

Peace River Regional District Seniors' Needs Project
Population Background and Trends Report

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Acknowledgements

From May 2006 to May 2007 the Peace River Regional District and the Community Development Institute at UNBC worked on a project to enhance the understanding of the housing and service needs of older residents. In the late Fall of 2006, a survey was circulated in the Regional District (outside of Fort St. John and Taylor, where an earlier survey had been completed). We would like to thank all those who took the time to complete and return the survey. Also, we would like to thank the community contacts who assisted in the distribution of the survey, including Mike Redfearn and Janine Disher of Chetwynd, Elaine Peterson of Dawson Creek, Mayor Lenore Harwood of Hudson's Hope, Peter Thomas of Pouce Coupe, and Roxanne Gale of Tumbler Ridge.

In the Winter of 2007, our research team visited Dawson Creek, Pouce Coupe, Tumbler Ridge, Chetwynd, Hudson's Hope, and rural areas of Electoral Areas B, C, D, and E of the Peace River Regional District. The research team conducted key informant interviews and roundtable discussions as part of the Peace River Regional District Seniors' Needs Project. We wish to thank all the residents, community groups, business members, service providers, policy makers, and municipal staff who took the time to help out and to participate in the interviews and roundtable discussions. Also, we would like to thank community contacts who assisted in the organization of the roundtable discussions, including Harold Borass, Barb Braun, Chris Broad, Darlene Campbell, Ian Campbell, Rose Colledge, Jill Copes, Elaine Ferguson, Doug Foerster, Marcie Fofonoff, Nicole Garbitt, Peter Kut, Annie Madden, Susan Michaud, Sharon Sullivan, John and Martha Wall, and Eleanor Wilfur. The response and enthusiasm demonstrates the importance of this issue within the region.

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Chelan Hoffman, Regine Halseth, Don Manson, Greg Halseth, and Neil Hanlon
Prince George, May 2007

Availability

Copies of all reports associated with the Peace River Regional District Seniors' Needs Project are available in a number of locations. In Chetwynd, Dawson Creek, Fort St. John, Hudson's Hope, Pouce Coupe, Taylor, and Tumbler Ridge, copies are available at local municipal halls and public libraries. In Dawson Creek and Fort St. John, copies have been deposited with the Peace River Regional District offices. In Chetwynd, Dawson Creek, Hudson's Hope, and Pouce Coupe, copies have also been given to the local seniors' hall. At the University of Northern British Columbia, copies have been deposited at the Geoffrey R. Weller Library. Reports can also be accessed on the Community Development Institute website:

<http://www.unbc.ca/cdi/research.html>

Project Reports

- Methodology Report
- Population Background and Trends Report
- Survey / Interview Report
- Roundtable Theme Report
- Executive Summary Report

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Peace River Regional District Seniors' Needs Project Population Background and Trends Report

1.0 Project Description

Since the 1980s, Canada's population has been aging. In small towns, the provision of housing, services, and facilities influences the decisions of individuals when choosing to retire in a community. In the Peace River Regional District, there were about 3,300 people over the age of 65 in 1991, but by 2001 there were about 4,350 people over age 65 (Statistics Canada, 1991; Statistics Canada, 2001a). The increase in the number of older residents, and the increase in the number of residents who wish to remain in the region when they retire, have raised the level of interest in how the community, local services, and available housing options will meet the needs of a growing seniors' population. As a result, UNBC's Community Development Institute and the Peace River Regional District are working together to assess the needs of older residents.

The purpose of the Peace River Regional District Seniors' Needs Project is to examine housing and support service needs for seniors in the communities and rural areas of the region. The work was carried out by a research team from UNBC with the goal of providing local leaders with information relevant to decision-making regarding community planning and infrastructure investments. The project was carried out in the Fall of 2006 and Winter of 2007 (Table 1.1).

Table 1.1 Timeline

May – July 2006	<ul style="list-style-type: none"> • Project application developed • Funding confirmed • Project Contribution Agreement confirmed • UNBC Research Ethics Board process completed • Research team established
August 2006	<ul style="list-style-type: none"> • Relevant local planning documents identified and obtained • Project logistics schedule completed <ul style="list-style-type: none"> ○ Field work ○ Household survey
September 2006	<ul style="list-style-type: none"> • Draft household survey • Draft interview guides • Draft roundtable guides
October 2006	<ul style="list-style-type: none"> • Review of draft household survey and information letters by Project Advisory Group • Teleconference meeting with Project Advisory Group
November 2006	<ul style="list-style-type: none"> • Initiate household survey distribution <ul style="list-style-type: none"> ○ Rural mail out ○ Municipal partnerships • Construct survey databases (SPSS and WORD) • Media releases to publicize household survey
December 2006	<ul style="list-style-type: none"> • Complete household survey distribution • Household survey data entry begins • Finalize contacts for interviews and roundtables
January 2007	<ul style="list-style-type: none"> • Household survey data entry completed • Initiate population change report • Edit interview and roundtable guides
February 2007	<ul style="list-style-type: none"> • Organize interviews and roundtables for assessment of seniors' needs • Preliminary analysis of household survey • Conduct key informant interviews • Conduct community roundtables
March 2007	<ul style="list-style-type: none"> • Analysis of interview and roundtable data • Complete population analysis • Complete interview and roundtable analysis • Complete survey analysis
April 2007	<ul style="list-style-type: none"> • Complete draft project reports
May 2007	<ul style="list-style-type: none"> • Review of draft project reports with Regional District and Project Advisory Group • Final reports completed and distributed

2.0 Methodology

The data for this section of the project was collected through a review of Statistics Canada's Census population data. The Census is undertaken every five years and provides information on the age distribution of local populations. While the age groupings at which population information is reported does vary between Census periods, it is possible to reconstruct the recent population history of the region. Analysis of this population data assessed the following issues:

- 1) the rates of population growth in the pre- and post-retirement age groups,
- 2) the rates of seniors' retention, as estimated by the age structure of the population over time and the number of seniors remaining in the community, and
- 3) an estimate of potential growth in the seniors' population based on the current age distribution of the population.

In the tables and figures below, data for the Peace River Regional District are derived from Statistics Canada's Census Division (CD) and Census Subdivision (CSD) categories. In BC, CDs correspond with the boundaries of Regional Districts and CSDs correspond with municipal boundaries. For the Electoral Areas of the Peace River Regional District (B, C, D and E), however, it must be noted that population information is not as straightforward to obtain or compare. It is not collected at a geographic scale that would allow it to be simply added to the municipality data. Instead, it is grouped with a larger area comprising part of the unorganized territory of the Peace River Regional District.

In March 2007, Statistics Canada released the first round of results from the 2006 Census. This release included only the total population counts for CDs and CSDs. Where possible, these results have been used in this report.

A caution about the data contained within concerns the Census recording of First Nations and aboriginal population data. The collection of Census data from these groups by Statistics Canada should be treated as 'undercounting' First Nations and aboriginal populations.

3.0 Population Change

Table 3.1a shows the population counts from 1971 to 2006 for the Peace River Regional District and the province of British Columbia (BC). The population of the Peace River Regional District has grown by about 14,250 from 1971 to 2006 (over 32%). There was modest growth from 1971 and 1976, a large increase between 1976 and 1981, a modest increase again between 1981 and 1986, and then a decline between 1986 and 1991. By 1996 the population experienced an increase, followed by a small decline by 2001. Between 2001 and 2006, the population experienced growth again. As of the 2006 Census, the Peace River Regional District has recorded its largest population.

The population of BC has grown by about 1.9 million people from 1971 to 2006. The population has consistently increased each Census period since 1971; however, there have been periods of growth that have been greater than others. Of note, smaller increases were seen between 1971 and 1976, and 1981 and 1996. The periods of smaller growth coincide with small increases seen in the Peace River Regional District.

The Peace River Regional District still has a strong reliance on resource industries such as oil, natural gas, forestry, and agriculture. Difficulties in the forest industry over the late 1990s and early 2000s have had a limiting influence on population growth. To balance this, increased oil and gas activity has contributed to population growth in the region.

Table 3.1a Population Counts, Peace River RD & BC, 1971-2006

Year	Peace River RD	BC
1971	43,996*	2,184,621
1976	44,842*	2,392,790
1981	55,463*	2,744,467
1986	57,278*	2,883,367
1991	53,317	3,282,061
1996	56,477	3,724,500
2001	55,080	3,907,738
2006	58,264	4,113,487

Source: Statistics Canada.

* In 1987, the Peace River-Liard Regional District was divided to create the Northern Rockies Regional District and the Peace River Regional District. The numbers here represent the Peace River-Liard Regional District at the time.

Table 3.1b Population Counts, Peace River Municipalities, 1971-2006

Year	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
1971	1,260	11,885	1,740	595	--
1976	1,487	10,528	1,330	776	--
1981	2,553	11,373	1,365	824	3
1986	2,774	10,544	1,158	813	4,387
1991	2,845	10,980	985	830	4,650
1996	2,980	11,125	1,120	895	3,775
2001	2,591	10,754	1,039	833	1,851
2006	2,633	10,994	1,012	739	2,454

Source: Statistics Canada.

In Table 3.1b, we can see that the municipalities have all experienced periods of growth and decline since 1971. Interestingly, Dawson Creek and Hudson's Hope recorded their highest population counts in 1971. However, Chetwynd has more than doubled in population since 1971. Pouce Coupe recorded its highest population count in 1996. Tumbler Ridge recorded its highest population count in 1991, but experienced a large change as a result of coal mine closures and openings.

As shown in Table 3.2a, the percent population change in the Peace River Regional District has demonstrated a general growth trend with exceptions in two Census periods. Of important note, the population of the Peace River Regional District increased by almost 24% between 1976 and 1981. This was followed by much slower growth in the next 5 year period. Between 1986 and 1991, the region experienced almost 7% decline in population, followed by almost 6% growth in the next 5 year period. The period from 1996 to 2001 also saw a small population decline, followed by an almost 6% growth between 2001 and 2006.

When compared against BC, the Peace River Regional District has generally experienced slower growth rates than that of BC. The exceptions were between 1976 and 1981, and between 2001 and 2006.

Table 3.2a Percent Population Change, Peace River RD & BC, 1971-2006

Year	Peace River RD	BC
1971-1976	1.9	9.5
1976-1981	23.7	14.7
1981-1986	3.3	5.1
1986-1991	-6.9	13.8
1991-1996	5.9	13.5
1996-2001	-2.5	4.9
2001-2006	5.8	5.3

Source: Statistics Canada.

Table 3.2b Percent Population Change, Peace River Municipalities, 1971-2006

Year	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
1971-1976	18.0	-11.4	-23.6	30.4	--
1976-1981	71.7	8.0	2.6	6.2	--
1981-1986	8.7	-7.3	-15.2	-1.3	--
1986-1991	2.6	4.1	-14.9	2.1	6.0
1991-1996	4.7	1.3	13.7	7.8	-18.8
1996-2001	-13.1	-3.4	7.1	-7.3	-50.9
2001-2006	1.7	2.3	-2.7	-11.0	32.3

Source: Statistics Canada.

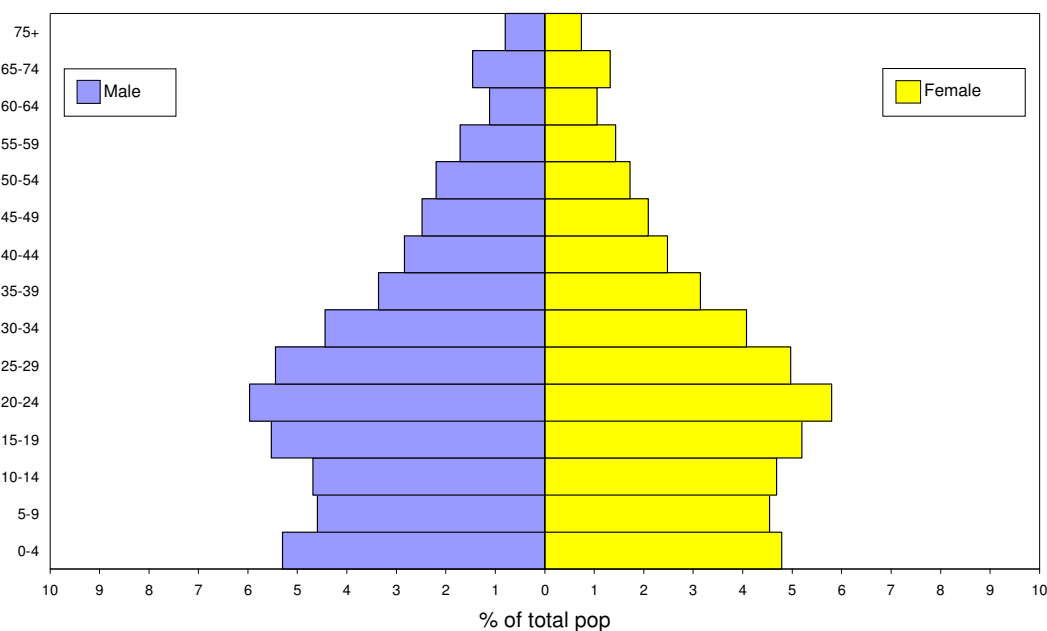
As shown in Table 3.2b, the percent population changes in the municipalities have fluctuated between 1971 and 2006. Between 1976 and 1981, all municipalities experienced growth. The most profound change occurred in Chetwynd where local population increased by almost 72%.

As described for many places across northern BC, population aging is affecting the types of services and housing needed in our communities. The following section takes up this theme and looks at the changing age structure of populations in the Peace River Regional District.

4.0 Population Pyramids

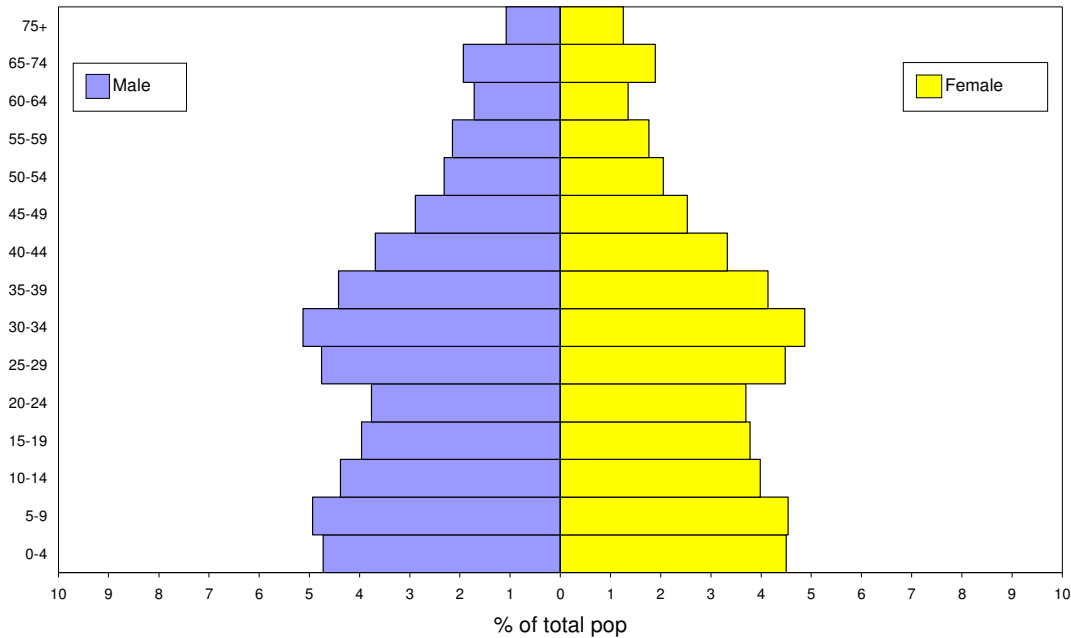
Against this backdrop of population growth and decline are changes in the age structure of the local population. Changes in age structure are driven by factors such as youth out-migration and aging-in-place. Population pyramids provide a ‘picture’ of the local population at any given point of time. Broken down by males and females, the pyramids identify the proportion of the population within particular age groups. As a result, pyramids can provide a useful tool for illustrating how a local population is changing over time. Figures 4.1 through 4.6 are the population pyramids for the Peace River Regional District and the municipalities from 1981, 1991, and 2001.

Figure 4.1a Peace River Regional District Population Pyramid – 1981



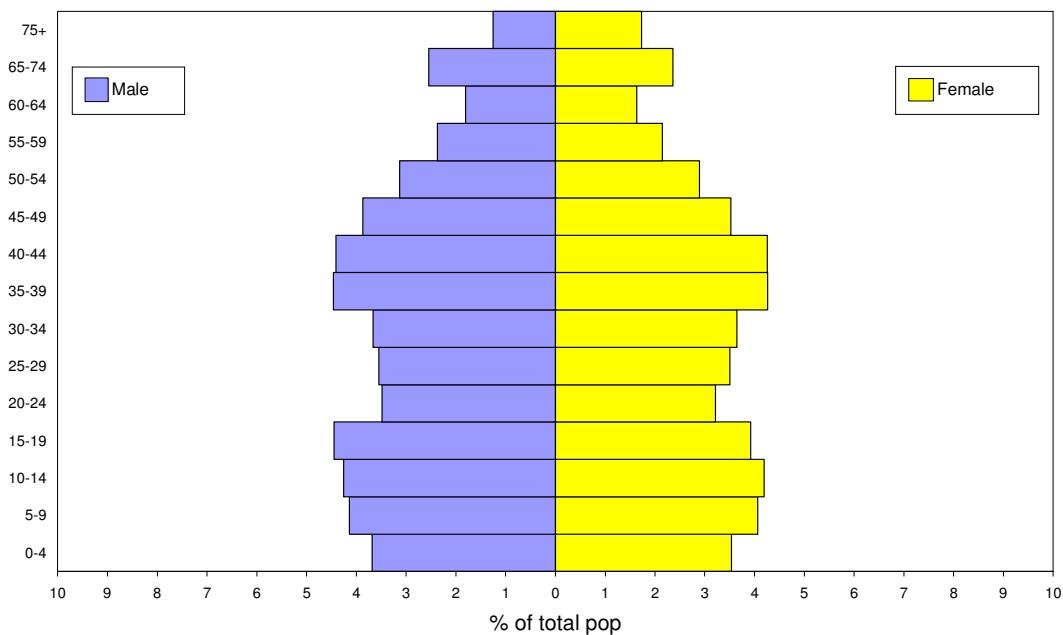
The population pyramids for the Peace River Regional District show a pattern typical of most resource industry regions. In 1981, the population is dominated by young adults and families (Figure 4.1a). This is shown by the large proportion of the local population in the 20 to 34 year age groups and the corresponding 0 to 9 year age groups. In places like the Peace River Regional District, young families are drawn by the work opportunities of an expanding resource sector (in this case, it is the mining, and oil and gas industries). The 25 to 34 year age groups are also notable as they show a larger share of males in the community than females.

Figure 4.1b Peace River Regional District Population Pyramid – 1991



By 1991, the shape of the population pyramid is starting to change as the population is getting a little older and the male to female ratio is becoming more balanced (Figure 4.1b). While the region still has young families, the share of the population in the 20 to 24 year age group has declined. There are also greater shares of the population in the 40 to 49 year age groups compared to ten years ago. Of note, there are more females than males in the 75+ age group.

Figure 4.1c Peace River Regional District Population Pyramid – 2001



By 2001, the trend towards population aging is more pronounced. There are proportionately fewer young families (Figure 4.1c), while the share of the population over the age of 40 continues to increase. Also, there continues to be more females than males in the 75+ age group.

The three population pyramids demonstrate that there are fewer young families in the Peace River Regional District, and that there are increasing proportions of older populations. This is indicative of aging-in-place populations.

The remainder of this section addresses population trends in each of the municipalities. One caution with population pyramids for smaller populations (i.e. Hudson's Hope, Pouce Coupe and Tumbler Ridge) concerns the Census procedure of 'rounding' small numbers to either '5' or '0'. Since Hudson's Hope population is small (1,035 in 2001), once the total is broken down by males and females, and into each of the 15 age groups, the numbers in each category are quite small. As a result, Census rounding procedures can have a big impact and make the diagrams look distorted. While more difficult to interpret, the population pyramids for these smaller communities illustrate some of the more general themes seen in northern BC.

Chetwynd

Figures 4.2a, 4.2b, and 4.2c show population pyramids for Chetwynd in 1981, 1991, and 2001 respectively. In 1981, the population is mostly comprised of young adults and families (Figure 4.2a). This is shown by the large proportion of the population in the 20 to 34 year age groups and the corresponding 0 to 9 year age groups. Also, across most age groups over the age of 15 show a greater proportion of males. Exceptions to this are in the 60 to 64 year age group and the 75+ age group, where male and female ratios are mostly equal.

By 1991, the shape of the population pyramid is starting to change as the population is getting older (Figure 4.2b). While the community still has young families, the share of the population in the 20 to 24 year age group has declined indicating out-migration of younger populations. There are also greater shares of the population in the 40 to 49 year age groups compared to ten years earlier. The ratio of males to females has become more balanced.

By 2001, the trend towards population aging is seen more clearly. There are proportionately fewer children in the 0 to 9 age groups and fewer people in the 25 to 34 year age groups (Figure 4.2c). In contrast, the share of the population over the age of 40 continues to increase. We are also starting to see more females than males in the 65+ age groups.

Figure 4.2a Chetwynd Population Pyramid – 1981

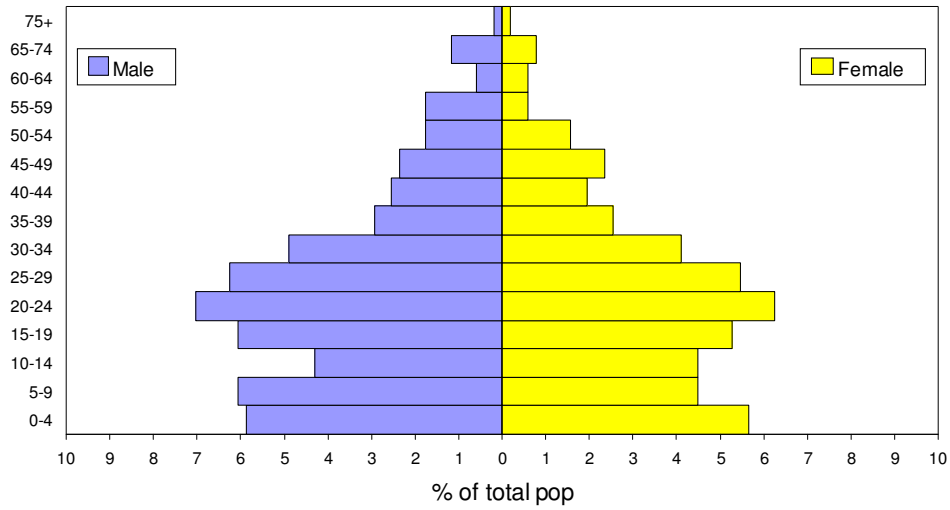


Figure 4.2b Chetwynd Population Pyramid – 1991

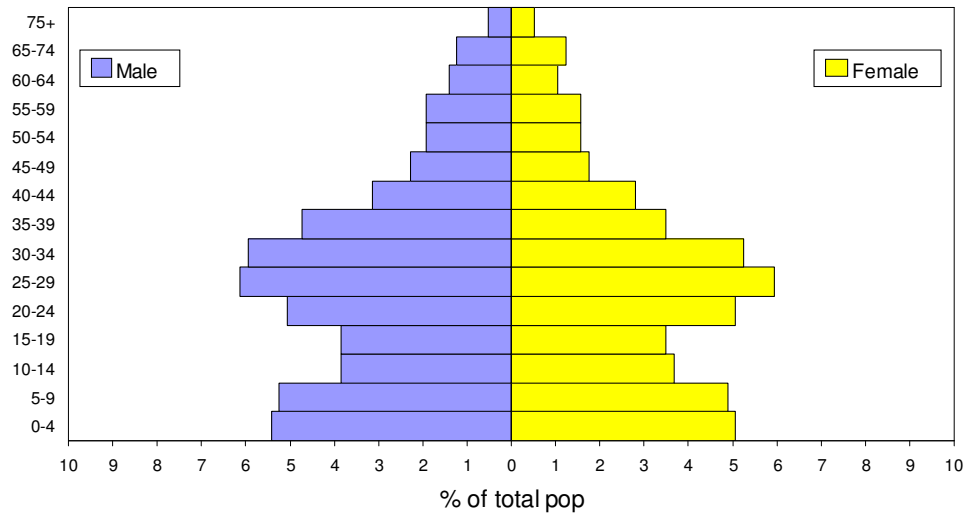
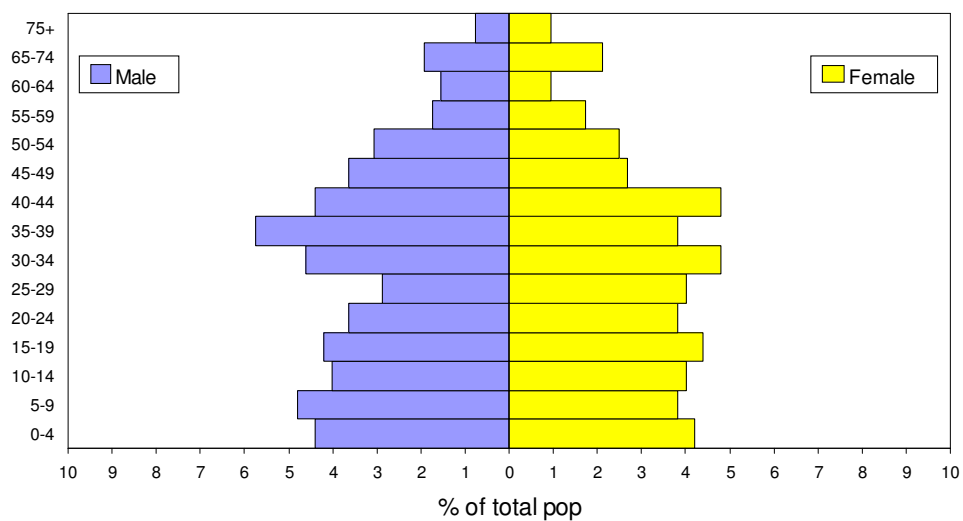


Figure 4.2c Chetwynd Population Pyramid – 2001



Dawson Creek

Figures 4.3a, 4.3b, and 4.3c show population pyramids for Dawson Creek in 1981, 1991, and 2001 respectively. In 1981, young families are present in Dawson Creek. This is indicated by the greater shares of the population in the 20 to 34 year age groups, and the corresponding 0 to 4 year age groups. However, there are greater proportions of the population in the 35 and above age groups. Additionally, there are proportionately more females than males in the 65 to 74 year age group.

By 1991, the shape of the population pyramid is starting to change as the population is getting older (Figure 4.3b). While the community still has young families, the share of the population in the 20 to 24 year age group has declined. We can also see that the ‘bubble’ of working aged populations are moving further up the population pyramid.

By 2001, the trend towards population aging is clear as the shape of the diagram becomes more rectangular. There are proportionately fewer children in the 0 to 9 age groups and fewer people in the 25 to 34 year age groups (Figure 4.3c). Additionally, the share of the population over the age of 40 continues to increase. There continues to be more females than males in the 65+ age groups.

Figure 4.3a Dawson Creek Population Pyramid – 1981

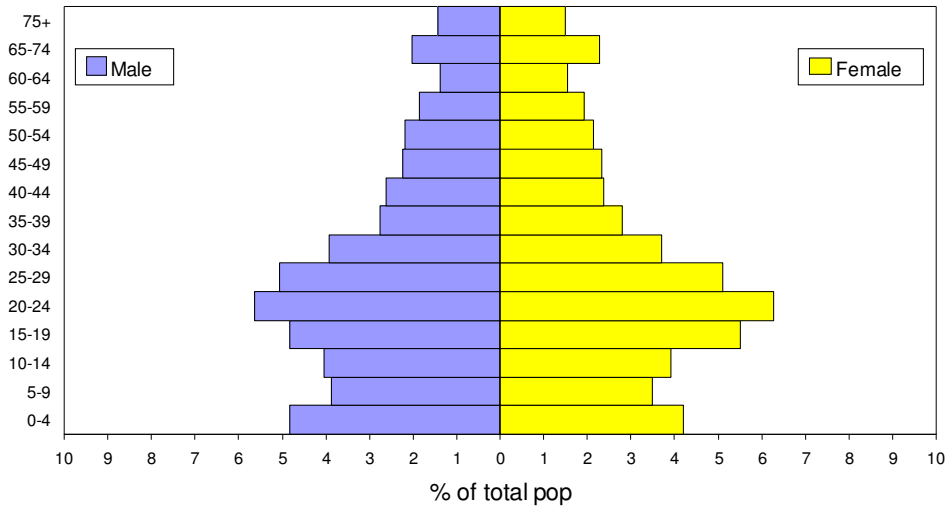


Figure 4.3b Dawson Creek Population Pyramid – 1991

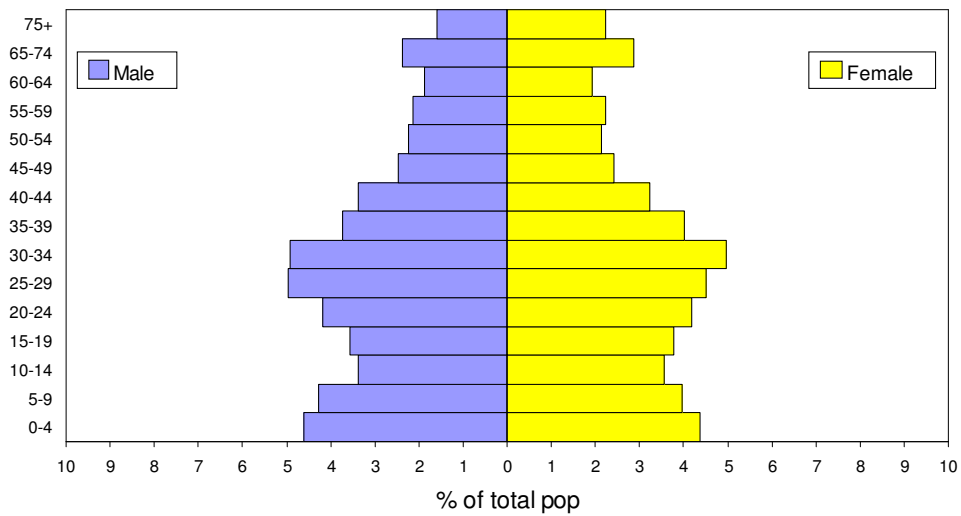
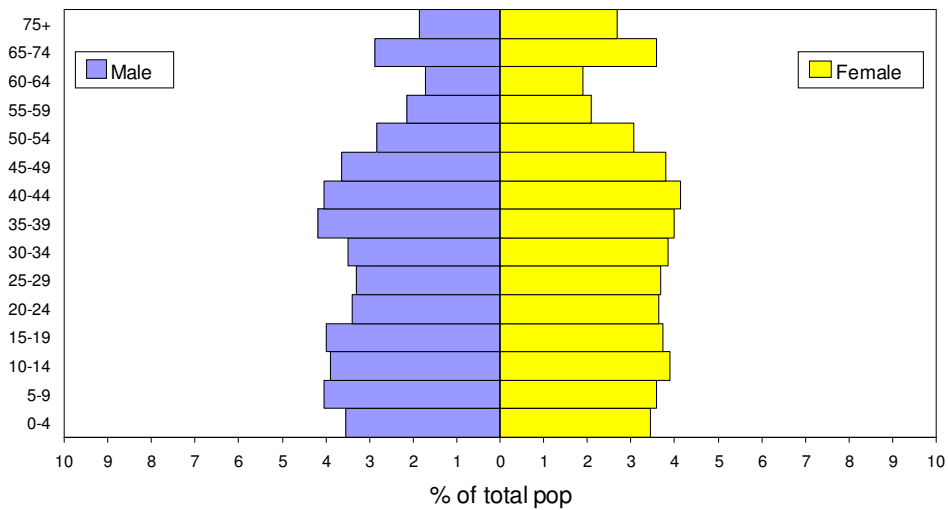


Figure 4.3c Dawson Creek Population Pyramid – 2001



Hudson's Hope

Figures 4.4a, 4.4b, and 4.4c show population pyramids for Hudson's Hope in 1981, 1991, and 2001 respectively. In 1981, there is an older workforce present in the community (Figure 4.4a). This is shown by the large proportion of the population in the 35 to 59 year age groups. Additionally, there are more males than females in the 45 to 59 year age groups.

By 1991, the shape of the population pyramid is starting to change as the population continues to age (Figure 4.4b). There are proportionately fewer children, the community is experiencing out-migration of the 20 to 29 year age groups, and the proportion of the population over the age of 40 is increasing.

By 2001, the trend towards population aging is more clear (Figure 4.4c). There are proportionately fewer children, and fewer people in the 25 to 34 year age groups. The share of the population over the age of 40 continues to increase as the pyramid starts to look top-heavy. Additionally, there are more males in the 60 to 74 year age groups.

Figure 4.4a Hudson's Hope Population Pyramid – 1981

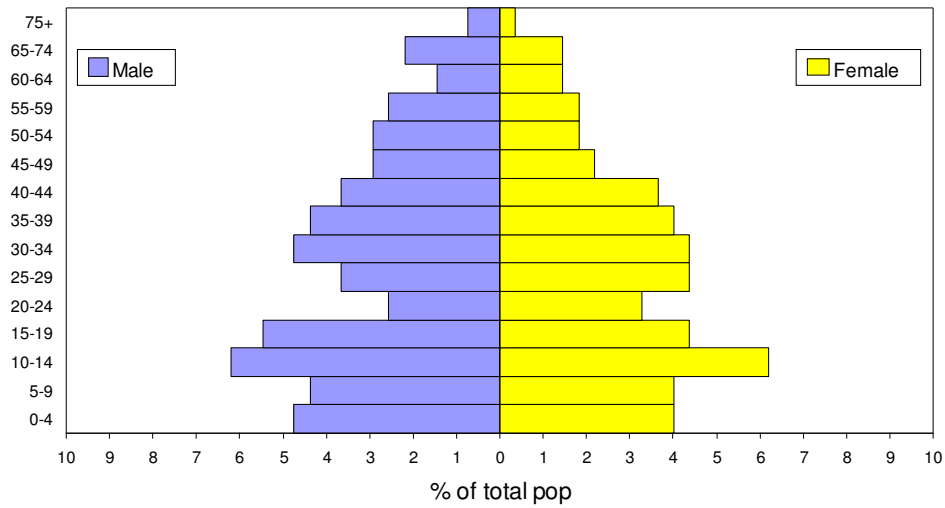


Figure 4.4b Hudson's Hope Population Pyramid – 1991

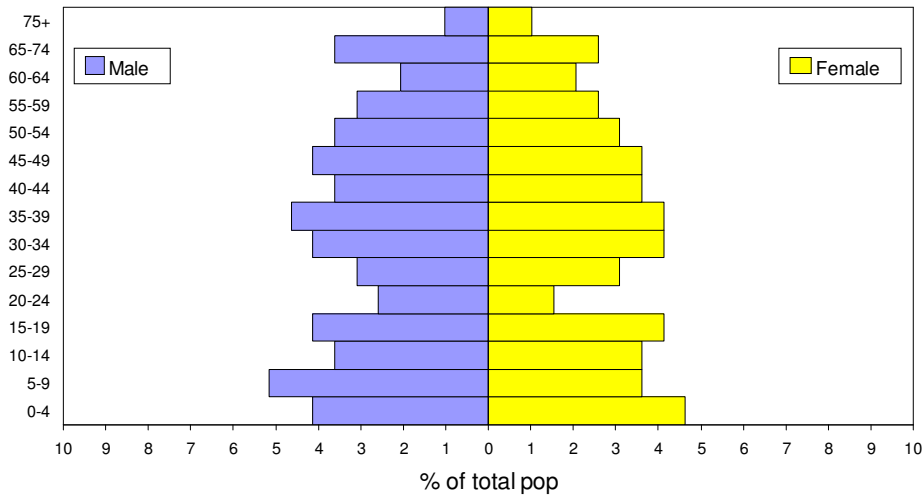
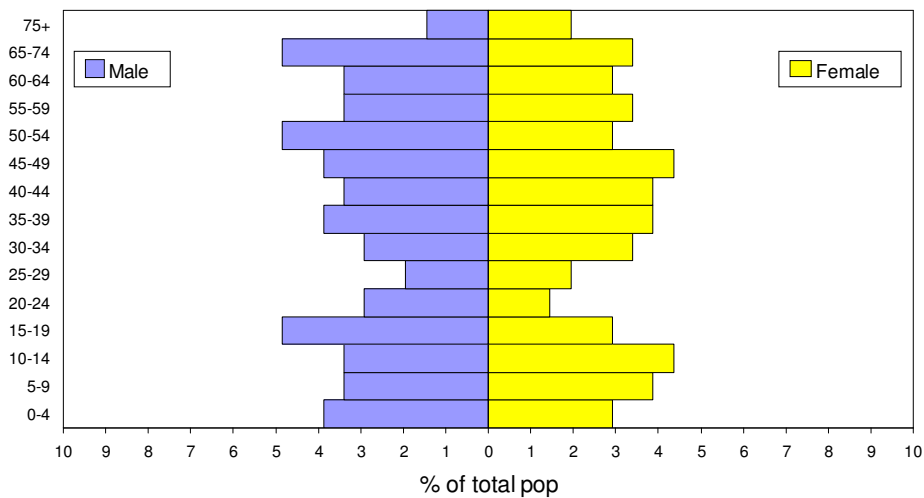


Figure 4.4c Hudson's Hope Population Pyramid – 2001



Pouce Coupe

Figures 4.5a, 4.5b, and 4.5c show population pyramids for Pouce Coupe in 1981, 1991, and 2001 respectively. The diagrams do not follow a traditional aging pattern that many northern BC communities experience, as there are greater shares of seniors than would be expected. Because of seniors' housing available in Pouce Coupe, seniors migrate to the community for housing as they age and this affects the diagrams.

In 1981, the population is mostly comprised of young people as the largest proportions of the population are under the age of 34 (Figure 4.5a). In these categories, the male to female ratio is generally balanced. There are also large shares of the population in the 55 and older age groups. There are more females than males in the 75+ age group.

By 1991, the shape of the population pyramid has changed as the population is getting older (Figure 4.5b). This is especially notable for the population over the age of 75. There are also proportionately more people over the age of 40 in the community. There are still more females than males in the oldest age group.

By 2001, those in the 65+ age groups represent a large proportion of the population (Figure 4.5c). Again, this is a reflection of in-migration for available seniors' housing. There are also proportionately fewer children and more working aged males than working aged females. There are now more than twice as many females than males over the age of 75 years.

Figure 4.5a Pouce Coupe Population Pyramid – 1981

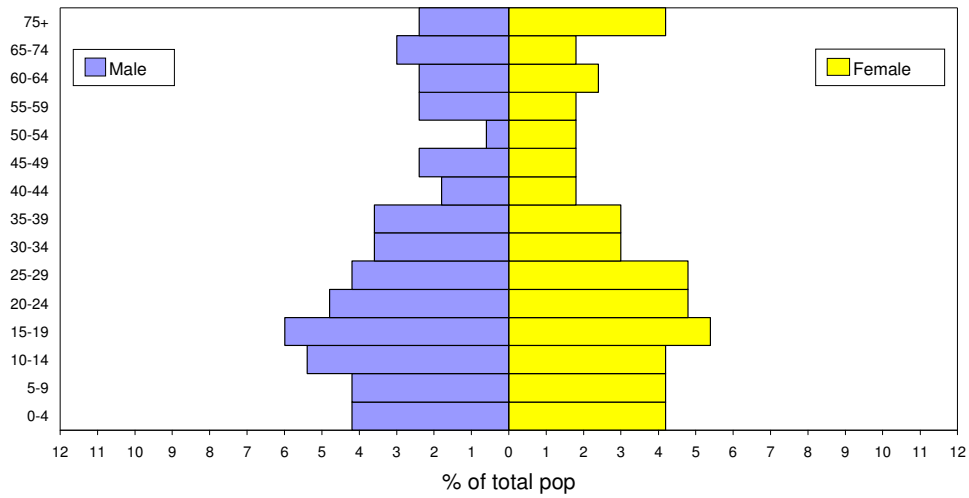


Figure 4.5b Pouce Coupe Population Pyramid – 1991

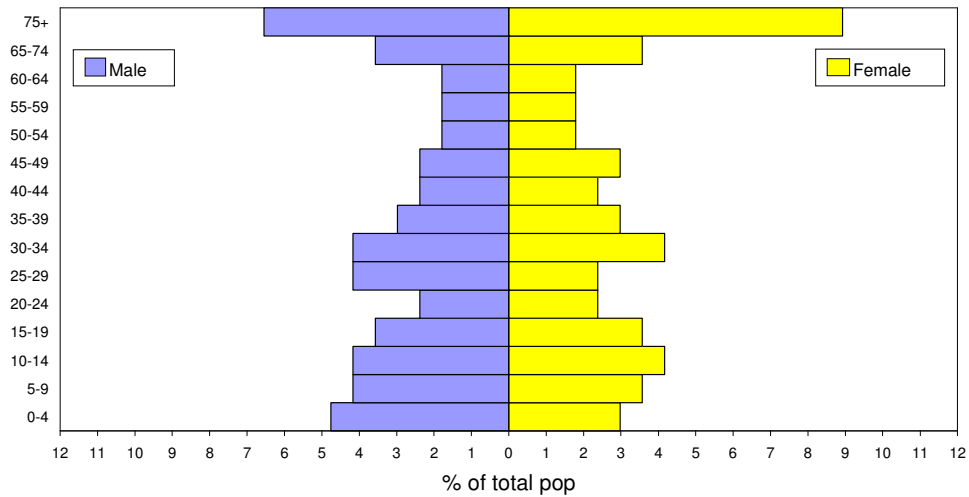
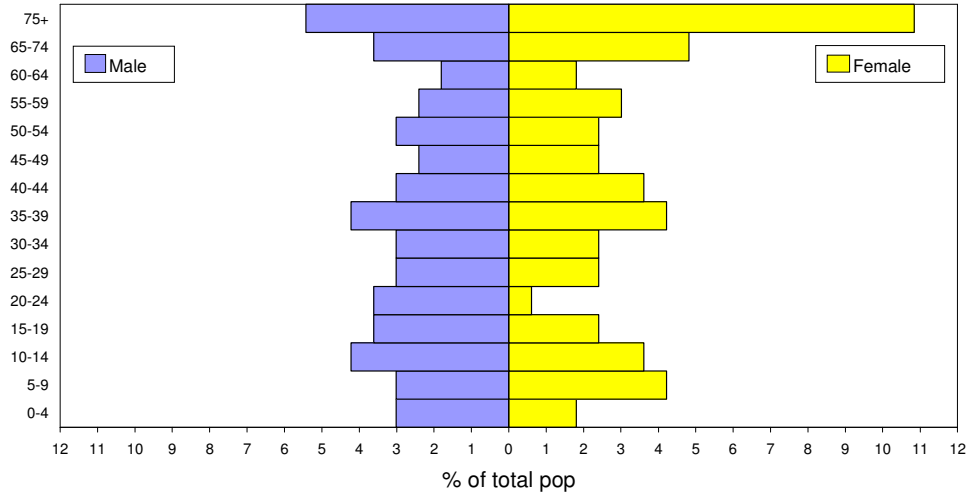


Figure 4.5c Pouce Coupe Population Pyramid – 2001



Tumbler Ridge

Figures 4.6a and 4.6b show population pyramids for Tumbler Ridge in 1991 and 2001 respectively. Population data are not available for Tumbler Ridge for 1981 as the town was not yet created. In 1991, the population has a significant proportion of young families (Figure 4.6a). This is demonstrated by the large shares of the population in the 25 to 39 age groups and the corresponding 0 to 14 age groups. There are more males than females in all age categories above the age of 25. There are very few people in the age categories above the age of 60.

By 2001, the shape of the population pyramid has changed to reflect a much older population (Figure 4.6b). With the closure of the Quintette Mine, there has been an out-migration of working age people and their families. Additionally, there are much greater shares of the population above the age of 40 and this reflects the in-migration of older residents during the housing sale. However, there are still very few residents over the age of 75.

Figure 4.6a Tumbler Ridge Population Pyramid – 1991

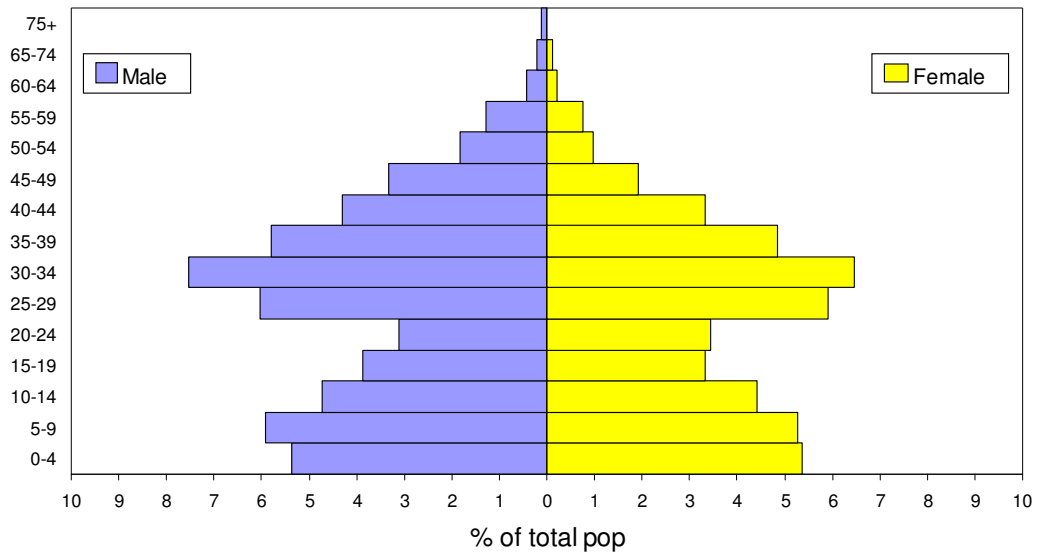
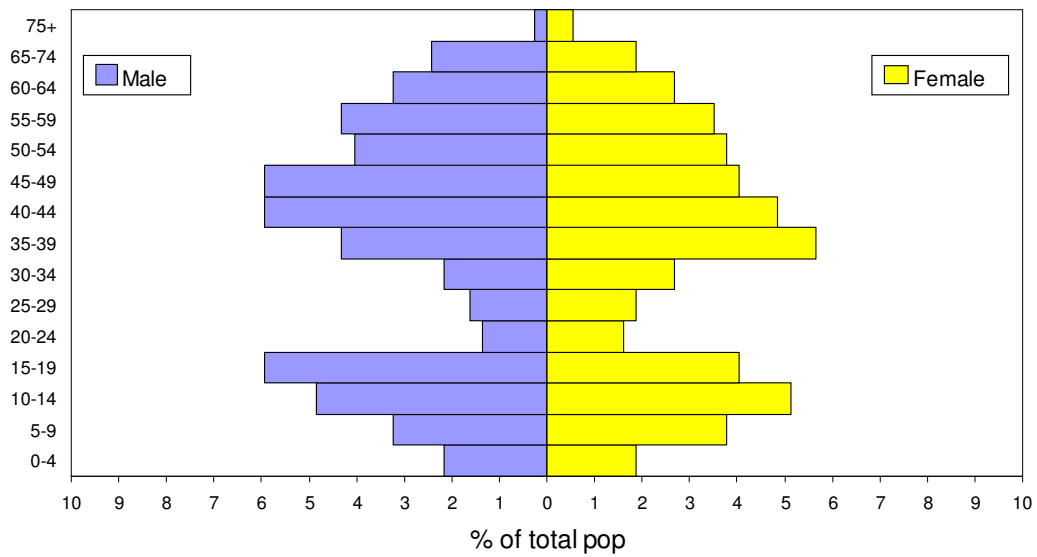


Figure 4.6b Tumbler Ridge Population Pyramid – 2001



5.0 Age Dependency Ratios

This section of the report addresses changes in the composition of the population in terms of the shift from young to older populations. A series of 5 sets of tables are used to illustrate this population shift. The first of each table presents regional and provincial trends, while the second addresses the changes in each municipality.

As shown in Table 5.1a, the trend in the Peace River Regional District and in BC is one that has an increasing share of the population aged 65 years and older since 1971. In the Peace River Regional District, the percentage of the population aged 65 years and above increased from approximately 4% in 1971 to nearly 8% in 2001. BC has experienced an increase from 9% in 1971 to over 13% in 2001.

However, the rate at which the population is aging in the Peace River Regional District is greater than the rate of aging for BC. Between 1971 and 2001, the percentage of the population that is over the age of 65 in the Peace River Regional District has almost doubled, whereas the population over the age of 65 in BC has increased by almost one-third. This indicates that population aging is occurring faster in the Peace River Regional District than in BC.

Table 5.1a **Percent of Population 65 Years and Older, Peace River RD & BC, 1971-2001**

Year	Peace River RD	BC
1971	4.0	9.4
1976	4.5	9.9
1981	4.3	10.9
1986	4.9	12.1
1991	6.2	12.9
1996	6.6	12.8
2001	7.9	13.6

Source: Statistics Canada.

Table 5.1b Percent of Population 65 Years and Older, Peace River Municipalities, 1971-2001

Year	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
1971	2.0	4.6	2.0	11.8	--
1976	2.3	7.2	3.0	11.6	--
1981	2.4	7.4	4.8	11.5	--
1986	1.8	8.4	6.5	19.8	0.3
1991	3.5	9.1	8.1	22.9	0.4
1996	3.5	9.7	8.4	21.2	0.8
2001	5.8	11.0	11.6	24.7	5.1

Source: Statistics Canada.

Most of the municipalities follow the regional trend of increasing dependency ratios (Table 5.1b). This indicates that there is an increasing share of the population aged 65 years and older since 1971 in each of the municipalities. However, in Tumbler Ridge, the increase has been much more recent due to the town's inception in 1981. As discussed above, the situations of increasing numbers of seniors in Pouce Coupe and Tumbler Ridge are affected by in-migration for housing. Beyond Pouce Coupe and Tumbler Ridge, Hudson's Hope has seen a significant increase in the proportion of seniors since 1971.

Many resource industry regions across northern BC are experiencing a process called "resource frontier aging". In this case, an established workforce faced with limited new employment growth will age-in-place over time.

As shown in Table 5.2a, the percentage of the workforce aged 45 years and older has increased since 1971 in the Peace River Regional District and in BC. In the Peace River Regional District, the share of the workforce between the ages of 45 and 64 years has increased from about 23% in 1971 to about 31% in 2001. Similarly, the share of the older workforce has increased in BC from about 32% in 1971 to almost 37% in 2001. It is this ‘nearing retirement’ population that will be very important due to its future impacts on services and housing needs for older residents.

Table 5.2a Percent Workforce Aged 45 Years and Older, Peace River RD & BC, 1971-2001

Year	Peace River RD	BC
1971	23.3	31.7
1976	23.3	30.4
1981	20.6	28.9
1986	22.8	29.2
1991	25.1	29.8
1996	27.0	25.0
2001	31.3	36.7

Source: Statistics Canada.

Table 5.2b Percent Workforce Aged 45 Years and Older, Peace River Municipalities, 1971-2001

Year	Chetwynd	Dawson Creek	Hudson’s Hope	Pouce Coupe	Tumbler Ridge
1971	20.1	24.7	22.6	31.4	--
1976	18.9	26.1	24.4	31.5	--
1981	17.3	23.6	26.1	25.0	--
1986	17.2	25.4	30.6	27.4	10.7
1991	19.7	26.0	36.2	30.0	15.6
1996	20.5	27.3	40.5	29.7	21.9
2001	25.8	31.8	43.8	34.8	42.9

Source: Statistics Canada.

Similar to the trend experienced in the Regional District and in BC, most municipalities have experienced an overall increase in the percentage of the workforce aged 45 years and older since 1971 (Table 5.2b).

Dependency Ratios

The transition in age relationships can also be characterized by ‘dependency ratios’. A dependency ratio calculates the proportion of the population of interest against the remainder of the population in a particular place.

For example, in Tables 5.3a and 5.3b, ‘total dependency ratios’ are calculated for the period from 1971 to 2001. The total dependency ratio combines all of the individuals over the age of 65 with all those under the age of 15 and compares them to the remainder of the population. That is, those who are children (not in the workforce) and those who are retired (not in the workforce) are combined and compared against the workforce who would be supporting them. By default, the ‘workforce’ is defined as those between the ages of 15 and 65 years. This is a statistical measure to try to illustrate changes in the relationship between the working age population and the very young and older populations.

The total dependency ratio combines both young and old populations. As noted in the population pyramids of Section 4, population changes over time have involved a reduction in the share of younger people and an increase in the share of those over age 65. The following tables identify the scale of this change.

As shown in Table 5.3a, the total dependency ratio for the Peace River Regional District has decreased from 71% in 1971 to about 47% in 2001, with slight increases in 1986 and 1991. In BC, there has also generally been a downward trend from approximately 60% in 1971 to about 47% in 2001, with slight increases in 1986, 1991, and 1996. In other words, in the Peace River Regional District and in BC there is a growing proportion of working age residents relative to young and older populations. As noted earlier, this is likely the result of an aging-in-place of the workforce and smaller shares of young households with children.

Table 5.3a Total Dependency Ratio, Peace River RD & BC, 1971-2001 (%)

Year	Peace River RD	BC
1971	70.8	59.5
1976	60.5	51.4
1981	49.1	47.7
1986	49.6	48.4
1991	49.8	49.3
1996	49.2	50.1
2001	46.6	46.4

Source: Statistics Canada.

Table 5.3b Total Dependency Ratio, Peace River Municipalities, 1971-2001 (%)

Year	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
1971	70.5	66.1	66.8	72.9	--
1976	65.6	55.7	58.9	75.3	--
1981	49.7	47.7	52.2	60.6	--
1986	46.7	49.1	45.9	72.6	44.4
1991	46.3	49.7	49.2	86.7	45.9
1996	46.8	51.7	52.0	80.2	41.8
2001	45.0	50.2	50.4	80.4	35.5

Source: Statistics Canada.

As shown in Table 5.3b, the total dependency ratio for the municipalities has also followed the regional trend of decline since 1971. This indicates that most municipalities are experiencing a growing proportion of working age residents relative to young and older populations – likely the result of aging-in-place workforces. However, Pouce Coupe has seen an increase in their dependency ratio indicating that there is a growing percentage of non-working age residents relative to the working population. As seen in Pouce Coupe's population pyramids, this is due to an increase in seniors moving to the community for seniors' housing.

As shown in Tables 5.4a and 5.4b, ‘young dependency ratios’ are calculated for the period 1971 to 2001. This ratio compares the share of the population under age 15 with the working age population. The tables show some remarkable declines.

In the Peace River Regional District, the young dependency ratio was approximately 64% in 1971, and this declined to 35% in 2001 (Table 5.4a). In BC, the young dependency ratio was approximately 45% in 1971, and this declined to about 27% in 2001. Decreases in the share of the young population in the Peace River Regional District are driving the large dependency ratio shifts.

Table 5.4a Young Dependency Ratio, Peace River RD & BC, 1971-2001 (%)

Year	Peace River RD	BC
1971	63.9	44.5
1976	53.2	36.5
1981	42.7	31.7
1986	42.2	30.4
1991	40.5	30.1
1996	39.3	30.4
2001	35.0	26.5

Source: Statistics Canada.

Table 5.4b Young Dependency Ratio, Peace River Municipalities, 1971-2001 (%)

Year	Chetwynd	Dawson Creek	Hudson’s Hope	Pouce Coupe	Tumbler Ridge
1971	67.1	58.4	63.5	52.9	--
1976	61.7	44.5	54.2	55.1	--
1981	46.2	36.8	45.0	42.3	--
1986	44.1	36.6	36.3	38.9	43.9
1991	41.2	36.1	36.9	44.4	45.2
1996	41.6	36.9	39.2	42.6	40.6
2001	36.7	33.6	32.8	35.9	28.6

Source: Statistics Canada.

As shown in Table 5.4b, all municipalities have decreasing young dependency ratios. The general trend in all of the municipalities is that the young dependency ratio has decreased by 32-48% since 1971. This indicates that there are decreases in the share of the young population and that this is driving changes in the structure of the population.

If changes in the young dependency ratios have been driving the overall dependency ratio changes to this point, the emphasis will soon shift to the ‘old age dependency’ side of the equation. To date, however, there have not been large populations of these older age groups in northern BC.

In contrast to the decreasing young dependency ratios, there has been some growth in the old age dependency ratios from 1971 to 2001 (Tables 5.5a and 5.5b). In the Peace River Regional District, the old age dependency ratio was approximately 7% in 1971, and this increased to almost 12% in 2001 (Table 5.5a). In BC, the old age dependency ratio was 15% in 1971, and this increased to 20% in 2001. These increases have been modest compared to what will occur over the next 10 years as local aging-in-place means that a large number of ‘baby boom’ workers will soon put increased demands on seniors’ services and housing.

Table 5.5a Old Age Dependency Ratio, Peace River RD & BC, 1971-2001 (%)

Year	Peace River RD	BC
1971	6.9	15.0
1976	7.2	14.9
1981	6.5	16.0
1986	7.3	18.0
1991	9.2	19.2
1996	9.9	19.7
2001	11.6	20.0

Source: Statistics Canada.

Table 5.5b Old Age Dependency Ratio, Peace River Municipalities, 1971-2001 (%)

Year	Chetwynd	Dawson Creek	Hudson’s Hope	Pouce Coupe	Tumbler Ridge
1971	3.4	7.7	3.4	20.0	--
1976	3.9	11.2	4.8	20.2	--
1981	3.5	10.9	7.2	18.3	--
1986	2.6	12.5	9.6	33.7	0.5
1991	5.1	13.6	12.3	42.2	0.6
1996	2.5	14.8	12.8	37.6	1.1
2001	8.3	16.5	17.5	44.6	7.0

Source: Statistics Canada.

The municipalities follow the same trend as the Regional District in that the old age dependency ratio has been increasing since 1971 (Table 5.5b). Tumbler Ridge has experienced the greatest proportional increase, followed by Hudson’s Hope, while Pouce Coupe has the largest total old age dependency ratio.

6.0 Retention Rates

While the preceding sections have included information on how the population has changed, and how there is a ‘bubble’ of older workers approaching retirement, this section deals with an estimate of how the seniors’ population may change in the coming years. To demonstrate this, we have calculated potential retention rates for the population at retirement age and created high, medium, and low estimates for how many of those who retire may stay in the region.

Discussion of retention rates is for only the Peace River Regional District. Tables for the individual municipalities have been calculated for retention rates, the number of seniors, and the growth rates of seniors. These tables are included in Appendices A, B and C, respectively. The municipal data is not included in the main report section for 3 reasons: (1) in-migration from surrounding rural areas is a significant issue at the municipal level, (2) the small size of a number of the participating municipalities makes estimates less reliable, and (3) the large changes that have occurred in some of the municipalities similarly makes estimates less reliable.

Retention Rates

In all of these estimates, we have used 10 year time periods. These are from 1971 to 1981, 1981 to 1991, and 1991 to 2001. We are concerned with the change in the size of specific population age groups over each of these three time periods. Our focus is around the critical retirement age of 65. The basic calculation involves comparing the size of the population that was aged 55 to 64 years of age in the first time period against the population that is aged 65 to 74 years ten years later in time period two. From this we can estimate the percent of this age group that was ‘retained’ in the community after they retired.

Three issues impact population change around the age 65 retirement marker. The first is in-migration, the second is out-migration, and the third is death. In this study, we are assuming that mortality rates have not, and will not, change significantly between 1971 and 2011. We are also, based on the information noted above, suggesting that in-migration of a large number of seniors to the region is not yet a significant issue. As a result, we have labelled this change in the size of the population from the first time period to a period ten years later as the ‘retention rate’. That is, how much of the pre-retirement age group are we able to keep, or retain, in the community 10 years later.

Population retention rates, as calculated for the Peace River Regional District, are shown in Table 6.1. Approximately 65% of those who were aged 55 to 64 years in 1971 were retained in the region as people aged 65-74 years in 1981. Between 1981 and 1991, 69% of those people who were 55 to 64 years of age in 1981 were retained in the region in 1991. Between 1991 and 2001, the retention rate was about 73%. In Table 6.1, we can see that as time increases, so does the rate of retention.

**Table 6.1 Population Retention Rates:
Peace River Regional District, 1971-2001 (%)**

55-64 years to 65-74 years	
1971-1981	65.1
1981-1991	69.0
1991-2001	72.6

Source: Statistics Canada.

Estimates

To estimate the potential impact of retirement populations as we move towards the year 2011, we will use three scenarios. The low range scenario is the 65.1% retention rate experienced in the Peace River Regional District between 1971 and 1981. The mid range estimate uses the 68.9% average retention rate experienced by the Peace River Regional District over the 1971 to 2001 period. The high estimate is derived from the 72.6% retention rate in the Peace River Regional District from 1991 to 2001.

In 2001, there were 4,385 people in the Peace River Regional District who were aged 55 to 64 years. Multiplying this by each of the retention estimates yields potential numbers of ‘new’ seniors in the 65 to 74 year age group who will be retained in the region to the year 2011. The high estimate suggests an addition of approximately 3,184 seniors while the low estimate suggests an addition of approximately 2,855 seniors (Table 6.2). If one adds those former residents who might return to make use of family/friend support networks as they age, the number of seniors in the region has the capacity to grow considerably.

**Table 6.2 Estimate of Potential Growth of Seniors:
Peace River Regional District, 2001-2011**

Potential Growth Rate	# of additional seniors expected
High	3,184
Mid	3,021
Low	2,855

Source: Statistics Canada.

High estimate based on 72.6% retention.

Mid-range estimate based on 68.9% retention.

Low estimate based on 65.1% retention.

In 2001, there were already about 4,345 seniors (age 65 and over) in the Peace River Regional District. Using the three retention scenarios, we can estimate that the seniors' population in the Regional District has the potential to grow by between 65% and 74% (Table 6.3) by 2011. The future growth of seniors will be significant in the Peace River Regional District, and given the trend of services being available in regional centres, rural seniors will have to travel to use services and facilities.

**Table 6.3 Estimate of Increase to Seniors' Population:
Peace River Regional District, 2001-2011 (%)**

Potential Growth Rate	% of increase in seniors from 2001
High	73.3
Mid	69.5
Low	65.7

Source: Statistics Canada.

2001 Senior population in Peace River Regional District = 4,345

7.0 Conclusion

The purpose of this report has been to provide population background information for the Peace River Regional District, and use this to estimate the scale of potential growth in the region's seniors' population. The data are derived from the Census and are, at times, compared to data from BC.

Since 1971, the population of the Peace River Regional District has risen from about 44,000 to over 58,000 people. At the Regional District scale, great variations that reflect localized events (i.e. in- and out-migration with work in the mining, forestry, and oil and gas industries) are not captured. The overall population stability is tempered by the role of farming in the area's economy. As is common across northern BC, the addition of new economic activities has occurred along with other workplace changes, such as increased automation and associated job reductions. The net result is limited long term job growth. This has stemmed the in-flow of young families seeking work. One consequence is a process of a workforce aging-in-place.

Population aging-in-place is clearly seen in the population pyramids. The population during the 1980s was comprised largely of young families with young children. By 2001, the workforce has aged. There are now proportionally fewer children and proportionally more older residents.

Population aging is confirmed through the investigation of dependency ratios. A dependency ratio compares the young and/or old population against the working age population in order to provide benchmarks for assessing change over time. While there has been growth in the population over 65 years of age, the largest share of population aging at this point in time can be attributed to decreases in the share of the young population.

While the growing seniors' population may not yet be numerically large, the pending retirement of a large group of older workers will change this. The question is, how many of these workers will remain in the region after they retire? Past experience suggests that the Regional District has been successful in retaining a large share of its retirees. From 1971 to 2001, the retention rates for retiring workers were estimated to be between 65% and 73%.

Using a range of retention rate scenarios, we can estimate that the Peace River Regional District may be adding between 2,855 (low estimate) and 3,184 (high estimate) 'new' seniors between 2001 and 2011. There is confidence that this number will be closer to the high estimate.

The coming retirement of the large 'bubble' of older workers will put considerable pressure on seniors' services and facilities. As noted above, the seniors' population has the potential to grow by between 65% and 74%. While much of this seniors' population will still be among the 'young elderly', others will start to require greater levels of housing, support, and health services.

The patterns seen at the Regional District level are generally repeated for the municipalities. Population fluctuations over time have been accompanied by workforce aging. Most of the municipalities now have a 'bubble' of older workers nearing retirement. There are also some idiosyncrasies with each municipality – such as the population turnover in Tumbler Ridge following closure of the Quintette and Bullmoose mines, or the presence of seniors' housing in Pouce Coupe. The general trends, however, reinforce the need to consider how to deal with the housing and service needs of an aging population.

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Peace River Regional District Seniors' Needs Project Appendices

Appendix A: Population Retention Rates:
Peace River Municipalities, 1971-2001 (%)

Appendix B: Estimate of Potential Growth of Seniors:
Peace River Municipalities, 2001-2011

Appendix C: Estimate of Increase to Seniors' Population:
Peace River Municipalities, 2001-2011 (%)

Appendix D: Population Change Calculations

Appendix A

Population Retention Rates: Peace River Municipalities, 1971-2001 (%)

Year	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
1971-1981	100.0	69.4	52.6	80.0	--
1981-1991	77.8	73.7	60.0	80.0	--
1991-2001	61.8	77.7	89.5	116.7	64.0

Source: Statistics Canada.

* the 116.7% increase in Pouce Coupe indicates a substantial in-migration of older residents.

Appendix B

Estimate of Potential Growth of Seniors: Peace River Municipalities, 2001-2011

Potential Growth Rate	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
High	155	657	121	88	163
Mid	124	622	91	69	--
Low	96	586	71	60	--

Source: Statistics Canada.

Chetwynd

Population aged 55 to 64 years in 2001 = 155.

High estimate is based on 100.0% retention.

Mid estimate is based on 79.9% average retention.

Low estimate is based on 61.8% retention.

Dawson Creek

Population aged 55 to 64 years in 2001 = 845.

High estimate is based on 77.7% retention.

Mid estimate is based on 73.6% average retention.

Low estimate is based on 69.4% retention.

Hudson's Hope

Population aged 55 to 64 years in 2001 = 135.

High estimate is based on 89.5% retention.

Mid estimate is based on 67.4% average retention.

Low estimate is based on 52.6% retention.

Pouce Coupe

Population aged 55 to 64 years in 2001 = 75.

High estimate is based on 116.7% retention.

Mid estimate is based on 92.2% average retention.

Low estimate is based on 80.0% retention.

Tumbler Ridge

Population aged 55 to 64 years in 2001 = 255.

High estimate is based on 64.0% retention.

Other retention rates were unable to be calculated because age specific data is not available prior to 1986.

Appendix C

Estimate of Increase to Seniors' Population: Peace River Municipalities, 2001-2011 (%)

Potential Growth Rate	Chetwynd	Dawson Creek	Hudson's Hope	Pouce Coupe	Tumbler Ridge
High	103.3	55.4	100.8	42.9	171.6
Mid	82.7	52.5	75.8	33.7	--
Low	64.0	49.5	59.2	29.3	--

Source: Statistics Canada.

Chetwynd 2001 Seniors' Population (age 65+) = 150

Dawson Creek 2001 Seniors' Population (age 65+) = 1,185

Hudson's Hope 2001 Seniors' Population (age 65+) = 120

Pouce Coupe 2001 Seniors' Population (age 65+) = 205

Tumbler Ridge 2001 Seniors' Population (age 65+) = 95

Appendix D Population Change Calculations

Table 3.1a & Table 3.1b Population Counts
Simple counts from the Census

Table 3.2a & Table 3.2b Percent Population Change, 1986-2001
Percent Change in Population =
 $[(\text{Population in T2} - \text{Population in T1}) / \text{Population in T1}] * 100$

Table 5.1a & Table 5.1b Percent of Population 65 Years and Older
Percent Population 65 Plus =
 $(\text{Population 65 years \& older} / \text{Total Population}) * 100$

Table 5.2a & Table 5.2b Percent Population of Workforce Aged 45 Years and Older
Composition of Working Aged Population =
 $(\text{Population 45 - 64 years} / \text{Population 15 - 64 years}) * 100$

Table 5.3a & Table 5.3b Total Dependency Ratio
Dependency Ratio =
 $[(\text{Population 65 years \& older}) + (\text{Population 0-14 years})] / \text{Population 15-64 years} * 100$

Table 5.4a & Table 5.4b Young Dependency Ratio
Young Age Dependency Ratio =
 $(\text{Population 0-14 years} / \text{Population 15-64 years}) * 100$

Table 5.5a & Table 5.5b Old Age Dependency Ratio, 1971-2001 (Percent)
Old Age Dependency Ratio =
 $(\text{Population 65 years \& older} / \text{Population 15-64 years}) * 100$

Table 6.1 & Appendix A Population Retention Rates
Retention Rates =
Example 1981 to 1991
 $(\text{Population in 1991 aged 65-74 years} / \text{Population in 1981 aged 55-64 years}) * 100$

Table 6.2 & Appendix B Estimate of Potential Growth of Seniors, 2001-2011
High / Low Growth in Retention Rate
High = $(2001 \text{ population aged 55 - 64 years}) * (\text{highest calculated retention rate})$
Low = $(2001 \text{ population aged 55 - 64 years}) * (\text{lowest calculated retention rate})$

Table 6.3 & Appendix C Estimate of Percent Increase to Seniors Population
For High / Mid / Low Retention Rates
 $(\text{Estimated number of new seniors to 2011}) / (2001 \text{ population over age 65}) * 100$