

# City of Edmonton Growth Study

***Submitted to*** City of Edmonton

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## Executive Summary

Alberta continues to lead the country in economic growth. Its economy has grown on average by over 4% per year over the last three years and is forecast to grow by 3% per year over the next three years. The Edmonton-Calgary corridor demonstrates this economic activity having generated 60% of Canada's overall job growth for the year ending July 2014. The Edmonton Region plays an important role in the Alberta economy, given its proximity to the world's third-largest oil reserve. Edmonton has been leading or among the leading Canadian cities in terms of GDP growth over the past three years with that trend expected to continue for another five years.

Strong economic fundamentals in Edmonton have created the need to accommodate growth. Edmonton's population grew by roughly 60,000 from 2012 to 2014, an increase of 7.4%. Much of that increase is mainly due to young adults migrating into the city. Housing starts have been pacing the population averaging 10,000 new housing over the last two years. The growth pressures to accommodate the added population have been strongest within south Edmonton. For example, 45% of the added population over the last two years occurred within the two southern most Wards. Demand for industrial land has been just as strong. The average annual absorption rate for the past three years – 206 net hectares – is in the order of 85% higher than the previous eight year average. These growth demands are applying pressure on Edmonton's supply of land for future residential and industrial development.

This study assesses the need for land to accommodate long-term growth. This is accomplished by forecasting population, housing and industrial demand and then comparing these forecasts to the available land supply within Edmonton's current boundaries. These findings are summarized below:

- In 50 years the City of Edmonton's population is forecast to be 2.1 million people;
- Edmonton's population growth results mainly from high net migration rates into the city, particularly among young adults. This has resulted in a younger demographic profile when compared to the rest of the region and most Canadian cities of comparable size;
- Demand for housing will trend with population, but will shift away from low-density forms of housing (single-detached housing and semi-detached housing) towards medium and higher density forms such as row housing and apartments. This will be accommodated by an expected increase of infill redevelopment opportunities throughout the city;

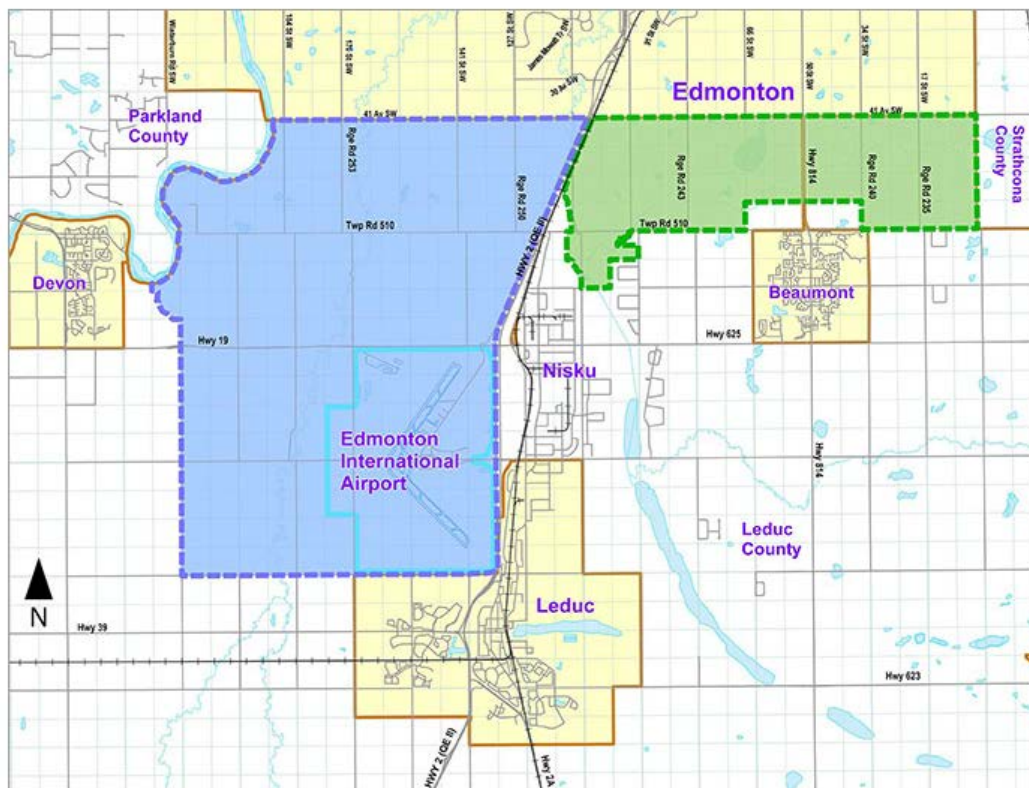
- The forecasted land demand for traditional industrial development will continue to be strong at 124 net hectares per year and is expected to increase in lockstep with population growth; and
- Based on the forecasted demand and available land supply within Edmonton's current boundaries, the existing residential land supply south of Anthony Henday Drive will be exhausted in 17 years (2031). The existing industrial land supply in the south side will be exhausted in 10 years (2024).

The results of this study clearly indicate the need of the City of Edmonton to explore options to address an emerging shortage of land to accommodate long-term growth. The City is proposing two separate annexations to the south in Leduc County, a combined 15,675 hectares, to address these concerns. If both annexations are successful, they will increase the south side residential land supply to the year 2048 (34 years), and will increase the south side industrial land supply to the year 2047 (33 years).

## 1. Introduction

Nichols Applied Management was retained by the City of Edmonton to develop growth projections. These projections will be used by the City to support two separate annexation applications. Both proposed annexations are south of the City of Edmonton in Leduc County, with the one west of the Queen Elizabeth II Highway consisting of approximately 12,050 hectares (29,775 acres), and the second east of the Queen Elizabeth II Highway consisting of approximately 3,625 hectares (8,960 acres). Figure 1-1 shows Edmonton's two proposed annexations.

**Figure 1-1 Proposed Annexations Areas**



Source: City of Edmonton

This report expands on *The Case for Annexation* summary report that was released in the Spring of 2014. The majority of that summary report is still valid, although some of the findings have been updated to reflect more current information and will be addressed in this report.

### 1.1 Rationale for Annexation

Planning for the long-term growth requirements to accommodate future population and employment needs is necessary to ensure the vibrancy and fiscal sustainability of both

the City and the Region. Expansion of the City of Edmonton's boundaries is important for a number of reasons:

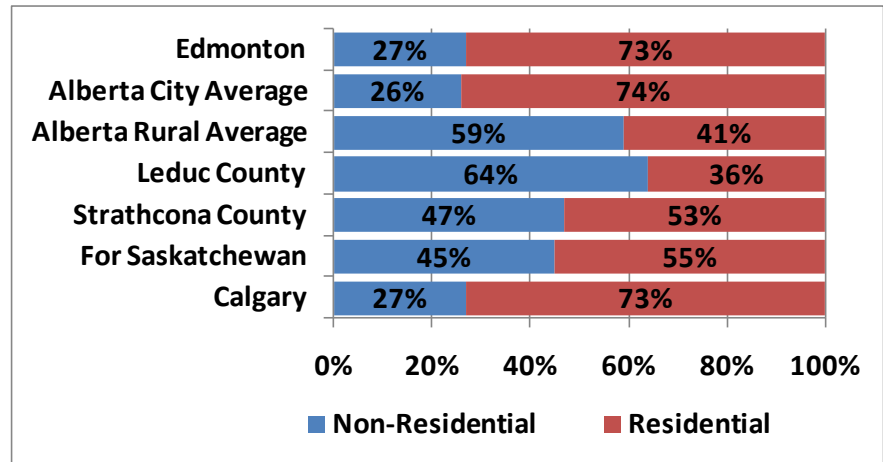
- **Strong Central City** – the position of Edmonton as a strong central city is critical for the City of Edmonton as well as the Region as a whole. The provision of a number of services such as cultural amenities, recreational services, a functional transportation network and the ability to provide an efficient and well coordinated public transit system are enhanced by a strong and fiscally healthy core city.
- **Infrastructure Efficiency** – the ability to efficiently service the amount of growth occurring in the Edmonton Region requires that the requisite infrastructure for the developments be planned and built in a manner to take advantage of economies of scale. For larger municipalities the servicing of infrastructure cannot be designed in an economical fashion to accommodate incremental growth – but rather long term horizons are required.
- **Compact Development** – the City of Edmonton is proposing residential density levels in the proposed annexation areas that meet or exceed those recommended by the Capital Regional Board and those being realized by neighbouring municipalities. The development of the lands in the proposed annexation areas under the jurisdiction of the City of Edmonton will result in a more compact development than would likely otherwise occur if developed under other municipal jurisdictions.
- **Competitive land market** – a sufficient supply of land is required to keep the development industry competitive. Land shortages or the inability to supply enough developed land to meet demand can have significant impacts on land costs and ultimately on housing affordability. The City of Edmonton's proposed annexations will ensure that the region has sufficient lands required to maintain a competitive market.
- **Economic development** – The industrial and commercial development that is expected to occur in the proposed annexation area will attract people which will have spill-over effects to the Region as a whole. This activity will not only provide stimulus to the City of Edmonton but to the surrounding municipalities.

The City of Edmonton is quickly running out of room to accommodate anticipated growth. This is especially true for industrial lands but is also true for residential developments. Timelines in Edmonton for new developing areas to properly account for such activities as land acquisition, securing necessary levels of financing, the preparation of the necessary planning documents (Area Structure Plans, Neighbourhood Area Structure Plans, etc.) and the provision of deep infrastructure on average take up to ten years - highlighting the City's need to annex lands over the next couple of years.



Throughout its current period of growth the City of Edmonton has been able to maintain a balance of industrial and residential development. This balance is reflected in Edmonton's assessment base which is currently comprised of 27% from non-residential sources and 73% from residential. Figure 1-2 compares the City of Edmonton's assessment base composition with a number of communities and provincial averages.

**Figure 1-2 Assessment Composition Comparison, 2014**



Source: Alberta Municipal Affairs, 2014 Equalized Assessment

Edmonton's 27% assessment composition compares to Fort Saskatchewan at 45%, Calgary at 27%, Strathcona County at 47%, Leduc County at 64%, Alberta City average at 26% and Alberta Rural average at 59% from non-residential sources. The ability to provide a balance of industrial and residential development:

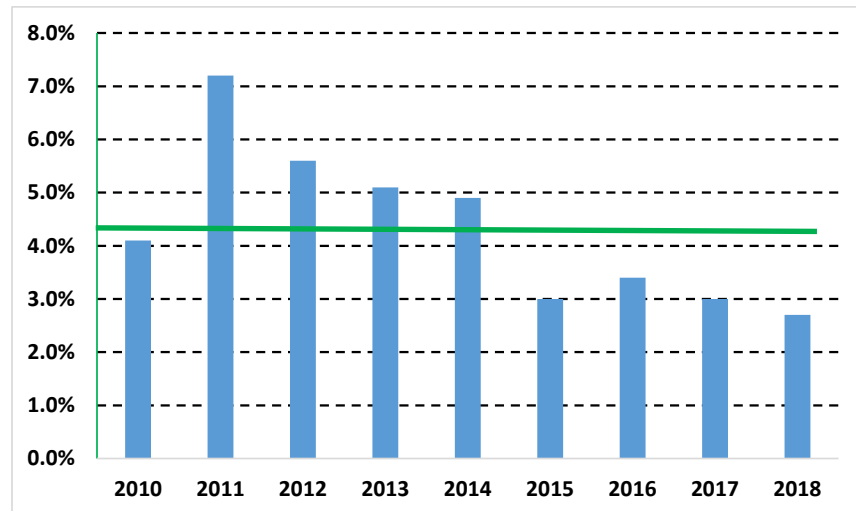
- Makes available employment opportunities within its boundaries providing a work – live – play balance; and
- Keeps taxes in balance between industrial/commercial properties and residential properties to ensure long term financial sustainability.

## 1.2 General Economic Climate

Alberta continues to lead the country in economic growth. Alberta's economy has grown on average by over 4% per year over the last three years and is forecasted to grow 3% per year over the next three years. The Edmonton Region plays an important role in the Alberta economy, being the largest and closest urban centre to the world's third-largest oil reserve. Strong economic fundamentals have contributed to the Edmonton Region's growth. This has been especially true in recent years – with GDP growth of 4.1% in 2010, 7.2% in 2011 (highest in Canada), 5.6% in 2012 (highest in Canada) and 5.1% in 2013 (3rd highest in Canada). Over the past decade there have been two strong periods of economic growth sandwiching one brief economic slowdown, an indication of Alberta's cyclical economy.

The Conference Board of Canada is anticipating continued strong economic fundamentals for the Edmonton Census Metropolitan Area (CMA) – forecasting an increase in GDP of 4.9% in 2014 (highest in Canada) revised from a forecast of 3.1% earlier in 2014, 3.0% in 2015, 3.4% in 2016, 3.0% in 2017 and 2.7% in 2018. Figure 1-3 shows Conference Board of Canada historic GDP growth from 2010 to 2013 and forecasted GDP growth from 2014 to 2018.

**Figure 1-3 Edmonton CMA – GDP Growth, 2010 to 2018**

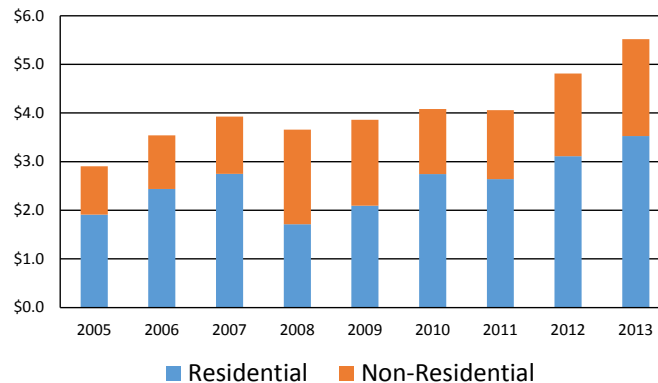


Source: Conference Board of Canada

Actual GDP growth in the Edmonton CMA has exceeded four percent in each of the past four years, and it is forecasted to be the fastest growing metropolitan region in Canada in 2014 with growth of 4.9%. Overall from 2009 to 2018, the Conference Board of Canada is forecasting the Edmonton CMA to grow at an average annual rate of over 4.0%, the highest GDP growth rate of any of the thirteen major metropolitan centres in Canada.

A further indication of the strength of the Edmonton CMA's economy can be seen by looking at the increase in the amount of residential and non-residential development that has occurred in recent years. Figure 1-4 shows the City of Edmonton's building permits from 2005 to 2013.

**Figure 1-4 City of Edmonton – Building Permit Values, 2005 to 2013 (\$billions)**



Source: City of Edmonton

Overall from 2005 to 2013, the value of building permits has increased from \$2.9 billion in 2005 to \$5.5 billion in 2013, a 90% increase over this period. Growth in the value of building permits has increased steadily, other than a slight decline during the economic recession in 2008/2009.

Table 1-1 shows the value of the Edmonton CMA's building permits from January to Sept of 2014 compared to Canada's largest cities.

**Table 1-1 Value of Building Permits, Selected CMAs January to September 2014 (\$)**

	Residential	Non-Residential	Total	Per Capita
Edmonton	3,030,165,000	1,558,595,000	4,588,760,000	3,600
Calgary	3,382,265,000	2,252,802,000	5,635,067,000	4,100
Montreal	3,087,904,000	3,865,074,000	6,952,978,000	1,700
Toronto	7,086,968,000	4,411,031,000	11,497,999,000	1,900
Vancouver	3,516,682,000	1,307,472,000	4,824,154,000	2,000

Source: 2014 Statistics Canada

As can be seen in Table 1-1, the strong growth in the Edmonton CMA has continued into 2014. For the first nine months of 2014, the Edmonton Region has experienced the fourth highest level of non-residential building permit activity in the country.

Relative to its population, the growth in the Edmonton CMA as reflected by the total value of building permits for the first eight months of 2014 is second only to the Calgary CMA and is in the order of two times that in the Census Metropolitan Areas of Montreal, Vancouver and Toronto.

The Edmonton-Calgary corridor continues to be one of the hottest economic growth corridors in North America. According to a report issued by the TD Bank, the Edmonton-

Calgary corridor's GDP is exceeding \$57,000 per capita, which is 35% higher than the United States metropolitan average and the highest in Canada, exceeding the Canadian metropolitan average by approximately 60%.

According to the Corporate Economic, Statistics Canada, between July 2013 and July 2014, over 60% of the job growth in Canada occurred in the Edmonton-Calgary corridor. According to the Alberta population forecasts prepared by Alberta Finance and Enterprise, it has been estimated that between 80% and 90% of the people moving to Alberta over the next thirty years could reside in the Edmonton-Calgary corridor.

According to economic projections undertaken by the Conference Board of Canada, it is expected that the strength of the Alberta and the Regional economies will continue to contribute to strong population growth for the City of Edmonton and surrounding communities.

### **1.3 Growth Study Objectives**

The primary objective of the two proposed annexations is to ensure that the City of Edmonton has a sufficient land supply to accommodate residential and non-residential growth for the next 30 to 50 years. In support of the proposed annexations objective this study examines the following:

- Population growth trends and demographic analysis;
- Future population growth forecast scenarios;
- Housing trends and projections;
- Industrial land trends and projections; and
- Land supply and absorption.

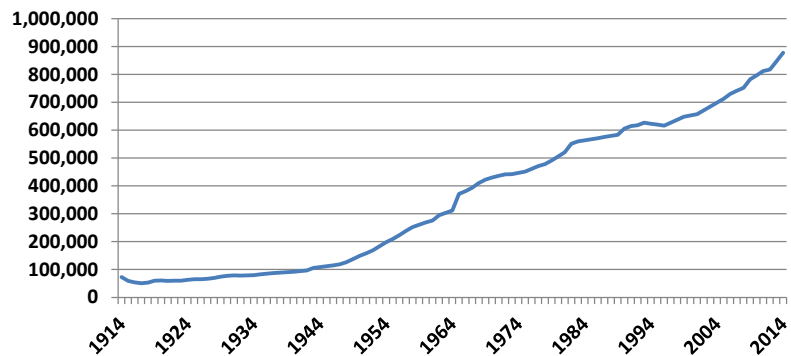
## 2. Population Trends

### 2.1 Current Population

The City of Edmonton has experienced significant growth since it was incorporated in 1904. From a relatively small community of 5,000 people situated on the north side of the North Saskatchewan River, Edmonton has reached close to 878,000 people by 2014. The City's population has increased by 60,428 people since the last municipal census which was conducted two years prior in 2012, an increase of 7.4%. Over the past five years – from 2009 to 2014 – the City of Edmonton's population increased by 95,487 people, growing by approximately 12%. Since 2001, the City of Edmonton's population has increased by just over 220,000 – equivalent to the current combined populations of the Town of Beaumont, the City of Leduc, Leduc County, the City of St. Albert and Strathcona County.

The rate of Edmonton's population growth - like most municipalities - has fluctuated over time. To a large extent, Edmonton's population growth has paralleled the provincial experience. Figure 2-1 shows the City's historic population growth over the past 100 years.

**Figure 2-1 City of Edmonton - Population, 1914 to 2014**



Source: City of Edmonton

As can be seen in Figure 2-1, the City of Edmonton experienced high population growth in the fifties, sixties and seventies (in excess of 4% per year), followed by relatively low levels of growth in the eighties and nineties and then a return to higher levels of growth in recent years. Edmonton's growth averaged 17,930 people per year or 2.3% over the past ten years. Between 2012 and 2014 the City of Edmonton's population increased an average of 30,200 per year or 3.7%.

Table 2-3 shows the City's historic population growth for the past five, ten and fifteen-year time periods.

**Table 2-1 City of Edmonton's Average Population Growth, Selected Timeframes**

	Average Annual Absolute Growth	Average Annual Percent Growth
Last five years	19,097	2.3%
Last ten years	17,930	2.3%
Last fifteen years	15,309	2.0%

Source: 2014 City of Edmonton

As can be seen in Table 2-1, although growth rates can vary on a year-to-year basis, over longer timeframes ranging from the last five years to the last fifteen years, the City of Edmonton's growth has remained relatively stable both in absolute and percentage terms, ranging between roughly 15,300 and 19,100 people per year. The average annual percent population growth for each of the three time periods has exceeded two percent.

Edmonton's continued growth and development has been driven largely by the strong regional economy that serves as the construction, manufacturing, agricultural, forestry, transportation and oil and gas centre for Northern and Central Alberta. Table 2-2 compares Edmonton's population growth over the past ten years with other Canadian municipalities of comparable size.

**Table 2-2 Population Growth Rates, Selected Comparable Municipalities**

Comparable Municipalities	Most Recent Census	Percentage Growth	
Edmonton	877,926 (2014)	2011 to 2014	8.1%
		2006 to 2011	11.2%
		2001 to 2006	9.6%
Calgary	1,195,194 (2014)	2011 to 2014	9.0%
		2006 to 2011	11.0%
		2001 to 2006	12.4%
Winnipeg	663,617 (2011)	2006 to 2011	4.8%
		2001 to 2006	2.2%
Ottawa	883,391 (2011)	2006 to 2011	8.8%
		2001 to 2006	4.9%
Hamilton	519,949 (2011)	2006 to 2011	3.1%
		2001 to 2006	2.9%

Sources: Statistics Canada, City of Edmonton, City of Calgary

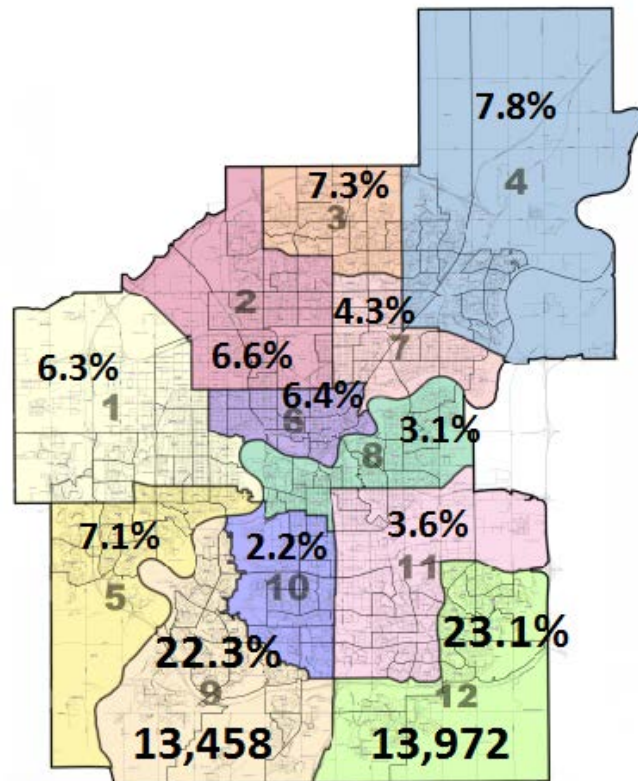
The City of Edmonton's population growth over the past ten years is significantly higher than those experienced by the Cities of Winnipeg, Ottawa and Hamilton and comparable to that experienced by the City of Calgary.

Over the long term, the Edmonton Metropolitan Area has experienced the second highest growth (235%) out of the twenty largest Canadian metropolitan areas over the past fifty years, second only to Calgary. The strong population growth of both the Edmonton and Calgary regions is a reflection of the economic strength of the Edmonton-Calgary corridor.

## 2.2 Location of Growth

Over 54% of the population growth that happened in the city over the past two years occurred south of the North Saskatchewan River (wards 8, 9, 10, 11 and 12), with 20% occurring in the west (wards 1, 2 and 5), 19% in northeast (wards 3, 4 and 7) and the remaining 6% occurring in the downtown core (ward 6). Figure 2-2 shows the location of growth over the past two years delineated by the City of Edmonton's ward boundaries.

**Figure 2-2 City of Edmonton – Location of Population Growth by Ward, 2012 to 2014**



Source: City of Edmonton

As can be seen in Figure 2-1, the majority of Edmonton's growth over the past two years occurred south of the North Saskatchewan River, with almost 85% of that growth occurring in the Wards 9 (22.3%) and 12 (23.1%). Each of the two southern-most wards accommodated in excess of three times the amount of growth as in any of the City's other wards. The amount of growth occurring south of the North Saskatchewan River is

expected to increase as the lands to the north and west of the River are depleted and there are fewer options to accommodate the preferences of home buyers.

Looking at population growth by neighbourhood further supports this trend. Nine of the top 10 fastest growing neighbourhoods in the City of Edmonton over the last five years are located in Wards 9 and 12. The top ten fastest growing City of Edmonton neighbourhoods are shown in Table 2-3.

**Table 2-3 City of Edmonton's Top Ten Fastest Growing Neighbourhoods, Population 2012 to 2014**

Neighbourhood	Ward	Growth	Neighbourhood	Ward	Growth
Summerside	12	6,507	Rutherford	9	3,916
The Hamptons	5	5,146	South Terwillegar	9	3,878
Windermere	9	5,017	Ambleside	9	3,244
Walker	12	4,424	Tamarack	12	2,795
Laurel	12	4,409	Charlerworth	12	2,775

Source: 2014 City of Edmonton

Of the neighbourhoods identified in Table 2-3, only The Hamptons is located outside of Wards 9 and 12. The recent high growth in Wards 9 and 12 is a continuation of the on-going long term growth that has occurred within the City's south side developing areas. Between 1982 and 2012, approximately 55% of Edmonton's net population growth occurred within lands south of Whitemud Drive and southeast of the North Saskatchewan River.

Recent development and growth trends from 2011 to September of 2014 have shown that the City of Edmonton has accounted for slightly more than 71% of the housing units constructed in the Edmonton Region. Over that time period the City of Edmonton has captured in the order of 67% of the low density development (single and semi-detached housing) in the Region and approximately 78% of the medium and high density development (townhouses and apartments). It has been estimated that with this development the City of Edmonton has accommodated in the order of 70% of the population growth. Table 2-4 shows the number of housing unit starts in the Edmonton Census Metropolitan Area from 2011 to September of 2014.



**Table 2-4 Edmonton CMA Housing Starts 2011 to September 2014**

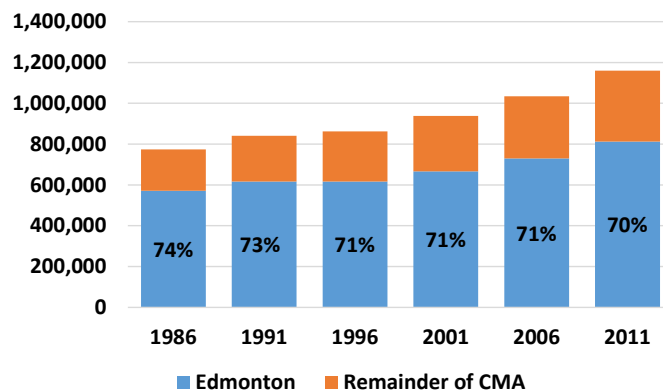
	2011	2012	2013	2014 Jan to Sept	Total	Percent
<b>Low Density</b>						
Edmonton	4,038	5,075	5,531	4,864	19,508	66.7%
Region	2,379	2,755	2,523	2,082	9,739	33.3%
<b>Total</b>	<b>6,417</b>	<b>7,830</b>	<b>8,054</b>	<b>6,946</b>	<b>29,247</b>	<b>100.0%</b>
<b>Medium &amp; High Density</b>						
Edmonton	2,097	4,413	5,103	2,225	13,838	78.4%
Region	818	594	1,532	867	3,811	21.6%
<b>Total</b>	<b>2,915</b>	<b>5,007</b>	<b>6,635</b>	<b>3,092</b>	<b>17,649</b>	<b>100.0%</b>
<b>Total</b>						
Edmonton	6,135	9,488	10,634	7,089	33,346	71.1%
Region	3,197	3,349	4,055	2,949	13,550	28.9%
<b>Total</b>	<b>9,332</b>	<b>12,837</b>	<b>14,689</b>	<b>10,038</b>	<b>46,896</b>	<b>100.0%</b>

Source: CMHC

Most recently, the City of Edmonton captured just over 71% of the housing units starts. In the first nine months of 2014, the City of Edmonton has accounted for 70% of the low density units and 72% of the medium and high density units.

The healthy growth experienced by Edmonton over the past ten to fifteen years is also reflected in the Region. The Edmonton Census Metropolitan Area's (CMA) population has increased from just under 775,000 in 1986 to 1,160,000 in 2011, an overall increase of roughly 50% or 385,000 people. Figure 2-3 shows the population growth in the Capital Region from 1986 to 2011, together with Edmonton's share of the region's growth.

**Figure 2-3 Edmonton CMA's Population Growth Census Years – 1986 to 2011**



Source: Statistics Canada

As part of Edmonton's 1981 annexation decision, a number of growth principles were recommended by Provincial Cabinet including that the City of Edmonton maintain a 75%

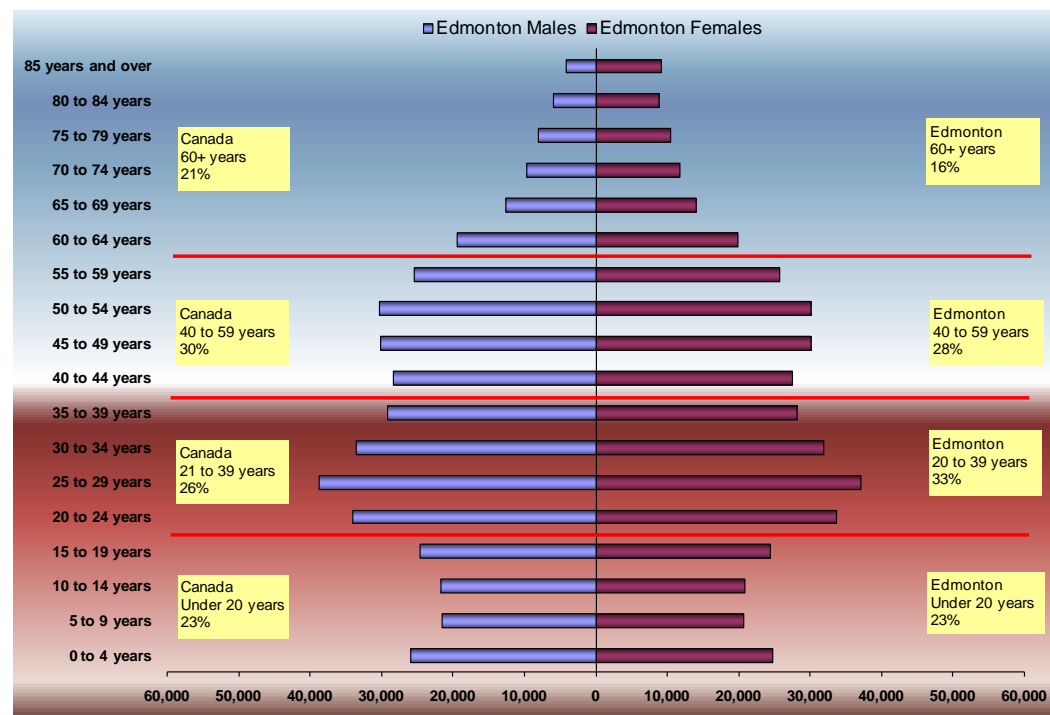
share of the Region's population. As can be seen in Figure 2-3, Edmonton's share of the CMA population declined gradually from 74% in 1986 to 71% in 2001. Since that time, the City's share has remained relatively constant and by 2011 accounted for 70% of the CMA's population.

Although not quantified, there are a number of factors that contributed to the City's declining share of the Region's population including lifestyle choices, differential development charges and lot size preferences. The extent to which these are still a factor has diminished over time. Going forward, it is the City of Edmonton's expectation that it will retain a 70% share of the regional population on the basis of the impact of evolving demographic, lifestyle and market trends on housing choices. However, over the longer term Edmonton will not be able to achieve this goal without an expansion to its current boundaries.

## 2.3 Demographic Profile

Edmonton's demographic profile illustrates a City that is undergoing strong population growth. The City's future growth from continued in-migration and natural increases will contribute to a further decrease in the age of Edmonton's population. The City of Edmonton's demographic profile is shown in Figure 2-4, along with how the City's demographic profile compares with the demographic profile for Canada as a whole.

**Figure 2-4 Demographic Profile: City of Edmonton and Canada (2011)**

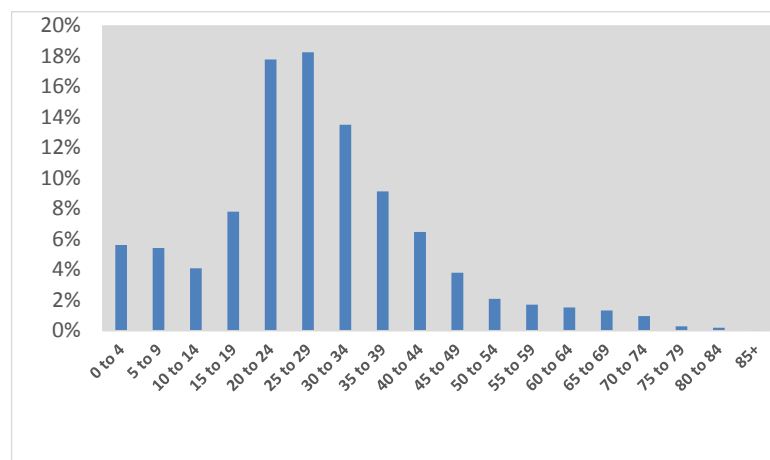


The two most notable differences in the demographic profile between the City of Edmonton and Canada is the number of seniors and the number of young working age adults – primarily those in the 20 to 39 year-old age group. The percent of those 60 years and up accounted for 16% of the City’s population compared to 21% of Canada’s population.

The young working age segment accounted for 33% of the City’s population compared to 26% of Canada’s population. The higher number of young working age adults may also result in an increase in births in the near future. The number of children in Edmonton is similar to that for Canada, which suggests that many of those young working age adults have yet to start their families.

Figure 2-5 shows the demographic profile of net migration for Alberta for 2013. This profile is largely a reflection of the population growth that has occurred in the Edmonton and Calgary regions.

**Figure 2-5 Migration by Age Cohort, Alberta (2013)**



Source: Statistics Canada

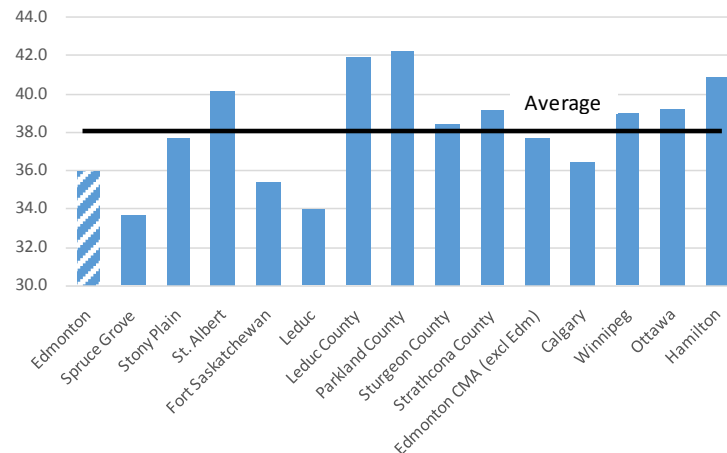
As can be seen in Figure 2-5, approximately 60% of net migrants in 2013 were young adults between the ages of 20 to 39. This age group is characterized as:

- having high rates of labour force participation; and
- having young families or about to start their families.

Given the relatively low number of children identified in Figures 2-4 and 2-5 combined with the relatively high number of young adults, it is expected that the City of Edmonton will experience a significant increase in the number of births further stimulating additional population growth.

In general, the City of Edmonton is younger than most municipalities. Figure 2-6 shows the City of Edmonton's median age in comparison to a number of selected municipalities.

**Figure 2-6 Median Age, City of Edmonton and Selected Municipalities (2011)**



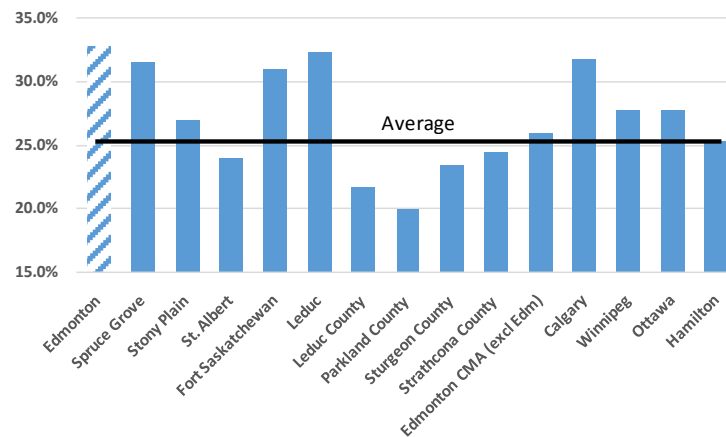
Source: Statistics Canada

As can be seen in Figure 2-6, the City of Edmonton's median age is lower than all of the comparably sized municipalities as well as most of its neighbouring municipalities. More specifically, figure 2-6 indicates that Edmonton's population is:

- on average two years younger than the average for the communities displayed in Figure 2-6;
- on average almost two years younger than Edmonton CMA excluding Edmonton itself;
- on average almost three years younger than the average for the comparative communities of Hamilton, Ottawa, Winnipeg and Calgary; and
- the City of Edmonton's average population is six years younger than Leduc County and two to six years younger than the other counties within the CMA.

Figure 2-7 shows the percentage of population between the age of 20 and 39 for the City of Edmonton compared to a number of selected municipalities.

**Figure 2-7 Percent of Population between the Age of 20 and 39, City of Edmonton and Selected Municipalities (2011)**



Source: Statistics Canada

As can be seen in Figure 2-7, in 2011 approximately 33% of the City of Edmonton's population was between the ages of 20 and 39. A number of observations can be made about Figure 2-7:

- the City of Edmonton has the highest proportion of its population between the ages of 20 and 39 years of age;
- the proportion of the City of Edmonton's population between the ages of 20 and 39 years is in the order of 6% higher than the average for the comparative communities of Hamilton, Ottawa, Winnipeg and Calgary;
- the proportion of the City of Edmonton's population between the ages of 20 and 39 years is in the order of 8% higher than the rest of the Edmonton CMA; and
- when comparing Figures 2-6 and 2-7, the communities with a low median age also have a higher proportion of their population between ages of 20 and 39.

The demographic findings illustrated in Figures 2-4 through 2-7, point to a community that is experiencing a significant population growth. This current growth – as well as expected future growth from both continued in-migration and natural increases due to the relatively large number of young working age adults starting or adding to their families – will stimulate additional population growth and contribute to Edmonton becoming even younger than it is currently.

### 3. Population Growth Projections

Generally speaking, population growth is driven by economic growth. Population growth can be achieved by two means, natural increases and migration. The natural increase of a municipality is essentially the number of births less the number of deaths. Net migration is the number of people that migrate to the municipality less the number that emigrate away from that municipality. The relative importance of natural increases and migration to growth has changed over time, for the City of Edmonton as well as for Alberta and Canada.

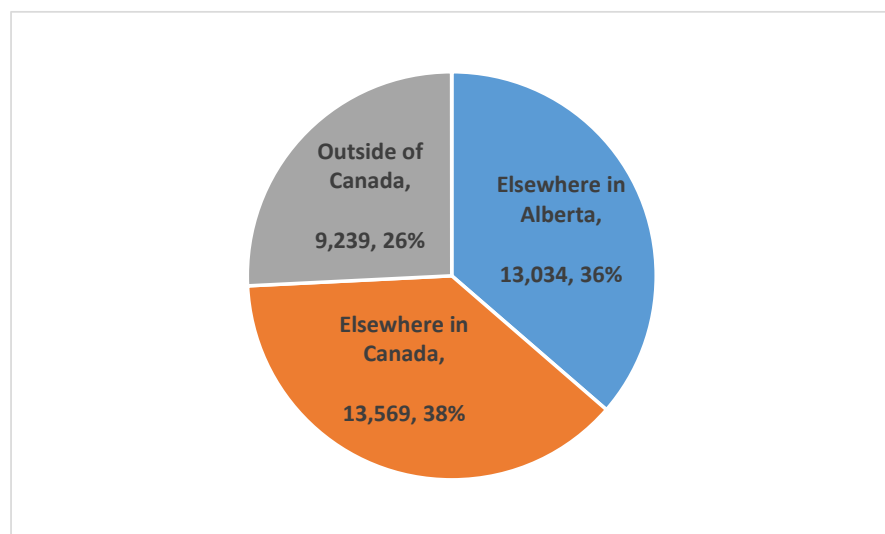
#### 3.1 Components of Population Growth

##### 3.1.1 Migration

In recent years, migration has become the dominant source of population growth, especially for those areas that are experiencing significant growth rates. For example, the contribution of migration to population growth in Canada increased from roughly 25% in the 1950s to roughly 67% in 2011.

The City of Edmonton's recent census provides information on the importance of migration to Edmonton's growth. As can be seen in Figure 3-1, of those that provided information on how long they have resided at their current place of residence, almost 36,000 people had moved to Edmonton within the previous year.

**Figure 3-1 Previous Place of Residence for Those Residing in Their Current Residence for Less Than One Year, City of Edmonton**



Source: City of Edmonton 2014 Census

The profile of those moving to Alberta and specifically to the Edmonton region tends to skew towards a younger demographic (see Figure 2-5). This contributes to Edmonton's younger population profile (see Figures 2-6 and 2-7).

### **3.1.2 Natural Growth**

The increasing importance of migration on growth is not necessarily the result of more immigrants than in the past, but rather is being impacted by the decrease in the relative importance of natural growth to overall changes in population. This is a result of two main factors. One, as populations mature, there is an increase in the number of deaths from natural causes. Another impact of a more mature population is that there is a relatively smaller proportion of the population in the childbearing ages which results in fewer children being born.

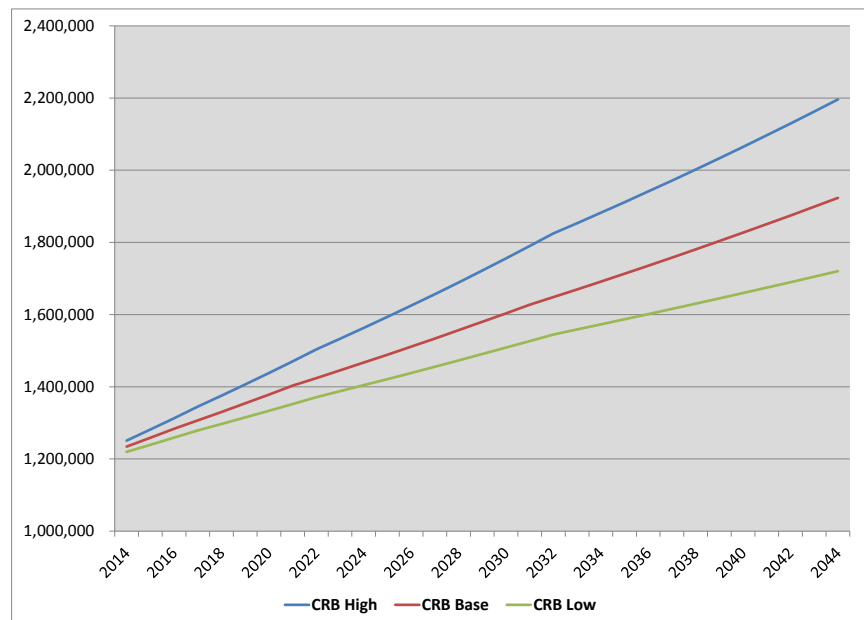
The second factor affecting the level of natural growth relates to fertility rates, which have decreased significantly over the past 50 years. Over the long term, in developed countries a total fertility rate in the order of 2.1 is required to maintain a population. For those municipalities like the City of Edmonton whose population is seeing an influx of in-migrants between the ages of 20 to 39 years of age, the natural growth rate will increase.

## **3.2 Population Projections**

### **3.2.1 Regional Context**

Population projections were undertaken using the 2013 Capital Region Board's (CRB) population forecast as a basis. The CRB recently updated its population forecast for the Region, providing low, medium (base) and high population scenarios – with the low scenario forecasting the Region to grow from just under 1.2 million people in 2011 to just over 1.7 million in 2044, with the medium scenario the Region to grow to just over 1.9 million in 2044 and with the high scenario the Region to grow to just under 2.2 million people in 2044. Figure 3-2 illustrates the CRB's forecasts.

**Figure 3-2 Capital Region Board Population Projections, 2014 to 2044**



Source: Capital Region Board

These overall population projections for the Region were developed by the CRB were based on the assumptions utilized by Alberta Treasury Board and Finance population projections. Those projects were developed using the Province's 2012 population projections. Since that time, Alberta Treasury Board and Finance has released population projections prepared in 2013 and 2014. For both of those projections, the population forecasts for the Edmonton Region are significantly higher than those presently utilized by the CRB. The implications of the Province's revised projections will be addressed in a subsequent section of this report.

### 3.2.2 Methodology

The City of Edmonton's population has been projected out to 2064, utilizing the CRB's medium (base) and high population growth scenarios to 2044 and then assuming a 1.5% annual growth rate for the high scenario and 1.3% for the base scenario from 2044 to 2064. A range of projections were undertaken using the CRB's base and high growth scenarios for establishing lower and upper limits on the growth scenarios.

For all of the growth scenarios, it has also been assumed that the City of Edmonton will account for 70% of the Region's population growth. This assumption is consistent with the City of Edmonton's expectation that it will retain a 70% share of the regional population.



The ability of the City to accommodate 70% of the Region's population growth given an adequate land base is seen to be rational for a number of reasons including the following:

- the City currently accounts for over 70% of the Region's population;
- the age profile of the City of Edmonton is relatively young with 33% of its population between the ages of 20 and 39, compared to 26% for Canada as a whole.
- the age profile of those migrating to the City of Edmonton is even younger with approximately 60% of net migrants being between the ages of 20 to 39. It also appears from the demographic profile of both the City's existing population and to even a greater extent of those migrating to the City, both populations are underrepresented with respect to the proportion of those under the age of 20. The result is that many of these young adults are about to have families stimulating additional population growth.
- the City has recently accounted for 71% of the housing units constructed in the Region, including for the first nine months of 2014, a 70% share of low density residential and a 72% share of medium and high density residential;
- with the two proposed annexations, a greater percentage of the growth associated with three of the Priority Growth Areas designated by the Capital Region Board will accrue to the City;
- the City of Edmonton Municipal 2014 census shows an increase of 60,428 people since the last municipal census which was conducted two years prior in 2012, an increase of 7.4%;

Without the City of Edmonton's two proposed annexations, the City will be unable to accommodate anywhere close to 70% of the Region's population growth.

### **3.2.3 Population Growth Forecasts**

The results of the growth projections based on the CRB's medium and high growth scenarios for five year increments are shown in Table 3-1.

**Table 3-1 City of Edmonton Population Projections:  
2014 to 2064**

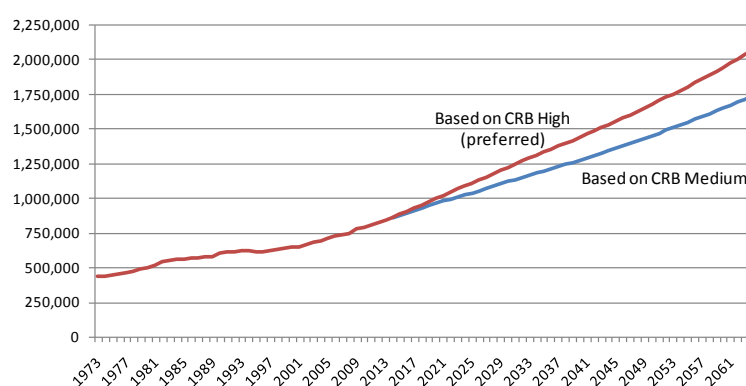
	Based on CRB Medium Growth Scenario			Based on CRB High Growth Scenario		
	Projection	Annual Absolute Increase	Annual Percent Increase	Projection	Annual Absolute Increase	Annual Percent Increase
2014	877,926			877,926		
2019	948,000	14,000	1.5%	980,000	20,300	2.2%
2024	1,027,000	15,800	1.6%	1,094,000	22,900	2.2%
2029	1,106,000	15,800	1.5%	1,205,000	22,200	2.0%
2034	1,184,000	15,600	1.4%	1,318,000	22,400	1.8%
2039	1,263,000	15,700	1.3%	1,423,000	21,100	1.6%
2044	1,346,000	16,800	1.3%	1,537,000	22,800	1.6%
2049	1,436,000	18,000	1.3%	1,656,000	23,800	1.5%
2054	1,532,000	19,200	1.3%	1,784,000	25,600	1.5%
2059	1,634,000	20,400	1.3%	1,922,000	27,600	1.5%
2064	1,743,000	21,800	1.3%	2,070,000	29,700	1.5%
Cumulative		17,300	1.4%		23,800	1.7%

Source: Nichols Applied Management

As can be seen in Table 3-1, it is projected that the City of Edmonton's population will increase from its current 2014 population of 877,926 to between approximately 1,027,000 and 1,094,000 by 2024, to between approximately 1,346,000 and 1,537,000 by 2044 and to between approximately 1,743,000 and 2,070,000 by 2064. More detailed population projections are included in Appendix A.

The population projections for the City of Edmonton are shown graphically in Figure 3-3.

**Figure 3-3 City of Edmonton Population Projections to  
2064**



Source: Nichols Applied Management

The CRB's high scenario will be utilized as the Base Case for this growth study. The use of a high but realistic population growth scenario is often applied for long range planning including annexations to ensure that there are sufficient lands to accommodate potential population growth. This concept is supported by the CRB in its

2009 updated forecast where it was stated, “The forecast is consistent with the Alberta Finance and Enterprise 2010 high scenario population forecast for Census Division 11, which is an appropriate scenario for long term planning.”

As can be seen in the accompanying figure, Edmonton’s population is forecast to increase to 2.1 million by 2064 – an increase of approximately 136% over their 2014 population. This population projection assumes an average annual growth rate of 1.7% over the 50 year projection period, which is somewhat lower than the 2.0% average annual growth that the City of Edmonton has experienced over the past fifteen years, and well below the 3.7% per year that the city has experienced over the past two years.

### 3.3 Demographic Shifts

A number of interesting demographic shifts are expected to occur during the timeframe encompassed by the population projections. Table 3-2 shows the expected change in the City of Edmonton’s demographic profile.

**Table 3-2 City of Edmonton’s Demographic Profile, Projected Changes over Time**

	0-19	20-64	65+
2009	24%	65%	12%
2014	23%	65%	12%
2019	24%	63%	13%
2024	24%	61%	15%
2029	23%	60%	17%
2034	23%	60%	18%
2039	22%	60%	18%
2044	21%	60%	19%
2049	21%	59%	20%
2054	22%	57%	21%
2059	23%	56%	21%
2064	23%	55%	21%

Source: Nichols Applied Management

As can be seen in Table 3-2, the City’s senior age population segment will increase from its current 12%, to an estimated 21% in 2064. This type of demographic shift has a number of implications including the type of services the city will be required to provide as well as the type of housing stock demanded by its residents. The impact of this demographic shift will be addressed in the housing component section of this report.

In 2014, the 25 to 29 year old cohort was the most common age grouping. By 2044, it is projected that the 55 to 59 year old cohort will be the most prevalent age grouping. In

addition, those over the age of 55 will account for 36% of the population, compared to 25% currently.

### 3.4 Population Projection Reasonableness

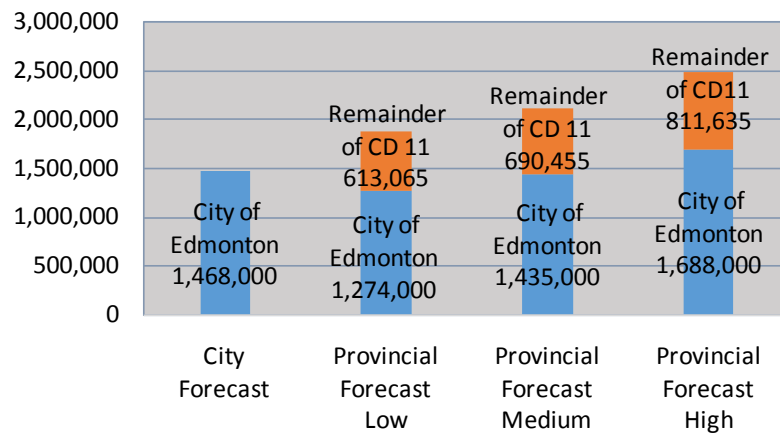
To test the reasonableness of the population projections, the City's forecasts were compared to the projections for Census Division 11, which includes the City of Edmonton, that were prepared by Alberta Finance and Enterprise. Finance and Enterprise develops population projections for all of the 19 Census Divisions in the province. Three population projections are developed for each Census Division and for the province as a whole: low, medium and high growth forecasts. The projections were most recently updated in the summer of 2014 and are for the period 2014 to 2041. Under the projections prepared by Finance and Enterprise, Alberta is projected to grow to between 5.5 and 7.3 million people by 2041, with approximately a third of the population residing in the Edmonton Region (CD 11)

Census Division 11 includes a number of municipalities that are not members of the Capital Region Board. They include the following:

- the City of Wetaskiwin; the Towns Drayton Valley and Millet; the Villages of Breton and Spring Lake; the Summer Village of Argenta Beach, Betula Beach, Crystal Springs, Golden Days, Grandview, Itaska Beach, Kapasiwin, Lakeview, Ma-Me-O Beach, Norris Beach, Point Alison, Poplar Bay, Seba Beach, Silver Beach and Sundance Beach; the Indian Reserves of Alexander, Ermineskin, Louis Bull, Pigeon Lake, Stony Plain and Wabamun; and the Counties of Wetaskiwin and Brazeau.

The City of Edmonton currently accounts for 67.5% of Census Division 11's total population. By comparison, Edmonton accounts for approximately 70% of the Capital Region's total population. In addition to the differences identified above, the Capital Region includes a number of municipalities not included in Census Division 11: Bruderheim; Lamont; and Lamont County. Overall, over 95% of the population is common between the two areas. Figure 3-4 compares the City of Edmonton's forecast with the three 2014 Provincial forecast's for Census Division 11, assuming the City of Edmonton continues to account for 67.5% of Census Division 11's population forecast.

**Figure 3-4 Comparison of City of Edmonton's Population Projection with Projections Based on Alberta Forecasts for Census Division 11, 2041**



Source: Nichols Applied Management, Alberta Finance and Enterprise (2014)

As can be seen in Figure 3-4, the medium projection developed by Alberta Finance and Enterprise in 2014 is relatively close (just 2% lower) to the projection developed for the City of Edmonton for this report. The high projection developed by Alberta Finance and Enterprise in 2014, forecasts an Edmonton population that is approximately 15% or 220,000 higher than the City of Edmonton's population projection developed for this report. In conclusion, the projections developed for Census Division 11 by Alberta Finance and Enterprise supports the reasonableness of the projections developed for the City of Edmonton for this report.

In addition to the updated provincial forecast developed by Alberta Finance and Enterprise, the City of Edmonton's recent municipal census also supports the reasonableness of the City of Edmonton's forecast. According to the City's most recent census, Edmonton's 2014 population is 877,926 people compared to a projected population of 864,800 people.

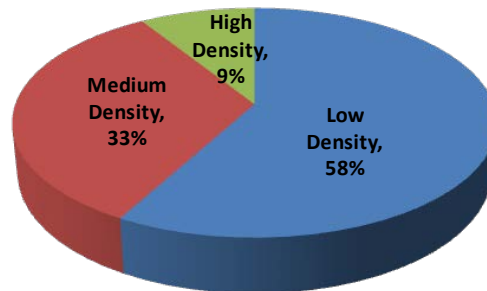
The City of Edmonton has experienced on average population growth in excess of 17,900 per year over the past ten years, 19,100 per year over the past five years and 30,200 per year over the past two years. The projections prepared for the City of Edmonton assume a 50-year average population increase of 17,300 per year for the medium growth scenario and 23,900 per year for the high growth scenario. The City of Edmonton's population projections only exceed average annual absolute growth over the past two years of 30,200 per year in the final year of the projection (Appendix A).

## 4. Residential Trends and Demand

### 4.1 Current Housing Stock

As of spring 2014, the number of dwellings in the City of Edmonton was estimated to be 388,475, an increase of 5.6% since 2012 and 8.6% since 2009. The composition of the City of Edmonton's dwellings is shown in Figure 4-1.

**Figure 4-1 City of Edmonton: Type of Dwelling Units - 2014**

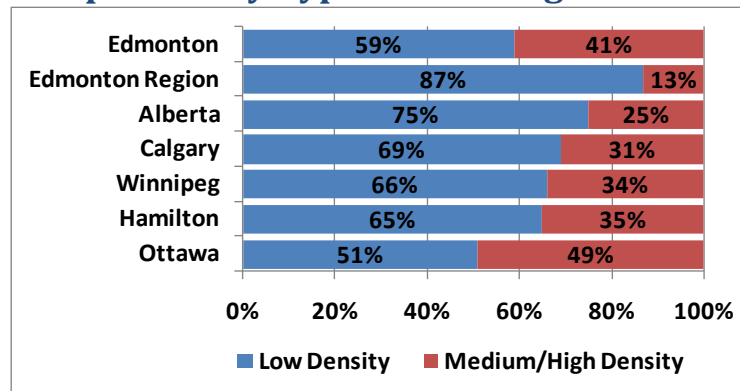


Source: Edmonton Municipal Census, 2014.

As can be seen in Figure 4-1, 58% of the dwelling units in Edmonton are low density (defined as single detached, manufactured homes, duplex and triplexes), 33% are medium density (defined as apartments less than five stories, row housing and collective residences) and another 9% are high density (defined as apartments five or more stories).

Figure 4-2 compares the composition of dwelling units – low density versus higher density in Edmonton to a number of selected comparable communities.

**Figure 4-2 Comparison by Type of Dwelling Unit - 2011**

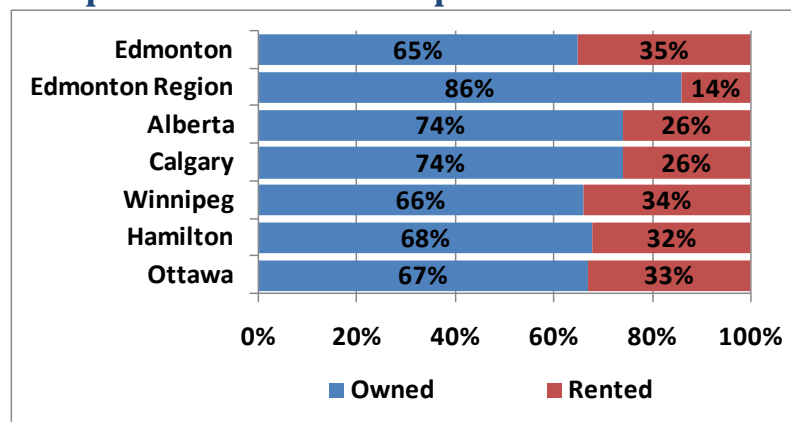


Note: Edmonton Region does not include the City of Edmonton  
Source: Statistics Canada Federal Census, 2011.

As can be seen in Figure 4-2, the amount of multi-family housing units in the City of Edmonton is higher than in most of the other comparative Canadian municipalities. Approximately 41% of Edmonton's housing units are characterized as being either medium or high density. This level of multi-family units is higher than that in the City of Winnipeg, the City of Hamilton and the City of Calgary, and lower than that in the City of Ottawa. There is a significant difference between the medium and high density housing composition in the Edmonton Region (13%) and in the City of Edmonton (43%). The City of Edmonton also has a significantly higher proportion of medium and higher density housing than Calgary, 43% compared to 31% in 2011.

As can be seen in Figure 4-3, the level of home ownership in the City of Edmonton is similar to that in the Cities of Ottawa, Winnipeg and Hamilton, but lower than that in Calgary, Alberta and the Edmonton Region (excluding Edmonton). The rate of home ownership is related to the level of single-family dwellings located in a municipality as single-family dwellings are much less likely than other dwelling types to be rented.

**Figure 4-3 Comparison of Ownership Rates**



Note: Edmonton Region does not include the City of Edmonton

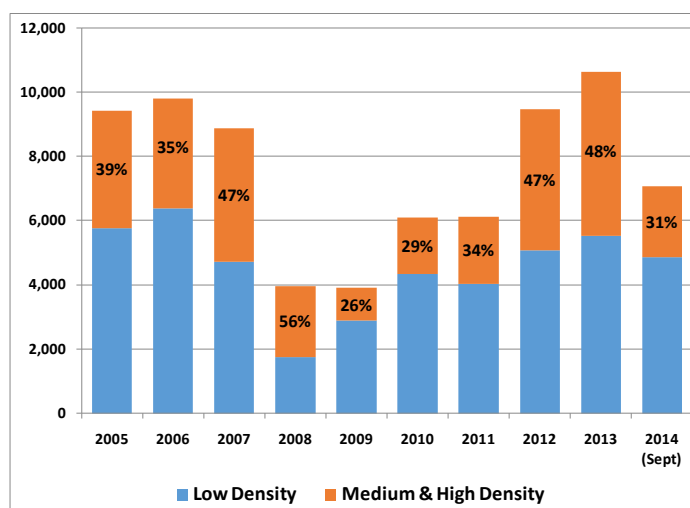
Source: Statistics Canada Federal Census, 2011.

As can be seen in Figures 4-2 and 4-3, the City of Edmonton provides a variety of housing types to those currently living in the City as well as to those moving to the Region, particularly for younger adults. The variety of housing choices – including both housing forms as well as ownership versus rental – provides a range of housing options to those living in the City of Edmonton.

## 4.2 Housing Starts

Figure 4-4 shows housing start data for the City of Edmonton. The average amount of housing starts from 2005 to September of 2014 was in the order of 7,700 housing units per year.

**Figure 4-4 Type of Dwelling Unit: City of Edmonton Housing Starts, 2005 to Sept 2014**



Source: CMHC

The number of housing starts for multi-family dwelling units as a percent of total dwelling units has fluctuated over time. The composition of multi-family dwelling units has averaged 40% over the last approximately ten years, compared to 42% for the City's existing housing stock (see Figure 4-1).

### 4.3 Household Size

In most municipalities the number of people per dwelling unit has been falling consistently over time. This is related to traditional families having fewer children, but is also a reflection of the demographic shift that is occurring with the aging of populations in Canada. Alberta is somewhat different, as most municipalities have seen a significant amount of growth over the past five to ten years. Table 4-1 shows the change in the number of people per dwelling unit in the City of Edmonton from 1996 to 2011.

**Table 4-1 City of Edmonton - Change in the Number of People per Dwelling Unit: 1996 to 2011**

	Population	Dwelling Units	People per Dwelling Unit
1996	616,306	240,050	2.57
2001	666,104	265,340	2.51
2006	730,372	297,725	2.45
2011	812,201	324,755	2.50

Source: Statistics Canada (total population divided by the total occupied dwellings)



The average number of people per dwelling unit in the City of Edmonton fell rather steadily from 2.57 in 1996 to 2.45 in 2006. Between 2006 and 2011 the number of people per dwelling unit increased to 2.50, a reflection of the rate of population growth between 2006 and 2011.

## **4.4 Impact on Housing**

### **4.4.1 General Trends**

Demographic trends, such as the aging of the baby-boomer generation, increased immigration, and the deferral of marriage and children by young adults until later in life are expected to have a number of significant impacts on future housing needs and households in Edmonton, including the following:

- more single person households and smaller families resulting in a further decrease in the average household size;
- decrease in the desirability of seniors to maintain single family residences due to a number of factors such as:
  - demand for more assisted living and other support services provided through home care;
  - increasing energy costs;
  - increased scrutiny of senior aged drivers;
  - the location of multi-family complexes often have better access to facilities/transit; and
  - inability of seniors to maintain single family residences in an era of decreased family sizes and fewer family members located locally.
- increased demand for more multi-family dwellings, such as apartments, condominiums and townhouses more amenable to flexible lifestyle choices to accommodate activities such as travel;
- due to a number of factors (price, design), townhouses are becoming a more acceptable form of family-orientated housing; and
- some of this future housing will occur within the older neighbourhoods as infill.

Despite these trends, the demand for low density residential will continue into the foreseeable future. A significant segment of families – both those with and without children – will continue to prefer low density residential.

### **4.4.2 Housing Assumptions**

An assumption was made that demand for housing city-wide will shift away from single family residential and towards medium density and higher density housing forms as demand for infill redevelopment occurs and as new developing areas continue to

experience higher densities than the older communities. The projected shift is as follows:

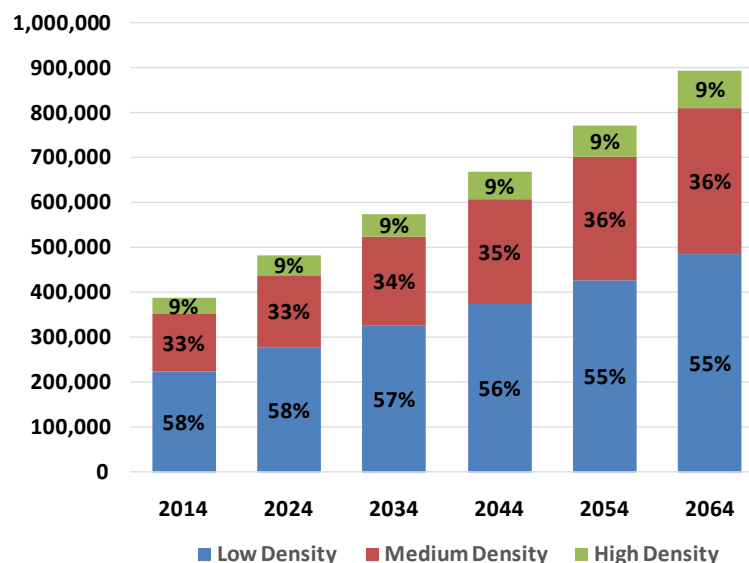
- Low density – assumes that the demand for single-family/semi-detached residential will decrease from 60% to 50%
- Medium density (row housing) – assumes that the demand for row housing will increase from 8% to 10%
- Medium density (walk-up apartments) – assumes that the demand for walk-up apartments will increase from 25% to 30%
- High density – assumes that the demand for high-rise apartments will increase from 7% to 10%

The average household size by residential dwelling type is in conformance with the City of Edmonton's *Terms of Reference for the Preparation and Amendment of Residential Area Structure Plans*.

#### 4.4.3 Housing Projections

These housing trends will lead to future growth in the number of households that outpaces population growth. Figure 4-5 shows the estimated types of housing units required to accommodate the base population projection.

**Figure 4-5 Housing Composition by Structure Type: 2014 to 2064**



Source: City of Edmonton 2014 Census, Nichols Applied Management

As can be seen in Figure 4-5, housing composition will shift away from lower density to higher density housing forms. This will occur as a greater proportion of the City's

housing requirements are accommodated through infill development – an increase from the current 14% to 25% over ten years - as well as the movement to higher density housing forms in developing neighbourhoods. The proportion of high density dwelling units relative to the overall housing stock is estimated to remain constant, however in absolute terms it will increase significantly by 48,000 units over the projection period. Detailed housing projections are provided in Appendix B.

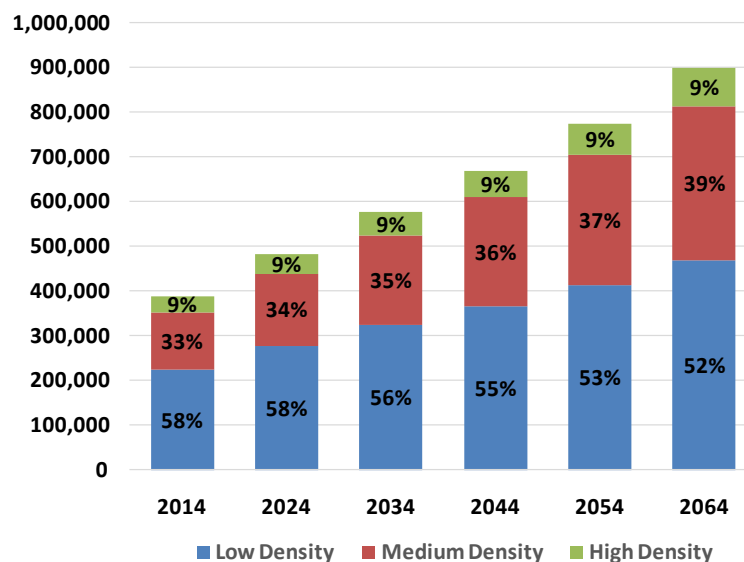
#### 4.4.4 Alternative Housing Projections

Alternative scenarios were explored to look at their impact on land absorption and the composition of housing. The following scenario explores an increased shift away from low density residential and is shown as follows:

- Low density – assumes that the demand for single-family/semi-detached residential will decrease from 60% to 45%
- Medium density (row housing) – assumes that the demand for row housing will increase from 8% to 12%
- Medium density (walk-up apartments) – assumes that the demand for walk-up apartments will increase from 25% to 33%
- High density – assumes that the demand for high-rise apartments will increase from 7% to 10%

Figure 4-6 shows the estimated types of housing units required for this alternative scenario.

**Figure 4-6 Housing Composition by Structure Type: 2014 to 2064, Increased Density**



Source: City of Edmonton 2014 Census, Nichols Applied Management

As can be seen in Figure 4-6, the impact of increased density on the overall housing stock is noticeable as shown by the 3% increase in the medium density housing and the corresponding decrease in low density housing. The impact on land requirements will be explored in Section 6 of this report.

## 5. Industrial Trends and Demand

Alberta continues to lead Canada with the fastest growing economy in the nation. The Conference Board of Canada is anticipating continued strong economic growth for Alberta as well as for the Edmonton Region – forecasting an increase in the Edmonton Region’s GDP of 4.9% in 2014, 3.0% in 2015, 3.4% in 2016, 3.0% in 2017 and 2.7% in 2018.

### 5.1 Labour Force

The Statistics Canada National Household Survey undertaken in conjunction with the 2011 Census provides labour force data for the Edmonton Region that can be compared to other census metropolitan areas. Based on 2011 National Household Survey data, approximately 73% of the Edmonton Region’s 2011 population 15 years of age or older were engaged in the labour force. It is also interesting to note that labour force activity (e.g., participation rates, employment rate, unemployment rate) for residents of the Edmonton Region compares favourably relative to the comparator CMAs shown in Table 5-1.

**Table 5-1 Labour Force Activity, Edmonton CMA and Selected CMAs, 2011 to 2014**

	Edmonton	Calgary	Hamilton	Ottawa	Winnipeg
Participation Rate					
2011	73.2%	74.3%	64.4%	69.6%	68.7%
2014	73.9%	73.7%	65.1%	70.6%	68.4%
Employment Rate					
2011	69.0%	70.0%	59.3%	64.8%	64.8%
2014	69.7%	70.1%	61.0%	65.4%	63.8%
Unemployment Rate					
2011	5.6%	5.9%	7.9%	6.9%	5.7%
2014	5.3%	5.1%	6.3%	7.3%	5.8%

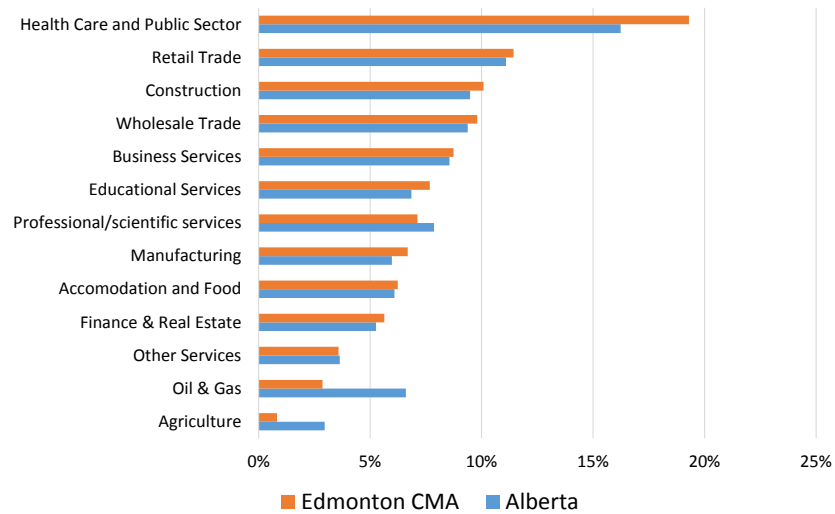
Source: Statistics Canada, 2011 & 2014

There are a number of key observations from Table 5-1:

- the unemployment rate in the Edmonton Region was the lowest in comparison to the five comparator communities in 2011 and the second lowest in 2014;
- the Edmonton Region’s labour force participation rate in 2011 and 2014 was significantly higher than Hamilton’s, Ottawa’s and Winnipeg’s and slightly lower than Calgary’s in 2011 and slightly higher in 2014; and
- the Edmonton Region’s labour force participation rate has increased slightly from 2011 to 2014 – from 73.2% to 73.9%.

Figure 5-1 provides a breakdown of the Edmonton Region's labour force by major industry.

**Figure 5-1 Employment by Major Industry, Edmonton Region, 2011**



Source: Statistics Canada National Household Survey, 2011

Relative to the overall provincial average, the labour force residing in Edmonton Region has a higher proportion of workers engaged in the following:

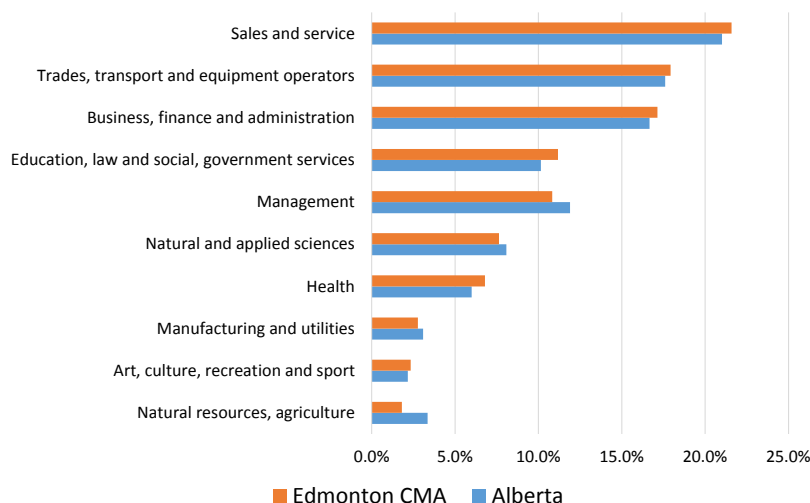
- Health care and public sector

Conversely, relative to the overall provincial average, the labour force residing in the Edmonton Region has a lower proportion of workers engaged in the following:

- Oil and Gas
- Agriculture

Figure 5-2 provides employment by major occupation for the Edmonton Region.

**Figure 5-2 Employment by Major Occupation, Edmonton Region, 2011**



Source: Statistics Canada National Household Survey, 2011

As can be seen in Figure 5-2, the largest occupational groups among the labour force residing in the Edmonton Region and for the Province as a whole are:

- Sales and services;
- Trades, transport and equipment operators; and
- Business, finance and administration.

Table 5-2 shows the total employment for the Edmonton CMA for 2011 to 2013 with a forecast to 2018.

**Table 5-2 Total Employment, Edmonton CMA 2011 to 2018**

	Canada		Alberta		Edmonton	
<b>2011</b>	17,309,000	1.5%	2,095,000	3.8%	671,000	5.9%
<b>2012</b>	17,510,000	1.2%	2,149,000	2.6%	693,000	3.3%
<b>2013</b>	17,736,000	1.3%	2,209,000	2.8%	718,000	3.6%
<b>2014f</b>	17,987,000	1.4%	2,280,000	3.2%	747,000	4.0%
<b>2015f</b>	18,304,000	1.8%	2,326,000	2.1%	761,000	1.9%
<b>2016f</b>	18,586,000	1.5%	2,375,000	2.1%	777,000	2.1%
<b>2017f</b>	18,824,000	1.3%	2,413,000	1.6%	793,000	2.1%
<b>2018f</b>	19,026,000	1.1%	2,443,000	1.3%	811,000	2.3%
<b>Cumulative Change</b>		9.9%		16.6%		20.9%

Source: Conference Board of Canada, Metropolitan Outlook Spring 2014, Update October 2014.

There are a number of key observations from Table 5-2:

- The employment growth for Alberta is forecast to be in the order of 65% higher than for Canada;
- The employment growth for the Edmonton Region is forecast to be in the order of 110% higher than for Canada;
- The employment growth for the Edmonton Region is forecast to be in the order of 25% higher than for Alberta; and
- The average annual growth in employment for the Edmonton Region over the past four years (2010 to 2014) has exceeded 4% per year.

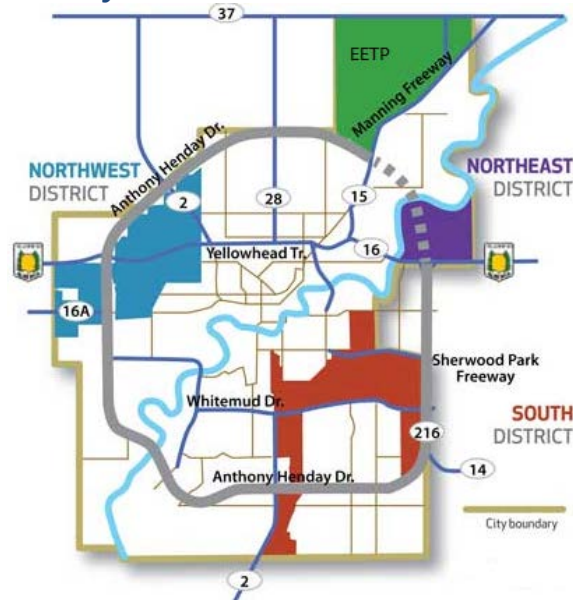
## 5.2 Industrial Market

According to Colliers International, the City of Edmonton has the largest supply of industrial building space within the Edmonton Region, with an industrial gross floor area inventory approaching 80 million square feet. Total industrial inventory in the Edmonton Region recently exceeded 100 million square feet. The inventory of developed industrial space has increased at a rate of 1.4% over the previous four years, adding in the order of 5 million square feet. Prior to the economic downturn in 2009, the Edmonton Region had been adding between one and three million square feet of industrial space annually. It appears that the strong industrial market will continue in 2014. The building permit value for industrial developments reached \$65 million by the end of August, an increase of 135% over the same time period for the previous year.

The City of Edmonton has four primary industrial land areas: South District, Northwest District, Northeast District, and Edmonton Energy and Technology Park (EETP), as illustrated in Figure 5-3.



**Figure 5-3 City of Edmonton Industrial Areas**



Source: City of Edmonton

The EETP is part of Alberta's Industrial Heartland, an area which targets development of petro-chemical industries. The EETP represents in the order of 8% of the total land area in the Alberta Industrial Heartland. The EETP is a relatively new industrial area that was developed to target a cluster of industries including energy value-added industries, manufacturing, logistics and research and technology sectors.

The City of Edmonton's other three primary industrial land areas - South District, Northwest District and Northeast District – facilitate industrial development that is more traditionally associated with the City of Edmonton.

The City of Edmonton has revised their methodology for calculating the supply of industrial land. The new methodology provides a more accurate and up to date inventory of lands available. The new methodology also now takes into consideration parcels that are significantly underutilized and accounts for their availability. This change has resulted in an increase in the inventory of industrial lands compared to those utilized in *The Case for Annexation* report prepared in the Spring of 2014. This report utilizes the revised methodology for calculating the supply of industrial land.

Table 5-3 provides an estimate of land inventory for Edmonton's industrial areas to the end of 2013.

**Table 5-3 City of Edmonton Industrial Land Inventory 2013  
(net hectares)**

	Net Hectares
Northwest	777
Northeast	195
South	629
Edmonton Energy & Technology Park	3,329

Note: South District was increased to reflect the addition of a proposed ASP. Estimate of available lands in the Edmonton Energy & Technology Park was adjusted to 3,329 hectares.

Source: City of Edmonton

The City of Edmonton utilizes a number of different industrial zones. These include the following:

- **The Industrial Business Zone (IB)** - provides the opportunity for industrial businesses whose operations are restricted to an enclosed building, and the use is compatible with adjacent residential or commercial uses.
- **The Light Industrial Zone (IL)** - provides for light industrial developments with limited outdoor activities. Any nuisance factor associated with these uses will not extend outside an enclosed building.
- **The Medium Industrial Zone (IM)** - provides the opportunity for uses that carry out part of their operation outdoors or require outdoor storage areas. Any nuisance associated with these uses should not extend beyond the site.
- **The Heavy Industrial Zone (IH)** - provides the opportunity for industrial uses that are incompatible with residential, commercial, and other land uses.

Table 5-4 shows the land absorption by the four industrial zones – Industrial Business, Light Industrial, Medium Industrial and Heavy Industrial - from 2003 to 2013.

**Table 5-4 City of Edmonton Industrial Land Absorption, 2003 to 2013 (net hectares)**

	IB (net ha)	IL (net ha)	IM (net ha)	IH (net ha)	Total (net ha)
2003	71.2	15.7	58.3	7.1	152.3
2004	34.1	0.0	68.1	2.5	104.7
2005	48.7	0.0	76.2	11.5	136.4
2006	31.8	11.2	83.8	18.2	144.9
2007	69.6	18.9	83.5	25.2	197.1
2008	19.2	1.0	22.8	1.2	44.3
2009	4.4	15.8	18.3	50.6	89.1
2010	10.5	0.0	35.7	0.0	46.1
2011	79.1	27.4	76.6	0.0	183.1
2012	12.5	7.1	123.2	0.0	142.9
2013	53.6	0.0	146.2	30.3	291.4

Source: City of Edmonton

As can be seen in Table 5-4, the absorption of industrial land fluctuates on a year-to-year basis. Over the last ten years, the absorption of industrial land has ranged from a low of 44 hectares in 2008 to a high of 291 hectares in 2013.

The industrial land demand forecast was based on historic land demand. Table 5-5 shows the average annual industrial land absorption for the City of Edmonton.

**Table 5-5 Average Annual City of Edmonton Industrial Land Absorption, 2004 to 2013 (net hectares)**

	IB (net ha)	IL (net ha)	IM (net ha)	IH (net ha)	Total (net ha)
Average 2004 to 2013	36.35	8.14	73.44	13.95	138.00
Average 2003 to 2012	38.11	9.71	64.65	11.63	124.09
Average 2011 to 2013	48.40	11.50	115.33	10.10	205.80

Source: City of Edmonton

As can be seen in Table 5-5, the average absorption for the past ten years is 138 net hectares. The ten year average has increased substantially from last year (11%), due to the large amount of industrial land absorption in 2013. The average annual absorption rate for the past three years – 206 net hectares – is in the order of 50% higher than the ten year average, an indication of the recent increase in demand for industrial land in the Edmonton Region.

## 5.3 Industrial Land Demand

### 5.3.1 Assumptions

The industrial land demand forecast was based on historic land demand for the period 2003 to 2012 – 124 net hectares – indexed to increase with population. This approach

ignores the most recent demand in 2013 which increased the ten year average absorption to 138 net hectares.

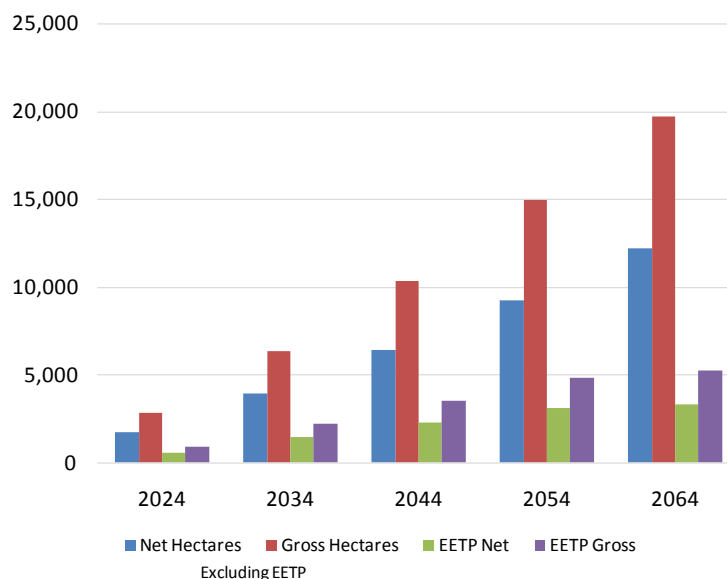
It has been assumed that the Edmonton Energy and Technology Park will be developed over a 40-year time period. This assumption is consistent with the Area Structure Plan for the EETP which anticipated a development horizon of between 30 and 50 years. It is also anticipated that approximately half of the Edmonton Energy & Technology Park may be developed to accommodate traditional types of industrial development with the remaining half accommodating petro-chemical developments consistent with that in the Alberta Industrial Heartland.

As illustrated in Appendix C, this forecast assumes that once the Edmonton Energy & Technology Park begins development of industrial activity (estimated for 2018), 50% of its industrial demand will be developed for more traditional types of industrial activity, which reduces the demand for traditional types of industrial activity within the rest of the city including the proposed annexation areas.

### 5.3.2 Industrial Land Projection

Figure 5-4 shows the cumulative demand for industrial land in the City of Edmonton projecting forward in 10 year increments.

**Figure 5-4 City of Edmonton Industrial Cumulative Demand, 2024 to 2064**



Source: Nichols Applied Management

The cumulative net industrial land demand, including the Edmonton Energy and Technology Park, over the 50-year projection is approximately 15,500 hectares. Detailed land absorption numbers are shown in Appendix C, which provides projections for both the Medium and the High growth scenarios.

### 5.3.3 Projection Reasonableness

The projections as shown in Figure 5-4, are based on the historic ten year demand for industrial land over the 2003 to 2012 time period (see Table 5-3). This projection also assumes that industrial land absorption starting in 2014 is almost 40% less than the actual average absorption between 2011 and 2013 (206 hectares) as shown Table 5-4.

The projected annual industrial land absorption is not expected to reach equivalent levels of traditional land absorption realized the previous three years (206 net hectares per year from 2011 to 2013) until 2048 for the Medium growth scenario, or until 2039 for the High growth scenario (see Appendix C)

The approach used to estimate the demand for industrial land in the City of Edmonton likely underestimates the potential uptake within the City. The reasons for that are it has been negatively impacted by supply restrictions to the extent that prospective businesses are unable to find land with specific features of topography, access, servicing, and size to meet their specific needs. These businesses have been forced to consider lands outside of the City's boundaries, distorting the balance between Edmonton's industrial and residential developments. As a result, the absorption of industrial lands in the City of Edmonton has been lower than they would otherwise have been if the supply had not been restricted.

## 5.4 Edmonton International Airport

The Edmonton International Airport (EIA) is a key asset in the Edmonton region and an important economic driver within the Edmonton-Calgary corridor. Including the EIA in the proposed annexation will not affect its status as a separate entity with its own jurisdiction to operate and control its own lands. For these reasons this growth study does not consider the EIA lands.

## 6. Land Supply and Absorption

The amount of land absorbed is dependent on variety of different factors such as the density of development, household size and population growth.

### 6.1 Main Assumptions

A large number of assumptions were undertaken in determining the absorption of residential, commercial and industrial land needs. A number of the key assumptions are described below.

**Residential from gross to net developable area:** In order to estimate the absorptions of residential development within the two proposed annexation areas, an approach to convert from gross area to net developable area was developed. This approach involved reviewing eleven statutory plans and one draft plan to determine an average land use breakdown of areas either currently or about to be developed within the City of Edmonton. Table 6-1 shows the average breakdown from gross area to net area utilizing this methodology.

**Table 6-1 Conversion from Gross Area to Net Developable: Residential**

Category	Typical Uses	Percent of Gross Area
Gross Area	All uses	100%
Non-developable lands	Natural areas, pipelines, power lines, arterial roadways, existing uses not meant for redevelopment	21%
Gross Developable Area		79%
Total Non-Residential Area	Parks, Schools, stormwater management facilities, transportation network, etc.	27%
	Commercial, Mixed Use, Institutional	8%
Net Residential Area	All forms of housing	43%

Source: City of Edmonton, Nichols Applied Management

As can be seen in Table 6-1, it is estimated that 43% of the gross area is available for all forms of residential housing. It should be noted that neighbourhood commercial, business employment, institutional and mixed use developments (combined they account for just over 8%) are included in the 57% that is deducted in determining the net residential area.

It should be mentioned that the 43% represents an average for the developing areas within Edmonton's current boundaries, and that there will be instances where the net developable area within the annexation areas will be greater or less than this average

depending on the specific opportunities and development constraints within a given area.

**Industrial from gross to net developable area:** A similar approach was undertaken to estimate how the absorption of business employment/industrial development might occur within the two proposed annexation areas. Table 6-2 shows the average breakdown from gross area to net developable area for business employment/industrial development.

**Table 6-2 Conversion from Gross Area to Net Developable: Business Employment/Industrial**

Category	Typical Uses	Percent of Gross Area
Gross Area	All uses	100%
Non-developable lands	Natural areas, pipelines, power lines, arterial roadways, railways existing uses not meant for redevelopment	12%
Gross Developable Area		88%
Total Non-Industrial Area	Parks, stormwater management facilities, other roads, etc.	27%
Net Business Employment/Industrial Area	Most forms of industrial activity, limited opportunities for commercial/office and other compatible uses	61%

Source: City of Edmonton, Nichols Applied Management

As can be seen in Table 6-2, 61% of the gross area is available for business employment/industrial developments. As with the determination of the net residential area, it should be noted that the 61% represents an average and that there will be instances where the net developable area for business employment/industrial developments within the proposed annexation areas will be greater or less than this average. The net developable area for business employment/industrial purposes is proportionally higher than that for residential purposes primarily because less land is needed for roads and complimentary uses such as schools and commercial centres.

**Infill redevelopment:** Section 4 in the City of Edmonton's *The Way We Grow – Complete, Healthy and Livable Communities* establishes as a goal that 25% of residential housing units should be accommodated through infill redevelopment. The current level of infill is in the order of 14%. It has been assumed in both land absorption scenarios that infill redevelopment will increase from the current 14% to 25% from 2014 to 2024.

**Distribution of housing:** It is expected that the geographic distribution of residential housing will change over time. Over the past few years, approximately 57% of the City of Edmonton residential development has occurred south of the North Saskatchewan River. It is expected that this will increase over time, as development opportunities become constrained to the north and west in the City. For purposes of these projections, it has been assumed that for all land absorption scenarios the proportion of

development occurring south of the river will increase from 57% to 65% over the next ten years. Conversely, it has been assumed that the proportion of development occurring north of the river will decrease from 43% to 35% over the next ten years.

Currently the amount of residential development occurring in the southeast and southwest is fairly similar. It has been assumed that with the annexation, this will change and the southwest will account for 55% of residential development activity south of the river and the southeast will account for the remaining 45%.

**Housing demand by dwelling type:** In the base case scenario it has been assumed that the demand for housing citywide will shift away from single family residential and towards medium density and higher density housing forms for the reasons described in Section 4.4.1. It has been assumed that the projected shift will occur over a twenty year time period as follows:

- Low density – assumed that the demand for single-family/semi-detached residential would decrease from 60% to 50%
- Medium density (row housing) – assumed that the demand for row housing would increase from 8% to 10%
- Medium density (walk-up apartments) – assumed that the demand for walk-up apartments would increase from 25% to 30%
- High density – assumed that the demand for high-rise apartments would increase from 7% to 10%

An alternative scenario assuming increased demand for higher density residential was examined that applies the following projected shift over a twenty year time period:

- Low density – assumed that the demand for single-family/semi-detached residential would decrease from 60% to 45%
- Medium density (row housing) – assumes that the demand for row housing would increase from 8% to 12%
- Medium density (walk-up apartments) – assumes that the demand for walk-up apartments would increase from 25% to 33%
- High density – assumes that the demand for high-rise apartments would increase from 7% to 10%

**Densities by housing type in developing areas:** The City of Edmonton is proposing residential density levels in the proposed annexation areas that meet or exceed those required by the CRB and those being realized by neighbouring municipalities. The assumed density levels for the various types of residential developments are consistent



with the City of Edmonton's *Terms of Reference for the Preparation & Amendment of Residential Area Structure Plans* and will be as follows:

- Low Density: 25 units per net hectare
- Medium Density – Row Housing: 45 units per net hectare
- Medium Density – Apartment: 90 units per net hectare
- High Density: 225 units per net hectare

Taking into consideration the densities of each of the housing types shown above, the overall average density in new developing areas is 34.4 units per net hectare.

**Average household size by dwelling type:** The assumed average household size by dwelling type, is consistent with the City of Edmonton's *Terms of Reference for the Preparation & Amendment of Residential Area Structure Plans*, and will be as follows:

- Low Density: 2.8 people per dwelling
- Medium Density – Row Housing: 2.8 people per dwelling
- Medium Density – Apartment: 1.8 people per dwelling
- High Density: 1.5 people per dwelling

**Industrial supply and absorption:** The inventory of industrial land in the City of Edmonton is reaching critically low levels. It has been estimated that there is approximately 1,600 net hectares of industrial land, excluding the 3,300 net hectares available in the EETP.

The industrial land demand forecast was based on historic land demand for the period 2003 to 2012 – 124 net hectares – indexed to increase with population. It has been assumed that the Edmonton Energy and Technology Park will be developed over a 40-year time period at a constant rate of 83 net hectares annually. It has been assumed that once the Edmonton Energy & Technology Park begins development of industrial activity (estimated for 2018), 50% of its industrial demand will be developed for more traditional types of industrial activity, which reduces the demand for type of activity within the rest of the city including the proposed annexation areas.

## 6.2 Land Supply

### 6.2.1 Existing Supply in the City of Edmonton

The City of Edmonton has a limited amount of raw land left for development. Table 6-3 shows the estimated current developable land supply by type and sector as of December 31, 2013 within the City of Edmonton for new developing areas.

**Table 6-3 City of Edmonton Estimated Land Supply, 2014**

	Gross Area	Net Area
Residential		
South West	2,563	1,314
South East	3,263	1,672
North and West of the River	4,939	2,532
Commercial/Business/Institutional		
South West	502	257
South East	639	328
North and West of the River	968	496
Industrial		
South	1,015	629
Northwest	1,253	777
Northeast	315	195
Edmonton Energy and Technology Park	5,238	3,329

Source: City of Edmonton, Nichols Applied Management

The development lands identified in Table 6-3 can accommodate the following amounts of residential housing units (excluding infill development):

- **Southwest** – low density residential of 21,400 units, medium density residential of 6,200 units of row housing and 24,900 units of walk-up apartment units, and high density residential of 9,700 units
- **Southeast** – low density residential of 34,300 units, medium density residential of 4,400 units of row housing and 17,600 units of walk-up apartment units, and high density residential of 1,600 units
- **North and West of the River** – low density residential of 55,200 units, medium density residential of 7,100 units of row housing and 13,000 units of walk-up apartment units, and high density residential of 4,800 units

Section 4 in the City of Edmonton's *The Way We Grow – Complete, Healthy and Livable Communities* identifies as a goal that 25% of residential housing units should be accommodated through infill development. The current level of infill is approximately 14%. It has been assumed in all land absorption scenarios that infill development will

increase from the current 14% to 25% over the next ten years. This infill development will be over and above the residential inventory numbers identified above.

## 6.2.2 Land Constraints

The City of Edmonton is to a large extent restricted with respect to opportunities for new developing residential and industrial areas. Generally speaking, there are a number of factors that limit the direction for future long term growth outside its current boundaries. These factors include the following:

- established urban municipalities;
- areas under the control of other levels of government such as the Enoch Reserve;
- areas that are dominated by natural features such as wetlands that make it difficult to facilitate development and provide services;
- annexing existing industrial developments that could adversely impact another municipality's fiscal sustainability;
- existing country residential that is more intensely developed as it is exceedingly difficult to redevelop into a more urbanized form; and
- areas that contain dense networks of oil and gas wells and pipelines which have associated risks and setbacks.

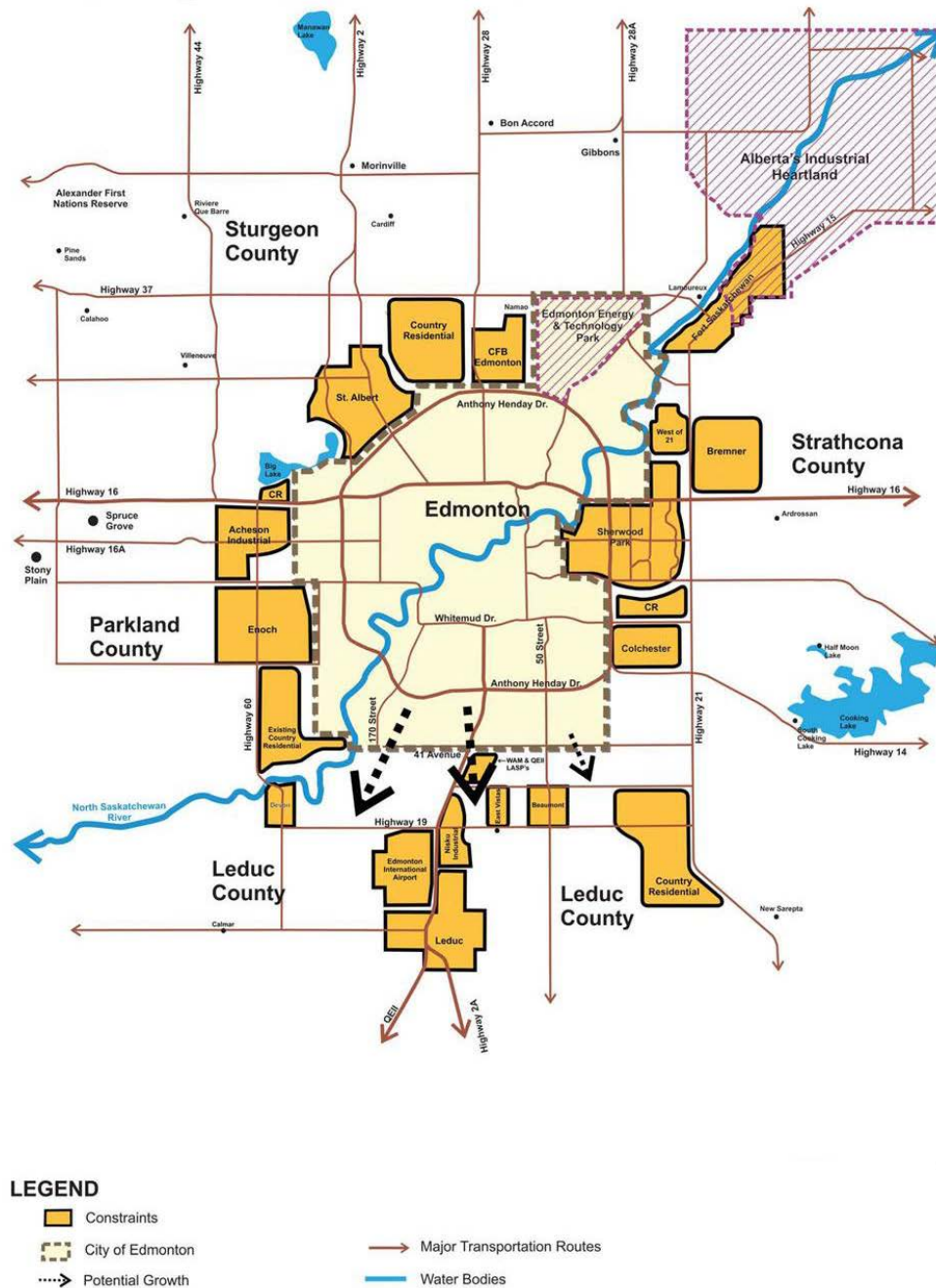
The City of Edmonton is placed in the centre of a number of existing or planned developments and communities in all directions. These development constraints include the following:

- to the east of Edmonton is Strathcona County. The County largely restricts Edmonton's development opportunities with Sherwood Park, its industrial developments and the planned communities of Bremner and Colchester;
- to the northeast of Edmonton is the City of Fort Saskatchewan. Fort Saskatchewan is currently undertaking a growth study with the possibility of boundary expansion;
- to the north the CFB Edmonton and country residential developments in Sturgeon County;
- to the northwest of the City of Edmonton is the City of St. Albert and Big Lake;
- to the west of the City is the Enoch Reserve, the City of Spruce Grove and Parkland County with its country residential developments, and Acheson Industrial Park. The lands to the west in Parkland County also contain a significant amount of existing oil and gas activity; and

- to the south of the City of Edmonton is the Town of Devon, the City of Leduc, Nisku Industrial Park located in Leduc County and the Town of Beaumont.

Figure 6-1 shows the constraints that limit growth opportunities for the City of Edmonton.

**Figure 6-1 Geographic Constraints to Edmonton's Growth**



As demonstrated in Figure 6-1 and the discussion above, the City's primary direction for accommodating future growth of both industrial and residential lies mainly to the south.

### 6.2.3 Potential Land Supply in the Proposed Annexation Areas

A possible breakdown of land uses was developed for the purpose of estimating land supply in the two proposed annexation areas. Based on these estimates, the land supply breakdown for the proposed annexation areas is presented in Table 6-4 below. The areas presented are in gross hectares. Continued work will be undertaken in refining these preliminary assumptions.

**Table 6-4 Land Supply in the Proposed Annexation Areas**

	Southwest (hectares)	Southeast (hectares)	Total (hectares)
Residential	4,200	2,100	6,300
Business Employment/Industrial	3,750	1,175	4,925
Edmonton International Airport	3,000		3,000
Country Residential		100	100
Natural Areas, water bodies, etc.	1,100	250	1,350
<b>Total</b>	<b>12,050</b>	<b>3,625</b>	<b>15,675</b>

Source: City of Edmonton, Nichols Applied Management

The lands identified in Table 6-4 include several business employment/industrial areas in the Southeast annexation area that are currently being developed. It has been estimated that in the order of 290 hectares of business employment/industrial lands in the Southeast annexation area will be developed by the time the proposed annexations would be approved and as a result would not be available for future development.

It has been assumed that on average the proposed annexation lands will be developed at an average density of 34.4 units per net hectare. The potential number of dwelling units and population that could be accommodated by the two proposed annexation areas and an estimate of the associated population is shown in Table 6-5.

**Table 6-5 Estimated Dwelling Unit and Population Capacity of the Two Proposed Annexation Areas**

	Southwest	Southeast	Total
Gross Residential (ha)	4,200	2,100	6,300
Net Residential (ha)	1,813	907	2,720
Low Density Residential (dwelling units)	37,637	18,818	56,455
Medium Density Residential - Row Housing (dwelling units)	5,621	2,810	8,431
Medium Density Residential - Walkup Apartments (dwelling units)	14,658	7,329	21,987
High Density Residential - High Rise Apartment (dwelling units)	4,526	2,263	6,789
<b>Population</b>	<b>154,294</b>	<b>77,147</b>	<b>231,440</b>

Source: City of Edmonton, Nichols Applied Management

It is estimated that the two proposed annexation areas could accommodate approximately 93,700 dwellings and in excess of 230,000 people.

## 6.3 Land Absorption Scenarios

A number of land absorption scenarios were established to determine the robustness of the proposed annexations. All of the scenarios assume that the demand for industrial land is based on historic absorption and is expected to increase at the same rate as forecasted population growth. It has been assumed that 50% of the EETP will be developed as conventional industrial development, with the remaining 50% developed with uses compatible with the Alberta Industrial Heartland.

### 6.3.1 Base Case Scenario

The base case scenario is based on the CRB's high growth forecast. In addition, it assumes that no low density residential development will occur in the proposed annexation areas until all low density residential is exhausted south of the North Saskatchewan River. Table 6-6 provides the approximate timing of when various supplies of land will be exhausted.

**Table 6-6 Base Case Scenario: Based on CRB High Growth Scenario and Delayed Development in Proposed Annexation Areas**

	Low Density Residential	Medium Density Residential (Row Housing)	Medium Density Residential (Walk-Up Apartment)	High Density Residential	Industrial	Edmonton Energy & Technology Park
Exhaust lands in Current City Southwest	2026	2056	2060	2052	N/A	N/A
Exhaust lands in Current City Southeast	2031	2053	2057	2029	2024	N/A
Exhaust lands in Current City North of the River	2045	2062	2041	2044	2031	2058
Exhaust lands in Annexation Lands Southwest	2048	2072	2065	2060	2047	N/A
Exhaust lands in Annexation Lands Southeast	2045	2069	2063	2058	2042	N/A

Source: Nichols Applied Management

Existing industrial land will be exhausted in south Edmonton by 2024 (10 years) and the existing supply of residential land – especially that allocated for low density housing forms – is poised to be exhausted by 2026 (12 years) in the southwest and 2031 (17 years) in the southeast. Even with the lands in the proposed annexation areas, it has been estimated that the City of Edmonton will exhaust the industrial land supply by 2047 (33 years) and the low density residential land supply by 2048 (34 years).

### 6.3.2 Medium Growth Scenario

The second scenario is based on the CRB's medium growth scenario and also assumes that no low density residential development will occur in the proposed annexation areas

until all low density residential is exhausted south of the river. Table 6-7 provides an estimate of the approximate timing of when various supplies of land will be exhausted.

**Table 6-7 Alternative Scenario: Based on CRB Medium Growth Scenario and Delayed Development in Proposed Annexation Areas**

	Low Density Residential	Medium Density Residential (Row Housing)	Medium Density Residential (Walk-Up Apartment)	High Density Residential	Industrial	Edmonton Energy & Technology Park
Exhaust lands in Current City Southwest	2031	2067	2072	2062	N/A	N/A
Exhaust lands in Current City Southeast	2039	2064	2068	2034	2024	N/A
Exhaust lands in Current City North of the River	2056	2075	2050	2054	2032	2058
Exhaust lands in Annexation Lands Southwest	2059	2087	2078	2072	2050	N/A
Exhaust lands in Annexation Lands Southeast	2056	2083	2075	2069	2044	N/A

Source: Nichols Applied Management

With the Medium growth scenario, existing industrial land will be exhausted in south Edmonton by 2024 (10 years) and the existing supply of low density residential land will be exhausted by 2031 (17 years) in the southwest and 2039 (25 years) in the southeast. Even with the lands in the proposed annexation areas, it has been estimated that the City of Edmonton will exhaust the industrial land supply by 2050 (36 years) and the low density residential land supply by 2059 (45 years).

### 6.3.3 Increased Demand for Higher Density

Table 6-8 provides an estimate of the approximate timing of when various supplies of land will be exhausted assuming an increased demand for higher density. It has been assumed that the demand for housing is as follows:

- Low density – single-family/semi-detached residential – from 60% to 45%
- Medium density – row housing – from 8% to 12%
- Medium density – walk-up apartments – from 25% to 33%
- High density – from 7% to 10%



**Table 6-8 Alternative Scenario: Based on CRB High Growth Scenario and Increased Demand for Higher Density Residential Development**

	Low Density Residential	Medium Density Residential (Row Housing)	Medium Density Residential (Walk-Up Apartment)	High Density Residential	Industrial	Edmonton Energy & Technology Park
Exhaust lands in Current City Southwest	2027	2047	2055	2052	N/A	N/A
Exhaust lands in Current City Southeast	2032	2045	2052	2029	2024	N/A
Exhaust lands in Current City North of the River	2046	2052	2038	2044	2031	2058
Exhaust lands in Annexation Lands Southwest	2050	2060	2059	2060	2047	N/A
Exhaust lands in Annexation Lands Southeast	2047	2057	2057	2058	2042	N/A

Source: Nichols Applied Management

As can be seen in Table 6-8, existing supply of low density residential land will be exhausted by 2027 (13 years) in the southwest and 2032 (18 years) in the southeast. Even with the lands in the proposed annexation areas, it has been estimated that the City of Edmonton will exhaust the low density residential land supply by 2050 (34 years). The absorption of industrial land will be the same as in the Base Case Scenario.

### 6.3.4 Summary of Alternative Scenarios

It has been observed that typically in new developing areas, low density residential housing is the first type of development to occur. Subsequent types of development include medium density residential, commercial, parks and schools. The depletion of low density residential is a key indicator of the need for additional land supply in order for the City to continue providing a full range of housing options. Table 6-9 provides a summary of land absorption timelines for low density residential and industrial for the alternative land absorption scenarios presented above.

**Table 6-9 Summary of Alternative Scenarios**

	CRB High	CRB Medium	Demand Higher Density
<b>Land Absorption</b>			
Low Density Residential			
City of Edmonton			
Southwest	2026	2031	2027
Southeast	2031	2039	2032
North and West	2045	2056	2046
Annexation Area	2048	2059	2050
Industrial			
City of Edmonton			
Southside	2024	2024	2024
North and West	2031	2032	2031
Annexation Area	2047	2050	2047

Source: Nichols Applied Management

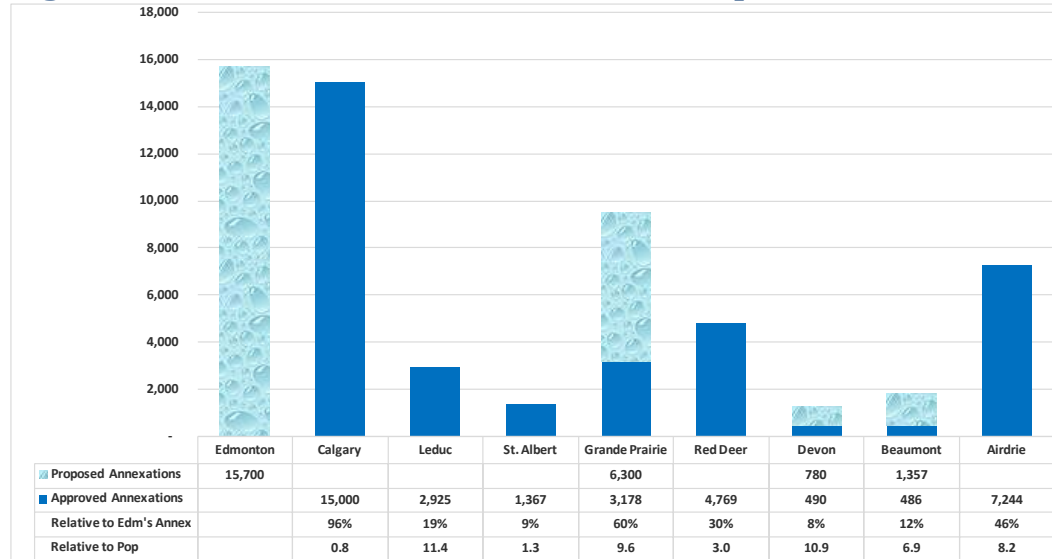


As can be seen in Table 6-9, the land supply on the south side within the City's current boundaries is particularly problematic. The low density residential land supply within the City's current southwest area will be fully absorbed within a 12 to 17 year time frame, and the southeast area within a 17 to 25 year time frame. Likewise, the industrial land supply within the City's south side will be fully absorbed in 10 years under all scenarios. With respect to the proposed annexations, even under a variety of alternative scenarios the low density residential lands will be absorbed within a 34 to 45 year time period. With respect to industrial lands, the proposed annexation areas will be absorbed within a 33 to 36 year time period.

## 7. Comparison of Annexations

While the proposed annexations involve a significant amount of land, comparatively they are reasonable. Figure 7-1 compares a number of current and past annexations to Edmonton's two proposed annexations – in absolute terms – as well as in relation to the municipality's population.

**Figure 7-1 Relative Size of Past and Proposed Annexations**



Source: Alberta Municipal Affairs, Nichols Applied Management

A number of observations can be made about the information provided in Figure 7-1:

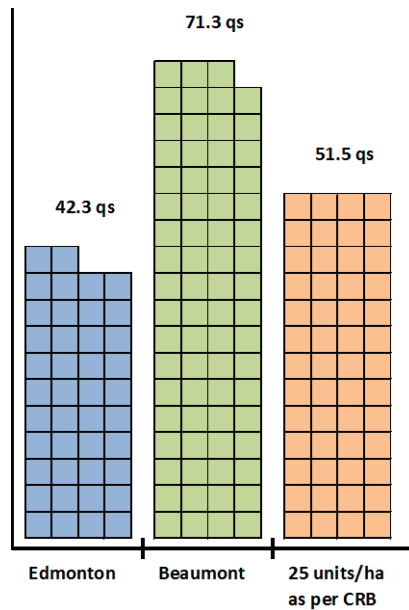
- The two proposed Edmonton annexations are fairly comparable to the three annexations the City of Calgary carried out over a 15 year period (1995, 2005 and 2007). If the City of Edmonton is successful in its annexation applications then the two Cities will be approximately the same size (85,864 hectares for Edmonton compared to 84,800 hectares for Calgary).
- The City of Leduc has undertaken four significant annexations over the past 20 years (1995, 1998, 2000 and 2014). Combined, these four annexations are roughly 19% the size of Edmonton's two proposed annexations. Relative to its population, the City of Leduc's four annexations are roughly 11 times as large as the City of Edmonton's two proposed annexations.
- In relation to its population, the St. Albert annexation (2007) is fairly comparable to Edmonton's two proposed annexations.
- In absolute terms, the proposed City of Grande Prairie annexation is roughly 40% the size of the City of Edmonton's proposed annexations. In addition, the

City of Grande Prairie has undertaken six other annexations over the past twenty years, four of which are relatively significant (2001, 2005, 2007 and 2008). Combined, these four annexations and the City of Grande Prairie's proposed annexation is roughly 60% the size of the City of Edmonton's proposed annexation. Relative to its population, the City of Grande Prairie's past and proposed annexations are roughly 10 times as large as the City of Edmonton's two proposed annexations.

- In relation to its population, the Town of Devon's proposed annexation is almost 7 times the size of the City of Edmonton's two proposed annexations. In addition, the Town of Devon has undertaken two other annexations over the past twenty years (1996 and 2005). In relation to its population, the Town of Devon's past and proposed annexations are almost 11 times the size of the City of Edmonton's two proposed annexations.
- In relation to its population, the Town of Beaumont's proposed annexation is just over 5 times the size of the City of Edmonton's two proposed annexations. In addition, the Town of Beaumont has undertaken two other annexations over the past twenty years (1996 and 1999). In relation to its population, the Town of Beaumont's past and proposed annexations are almost 7 times the size of the City of Edmonton's two proposed annexations.
- The City of Airdrie has had six annexations over the past 20 years, three of which were relatively significant (2003, 2006 and 2011). Combined, these six annexations are roughly 46% the size of Edmonton's two proposed annexations. Relative to its population, the City of Airdrie's annexations are just over 8 times as large as the City of Edmonton's two proposed annexations.

The development densities anticipated for the residential components of Edmonton's proposed annexations are higher than those proposed by other municipalities in the area. Figure 7-2 visually displays the amount of land required by the City of Edmonton to house 100,000 people in comparison to the Town of Beaumont based on their 2012 Growth Study and the minimum densities as mandated by the Capital Region Board.

**Figure 7-2 Comparison of Amount of Land Required to House 100,000 People**



Source: Nichols Applied Management

As can be seen in Figure 7-2, the amount of land consumed under the City of Edmonton's proposed densities is significantly less than in the Town of Beaumont (41% lower) or the Capital Region Board's minimum density requirements (18% lower).

## 8. Conclusions

The Edmonton Region's GDP growth has been the highest in Canada over the past several years, and that trend is expected to continue for the next five years. One indicator of this strong economic growth is the absorption of industrial land in the City. Over the past three years (2011 to 2013), approximately 206 net hectares of industrial land per year was absorbed, which is roughly 85% higher than the average annual absorption over the previous eight years (2003 to 2010). This economic growth is also demonstrated by a significant increase in population. Between 2012 and 2014, Edmonton grew by approximately 60,000 people, an increase of 7.4%. In the long term, the next 50 years, it is forecast that the City of Edmonton will grow to a population of approximately 2.1 million people.

The City of Edmonton is quickly running out of room to accommodate anticipated growth within its current boundaries. Land shortages are most pressing in south Edmonton where the demand for residential is strongest and the land supply for industrial is acute. It is estimated that Edmonton will exhaust its supply of industrial lands in the south by 2024 (10 years), and its supply of low density residential lands in the southwest by 2026 (12 years) and in the southeast by 2031 (17 years). Timelines in Edmonton to bring on new developing areas on average take up to ten years - highlighting the City's need to annex lands. With the proposed annexation areas, the industrial land supply in the south side would increase by an additional 23 years to 2047. The residential land supply in the south side would increase by an additional 17 years to 2048.

## **Appendix A**

### **Population**

## Historical Population Growth

Year	Population	Census	Absolute Change in Population	Percent Change in Population	Year	Population	Census	Absolute Change in Population	Percent Change in Population
1915	59,339	CoE			1965	371,265	CoE	59,461	19.1%
1916	53,846	CoE	-5,493	-9.3%	1966	381,230	GoC	9,965	2.7%
1917	51,000	CoE	-2,846	-5.3%	1967	393,593	CoE	12,363	3.2%
1918	53,000	CoE	2,000	3.9%	1968	410,105	CoE	16,512	4.2%
1919	60,000	CoE	7,000	13.2%	1969	422,418	CoE	12,313	3.0%
1920	61,045	CoE	1,045	1.7%	1970	429,750	CoE	7,332	1.7%
1921	58,821	GoC	-2,224	-3.6%	1971	436,264	GoC	6,514	1.5%
1922	60,000	CoE	1,179	2.0%	1972	441,530	CoE	5,266	1.2%
1923	60,000	CoE	0	0.0%	1973	442,365	CoE	835	0.2%
1924	63,160	CoE	3,160	5.3%	1974	447,000	Est	4,635	1.0%
1925	65,378	CoE	2,218	3.5%	1975	451,635	CoE	4,635	1.0%
1926	65,163	CoE	-215	-0.3%	1976	461,559	GoC	9,924	2.2%
1927	67,083	CoE	1,920	2.9%	1977	471,474	CoE	9,915	2.1%
1928	69,744	CoE	2,661	4.0%	1978	478,066	CoE	6,592	1.4%
1929	74,298	CoE	4,554	6.5%	1979	491,359	CoE	13,293	2.8%
1930	77,557	CoE	3,259	4.4%	1980	505,773	CoE	14,414	2.9%
1931	79,059	GoC	1,502	1.9%	1981	521,205	GoC	15,432	3.1%
1932	78,387	CoE	-672	-0.8%	1982	551,314	CoE	30,109	5.8%
1933	79,231	CoE	844	1.1%	1983	560,085	CoE	8,771	1.6%
1934	79,773	CoE	542	0.7%	1984	563,892	Est	3,807	0.7%
1935	82,634	CoE	2,861	3.6%	1985	567,699	Est	3,807	0.7%
1936	85,470	CoE	2,836	3.4%	1986	571,506	GoC	3,807	0.7%
1937	87,034	CoE	1,564	1.8%	1987	576,249	CoE	4,743	0.8%
1938	88,887	CoE	1,853	2.1%	1988	580,061	Est	3,812	0.7%
1939	90,419	CoE	1,532	1.7%	1989	583,872	CoE	3,812	0.7%
1940	91,723	CoE	1,304	1.4%	1990	605,538	CoE	21,666	3.7%
1941	93,924	GoC	2,201	2.4%	1991	614,665	GoC	9,127	1.5%
1942	96,725	CoE	2,801	3.0%	1992	618,195	CoE	3,530	0.6%
1943	105,536	CoE	8,811	9.1%	1993	626,999	CoE	8,804	1.4%
1944	108,416	CoE	2,880	2.7%	1994	623,435	Est	-3,564	-0.6%
1945	111,745	CoE	3,329	3.1%	1995	619,870	Est	-3,564	-0.6%
1946	114,976	CoE	3,231	2.9%	1996	616,306	GoC	-3,564	-0.6%
1947	118,541	CoE	3,565	3.1%	1997	626,965	Est	10,659	1.7%
1948	126,609	CoE	8,068	6.8%	1998	637,625	Est	10,659	1.7%
1949	137,469	CoE	10,860	8.6%	1999	648,284	CoE	10,659	1.7%
1950	148,861	CoE	11,392	8.3%	2000	652,817	Est	4,533	0.7%
1951	158,012	GoC	9,151	6.1%	2001	657,350	GoC	4,533	0.7%
1952	169,196	CoE	11,184	7.1%	2002	671,110	Est	13,760	2.1%
1953	183,411	CoE	14,215	8.4%	2003	684,871	Est	13,760	2.1%
1954	197,836	CoE	14,425	7.9%	2004	698,631	Est	13,760	2.0%
1955	209,353	CoE	11,517	5.8%	2005	712,391	CoE	13,760	2.0%
1956	223,549	GoC	14,196	6.8%	2006	730,372	GoC	17,981	2.5%
1957	238,353	CoE	14,804	6.6%	2007	741,392	Est	11,020	1.5%
1958	252,131	CoE	13,778	5.8%	2008	752,412	CoE	11,020	1.5%
1959	260,733	CoE	8,602	3.4%	2009	782,439	COE	30,027	4.0%
1960	269,314	CoE	8,581	3.3%	2010	797,320	Est	14,881	1.9%
1961	276,018	GoC	6,704	2.5%	2011	812,201	GoC	14,881	1.9%
1962	294,967	CoE	18,949	6.9%	2012	817,498	CoE	5,297	0.7%
1963	303,756	CoE	8,789	3.0%	2013	847,712	Est	30,214	3.7%
1964	311,804	CoE	8,048	2.6%	2014	877,926	CoE	30,214	3.6%

## Population Forecast

Based on CRB Medium Growth Scenario

Year	Population	Absolute Change in Population	Percent Change in Population
2014	877,926		
2015	880,343	2,417	0.3%
2016	898,660	18,317	2.1%
2017	914,779	16,119	1.8%
2018	931,188	16,409	1.8%
2019	947,891	16,703	1.8%
2020	964,893	17,003	1.8%
2021	982,201	17,308	1.8%
2022	996,872	14,672	1.5%
2023	1,011,763	14,891	1.5%
2024	1,026,876	15,113	1.5%
2025	1,042,215	15,339	1.5%
2026	1,057,783	15,568	1.5%
2027	1,073,583	15,801	1.5%
2028	1,089,620	16,037	1.5%
2029	1,105,896	16,276	1.5%
2030	1,122,415	16,519	1.5%
2031	1,139,181	16,766	1.5%
2032	1,153,920	14,738	1.3%
2033	1,168,848	14,929	1.3%
2034	1,183,971	15,122	1.3%
2035	1,199,288	15,318	1.3%
2036	1,214,804	15,516	1.3%
2037	1,230,521	15,717	1.3%
2038	1,246,441	15,920	1.3%
2039	1,262,566	16,126	1.3%
2040	1,278,901	16,335	1.3%
2041	1,295,447	16,546	1.3%
2042	1,312,207	16,760	1.3%
2043	1,329,183	16,977	1.3%
2044	1,346,380	17,196	1.3%
2045	1,363,883	17,503	1.3%
2046	1,381,613	17,730	1.3%
2047	1,399,574	17,961	1.3%
2048	1,417,769	18,194	1.3%
2049	1,436,200	18,431	1.3%
2050	1,454,870	18,671	1.3%
2051	1,473,784	18,913	1.3%
2052	1,492,943	19,159	1.3%
2053	1,512,351	19,408	1.3%
2054	1,532,012	19,661	1.3%
2055	1,551,928	19,916	1.3%
2056	1,572,103	20,175	1.3%
2057	1,592,540	20,437	1.3%
2058	1,613,243	20,703	1.3%
2059	1,634,215	20,972	1.3%
2060	1,655,460	21,245	1.3%
2061	1,676,981	21,521	1.3%
2062	1,698,782	21,801	1.3%
2063	1,720,866	22,084	1.3%
2064	1,743,237	22,371	1.3%

Based on CRB High Growth Scenario

Year	Population	Absolute Change in Population	Percent Change in Population
2014	877,926		
2015	887,313	9,387	1.1%
2016	910,411	23,098	2.6%
2017	934,108	23,697	2.6%
2018	956,548	22,440	2.4%
2019	979,524	22,977	2.4%
2020	1,003,051	23,527	2.4%
2021	1,027,141	24,090	2.4%
2022	1,051,807	24,666	2.4%
2023	1,073,202	21,395	2.0%
2024	1,094,181	20,980	2.0%
2025	1,115,571	21,390	2.0%
2026	1,137,379	21,808	2.0%
2027	1,159,613	22,234	2.0%
2028	1,182,282	22,669	2.0%
2029	1,205,394	23,112	2.0%
2030	1,228,957	23,564	2.0%
2031	1,252,982	24,024	2.0%
2032	1,277,476	24,494	2.0%
2033	1,297,336	19,860	1.6%
2034	1,317,505	20,169	1.6%
2035	1,337,988	20,483	1.6%
2036	1,358,789	20,801	1.6%
2037	1,379,913	21,124	1.6%
2038	1,401,366	21,453	1.6%
2039	1,423,152	21,786	1.6%
2040	1,445,277	22,125	1.6%
2041	1,467,746	22,469	1.6%
2042	1,490,564	22,818	1.6%
2043	1,513,737	23,173	1.6%
2044	1,537,270	23,533	1.6%
2045	1,560,329	23,059	1.5%
2046	1,583,734	23,405	1.5%
2047	1,607,490	23,756	1.5%
2048	1,631,603	24,112	1.5%
2049	1,656,077	24,474	1.5%
2050	1,680,918	24,841	1.5%
2051	1,706,131	25,214	1.5%
2052	1,731,723	25,592	1.5%
2053	1,757,699	25,976	1.5%
2054	1,784,065	26,365	1.5%
2055	1,810,826	26,761	1.5%
2056	1,837,988	27,162	1.5%
2057	1,865,558	27,570	1.5%
2058	1,893,541	27,983	1.5%
2059	1,921,944	28,403	1.5%
2060	1,950,774	28,829	1.5%
2061	1,980,035	29,262	1.5%
2062	2,009,736	29,701	1.5%
2063	2,039,882	30,146	1.5%
2064	2,070,480	30,598	1.5%



## **Appendix B**

### **Housing Projections**

Scenario based on High Growth  
Demand for Low Density Residential from 60% to 50%  
Demand for Row Housing from 8% to 10%  
Demand for Walk-Up Apartments from 25% to 30%  
Demand for High Density Residential from 7% to 10%

	Low Density	Medium Density	High Density	Total	Low Density	Medium Density	High Density	Total	Low Density	Medium Density	High Density	Total
2014	224,618	128,411	35,446	388,475	58%	33%	9%	100%	60%	33%	7%	100%
2015	230,111	131,432	36,087	397,630	58%	33%	9%	100%	60%	33%	7%	100%
2016	235,710	134,571	36,760	407,041	58%	33%	9%	100%	59%	34%	7%	100%
2017	241,417	137,830	37,466	416,712	58%	33%	9%	100%	59%	34%	7%	100%
2018	246,784	140,954	38,149	425,888	58%	33%	9%	100%	58%	34%	8%	100%
2019	252,243	144,192	38,865	435,300	58%	33%	9%	100%	58%	35%	8%	100%
2020	257,795	147,547	39,613	444,955	58%	33%	9%	100%	57%	35%	8%	100%
2021	263,440	151,023	40,395	454,859	58%	33%	9%	100%	57%	35%	8%	100%
2022	269,180	154,625	41,213	465,018	58%	33%	9%	100%	56%	36%	8%	100%
2023	274,124	157,786	41,937	473,847	58%	33%	9%	100%	56%	36%	8%	100%
2024	278,938	160,921	42,661	482,520	58%	33%	9%	100%	55%	37%	9%	100%
2025	283,810	164,154	43,414	491,379	58%	33%	9%	100%	55%	37%	9%	100%
2026	288,742	167,489	44,197	500,428	58%	33%	9%	100%	54%	37%	9%	100%
2027	293,733	170,927	45,010	509,670	58%	34%	9%	100%	54%	38%	9%	100%
2028	298,784	174,472	45,855	519,111	58%	34%	9%	100%	53%	38%	9%	100%
2029	303,895	178,127	46,733	528,754	57%	34%	9%	100%	53%	38%	9%	100%
2030	309,066	181,894	47,644	538,604	57%	34%	9%	100%	52%	39%	9%	100%
2031	314,298	185,778	48,590	548,666	57%	34%	9%	100%	52%	39%	10%	100%
2032	319,590	189,781	49,571	558,943	57%	34%	9%	100%	51%	39%	10%	100%
2033	323,848	193,062	50,381	567,291	57%	34%	9%	100%	51%	40%	10%	100%
2034	328,138	196,430	51,218	575,785	57%	34%	9%	100%	50%	40%	10%	100%
2035	332,459	199,887	52,082	584,428	57%	34%	9%	100%	50%	40%	10%	100%
2036	336,847	203,398	52,960	593,205	57%	34%	9%	100%	50%	40%	10%	100%
2037	341,304	206,963	53,851	602,118	57%	34%	9%	100%	50%	40%	10%	100%
2038	345,830	210,584	54,756	611,170	57%	34%	9%	100%	50%	40%	10%	100%
2039	350,426	214,261	55,675	620,362	56%	35%	9%	100%	50%	40%	10%	100%
2040	355,094	217,995	56,609	629,698	56%	35%	9%	100%	50%	40%	10%	100%
2041	359,834	221,787	57,557	639,178	56%	35%	9%	100%	50%	40%	10%	100%
2042	364,648	225,638	58,520	648,806	56%	35%	9%	100%	50%	40%	10%	100%
2043	369,537	229,549	59,498	658,584	56%	35%	9%	100%	50%	40%	10%	100%
2044	374,502	233,521	60,490	668,513	56%	35%	9%	100%	50%	40%	10%	100%
2045	379,366	237,413	61,463	678,243	56%	35%	9%	100%	50%	40%	10%	100%
2046	384,304	241,363	62,451	688,118	56%	35%	9%	100%	50%	40%	10%	100%
2047	389,316	245,373	63,453	698,142	56%	35%	9%	100%	50%	40%	10%	100%
2048	394,403	249,442	64,471	708,316	56%	35%	9%	100%	50%	40%	10%	100%
2049	399,566	253,573	65,503	718,643	56%	35%	9%	100%	50%	40%	10%	100%
2050	404,807	257,765	66,552	729,124	56%	35%	9%	100%	50%	40%	10%	100%
2051	410,126	262,021	67,615	739,763	55%	35%	9%	100%	50%	40%	10%	100%
2052	415,526	266,340	68,695	750,561	55%	35%	9%	100%	50%	40%	10%	100%
2053	421,006	270,724	69,791	761,521	55%	36%	9%	100%	50%	40%	10%	100%
2054	426,568	275,174	70,904	772,646	55%	36%	9%	100%	50%	40%	10%	100%
2055	432,214	279,691	72,033	783,938	55%	36%	9%	100%	50%	40%	10%	100%
2056	437,944	284,275	73,179	795,399	55%	36%	9%	100%	50%	40%	10%	100%
2057	443,761	288,928	74,342	807,031	55%	36%	9%	100%	50%	40%	10%	100%
2058	449,664	293,651	75,523	818,839	55%	36%	9%	100%	50%	40%	10%	100%
2059	455,657	298,445	76,721	830,823	55%	36%	9%	100%	50%	40%	10%	100%
2060	461,739	303,311	77,938	842,987	55%	36%	9%	100%	50%	40%	10%	100%
2061	467,912	308,249	79,173	855,334	55%	36%	9%	100%	50%	40%	10%	100%
2062	474,178	313,262	80,426	867,866	55%	36%	9%	100%	50%	40%	10%	100%
2063	480,538	318,350	81,698	880,586	55%	36%	9%	100%	50%	40%	10%	100%
2064	486,993	323,514	82,989	893,496	55%	36%	9%	100%	50%	40%	10%	100%

Scenario based on Medium Growth  
Demand for Low Density Residential from 60% to 50%  
Demand for Row Housing from 8% to 10%  
Demand for Walk-Up Apartments from 25% to 30%  
Demand for High Density Residential from 7% to 10%

	Low Density	Medium Density	High Density	Total	Low Density	Medium Density	High Density	Total	Low Density	Medium Density	High Density	Total
2014	224,618	128,411	35,446	388,475	58%	33%	9%	100%	60%	33%	7%	100%
2015	229,118	130,886	35,971	395,975	58%	33%	9%	100%	60%	33%	7%	100%
2016	233,558	133,375	36,505	403,437	58%	33%	9%	100%	59%	34%	7%	100%
2017	237,440	135,592	36,985	410,017	58%	33%	9%	100%	59%	34%	7%	100%
2018	241,365	137,876	37,485	416,726	58%	33%	9%	100%	58%	34%	8%	100%
2019	245,333	140,230	38,005	423,568	58%	33%	9%	100%	58%	35%	8%	100%
2020	249,345	142,655	38,545	430,546	58%	33%	9%	100%	57%	35%	8%	100%
2021	253,401	145,152	39,108	437,661	58%	33%	9%	100%	57%	35%	8%	100%
2022	256,816	147,295	39,594	443,704	58%	33%	9%	100%	56%	36%	8%	100%
2023	260,257	149,494	40,098	449,849	58%	33%	9%	100%	56%	36%	8%	100%
2024	263,724	151,753	40,620	456,097	58%	33%	9%	100%	55%	37%	9%	100%
2025	267,218	154,072	41,160	462,449	58%	33%	9%	100%	55%	37%	9%	100%
2026	270,739	156,452	41,718	468,909	58%	33%	9%	100%	54%	37%	9%	100%
2027	274,285	158,896	42,296	475,477	58%	33%	9%	100%	54%	38%	9%	100%
2028	277,859	161,403	42,894	482,156	58%	33%	9%	100%	53%	38%	9%	100%
2029	281,458	163,977	43,512	488,947	58%	34%	9%	100%	53%	38%	9%	100%
2030	285,083	166,618	44,151	495,852	57%	34%	9%	100%	52%	39%	9%	100%
2031	288,734	169,329	44,811	502,874	57%	34%	9%	100%	52%	39%	10%	100%
2032	291,919	171,737	45,401	509,058	57%	34%	9%	100%	51%	39%	10%	100%
2033	295,119	174,204	46,010	515,333	57%	34%	9%	100%	51%	40%	10%	100%
2034	298,336	176,729	46,637	521,702	57%	34%	9%	100%	50%	40%	10%	100%
2035	301,567	179,314	47,284	528,165	57%	34%	9%	100%	50%	40%	10%	100%
2036	304,841	181,933	47,938	534,712	57%	34%	9%	100%	50%	40%	10%	100%
2037	308,156	184,585	48,602	541,343	57%	34%	9%	100%	50%	40%	10%	100%
2038	311,515	187,272	49,273	548,061	57%	34%	9%	100%	50%	40%	10%	100%
2039	314,917	189,994	49,954	554,865	57%	34%	9%	100%	50%	40%	10%	100%
2040	318,363	192,751	50,643	561,757	57%	34%	9%	100%	50%	40%	10%	100%
2041	321,854	195,543	51,341	568,738	57%	34%	9%	100%	50%	40%	10%	100%
2042	325,390	198,372	52,048	575,810	57%	34%	9%	100%	50%	40%	10%	100%
2043	328,971	201,237	52,765	582,973	56%	35%	9%	100%	50%	40%	10%	100%
2044	332,599	204,140	53,490	590,229	56%	35%	9%	100%	50%	40%	10%	100%
2045	336,292	207,094	54,229	597,614	56%	35%	9%	100%	50%	40%	10%	100%
2046	340,032	210,086	54,977	605,095	56%	35%	9%	100%	50%	40%	10%	100%
2047	343,822	213,118	55,735	612,674	56%	35%	9%	100%	50%	40%	10%	100%
2048	347,660	216,188	56,502	620,351	56%	35%	9%	100%	50%	40%	10%	100%
2049	351,549	219,299	57,280	628,128	56%	35%	9%	100%	50%	40%	10%	100%
2050	355,487	222,450	58,068	636,006	56%	35%	9%	100%	50%	40%	10%	100%
2051	359,478	225,642	58,866	643,986	56%	35%	9%	100%	50%	40%	10%	100%
2052	363,520	228,876	59,674	652,070	56%	35%	9%	100%	50%	40%	10%	100%
2053	367,614	232,152	60,493	660,259	56%	35%	9%	100%	50%	40%	10%	100%
2054	371,762	235,470	61,323	668,555	56%	35%	9%	100%	50%	40%	10%	100%
2055	375,964	238,831	62,163	676,958	56%	35%	9%	100%	50%	40%	10%	100%
2056	380,220	242,236	63,014	685,471	55%	35%	9%	100%	50%	40%	10%	100%
2057	384,532	245,686	63,877	694,094	55%	35%	9%	100%	50%	40%	10%	100%
2058	388,899	249,180	64,750	702,830	55%	35%	9%	100%	50%	40%	10%	100%
2059	393,324	252,720	65,635	711,679	55%	36%	9%	100%	50%	40%	10%	100%
2060	397,806	256,305	66,532	720,643	55%	36%	9%	100%	50%	40%	10%	100%
2061	402,346	259,937	67,440	729,723	55%	36%	9%	100%	50%	40%	10%	100%
2062	406,946	263,617	68,359	738,922	55%	36%	9%	100%	50%	40%	10%	100%
2063	411,605	267,344	69,291	748,240	55%	36%	9%	100%	50%	40%	10%	100%
2064	416,324	271,120	70,235	757,679	55%	36%	9%	100%	50%	40%	10%	100%

Scenario based on High Growth  
Demand for Low Density Residential from 60% to 45%  
Demand for Row Housing from 8% to 12%  
Demand for Walk-Up Apartments from 25% to 33%  
Demand for High Density Residential from 7% to 10%

	Low	Medium	High		Low	Medium	High		Low	Medium	High	
	Density	Density	Density	Total	Density	Density	Density	Total	Density	Density	Density	Total
2014	224,618	128,411	35,446	388,475	58%	33%	9%	100%	60%	33%	7%	100%
2015	230,111	131,432	36,087	397,630	58%	33%	9%	100%	59%	34%	7%	100%
2016	235,690	134,596	36,760	407,046	58%	33%	9%	100%	59%	34%	7%	100%
2017	241,355	137,908	37,467	416,730	58%	33%	9%	100%	58%	35%	7%	100%
2018	246,664	141,107	38,152	425,922	58%	33%	9%	100%	57%	35%	8%	100%
2019	252,042	144,447	38,869	435,358	58%	33%	9%	100%	56%	36%	8%	100%
2020	257,489	147,933	39,619	445,042	58%	33%	9%	100%	56%	37%	8%	100%
2021	263,007	151,572	40,405	454,983	58%	33%	9%	100%	55%	37%	8%	100%
2022	268,593	155,367	41,226	465,187	58%	33%	9%	100%	54%	38%	8%	100%
2023	273,384	158,721	41,954	474,059	58%	33%	9%	100%	53%	38%	8%	100%
2024	278,029	162,070	42,682	482,781	58%	34%	9%	100%	53%	39%	9%	100%
2025	282,709	165,547	43,440	491,695	57%	34%	9%	100%	52%	40%	9%	100%
2026	287,424	169,155	44,228	500,806	57%	34%	9%	100%	51%	40%	9%	100%
2027	292,173	172,899	45,047	510,119	57%	34%	9%	100%	50%	41%	9%	100%
2028	296,956	176,782	45,899	519,637	57%	34%	9%	100%	50%	41%	9%	100%
2029	301,771	180,809	46,784	529,365	57%	34%	9%	100%	49%	42%	9%	100%
2030	306,619	184,986	47,704	539,309	57%	34%	9%	100%	48%	43%	9%	100%
2031	311,497	189,315	48,660	549,472	57%	34%	9%	100%	47%	43%	10%	100%
2032	316,406	193,803	49,652	559,861	57%	35%	9%	100%	47%	44%	10%	100%
2033	320,332	197,502	50,471	568,305	56%	35%	9%	100%	46%	44%	10%	100%
2034	324,266	201,319	51,318	576,902	56%	35%	9%	100%	45%	45%	10%	100%
2035	328,205	205,258	52,193	585,655	56%	35%	9%	100%	45%	45%	10%	100%
2036	332,205	209,258	53,082	594,545	56%	35%	9%	100%	45%	45%	10%	100%
2037	336,267	213,321	53,985	603,572	56%	35%	9%	100%	45%	45%	10%	100%
2038	340,393	217,446	54,901	612,740	56%	35%	9%	100%	45%	45%	10%	100%
2039	344,582	221,636	55,832	622,050	55%	36%	9%	100%	45%	45%	10%	100%
2040	348,837	225,891	56,778	631,506	55%	36%	9%	100%	45%	45%	10%	100%
2041	353,158	230,211	57,738	641,108	55%	36%	9%	100%	45%	45%	10%	100%
2042	357,546	234,600	58,713	650,859	55%	36%	9%	100%	45%	45%	10%	100%
2043	362,003	239,056	59,704	660,762	55%	36%	9%	100%	45%	45%	10%	100%
2044	366,528	243,582	60,709	670,819	55%	36%	9%	100%	45%	45%	10%	100%
2045	370,963	248,016	61,695	680,673	54%	36%	9%	100%	45%	45%	10%	100%
2046	375,464	252,517	62,695	690,675	54%	37%	9%	100%	45%	45%	10%	100%
2047	380,032	257,085	63,710	700,828	54%	37%	9%	100%	45%	45%	10%	100%
2048	384,669	261,722	64,741	711,132	54%	37%	9%	100%	45%	45%	10%	100%
2049	389,376	266,429	65,787	721,591	54%	37%	9%	100%	45%	45%	10%	100%
2050	394,153	271,206	66,848	732,207	54%	37%	9%	100%	45%	45%	10%	100%
2051	399,001	276,055	67,926	742,982	54%	37%	9%	100%	45%	45%	10%	100%
2052	403,923	280,976	69,019	753,919	54%	37%	9%	100%	45%	45%	10%	100%
2053	408,918	285,972	70,129	765,019	53%	37%	9%	100%	45%	45%	10%	100%
2054	413,989	291,042	71,256	776,287	53%	37%	9%	100%	45%	45%	10%	100%
2055	419,135	296,188	72,400	787,723	53%	38%	9%	100%	45%	45%	10%	100%
2056	424,359	301,412	73,561	799,331	53%	38%	9%	100%	45%	45%	10%	100%
2057	429,660	306,714	74,739	811,113	53%	38%	9%	100%	45%	45%	10%	100%
2058	435,042	312,095	75,935	823,072	53%	38%	9%	100%	45%	45%	10%	100%
2059	440,504	317,557	77,148	835,210	53%	38%	9%	100%	45%	45%	10%	100%
2060	446,048	323,101	78,380	847,530	53%	38%	9%	100%	45%	45%	10%	100%
2061	451,675	328,729	79,631	860,035	53%	38%	9%	100%	45%	45%	10%	100%
2062	457,387	334,440	80,900	872,727	52%	38%	9%	100%	45%	45%	10%	100%
2063	463,184	340,238	82,188	885,610	52%	38%	9%	100%	45%	45%	10%	100%
2064	469,068	346,122	83,496	898,686	52%	39%	9%	100%	45%	45%	10%	100%

## **Appendix C**

### **Industrial Demand**

Scenario based on Medium Growth  
Indexed to Increase with Population Growth

					Annexation Lands		Land Absorption	
	South	NW	NE	EETP	SE	SW	Traditional Industrial	EETP
2013	629	777	195	3,329	598	2,535	123	0
2014	576	711	188	3,329	598	2,535	126	0
2015	521	644	181	3,329	598	2,535	129	0
2016	465	575	174	3,329	598	2,535	131	0
2017	409	505	166	3,329	598	2,535	134	0
2018	351	472	163	3,246	598	2,535	95	83
2019	293	437	159	3,163	598	2,535	97	83
2020	233	401	156	3,079	598	2,535	99	83
2021	172	364	152	2,996	598	2,535	102	83
2022	110	325	148	2,913	598	2,535	104	83
2023	48	286	144	2,830	598	2,535	106	83
2024	0	245	140	2,746	594	2,524	108	83
2025	0	203	135	2,663	576	2,477	111	83
2026	0	160	131	2,580	558	2,430	113	83
2027	0	116	126	2,497	540	2,382	115	83
2028	0	70	121	2,414	521	2,333	118	83
2029	0	23	116	2,330	503	2,283	120	83
2030	0	0	87	2,247	483	2,233	122	83
2031	0	0	33	2,164	464	2,182	125	83
2032	0	0	0	2,081	438	2,113	127	83
2033	0	0	0	1,997	403	2,020	129	83
2034	0	0	0	1,914	366	1,924	131	83
2035	0	0	0	1,831	330	1,827	134	83
2036	0	0	0	1,748	292	1,729	136	83
2037	0	0	0	1,665	254	1,629	138	83
2038	0	0	0	1,581	215	1,527	141	83
2039	0	0	0	1,498	176	1,423	143	83
2040	0	0	0	1,415	136	1,318	145	83
2041	0	0	0	1,332	95	1,211	148	83
2042	0	0	0	1,248	54	1,102	150	83
2043	0	0	0	1,165	12	991	153	83
2044	0	0	0	1,082	0	848	155	83
2045	0	0	0	999	0	691	158	83
2046	0	0	0	915	0	530	160	83
2047	0	0	0	832	0	367	163	83
2048	0	0	0	749	0	202	166	83
2049	0	0	0	666	0	34	168	83
2050	0	0	0	583	0	0	34	83
2051	0	0	0	499	0	0	0	83
2052	0	0	0	416	0	0	0	83
2053	0	0	0	333	0	0	0	83
2054	0	0	0	250	0	0	0	83
2055	0	0	0	166	0	0	0	83
2056	0	0	0	83	0	0	0	83
2057	0	0	0	0	0	0	0	83
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
2060	0	0	0	0	0	0	0	0
2061	0	0	0	0	0	0	0	0
2062	0	0	0	0	0	0	0	0
2063	0	0	0	0	0	0	0	0
2064	0	0	0	0	0	0	0	0

Scenario based on High Growth  
Indexed to Increase with Population Growth

					Annexation Lands		Land Absorption	
	South	NW	NE	EETP	SE	SW	Traditional Industrial	EETP
2013	629	777	195	3,329	598	2,535	124	0
2014	575	711	188	3,329	598	2,535	127	0
2015	520	643	181	3,329	598	2,535	130	0
2016	464	573	174	3,329	598	2,535	133	0
2017	406	501	166	3,329	598	2,535	137	0
2018	347	466	162	3,246	598	2,535	98	83
2019	286	429	159	3,163	598	2,535	101	83
2020	224	390	155	3,079	598	2,535	105	83
2021	161	350	150	2,996	598	2,535	108	83
2022	96	308	146	2,913	598	2,535	111	83
2023	30	264	141	2,830	598	2,535	114	83
2024	0	219	137	2,746	588	2,508	117	83
2025	0	172	132	2,663	569	2,459	120	83
2026	0	123	127	2,580	550	2,408	123	83
2027	0	73	122	2,497	530	2,357	127	83
2028	0	21	116	2,414	510	2,304	130	83
2029	0	0	78	2,330	490	2,250	133	83
2030	0	0	17	2,247	469	2,195	137	83
2031	0	0	0	2,164	435	2,106	140	83
2032	0	0	0	2,081	396	2,002	144	83
2033	0	0	0	1,997	355	1,895	147	83
2034	0	0	0	1,914	314	1,787	150	83
2035	0	0	0	1,831	272	1,676	153	83
2036	0	0	0	1,748	229	1,564	156	83
2037	0	0	0	1,665	186	1,449	159	83
2038	0	0	0	1,581	141	1,331	162	83
2039	0	0	0	1,498	96	1,212	165	83
2040	0	0	0	1,415	50	1,090	168	83
2041	0	0	0	1,332	2	966	171	83
2042	0	0	0	1,248	0	793	175	83
2043	0	0	0	1,165	0	615	178	83
2044	0	0	0	1,082	0	434	182	83
2045	0	0	0	999	0	249	185	83
2046	0	0	0	915	0	61	188	83
2047	0	0	0	832	0	0	61	83
2048	0	0	0	749	0	0	0	83
2049	0	0	0	666	0	0	0	83
2050	0	0	0	583	0	0	0	83
2051	0	0	0	499	0	0	0	83
2052	0	0	0	416	0	0	0	83
2053	0	0	0	333	0	0	0	83
2054	0	0	0	250	0	0	0	83
2055	0	0	0	166	0	0	0	83
2056	0	0	0	83	0	0	0	83
2057	0	0	0	0	0	0	0	83
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
2060	0	0	0	0	0	0	0	0
2061	0	0	0	0	0	0	0	0
2062	0	0	0	0	0	0	0	0
2063	0	0	0	0	0	0	0	0
2064	0	0	0	0	0	0	0	0