



Population Projections and Housing Needs Review

CITY OF PENTICTON

Population Projections and Housing Needs Review

PENTICTON, BRITISH COLUMBIA

Prepared for:
THE CITY OF PENTICTON
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Executive Summary

The study provides the population projections (2016-2046) for the City of Penticton as part of the Official Community Plan review. In addition, it provides a high-level review of the housing needs of the community.

The study finds that the population of the City of Penticton is likely to grow from 34,448 people (2016 Census population count plus 2% for population under-coverage) in 2016 to 41,900 people in 2046, at an annual growth rate of approximately 0.65% (medium growth scenario). The City is expected to add an average of 1,370 people every five years during 2016-2046, primarily on account of strong net migration to the community.

The study also finds that the share of population under 15 years is expected to remain stable at 12% until 2036 and then decline to 11% during 2036 to 2046 while the share of population in the 15-64 years age cohort is expected to decline from 59% in 2016 to approximately 52% by 2046. However, the proportion of seniors in the population is expected to grow from 29% in 2016 to nearly 38% by 2046. This translates into a very significant growth in the population aged 65 years and over from roughly 10,000 in 2016 to 15,720 by 2046. The declining working age group and significant increase in the aging population suggests that the City will be well served by undertaking significant efforts to enhance the local economy and attract new investments to the City.

The high-level review of the housing needs estimates suggests that the City will experience a household growth of over 4,464 net new households (vs. 4,015 in the Housing Needs Assessment, 2016- HNA) or roughly 150 households (vs. 134 households in the HNA) on an annual basis during 2016 – 2046. Much of this growth will be in senior households (3,434 out of 4,462 households), i.e. the age of the household maintainer is 65 years and over, followed by households with maintainers in the 35 – 64 years age group (1,250 out of 4,462 households). The number of younger households i.e. the age of the household maintainer is 25-34 years, is expected to decline by 11% (222 households) over the projection period.

The City is expected to require an average of 110 net new owned housing and 39 net new rental units per year, during 2016 – 2046. The overall distribution of the City's housing need by dwelling types, during the study period (2016 to 2046) is as follows:

- | | | |
|--|-------------|------------------------------|
| 1. Single detached house | 929 units | (vs. 644 units in the HNA) |
| 2. Semi-detached, row house, duplex & other attached units | 1,539 units | (vs. 1,503 units in the HNA) |
| 3. Apartment with 5 or more stories | 389 units | (vs. 415 units in the HNA) |
| 4. Apartment, with fewer than 5 storeys | 1,440 units | (vs. 1,317 units in the HNA) |
| 5. Movable dwellings | 164 units | (vs. 136 units in the HNA) |

Overall, the differences in the household projections and housing needs estimates are not very significant. Thus, a comprehensive review of the Housing Needs Assessment (2016) is not warranted at this time. The City will be well served by conducting a review in the next 5 – 10 years, when newer Census and housing data becomes available.

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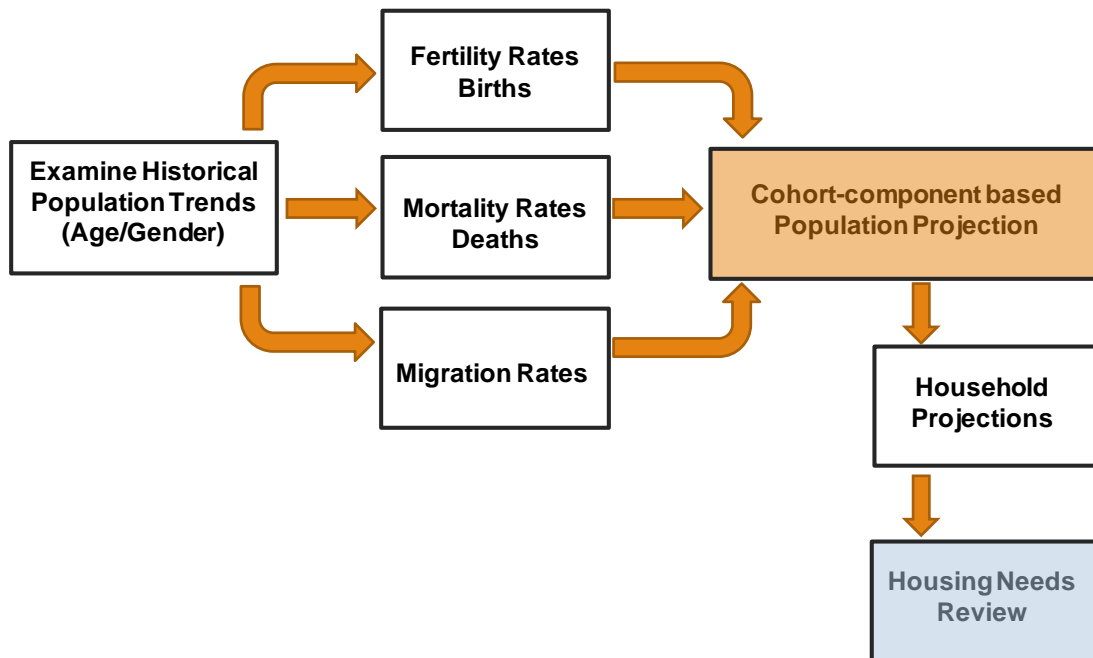
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1 Introduction

This report presents the population projections (2016-2046) for the City of Penticton based on the cohort-component method. It presents the historical population growth components as well as assumptions regarding future fertility rates, mortality rates and migration rates for the City. These projections represent the most likely path of population growth for the City of Penticton over the next 30 years. The report also provides the most likely age structure of the population, including the share of seniors (65 years and over) and the share of the population aged 15 years to 64 years, which could be used to inform the proposed Official Community Plan review.

In addition, to the population projections, the study includes a high-level review of the housing needs of the community based on the Census 2016 population counts. The main objective of the review is to examine whether the Housing Needs Assessment (2016) study needs to be updated in light of the recent Census information. The reader should note that the Housing Needs Assessment (2016) was conducted prior to the release of the Census 2016 information and was based on the BC Stats population projections for the Penticton Local Health Area.

1.1 Approach



The study uses the following approach:

1. Examines the historical population trends of the City;
2. Assesses the three components of population growth, i.e. births, deaths and migration;
3. Projects City's population based on the cohort-component method; and,
4. Projects the number of households and the reviews the housing needs of the City.

1.2 Report structure

The report is organized in the following sections;

- the first section provides a brief introduction to the study;
- the second section provides the historical population growth trends, age structure and growth components, including fertility, mortality and migration rates for the City;
- the third section provides the population projections based on high, medium low growth scenarios;
- the fourth section provides a review of the emerging Housing Needs of the City;
- the final section provides the main findings of the report.

1.3 Limitations

This study, similar to the population projection and housing needs studies of this nature, relies on a number of forecasts and assumptions regarding the state of the economy, the state of future competitive influences and assumptions related to births, deaths and migration. These assumptions are made with great care and are based on the most recent and reliable information available. While specific assumptions may be noted throughout the report, the following general assumptions also apply:

- Background data for this study, especially as regards to the current and historic population and housing trends were obtained from a variety of public (federal, provincial, and municipal) sources. The findings from this study can be expected to change with the future releases of data from any of these sources.
- Real GDP growth and other economic indicators for the area will not significantly differ from the projections indicated in the study over the course of the study period.
- No unforeseen economic or political events will occur within the study period on a national, provincial or local level, which would significantly alter the outcomes of the study's analyses. Short-term fluctuations are likely to occur but long-term gradual growth rates should prevail.

Should these or any of the other assumptions noted in this study be undermined by the course of future events, the consultant recommends that the study's findings be re-examined.

2 Population characteristics

2.1 Population growth trends

2.1.1 British Columbia

The Province of British Columbia has displayed strong population growth throughout the period 1996-2016 (Table 1). The population of the Province grew from 3.86 million in 1996 to approximately 4.74 million in 2016 (adjusted for under-coverage error). The population in B.C. grew at a faster rate than the Canadian average population growth; its 10-year growth rate for 2006-2016 was 1.14% in comparison to 0.99% for Canada. However, the overall growth was not distributed equally among the 29 regional districts of the Province. Much of the population and growth in population was experienced in Metro Vancouver, Fraser Valley Regional District and Regional District of Central Okanagan. Other regional districts, including the Regional District of Okanagan-Similkameen did not experience such high rates of population growth.

2.1.2 Okanagan-Similkameen

The population of the Regional District grew from 78,727 people in 1996 to approximately 84,682 people in 2016 (adjusted for under-coverage error). During 2006 - 2016, the Regional District experienced a significantly lower rate of population growth (.35%) in comparison to both the national and the provincial average.

The Regional District has displayed stronger growth during 2001-2006 and 2011-2016 as compared to the other periods (1996-2011 and 2006-2011), which is indicative of resource-based economies.

2.1.3 City of Penticton

The population of the City of Penticton grew from 32,127 people in 1996 to approximately 34,440 people in 2016 (adjusted for under-coverage error). During 2006-2016, the population of the City has grown (.48%) at a rate faster than the Regional District (.35%) but lower than that of the Province (1.14%).

The reader should note that the population of the City has displayed sustained growth during 1996-2016. The 5-year population growth rates have increased from .07% in 1996-2001 to .53% in 2011-2016. This is indicative of the sustained economic growth and population inflow to the City. Moreover, significant increases in property values in numerous municipalities across the province has caused a significant increase in intra-provincial migration (for example from Metro Vancouver) to the Okanagan-Similkameen area and the City of Penticton. It is likely, that the City of Penticton will experience sustained population growth over the projection period as well.

Census population	1996	2001	2006	2011	2016
Canada	28,846,761	30,007,094	31,612,897	33,476,688	35,151,728
British Columbia	3,724,500	3,907,738	4,113,487	4,400,057	4,648,055
Okanagan-Similkameen	75,933	76,635	79,475	80,742	83,022
City of Penticton	30,987	30,985	31,910	32,880	33,765
Net undercoverage					
Canada	2.45%	3.10%	2.79%	2.32%	2.00%
British Columbia	3.68%	4.05%	2.89%	2.03%	2.00%
Adjusted population					
Canada	29,553,507	30,937,314	32,494,897	34,253,347	35,854,763
British Columbia	3,861,562	4,066,001	4,232,367	4,489,378	4,741,016
Okanagan-Similkameen	78,727	79,739	81,772	82,381	84,682
City of Penticton	32,127	32,240	32,832	33,547	34,440
Annual average growth rates	1996-2001	2001-2006	2006-2011	2011-2016	2006-2016
Canada	0.92%	0.99%	1.06%	0.92%	0.99%
British Columbia	1.04%	0.81%	1.19%	1.10%	1.14%
Okanagan-Similkameen	0.26%	0.50%	0.15%	0.55%	0.35%
City of Penticton	0.07%	0.36%	0.43%	0.53%	0.48%

Table 1: Historical population, Canada, B.C., Okanagan-Similkameen and Penticton
 Source: Urbanics Consultants Ltd. and Statistics Canada, 1996- 2016 Census

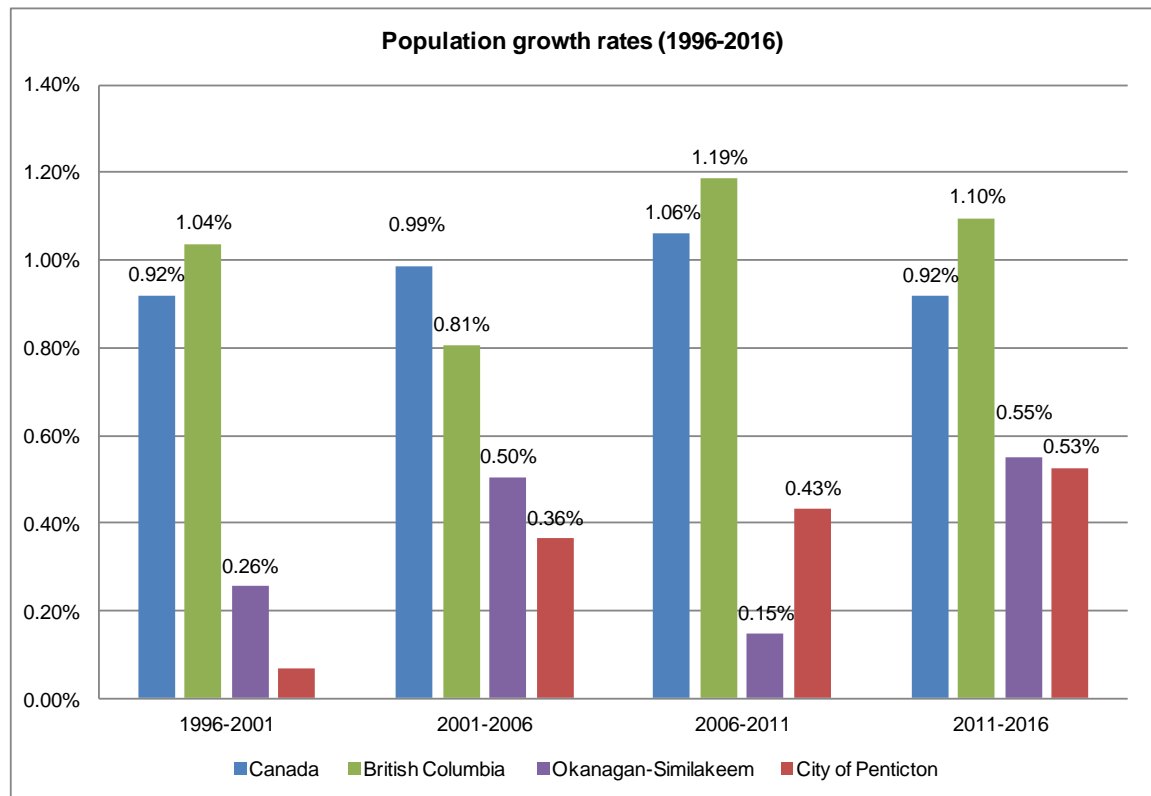


Figure 1: Population growth rates, Canada, B.C., Okanagan-Similkameen and Penticton
 Source: Urbanics Consultants Ltd. and Statistics Canada, 1996- 2016 Census

2.2 Age Structure

The distribution of population by the three-major age-groups for the City of Penticton suggests that the proportion of population in the age-group:

- Under 15 years has declined from 13.5% in 2006 to 11.9% in 2016;
- 15-64 years has declined from 60.7% in 2006 to 59.1% in 2016; and,
- 65 years and above has increased from 25.8% in 2006 to nearly 29.1% in 2016.

The City is experiencing strong growth in population aged 65 years and over, as compared to children under 15 years and the working-age population (15 – 64 years). The reader should note that the greying of population is a countrywide trend and the City of Penticton is also experiencing similar trends. However, from a long-term planning perspective the City will be well served by enhancing employment opportunities and by attracting younger families to the City.

	2006	2011	2016
British Columbia			
Total Population	4,232,367	4,489,378	4,741,016
Population Distribution			
Under 15 years	699,248	691,112	706,411
15-64 years	2,915,982	3,095,570	3,171,740
65 years and above	617,137	702,697	867,606
Population Share			
Under 15 years	16.5%	15.4%	14.9%
15-64 years	68.9%	69.0%	66.9%
65 years and above	14.6%	15.7%	18.3%
Okanagan-Similkameen			
Total Population	81,772	82,381	84,682
Population Distribution			
Under 15 years	11,004	10,045	9,762
15-64 years	49,283	49,628	48,624
65 years and above	21,473	22,701	26,291
Population Share			
Under 15 years	13.5%	12.2%	11.5%
15-64 years	60.3%	60.2%	57.4%
65 years and above	26.3%	27.6%	31.0%
City of Penticton			
Total Population	32,832	33,547	34,440
Population Distribution			
Under 15 years	4,419	4,178	4,085
15-64 years	19,930	20,712	20,349
65 years and above	8,473	8,658	10,006
Population Share			
Under 15 years	13.5%	12.5%	11.9%
15-64 years	60.7%	61.7%	59.1%
65 years and above	25.8%	25.8%	29.1%

Table 2: Population distribution, City of Penticton and the Province of British Columbia
 Source: Urbanics Consultants Ltd. & Statistics Canada, 2006- 2016 Census

2.3 Fertility Rate

During 2006-2015, the country-wide Age-Specific Fertility Rates¹ (ASFR) were higher among women in the 25-34 age cohort as compared to women younger than 25 and older than 35. Similar to the national trends, during 2006-2015, the women in:

- the 15-24 age group accounted for approximately 24% of the births in the Penticton Local Health Area (LHA) and 16% of the births in the Province of BC;
- the 25-34 age group accounted for approximately 60% of births in the Penticton LHA as well as the Province of BC and,
- the 35-50 age group accounted for approximately 16% of the births in the Penticton LHA and 24% of the births in the Province of BC;

The reader should note that Penticton LHA displays a higher long term (2006-2015) Total Fertility Rate² (TFR of roughly 1.50) as compared to the Province (1.45). However, even at a 1.5 TFR the LHA is expected to display net decrease in population due to natural births and deaths in the community.

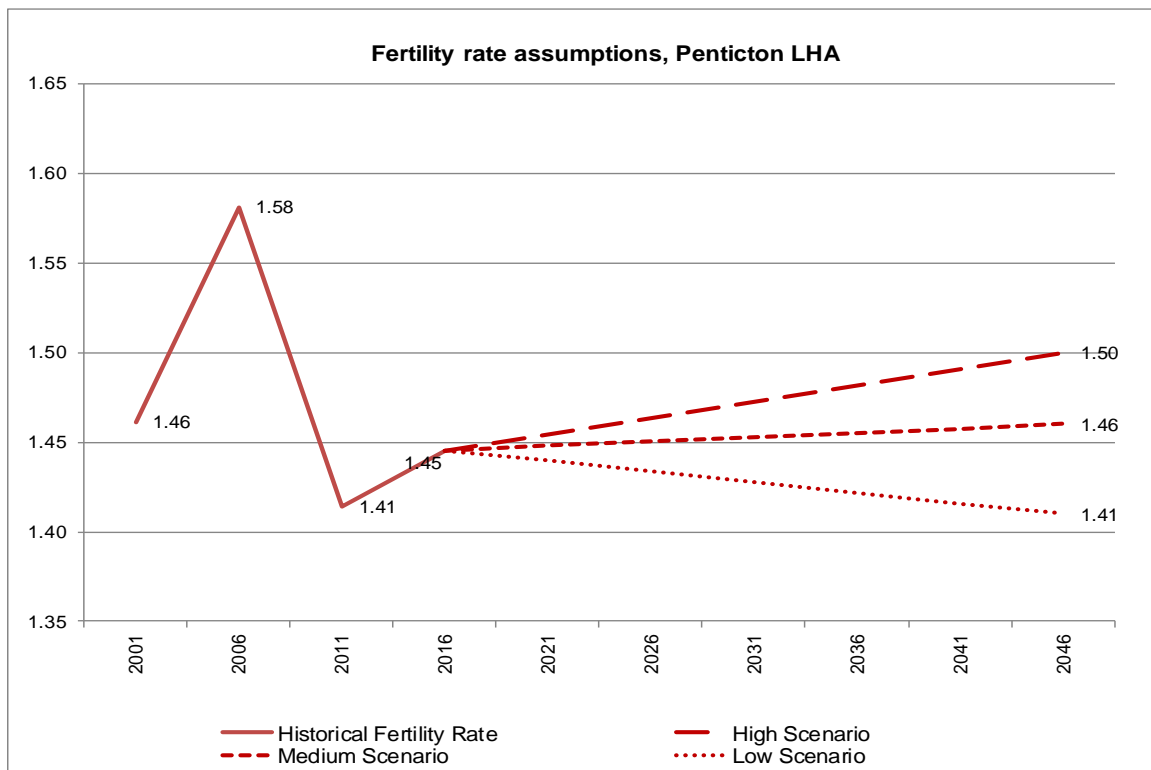


Figure 2: Fertility rate assumptions

Source: Urbanics Consultants Ltd., birth data from Statistics Canada and fertility rates from the Canadian Vital Statistics

¹ Age-specific fertility rate (ASFR) is the number of live births per 1,000 females in a specific age group. Five-year age groups were used in these tabulations (ranging from 15 to 19 years to 45 to 49 years).

² Total fertility rate is an estimate of the average number of live births a female can be expected to have in her lifetime, based on the age-specific fertility rates (ASFR) of a given year. The total fertility rate (TFR) = SUM of single year of age-specific fertility rates. TFR threshold of 2.1 or higher is considered a replacement level fertility rate in developed countries.

The study assumes that the future TFR for the City of Penticton will be similar to the trends in the Penticton LHA. Thus, the projections utilize three TFR scenarios (Figure 2);

- High rate scenario: The high fertility rate scenario assumes that the TFR in the City will increase from 1.45 in 2016 to approximately 1.50 in 2046.
- Medium rate scenario: The medium fertility rate scenario assumes that the TFR in the City will remain roughly stable, with a marginal increase from 1.45 in 2016 to approximately 1.46 in 2046.
- Low fertility rate scenario: The low fertility rate scenario assumes that the TFR for the City will decline to 1.41 by 2046.

2.4 Mortality rates

The life expectancy at birth in the Penticton Local Health Area has increased from 79.07 years in 1987 to 81.64 years in 2015. During this period, life-expectancy for females increased from 82.31 years in 1987 to 83.55 years in 2015. Also, life-expectancy for males increased from 75.91 years in 1987 to 79.67 years in 2015.

The increases in life expectancy in the Penticton LHA are very similar to the provincial trends. By extension, the mortality experiences of the residents of the City of Penticton can also be expected to be similar to the Province.

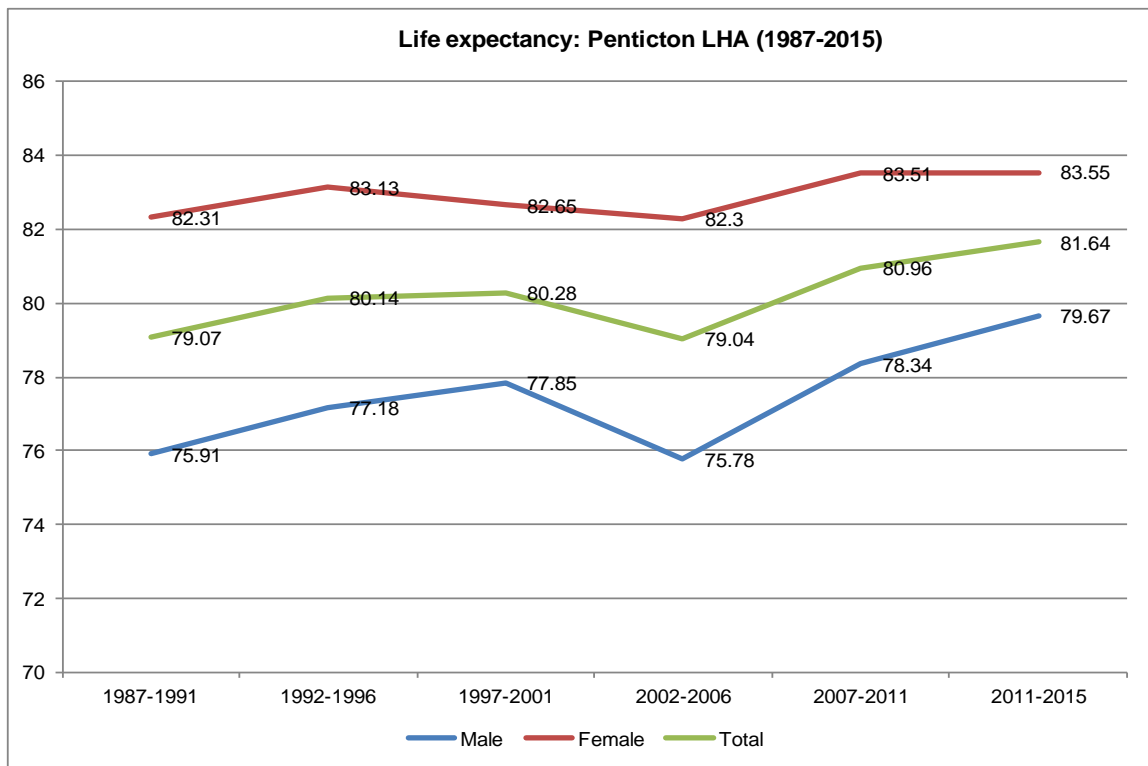


Figure 3: Life expectancy- Penticton LHA
 Source: Urbanics Consultants Ltd. and BC Stats, Ministry of Technology, Innovation and Citizens' Services

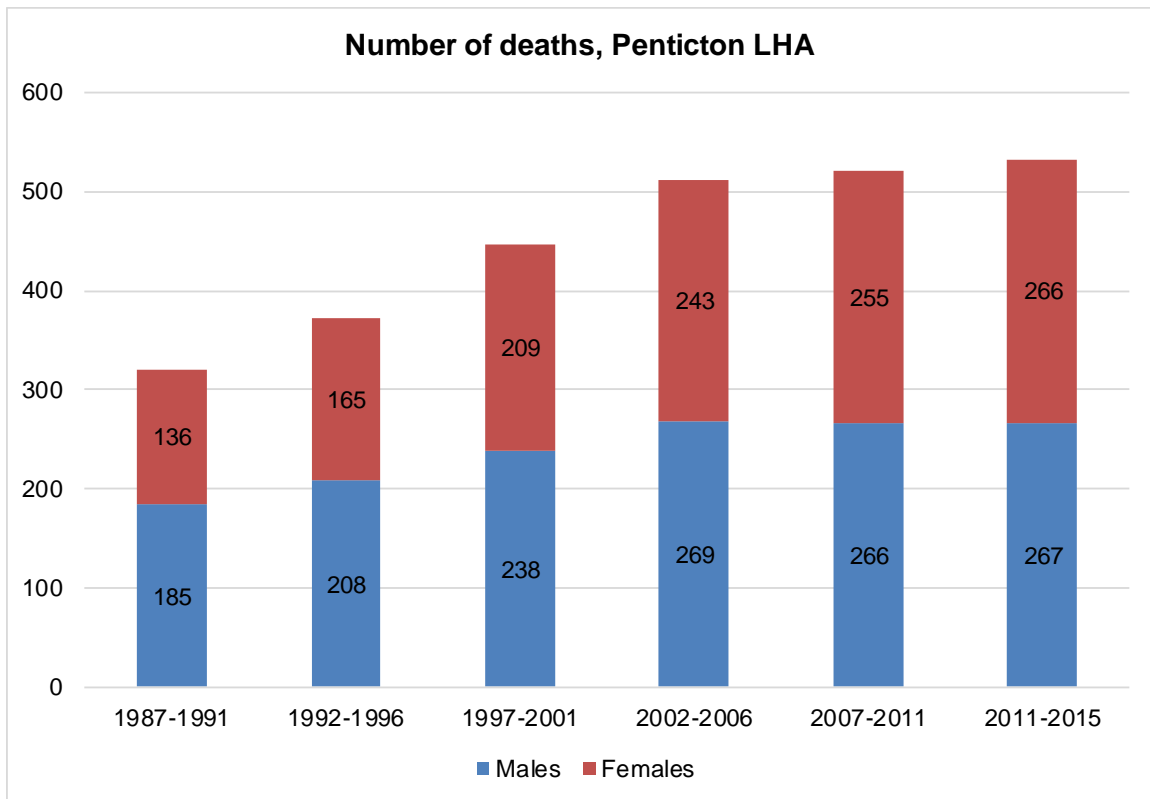


Figure 4: Number of average annual deaths, Penticton LHA 1987 - 2015
Source: Urbanics Consultants Ltd. & Statistics Canada

The reader should note that during the years 2002-2015, the Penticton LHA displayed over 520 deaths on an annual basis. The City of Penticton is assumed to account for a proportional share, based on its relative population size, of the above-mentioned deaths during 2002-2015.

The mortality trends in the community were used to adjust Provincial level age and sex specific life tables (5X5, 2005-2009 and 2010-2011 from the Canadian Human Mortality Database). The adjusted age and sex specific life table were then used to project survival rates for the City (2011 – 2046). The model structure is given by,

$$\ln(m_{x,t}) = a_x + b_x k_t + \varepsilon_{x,t}$$

Where a_x is the age pattern of the log mortality rates averaged across years; b_x reflects the relative change in the log mortality rate at each age; k_t measures the general level of the log mortality rates; and $\varepsilon_{x,t}$ is the residual at age x and year t . The k_t is then adjusted to reflect the observed mortality rates and used to forecast age-specific log mortality rates as well as the age and sex specific survival rates for the study period.

Three sets of survival rates assumptions were generated for the City's population, disaggregated by sex and age cohorts. In all three scenarios the mortality rates declined and survival rates increased for both males and females.

2.5 Migration rates

The historical data suggests that on average approximately 750 people (2002-2016) have migrated to the Okanagan-Similkameen region on an annual basis. This includes the five components of migration, namely immigration, emigration, inter-provincial migration and intra-provincial migration and non-permanent residents. The reader should note that, apart from 2012, most of the years witnessed a migration of 300 to 1,300 people in to the region on an annual basis. The only exception to the positive migration trend was a net out-migration of 539 people in 2012.

The largest proportion of this migration during the last few years is a result of the following three main components:

- Inter-provincial migration: Migration from other provinces such as from Alberta, which might be driven by the recent economic downturn.
- Immigration: Migration from other countries.
- Intra-provincial migration: Migration from other regions within the Province, especially from Metro Vancouver as a result of high housing costs.

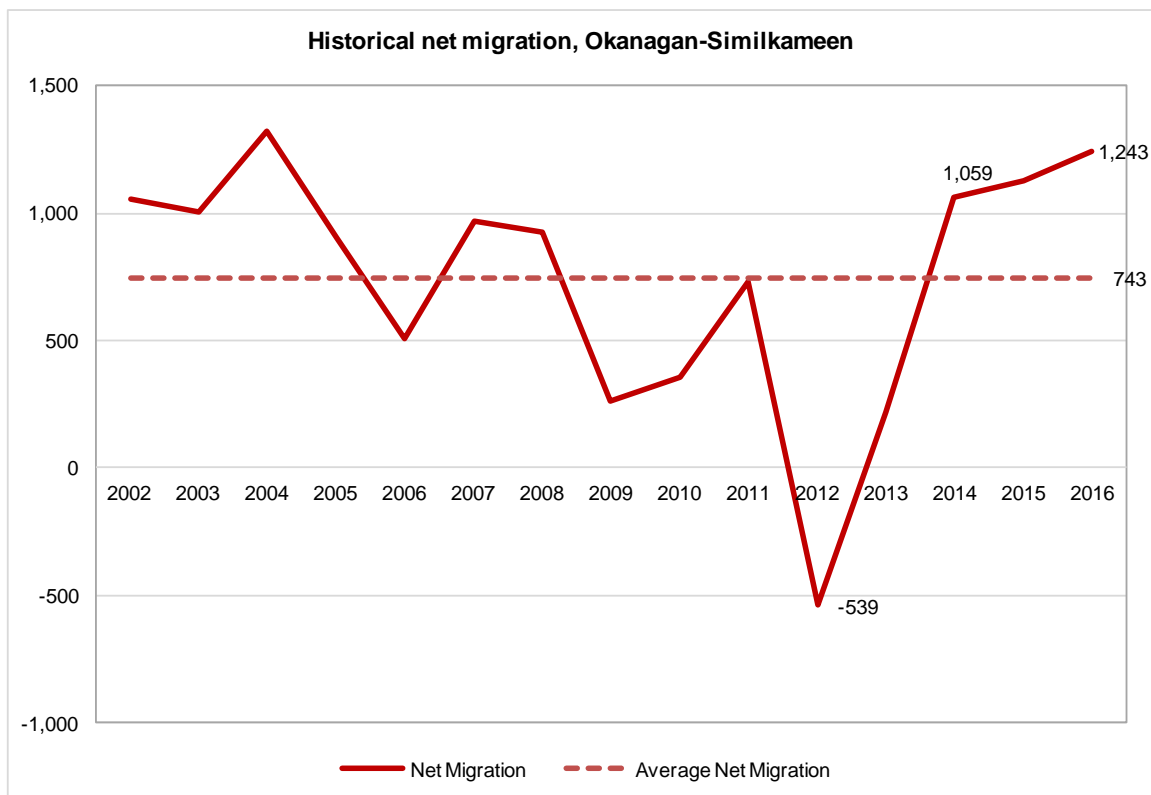


Figure 5: Historical net migration Okanagan-Similkameen
 Source: Urbanics Consultants Ltd. & Statistics Canada, Table 051-0063 (2006-2016)

This report examines three migration scenarios based on the assumption that the migration levels to the City of Penticton will be proportional to or more than the share of City's population as compared to the population of the Regional District (roughly 41 percent) and;

- The low migration scenario assumes a constant migration rate at the current migration level, i.e. an average addition of 310 people in every 5-year period during the study period (proportional to its population size as compared to the Regional District).
- The medium migration scenario assumes that the City of Penticton will witness an increased level of migration over the next three decades, an addition of 372 people annually (50% of the total migration to the Regional District) during 2016-2021 to nearly 734 people annually by 2041-2046.
- The high migration scenario assumes that the City will experience a significantly higher level of migration during the study period. The scenario assumes that the net migration to the community will increase from roughly 410 people annually during 2016-2021 to nearly 1,068 people annually by 2041- 2046.

The study uses the direct method for estimating migration. It utilizes the age and sex specific data on the immigration (people moving to Canada), emigration (people moving away from Canada), inter-provincial migration (migration between provinces and territories), intra-provincial migration (movement within a province) as well as the non-permanent residents (e.g., foreign students and workers, refugees) to develop net-migration estimates for the City.

3 Population Projections

3.1 Cohort-component Method

This report utilizes the cohort-component method for projecting the population of the City of Penticton. This method utilizes the knowledge of age-sex distribution of population at any point of time (base population) along with the most likely assumptions related to the components of demographic change, such as fertility, mortality and migration, to project population growth in a geographic region. This method has the following functional form:

$$P_{i,t} = P_{i-1,t-5} + B_{t-5,t} - D_{i-1,t-5,t} + M_{t-5,t}$$

Where,

P_t = population at time t, age cohort i (5-year age cohorts)

P_{t-5} = population at time t-5 (5-year time intervals), age cohort i-1

$B_{t-5,t}$ = births, in the interval from time t-5 to t

$D_{i-1,t-5,t}$ = deaths, in the interval from time t-5 to t, in the age cohort i-1

$M_{t-5,t}$ = net migration, in the interval from time t-5 to t

The first round of the cohort-component method is executed by utilizing the base population and the assumptions regarding future fertility, mortality and migration (the historical trend, methods and assumptions are covered in the Assumptions sections). Then the results from the first round of projections are utilized to perform a second round of projections for the next 5 years. This process is repeated several times to generate consistent population projections over a defined study period for multiple population growth scenarios.

3.2 Base year

The base year for the population forecast is 2016. The base year population estimates are based on the Census 2016 population counts (Catalogue Number 98-316-X2016001, released on October 25, 2017), disaggregated by 5-year age-cohorts (21 in number) and sex, along with an under-coverage adjustment of 2%.

The 2016 Census counts provide the most recent and detailed population estimate for the City, disaggregated by sex and by 5-year age cohorts.

3.3 Growth scenarios

Table 3 presents the three population growth scenarios for the City. These scenarios are based on the cohort-component method as well as several assumptions related to the future fertility rates, mortality rates, and migration rates for the City of Penticton.

High Growth Scenario: In the high growth scenario, Penticton's population is expected to grow from 34,448 people in 2016 to approximately 47,820 people in 2046 at an annual growth rate of 1.1% during 2016-2046. The high growth scenario is based on the following assumptions:

- an increase in fertility from a TFR of 1.45 in 2016 to 1.50 in 2046;
- an increase in deaths from 390 in 2016 to 620 in 2046; and,
- steady increases in population inflow from migration (from a net annual inflow of 410 people during 2016-2021 to 1,068 people during 2041-2046).

Medium Growth Scenario: In the medium growth scenario, the City's population is expected to grow from 34,448 in 2016 to 41,900 in 2046 at an annual growth rate of approximately 0.65% during the study period. The medium growth scenario is expected to be the most likely population growth scenario for the City. It is based on the following assumptions:

- stable fertility rates with modest increase from a TFR of 1.45 in 2016 to 1.46 in 2046;
- an increase in the number of deaths per year from 392 in 2016 to 612 in 2046; and,
- steady increases in population inflow from migration (from a net annual inflow of 372 people in 2016-2021 to nearly 734 people by 2041-2046).

Low Growth Scenario: In the low growth scenario, the population of the City is expected to increase only slightly from 34,448 in 2016 to nearly 34,590 in 2046 at an annual growth rate of 0.01%. The low growth scenario is based on the following assumptions:

- decline in fertility rates from the TFR of 1.45 in 2016 to 1.41 in 2046;
- an increase in the number of deaths per year from 394 in 2016 to 590 in 2046; and,
- stable population inflow of 310 people annually from migration during each 5-year period during 2016-2046.

Thus, based on the above analyses, the population of the City of Penticton is expected to grow in all three scenarios. Figure 6 and Table 3 provide the population projections under the three scenarios.

	2006	2011	2016	2021	2026	2031	2036	2041	2046
Census Population Counts	32,811	33,549	34,448						
High Growth Scenario				35,790 3.9%	37,450 4.6%	39,480 5.4%	41,560 5.3%	44,370 6.8%	47,820 7.8%
Medium Growth Scenario				35,600 3.3%	36,800 3.4%	38,130 3.6%	39,540 3.7%	41,010 3.7%	41,900 2.2%
Low Growth Scenario				35,270 2.4%	35,820 1.6%	36,130 0.9%	36,100 -0.1%	35,730 -1.0%	34,590 -3.2%

Table 3: Population Projections and growth rates, City of Penticton
 Source: Urbanics Consultants Ltd. & Statistics Canada, 2006-2016 Census

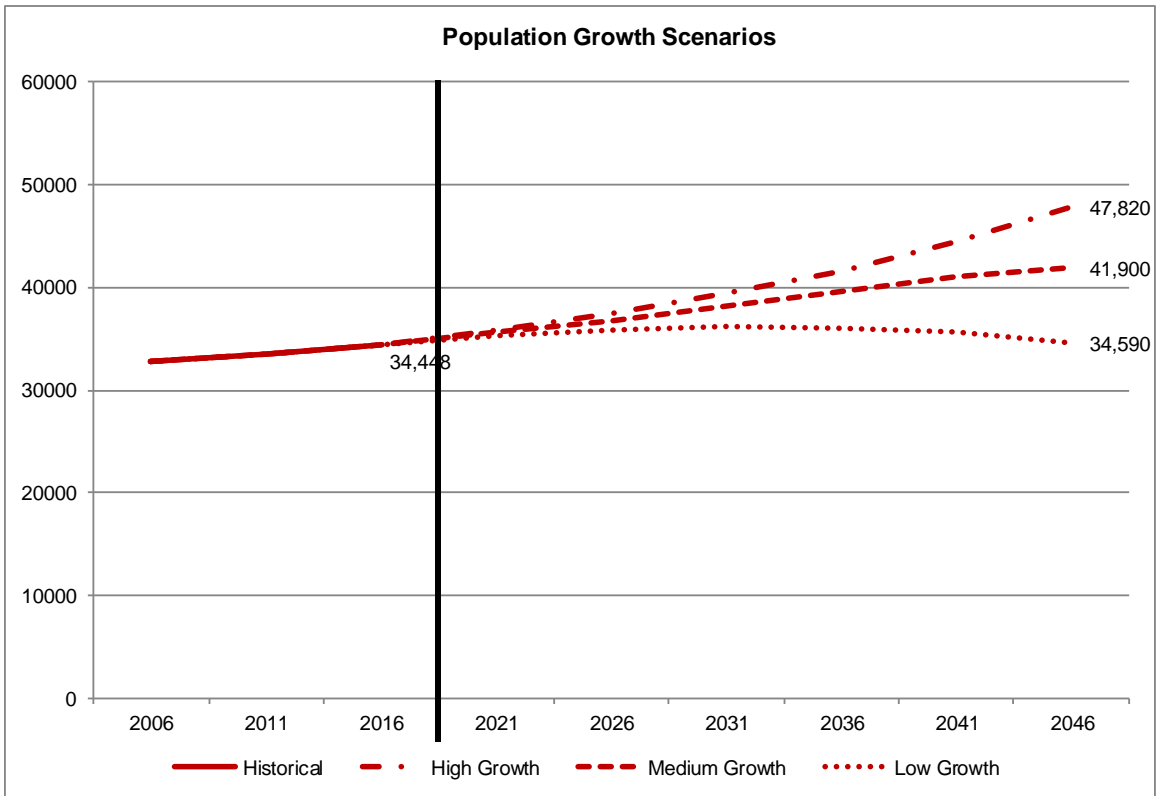


Figure 6: Population growth scenarios, City of Penticton
 Source: Urbanics Consultants Ltd. & Statistics Canada, 2006-2016 Census

3.4 Components of Growth

Table 4 provides the components of growth for all the three population growth scenarios.

Growth Component	2016-2021	2021-2026	2026-2031	2031-2036	2036-2041	2041-2046	5 Yr Avg.
High Growth Scenario							
Births	1,230	1,220	1,190	1,140	1,110	1,210	1,180
Deaths	1,950	2,170	2,330	2,550	2,840	3,110	2,370
Natural Increase	(720)	(950)	(1,140)	(1,410)	(1,730)	(1,900)	(1,190)
Migration	2,050	2,590	3,180	3,490	4,540	5,340	3,170
Net Growth	1,330	1,640	2,040	2,080	2,810	3,440	2,220
Medium Growth Scenario							
Births	1,230	1,200	1,150	1,060	1,020	1,060	1,130
Deaths	1,960	2,180	2,340	2,540	2,820	3,060	2,370
Natural Increase	(730)	(980)	(1,190)	(1,480)	(1,800)	(2,000)	(1,240)
Migration	1,860	2,190	2,530	2,880	3,260	3,670	2,540
Net Growth	1,130	1,210	1,340	1,400	1,460	1,670	1,370
Low Growth Scenario							
Births	1,230	1,180	1,090	940	840	810	1,060
Deaths	1,970	2,180	2,340	2,520	2,770	2,960	2,360
Natural Increase	(740)	(1,000)	(1,250)	(1,580)	(1,930)	(2,150)	(1,300)
Migration	1,550	1,550	1,550	1,550	1,550	1,550	1,550
Net Growth	810	550	300	(30)	(380)	(600)	110

Table 4: Components of population growth, City of Penticton

Source: Urbanics Consultants Ltd.

In the high growth scenario, The City of Penticton is expected to experience positive net growth due to high levels of migration that offset the impact of negative natural growth. Natural increases due to births remain stable, whereas, the number of deaths increase throughout the study period – both of which can be attributed to changes to the demographics of the City's population. As a result of these influences, in the high growth scenario, the City of Penticton is expected to add nearly 2,220 people every 5 years during the study period (2016-2046).

In the medium growth scenario, the City is expected to experience net growth due to positive migration numbers offsetting negative natural growth. As a result, in the medium growth scenario, the City is expected to add up to 1,370 people every five years during the study period.

In the low growth scenario, The City is expected to experience positive net growth until 2031, and experience decline in population during 2031-2046. This is primarily due to higher number of deaths in comparison to births. At the same time, the City is assumed to experience consistent migration throughout the study period 2016-2046. As a result of these influences, in the low growth scenario, the City of Penticton is expected to witness moderate population growth over the study period (110 people every five years during the study period).

3.5 Population Distribution

Based on the medium growth scenario (the most likely scenario), the City of Penticton is expected to display a consistent growth in population (Table 5 and Figure 7). The main findings are:

- The share of population under 15 years is expected to remain stable at 12% until 2036 and then decline to 11% during 2036 to 2046;
- The share of the working age population (15-64 years) is expected to decline from 59% in 2016 to nearly 52% by 2046; and,
- The proportion of seniors in the population is expected to grow from 29% in 2016 to 38% by 2046, or from 10,000 in 2016 to nearly 15,720 by 2046.

Medium Growth Scenario	2006	2011	2016	2021	2026	2031	2036	2041	2046
Population Distribution	4,413	4,178	4,100	4,360	4,530	4,660	4,590	4,510	4,550
	19,931	20,713	20,352	20,120	19,910	20,060	20,620	21,100	21,630
	8,467	8,658	9,996	11,120	12,360	13,410	14,330	15,400	15,720
	32,811	33,549	34,448	35,600	36,800	38,130	39,540	41,010	41,900
% Share	13%	12%	12%	12%	12%	12%	12%	11%	11%
	61%	62%	59%	57%	54%	53%	52%	51%	52%
	26%	26%	29%	31%	34%	35%	36%	38%	38%

Table 5: Population distribution (% Share)
 Source: Urbanics Consultants Ltd. & Statistics Canada, 2006-2016 Census

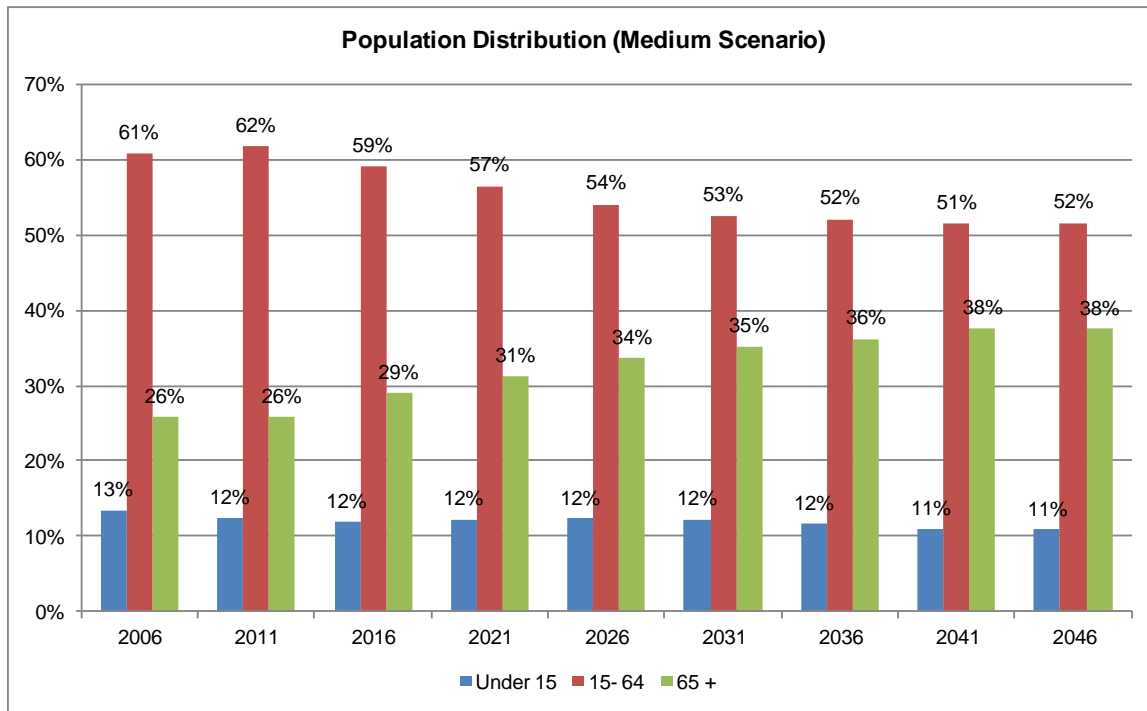


Figure 7: Projected population distribution, medium growth scenario
 Source: Urbanics Consultants Ltd. & Statistics Canada, 2006-2016 Census

4 Housing needs implications

This section examines the implications of the above-described population projections on the emerging housing needs of the City. The reader should note that this study uses the cohort-component method to project the population of the City during 2016 – 2046. This method uses 2016 Census population counts and historical trends related to the three components of population growth, including the fertility, mortality and migration rates, to project future population.

This is in contrast to the Housing Needs Assessment (HNA) study (2016), which was based on the 2011 Census population counts and the BC Stats population projections for the Penticton LHA (2016-2046). The HNA applied the Penticton LHA's population growth rates (sex and age-cohort specific growth rates) to the 2011 population counts of the City to project population and household growth over the study period. In addition, the distribution of housing tenure and dwelling types was used to estimate the emerging housing needs of the City during 2016 – 2046.

A comparison of the population projections from the two methods is provided below:

Projection Projection	2011	2016	2021	2026	2031	2036	2041	2046
Cohort-Component	33,549	34,448	35,600	36,800	38,130	39,540	41,010	41,900
BC Stats based HNA	33,549	34,298	35,953	37,514	38,953	40,189	41,143	42,268
Difference		150	-353	-714	-823	-649	-133	-368
% Difference wrt. C-C Estimate		0.4%	-1.0%	-1.9%	-2.2%	-1.6%	-0.3%	-0.9%
Overall 2016 - 2026								
Cohort-Component								7,452
BC Stats based HNA								7,970
Difference								-518
% Difference wrt. 2046 C-C Estimate								-1.2%

Table 6: Comparison of population projections

Source: Urbanics Consultants Ltd. & Statistics Canada, 2011-2016 Census

Table 6 provides the comparative assessment of the population projections in the above-mentioned studies. It is evident that the cohort-component based population projections are marginally lower than the BC Stats based population projections in the Housing Needs Assessment (2016). The estimates are however within a reasonable spread ($\pm 5\%$ of the HNA estimates). Moreover, the difference in population growth in the two projections is only 518 people over a 30-year period, which is roughly 1.2% of the 2046 cohort-component based estimate.

The client should note that the 2016 population of 34,298 in the Housing Needs Study (2016) is not significantly different from the 2016 Census population count of 33,765 plus an under-coverage adjustment of 2% or 34,448.

Table 7 provides the comparative assessment of the two household projections. The cohort-component based household projections are marginally lower than the BC Stats based household projections in the Housing Needs Assessment (2016). The estimates are however within a reasonable spread ($\pm 5\%$ of the HNA estimates).

Much of the difference in the number of households is due to the 2016 household numbers. 2016 Census suggests that there are roughly 271 fewer households as compared to the HNA 2016 estimates. This represents roughly 60% of the overall difference (271 out of 447 households) in the projections. In addition, the overall difference in household growth in the two projections is only 447 households over a 30-year period (15 households a year), which is roughly 2.2% of the 2046 cohort-component based estimate. Thus, both the methods result in estimates within reasonable bounds of each other and do not warrant a comprehensive review of the 2016 Housing Needs Assessment.

Household Projection	2011	2016	2021	2026	2031	2036	2041	2046
Cohort-Component	15,240	15,745	16,618	17,393	18,122	18,930	19,763	20,207
BC Stats based HNA	15,240	16,016	16,985	17,813	18,494	19,061	19,505	20,031
Difference		-271	-367	-420	-372	-131	258	176
% Difference wrt. C-C Estimate		-1.7%	-2.2%	-2.4%	-2.1%	-0.7%	1.3%	0.9%
Overall 2016 - 2026								
Cohort-Component								4,462
BC Stats based HNA								4,015
Difference								447
% Difference wrt. 2046 C-C Estimate								2.2%

Table 7: Comparison of household projections

Source: Urbanics Consultants Ltd.

4.1 Household growth

This section further illustrates the implications of the population projections on the housing needs of the City. It provides the household growth projections for the City of Penticton based on the cohort-component method and household maintainer rates from Census 2016 (Table 8) and compares it to the HNA estimates. The differences are:

- Cohort-component based household projection: Suggest an increase of 4,462 households during 2016-2046. This translates to 744 households every five years or 149 on an annual basis. Most of the projected growth will be among senior households (3,434 out of 4,462 households or 77 percent of the total household growth), i.e. the age of the household maintainer is 65 years and over.
- Housing Needs Assessment: Projected an increase of 4,015 households during 2016-2046. This translated to 669 households every five years or 134 on an annual basis. As per the HNA, most of the projected household growth was also among senior households (2,524 out of 4,015 households or 63 percent of the total household growth).

Households	2011	2016	2021	2026	2031	2036	2041	2046	Average
Under 25 years	520	410	314	286	309	340	368	373	
25 to 34 years	1,585	1,525	1,545	1,420	1,128	1,074	1,191	1,340	
35 to 44 years	1,830	1,740	1,728	1,666	1,710	1,590	1,281	1,241	
45 to 54 years	3,000	2,630	2,783	3,053	3,135	3,169	3,335	3,322	
55 to 64 years	2,905	3,440	3,577	3,547	3,790	4,152	4,343	4,497	
65 to 74 years	2,340	2,870	3,253	3,586	3,753	3,765	4,043	4,436	
75 years and over	3,060	3,130	3,419	3,835	4,298	4,840	5,201	4,997	
	15,240	15,745	16,618	17,393	18,122	18,930	19,763	20,207	
Household growth									
5 year period		505	873	775	729	807	833	445	744
Annual		101	175	155	146	161	167	89	149

Table 8: Household growth projections (2016-2046)

Source: Urbanics Consultants Ltd.

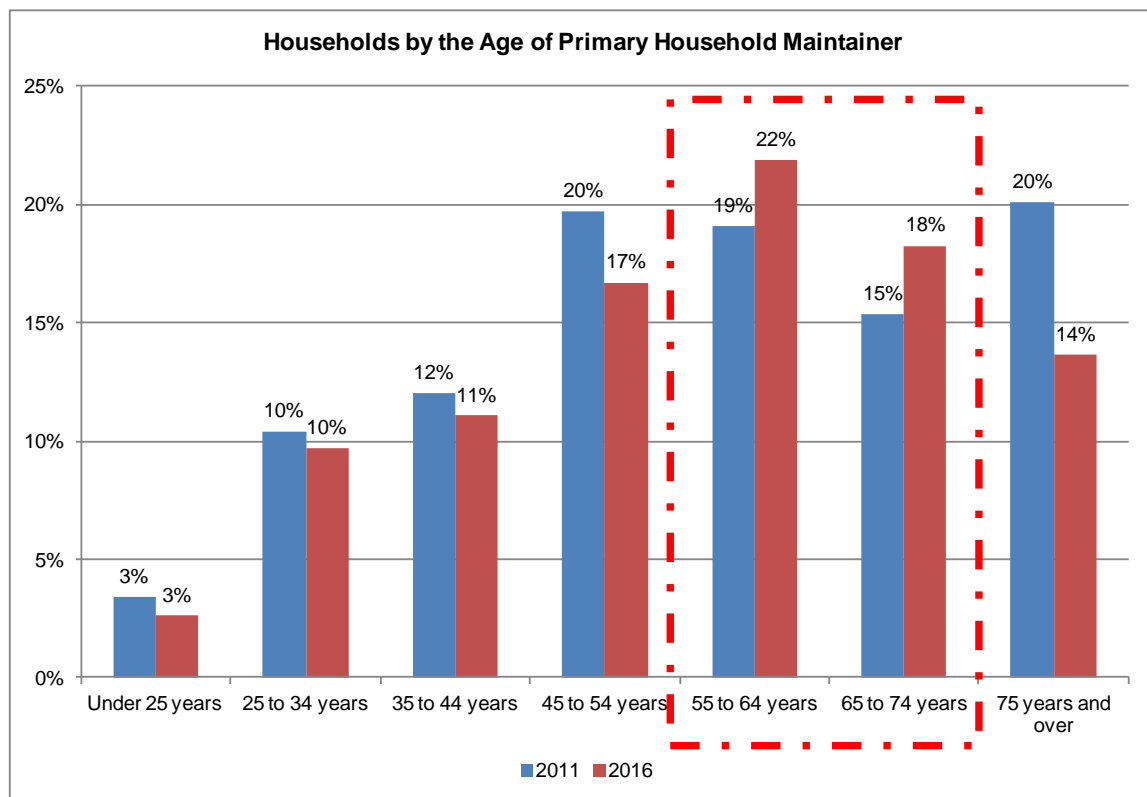


Figure 8: Households by the age of primary household maintainer (2011-2016)

Source: Urbanics Consultants Ltd

The main difference in household estimates is a result of significant changes in the share of households by age of the primary household maintainers in the 2011 Census and the 2016 Census. More specifically, 2016 Census suggests a significant rise in the share of households with maintainers in the age of 55 to 64 years and 65 to 74 years, compared to the 2011 Census. It also suggests a drop in the share of households with maintainers with ages below 54 years and above 75 years. This could potentially be a result of retirement-age homeowners cashing out on their higher priced homes in other parts of the Province (Metro Vancouver) and moving to lower-priced housing in the City. This trend is expected to continue over the next few years and is expected to result in the continued greying of the City’s population.

4.2 Housing needs

Further, based on the assumption that the 2016 household maintainer rates by tenure would remain largely stable during 2016-2046; the owner-occupied and renter-occupied housing needs in the City are expected to be as follows:

Owner-occupied	2011	2016	2021	2026	2031	2036	2041	2046	Average
Under 25 years	28	25	19	17	19	21	22	23	
25 to 34 years	610	605	613	563	447	426	473	532	
35 to 44 years	960	945	939	905	929	863	696	674	
45 to 54 years	1,928	1,635	1,730	1,898	1,949	1,970	2,073	2,065	
55 to 64 years	2,022	2,395	2,490	2,470	2,639	2,891	3,024	3,131	
65 to 74 years	1,609	2,085	2,363	2,605	2,727	2,735	2,937	3,223	
75 years and over	2,154	2,260	2,469	2,769	3,103	3,495	3,756	3,608	
	9,311	9,950	10,623	11,227	11,812	12,401	12,980	13,256	
Housing needs									
5 year period		639	673	605	585	588	580	276	551
Annual		128	135	121	117	118	116	55	110

Table 9: Owner-occupied housing needs

Source: Urbanics Consultants Ltd.

Renter-occupied	2011	2016	2021	2026	2031	2036	2041	2046	Average
Under 25 years	492	385	294	269	290	319	346	350	
25 to 34 years	975	920	932	857	680	648	719	808	
35 to 44 years	870	795	790	761	781	726	585	567	
45 to 54 years	1,072	995	1,053	1,155	1,186	1,199	1,262	1,257	
55 to 64 years	883	1,045	1,087	1,078	1,151	1,261	1,319	1,366	
65 to 74 years	731	785	890	981	1,027	1,030	1,106	1,213	
75 years and over	906	870	950	1,066	1,195	1,345	1,446	1,389	
	5,929	5,795	5,995	6,166	6,310	6,529	6,782	6,951	
Housing needs									
5 year period		-134	200	171	144	219	253	169	193
Annual		-27	40	34	29	44	51	34	39

Table 10: Rental housing needs

Source: Urbanics Consultants Ltd.

The household growth projections, by tenure, suggest that the City would need on average 551 new owned housing units (Table 9) in every five-year period or about 110 units per year (vs. 432 new owned housing units in every five-year period or about 87 units per year in the HNA). In addition, an average of about 193 new rental units (Table 10) or about 39 rental units per year (vs. an average of 237 new rental units or about 48 rental units per year in the HNA).

Table 11 provides the number of households that are likely to experience core housing need. The projections suggest that 95 new owner households and 137 new renter households (vs. 86 new owner households and 155 new renter households in the HNA) are likely to be in core housing need in every five-year period. It is based on the assumption that the share of owner households in core housing need will increase marginally from 6 percent in 2011 to 9 percent in 2046 and the share of renter households in core housing need will increase from 37 percent in 2011 to 44 percent in 2046.

Baseline	2011	2016	2021	2026	2031	2036	2041	2046	Average
Owner occupied	9,311	9,950	10,623	11,227	11,812	12,401	12,980	13,256	
Renter-occupied	5,929	5,795	5,995	6,166	6,310	6,529	6,782	6,951	
Total housing needs	15,240	15,745	16,618	17,393	18,122	18,930	19,763	20,207	
Net housing needs									
Owner occupied									
5 year period		639	673	605	585	588	580	276	551
Annual		128	135	121	117	118	116	55	110
Renter-occupied									
5 year period		-134	200	171	144	219	253	169	193
Annual		-27	40	34	29	44	51	34	39
Core housing needs									
Owner occupied	512	593	683	774	869	970	1,076	1,160	
Renter-occupied	2,200	2,203	2,335	2,458	2,574	2,723	2,891	3,027	
Net needs									
Owner-occupied									
5 year period		81	90	91	95	101	106	84	95
Annual		16	18	18	19	20	21	17	19
Renter-occupied									
5 year period		3	132	123	116	149	168	136	137
Annual		1	26	25	23	30	34	27	28

Table 11: Core housing needs
Source: Urbanics Consultants Ltd.

Housing Needs	Cohort-component	BC Stats based HNA
Total Housing Needs		
Owner-occupied	110 DU/year	87 DU/year
Renter-occupied	39 DU/year	47 DU/year
Core Housing needs		
Owner-occupied	19 DU/year	17 DU/year
Renter-occupied	28 DU/year	31 DU/year

Table 12: Comparison of housing needs (Cohort-component vs. HNA)
Source: Urbanics Consultants Ltd.

Table 12 provides the difference in housing needs estimates from the two studies. The cohort-component based study estimates a higher need for owner-occupied housing (110 units per year) as compared to the HNA (87 units per year). However, it estimates a lower need for rental housing as compared to the HNA (39 units per year as compared to 47 units per year in the HNA). The differences in the estimates related to the households in the core housing needs are fairly similar for both the studies.

4.3 Housing needs by dwelling type

This section examines the housing needs of the City by dwelling types and compares it to the estimates from the Housing Needs Assessment (2016). The past trends related to occupied private dwellings in the City suggest that the share of single-detached homes has declined from 55% in 1991 (Census 1991) to 43% in 2016 (Census 2016), while the share of other dwelling types has steadily increased during the same period. We expect the share of single-detached homes to further decline during the study period from 43% in 2016 to 39% in 2046. In addition, we expect the share of semi-detached, row house, duplex and other attached houses to increase from 19.3% in 2016 to 22% by 2046. The share of apartments in buildings with 5 or more storeys is expected to increase from 6% in 2016 to 7% in 2046 for apartments. Also, the share of apartments in buildings with fewer than 5 storeys is expected to increase from 28% in 2016 to 29% in 2046. It is assumed that the share of movable dwellings will stay constant during the study period.

Dwelling Type	2016	2021	2026	2031	2036	2041	2046	2016-2046
Single detached house	6,749	6,982	7,162	7,314	7,488	7,662	7,679	929
Semi-detached, row house, duplex and other attached	3,032	3,278	3,517	3,761	4,038	4,338	4,571	1,539
Apartment with five or more stories	946	1,014	1,078	1,142	1,211	1,285	1,335	389
Apartment with fewer than five storeys	4,438	4,709	4,954	5,189	5,449	5,718	5,878	1,440
Movable dwellings	580	613	641	668	698	728	745	164
Total Housing Needs	15,745	16,595	17,353	18,074	18,884	19,732	20,207	4,462

Table 13: Housing needs by dwelling types
Source: Urbanics Consultants Ltd.

The distribution of the City's housing need by dwelling types, during the study period (2016 to 2046), is expected to be as follows:

Dwelling Type	Cohort-component	Housing Needs Study (2016)	Difference in the # of Units
Single detached house	929	644	285
Semi-detached, row house, duplex and other attached	1,539	1,503	36
Apartment with five or more stories	389	415	-26
Apartment with fewer than five storeys	1,440	1,317	123
Movable dwellings	164	136	28
Total Housing Needs	4,462	4,015	447

Table 14: Comparison of housing needs by dwelling types (Cohort-component vs. HNA)
Source: Urbanics Consultants Ltd.

Overall, the differences in the household projections and housing needs estimates are minor among most dwelling types, except in the case of single-detached units (285 units). Even in the case of the single-detached category the difference is primarily due to a lower 2016 count as compared to the estimate based on the 2011 Census. This could potentially be driven by errors in the Census datasets, actual shifts in household types (for example a greater share of senior households) and housing types (for example preference for other dwelling types) or a higher share of single-detached homes being vacant or occupied by non-permanent residents.

Thus, a comprehensive review of the Housing Needs Assessment (2016) is not warranted at this time. The City will be well served by conducting a review in the next 5 – 10 years, when newer Census and housing data becomes available.

5 Conclusions

The population projections presented in this report are based on assumptions regarding the future fertility, mortality and migration rates in the City of Penticton. The population projection provides the most likely path of population growth in the City.

The major findings from this study are:

- **Population growth:** The population of the City of Penticton is expected to grow from 34,448 people in 2016 to 41,900 people in 2046, at an annual growth rate of approximately 0.65% (medium growth scenario). Thus, the City is expected to experience net growth due to consistent positive migration that will offset the negative natural growth (i.e. growth due to births and deaths). As a result, it is expected to add on an average up to 1,370 people every five years during 2016-2046.
- **Age distribution:**
 - Under 15 years: The share of population under 15 years is expected to remain stable at 12% until 2036 and then decline to 11% during 2036 to 2046. This translates to a growth in this demographic segment from 4,100 in 2016 to nearly 4,550 by 2046.
 - 15-64 years: While the share of population in the 15-64 years age cohort is expected to decline from 59% in 2016 to approximately 52% by 2046. This translates to a growth in the working-age population from 20,352 in 2016 to nearly 21,630 by 2046.
 - 65 years and over: Population aged 65 years and over is expected to increase significantly during the projection period and result in increased demand for various municipal and provincial services. The proportion of seniors in the population is expected to grow from 29% in 2016 to nearly 38% by 2046. This translates to a growth in the population aged 65 years and over from nearly 10,000 in 2016 to nearly 15,720 by 2046 (medium growth scenario).
- **Household growth:** The number of households in the City of Penticton is expected to grow from 15,745 in 2016 to 20,207 in 2046. This translates to a household growth of 4,462 net new households (vs. 4,015 in the Housing Needs Assessment, 2016- HNA) or roughly 150 households (vs. 134 households in the HNA) on an annual basis during 2016 – 2046. Much of this growth will be in senior households (3,434 out of 4,462 households), i.e. the age of the household maintainer is 65 years and over, followed by households with maintainers in the 35 – 64 years age group (1,250 out of 4,462 households). The number of younger households i.e. the age of the household maintainer is 25-34 years, is expected to decline by 11% (222 households) over the projection period.
- **Housing needs:** The City is expected to require an average of 110 net new owned housing and 39 net new rental units per year, during 2016 – 2046 (vs. 87 net new owned housing units and 48 net new rental units per year in the HNA).

- **Housing needs by dwelling types:** The overall distribution of City’s housing need by dwelling types, during the study period (2016 to 2046) is as follows:
 1. Single detached house 929 units (vs. 644 units in the HNA)
 2. Semi-detached, row house, duplex & other attached units 1,539 units (vs. 1,503 units in the HNA)
 3. Apartment with 5 or more stories 389 units (vs. 415 units in the HNA)
 4. Apartment, with fewer than 5 storeys 1,440 units (vs. 1,317 units in the HNA)
 5. Movable dwellings 164 units (vs. 136 units in the HNA)

Overall, the differences in the housing needs estimates are minor among most of the dwelling types. These range from a difference of 10 single-detached units a year to a difference of only one movable dwelling a year. Moreover, the projected core housing needs of the City are not significantly different in the two projections.

- Considering that the differences in housing needs estimates are fairly small, a comprehensive review of the Housing Needs Assessment (2016) is not warranted at this time. The City will be well served by conducting a review in the next 5 – 10 years, when newer Census and housing data becomes available.

Appendix A: High Growth Scenario

TOTAL POPULATION

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	1,193	1,372	1,275	1,427	1,439	1,443	1,405	1,445	1,592
5-9	1,435	1,265	1,448	1,486	1,670	1,719	1,747	1,778	1,875
10-14	1,785	1,541	1,377	1,466	1,507	1,694	1,747	1,779	1,815
15-19	2,047	1,837	1,632	1,285	1,388	1,440	1,634	1,698	1,738
20-24	1,770	1,740	1,551	1,186	906	1,065	1,143	1,400	1,500
25-29	1,538	1,765	1,653	1,752	1,419	1,175	1,340	1,498	1,809
30-34	1,512	1,684	1,770	1,729	1,841	1,522	1,283	1,478	1,658
35-39	1,661	1,647	1,719	1,628	1,608	1,736	1,426	1,208	1,414
40-44	2,258	1,852	1,724	1,806	1,729	1,725	1,859	1,584	1,391
45-49	2,654	2,398	1,974	2,288	2,455	2,478	2,538	2,852	2,728
50-54	2,438	2,852	2,479	2,480	2,869	3,126	3,199	3,431	3,880
55-59	2,186	2,555	3,024	2,960	3,038	3,511	3,813	4,056	4,420
60-64	1,867	2,383	2,826	3,158	3,124	3,234	3,709	4,078	4,368
65-69	1,749	1,934	2,652	2,887	3,239	3,237	3,378	3,882	4,286
70-74	1,893	1,766	2,142	2,562	2,802	3,158	3,170	3,327	3,832
75-79	1,852	1,821	1,796	1,968	2,368	2,602	2,943	2,964	3,119
80-84	1,543	1,540	1,601	1,615	1,772	2,136	2,352	2,670	2,696
85+	1,430	1,597	1,805	2,110	2,265	2,475	2,876	3,246	3,693
TOTAL	32,811	33,549	34,448	35,792	37,439	39,477	41,560	44,374	47,814

Males

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	622	673	668	690	692	690	677	680	746
5-9	684	663	724	783	823	846	867	882	915
10-14	890	750	719	741	803	846	872	897	917
15-19	1,075	898	796	658	690	759	809	840	870
20-24	880	893	796	567	464	524	619	689	738
25-29	751	857	811	824	601	504	570	671	749
30-34	710	837	857	827	843	624	531	601	707
35-39	787	770	847	795	773	797	585	498	573
40-44	1,049	867	806	872	825	809	838	634	555
45-49	1,229	1,148	908	1,124	1,238	1,247	1,295	1,398	1,280
50-54	1,142	1,311	1,153	1,155	1,408	1,565	1,625	1,731	1,901
55-59	1,070	1,224	1,387	1,376	1,415	1,705	1,909	2,022	2,191
60-64	838	1,138	1,301	1,400	1,397	1,443	1,736	1,947	2,071
65-69	797	888	1,265	1,413	1,533	1,558	1,635	1,956	2,202
70-74	895	781	979	1,255	1,406	1,531	1,567	1,653	1,977
75-79	823	816	750	892	1,151	1,295	1,415	1,452	1,536
80-84	617	668	729	661	788	1,020	1,151	1,262	1,299
85+	509	551	683	853	870	984	1,223	1,432	1,616
TOTAL	15,368	15,733	16,179	16,888	17,720	18,746	19,922	21,245	22,842

Females

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	571	699	607	737	747	753	727	766	846
5-9	751	602	724	703	846	873	880	896	960
10-14	895	791	658	725	704	848	875	882	898
15-19	972	939	836	626	698	681	825	858	868
20-24	890	847	755	619	442	541	524	711	761
25-29	787	908	842	928	818	671	770	827	1,060
30-34	802	847	913	903	998	898	752	877	951
35-39	874	877	872	833	834	939	840	710	841
40-44	1,209	985	918	934	904	917	1,021	950	837
45-49	1,425	1,250	1,066	1,164	1,217	1,231	1,244	1,454	1,449
50-54	1,296	1,541	1,326	1,325	1,462	1,560	1,574	1,700	1,979
55-59	1,116	1,331	1,637	1,584	1,623	1,806	1,904	2,034	2,229
60-64	1,029	1,245	1,525	1,758	1,728	1,792	1,973	2,132	2,298
65-69	952	1,046	1,387	1,474	1,705	1,679	1,743	1,925	2,084
70-74	998	985	1,163	1,306	1,397	1,627	1,603	1,674	1,855
75-79	1,029	1,005	1,046	1,076	1,217	1,307	1,528	1,512	1,583
80-84	926	872	872	955	984	1,116	1,202	1,408	1,396
85+	921	1,046	1,122	1,257	1,395	1,490	1,653	1,814	2,078
TOTAL	17,443	17,816	18,269	18,904	19,719	20,731	21,638	23,130	24,972

Appendix B: Medium Growth Scenario

TOTAL POPULATION

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	1,193	1,372	1,275	1,417	1,402	1,365	1,297	1,277	1,348
5-9	1,435	1,265	1,448	1,475	1,636	1,642	1,628	1,585	1,592
10-14	1,785	1,541	1,377	1,465	1,494	1,656	1,664	1,652	1,612
15-19	2,047	1,837	1,632	1,278	1,376	1,413	1,583	1,597	1,592
20-24	1,770	1,740	1,551	1,156	847	984	1,057	1,259	1,304
25-29	1,538	1,765	1,653	1,742	1,366	1,077	1,235	1,332	1,560
30-34	1,512	1,684	1,770	1,725	1,821	1,454	1,175	1,342	1,448
35-39	1,661	1,647	1,719	1,618	1,587	1,696	1,341	1,072	1,248
40-44	2,258	1,852	1,724	1,801	1,709	1,687	1,805	1,463	1,206
45-49	2,654	2,398	1,974	2,259	2,386	2,350	2,388	2,571	2,302
50-54	2,438	2,852	2,479	2,454	2,782	2,959	2,978	3,076	3,323
55-59	2,186	2,555	3,024	2,934	2,955	3,329	3,557	3,635	3,796
60-64	1,867	2,383	2,826	3,148	3,078	3,116	3,504	3,751	3,852
65-69	1,749	1,934	2,652	2,877	3,209	3,158	3,215	3,614	3,876
70-74	1,893	1,766	2,142	2,556	2,782	3,112	3,073	3,140	3,534
75-79	1,852	1,821	1,796	1,964	2,356	2,574	2,891	2,861	2,929
80-84	1,543	1,540	1,601	1,614	1,766	2,120	2,320	2,614	2,591
85+	1,430	1,597	1,805	2,105	2,252	2,449	2,833	3,170	2,785
TOTAL	32,811	33,549	34,448	35,589	36,803	38,140	39,544	41,010	41,900

Males

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	622	673	668	687	677	656	619	606	638
5-9	684	663	724	778	806	808	799	776	778
10-14	890	750	719	740	795	826	829	823	802
15-19	1,075	898	796	654	681	742	777	785	783
20-24	880	893	796	552	433	481	559	612	635
25-29	751	857	811	823	582	467	518	600	656
30-34	710	837	857	826	839	602	488	541	626
35-39	787	770	847	791	765	784	552	444	500
40-44	1,049	867	806	871	817	795	817	590	485
45-49	1,229	1,148	908	1,108	1,200	1,178	1,190	1,249	1,063
50-54	1,142	1,311	1,153	1,142	1,363	1,479	1,485	1,526	1,616
55-59	1,070	1,224	1,387	1,364	1,375	1,615	1,756	1,789	1,860
60-64	838	1,138	1,301	1,398	1,380	1,395	1,636	1,779	1,818
65-69	797	888	1,265	1,405	1,513	1,512	1,544	1,796	1,955
70-74	895	781	979	1,252	1,392	1,501	1,507	1,545	1,794
75-79	823	816	750	891	1,146	1,278	1,383	1,391	1,430
80-84	617	668	729	660	786	1,013	1,133	1,229	1,239
85+	509	551	683	851	866	976	1,207	1,402	1,563
TOTAL	15,368	15,733	16,179	16,792	17,418	18,109	18,800	19,482	20,243

Females

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	571	699	607	730	725	709	679	672	710
5-9	751	602	724	698	829	834	828	809	814
10-14	895	791	658	725	699	830	835	830	810
15-19	972	939	836	624	694	671	805	812	809
20-24	890	847	755	604	414	503	498	648	669
25-29	787	908	842	919	784	610	718	732	904
30-34	802	847	913	900	982	853	686	801	823
35-39	874	877	872	828	822	911	789	628	748
40-44	1,209	985	918	930	892	892	988	873	721
45-49	1,425	1,250	1,066	1,152	1,186	1,171	1,198	1,322	1,239
50-54	1,296	1,541	1,326	1,311	1,420	1,479	1,493	1,550	1,706
55-59	1,116	1,331	1,637	1,570	1,580	1,713	1,801	1,846	1,936
60-64	1,029	1,245	1,525	1,751	1,698	1,721	1,869	1,972	2,034
65-69	952	1,046	1,387	1,472	1,695	1,646	1,671	1,818	1,921
70-74	998	985	1,163	1,303	1,390	1,611	1,567	1,595	1,740
75-79	1,029	1,005	1,046	1,073	1,210	1,295	1,508	1,469	1,499
80-84	926	872	872	954	980	1,107	1,188	1,385	1,352
85+	921	1,046	1,122	1,253	1,386	1,472	1,625	1,769	1,222
TOTAL	17,443	17,816	18,269	18,797	19,385	20,031	20,744	21,529	21,657

Appendix C: Low Growth Scenario

TOTAL POPULATION

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	1,193	1,372	1,275	1,402	1,347	1,252	1,110	1,005	979
5-9	1,435	1,265	1,448	1,458	1,584	1,530	1,435	1,294	1,189
10-14	1,785	1,541	1,377	1,464	1,474	1,600	1,545	1,451	1,310
15-19	2,047	1,837	1,632	1,268	1,355	1,365	1,491	1,437	1,342
20-24	1,770	1,740	1,551	1,108	744	831	841	967	913
25-29	1,538	1,765	1,653	1,725	1,283	921	1,007	1,017	1,143
30-34	1,512	1,684	1,770	1,719	1,791	1,350	989	1,075	1,085
35-39	1,661	1,647	1,719	1,604	1,552	1,625	1,185	825	911
40-44	2,258	1,852	1,724	1,794	1,679	1,628	1,700	1,262	903
45-49	2,654	2,398	1,974	2,213	2,282	2,168	2,118	2,190	1,754
50-54	2,438	2,852	2,479	2,412	2,649	2,718	2,605	2,555	2,626
55-59	2,186	2,555	3,024	2,893	2,827	3,062	3,130	3,019	2,970
60-64	1,867	2,383	2,826	3,133	3,005	2,941	3,171	3,239	3,130
65-69	1,749	1,934	2,652	2,862	3,162	3,039	2,978	3,203	3,270
70-74	1,893	1,766	2,142	2,547	2,750	3,041	2,924	2,867	3,085
75-79	1,852	1,821	1,796	1,959	2,338	2,530	2,807	2,700	2,649
80-84	1,543	1,540	1,601	1,612	1,759	2,099	2,275	2,530	2,436
85+	1,430	1,597	1,805	2,100	2,241	2,425	2,788	3,090	2,890
TOTAL	32,811	33,549	34,448	35,272	35,823	36,125	36,099	35,724	34,586

Males

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	622	673	668	681	654	606	535	482	468
5-9	684	663	724	768	781	754	706	635	583
10-14	890	750	719	739	783	796	769	721	650
15-19	1,075	898	796	648	668	711	724	697	650
20-24	880	893	796	527	379	399	443	456	429
25-29	751	857	811	820	552	405	425	468	481
30-34	710	837	857	824	834	567	420	439	483
35-39	787	770	847	784	752	761	495	349	369
40-44	1,049	867	806	868	806	774	783	519	373
45-49	1,229	1,148	908	1,082	1,144	1,082	1,050	1,059	796
50-54	1,142	1,311	1,153	1,122	1,294	1,355	1,294	1,263	1,272
55-59	1,070	1,224	1,387	1,345	1,314	1,484	1,545	1,485	1,454
60-64	838	1,138	1,301	1,394	1,353	1,324	1,490	1,551	1,492
65-69	797	888	1,265	1,393	1,483	1,444	1,417	1,579	1,638
70-74	895	781	979	1,248	1,371	1,458	1,423	1,397	1,554
75-79	823	816	750	889	1,139	1,254	1,337	1,306	1,285
80-84	617	668	729	659	783	1,004	1,108	1,184	1,159
85+	509	551	683	850	863	970	1,193	1,369	958
TOTAL	15,368	15,733	16,179	16,641	16,951	17,148	17,156	16,959	16,093

Females

	2006	2011	2016	2021	2026	2031	2036	2041	2046
0-4	571	699	607	721	693	646	576	523	510
5-9	751	602	724	690	803	776	729	659	606
10-14	895	791	658	725	691	804	777	730	659
15-19	972	939	836	621	688	653	767	740	693
20-24	890	847	755	580	365	432	398	511	484
25-29	787	908	842	905	731	516	583	549	662
30-34	802	847	913	895	957	783	569	636	602
35-39	874	877	872	819	801	864	690	476	542
40-44	1,209	985	918	925	873	854	917	744	530
45-49	1,425	1,250	1,066	1,132	1,139	1,086	1,068	1,131	958
50-54	1,296	1,541	1,326	1,290	1,355	1,362	1,310	1,292	1,354
55-59	1,116	1,331	1,637	1,549	1,513	1,578	1,585	1,534	1,516
60-64	1,029	1,245	1,525	1,739	1,652	1,617	1,681	1,689	1,638
65-69	952	1,046	1,387	1,469	1,679	1,594	1,561	1,624	1,632
70-74	998	985	1,163	1,299	1,379	1,583	1,502	1,470	1,531
75-79	1,029	1,005	1,046	1,070	1,199	1,276	1,470	1,394	1,364
80-84	926	872	872	953	976	1,095	1,167	1,346	1,277
85+	921	1,046	1,122	1,250	1,378	1,456	1,595	1,720	1,933
TOTAL	17,443	17,816	18,269	18,631	18,872	18,977	18,943	18,765	18,492