada Census data. Age-specific propensities measure housing demand by dwelling structure type, by age of household maintainer.

As previously mentioned, population age structure impacts several factors such as income/affordability, lifestyle, family size, lifestyle decisions, health and mobility. In the City of London, propensities for high-density housing (apartments and condominium units) are highest among younger age groups, while propensities for low-density housing (single and semi-detached housing) are highest among population age groups between 35 and 64 years of age.

Figure 4-9 identifies that the demand for high-density dwellings is highest among those aged under 25. The preference for high-density dwellings also steadily increases for the 75+ age group. Between 2006 and 2011, housing propensities within the City of London did not change significantly between age groups. For additional information, refer to Appendix B.

Figure 4-9
City of London
Housing Propensity Trends by Structure Type, 2016



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

4.2.6 Historical Trends in Housing Prices and Housing Affordability, 2006 to 2016

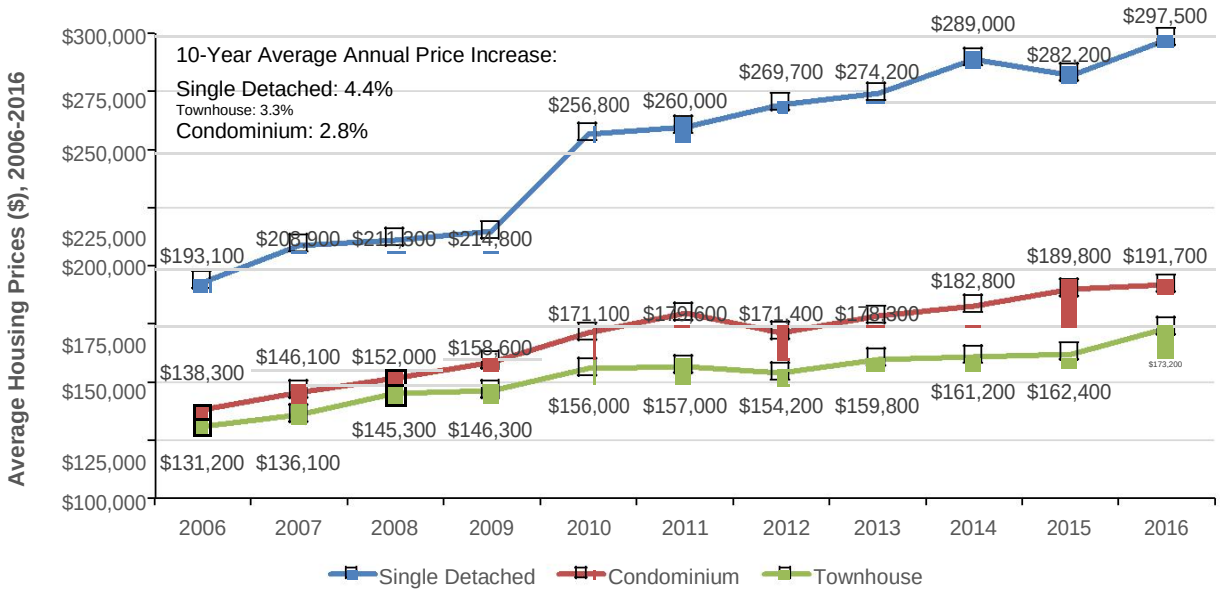
Economic conditions also play a key role in shaping the rate, form, and location of urban development across the City. In recent years, many southwestern Ontario municipalities have experienced a steady increase in housing prices driven by rising land prices, strong population growth and a recovering regional employment market.

In Ontario, housing appreciation has been strongest within the City of Toronto and the surrounding municipalities within the G.G.H.[1] This trend has resulted in a growing gap in housing prices between municipalities located within and outside the G.G.H. This trend in housing prices between the G.G.H. and the City of London has been an important factor driving local and regional housing demand.

Figure 4-10 summarizes historical trends in housing prices within the City of London over the 2006 to 2016 period by housing structure type. As illustrated below, housing prices have steadily increased for low-density households within the City of London over the past decade. During the same historical time period, housing appreciation in the City of London has been relatively lower for townhouse units and condominiums, compared to single detached units.

[1] Within the City of Toronto, the average price of a new single detached home in 2016 was $1,333,000.

Figure 4-10
City of London
Historical Housing Prices, 2006 to 2016



Source: Derived from the London St. Thomas Association of Realtors (LSTAR) Statistics Report by Watson & Associates Economists Ltd.
2006-2009 uses the average housing price in London. 2010 - 2016 uses a weighted average of 2-storey and bungalow style housing for single detached.
It should also be noted that this information is taken from the Multiple Listing Service (MLS), which includes resale.

4.3 Observations

Understanding and monitoring trends in demographics, household occupancy, age structure and income is important for the City of London. These trends have broad implications on the amount, type and density of future housing demand associated with population growth, as well as demands for public infrastructure, municipal services and schools.

Over the past 25 years, the City of London has experienced moderate to steady population growth across all major demographic groups (i.e. children, adults and seniors), largely driven by steady net migration across all ages and, to a lesser extent, natural increase (i.e. births less deaths). Residential development activity over the past two decades within the City of London has been largely driven by ground-oriented housing forms within the City's greenfield areas.

As the City's designated urban lands continue to mature and build out, a growing share of new residential development is expected to occur within the City's intensification nodes, corridors and other redevelopment areas within existing built-up areas. This shift in development patterns, along with the demographic trends discussed above, is anticipated to result in a continued gradual increase in the share of high-density housing

forms (i.e. low-, medium- and high-rise apartments) within the City over the medium and long term.

5. City of London Residential and Non-Residential Land Supply

5.1 Introduction

This chapter briefly assesses the City of London's future residential and non-residential land supply potential.

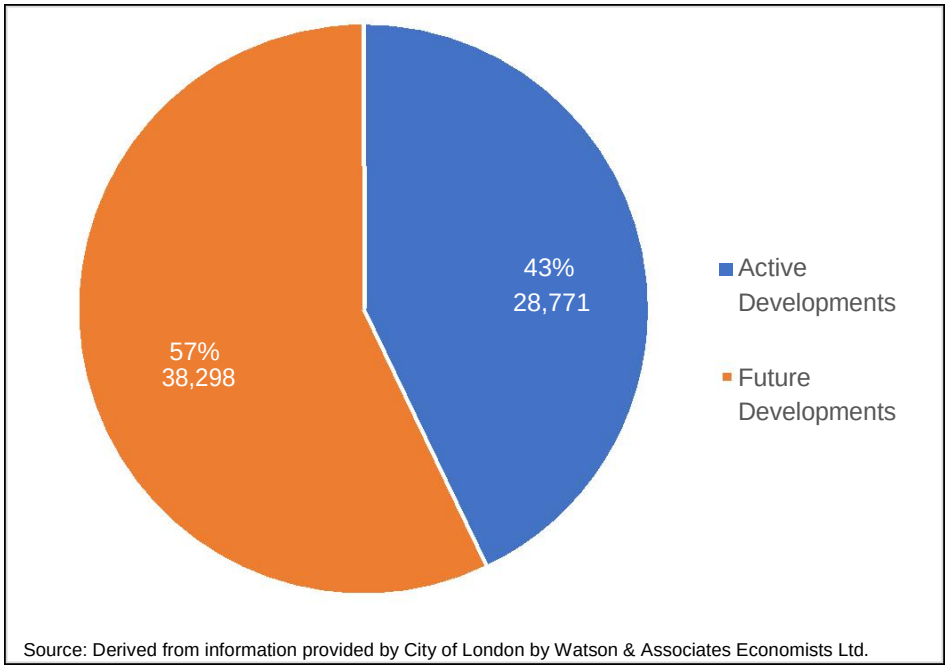
5.2 Future Housing Supply Opportunities

5.2.1 Total Future Housing Supply by Development Status

Figures 5-1 to 5-4 summarize the City of London's current and future urban housing supply potential by stage of development within the development approvals process. This inventory is further categorized by housing structure. Also provided is a summary of residential supply by planning area and housing structure type. Key observations include:

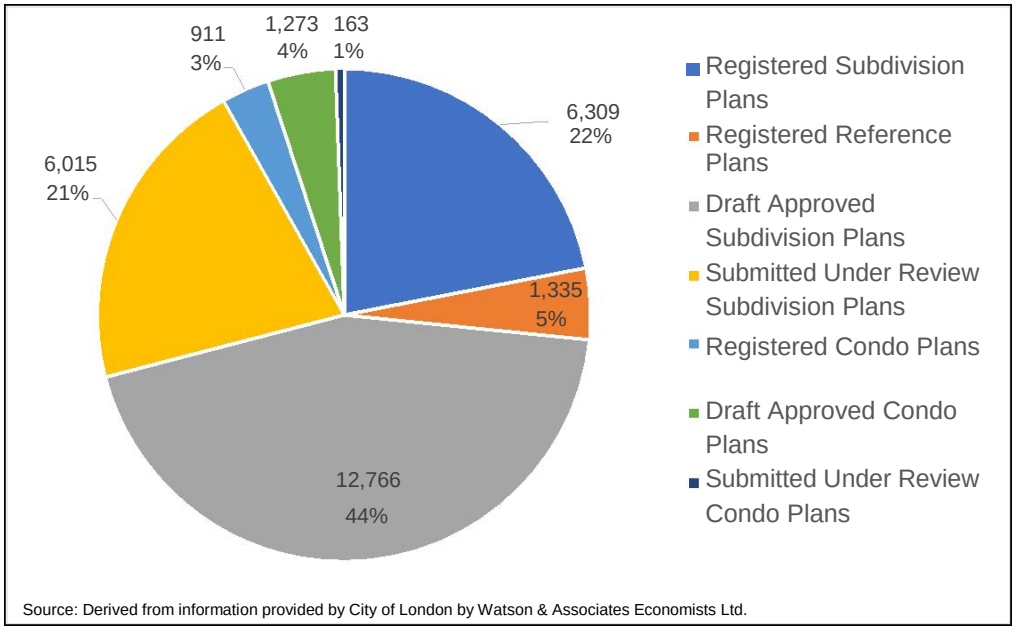
- The City of London has a potential total of approximately 38,300 (57%) future residential units in the development approvals process and a potential total of approximately 28,800 (43%) active residential developments;
- Of the total residential units, currently within the municipal development process, 44% are in draft approved subdivision plans;
- Additionally, 22% of the total future housing supply is registered subdivision and condominium plans;
- Of the total urban units in the development approvals process, 29% are low density (single detached and semi-detached), 45% are medium density (townhouses) and 26% are high density (apartments);
- Of the City's total residential supply potential, 28% is low density (single detached and semi-detached), 39% is medium density (townhouses) and 33% is high density (apartments).

Figure 5-1
City of London
Summary of Active and Future Residential Developments



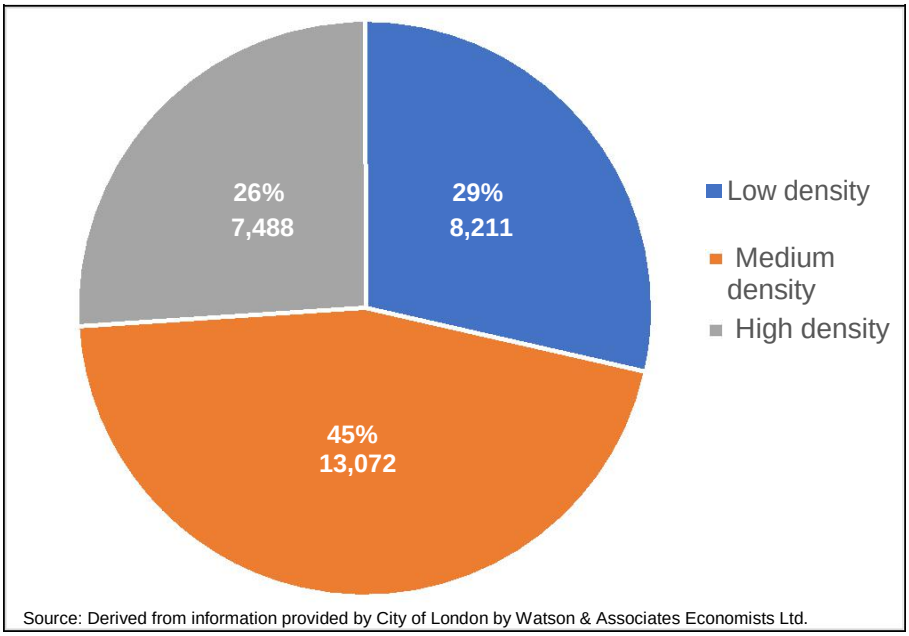
Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

Figure 5-2
City of London
Summary of Residential Supply within the Development Approval Process



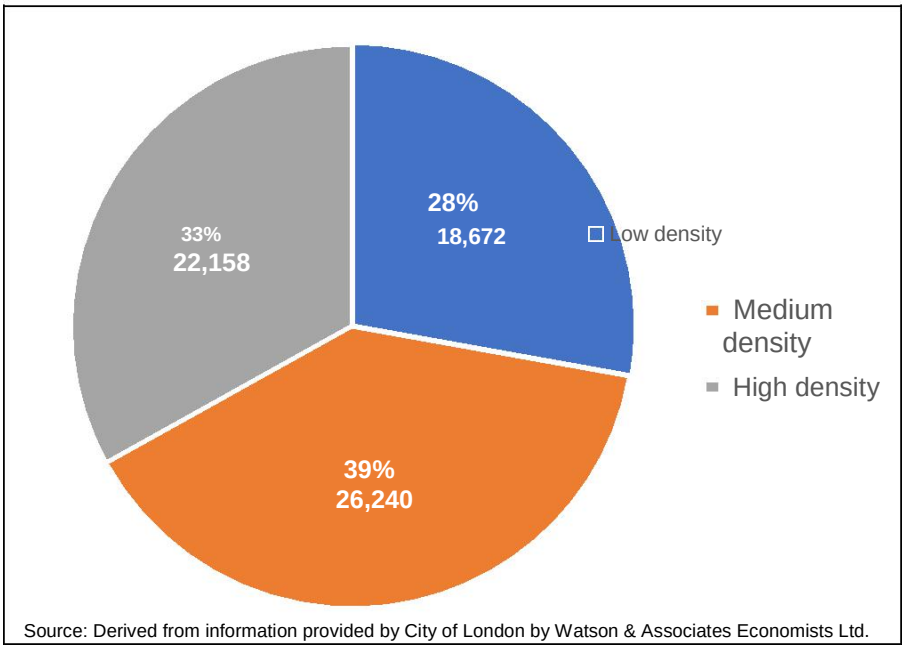
Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

Figure 5-3
City of London
Summary of Future Residential Supply Housing Structure Type (2016)
(Active Developments Only)



Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

Figure 5-4
City of London
Summary of Future Residential Supply Housing Structure Type (2016)
(Active and Future Development)

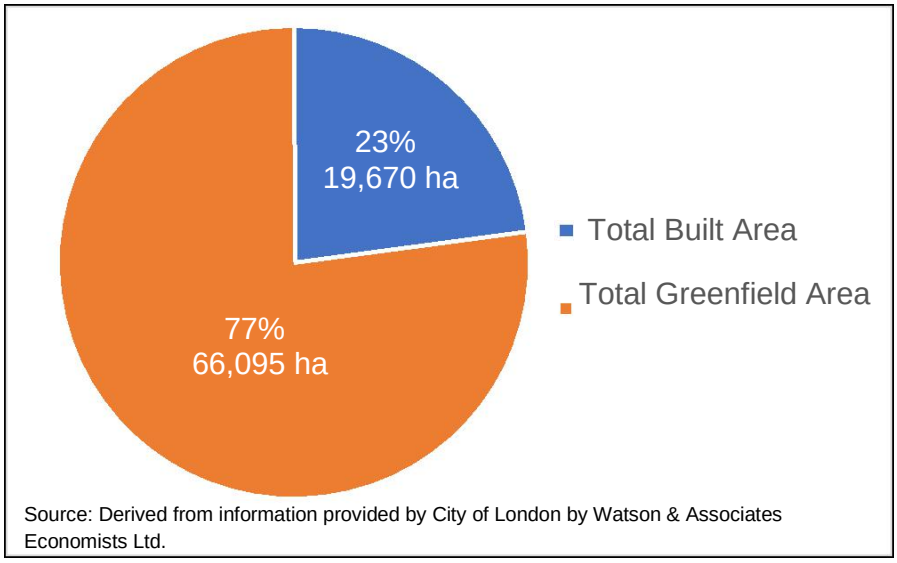


Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

5.2.2 Future Housing Supply Opportunities by Geographic Location

Residential supply for the municipality can be further categorized by Built Area and Greenfield Area. A total of 77% of the City's future housing supply is located within Designated Greenfield Areas, of which 36% is identified as low density, 41% medium density and 23% high density (refer to Figures 5-5 and 5-6). Of the remaining 23% of residential supply in the Built Area, 14% is identified as low density, 31% medium density and 55% high density (refer to Figure 5-7).[1]

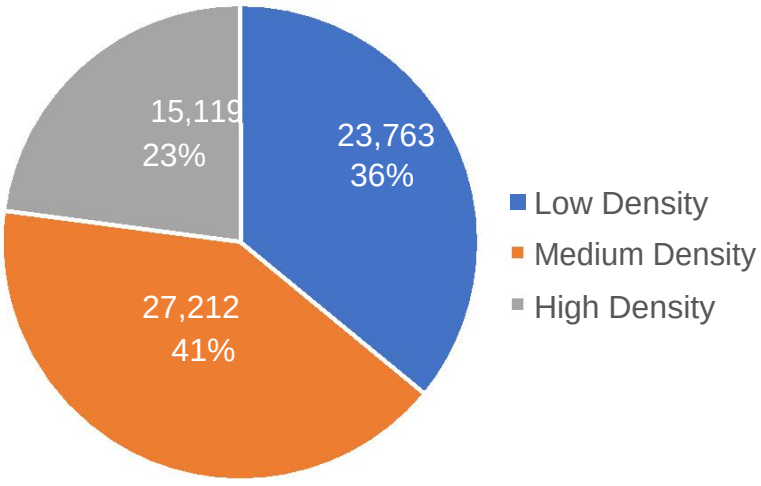
Figure 5-5
City of London
Summary of Residential Supply by Geographic Area (2016)



Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

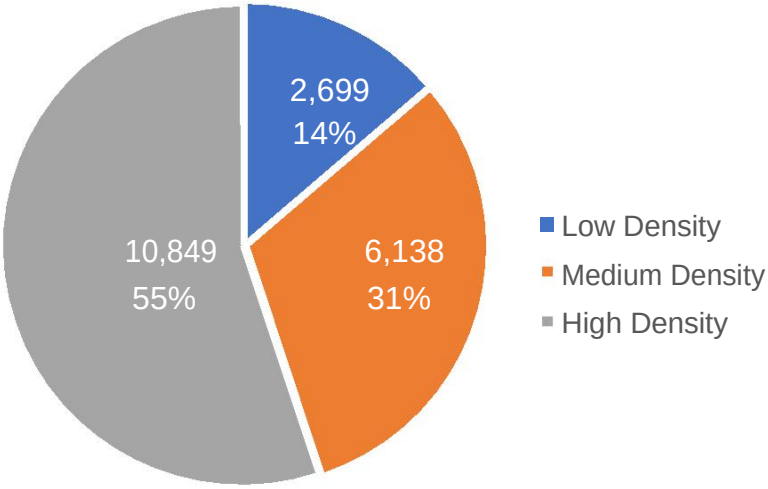
[1] Based on 2011 built boundary.

Figure 5-6
City of London
Summary of Greenfield Area Residential Supply by Density Type (2016)



Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

Figure 5-7
City of London
Summary of Built Area Residential Supply by Density Type



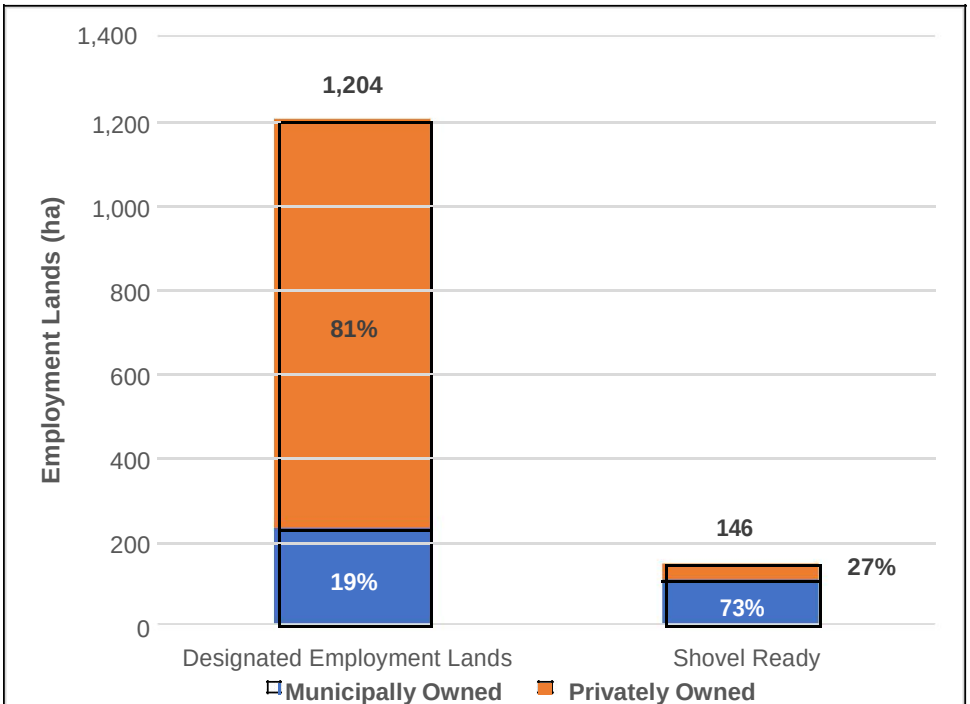
Source: Derived from information provided by City of London by Watson & Associates Economists Ltd.

5.3 Vacant Employment Land Supply

5.3.1 Vacant Designated Employment Lands

Figure 5-8 summarizes the supply of designated vacant employment land and shovel-ready employment land categorized by ownership type for the City of London. As of 2016, the City has a vacant employment land inventory of just over 1,200 ha, of which 81% of these lands are privately owned, while the remaining 19% are under municipal ownership. Of the City's total vacant designated employment lands supply, approximately 146 ha are shovel-ready. The majority of the City's vacant shovel-ready employment land supply is under municipal ownership.

Figure 5-8
City of London
Summary of Vacant Employment Lands by Ownership, Land Area (Hectares), 2016

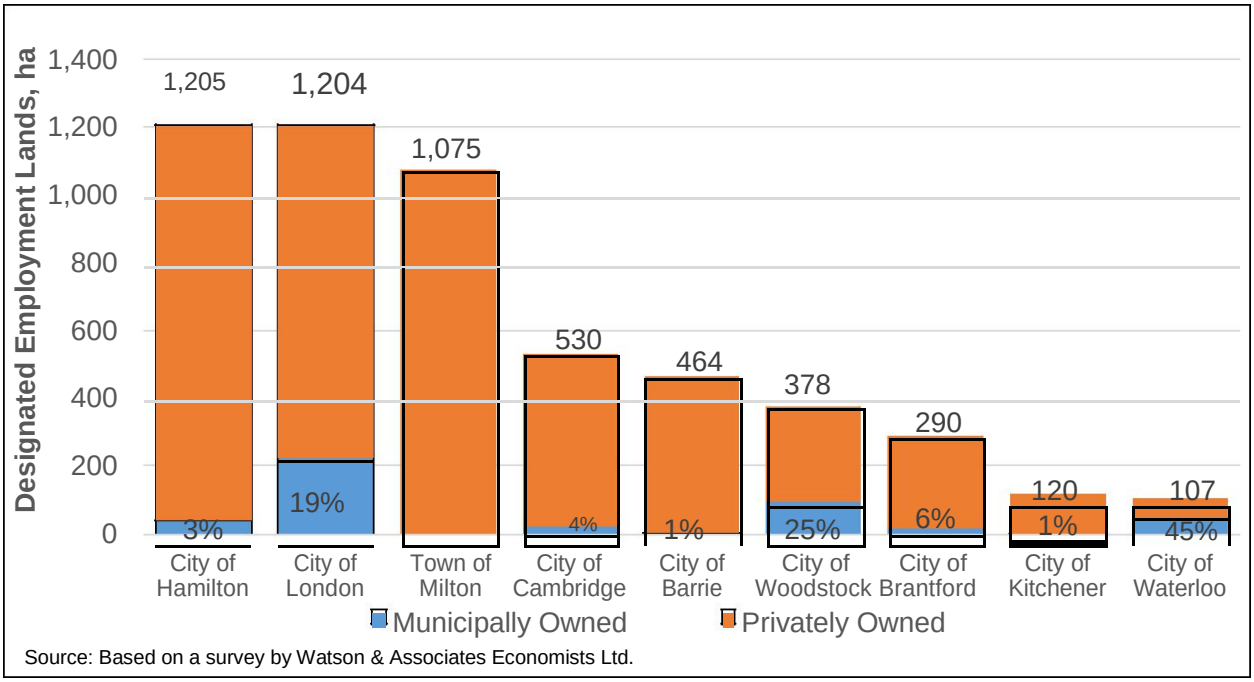


Source: Derived from information provided by the City of London by Watson & Associates Economists Ltd.

Figure 5-9 summarizes the supply of designated vacant employment land in hectares for each of the comparator municipalities as of 2016, by ownership type. This inventory includes all designated vacant employment lands, including serviced and serviceable lands. Key observations include the following:

- A total of 5,374 net ha of vacant, designated employment lands has been identified within the comparator municipalities surveyed;
- The City of Hamilton, City of London and the Town of Milton have significantly more designated employment lands than the other comparator municipalities surveyed;
- With a total of 19% of its employment lands under municipal ownership, the City of London has more municipally owned employment lands than the other comparator municipalities surveyed;
- All of the designated vacant employment lands available within the Town of Milton are privately owned, while municipal ownership of employment lands in the City of Barrie and the City of Kitchener is very limited;
- The Cities of Waterloo and Kitchener have a very small supply of designated employment lands with only 107 hectares and 120 hectares, respectively;
- A major component of the designated employment land supply in the City of Cambridge includes the currently un-serviced East-Side employment lands, which total 308 net hectares of developable land area. These employment lands are designated in the Region of Waterloo Official Plan and have been recently designated in the City of Cambridge Official Plan as Prime Industrial Strategic Reserve. As per the Region of Waterloo Official Plan, these lands are envisioned to accommodate large-scale industrial users; and
- The City of Hamilton has approximately 555 net hectares of developable designated employment lands in the Airport Employment Growth District (A.E.G.D.). These lands require servicing; however, they are expected to provide the City of Hamilton with employment growth opportunities by 2031. Transportation Master Plans have identified various infrastructure projects required for the development of the A.E.G.D. lands to the year 2031 and in April, 2015, the Ontario Municipal Board (O.M.B.) issued a decision resulting in a final Secondary Plan.

Figure 5-9
City of London
Designated Employment Lands, Land Area (Hectares), 2016



Source: Based on a survey by Watson & Associates Economists Ltd.

5.3.2 Vacant Shovel-Ready Employment Lands

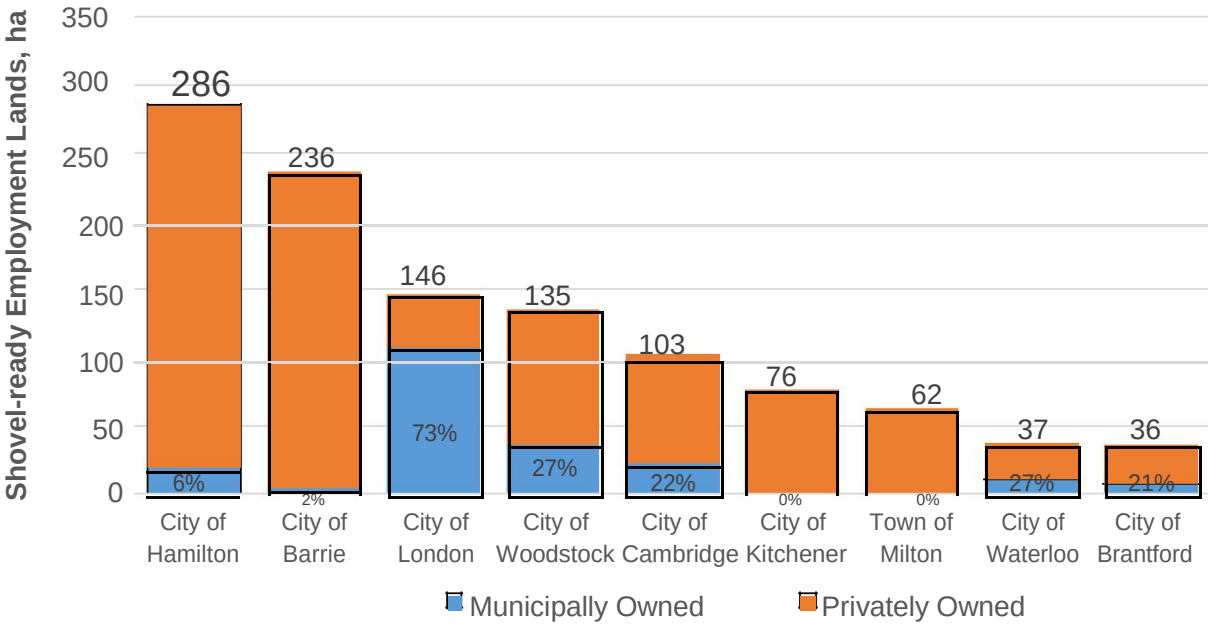
Figure 5-10 provides an overview of shovel-ready employment lands for each of the comparator municipalities. This review was completed based on data obtained from a variety of municipal reports, as well as a review utilizing Google Earth Imagery. For the purposes of this analysis, shovel-ready employment lands are defined as employment lands that are designated, serviced and have the potential to be developed within a short timeframe (within 6 months). Lands that currently lack road access or are landlocked, have poor site configuration, and/or are not subdivided, have not been included in the shovel-ready inventory. Key observations include the following:

- A total of 1,117 net ha of shovel-ready employment lands was inventoried within the comparator municipalities surveyed. This represents 21% of total designated employment lands within the comparator municipalities surveyed;
- The supply of shovel-ready lands ranges from 286 net hectares in the City of Hamilton to 36 net hectares in the City of Brantford;
- Within the City of Hamilton, approximately 6% of the shovel-ready land area comprises lands owned by the City;
- The City of Barrie has approximately 236 net hectares of shovel-ready employment lands, largely concentrated in the City's south end. Barrie has a

very small supply of municipally owned employment lands accounting for only 2% of the land area of the shovel-ready land supply;

- The City of London has the largest supply of municipally owned shovel-ready employment lands, totalling 73% of the City's total shovel-ready employment land supply; and
- The Cities of Woodstock and Cambridge have a modest shovel-ready employment land supply of 135 net hectares and 103 net hectares, respectively. Municipally owned shovel-ready employment lands account for a large share of the shovel-ready employment land supply in Woodstock and Cambridge at 27% and 22%, respectively.

Figure 5-10
City of London
Shovel-ready Employment Lands, Land Area (Hectares) by Ownership, 2016



Source: Based on a survey by Watson & Associates Economists Ltd.

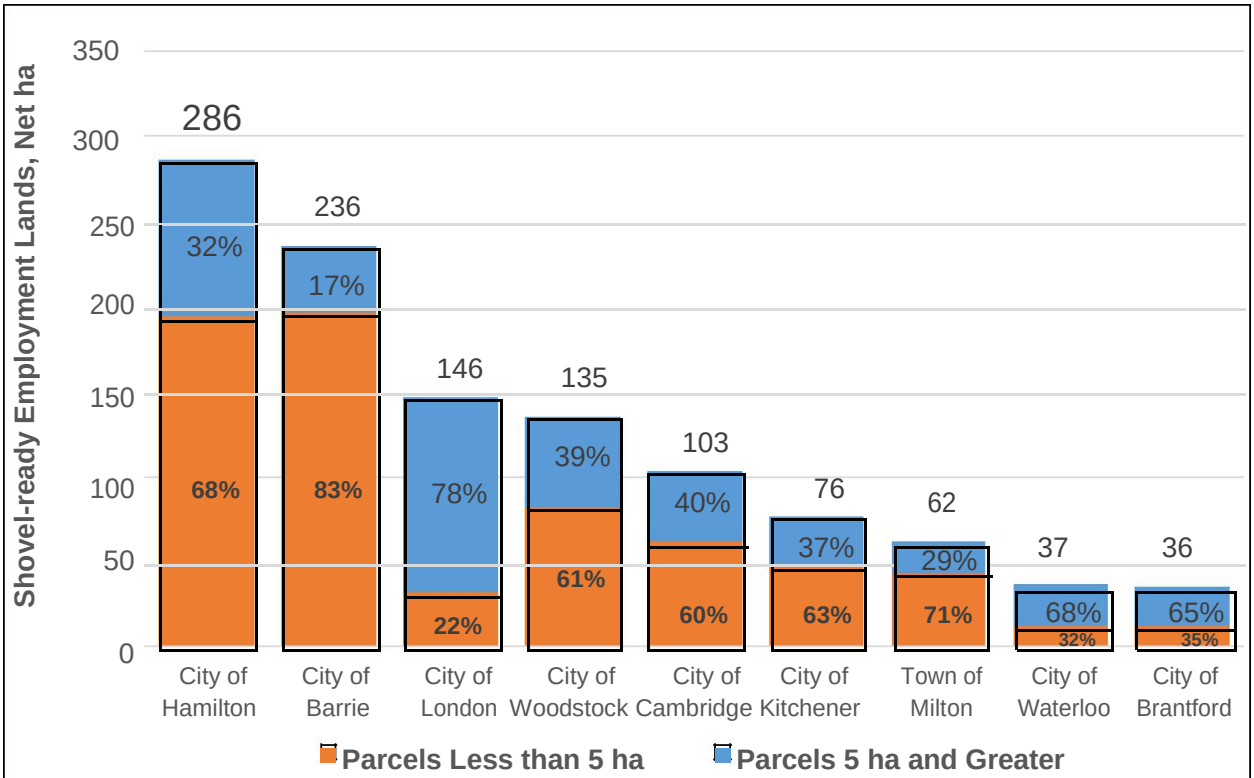
Figure 5-11 summarizes the supply of shovel-ready employment lands categorized by large parcels (5 ha and greater) and small to medium parcels (less than 5 ha). Key observations include the following:

- The Cities of London and Hamilton have a large supply of shovel-ready lands to accommodate large-scale users requiring sites of 5 hectares or greater. Within the City of London, the supply of large parcels accounts for 78% of the total land

area of shovel-ready lands, while in the City of Hamilton the supply of large parcels accounts for 32% of the total shovel-ready land supply; and

- The Cities of Barrie, Brantford, Waterloo, Cambridge, Kitchener and the Town of Milton currently have a very limited supply of shovel-ready employment lands available to accommodate large-scale industrial users requiring sites which are 5 hectares or greater in area.

Figure 5-11
City of London
Shovel-ready Employment Lands, Land Area (Hectares) by Parcel Size, 2016



Source: Watson & Associates Economists Ltd.

5.4 Conclusions

A major factor in the future competitiveness of London's economic base, which is largely controllable by the City, relates to the supply of vacant serviced and serviceable residential and non-residential lands. The City of London has a significant supply of future housing units within its vacant lands inventory totalling just over 67,000 potential housing units. This level of housing supply is more than sufficient to accommodate the City-wide housing forecast to the year 2044. London also contains a sufficient City-wide supply of housing units across a wide-range of housing types which are currently identified in active plans. Further consideration, however, will need to be given to the

location of the City's housing supply in accordance with anticipated short- to medium-term housing demand. This assessment will help inform and prioritize the phasing of future housing development by greenfield planning area.

The City of London also has an ample supply of designated vacant employment lands to accommodate industrial growth over the long term, estimated at just over 1,200 ha (2,965 acres). Notwithstanding the adequacy of the City's supply of vacant designated employment lands, London's inventory of "shovel-ready" employment lands is limited to approximately 146 ha (361 acres). In order to ensure that employment development on employment lands is not unduly constrained, the City should explore options which would encourage the servicing of additional privately owned industrial lands.

6. Population and Housing Forecast, 2014 to 2044

6.1 Introduction

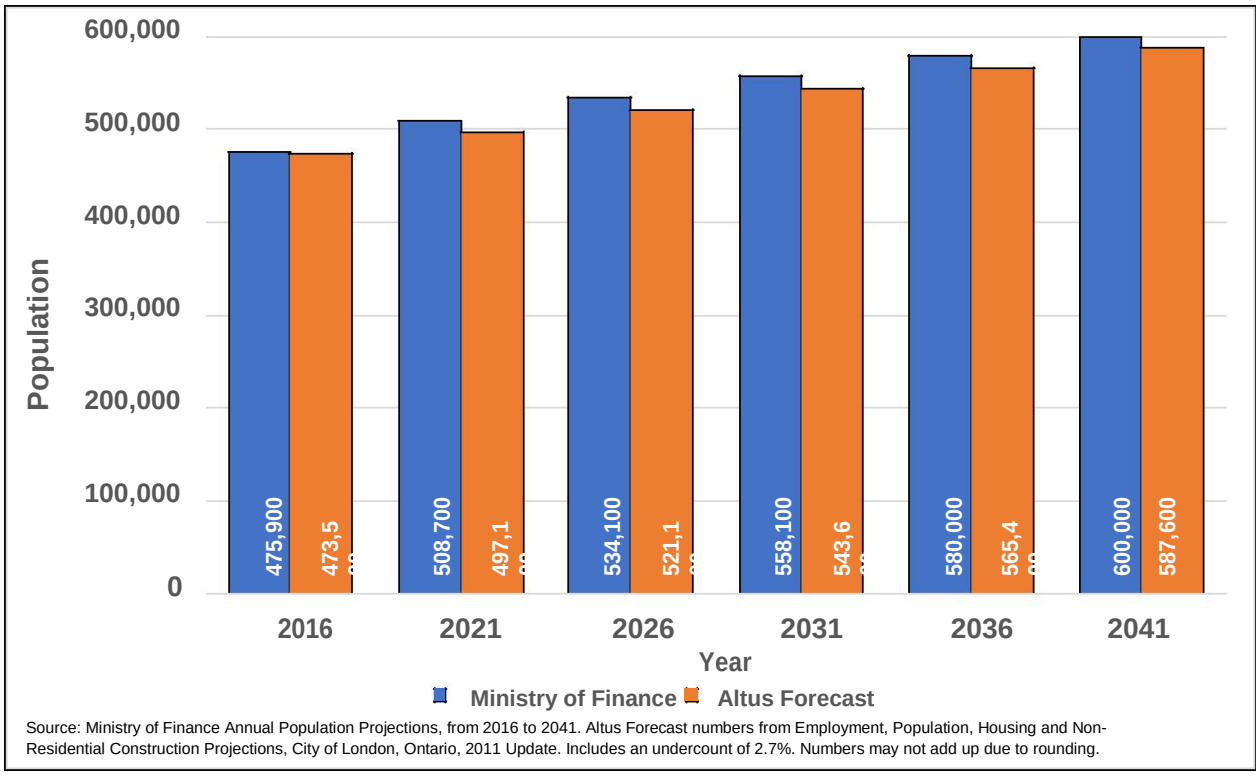
This chapter provides an assessment of the long-term population and housing growth potential for the City of London to the year 2044 in five-year increments, building on the analysis summarized in Chapters 3 through 5.[1] In developing the City of London's long-term population forecast, considerations have also been given to the most recent long-term population projections for Middlesex County, based on the Ministry of Finance (MOF) Spring 2017 projections – reference scenario.[2, 3]

6.2 Middlesex County Long-Term Population Forecast, 2016 to 2041

Figure 6-1 compares the long-term population forecast for Middlesex County[2] in accordance with the Spring 2017 MOF reference scenario against the Middlesex County[2] population forecast prepared by Altus Group in 2012. [4] Overall, the population growth forecast for Middlesex County, as per the Spring 2017 MOF projections, is tracking slightly higher than the Middlesex County population forecast prepared by Altus Group in 2012. By 2041, the Spring 2017 MOF population forecast is projected to reach a population of 600,000 persons, which is approximately 12,400 persons higher than the 2012 Middlesex County population projections prepared by Altus Group. Based on our review of recent population growth trends between the City of London and Middlesex County, it would appear that the majority of the additional population growth assigned to Middlesex County,[2] as per the Spring 2017 MOF projections, should be allocated to the City of London.

[1] The 2041 to 2044 period represents a three-year increment.
[2] For the purpose of this analysis, Middlesex County includes the City of London.
[3] Ministry of Finance, Spring 2017 Update, Table 13.8: Population by five-year age group, 2016-2041 – reference scenario Middlesex.
[4] Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario 2011 Update.

Figure 6-1
Middlesex County
Long-Term Population Forecast, 2016 to 2041

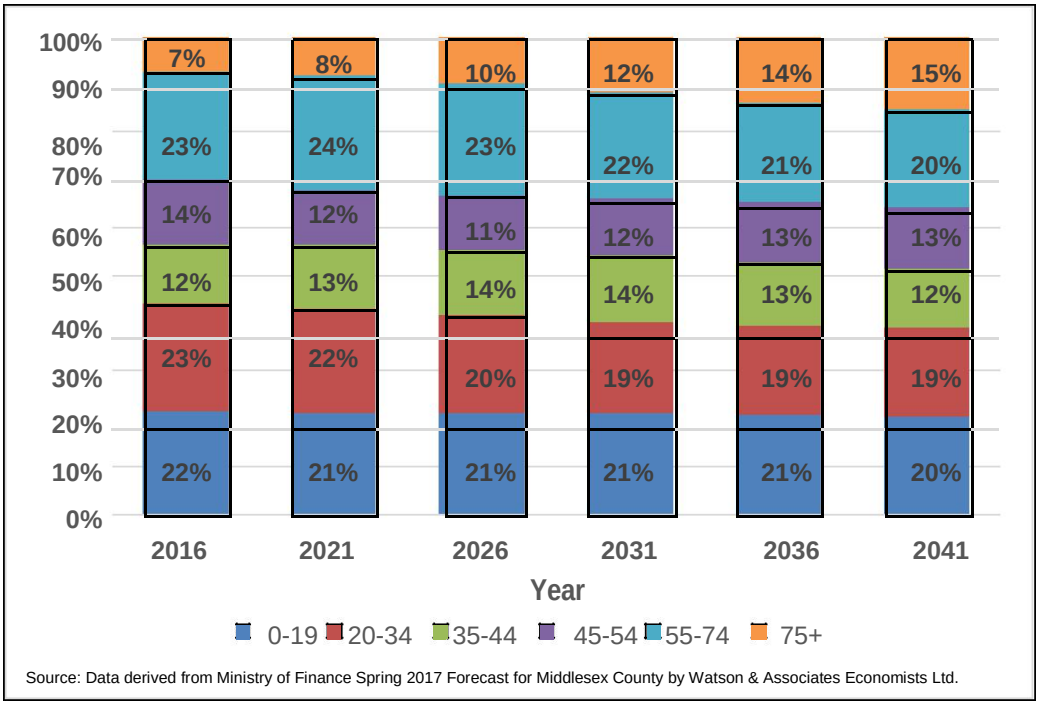


Source: Ministry of Finance Annual Population Projections, from 2016 to 2041. Altus Forecast numbers from Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Includes an undercount of 2.7%. Numbers may not add up due to rounding.

Figure 6-2 summarizes the Spring 2017 MOF population projections for Middlesex County[1] by major age cohort, while Figure 6-3 illustrates the Middlesex County[1] population projection by age cohort prepared by Altus Group in 2012. As summarized below, the Spring 2017 MOF population projections anticipate a slightly more aggressive shift in the population age structure towards the older segments of the population (i.e. 55+). This trend is offset by a more aggressive decline in the share of children and young adults/adults (i.e. 0-44 years of age). For more detailed information about the Ministry of Finance forecast and Altus forecast, please refer to Appendix D.

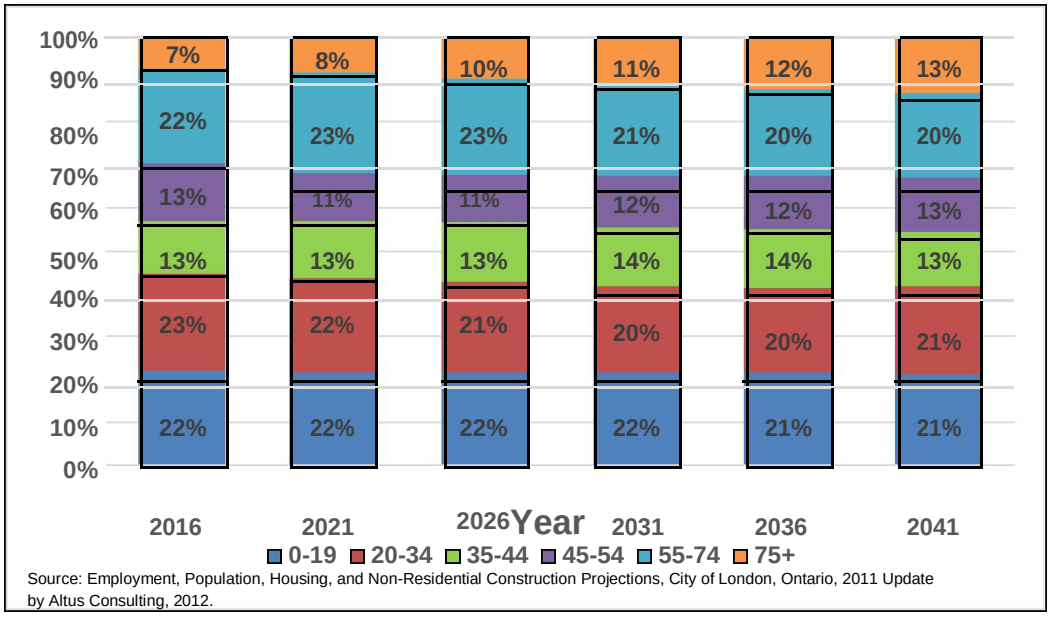
[1] For the purpose of this assignment, Middlesex County includes the City of London.

Figure 6-2
Ministry of Finance Spring 2017 Projections for Middlesex County
Population Forecast by Age Cohort, 2016 to 2041



Source: Data derived from Ministry of Finance Spring 2017 Forecast for Middlesex County by Watson & Associates Economists Ltd.

Figure 6-3
Altus Group 2012 Projections for Middlesex County
Population Forecast by Age Cohort, 2016 to 2041



Source: Employment, Population, Housing, and Non-Residential Construction Projections, City of London, Ontario, 2011 Update by Altus Consulting, 2012.

6.3 City of London Long-Term Population Growth Scenarios[1]

As previously discussed, a broad range of considerations related to demographics, economics, socio-economics and infrastructure development are anticipated to drive future growth throughout the City over the long-term planning horizon. These factors will not only impact the rate and magnitude of growth but will also influence the form, density and location of residential development throughout the City.

Building on the demographic and economic analysis provided in Chapters 3 and 4, a total of three long-term population and housing forecasts have been prepared for the City of London: 1) Low Population Growth Scenario; 2) High Population Growth Scenario; and 3) Reference Population Growth Scenario. A range of forecast population and housing growth has been generated from these respective scenarios largely based on varying assumptions regarding annual net migration and corresponding new housing construction. Figure 6-4 graphically summarizes the two alternative long-term population growth forecasts for the City, as well as the Reference Population Growth Scenario. It is noted that the long-term population growth scenarios include an upward adjustment of approximately 2.7% to account for the net Census undercount.[2]

Low Population Growth Scenario: The Low Population Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year. This scenario assumes that net migration will not significantly rise relative to historical trends. As a result of declining natural increase, the City's population growth rate is forecast to steadily decline from 1.0% (2016 to 2021) to 0.5% (2016 to 2044).

High Population Growth Scenario: Under the High Population Growth Scenario, the City's population is forecast to grow at an average annual rate of 1.2% per year. This represents an average annual growth rate which is slightly higher than what the City has achieved in relatively high historical growth periods such as 2001 to 2006 and 2011 to 2016.

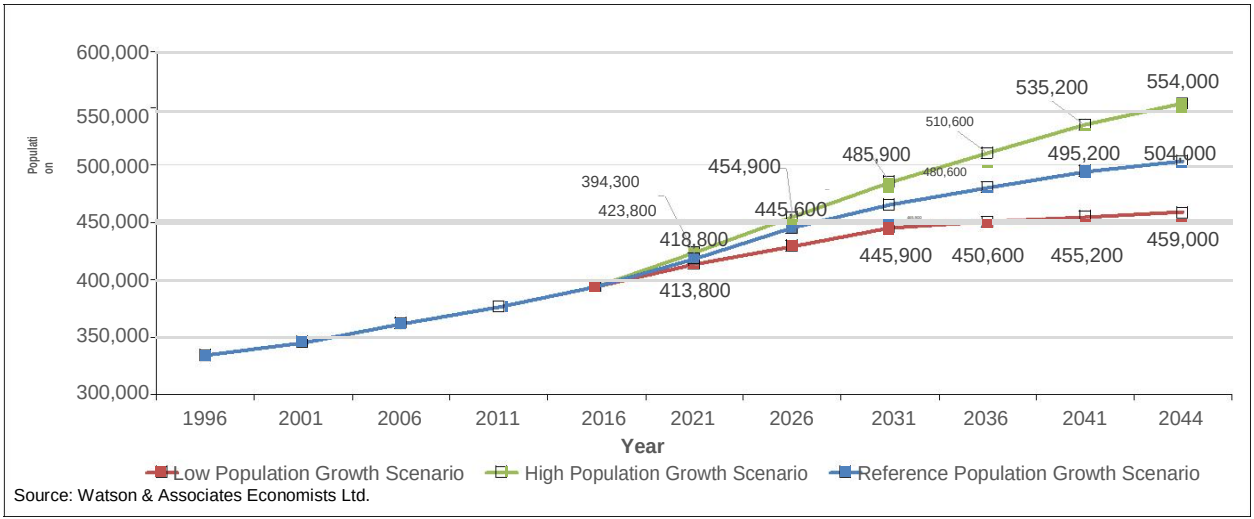
Reference Population Growth Scenario: Assumes that the City of London will achieve a 2044 population forecast of 504,000 by 2044. This represents an annual population growth rate of 0.9% between 2016 and 2044. In accordance with historical

[1] It is noted that the long-term population growth scenarios provided herein exclude students which have not already been captured in the permanent population base.

[2] The net Census undercount represents the net number of persons missed during Census enumeration.

labour force and population growth trends within the London CMA and the City of London, as well as a review of forecast economic growth and net migration potential for the City of London, the Reference Population Growth Scenario is recommended as the preferred long-term scenario.

Figure 6-4
City of London
Population Growth Forecast Scenarios, 2016 to 2044



Source: Watson & Associates Economists Ltd.

6.4 Labour Force Growth Forecast, 2016 to 2044

Figure 6-5 summarizes the long-term labour forecast growth forecast for the City of London from 2016 to 2044 (refer to Appendix C). As previously addressed in Chapter 2, local labour force growth represents the primary driver of future net migration within the City of London. The City's forecast labour force growth potential is largely tied to local employment growth opportunities within the City, as well as employment growth potential within primary and secondary commuter-sheds (i.e. potential opportunities for out-commuters).

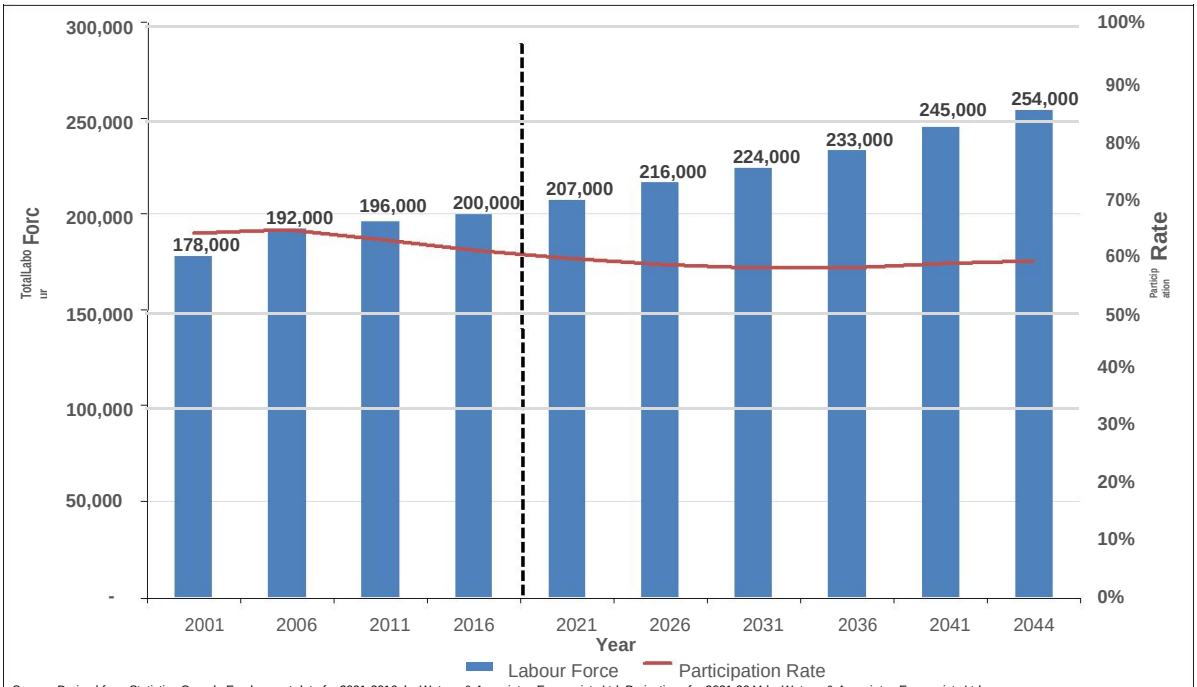
Based on our review of historical labour force trends by place of work, as well as future local and regional employment growth potential, it is anticipated that the share of the City's labour forecast will gradually shift towards those who commute outside the City for employment and those who have N.F.P.O.W. Notwithstanding this trend, City of London residents who live/work within the City (including those who work from home) will continue to comprise the majority of the City's future labour force base. By 2031, the City of London total labour force is forecast to grow to 224,000, which represents an increase of 24,000 over the next 15 years. By 2044, the City's total labour force is forecast to reach 254,000, representing a further increase of 30,000 over 13 years.

As previously identified, the population and labour force base are aging across the Province as well as at the regional level. Looking forward, the aging labour force base is anticipated to result in a gradual decline in the labour force participation rates over the first half of the forecast period (2016 to 2031) from 60% to 57%.[1] By 2031, labour force participation rates are forecast to stabilize, followed by a slight increase to approximately 59%, largely driven by higher labour force participation in the 55+ age group over the long term.

Over the first half of the forecast period, labour forecast growth rates are forecast to grow at a slightly lower rate relative to recent trends experienced over the past 15 years. As previously discussed in Chapter 3, the City's labour force grew at an annual rate of 0.8% between 2001 and 2016. In the first half of the forecast, 2021 to 2031, the City of London labour force growth rate is projected to remain stable and grow at 0.8% annually. In the later half of the forecast, during the 2031 to 2041 period, the City of London labour force growth rate is forecast to slightly increase at approximately 0.9% annually.

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

Figure 6-5
City of London
Forecast Labour Force Growth, 2016 to 2044



Source: Derived from Statistics Canada Employment data for 2001-2016, by Watson & Associates Economists Ltd. Projections for 2021-2044 by Watson & Associates Economists Ltd.

6.5 Components of Forecast Population Growth

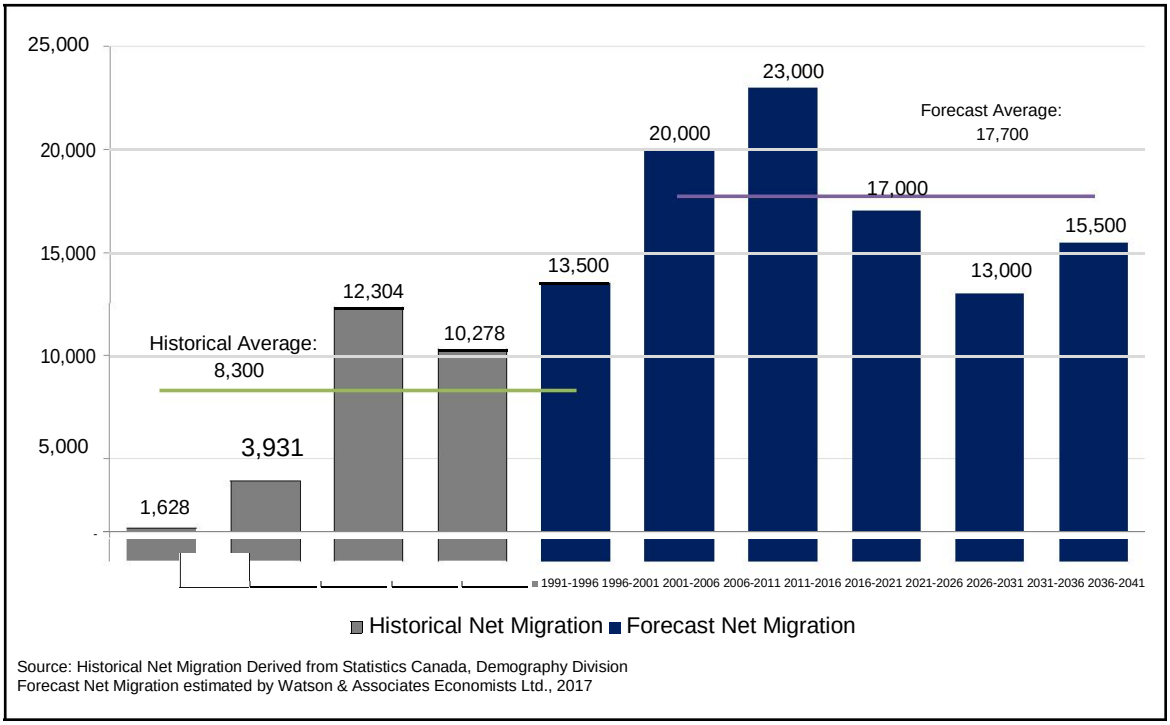
6.5.1 City of London Net Migration Forecast, 2016 to 2044

As previously discussed, net migration represents the primary driver of long-term population growth for the City of London. Over the next several decades, the City is anticipated to experience relatively strong net migration across all major age groups. Similar to recent trends, net migration trends are anticipated to be strongest within the 0-19 and 20-34 age groups (children and young adults). As previously discussed, net migration in the City of London is anticipated to be largely driven by the long-term economic growth prospects in the regional economy and surrounding commuter-shed. Local housing growth opportunities across a broad range of demographic groups (i.e. first-time homebuyers, families, empty-nesters and seniors) and the City's attractiveness as a place to work and live are also identified as key drivers of net future migration within the City.

Figure 6-6 summarizes forecast net migration for the City of London over the 2016 to 2044 forecast period relative to actual net migration levels achieved during the 1991 to 2011 period. In comparison to historical trends, average net migration over the next 28

years is forecast to be well above historical levels experienced between 1991 and 2011. The City of London is forecast to add an average of approximately 3,540 net migrants annually between 2016 and 2041, or approximately 17,700 every five years.

Figure 6-6
City of London
Forecast Net Migration (Reference Population Growth Scenario)

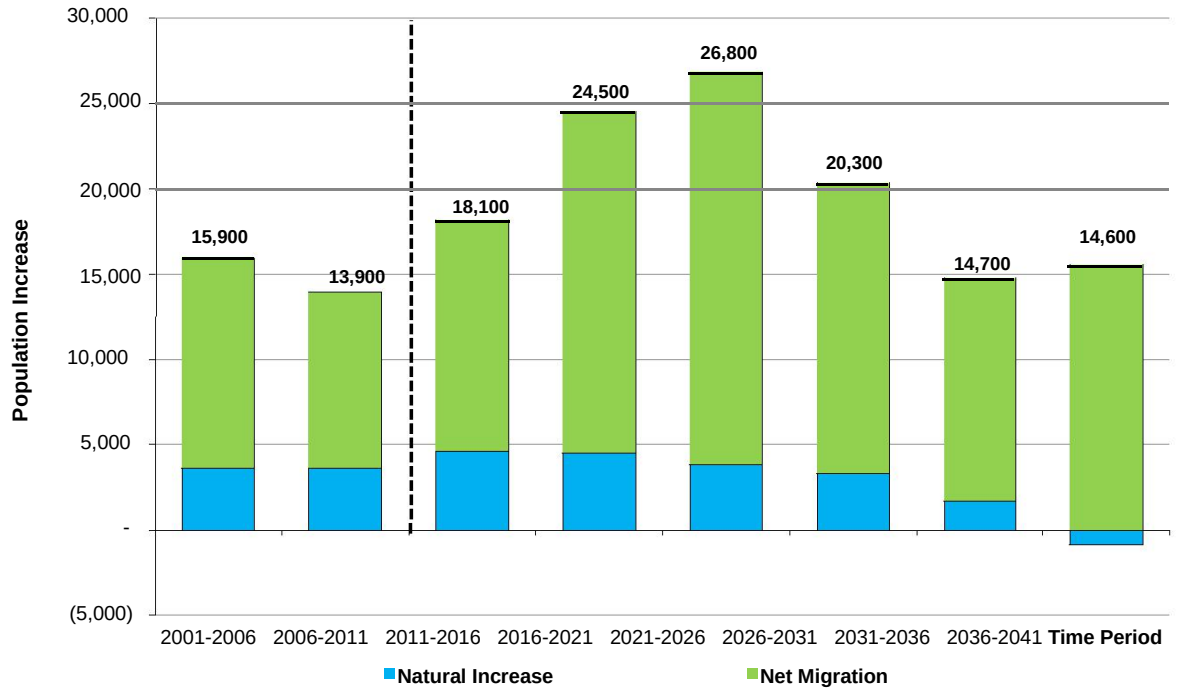


Source: Historical Net Migration Derived from Statistics Canada, Demography Division
Forecast Net Migration estimated by Watson & Associates Economists Ltd., 2017

6.5.2 Forecast Trends in Natural Increase (Births Less Deaths), 2016 to 2044

As previously discussed, population growth associated with natural increase steadily diminished between 1991 and 2016 for the City of London as a result of the City's aging population, combined with lower fertility rates relative to historical trends. Over the forecast period, the population growth from natural increase is forecast to steadily decline between 2016 and 2044, due to the continued aging of the City's population. This trend is consistent with most Ontario and Canadian municipalities. The implication of this trend is that the City will become increasingly dependent on net migration as a source of population growth. As illustrated in Figure 6-7, net migration is anticipated to comprise approximately 88% of total population growth for the City of London during the 2016 to 2041 period.

Figure 6-7
City of London
Historical and Forecast Net Migration vs. Natural Increase



Source: Derived from Statistics Canada, Demography Division. 2006-2011 estimated by Watson & Associates Economists Ltd., includes Census undercount of approximately 2.7%. 2016 Population increase is an estimate by Watson & Associates Economists Ltd.

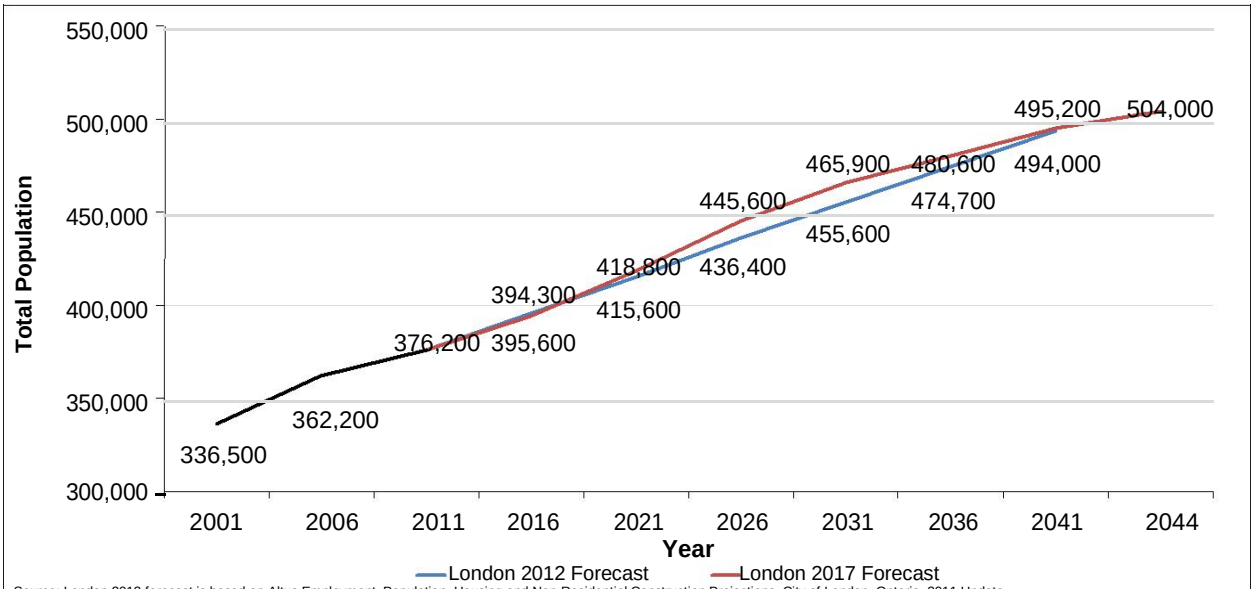
6.6 City of London Population Forecast, 2016 to 2044

Figure 6-8 summarizes the City's Reference Population Growth Scenario in five-year increments over the 2016 to 2044 forecast period relative to historical population between 1991 and 2016. For comparative purposes, the 2012 (Altus) population forecast for the City of London has also been provided.

Adjusted for the Census undercount, the City of London is forecast to reach a population of approximately 465,900 by 2031 under the Reference Population Growth Scenario. By 2041, the City's population is forecast to grow to 495,200 and ultimately 504,000 by 2044.[1] Under this growth scenario, the City's annual population growth rate between 2016 and 2031 is forecast to average 1.1% annually, declining to 0.6% during the 2031 to 2044 period (refer to Appendix D for additional details).

[1] Population forecast includes the net Census undercount, which is estimated at 2.7%.

Figure 6-8
City of London
Population Forecast, 2016 to 2044 (Includes Net Census Undercount)



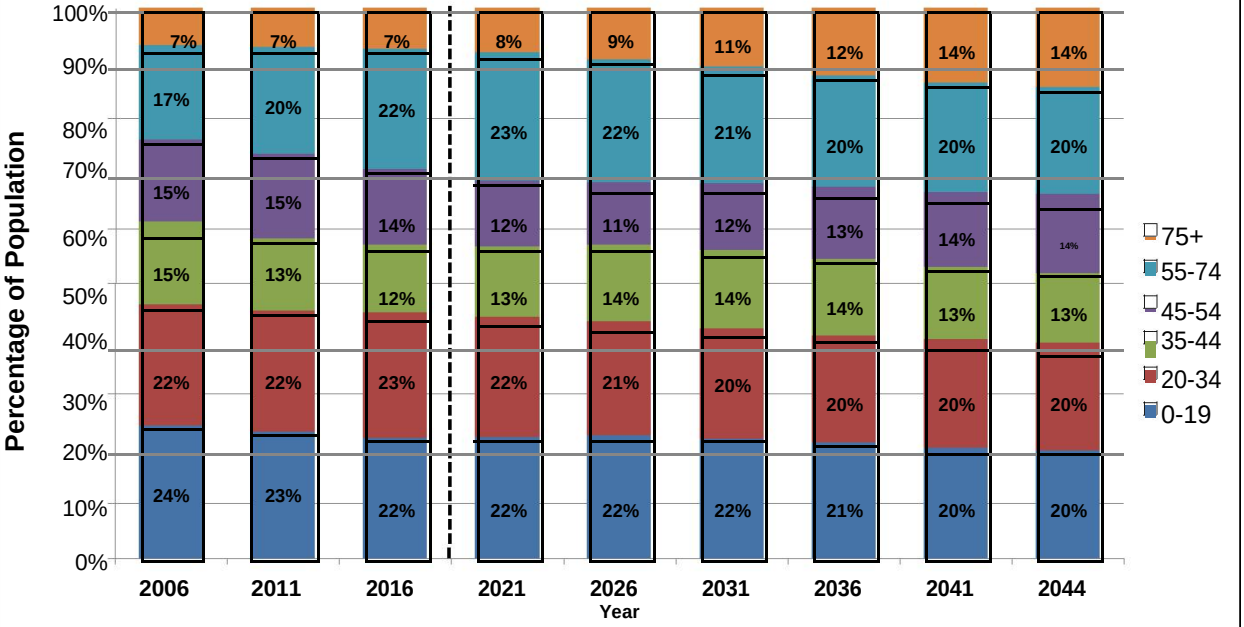
Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update.
London 2017 forecast derived by Watson & Associates Economists Ltd. Both forecasts include an undercount of 2.7%.

6.6.1 Population Forecast by Age Cohort

Figure 6-9 summarizes the 2044 population growth forecast by major age group over the 2016 to 2044 period for the City of London. Key observations are as follows:

- The percentage of population in the 0-19 age cohort (youth population) is forecast to gradually decline from 22% to 20%;
- London's young adult/adult population (20-54 years of age) is the largest age cohort group, and is forecast to remain steady at 47% of the population from 2016 to 2044:
- The 55-74 age group (empty-nesters/younger seniors) is forecast to marginally decrease from 22% in 2016 to 20% in 2044; and
- The percentage of the population in the 75+ age group (seniors) is forecast to double over the 28 years, from 7% in 2016 to 14% in 2044.

Figure 6-9
City of London
Population by Age Forecast, 2016 to 2044



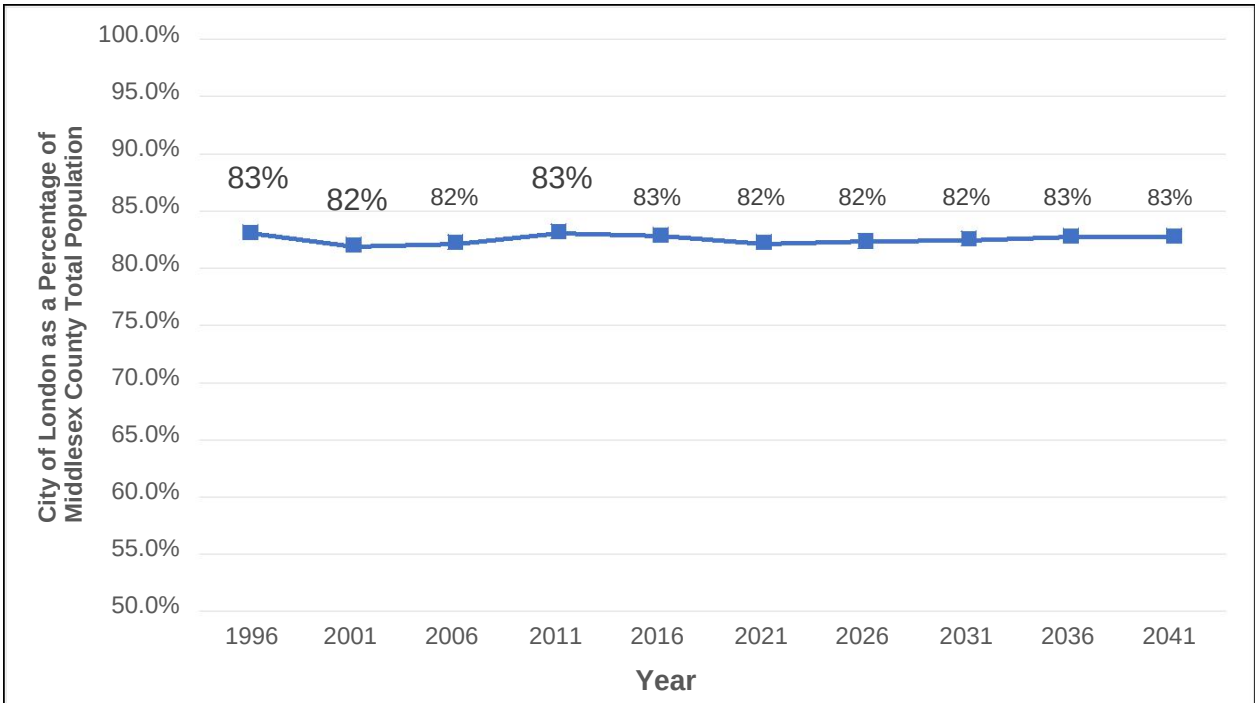
Source: Watson & Associates Economists Ltd., 2017. Includes an undercount of approximately 2.7%

6.7 City of London Population Share Relative to Middlesex County[1]

Figure 6-10 summarizes the share of the County's population and compares it to London's percentage share of population over a 45-year period. As illustrated in the graph below, the City of London's total population historically made up roughly 82% of Middlesex's total population. Over the 2016 to 2044 forecast period, London's share of Middlesex's population is forecast to remain relatively stable at 82% to 83%.

[1] For the purpose of this assignment, Middlesex County includes the City of London.

Figure 6-10
City of London
Population Share of Middlesex County, 1996 to 2041



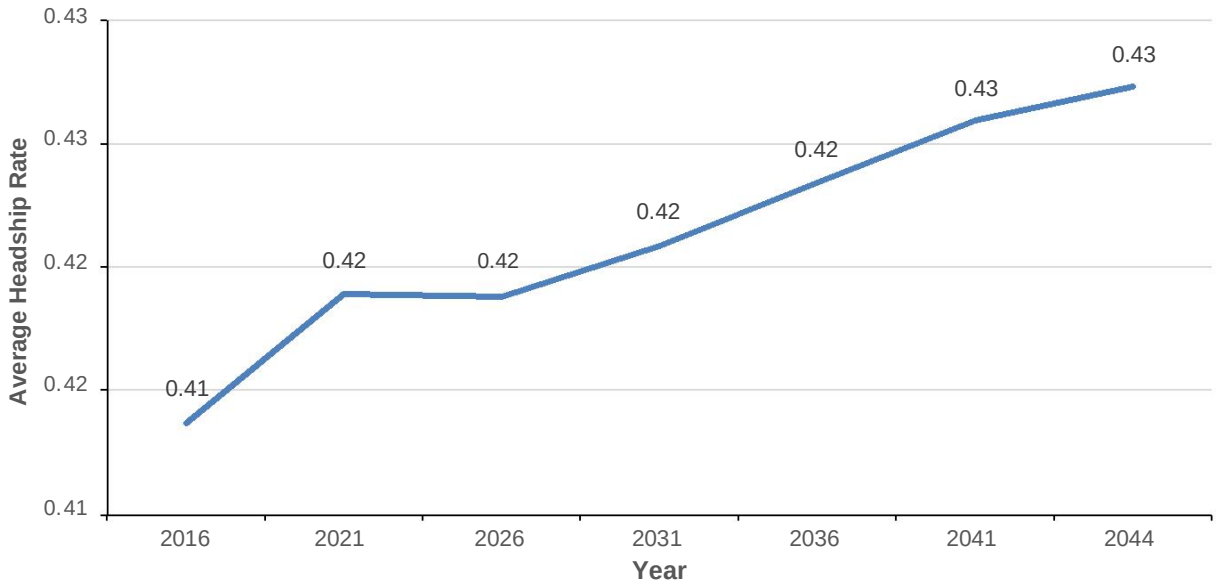
Source: City of London forecast (2016-2041) is derived by Watson & Associates Economists Ltd. Middlesex County forecast (2016-2041) is based on Ministry of Finance population projections. Ministry of Finance has an undercount of 3.1% and City of London has an undercount of 2.7%

6.8 City of London Forecast Housing Trends, 2016 to 2044

6.8.1 Forecast Household Growth by Age of Household Maintainer

In accordance with the Reference Population Growth Scenario, a total household forecast has been generated using a forecast headship rate, as summarized in Figure 6-11. As previously identified, 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 P.P.U. for the City from 2016 to 2044.

Figure 6-11
City of London
Forecast Household Headship Rates, 2016 to 2044

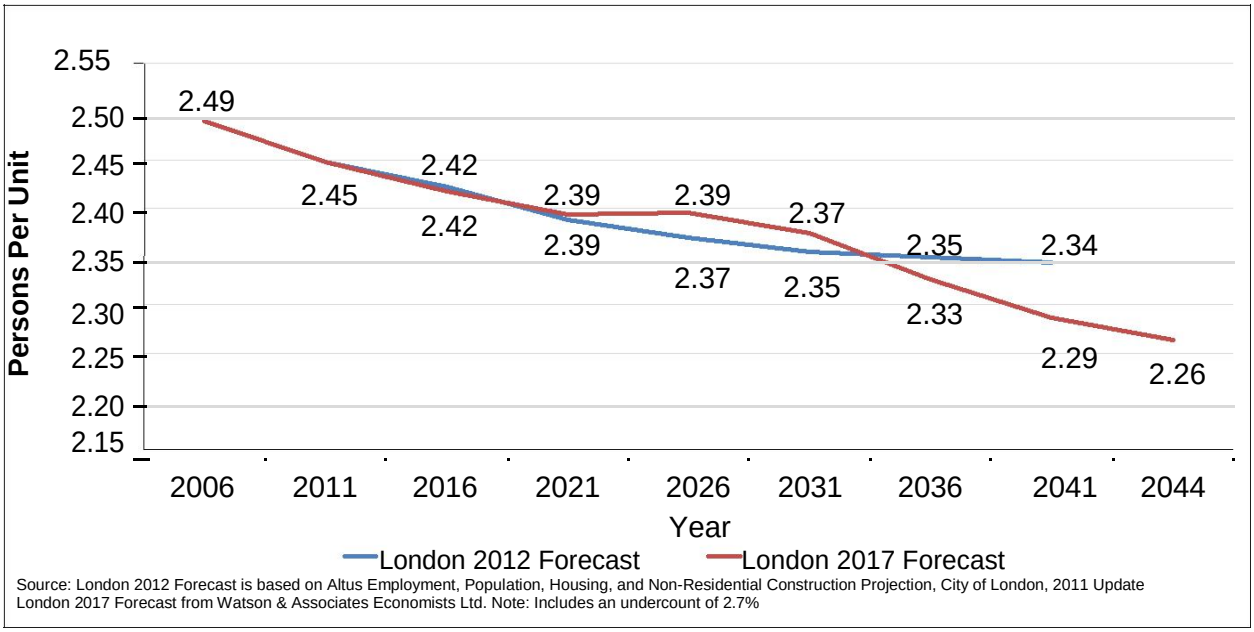


Source: Data derived from Statistics Canada Census Population, 2016 by Watson & Associates Economists Ltd.
Population based on Census, adjusted for Census undercount of 2.7%.

6.8.2 Average Persons Per Housing Unit (P.P.U.)

Figure 6-12 summarizes the P.P.U. forecast for the City of London from 2016 to 2044 in accordance with the headship rate analysis discussed above. For comparative purposes, the 2011 to 2041 P.P.U. forecast for the City of London generated through the 2012 (Altus Group) population and household forecast is also provided. To provide historical context, actual P.P.U. trends between 1991 and 2011 are also provided in accordance with Statistics Canada Census data. Over the forecast period, the City's average P.P.U. is anticipated to steadily decline from 2.42 in 2016 to 2.26 in 2044, largely as a result of the aging of the City's population. As illustrated in Figure 6-8, the City's housing occupancy levels are anticipated to decline at a slightly slower rate by 2031, in comparison to the 2012 (Altus Group) forecast, followed by a more aggressive P.P.U. decline rate post-2031.

Figure 6-12
City of London
Forecast Average Persons Per Housing Unit (P.P.U.), 2006 to 2044



Source: London 2012 Forecast is based on Altus Employment, Population, Housing, and Non-Residential Construction Projection, City of London, 2011 Update
London 2017 Forecast from Watson & Associates Economists Ltd. Note: Includes an undercount of 2.7%

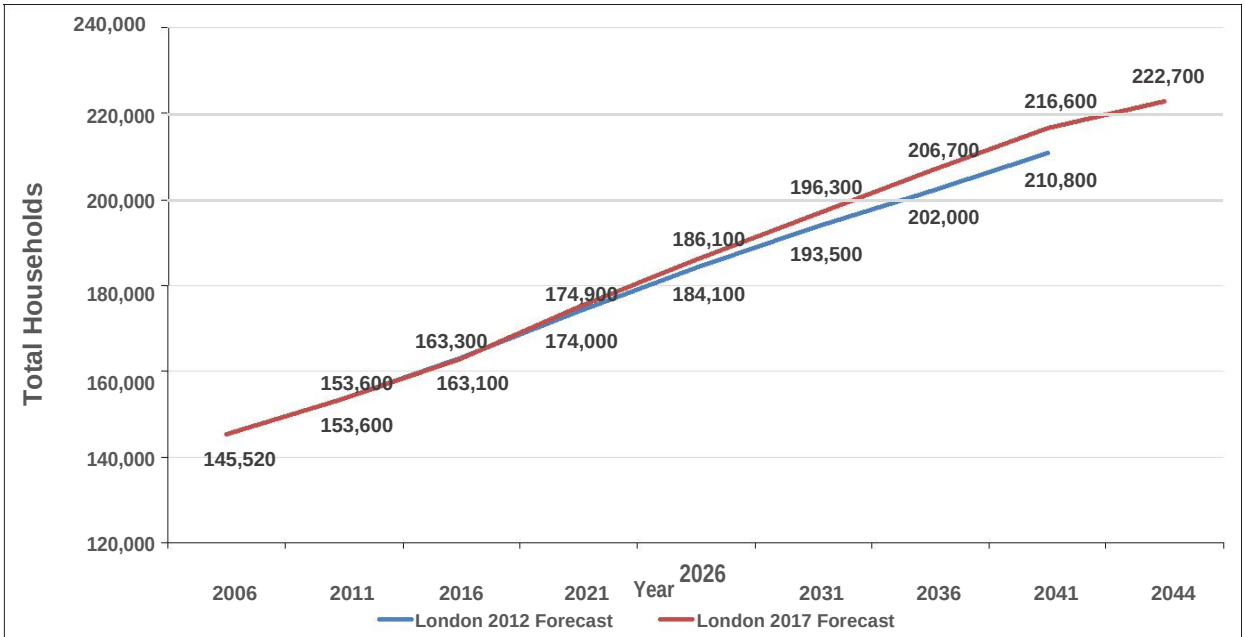
6.8.3 City of London Household Growth Forecast, 2016 to 2044

Figure 6-13 summarizes the City of London total household forecast from 2016 to 2044. For comparative purposes, the 2012 housing forecast (Altus Group) for the City of London is also provided. It is noted that while the 2012 housing forecast is tracking well to 2016 Census actuals for total households, low-density development activity has been tracking below the Altus Group projections over the past several years.

By 2041 the City's housing base is forecast to reach 216,600 total occupied units. Comparatively, this represents 5,800 additional households relative to the previous 2012 forecast. The rate of housing growth is forecast to slow during the post-2041 period in accordance with forecast population growth trends during this time period. By 2044, the City is forecast to reach a total of 222,700 occupied households.

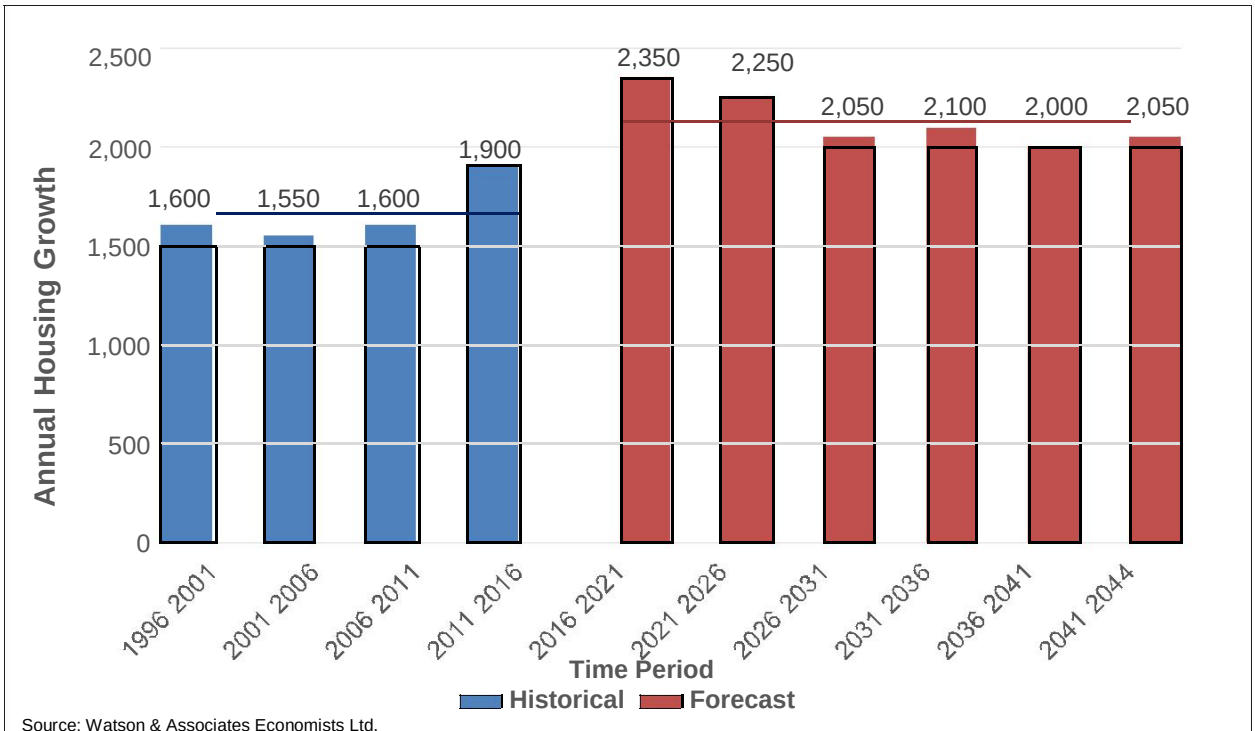
Figure 6-14 summarizes the City's housing growth forecast in five-year increments from 2016 to 2044. During the 28-year forecast period, the City is forecast to average just over 2,100 new households per year (refer to Appendix D for additional details).

Figure 6-13
City of London
Forecast Households, 2016 to 2044



Source: London 2012 forecast is based on Altus Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update.
London 2017 forecast derived by Watson & Associates Economists Ltd.

Figure 6-14
City of London
Incremental Household Forecast, 2016 to 2044



Source: Watson & Associates Economists Ltd.

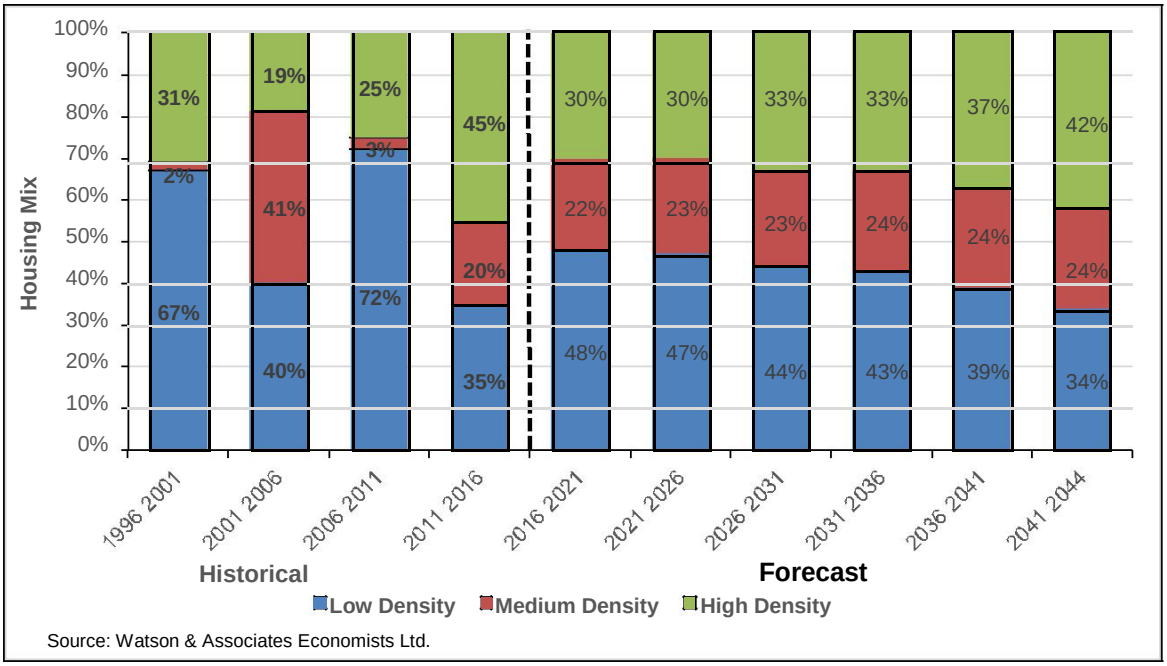
6.8.4 Annual Housing Forecast by Structure Type

Figure 6-15 summarizes the City of London housing forecast by structure type (i.e. low density, medium density and high density) over the 2016 to 2044 forecast period in five-year growth increments.[1] For comparative purposes, historical housing growth by structure type is also provided for the historical period between 1996 and 2016 (refer to Appendix D for additional details). Key observations include:

- New residential development within the City of London will continue to be concentrated in low-density housing forms, largely driven by demand from new families;
- As previously discussed in Chapter 4, housing preferences by structure type are anticipated to continue to gradually shift from low-density to medium- and high-density housing forms over the long term. This shift is anticipated to be driven by the aging of the population, declining housing affordability, the gradual buildout of the City's designated greenfield housing supply, the City transit initiatives and Official Plan (O.P.) policy; and
- Over the 2016 to 2044 projection period, housing demand is forecast to be comprised of 44% low-density housing, 23% medium-density housing and 33% high-density housing.

[1] The final growth increment (2041 to 2044) represents a three-year increment.

Figure 6-15
City of London
Forecast Households by Structure Type



Source: Watson & Associates Economists Ltd.

7. City of London Employment and Gross Floor Area Forecast by Major Sector, 2016 to 2044

7.1 Introduction

This chapter provides an assessment of the long-term employment potential for the City of London to the year 2044 by major employment sector, building on the macro-economic analysis as well as regional/local non-residential development trends previously discussed in Chapters 3 and 4.

7.2 Long-Term Employment Growth Scenarios

Similar to the residential growth forecast, three long-term employment growth scenarios have been developed for the City of London: 1) Low Employment Growth Scenario; 2) High Employment Growth Scenario; and 3) Reference Employment Growth Scenario.
Also provided herein is a commentary with respect to key industry sub-sectors which are anticipated to drive market demand for non-residential employment over the long term.

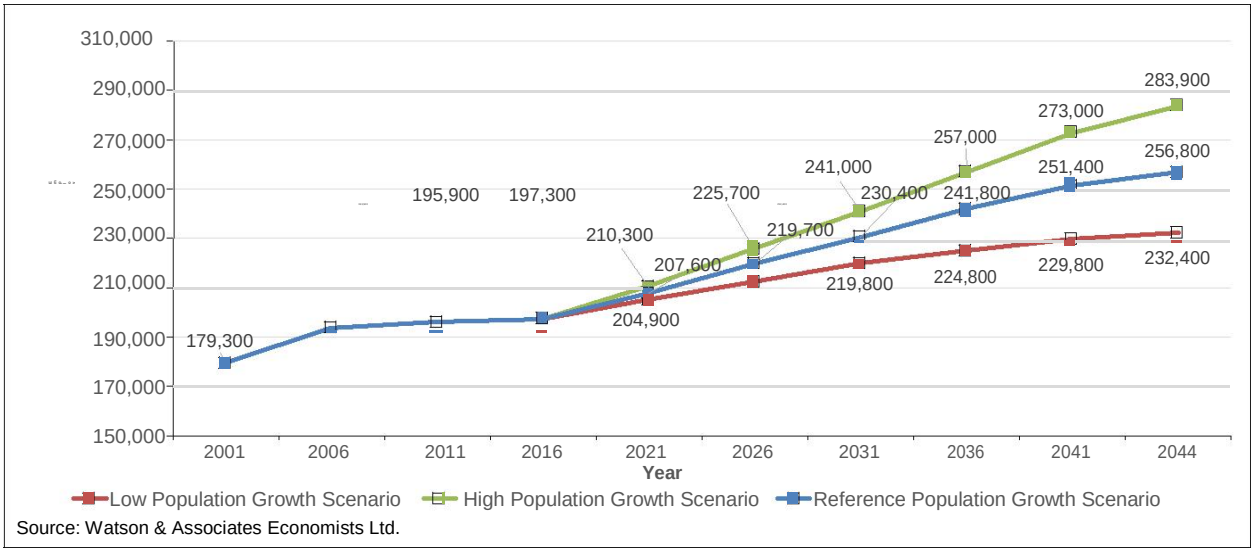
Low Employment Growth Scenario: The Low Employment Growth Scenario assumes that the City will grow at an average annual growth rate of 0.5% per year and add 1,250 jobs annually.

High Employment Growth Scenario: Under the High Employment Growth Scenario, the City's employment base is forecast to grow at an average annual rate of 1.1% per year or 3,090 jobs annually. This represents an average annual growth rate which is slightly higher than what the City has achieved over the past fifteen years (2001 to 2016 period).[1]

Reference Employment Growth Scenario: The Reference Employment Growth Scenario assumes that the City will grow at an average annual growth rate of 0.9% per year and add 2,130 jobs annually. In accordance with forecast labour force trends by age and future employment growth prospects by major sector, the Reference Employment Growth Scenario represents the preferred growth scenario.

[1] Over the 2001 to 2016 period, the City grew at an annual employment growth rate of 0.6% and added 1,200 jobs annually.

Figure 7-1
City of London
Employment Growth Projection Scenarios, 2016 to 2044



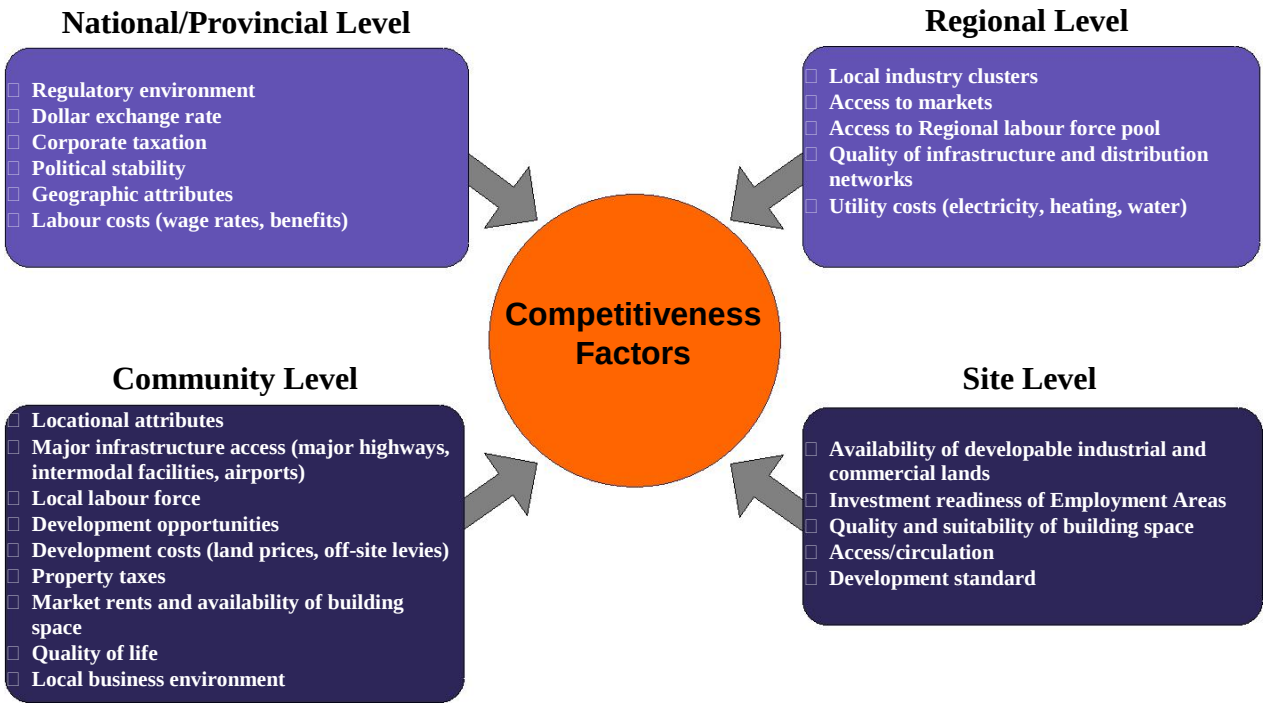
Source: Watson & Associates Economists Ltd.

7.3 Forecast Non-Residential Development Trends, 2016 to 2044

7.3.1 Total Employment Growth Forecast

In many respects, London's long-term economic and employment growth potential is largely tied to the success of the broader provincial and national economy as a whole. As previously discussed in Chapter 3, a broad range of economic conditions and development factors are anticipated to influence the competitiveness of the City of London's economy and ultimately the future local employment growth over the long term. As summarized in Figure 7-2, these economic and development factors can generally be grouped into four broad geographic categories or levels: national/ provincial, regional, community and site-specific. These factors will not only impact the rate and magnitude of employment growth but they will also influence the form and density of non-residential development and corresponding demand for urban lands in employment and mixed-use commercial areas.

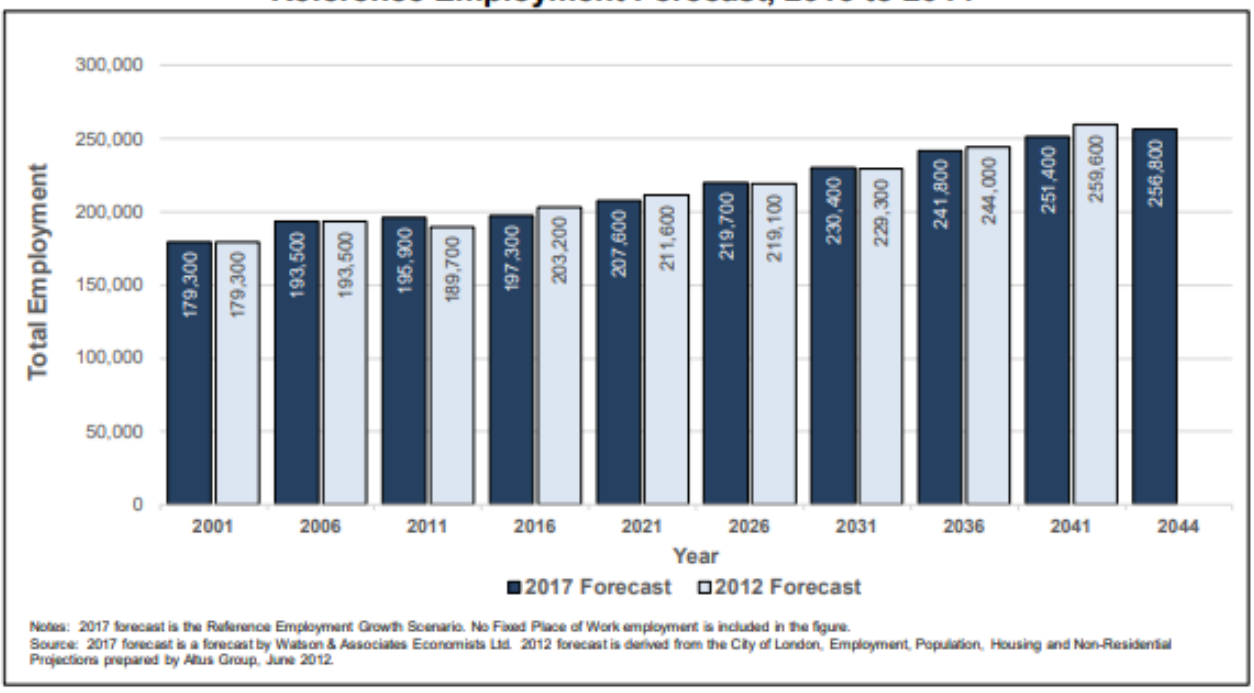
Figure 7-2
Economic and Regional/Local Development Factors Influencing Competitiveness



The results of the Reference Employment Growth Scenario are summarized below in Figures 7-3 and 7-4, with additional details provided in Appendix E. Key observations include:

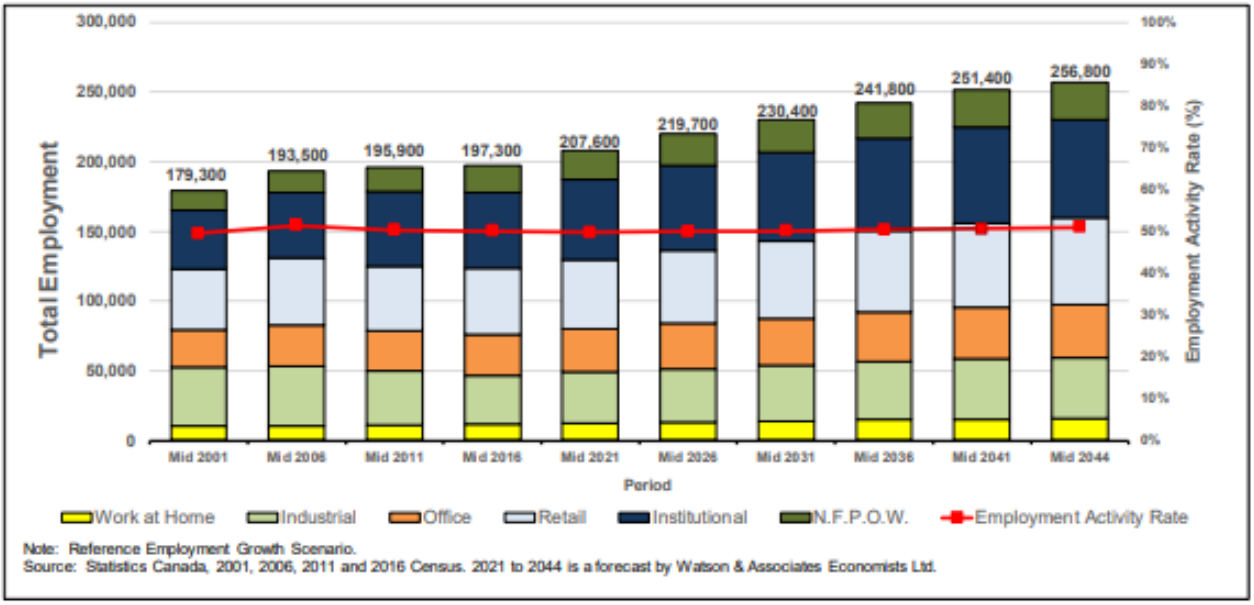
- Total employment growth within the City of London is tracking lower relative to the 2012 (Altus Group) employment forecast. Currently, the City's employment base is estimated at 197,300 which is approximately 5,900 below the City's 2012 employment forecast for the year 2016;
- By 2031, it is anticipated that the City of London will reach an employment base of 230,400. This represents an employment increase of 33,100 from 2016 to 2031 or an annual employment growth rate of 1.0%. Comparatively, the updated employment forecast for the City of London is approximately 1,100 higher than the 2012 employment forecast for 2031;
- By 2041, the City's employment base is forecast to grow to 251,400, which represents a total employment increase of 54,100 jobs between 2016 and 2041;
- During the latter portion of the employment forecast period, the annual employment growth rate is forecast to slow, largely as a result of the aging of the regional population and labour force base; and
- Over the 2016 to 2044 forecast period, the City's employment activity rate (ratio of jobs to population) is forecast to increase slightly to 51% to 52%.

Figure 7-3
City of London
Reference Employment Forecast, 2016 to 2044



Notes: 2017 forecast is the Reference Employment Growth Scenario. No Fixed Place of Work employment is included in the figure.
Source: 2017 forecast is a forecast by Watson & Associates Economists Ltd. 2012 forecast is derived from the City of London, Employment, Population, Housing and Non-Residential Projections prepared by Altus Group, June 2012.

Figure 7-4
City of London
Reference Employment Growth Scenario Forecast
Employment Growth by Major Sector, 2001 to 2044



Note: Reference Employment Growth Scenario.
Source: Statistics Canada, 2001, 2006, 2011 and 2016 Census. 2021 to 2044 is a forecast by Watson & Associates Economists Ltd.

7.3.2 Forecast Employment Growth by Major Employment Sector/Category

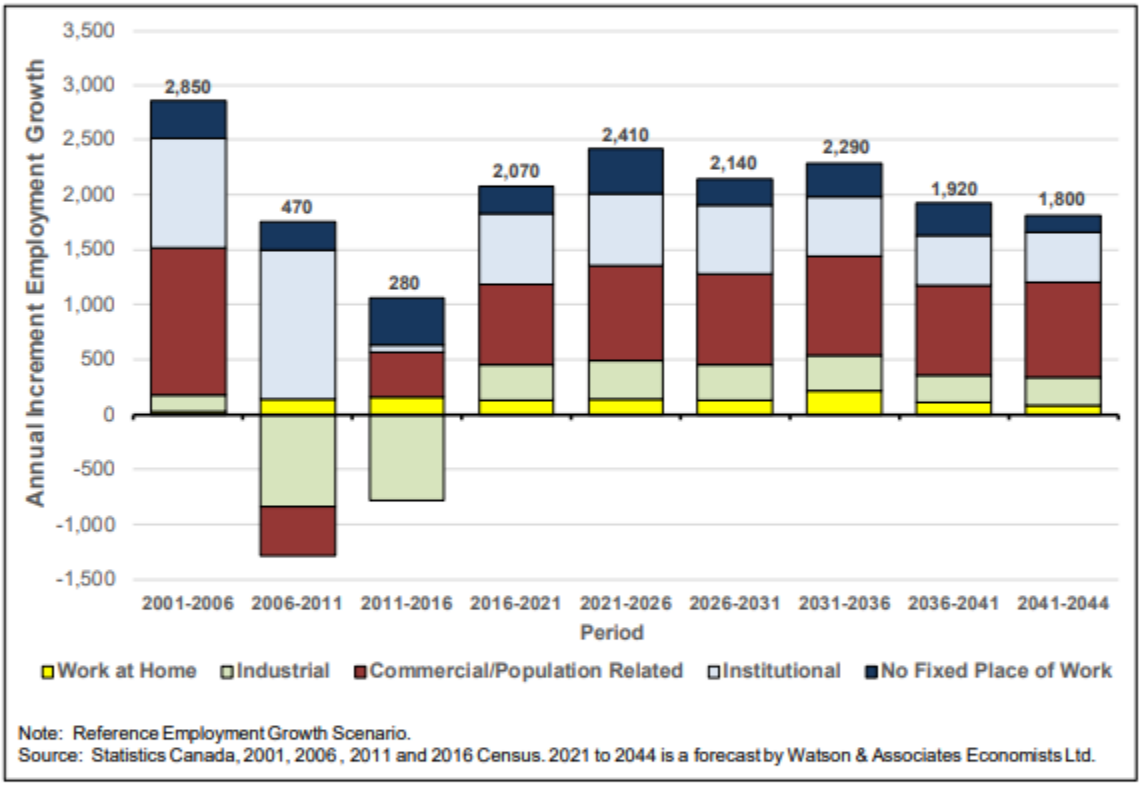
Figures 7-5a and 7-5b summarize the employment forecast by sector in five-year increments over the 2016 to 2041 period (refer to Appendix E for additional details). Key observations include:

- Employment growth is expected across a wide range of sectors driven by continued diversity of the regional and local economic base and steady local population growth. Over the long term, all major employment sectors, apart from the primary sector, are anticipated to experience employment growth;
- The amount of incremental employment growth in the City's industrial sector is forecast to steadily increase over the 2016 to 2044 planning horizon, largely driven by a continued gradual recovery in the regional export-based economy, and steady market demand for medium and prestige industrial uses on employment lands. Industrial employment growth is anticipated in sectors related to small/medium-scale manufacturing (primarily firms which are technology intensive), construction, wholesale trade, and transportation and warehousing. Industrial employment growth is forecast to increase by approximately 8,700 jobs over the 2016 to 2044 period, accounting for 15% of total employment growth;
- Commercial/population-related employment (which includes the office and retail sectors) represents the City's largest major sector with respect to total employment growth. This sector is largely driven by local and regional population growth. Commercial employment growth is forecast to increase by approximately 23,200 jobs over the 2016 to 2044 period, accounting for 39% of total employment growth;
- The City's employment base is anticipated to steadily increase in the institutional sector, largely driven by the need for increased health services, education and other institutional facilities (i.e. cultural, religious, schools) associated with steady population growth. Institutional employment growth is forecast to increase by approximately 16,000 jobs over the 2016 to 2044 period, accounting for 27% of total employment growth. The City is expected to see an increase in seniors' health facilities/services, including retirement homes and assisted living facilities, as well as other institutional-related development due to a growing, but aging population base;
- Work at home employment in the City of London is expected to steadily increase over the long term, driven by forecast growth in the knowledge-based and creative economy. Future opportunities for work at home employment are

anticipated to be facilitated by continued advancements in information and telecommunications technology; and

- Employment with N.F.P.O.W. is forecast to steadily increase within the City over the long term, largely driven by steady employment growth in the construction, and transportation and warehousing sectors.

Figure 7-5a
City of London
Reference Employment Growth Scenario Forecast
Annual Incremental Employment Growth by Major Sector, 2001 to 2044



Note: Reference Employment Growth Scenario.
Source: Statistics Canada, 2001, 2006 , 2011 and 2016 Census. 2021 to 2044 is a forecast by Watson & Associates Economists Ltd.

Figure 7-5b
City of London
Reference Employment Growth Scenario Forecast
Shares of Annual Incremental Employment Growth by Major Sector, 2001 to 2044

Employment Sector	2011	2016	2021	2031	2041	2044
Work at Home	5%	6%	6%	6%	6%	6%
Industrial	20%	18%	18%	17%	17%	17%
Commercial/Population Related	38%	39%	39%	39%	39%	39%
Institutional	27%	27%	28%	28%	27%	27%
No Fixed Place of Work	9%	10%	10%	10%	11%	11%

Source: Watson & Associates Economists Ltd.

7.4 Key Anticipated Employment Growth Sectors in the City of London

The following observations are provided with respect to employment growth within the City by sub-sector.

7.4.1 Planning for Employment in Industrial Sectors

Manufacturing

- As previously mentioned, the manufacturing sector remains vitally important to the provincial and regional economies with respect to job growth and economic output. While growth in traditional manufacturing sectors has declined in recent years, there is still demand for these activities throughout the broader Ontario economy. Canada and the United States have experienced some reshoring[1] of manufacturing employment over the past couple of years due to rising shipping and labour costs in China and advanced manufacturing processes requiring skilled labour.[2] This trend, however, has been more pronounced in the United States with lower energy costs and access to a larger consumer market.[3]
- Looking forward, there will continue to be a manufacturing focus in Ontario and the City of London; however, industrial processes have become more specialized, capital/technology intensive and automated. This means that as the regional manufacturing sector continues to recover, economic output will gradually increase; however, modest employment growth is anticipated in the manufacturing sector.
- As previously mentioned in Chapter 3, the manufacturing sector in the City of London as a whole has experienced a decline in employment over the past decade, similar to the Province. The loss in manufacturing in the City of London is largely attributed to the auto sector[4] which lost approximately 1,300 jobs over the past decade. Over the past three years, there has been some growth in other manufacturing sub-sectors in the City of London, in particular the metal

[1] Reshoring is reintroducing domestic manufacturing to a country. It is the reverse process of offshoring.
2 The Economist, A growing number of American companies are moving their manufacturing back to the United States, January 19, 2013.
3 KPMG, KPMG's Canadian Manufacturing Outlook Report, 2014.
4 Includes motor vehicle manufacturing (NAICS 3361) and motor vehicle parts manufacturing (NAICS 3363). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

manufacturing[1] and machinery manufacturing[2] sectors, which have experienced growth at an annual rate of 6.7% and 4.0%, respectively, over the past decade.[3]

- Compared to the Province as a whole, the City of London has experienced growth in manufacturing sub-sectors that involved more advanced technologies, and processes such as machinery manufacturing have experienced steady growth over the past decade.[4,5]

Goods Movement (Transportation, Warehousing and Logistics)

- The Goods Movement sector (i.e. transportation/warehousing and wholesale trade) is an integral part of the southern Ontario and regional economy. The Goods Movement sector represents approximately 9% of the current employment base in the City of London.[6]
- Employment lands within the City of London offer strong access and connectivity via Highway 401 and Highway 402 to facilitate trade regionally; relative to other southwestern Ontario employment markets, the City of London offers good access to the G.G.H. and to the U.S. market. The City of London is within approximately a two-hour drive of Canada's busiest border crossings to the United States, including those in the Niagara Region (Niagara Falls, Fort Erie and Queenston) and the City of Windsor. The Sarnia-Port Huron border crossing (Blue Water Bridge) is within an hour's drive from the City of London.
- The Goods Movement sector is accommodated in a range of industrial building typologies reflecting the diverse sub-sectors that comprise the sector. This includes distribution centres, warehouses, fulfillment centres, delivery depots, logistics hubs, corporate office buildings of major logistics companies, trucking terminals, multi-tenant warehouses and terminals, cold storage buildings and transportation yards.

[1] Includes Non-ferrous metal (except aluminum) production and processing (NAICS 3314) and Other fabricated metal product manufacturing (NAICS 3329). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

[2] Includes Machine shops, turned product, and screw, nut and bolt manufacturing (NAICS 3327) and Commercial and service industry machinery manufacturing (NAICS 3333). Based on data from OMFRA EMSI Analyst Q4 2016 dataset, 2016.

[3] Based on growth over the 1996 to 2015 period. OMFRA EMSI Analyst Q4 2016 dataset, 2016.

[4] This subsector comprises establishments primarily engaged in manufacturing machinery designed for use in specific manufacturing industries.

[5] Based on growth over the 2006 to 2016 period. OMFRA EMSI Analyst Q4 2016 dataset, 2016.

[6] Based on data from OMFRA EMSI Analyst Q1 2016 dataset, 2016.

- Increased outsourcing of manufacturing production to emerging global markets continues to drive the need for new consolidated, land-extensive warehousing facilities to store and manage the distribution of goods produced locally as well as goods imported from abroad. Demand in the Goods Movement sector is anticipated to continue across the City of London, particularly in locations with available employment lands with strong connectivity to regional transportation infrastructure (Highway 401 access).
- Traditionally, the Goods Movement sector has been heavily concentrated around large, mature municipalities throughout the G.G.H. Notwithstanding this trend, rising industrial land prices and diminishing employment land supply within central Ontario continues to shift development pressures within the Goods Movement sector to other competitively priced industrial markets across southern Ontario. Demand tends to be greatest for mid- to large-scale, land-extensive industrial uses which offer ample market choice and supporting regional infrastructure to accommodate near-term demand and future expansion requirements.
- Several factors have been changing the nature of the Goods Movement industry over recent years, including just-in-time manufacturing, e-commerce and globalization. It is expected that the industry will continue to evolve and, in the near-term, the following trends are expected in Canada:
    - Just-in-time manufacturing will continue to be the industry norm, placing increasing emphasis on more frequent and smaller deliveries by truck transport;
    - Automation of distribution centres allows for more vertical storage; however, the need for numerous loading bays will dictate land requirements and the industry trend is for more and more bays at facilities;
    - Larger facilities are a continuing trend versus smaller properties; typically, the larger the property, the lower the average employment density;
    - Locations close to multi-modal facilities continue to be very attractive with access to rail – this is generating increased demand for larger-scale logistics hubs. Intermodal hubs typically require approximately 200 to 300 ha for intermodal infrastructure and loading/unloading areas. Express terminals are smaller (<100 ha);
    - Increasing growth in e-commerce is anticipated to have a significant impact on employment growth and land demand related to the logistics sector. E-commerce sales in Canada have grown at a rate that is five times the pace of overall growth in retail trade. Online sales account for 6% of total Canadian retail spending. By comparison, U.S. online sales

account for 9% of total spending.[1] Delivery expectations within this sector are increasing on an annual basis. As delivery times decrease, it is anticipated that demand for regional fulfilment centres will increase; and

- Reverse logistics – approximately 25-30% of online merchandise is returned, which is generating increasing need for dedicated return centres.

Construction

- The City has a relatively high concentration of employees in the construction sector. Over the forecast period, a portion of industrial employment growth is anticipated to be generated from construction employment, driven by both residential and non-residential development activity within the City and the surrounding area. This includes employment associated with construction of buildings, heavy and civil engineering construction and speciality trade contractors.
- A large component of the construction sector is associated with employees that have no usual place of work (N.F.P.O.W.). Construction sub-sectors involved in large-scale construction projects typically require land to store equipment and machinery in proximity to major roads and highways. As such, employment densities within this sector tend to be low. More specialized construction firms may require offices and facilities. Employment in this sector may include a wide-range of jobs types, including laborers, trades persons and engineers.

7.4.2 Planning for the Knowledge-Based Economy

Office Sector

- The City of London has a healthy and sizeable office market, comprising nearly 5.8 million sq.ft. of office G.F.A. Over three-quarters (76%) of the office G.F.A. is located in the downtown core of the City.[2] It is estimated that a sizeable portion of the office space in the downtown core is comprised of insurance and financial users (15% to 20% of the downtown office G.F.A.).[3] Other notable office clusters include the University of Western Ontario Research Park which continues to attract office development related to knowledge-based sectors.
- As previously discussed, Ontario and the London CMA economies are transitioning from goods to services production.

[1] Purolator Logistics. Adapting your Canadian Supply Chain for E-commerce Efficiency. 2015.
[2] CBRE Marketview London Office Report, Q1 2017 prepared by CBRE.
[3] Colliers London Office Report, Q1 2017 prepared by Colliers International.

- Looking forward over the next several decades, employment growth within the City's Employment and Commercial Areas will ultimately be driven by demand from a broad range of knowledge-based employment sectors. Reflective of employment growth trends in the broader regional economy, the City of London is anticipated to be particularly attractive, over the long term, to knowledge-intensive and creative forms of economic activity such as professional, technical and scientific services, information and cultural services, and real estate and insurance.
- These sectors are typically accommodated in standalone low-rise office, flex office and multi-tenant commercial/industrial space.

7.4.3 Planning for Retail and Institutional Sectors

Retail Sector

- The City's retail base is oriented towards the local and regional population. Over the past few years, retail development in the City has been very active with both local and regional tenants opening new locations or expanding existing operations. The retail corridor along Wonderland Road South has been particularly active given its close proximity to Highway 401 and access to surrounding communities outside the City of London.[1] It is anticipated that the City of London will continue to grow as a regional retail hub attracting retailers who seek a location that has the potential to capture a large share of trade from the southwestern Ontario market. Further growth in the local population base will facilitate the need for additional local serving retail space (e.g. grocery stores, pharmacy and health care stores, personal services, etc.).

Institutional Sector

- Employment in the institutional sector comprises a large share (27%) of the City's employment base. The City's health care facilities serve a large regional population base of southwestern Ontario, while the City's post-secondary institutions serve the population base of southwestern Ontario and beyond. It is anticipated that the institutional sector will remain strong over the forecast period, not only attracting additional jobs in that sector, but also attracting jobs for the broader knowledge-based economy.

[1] CBRE Marketview, London Retail, Q1 2017 prepared by CBRE.

- The City is expected to see an increase in seniors' health facilities/services, including retirement homes and assisted living facilities due to a growing population base.

7.5 Gross Floor Area Forecast by Major Sector

Figure 7-6 summarizes the average floor space per worker (F.S.W.) assumptions by major employment sector over the forecast period. Figure 7-8 summarizes forecast growth in non-residential space by major sector to 2044 (refer to Appendix E for additional details). Total non-residential space needs were developed by multiplying total employment by average assumptions by major sector. F.S.W. assumptions consider forecast sub-sectors anticipated to drive employment growth within each of the major employment categories, as well as recent non-residential density trends observed across London and Ontario.

Key observations include:

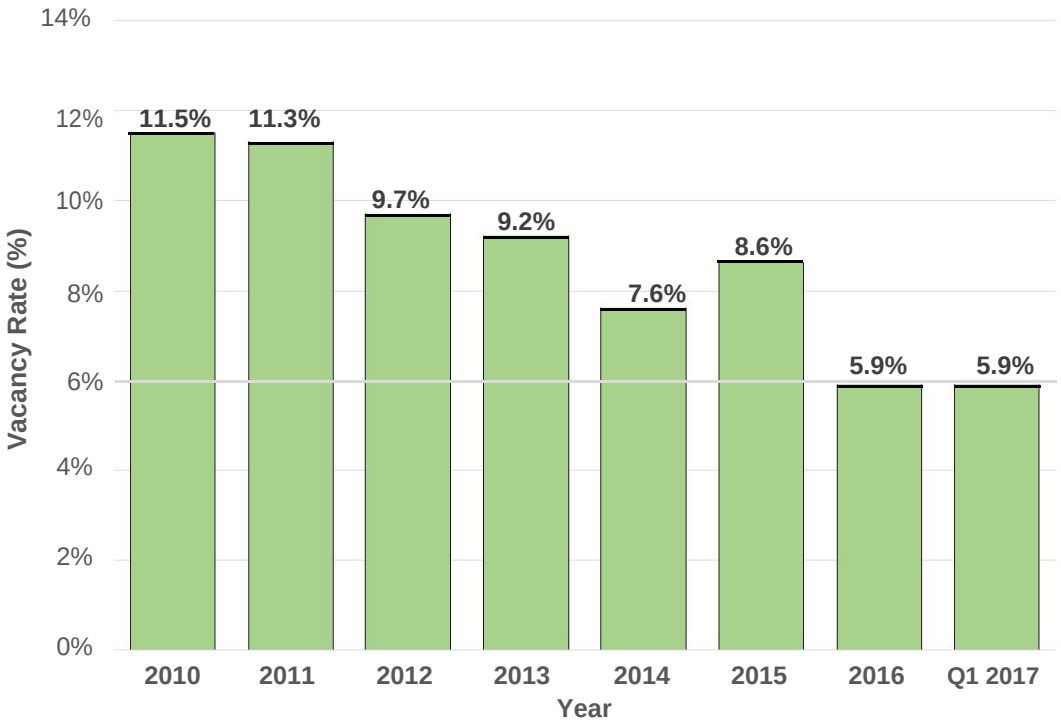
- The employment forecast assumes that employment growth will be accommodated within new construction G.F.A. space (new buildings and expansions). As summarized in Figure 7-7, recent vacancy rate trends suggest that rates have stabilized, in particular the industrial market which has absorbed a large portion of the vacant G.F.A. space since 2010. Industrial vacancy rates have fallen from a high of 11.5% in 2010 to 5.9% in 2016;
- It is expected that the commercial industry will experience steady growth over the forecast period with an annual average of 252,400 sq.ft. of commercial development annually;
- The institutional sector will experience strong growth, particularly in the short to medium term of the forecast period, with an annual average of 400,400 sq.ft. of development annually; and
- The industrial sector is forecast to experience steady G.F.A. growth, averaging approximately 310,400 sq.ft. per year.

Figure 7-6
City of London
Gross Floor Area Forecast Per Worker (F.S.W.) Assumptions

Sector	Sq.ft. Per Worker
Industrial	1,000
Commercial	425
Institutional	700

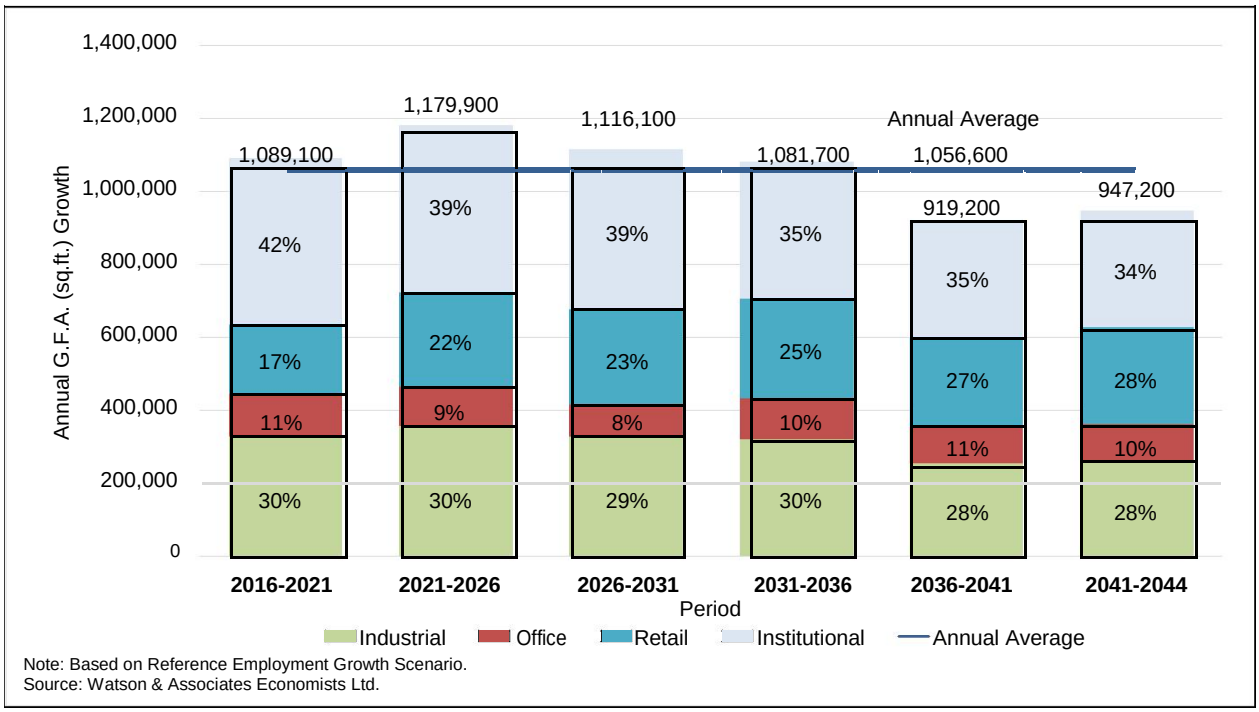
Source: Watson & Associates Economists Ltd.

Figure 7-7
City of London
Industrial Vacancy Rates, 2010 to 2017



Source: Derived from CBRE Canada, Industrial MarketView and CBRE MarketView London (2010-2017).

Figure 7-8
City of London
Annual Non-Residential Gross Floor Area Forecast
by Major Sector, 2016 to 2044



Note: Based on Reference Employment Growth Scenario.
Source: Watson & Associates Economists Ltd.

8. Conclusions

Future population, housing and employment growth within the City of London is dependent in large measure by the following:

- The success of the broader provincial economy in attracting new investment and retaining existing business;
- The growth and competitiveness of the regional export-based economy (i.e. the London CMA) and the surrounding primary and secondary commuter-shed;
- The ability of the City to position itself as a hub for innovation to capitalize on the human capital that currently exists within the region while encouraging ongoing entrepreneurship, small business development and investment retention;
- The City's attractiveness to families, which are drawn to the City in search of competitively priced, ground-oriented housing within proximity to local and regional employment markets;
- The City's attractiveness to the 55+ age group as a retirement/future retirement destination; and
- The timing of planned major infrastructure improvements/expansions.

Each of the above factors has been examined in assessing long-term population, household and employment growth for the City of London to arrive at the City's preferred growth scenario. The following provides a summary of the key findings provided in this report with respect to forecast long-term population, housing, employment and non-residential space needs for the City of London.

Population and Housing Forecast

- Under the Reference Population Growth Scenario, the City of London is forecast to reach a population of approximately 465,900 by 2031.[1] By 2041, the City's population is forecast to grow to 495,200 and ultimately 504,000 by 2044.[1] This represents a total population increase of 109,700 between 2016 and 2044, and an annual population growth rate of 0.9%.
- Comparatively, the population for the Province as a whole is forecast to increase at an annual rate of 1.0% between 2016 and 2041.
- By 2044, the City's housing base is forecast to reach 222,700 total occupied units.

[1] Population forecast includes the net Census undercount, which is estimated at 2.7%.

- New residential development within the City of London will continue to be concentrated in ground-oriented housing forms (i.e. single detached, semi-detached and townhouses), largely driven by demand from new families; and
- While ground-oriented households are forecast to comprise approximately 65% of forecast households, housing preferences are anticipated to continue to gradually shift towards high-density housing forms over the long-term forecast period.

Employment and Non-Residential Space Needs

- Under the Reference Employment Growth Scenario, the City of London's employment base is forecast to increase from 197,300 in 2016 to 256,800 in 2044. This represents a total employment increase of 59,500, or 0.9% per year.
- As previously mentioned, the City's industrial employment sector is forecast to experience moderate employment growth over the forecast period, increasing by approximately 8,700, or 15% of total employment growth.
- Commercial and institutional employment represent the largest employment growth sectors for the City. Over the 2016 to 2044 forecast period, these employment sectors are forecast to collectively increase by 39,200, which represents 66% of the City-wide total employment forecast.
- Work at home and N.F.P.O.W. employment represent the remaining 19% of forecast employment growth for the City, with a forecast employment increase of 11,600 between 2016 and 2044.
- Long-term non-residential space needs have been developed by multiplying forecast employment growth by average floor space per worker (F.S.W.) assumptions by major employment sector (i.e. ICI).
- Over the 2016 to 2044 forecast period, the City of London is forecast to add 29.8 million sq.ft. of non-residential gross floor area (G.F.A.) to its non-residential building space inventory. The non-residential building space forecast is comprised of 29% industrial and 71% commercial/institutional development.

Appendix A – Housing Headship Rates

Figure A-1
City of London
Historical Household Headship Rates, 1991-2016

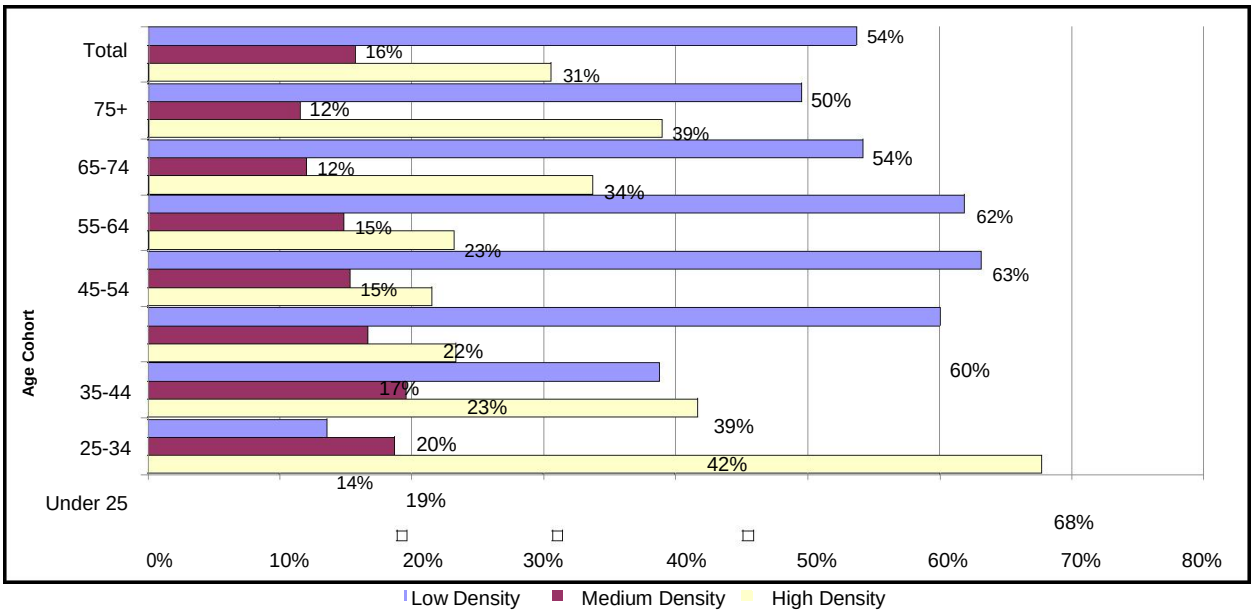
Year	Total	Under 25	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
1991	0.42562	0.07450	0.47260	0.53212	0.54680	0.56125	1.00178	0.73579
1996	0.38362	0.06391	0.48334	0.54470	0.57197	0.57983	0.62799	0.63662
2001	0.42608	0.07314	0.45468	0.53153	0.58434	0.59976	0.63099	0.66875
2006	0.42933	0.07248	0.44189	0.53369	0.57988	0.59213	0.62686	0.64524
2011	0.43557	0.07269	0.44252	0.53065	0.57739	0.59950	0.62994	0.62037
2016	0.44345	0.07348	0.43288	0.52783	0.58372	0.60358	0.62420	0.62838

Population based on Census adjusted for Census undercount.

Source; Statistics Canada Census Population, 1991-2016.

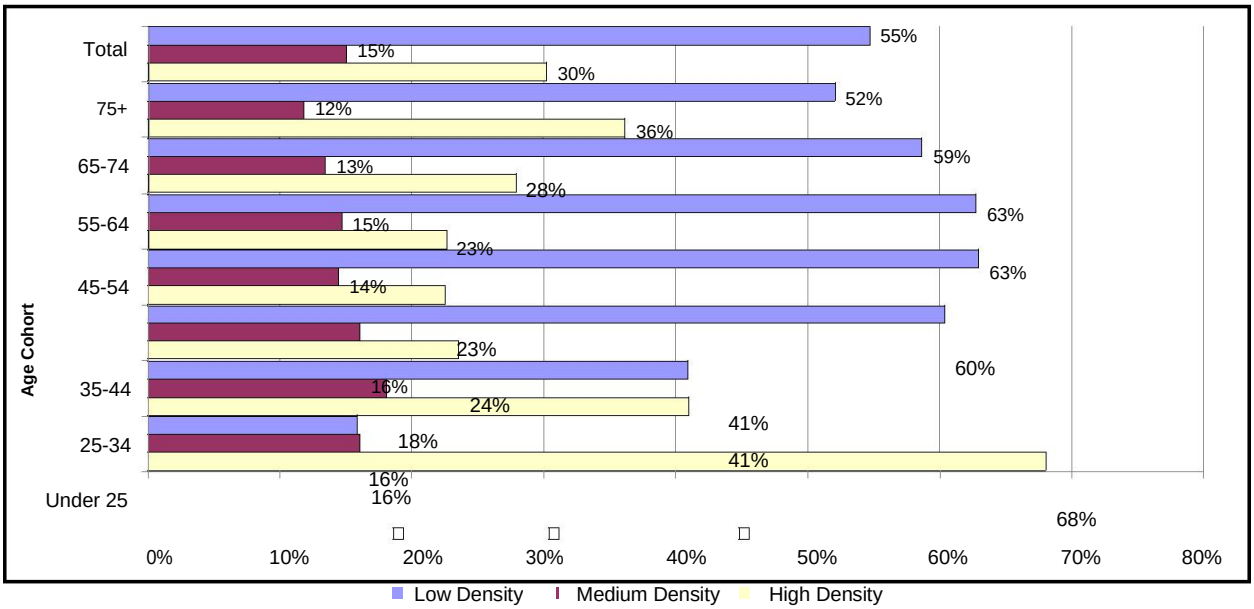
Appendix B – City of London Housing Propensity by Household Maintainer, Structure Type and Age Group, 2006, 2011, 2016

Figure B-1
Housing Preference by Structure Type by Population Age
2006 Census for City of London



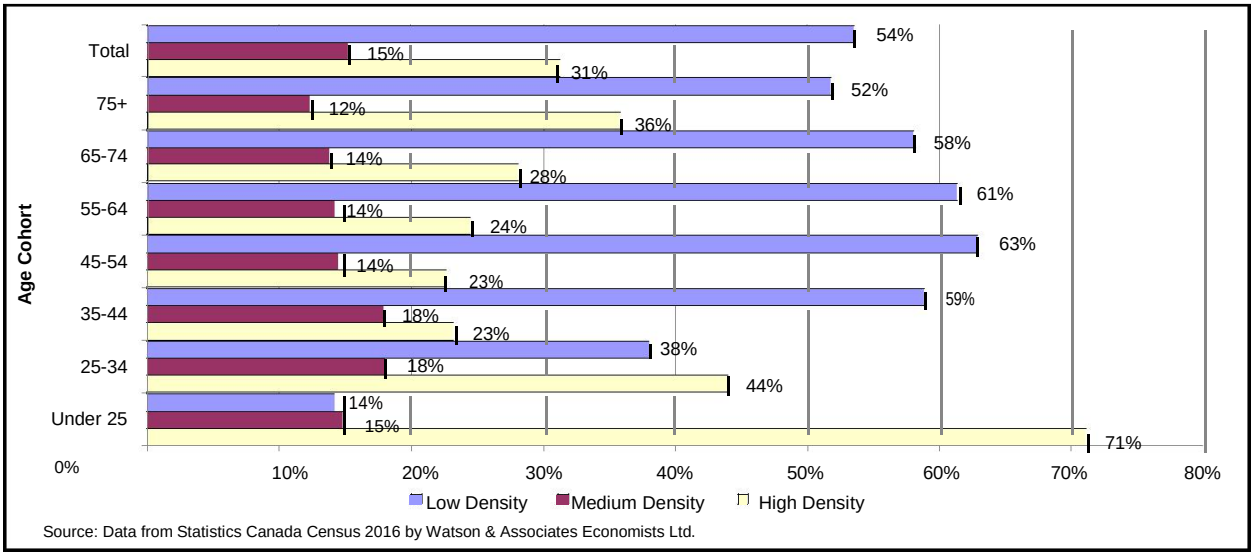
Source: Data from Statistics Canada Census 2006 by Watson & Associates Economists Ltd.

Figure B-2
Housing Preference by Structure Type by Population Age
2011 Census for City of London



Source: Data from Statistics Canada Census 2011 by Watson & Associates Economists Ltd.

Figure B-3
Housing Preference by Structure Type by Population Age
2016 Census for City of London



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

Figure B-4
City of London
2016 Housing Preference by Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,195	14%	1,250	15%	6,015	71%	8,460
25-34	9,975	38%	4,735	18%	11,540	44%	26,250
35-44	15,295	59%	4,650	18%	6,035	23%	25,980
45-54	19,890	63%	4,575	14%	7,150	23%	31,615
55-64	18,920	61%	4,365	14%	7,545	24%	30,830
65-74	12,770	58%	3,035	14%	6,190	28%	21,995
75+	9,325	52%	2,215	12%	6,450	36%	17,990
Total Households	**87,405**	**54%**	**24,820**	**15%**	**50,915**	**31%**	**163,140**

Figure B-5
City of London
Estimated 2031 Unit Mix Based on 2016 Housing Preference by Structure Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,356	14.1%	1,418	14.8%	6,825	71.1%	9,600
25-34	10,651	38.0%	5,056	18.0%	12,322	44.0%	28,029
35-44	21,089	58.9%	6,412	17.9%	8,321	23.2%	35,822
45-54	20,442	62.9%	4,702	14.5%	7,348	22.6%	32,492
55-64	17,982	61.4%	4,149	14.2%	7,171	24.5%	29,302
65-74	17,711	58.1%	4,209	13.8%	8,585	28.1%	30,505
75+	15,828	51.8%	3,760	12.3%	10,948	35.9%	30,535
Total Households	**105,058**	**53.5%**	**29,705**	**15.1%**	**61,521**	**31.3%**	**196,284**

1. Represents single and semi-detached units
2. Represents townhouses and apartments in duplexes
3. Represents apartments 5+ storeys

Figure B-6
City of London
Estimated 2041 Unit Mix Based on 2011 Housing Preference by Structure Type and Age Group

Age Cohort	Low Density [1]		Medium Density [2]		High Density [3]		Total
Under 25	1,350	14.1%	1,412	14.8%	6,793	71.1%	9,554
25-34	11,485	38.0%	5,452	18.0%	13,286	44.0%	30,223
35-44	20,624	58.9%	6,270	17.9%	8,138	23.2%	35,032
45-54	25,205	62.9%	5,798	14.5%	9,061	22.6%	40,064
55-64	20,215	61.4%	4,664	14.2%	8,061	24.5%	32,939
65-74	15,885	58.1%	3,775	13.8%	7,700	28.1%	27,360
75+	21,454	51.8%	5,096	12.3%	14,840	35.9%	41,390
Total Households	**116,217**	**53.7%**	**32,466**	**15.0%**	**67,879**	**31.3%**	**216,562**

1. Represents single and semi-detached units
2. Represents townhouses and apartments in duplexes
3. Represents apartments 5+ storeys

Appendix C – City of London Labour Force Forecast

Figure C-1
City of London
Labour Force Forecast by Age

Total Forecast Labour Force

	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
Employed labour force	166,910	179,140	178,675	184,020	190,465	198,932	206,189	214,671	226,050	233,849
Unemployed labour force	9,145	12,415	17,690	15,815	16,337	17,064	17,686	18,414	19,390	20,059
Total Labour Force	176,055	191,555	196,365	199,835	206,803	215,996	223,875	233,084	245,440	253,908
Unemployment rate	7%	6%	9%	8%	8%	8%	8%	8%	8%	8%

Total Forecast Labour Force (Rounded)

	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
Employed labour force	167,000	179,000	179,000	184,000	190,000	199,000	206,000	215,000	226,000	234,000
Unemployed labour force	9,000	12,000	18,000	16,000	16,000	17,000	18,000	18,000	19,000	20,000
Total Labour Force	176,000	192,000	196,000	200,000	207,000	216,000	224,000	233,000	245,000	254,000
Participation Rate	63%	64%	62%	60%	59%	58%	57%	57%	58%	59%
Unemployment rate	5%	6%	9%	8%	8%	8%	8%	8%	8%	8%

Total Labour Force by Age (London City)

Population Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
15-24	30,808	31,151	28,418	26,737	25,993.70	27,868	29,123	29,283	29,777	30,003
25-44	89,595	87,971	89,054	82,973	89,975	96,273	98,607	99,318	100,521	100,852
45-54	38,682	44,023	45,271	46,160	42,636	42,940	47,864	54,729	60,095	64,349
55-64	15,366	23,916	27,427	34,295	36,796	35,906	33,987	35,068	39,536	42,639
65-69	994	2,806	3,958	6,231	7,058	7,844	8,123	7,489	7,438	7,150
70+	688	1,687	2,237	3,521	4,343	5,164	6,172	7,197	8,073	8,914
Total Labour Force	**176,055**	**191,555**	**196,365**	**199,835**	**206,803**	**215,996**	**223,875**	**233,084**	**245,440**	**253,908**

London Population by Age (London City)

Population Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0-14	65,728	62,359	60,703	63,427	68,469	72,656	74,650	73,504	71,510	70,185
15-24	47,818	51,742	52,727	51,682	50,245	54,140	56,577	56,887	57,847	58,288
25-44	110,586	107,601	105,499	109,781	118,772	127,072	130,140	131,078	132,269	132,704
45-54	48,311	53,856	57,483	54,198	49,943	50,299	55,566	62,673	67,825	71,907
55-64	29,912	38,319	45,938	51,131	54,697	52,267	48,223	48,674	53,663	56,590
65-69	11,925	12,686	15,498	20,481	23,178	25,746	26,398	23,606	22,629	21,142
70+	32,044	35,678	38,304	43,596	53,502	63,425	74,312	84,133	89,459	93,183
Total Working Age Population	**280,596**	**299,881**	**315,449**	**330,869**	**350,336**	**372,949**	**391,216**	**407,052**	**423,692**	**433,815**
Total Population (incl. Undercount)	**346,324**	**362,241**	**376,152**	**394,296**	**418,805**	**445,605**	**465,866**	**480,556**	**495,202**	**504,000**

Labour Force Participation Rate (London City)

Labour Force by Age Group	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
15-24	64%	60%	54%	52%	52%	51%	51%	51%	51%	51%
25-44	81%	82%	84%	76%	76%	76%	76%	76%	76%	76%
45-54	80%	82%	79%	85%	85%	85%	86%	87%	89%	89%
55-64	51%	62%	60%	67%	67%	69%	70%	72%	74%	75%
65-69	8%	22%	26%	30%	30%	30%	31%	32%	33%	34%
70+	2%	5%	6%	8%	8%	8%	8%	9%	9%	10%
Total Labour Force	**63%**	**64%**	**62%**	**60%**	**59%**	**58%**	**57%**	**57%**	**58%**	**59%**

Source: 2001 to 2016 Statistics Canada, 2016 to 2044 Watson & Associates Economists Ltd., 2018

Appendix D – City of London Population Forecast

Table D-1
City of London
Population by Selected Age-Cohort, 1991 to 2044
Population (Including Census Undercount)[1]

Population (Including Census Undercount) [1]

Cohort	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0 - 4	22,944	23,205	18,987	18,270	19,766	20,143	21,941	23,396	23,389	22,193	21,144	20,433
5 - 9	21,446	22,561	23,353	20,444	19,873	21,727	22,394	24,232	25,082	24,706	23,810	23,236
10 - 14	19,333	21,850	23,388	23,645	21,064	21,557	24,134	25,029	26,179	26,605	26,556	26,516
15 - 19	20,969	21,140	23,326	25,042	25,348	22,824	23,863	26,716	26,796	27,443	28,023	28,374
20 - 24	28,737	25,932	24,492	26,701	27,379	28,858	26,382	27,424	29,782	29,445	29,825	29,913
25 - 29	33,059	27,524	26,874	28,832	31,051	32,774	33,628	31,538	31,502	32,968	33,657	34,292
30 - 34	30,049	30,727	25,437	24,112	25,263	27,923	31,416	33,819	31,671	31,742	33,779	34,886
35 - 39	26,124	28,721	29,760	25,314	23,965	25,133	28,322	32,564	33,979	31,960	32,121	31,915
40 - 44	23,498	25,814	28,515	29,344	25,220	23,951	25,405	29,151	32,988	34,409	32,711	31,611
45 - 49	17,888	23,134	25,678	28,592	29,224	25,282	24,091	25,751	29,545	33,113	34,684	35,970
50 - 54	14,409	17,323	22,633	25,264	28,259	28,916	25,852	24,548	26,021	29,559	33,141	35,937
55 - 59	13,148	13,956	16,573	21,994	24,361	27,315	28,084	25,017	23,878	25,409	28,906	30,127
60 - 64	12,990	12,569	13,339	16,325	21,577	23,817	26,612	27,250	24,345	23,264	24,758	26,463
65 - 69	12,690	12,122	11,925	12,686	15,498	20,481	23,178	25,746	26,398	23,606	22,629	21,142
70 - 74	9,765	11,501	11,229	11,299	11,965	14,844	19,524	22,014	24,419	25,051	22,503	21,015
75 - 79	7,198	8,113	9,831	9,867	9,908	10,832	13,709	17,757	20,079	22,301	23,048	23,589
80 - 84	4,582	5,357	6,081	8,085	7,976	8,312	9,303	11,462	14,910	17,085	19,159	20,782
85 - 89	2,310	2,803	3,330	4,256	5,694	5,746	6,196	6,804	8,473	11,245	13,172	14,229
90+	1,125	1,312	1,573	2,169	2,761	3,863	4,769	5,387	6,431	8,451	11,577	13,569
Total	**322,300**	**335,700**	**346,300**	**362,200**	**376,200**	**394,300**	**418,800**	**445,600**	**465,900**	**480,600**	**495,200**	**504,000**

Percentage of Population

Cohort	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041	2044
0 - 4	7.1%	6.9%	5.5%	5.0%	5.3%	5.1%	5.2%	5.3%	5.0%	4.6%	4.3%	4.1%
5 - 9	6.7%	6.7%	6.7%	5.6%	5.3%	5.5%	5.3%	5.4%	5.4%	5.1%	4.8%	4.6%
10 - 14	6.0%	6.5%	6.8%	6.5%	5.6%	5.5%	5.8%	5.6%	5.6%	5.5%	5.4%	5.3%
15 - 19	6.5%	6.3%	6.7%	6.9%	6.7%	5.8%	5.7%	6.0%	5.8%	5.7%	5.7%	5.6%
20 - 24	8.9%	7.7%	7.1%	7.4%	7.3%	7.3%	6.3%	6.2%	6.4%	6.1%	6.0%	5.9%
25 - 29	10.3%	8.2%	7.8%	8.0%	8.3%	8.3%	8.0%	7.1%	6.8%	6.9%	6.8%	6.8%
30 - 34	9.3%	9.2%	7.3%	6.7%	6.7%	7.1%	7.5%	7.6%	6.8%	6.6%	6.8%	6.9%
35 - 39	8.1%	8.6%	8.6%	7.0%	6.4%	6.4%	6.8%	7.3%	7.3%	6.6%	6.5%	6.3%
40 - 44	7.3%	7.7%	8.2%	8.1%	6.7%	6.1%	6.1%	6.5%	7.1%	7.2%	6.6%	6.3%
45 - 49	5.6%	6.9%	7.4%	7.9%	7.8%	6.4%	5.8%	5.8%	6.3%	6.9%	7.0%	7.1%
50 - 54	4.5%	5.2%	6.5%	7.0%	7.5%	7.3%	6.2%	5.5%	5.6%	6.2%	6.7%	7.1%
55 - 59	4.1%	4.2%	4.8%	6.1%	6.5%	6.9%	6.7%	5.6%	5.1%	5.3%	5.8%	6.0%
60 - 64	4.0%	3.7%	3.9%	4.5%	5.7%	6.0%	6.4%	6.1%	5.2%	4.8%	5.0%	5.3%
65 - 69	3.9%	3.6%	3.4%	3.5%	4.1%	5.2%	5.5%	5.8%	5.7%	4.9%	4.6%	4.2%
70 - 74	3.0%	3.4%	3.2%	3.1%	3.2%	3.8%	4.7%	4.9%	5.2%	5.2%	4.5%	4.2%
75 - 79	2.2%	2.4%	2.8%	2.7%	2.6%	2.7%	3.3%	4.0%	4.3%	4.6%	4.7%	4.7%
80 - 84	1.4%	1.6%	1.8%	2.2%	2.1%	2.1%	2.2%	2.6%	3.2%	3.6%	3.9%	4.1%
85 - 89	0.7%	0.8%	1.0%	1.2%	1.5%	1.5%	1.5%	1.5%	1.8%	2.3%	2.7%	2.8%
90+	0.3%	0.4%	0.5%	0.6%	0.7%	1.0%	1.1%	1.2%	1.4%	1.8%	2.3%	2.7%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Watson & Associates Economists Ltd., 2018.

1. Net population undercount estimated at approximately

2.73% Note: Figures may not add precisely due to rounding.

Average Annual Population Growth Rate

Time Period	1991-1996	1996-2001	2001-2006	2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2044
Persons	13,400	10,600	15,900	14,000	18,100	24,500	26,800	20,300	14,700	14,600	8,800
Annual Growth Rate	0.82%	0.62%	0.90%	0.76%	0.94%	1.21%	1.25%	0.89%	0.62%	0.60%	0.35%

Table D-2
City of London
Population and Household Projections by Age Cohort (2006 to 2044)

Age Cohort	Population By Age								
	2006	2011	2016	2021	2026	2031	2036	2041	2044
Under 25	114,100	113,400	115,100	118,700	126,800	131,200	130,400	129,400	128,500
25-34	52,900	56,300	60,700	65,000	65,400	63,200	64,700	67,400	69,200
35-44	54,700	49,200	49,100	53,700	61,700	67,000	66,400	64,800	63,500
45-54	53,900	57,500	54,200	49,900	50,300	55,600	62,700	67,800	71,900
55-64	38,300	45,900	51,100	54,700	52,300	48,200	48,700	53,700	56,600
65-74	24,000	27,500	35,300	42,700	47,800	50,800	48,700	45,100	42,200
75+	24,400	26,300	28,800	34,000	41,400	49,900	59,100	67,000	72,200
Total Population Inc. Census Undercount	**362,300**	**376,100**	**394,300**	**418,700**	**445,700**	**465,900**	**480,700**	**495,200**	**504,100**
Total Population Excl. Census Undercount (Rounded)	**352,400**	**366,200**	**383,800**	**407,600**	**433,900**	**453,500**	**467,900**	**482,000**	**490,700**

Table D-2 (Continued)

Age Cohort	Total Household by Age of Primary Maintainer								
	2006	2011	2016	2021	2026	2031	2036	2041	2044
Under 25	8,270	8,245	8,407	8,664	9,257	9,600	9,600	9,554	9,514
25-34	23,395	24,920	26,912	28,809	28,940	28,029	28,894	30,223	31,068
35-44	29,170	26,100	26,203	28,683	32,944	35,822	35,732	35,032	34,398
45-54	31,230	33,190	31,591	29,136	29,352	32,492	36,884	40,064	42,564
55-64	22,690	27,540	30,967	33,161	31,697	29,302	29,770	32,939	34,811
65-74	15,035	17,300	21,430	25,660	28,630	30,505	29,395	27,360	25,610
75+	15,730	16,340	17,630	20,770	25,300	30,535	36,395	41,390	44,710
Total	**145,520**	**153,635**	**163,140**	**174,882**	**186,120**	**196,284**	**206,669**	**216,562**	**222,676**
Persons Per Unit (Incl. Net Census Undercount)	**2.49**	**2.45**	**2.42**	**2.39**	**2.39**	**2.37**	**2.33**	**2.29**	**2.26**
Persons Per Unit (Excl. Net Census Undercount)	**2.42**	**2.38**	**2.35**	**2.33**	**2.33**	**2.31**	**2.26**	**2.23**	**2.20**

Annual Households	2006-2011	2011-2016	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2044
	1,623	1,901	2,348	2,248	2,033	2,077	1,979	2,038

Annual Household forecast derived from headship rate approach differs from annual housing units forecast using market forecast approach.
Source: 1991-2006 Headship rate data provided from Statistics Canada Demography Division. Headship rate forecast provided by Watson & Associates Economists Ltd.
Note: Numbers may not add up due to rounding.

Figure D-3
City of London
Residential Growth Forecast Summary

Annual Household Growth, City of London, 1996 - 2044					
		Singles and Semis	Row	Apartments and Other	Total
Census Periods			Occupied Dwellings Units		
1996-2001	a	1,083	34	501	1,618
2001-2006	a	625	636	293	1,554
2006-2011	a	1,181	46	408	1,635
2011-2016	a	662	378	861	1,901
2016-2021	e	1,128	516	704	2,348
2021-2026	f	1,062	518	670	2,250
2026-2031	f	894	466	670	2,030
2031-2036	f	892	500	686	2,078
2036-2041	f	772	474	732	1,978
2041-2044	f	693	490	857	2,040
2016-2044					
Avg. Annual		907	494	720	2,121
Total		8,992	4,058	6,382	19,432
			Percent Distribution		
Census Periods					
1996-2001	a	67%	2%	31%	100%
2001-2006	a	40%	41%	19%	100%
2006-2011	a	72%	3%	25%	100%
2011-2016	a	35%	20%	45%	100%
2016-2021	e	48%	22%	30%	100%
2021-2026	f	47%	23%	30%	100%
2026-2031	f	44%	23%	33%	100%
2031-2036	f	43%	24%	33%	100%
2036-2041	f	39%	24%	37%	100%
2041-2044	f	34%	24%	42%	100%
2016-2044		46%	21%	33%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
e: Estimates based on actual building permit data from City of London
f: Forecasts by Watson & Associates Economists Ltd.

Source: Watson & Associates Economists Ltd. based on data from Statistics Canada Census and from City of London building permit data

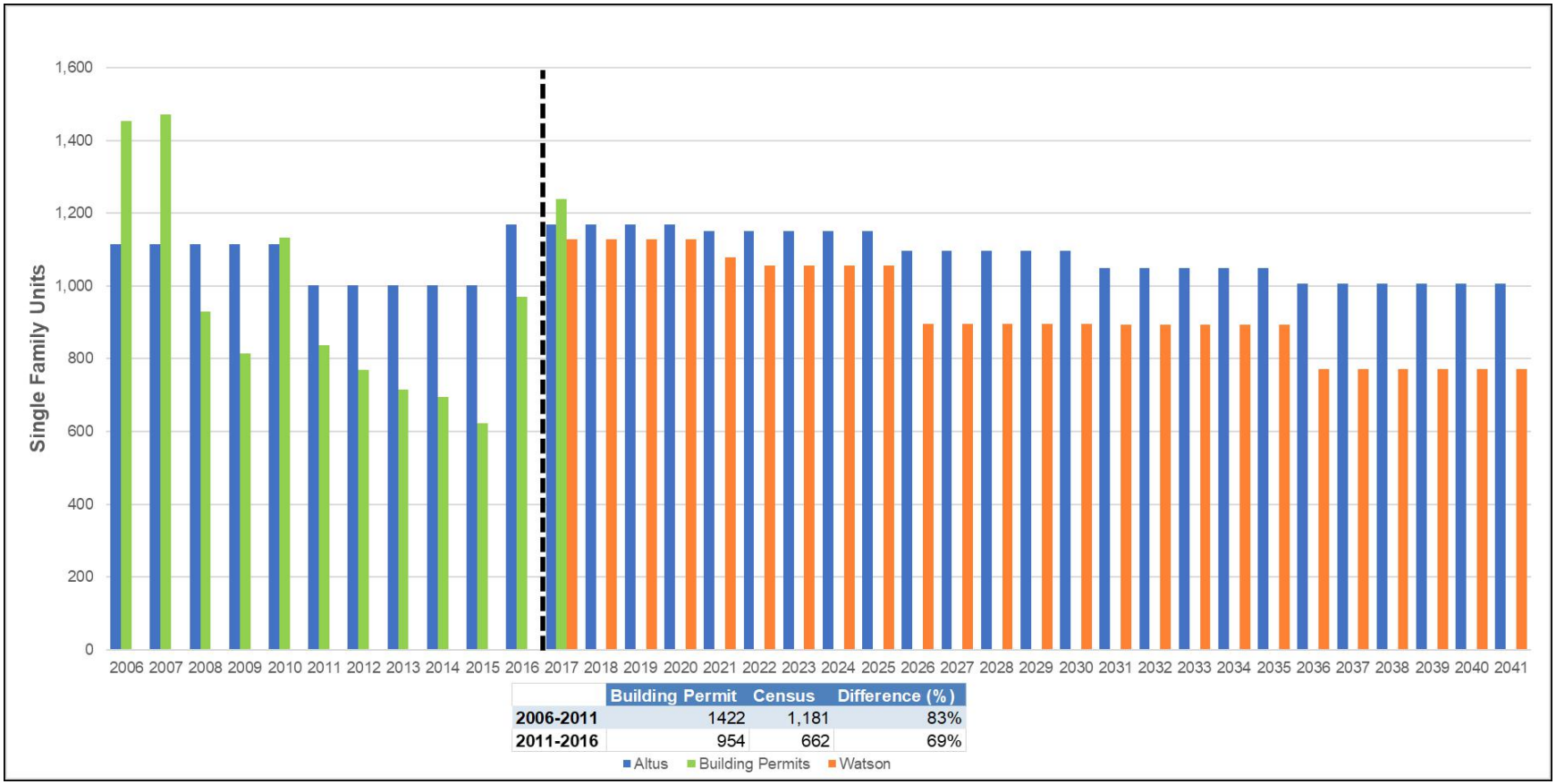
Figure D-4
City of London
Summary of Annual Housing Growth, 1996 to 2044

	Year	Population (Excluding Institutional Population)	Institutional Population	Population (Excluding Census Undercount)	Population (Including Census Undercount)[1]	Housing Units					
						Singles & Semi-Detached	Multiple Dwellings[2]	Apartments[3]	Other	Total Households	Persons Per Unit (PPU)
Historical	*Mid 1996*	321,345	4,301	325,646	334,570	69,275	19,470	40,545	445	129,735	2.51
	Mid 2001	332,420	4,119	336,539	345,760	74,690	19,640	43,050	385	137,765	2.44
	Mid 2006	347,470	4,925	352,395	362,050	77,815	22,820	44,515	365	145,515	2.42
	Mid 2011	360,720	5,431	366,151	376,180	83,720	23,050	46,555	310	153,635	2.38
	Mid 2016	378,040	5,782	383,822	394,300	87,030	24,935	50,855	320	163,140	2.35
Forecast	*Mid 2019*	391,880	6,258	398,139	409,000	90,414	26,483	52,967	320	170,184	2.34
	Mid 2024	416,500	6,967	423,466	435,100	95,856	29,070	56,390	320	181,636	2.33
	Mid 2029	438,370	7,560	445,930	458,100	100,662	31,503	59,735	320	192,220	2.32
	Mid 2034	454,370	8,071	462,441	475,100	105,126	33,935	63,133	320	202,514	2.28
	Mid 2039	468,130	8,558	476,685	489,700	109,226	36,357	66,701	320	212,604	2.24
	Mid 2044	481,420	9,150	490,570	504,000	112,849	38,775	70,736	320	222,680	2.20
Incremental	**Mid 2001 - Mid 2006**	**15,050**	**806**	**15,856**	**16,290**	**3,125**	**3,180**	**1,465**	**-20**	**7,750**	
	Mid 2006 - Mid 2011	**13,250**	**506**	**13,756**	**14,130**	**5,905**	**230**	**2,040**	**-55**	**8,120**	
	Mid 2011 - Mid 2016	**17,320**	**351**	**17,671**	**18,120**	**3,310**	**1,885**	**4,300**	**10**	**9,505**	
	Mid 2016 - Mid 2019	**13,840**	**476**	**14,317**	**14,700**	**3,384**	**1,548**	**2,112**	**0**	**7,044**	
	Mid 2019 - Mid 2024	**24,620**	**709**	**25,327**	**26,100**	**5,442**	**2,587**	**3,423**	**0**	**11,452**	
	Mid 2019 - Mid 2029	**46,490**	**1,302**	**47,791**	**49,100**	**10,248**	**5,020**	**6,768**	**0**	**22,036**	
	Mid 2019 - Mid 2034	**62,490**	**1,813**	**64,302**	**66,100**	**14,712**	**7,452**	**10,166**	**0**	**32,330**	
	Mid 2019 - Mid 2039	**76,250**	**2,300**	**78,546**	**80,700**	**18,812**	**9,874**	**13,734**	**0**	**42,420**	
	Mid 2019 - Mid 2044	**89,540**	**2,892**	**92,431**	**95,000**	**22,435**	**12,292**	**17,769**	**0**	**52,496**	

Source: Watson & Associates Economists Ltd., 2018.

1. Census Undercount estimated at approximately 2.73%. Note: Population Including the Undercount has been rounded.
2. Townhouses
3. Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-5
City of London
Low Density Housing Forecast Comparison



	Building Permit	Census	Difference (%)
2006-2011	1422	1,181	83%
2011-2016	954	662	69%

Figure D-6
City of London
Mid 2016 to Mid 2019

			POPULATION
Mid 2016 Population			383,822
Occupants of New Housing Units, Mid 2016 to Mid 2019	*Units (2)*	7,044	
	multiplied by persons per unit (3)	2.32	
	gross population increase	16,357	16,357
Decline in Housing Unit Occupancy, Mid 2016 to Mid 2019	*Units (4)*	163,140	
	multiplied by ppu decline rate (5)	-0.0125	
	total decline in population	-2,040	-2,040
Population Estimate to Mid 2019			398,139
Net Population Increase, Mid 2016 to Mid 2019			*14,317*

(1) 2011 population based on Statistics Canada Census unadjusted for Census Undercount.

(2) Estimated residential units constructed, Mid 2011 to the beginning of the growth period, assuming a six-month lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi-Detached	3.13	35%	1.09
Multiples (6)	2.18	20%	0.43
Apartments (7)	1.77	45%	0.80
Total		100%	2.32

[1] Based on 2011 Census custom database

[2] Based on Building permit/completion activity

(4) 2011 households taken from Statistics Canada Census.

(5) Decline occurs due to aging of the population and family lifecycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-7
City of London
Five Year Growth Forecast
Mid 2019 to Mid 2024

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Mid 2024	*Units (2)*	11,452	
	multiplied by persons per unit (3)	2.47	
	gross population increase	28,255	28,255
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2024	*Units (4)*	170,184	
	multiplied by ppu decline rate (5)	-0.0172	
	total decline in population	-2,928	-2,928
Population Estimate to Mid 2021			423,466
Net Population Increase, Mid 2019 to Mid 2024			*25,327*

(1) Mid 2019 Population based on:

2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,044 x 2.32 = 16,357) + (163,140 x -0.0125 = -2,040) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi-Detached	3.12	48%	1.50
Multiples (6)	2.11	22%	0.46
Apartments (7)	1.68	30%	0.51
one bedroom or less	1.38		
two bedrooms or more	1.87		
Total		100%	2.47

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,044 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family lifecycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-8
City of London
Ten Year Growth Forecast
Mid 2019 to Mid 2029

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Mid 2029	*Units (2)*	22,036	
	multiplied by persons per unit (3)	2.46	
	gross population increase	54,267	54,267
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2029	*Units (4)*	192,220	
	multiplied by ppu decline rate (5)	-0.0337	
	total decline in population	-6,476	-6,476
Population Estimate to Mid 2029			445,930
Net Population Increase, Mid 2019 to Mid 2029			*47,791*

(1) Mid 2019 Population based on:

2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,044 x 2.32 = 16,357) + (163,140 x -0.0125 = -2,040) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi-Detached	3.12	48%	1.49
Multiples (6)	2.11	22%	0.47
Apartments (7)	1.68	30%	0.50
one bedroom or less	1.38		
two bedrooms or more	1.87		
Total		100%	2.46

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,044 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family lifecycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-9
City of London
Twenty Year Growth Forecast
Mid 2019 to Mid 2039

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Mid 2039	*Units (2)*	42,420	
	multiplied by persons per unit (3)	2.44	
	gross population increase	103,349	103,349
Decline in Housing Unit Occupancy, Mid 2019 to Mid 2039	*Units (4)*	212,604	
	multiplied by ppu decline rate (5)	-0.1167	
	total decline in population	-24,803	-24,803
Population Estimate to Mid 2039			476,685
Net Population Increase, Mid 2019 to Mid 2039			*78,546*

(1) Mid 2019 Population based on:
2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,044 x 2.32 = 16,357) + (163,140 x -0.0125 = -2,040) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi-Detached	3.12	46%	1.42
Multiples (6)	2.11	23%	0.48
Apartments (7)	1.68	31%	0.53
one bedroom or less	1.38		
two bedrooms or more	1.87		
Total		100%	2.44

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,044 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family lifecycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure D-10
City of London
Long-Term Growth Forecast
Mid 2019 to Buildout

			POPULATION
Mid 2019 Population			398,139
Occupants of New Housing Units, Mid 2019 to Buildout	*Units (2)*	52,496	
	multiplied by persons per unit (3)	2.40	
	gross population increase	126,214	126,214
Decline in Housing Unit Occupancy, Mid 2019 to Buildout	*Units (4)*	222,680	
	multiplied by ppu. decline rate (5)	-0.1517	
	total decline in population	-33,783	-33,783
Population Estimate to Buildout			490,570
Net Population Increase, Mid 2019 to Buildout			*92,431*

(1) Mid 2019 Population based on:
2016 Population (383,822) + Mid 2011 to Mid 2016 estimated housing units to beginning of forecast period (7,044 x 2.32 = 16,357) + (163,140 x -0.0125 = -2,040) = 398,139

(2) Based upon forecast building permits/completions assuming a lag between construction and occupancy.

(3) Average number of persons per unit (ppu) is assumed to be:

Structural Type	Persons Per Unit[1]	% Distribution of Estimated Units[2]	Weighted Persons Per Unit Average
Singles & Semi-Detached	3.12	43%	1.35
Multiples (6)	2.11	23%	0.49
Apartments (7)	1.68	33%	0.56
one bedroom or less	1.38		
two bedrooms or more	1.87		
Total		100%	2.40

[1] Persons per unit based on adjusted Statistics Canada Custom 2011 Census database.

[2] Forecast unit mix based upon historical trends and housing units in the development process.

(4) Mid 2016 households based upon 163,140 (2011 Census) + 7,044 (Mid 2011 to Mid 2016 unit estimate) = 163,140

(5) Decline occurs due to aging of the population and family lifecycle changes, lower fertility rates and changing economic conditions.

(6) Includes townhouses and apartments in duplexes.

(7) Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Appendix E – City of London Employment Forecast

Figure E-1
City of London
Employment Growth Forecast Summary, 2001 to 2044

Annual Employment Growth, City of London, 2001 - 2044

Census Periods		Primary	Work at Home	Industrial	Office	Retail	Institutional	NFPOW [1]	Total
2001-2006	a	-16	22	155	568	771	993	341	2,833
2006-2011	a	4	138	-842	-135	-309	1,361	257	475
2011-2016	a	2	158	-785	57	355	62	429	279
2016-2021	f	0	127	326	364	362	650	242	2,070
2021-2026	f	0	136	355	330	529	656	404	2,411
2026-2031	f	0	130	327	271	551	628	231	2,137
2031-2036	f	0	214	320	339	567	538	309	2,287
2036-2041	f	0	108	254	303	510	457	286	1,918
2041-2044	f	0	80	261	306	556	457	144	1,804
2016-2044									
Avg. Annual		0	136	310	320	509	572	278	2,126
Total		0	3,813	8,692	8,954	14,266	16,015	7,789	59,528
Percent Distribution									
Census Periods									
2001-2006	a	-1%	1%	5%	20%	27%	35%	12%	100%
2006-2011	a	1%	29%	-177%	-28%	-65%	287%	54%	100%
2011-2016	a	1%	57%	-281%	21%	127%	22%	154%	100%
2016-2021	f	0%	6%	16%	18%	17%	31%	12%	100%
2021-2026	f	0%	6%	15%	14%	22%	27%	17%	100%
2026-2031	f	0%	6%	15%	13%	26%	29%	11%	100%
2031-2036	f	0%	9%	14%	15%	25%	24%	13%	100%
2036-2041	f	0%	6%	13%	16%	27%	24%	15%	100%
2041-2044	f	0%	4%	14%	17%	31%	25%	8%	100%
2016-2044		0%	6%	15%	15%	24%	27%	13%	100%

Totals may not add up due to rounding
a: Final Statistics Canada census data
f: Forecasts by Watson & Associates Economists Ltd.

Source: Watson & Associates Economists Ltd. based on data from Statistics Canada Place of Work data from 2001 to 2016. 2021 to 2044 is a forecast by Watson & Associates Economists Ltd.

Figure E-2a
City of London
Employment Forecast, 2016 to 2044

Period	Population	Activity Rate										Employment									
		Primary	Work at Home	Industrial	Commercial/ Population Related	Office	Retail/Other	Institutional	Total	NFPOW[1]	Total Including NFPOW	Primary	Work at Home	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total	NFPOW [1]	Total Employment (Including NFPOW)
Mid 2001	336,539	0.001	0.029	0.126	0.209	0.078	0.131	0.125	0.491	0.042	0.533	465	9,725	42,478	70,443	26,409	44,034	42,070	165,180	14,160	179,340
Mid 2006	352,395	0.001	0.028	0.123	0.219	0.083	0.136	0.133	0.504	0.045	0.549	385	9,835	43,253	77,133	29,246	47,886	47,035	177,641	15,865	193,506
Mid 2011	366,151	0.001	0.029	0.107	0.205	0.078	0.127	0.147	0.488	0.047	0.535	405	10,525	39,043	74,918	28,574	46,344	53,840	178,731	17,150	195,881
Mid 2016	383,822	0.001	0.029	0.092	0.201	0.075	0.125	0.141	0.464	0.050	0.514	415	11,315	35,120	76,980	28,860	48,120	54,150	177,980	19,295	197,275
Mid 2019	398,139	0.001	0.029	0.091	0.199	0.075	0.124	0.141	0.461	0.050	0.511	415	11,697	36,098	79,156	29,951	49,206	56,099	183,465	20,020	203,486
Mid 2024	423,466	0.001	0.029	0.089	0.196	0.075	0.122	0.140	0.456	0.051	0.507	415	12,358	37,814	83,186	31,669	51,518	59,368	193,142	21,717	214,858
Mid 2029	445,930	0.001	0.029	0.089	0.196	0.074	0.122	0.140	0.455	0.052	0.507	415	13,017	39,507	87,372	33,142	54,230	62,564	202,875	23,217	226,092
Mid 2034	462,441	0.001	0.030	0.089	0.198	0.075	0.123	0.141	0.460	0.053	0.513	415	13,919	41,121	91,735	34,702	57,033	65,434	212,624	24,604	237,228
Mid 2039	476,685	0.001	0.031	0.089	0.201	0.076	0.125	0.142	0.465	0.055	0.519	415	14,671	42,521	95,988	36,291	59,698	67,881	221,476	26,080	247,556
Mid 2044	490,570	0.001	0.031	0.089	0.204	0.077	0.127	0.143	0.468	0.055	0.523	415	15,128	43,812	100,200	37,814	62,386	70,165	229,720	27,084	256,804
Incremental Change																					
Mid 2001 - Mid 2006	15,856	0.000	-0.001	-0.003	0.010	0.005	0.005	0.008	0.013	0.003	0.016	-80	110	776	6,691	2,838	3,853	4,965	12,461	1,705	14,166
Mid 2006 - Mid 2011	13,756	0.000	0.001	-0.016	-0.014	-0.005	-0.009	0.014	-0.016	0.002	-0.014	20	690	-4,210	-2,215	-673	-1,543	6,805	1,090	1,285	2,375
Mid 2011 - Mid 2016	17,671	0.000	0.001	-0.015	-0.004	-0.003	-0.001	-0.006	-0.024	0.003	-0.021	10	790	-3,923	2,062	286	1,776	310	-751	2,145	1,394
Mid 2016 - Mid 2019	14,317	0.000	0.000	-0.001	-0.002	0.000	-0.002	0.000	-0.003	0.000	-0.003	0	382	978	2,176	1,091	1,086	1,949	5,485	725	6,211
Mid 2019 - Mid 2024	25,327	0.000	0.000	-0.001	-0.002	0.000	-0.002	-0.001	-0.005	0.001	-0.004	0	661	1,716	4,030	1,718	2,312	3,269	9,677	1,696	11,373
Mid 2019 - Mid 2029	47,791	0.000	0.000	-0.002	-0.003	-0.001	-0.002	-0.001	-0.006	0.002	-0.004	0	1,321	3,409	8,216	3,191	5,024	6,464	19,410	3,197	22,607
Mid 2019 - Mid 2034	64,302	0.000	0.001	-0.002	0.000	0.000	0.000	0.001	-0.001	0.003	0.002	0	2,222	5,023	12,579	4,751	7,827	9,335	29,159	4,584	33,742
Mid 2019 - Mid 2039	78,546	0.000	0.001	-0.001	0.003	0.001	0.002	0.001	0.004	0.004	0.008	0	2,974	6,423	16,832	6,340	10,492	11,781	38,011	6,059	44,070
Mid 2019 - Mid 2044	92,431	0.000	0.001	-0.001	0.005	0.002	0.004	0.002	0.007	0.005	0.012	0	3,431	7,714	21,044	7,863	13,180	14,066	46,255	7,064	53,318
Annual Average																					
Mid 2001 - Mid 2006	3,171	0.000	0.000	-0.001	0.002	0.001	0.001	0.002	0.003	0.001	0.003	-16	22	155	1,338	568	771	993	2,492	341	2,833
Mid 2006 - Mid 2011	2,751	0.000	0.000	-0.003	-0.003	-0.001	-0.002	0.003	-0.003	0.000	-0.003	4	138	-842	-443	-135	-309	1,361	218	257	475
Mid 2011 - Mid 2016	3,534	0.000	0.000	-0.003	-0.001	-0.001	0.000	-0.001	-0.005	0.001	-0.004	2	158	-785	412	57	355	62	-150	429	279
Mid 2016 - Mid 2019	4,772	0.000	0.000	0.000	-0.001	0.000	-0.001	0.000	-0.001	0.000	-0.001	0	127	326	725	364	362	650	1,828	242	2,070
Mid 2019 - Mid 2024	5,065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000	-0.001	0	132	343	806	344	462	654	1,935	339	2,275
Mid 2019 - Mid 2029	4,779	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000	0.000	0	132	341	822	319	502	646	1,941	320	2,261
Mid 2019 - Mid 2034	4,287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	148	335	839	317	522	622	1,944	306	2,249
Mid 2019 - Mid 2039	3,927	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	149	321	842	317	525	589	1,901	303	2,204
Mid 2019 - Mid 2044	3,697	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	137	309	842	315	527	563	1,850	283	2,133

Source: Watson & Associates Economists Ltd., 2018

1. Statistics Canada defines no fixed place of work (NFPOW) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.

Figure E-2b
City of London
Employment Forecast, 2016 to 2044

Annual Employment Growth by Major Sector

Forecast Period	Primary	Work at Home	Industrial	Office	Retail/Other	Institutional	NFPOW	Total
Mid 2001 - Mid 2006	-16	22	155	568	771	993	341	2,833
Mid 2006 - Mid 2011	4	138	-842	-135	-309	1,361	257	475
Mid 2011 - Mid 2016	2	158	-785	57	355	62	429	279
Mid 2016 - Mid 2019	0	127	326	364	362	650	242	2,070
Mid 2019 - Mid 2024	0	132	343	344	462	654	339	2,275
Mid 2024 - Mid 2029	0	132	338	295	542	639	300	2,247
Mid 2029 - Mid 2034	0	180	323	312	561	574	277	2,227
Mid 2034 - Mid 2039	0	150	280	318	533	489	295	2,066
Mid 2039 - Mid 2044	0	91	258	305	538	457	201	1,850

Percentage Annual Employment Growth

Forecast Period	Primary	Work at Home	Industrial	Office	Retail/Other	Institutional	NFPOW[1]	Total
Mid 2001 - Mid 2006	-1%	1%	5%	20%	27%	35%	12%	100%
Mid 2006 - Mid 2011	1%	29%	-177%	-28%	-65%	287%	54%	100%
Mid 2011 - Mid 2016	1%	57%	-281%	21%	127%	22%	154%	100%
Mid 2016 - Mid 2019	0%	6%	16%	18%	17%	31%	12%	100%
Mid 2019 - Mid 2024	0%	6%	15%	15%	20%	29%	15%	100%
Mid 2024 - Mid 2029	0%	6%	15%	13%	24%	28%	13%	100%
Mid 2029 - Mid 2034	0%	8%	14%	14%	25%	26%	12%	100%
Mid 2034 - Mid 2039	0%	7%	14%	15%	26%	24%	14%	100%
Mid 2039 - Mid 2044	0%	5%	14%	16%	29%	25%	11%	100%

Source: 2001 to 2016 Statistics Canada Census; 2021 to 2044 Watson & Associates Economists Ltd.

Figure E-2c
City of London
Employment and Gross Floor Area (G.F.A.) Forecast, 2016 to 2044

Period	Population	Employment							Gross Floor Area in Square Feet (Estimated)[1]					
		Primary	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total	Industrial	Commercial/ Population Related	Office	Retail	Institutional	Total
Mid 2001	336,539	465	42,478	70,443	26,409	44,034	42,070	165,180						
Mid 2006	352,395	385	43,253	77,133	29,246	47,886	47,035	177,641						
Mid 2011	366,151	405	39,043	74,918	28,574	46,344	53,840	178,731						
Mid 2016	383,822	415	35,120	76,980	28,860	48,120	54,150	177,980						
Mid 2019	398,139	415	36,098	79,156	29,950	49,206	56,099	183,465						
Mid 2024	423,466	415	37,814	83,186	31,668	51,518	59,368	193,142						
Mid 2029	445,930	415	39,507	87,372	33,142	54,230	62,564	202,875						
Mid 2034	462,441	415	41,121	91,735	34,702	57,033	65,434	212,624						
Mid 2039	476,685	415	42,521	95,988	36,291	59,698	67,881	221,476						
Mid 2044	490,570	415	43,812	100,200	37,814	62,386	70,165	229,720						
Incremental Change														
Mid 2001 - Mid 2006	15,856	-80	776	6,691	2,838	3,853	4,965	12,461						
Mid 2006 - Mid 2011	13,756	20	-4,210	-2,215	-673	-1,543	6,805	1,090						
Mid 2011 - Mid 2016	17,671	10	-3,923	2,062	286	1,776	310	-751						
Mid 2016 - Mid 2019	14,317	0	978	2,176	1,090	1,086	1,949	5,485	978,000	924,900	354,300	570,600	1,364,600	3,267,500
Mid 2019 - Mid 2024	25,327	0	1,716	4,030	1,718	2,312	3,269	9,677	1,716,400	1,712,800	558,300	1,154,500	2,288,100	5,717,300
Mid 2019 - Mid 2029	47,791	0	3,409	8,216	3,192	5,024	6,464	19,410	3,408,800	3,491,700	1,037,400	2,454,300	4,525,100	11,425,600
Mid 2019 - Mid 2034	64,302	0	5,023	12,579	4,752	7,827	9,335	29,159	5,022,800	5,346,100	1,544,400	3,801,700	6,534,300	16,903,200
Mid 2019 - Mid 2039	78,546	0	6,423	16,832	6,341	10,492	11,781	38,011	6,423,400	7,153,600	2,060,800	5,092,800	8,247,000	21,824,000
Mid 2019 - Mid 2044	92,431	0	7,714	21,044	7,864	13,180	14,066	46,255	7,714,000	8,943,600	2,555,800	6,387,800	9,845,900	26,503,500
Annual Average														
Mid 2001 - Mid 2006	3,171	-16	155	1,338	568	771	993	2,492						
Mid 2006 - Mid 2011	2,751	4	-842	-443	-135	-309	1,361	218						
Mid 2011 - Mid 2016	3,534	2	-785	412	57	355	62	-150						
Mid 2016 - Mid 2019	4,772	0	326	725	363	362	650	1,828	326,000	308,300	118,100	190,200	454,867	1,089,167
Mid 2019 - Mid 2024	5,065	0	343	806	344	462	654	1,935	343,280	342,560	111,660	230,900	457,620	1,143,460
Mid 2019 - Mid 2029	4,779	0	341	822	319	502	646	1,941	340,880	349,170	103,740	245,430	452,510	1,142,560
Mid 2019 - Mid 2034	4,287	0	335	839	317	522	622	1,944	334,853	356,407	102,960	253,447	435,620	1,126,880
Mid 2019 - Mid 2039	3,927	0	321	842	317	525	589	1,901	321,170	357,680	103,040	254,640	412,350	1,091,200
Mid 2019 - Mid 2044	3,697	0	309	842	315	527	563	1,850	308,560	357,744	102,232	255,512	393,836	1,060,140

Source: Watson & Associates Economists Ltd., 2018

1. Square Foot Per Employee Assumptions

Industrial	1,000
Commercial/ Population Related	425
Institutional	700

Note: Numbers may not add up exactly due to rounding.

Figure E-2d
City of London
Employment and Gross Floor Area (G.F.A.) Forecast, 2016 to 2044

Annual Non-Residential Gross Floor Area Forecast, 2016-2044

Forecast Period	Industrial	Office	Retail	Institutional	Total
2016-2019	326,000	118,100	190,200	454,900	1,089,200
2019-2024	343,300	111,700	230,900	457,600	1,143,500
2024-2029	338,500	95,800	259,960	447,400	1,141,660
2029-2034	322,800	101,400	269,480	401,840	1,095,520
2034-2039	280,100	103,300	258,200	342,500	984,100
2039-2044	258,100	99,000	259,000	319,800	935,900
2019-2044	308,600	102,200	255,500	393,800	1,060,100

Forecast Period	Industrial	Office	Retail	Institutional	Total
2016-2019	30%	11%	17%	42%	100%
2019-2024	30%	10%	20%	40%	100%
2024-2029	30%	8%	23%	39%	100%
2029-2034	29%	9%	25%	37%	100%
2034-2039	28%	10%	26%	35%	100%
2039-2044	28%	11%	28%	34%	100%
2019-2044	29%	10%	24%	37%	100%

Source: Watson & Associates Economists Ltd., 2018

Figure E-3
Change in Employment Land Sale Prices, 2010 to 2016

Municipality		2010 [1]	2016	2010 - 2016 Change	Municipality Imposes Industrial Development Charges
Town of Milton		$411,000	$666,000	62%	Yes
City of Hamilton		$276,000	$375,000	36%	Yes
City of Waterloo		$340,000	$369,000	9%	Yes
City of Cambridge		$224,000	$285,000	27%	Yes
City of Kitchener		$232,000	$267,000	15%	Yes
City of Barrie		$278,000	$260,000	-6%	Yes
City of Woodstock		$75,000	$80,000	7%	No
City of Brantford[2]	City-Owned: General Industrial	$104,000	$75,000	-28%	Yes
	City-Owned: Business Park	$159,000	$125,000	-21%	
	Private Sale Average[3]	$160,000	$135,000	-16%	
City of London[4]	City-Owned: > 4 Acres	$69,000	$65,000	-6%	No
	City-Owned: < 4 Acres	$80,000	$75,000	-6%	
	Private Sale Average[5]	Not Available	$85,000		

Source: Watson & Associates Economists Ltd., 2018.

1. Prices for 2010 have been adjusted to 2016 dollars to account for inflation. CPI is 117.4.

2. City of Brantford reduced land prices at end of year 2010 by $20,000. Prices have remained unchanged since late 2010.

3. Price per acre for private land is typically higher than the City average.

4. The City of London applies a surcharge of 5% to 15% for lots with highway frontage. Land in the Trafalgar Industrial Park is sold at reduced rate of $55,000/per acre.

5. Price per acre for private land is typically higher than the City average.

Appendix F – Middlesex County Population Forecast

Figure F-1
Middlesex County
Population Forecast Projection from Ministry of Finance

Ministry of Finance Population for Middlesex County						
Cohort	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	102,500	107,500	113,800	117,900	121,300	122,300
20-34	107,800	112,300	108,100	105,700	107,400	112,900
35-44	58,900	66,600	74,400	78,900	76,600	72,700
45-54	65,200	59,200	60,200	66,200	73,300	77,900
55-74	107,200	121,900	125,300	124,600	122,200	122,600
75+	34,400	41,100	52,300	64,900	79,200	91,600
Total	**476,000**	**508,600**	**534,100**	**558,200**	**580,000**	**600,000**

Middlesex County - Ministry of Finance

Cohort	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	22%	21%	21%	21%	21%	20%
20-34	23%	22%	20%	19%	19%	19%
35-44	12%	13%	14%	14%	13%	12%
45-54	14%	12%	11%	12%	13%	13%
55-74	23%	24%	23%	22%	21%	20%
75+	7%	8%	10%	12%	14%	15%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Sources: Statistics Canada estimates, 2016, and Ontario Ministry of Finance projections, 2017.

Figure F-2
Middlesex County
Population Forecast Projections from Altus Group

Altus Forecast (including undercount)						
	2016	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	86,300	89,600	94,600	98,500	101,500	104,200
20-34	90,200	92,300	93,100	92,200	95,600	101,300
35-44	49,600	54,700	58,800	63,000	64,400	62,600
45-54	52,200	47,400	49,200	54,500	58,700	63,000
55-74	87,800	97,600	98,700	97,100	95,600	97,400
75+	29,600	33,900	41,800	50,300	58,700	65,400
TOTAL	**395,600**	**415,500**	**436,300**	**455,600**	**474,600**	**493,900**

Altus Forecast % of Populaton

Cohort	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**
0-19	22%	22%	22%	22%	21%	21%
20-34	23%	22%	21%	20%	20%	21%
35-44	13%	13%	13%	14%	14%	13%
45-54	13%	11%	11%	12%	12%	13%
55-74	22%	23%	23%	21%	20%	20%
75+	7%	8%	10%	11%	12%	13%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Employment, Population, Housing and Non-Residential Construction Projections, City of London, Ontario, 2011 Update. Altus Group, 2012. Note: Includes a 2.7% undercount.