

APPENDIX 13A: SOCIO-ECONOMIC BASELINE REPORT

VOLUME IV: SOCIOECONOMIC VALUED COMPONENTS

13 Employment
and Income

14 Employability

15 Economic
Development
and Business
Sector

16 Community
Vitality

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18A Socio-Economic
Baseline Report

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Mitigation

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Assessment of the
Freegold Road

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19A Land Use and Tenure
Baseline Report

Socio-economic Baseline Report

Submitted to:

Casino Mining Corporation

Submitted by:

**AMEC Environment & Infrastructure,
a Division of AMEC Americas Limited**
Suite 600 – 4445 Lougheed Highway
Burnaby, BC Canada V5C 0E4

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ABBREVIATIONS, ACRONYMS AND DEFINITIONS

Abbreviation	Definition
AAND	Aboriginal Affairs and Northern Development
AHRDS	Aboriginal Human Resources Development Strategy
BC	British Columbia
BST	Bitumous Surface Treatment
CARS	Community Aerodrome Radio Stations
CWBI	Community Well-being Index
EX4	Carmacks Airport
FP4	McQuesten Airstrip
FQ6	Pelly Crossing Airstrip
GDP	Gross Domestic Product
GMA	Game Management Area
GSS	General Social Survey
HRSDC	Human Resources and Skills Development Canada
ICSP	Integrated Community Sustainability Plan
INAC	Indian and Northern Affairs Canada
LSA	Local Study Area
LS/CFN	Little Salmon/Carmacks First Nation
NR	non-resident
Procon	Procon Mining and Tunneling Ltd.
proponent (the)	Casino Mining Corporation
Project (the)	Casino Project
RCMP	Royal Canadian Mounted Police
Res.	Resident
RSA	Regional Study Area
RTC	Registered Trapline Concession
SFN	Selkirk First Nation
TC	Transport Canada
TKTLU	Traditional Knowledge and Traditional Land Use
WAF	Whitehorse-Aishihik-Faro
WGH	Whitehorse General Hospital
YDA	Dawson Creek Airport
YDB	Burwash Airport
YDM	Ross River Airport
YECL	Yukon Electrical Company Limited
YESAB	Yukon Environmental and Socio-economic Assessment Board
YHT	Haines Junction Airport

Abbreviation	Definition
YMA	Mayo Airport
YMTA	Yukon Mine Training Association
YOC	Old Crow Airport
YQH	Watson Lake Airport
Yukon	Yukon Territory
Yukon Zinc	Yukon Zinc Corporation
YWCHSB	Yukon Workers' Compensation Health and Safety Board
YXQ	Beaver Creek Airport
YXY	Whitehorse International Airport
YZW	Teslin Airport
ZFA	Faro Airport

UNITS OF MEASUREMENT

Abbreviation	Definition
%	percent
GW	Gigawatt
GWH	Gigawatt Hour
km	kilometre
km ²	square kilometre
m	metre
MW	megawatt

1.0 INTRODUCTION

This report describes the baseline social and economic conditions in the area that will potentially be affected by the Casino Project (the Project). The baseline characterization focuses on key socio-economic indicators related to population and demographics, community well-being, employment and income, employability, infrastructure and services, economic development and business sector, and cultural continuity. These indicators will be used to assess the effects of the Project on the socio-economic environment.

1.1 Project Overview

The Project is an open pit mine located approximately 300 kilometres (km) northwest of Whitehorse, Yukon Territory on Crown land that is administered by the Government of Yukon. The property is located within the Selkirk First Nation (SFN) traditional territory. The Project will require construction of a road access, including upgrades to the existing Freegold Road and construction of the Freegold Road extension on land that falls within the SFN and Little Salmon/Carmacks First Nation (LS/CFN) traditional territories.

In 2011, an independent pre-feasibility study ascertained that the Project could be economically developed (M3 Engineering & Technology Corp., 2011). The final feasibility study was released in January 2013. Four metals will be produced at the proposed open pit mine: copper, gold, silver, and molybdenum. With a projected mine life of 23 years, the Project is expected to produce 4.4 billion pounds of copper, 494 million pounds of molybdenum, 61 million ounces of silver, and 8.4 million ounces of gold.

1.2 Site History

The Project property has had a long exploration history with the first mineral claims dating back to 1917. During the past century there have been periods of exploration and development efforts by various owners, with access to the area typically via the proposed upgraded Freegold Road and Freegold Road extension. Surrounding mineralization areas likely used the same access route.

In 1936, silver, lead, and zinc veins were discovered and over the next several years, the veins were explored. From 1965 to 1980, ore from the silver-bearing veins were shipped to a smelter in Trail, British Columbia (BC). Although the copper mineral potential of the Project property was recognized as early as 1948, it was only between 1968 and 1995 that the property was extensively explored as a copper and molybdenum porphyry deposit (porphyry are rocks with large-grained crystals that often contain low-grade copper). Pacific Sentinel Gold Corporation performed an extensive exploration program in the early 1990s. Trimark Resources first and CRS Copper Resources later obtained the property in 2003 and combined to form Lumina Corporation in 2004.

Western Copper and Gold Corporation (the proponent) acquired Lumina Copper Corporation and the Casino deposit in November 2006 and began conducting numerous evaluations of the property (M3 Engineering & Technology Corp, 2011). The final bankable feasibility study (a feasibility study with which project financing can be obtained) was completed in January 2013.

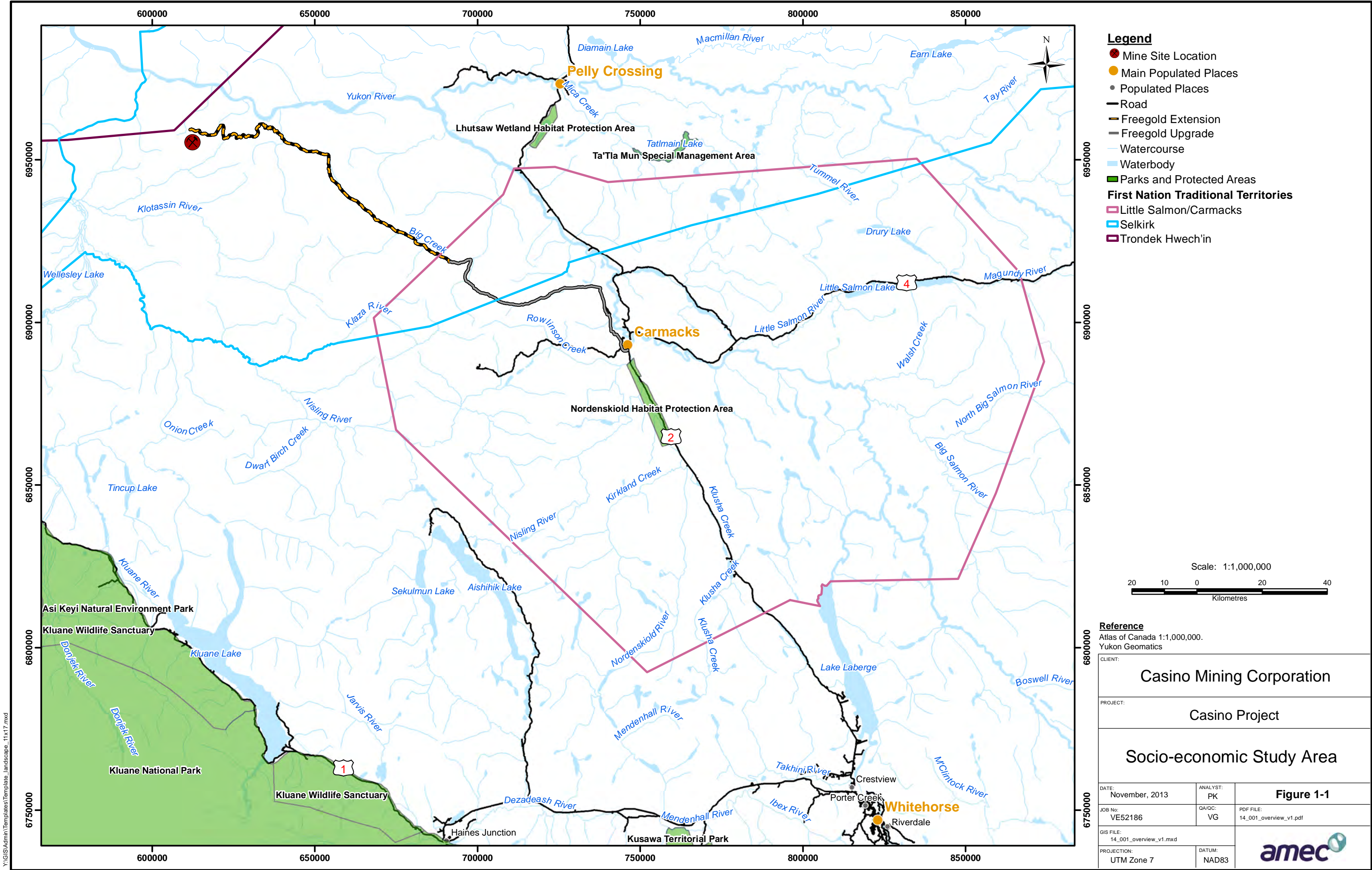
1.3 Spatial Boundaries

The Socio-economic Study Area includes the rural and urban communities that are most likely to experience Project-related effects. Communities were selected based on proximity to the Project location and related access routes and potential relationship with the Project development and operations. The Socio-economic Study Area is divided into two types: the Local Study Area (LSA) and the Regional Study Area (RSA).

The LSA includes those communities most adjacent to the proposed mine site and proposed access route, including Pelly Crossing (SFN), LS/CFN, and the Village of Carmacks (Figure 1-1). Whitehorse is also included in the LSA due to its potential to contribute supplies, services, and labour to the Project. Given the size and proximity of Whitehorse, the capital will most likely serve as a major supply centre for the Project and therefore direct socio-economic Project-related effects will be experienced by its residents. Communities in the LSA represent the closest and most accessible potential source of direct labour, goods, and services needed for the Project.

The RSA comprises Yukon and provides a broader geographic context for understanding potential Project socio-economic effects. It is expected that some of the Project employment and economic opportunities will be experienced at the Yukon territorial level. In particular, potential effects associated to Valued Components (VCs) such as employment and income, employability, economic development, and business sector will be experienced throughout Yukon.

In summary, the socio-economic baseline report presents information for three communities (Pelly Crossing, Carmacks, and Whitehorse) as well as two First Nations (SFN and LS/CFN) and Yukon when appropriate.



2.0 METHODS

2.1 Information Sources

The socio-economic baseline report draws information from a number of key sources. Data were collected via desktop research and by conducting interviews with key informants. The secondary data are from territorial and federal statistical sources and reports. The primary data were gathered through one-on-one meetings with key community representatives in the Socio-economic Study Area and through community meetings conducted from 2011 to 2013.

The data sources used for this socio-economic baseline report include:

Secondary Data

- Statistical Data are based on the most recent information from Statistics Canada, Yukon Bureau of Statistics, and Yukon Socio-Economic Web Portal. Current and historical information was obtained from the individual community profiles from the 2011 and 2006 censuses. Some of the results of the 2011 National Household Survey (NHS), which replaced the long form census, were also used, although, for some indicators, the 2006 census is still the most comprehensive data source. Some data from the 2001 census were also used for demonstrating trends.
- A number of other key information sources were consulted including Canada Mortgage and Housing Corporation, Canadian Homelessness Research Network Press, Inukshuk Planning & Development, Natural Resources Canada, Yukon Health Care Review Committee, Official Community Plans, Canadian Encyclopedia, civic and municipal websites, etc.
- Yukon Environmental and Socio-economic Assessment Board (YESAB) documents and guidance were also consulted.

Primary Data

- Primary data were collected through one-on-one interviews conducted primarily in 2012 and 2013 with representatives from the Government of Yukon, City of Whitehorse, Whitehorse and Yukon Chambers of Commerce, Council of Yukon First Nations, registered trapline holders, guide outfitters, Yukon Mine Training Association, Yukon Housing Corporation, Wildland Fire Management, Energy Mines and Resources, Whitehorse International Airport, LS/CFN, Village of Carmacks, Carmacks Renewable Resource Council, Tantalus School, etc.
- Primary information was also gained through community meetings.

2.2 Data Limitations

The key limitations to this study relate to the quality and extent of available information. This study relies on the most recent reports and statistical information available at the time of writing. For some indicators, the analysis has relied on information from the 2006 Census, which may not accurately reflect more recent social and economic conditions. However, this information remains the best available source at the time of writing. Interviews with key informants supplemented the available statistical data, helped confirm understandings of existing conditions, and provided insight into local issues and trends. Reasonable efforts were made to cross-check and triangulate information from different sources to confirm accuracy. Deficiencies in the existing information are noted where they may influence the conclusions of the analysis.

The Census data available may also have limitations, particularly with respect to Aboriginal and small communities. The Census has been found to ‘undercount’ with respect to some groups, including Aboriginal communities (Saku, 1999). Census data on small populations can also overstate changes (Saku, 1999). For example, fluctuations in large populations are often negligible in the Census data, but in small populations these fluctuations can overestimate changes. In addition, the Census focuses on the wage economy and pays little attention to the land-based economy of Aboriginal peoples. In some cases, Census data were not available because of data suppression due to low population numbers.

2.3 Data Analysis

Baseline information for the LSA communities is presented in terms of six socio-economic Valued Components:

1. Community Vitality;
2. Employment and Income;
3. Employability;
4. Community Infrastructure and Services;
5. Economic Development and Business Sector; and
6. Cultural Continuity.

Where appropriate, data for each of the communities in the LSA have been compared to corresponding information found for Yukon and Canada to provide context.

3.0 COMMUNITY OVERVIEW

The following section provides a historical overview and governance information for each of the communities and First Nations in the Project's LSA.

3.1 Selkirk First Nation/Pelly Crossing

3.1.1 Historical Overview

The rural community of Pelly Crossing is located along the Klondike Highway and on the bank of the Pelly River, 282 km northwest of Whitehorse, and 254 km southeast of Dawson City. The area has long been used by SFN people as a campsite along the way to other areas such as Minto. The SFN traditional territory is centred on the Village of Pelly Crossing.

Although SFN is currently located in Pelly Crossing, this is not the original village site. The small villages of Fort Selkirk and Minto were home to the people of this area prior to the building of the Klondike Highway in the 1950s (Council of Yukon First Nations, 2012). The area began to develop during the construction of the Klondike Highway when it became a construction camp for workers (Yukon Community Profiles, 2004a).

SFN is part of the Northern Tutchone cultural and Athapaskan language group. Traditionally, Selkirk people relied on the land and one another for survival, travelling by foot over long distances for hunting, trading, and celebrations (SFN, 2012). Culture, traditions, customs, and survival skills were passed to children who learned by listening and practicing (SFN, 2012).

SFN signed Final and Self-Government Agreements with Yukon and Canada on 21 July 1997. The signing of the Final Agreement formalized the SFN's ownership of the following settlement land:

- 2,408.69 square km (km²) of Category A land—including ownership of both surface as well as sub-surface (such as minerals and oil and gas) lands;
- 2,330.99 km² of Category B land—SFN owns the surface of the land but not the sub-surface; and
- 6.79 km² of land allocated per section 4.3.4 of the Final Agreement (Council of Yukon First Nations, 1990).

The Selkirk Final Agreement created three Special Management Areas: Ddhaw Ghro Habitat Protection Area (also referenced as the McArthur Wildlife Sanctuary in the Nacho Nyak Dun Final Agreement); Lhutsaw Wetland Habitat Protection Area; and Ta'Tla Mun Special Management Area. Special Management Areas refer to protected areas in Yukon that are often within a traditional territory and designated under a Final Agreement. The Ddhaw Ghro Habitat Protection Area and the Lhutsaw Wetland Habitat Protection Area are also designated as Habitat Protection Areas under Yukon's *Wildlife Act* (Fred, 2008c; Government of Yukon, 2002a). Habitat Protection Areas are areas that are deemed to require special protection under

Yukon's *Wildlife Act*. Habitat Protection Areas aim to preserve habitat, encourage conservation, and support First Nation harvesting practices (Environment Yukon, 2012, pers. comm.).

3.1.2 Governance

Since 1997, SFN has been a self-governing Nation, making them the seventh self-governing First Nation in Yukon. SFN is governed by a Chief and Council whose responsibilities and authorities are administered through a constitution, and who report to the General Assembly, an annual gathering of citizens during which decisions and discussions occur (Inukshuk, 2007a).

The following SFN Chief and Council were elected in March 2011:

- Chief—Kevin McGinty;
- Crow Councillors—Millie Johnson and Roger Alfred; and
- Wolf Councillors—Jeremy Harper and Lori Sims.

SFN uses a modified form of traditional government, in that the Chief and Council are elected every three years, including the selection of Councillors by their respective Wolf and Crow clans. SFN is the major landowner in the community of Pelly Crossing. Given that Pelly Crossing is an unincorporated community with no formal local government structure, SFN and the Government of Yukon share responsibility for service delivery in the community. SFN administers Pelly Crossing infrastructure, such as water, sewer, local road maintenance, community recreation, and fire protection.

SFN belongs to the Northern Tutchone language and cultural group and is closely affiliated with its two Northern Tutchone neighbours LS/CFN and the Nacho Nyak Dun First Nation. All three communities are formally associated through the Northern Tutchone Tribal Council, an organization that is responsible for some program and services areas of common interest and concern.

During the last 10 years, SFN has been gathering traditional governance knowledge from Northern Tutchone elders to ensure knowledge is preserved. For the Northern Tutchone people, traditional governance has historically played an integral role in the management and use of resources (Climate Tell, 2012) and the hope is that the Project will guide them in the development of a healthy and prosperous community.

3.2 Little Salmon/Carmacks First Nation and Village of Carmacks

3.2.1 Historical Overview

The LS/CFN people are also Northern Tutchone, part of the Athapaskan language group, and are closely related to other Northern Tutchone groups (e.g., Nacho Nyak Dun and SFN). The LS/CFN reside primarily in and around the Village of Carmacks, which is located where the Yukon and Nordenskiöld rivers meet, 180 km north of Whitehorse on the Klondike Highway near the junction with the Robert Campbell Highway. Originally, the Carmacks area was part of the hunting and fishing territory of the Northern Tutchone people. The site of the Village of

Carmacks was an important trading stop on the river trade routes of the Coastal Tlingit and the Northern and Interior Athapaskan.

The LS/CFN practice a moiety (i.e., a dualistic kinship) system based on the Wolf and Crow clans. The traditional territory is located in south-central Yukon and is rich in renewable and non-renewable resources.

The LS/CFN signed their Final and Self-Government Agreements with Yukon and Canada on 21 July 1997. The signing of the Final Agreement formalized LS/CFN's ownership of the following Settlement Land (LS/CFN 1997):

- 1,553.99 km² of Category A Land—LS/CFN owns both the surface of the land as well as what is below (e.g., minerals);
- 1,036 km² of Category B Land—LS/CFN owns the surface of the land but not what is below; and
- 8.47 km² of land allocated per section 4.3.4 of the Final Agreement (Council of Yukon First Nations, 1990).

The LS/CFN Final Agreement created one Special Management Area—Nordenskiöld Wetland (now known as Ts'alwnjik Chu) Habitat Protection Area. This area is designated as a Habitat Protection Area under Yukon's *Wildlife Act* (Government of Yukon, 2002a).

3.2.2 Governance

Since signing their land claims and self-government agreements in July 1997, LS/CFN has a democratic voting system and elects its Chief, Deputy Chief, and Councillors at a general assembly every four years. The Councillors are made up of two Wolf clan and two Crow clan members. The results of the 21 November 2012 election are as follows:

- Chief—Eric Fairclough;
- Deputy Chief—Leta Blackjack;
- Crow Councillors—Russell Blackjack and Leonard Charlie; and
- Wolf Councillors—Shwandna Wheeler and Darlene Johnson.

The Government of LS/CFN is composed of the General Assembly, the Board of Directors, the Elders Council, and the Youth Council.

Unlike Pelly Crossing, Carmacks became incorporated as a Village on 01 November 1984. The community has a municipal office, a Government of Yukon Lands and Forestry office, a Territorial Agent, a Royal Canadian Mounted Police (RCMP) detachment, a Government of Yukon Highway Maintenance Camp, a Government of Yukon Social Services office, and a Canada Post office.

The Carmacks Integrated Community Sustainability Plan reports that close cooperation between the Village of Carmacks and LS/CFN governments is integral to effective community building and is identified as a challenge that could have a direct bearing on how the community will grow over the next decade (Inukshuk, 2007). The report indicates that increased cooperation between the LS/CFN and the Village of Carmacks governments in local planning, services, and infrastructure initiatives is a major development goal for the community (Inukshuk, 2007). During the last 10 years, both LS/CFN and the Village of Carmacks have made efforts to build a sustainable and responsible government. Some of these efforts have succeeded and some have failed, largely due to a lack of capacity that has impeded progress (Climate Tell, 2012). LS/CFN believes that finding a blend of traditional governance and contemporary governance will lead the community forward (Climate Tell, 2012).

3.3 Whitehorse

3.3.1 Historical Overview

Officially incorporated in 1950, the City of Whitehorse is the capital of Yukon and is located at km 1476 on the Alaska Highway. Archaeological investigations in the area of Whitehorse indicate the evidence of old settlements that were used by First Nations for thousands of years. The area surrounding Whitehorse had seasonal fish camps that were used by First Nations during their movement throughout the region (Yukon Community Profiles, 2004c).

The discovery of gold in the Klondike in 1896 initiated a rapid influx of prospectors (also referred to as goldseekers or Klondikers) with 30,000 to 40,000 people arriving in Yukon over several months (Canada Visa, 2012). The Gold Rush attracted prospectors to Whitehorse and by 1900 it had become a permanent settlement. Completion of the White Pass & Yukon Railroad from Skagway, Alaska also helped Whitehorse develop. From an estimated 2,000 inhabitants after the Gold Rush, Whitehorse's population dropped to 750 in 1941 (Smyth and Koroscil, 2012).

Whitehorse also played a significant role as a transportation hub during World War II. The city provided a key stopping point in the north-south transportation system, which had been established to support the war effort. It was during this time that the 2,300-km Alaska Highway was constructed by American and Canadian service personnel (Yukon Community Profiles, 2004c).

The Whitehorse area is in the traditional territory of the Kwanlin Dun First Nation and the Ta'an Kwach'an Council. The First Nation population of Whitehorse is 17 percent (%) of the city, compared to 23% for Yukon overall (Statistics Canada, 2013e).

3.3.2 Governance

As the capital city of Yukon, Whitehorse is the centre of government activities. The city offers all major government services including health care, education, public safety, and other social services. The Yukon and federal government departments have their main offices in Whitehorse and provide a full range of individual and business services.

Whitehorse municipal elections occur every three years. Dan Curtis is the current mayor of Whitehorse, elected in 2012. The Whitehorse City Council has six councillors. Municipal services provided by the City of Whitehorse include water and sewer systems, road maintenance, snow and ice control, non-recyclable waste and composting, as well as a mosquito control program.

Whitehorse is represented by 9 of 18 MLAs in Yukon's Legislative Assembly. The last general election was held in 2011.

Whitehorse residents have four local political parties from which to choose: Yukon Liberal Party, Yukon New Democratic Party, Yukon Party, and the newly constituted Yukon Green Party.

4.0 COMMUNITY VITALITY

The potential effects of the Project on communities in the Socio-economic Study Area will ultimately depend on the extent to which Project construction and employment result in people moving into the region, either permanently or temporarily. Typically, the temporary population increase would occur during the construction phase, and workers would be housed in a construction camp at the mine site. During the operations phase, a site camp would continue to be provided, but some workers could decide to move to the LSA. This could lead to an increase in population and a possible change in the demographic composition of the LSA. In addition, the potential change in community demographics and new Project-related income may affect the well-being of individuals, families, and communities in the LSA.

This section provides an overview of demographic conditions and trends in the LSA. It also describes some current measures of individual and community well-being for each of the communities located in the LSA.

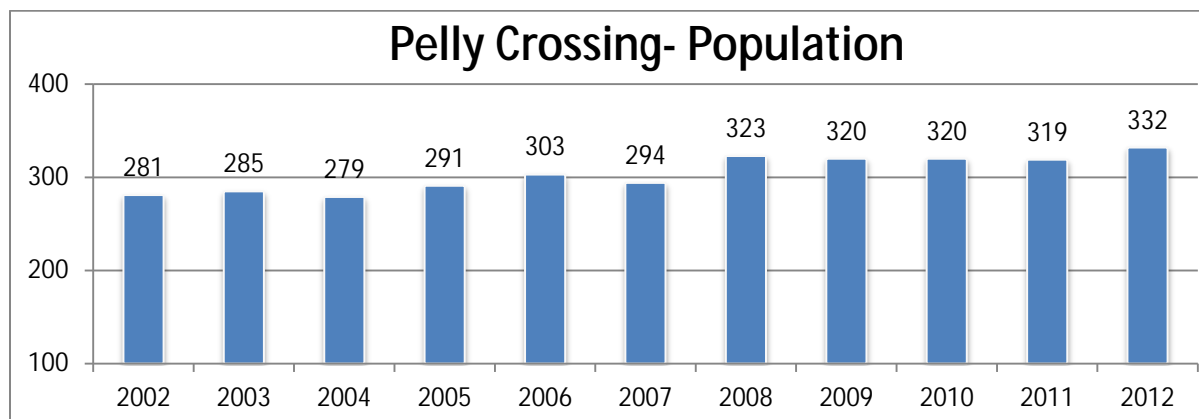
4.1 Population and Demographics

4.1.1 Selkirk First Nation/Pelly Crossing

4.1.1.1 Current Population and Population Change

The total registered membership of SFN is approximately 500 people (SFN, 2012). The 2006 Census estimates that roughly half of the membership (52.9% or approximately 265 members) resides within the home community of Pelly Crossing, while 28.2% live outside of the home community, yet still in Yukon. The remainder (18.8%) live outside of Yukon (Statistics Canada, 2007b), and approximately 75 SFN members reside in Whitehorse (Fred, 2008a). However, the SFN website estimates that only 40% of the membership resides in Pelly Crossing (SFN, 2012).

Yukon Health Care Registration data estimate the total population of Pelly Crossing in 2012 at 332. As shown on Figure 4-1, the community population has remained relatively stable since 2002, with an accumulated 10-year increase of approximately 18%, from 281 in 2002 to 332 in 2012. SFN comprises the majority of the population, making up approximately 80% of residents (Fred, 2008a).



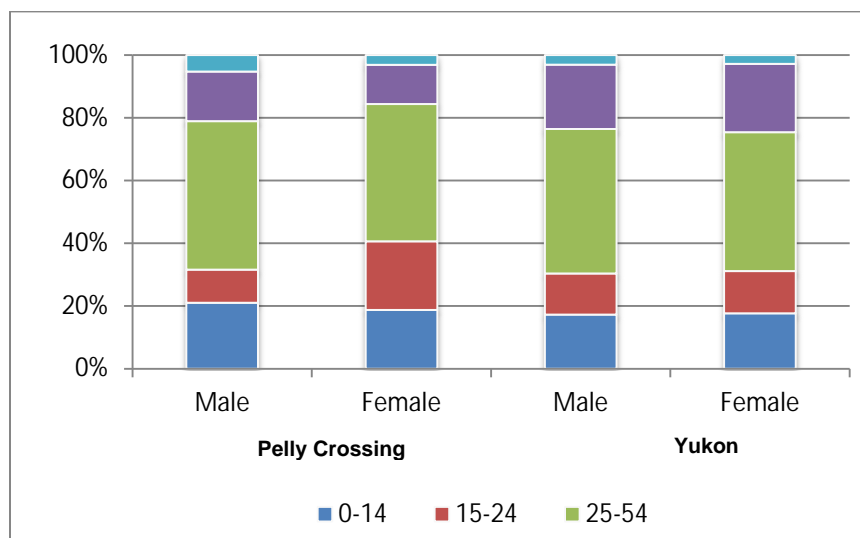
Source: Yukon Bureau of Statistics, 2013d; based on Yukon Health Care Registration data.

Figure 4-1: Population Totals for Pelly Crossing

The 2011 National Household Survey (HNS) indicates that approximately 91% (305) of the Pelly Crossing residents are Aboriginal. This is the highest percentage among the LSA communities.

4.1.1.2 Gender and Age

Figure 4-2 shows a breakdown of the population of Pelly Crossing by age group and gender for 2011, the most recent Census data available. Approximately 45% of the population comprises the 25 to 54 year-old age category, compared to 46% for the entire Yukon. The community has a higher proportion of people aged 75 years and older (6%) compared to Yukon (3%). Gender is somewhat unevenly distributed, in particular the 15 to 24 year-old age range; this range having approximately twice as many women as men. Men have a larger concentration of people aged 55 years and older (21%) than women (15.6%).



Source: Statistics Canada, 2012a

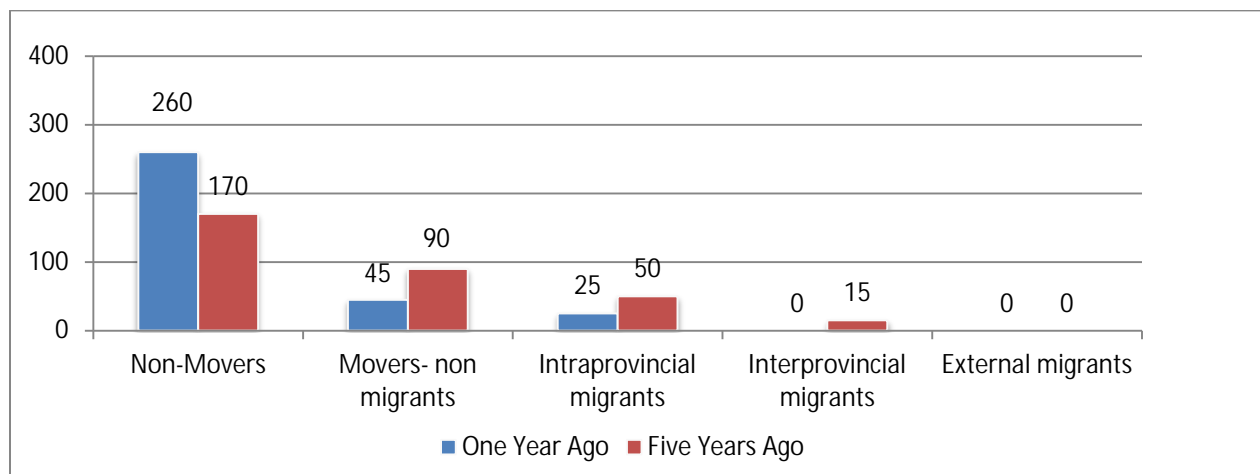
Figure 4-2: Breakdown of Age Groups by Gender in Pelly Crossing, 2011

The median age of the Pelly Crossing population is 38.3 years; that is, half the population are younger than 38.3 and half are older. This is slightly below the Yukon median of 39.1 years. Women tend to be younger than men with a median age of 36.2 years, compared to 39.2 years for males (Statistics Canada, 2012a).

Unlike Yukon, where the proportion of males and females is balanced, Pelly Crossing has a higher proportion of males to females at 55% to 45%, respectively (Statistics Canada, 2012a).

4.1.1.3 Population Mobility

Mobility and migration refer to the movement of people from place to place, as well as the relationship between a person's usual place of residence on Census Day and his or her usual place of residence one year earlier. The population of Pelly Crossing is associated with relatively low mobility as of 2011. Overall, 52% of people (170 people) lived at the same address in 2011 as they did in 2006, and another 28% (90 people) changed addresses within the same community. The other 20% of the population (65 people) moved into Pelly Crossing from elsewhere, mostly from other parts of Yukon. Figure 4-3 shows that a total of 70 residents have changed addresses during the past year alone, of which 25 people (or approximately 8%) moved into Pelly Crossing from elsewhere. No external in-migration has occurred during the last five years.

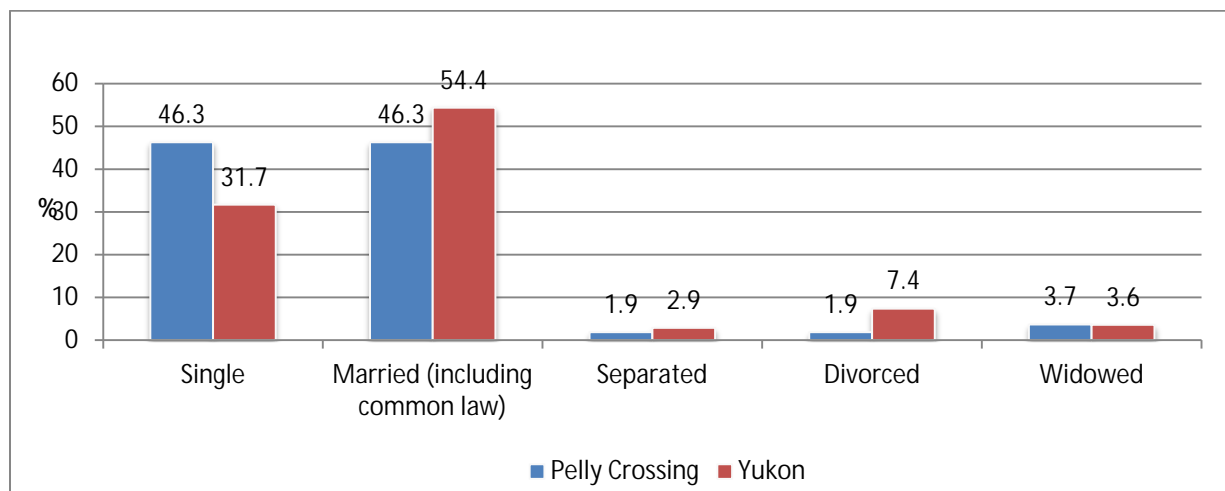


Source: Statistics Canada, 2013e.

Figure 4-3: Mobility Status within the Last Five Years at Pelly Crossing, 2006–2011

4.1.1.4 Family Characteristics

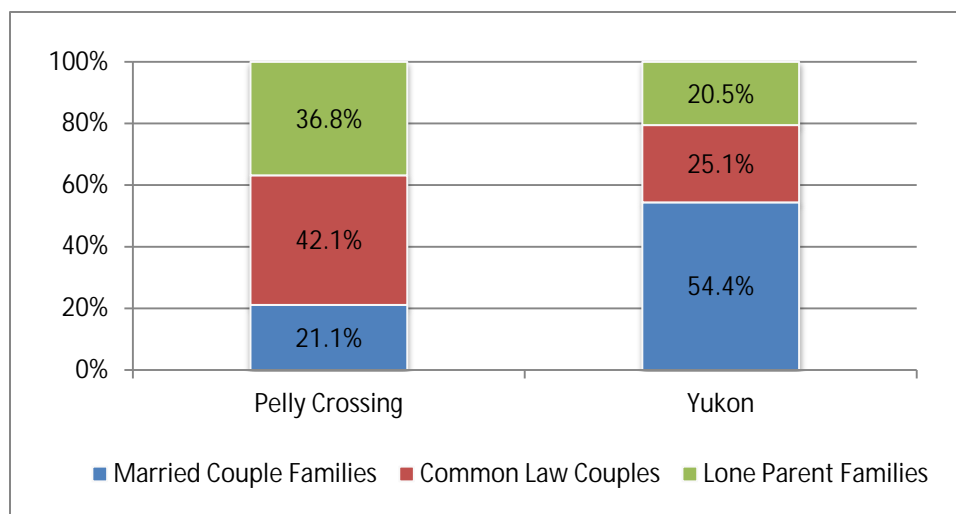
In 2011, 46.3% of the adults (15 years of age or older) in Pelly Crossing were married or living with a common-law partner, and 46.3% were single (never legally married). The balance of the adult population was separated (1.9%), divorced (1.9%), or widowed (3.7%). Figure 4-4 summarizes the marital status of adults in Pelly Crossing and Yukon. It shows that Pelly Crossing has a higher proportion of single adults and a lower proportion of married adults than the territory overall.



Source: Statistics Canada, 2012a.

Figure 4-4: Marital Status of the Population in Pelly Crossing, 2011

Families refer to married couples, couples living in common-law, with or without children, and lone parents with children. Figure 4-5 shows the family structure in Pelly Crossing and Yukon. It shows that only a minority of families in Pelly Crossing consisted of married couples. Less than 22% of families were married couples (with and without children), 42.1% were common law couples, and 36.8% were lone-parent families. The proportion of lone-parent families in Pelly Crossing was significantly higher than in Yukon and was the highest among the LSA communities.



Source: Statistics Canada, 2012a.

Figure 4-5: Family Structure in Pelly Crossing, 2011

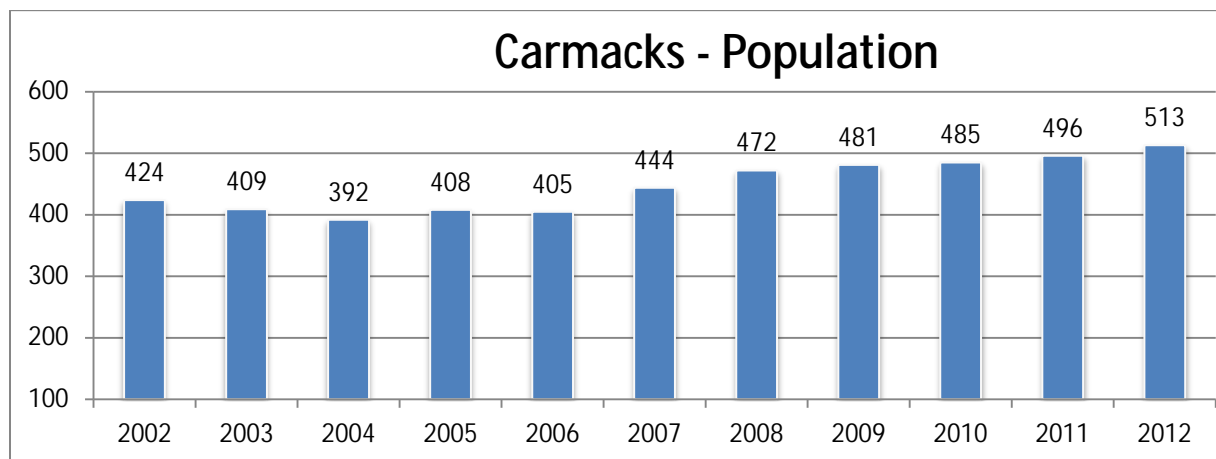
The average family size (i.e., number of people in the family) in Pelly Crossing was 2.8 and the average number of children per family was 1.2, which is on par with the territorial average of 2.8 people per family and 1 child per family.

4.1.2 Little Salmon/Carmacks First Nation and Village of Carmacks

4.1.2.1 Current Population and Population Change

According to the LS/CFN website, the LS/CFN has a total reported membership of approximately 630 people including status and non-status beneficiaries (LS/CFN, 2012). The 2006 Census estimates that about half (47.8%) of the membership reside within the home community of Carmacks (Fred, 2008b). Another, 28.3% reside outside of the home community, but within Yukon an additional quarter (23.9%) live outside of Yukon. According to the 2006 Census, approximately 130 members (21%) reside in Whitehorse (Fred, 2008b).

Based on Yukon Health Care Registration data, the total population of the Village of Carmacks as of 2012 is 513 people. The population has increased steadily since 2006 as indicated in Figure 4-6, growing from 405 in 2006 to 513 in 2012. The LS/CFN comprises the majority of the population, making up approximately 76% of residents (Fred, 2008b). This is consistent with census information that reported that 76.5% of Carmacks residents in 2006 were of Aboriginal identity (Statistics Canada, 2007).

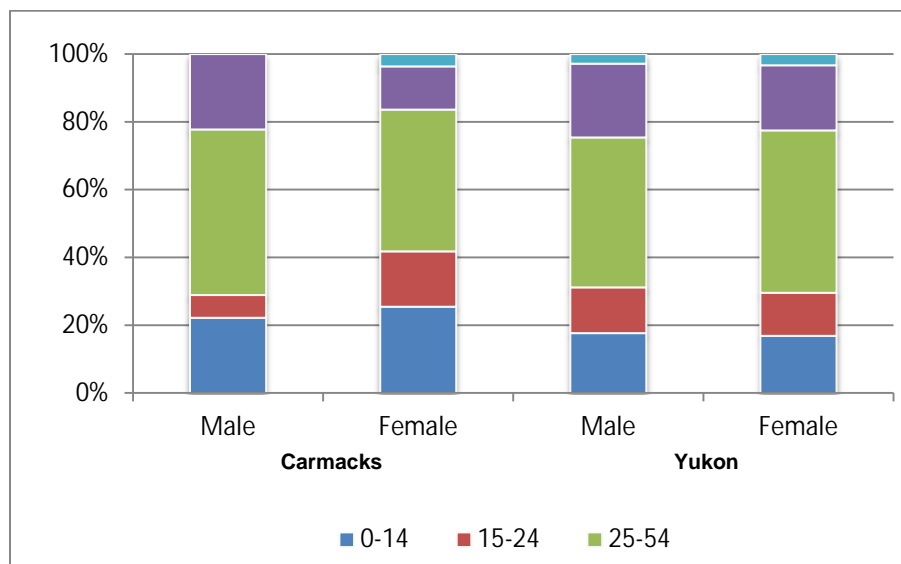


Source: Yukon Bureau of Statistics, 2013d; Based on Yukon Health Care Registration Data.

Figure 4-6: Village of Carmacks Population

4.1.2.2 Gender and Age

In 2011, the Village of Carmacks population was relatively young compared to the Yukon population, with a median age of 34.3 years, compared to 39.1 years for the entire territory. Males were significantly older than females with median ages of 39.4 years and 29.8 years, respectively (Statistics Canada, 2012a). The majority of the population was made up of residents between the ages of 25 to 54 years (44%). As shown on Figure 4-7, gender was unevenly distributed in all age categories. Females tended to outnumber males in the younger categories, 0 to 14 and 15 to 24 years, while males outnumbered women in the older categories 25 to 54 and 55 to 74 years. No males 75 years and older were reported. Overall, the community had an almost equal proportion of males to females at 50.6% to 49.4%, respectively.



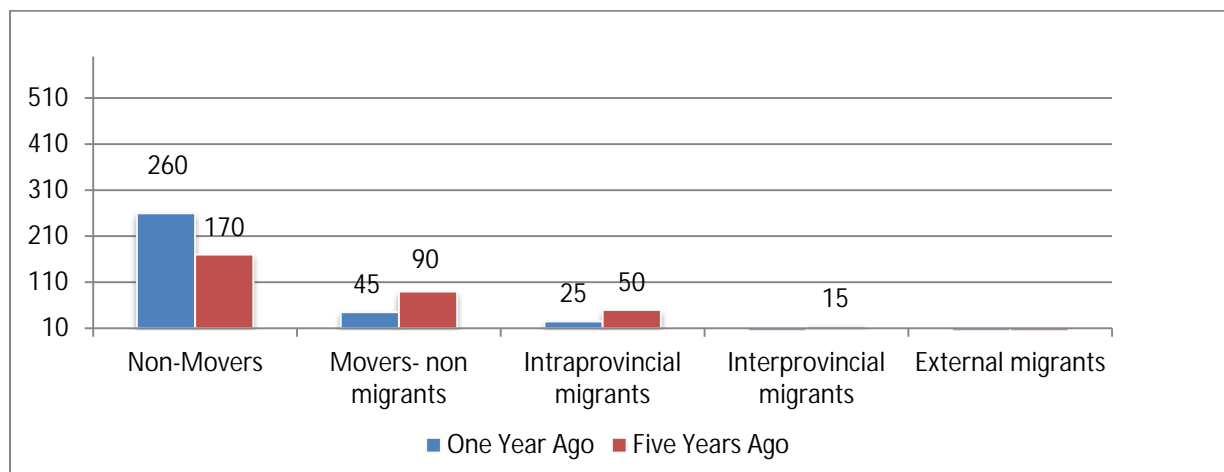
Source: Statistics Canada, 2012a

Figure 4-7: Breakdown of Age Groups by Gender in Carmacks, 2011

Population growth is mentioned as a key long-term goal in the Carmacks Integrated Community Sustainability Plan (Statistics Canada, 2006). The plan suggests that population growth is needed to increase the ability of local governments to finance community services and infrastructure. A population increase in Carmacks would also contribute to making private-sector businesses more successful.

4.1.2.3 Population Mobility

The population of Carmacks is associated with relatively low mobility as of 2006. As indicated on Figure 4-8, only 90 people (or 24% of residents) moved in the five years prior to 2006, while the majority of community members (285 or 76%) did not. Movers included 20 non-migrants (5% of residents) (people who moved from another location within Carmacks) and 70 in-migrants (19% of residents) (people who moved from another community or city outside of Carmacks). Most of the in-migrants moved in from other parts of Canada. Figure 4-8 also shows that a total of 70 residents of Carmacks changed address in the year previous to 2006, of which 25 (approximately 6% of residents) moved into Carmacks from elsewhere. Due to a low responses rate, there are no 2011 data available for this community.

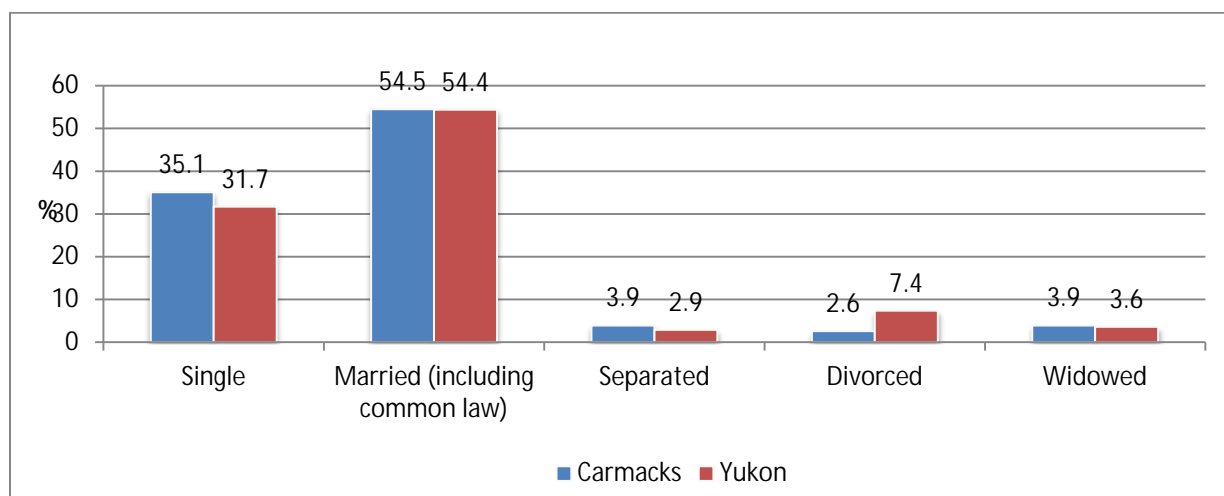


Source: Statistics Canada, 2007.

Figure 4-8: Mobility Status within the Last Five Years in Carmacks, 2001–2006

4.1.2.4 Family Characteristics

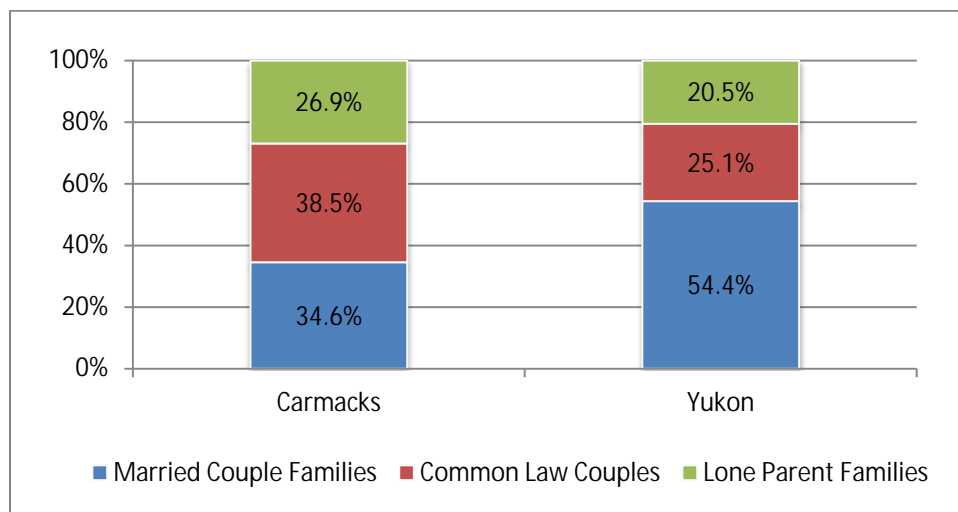
Figure 4-9 summarizes the marital status of adults (15 years of age or older) in Carmacks and Yukon for 2011. Similar to Yukon, the majority of the adult population in Carmacks was married or living with a common-law partner (54.5%) and another 35.1% was single (never legally married). The balance of the adult population was separated (3.9%), divorced (2.6%), or widowed (3.9%).



Source: Statistics Canada, 2012a.

Figure 4-9: Marital Status of the Population in Carmacks, 2011

In 2011, 34.6% of Carmacks families consisted of married couples (with and without children), 38.5% were common law couples, and 26.9% were lone-parent families. Figure 4-10 summarizes the family structure in Carmacks and Yukon. It shows that Carmacks has a higher proportion of lone parent families and a lower proportion of married couple families than the entire territory.



Source: Statistics Canada, 2012a.

Figure 4-10: Family Structure in Carmacks, 2011

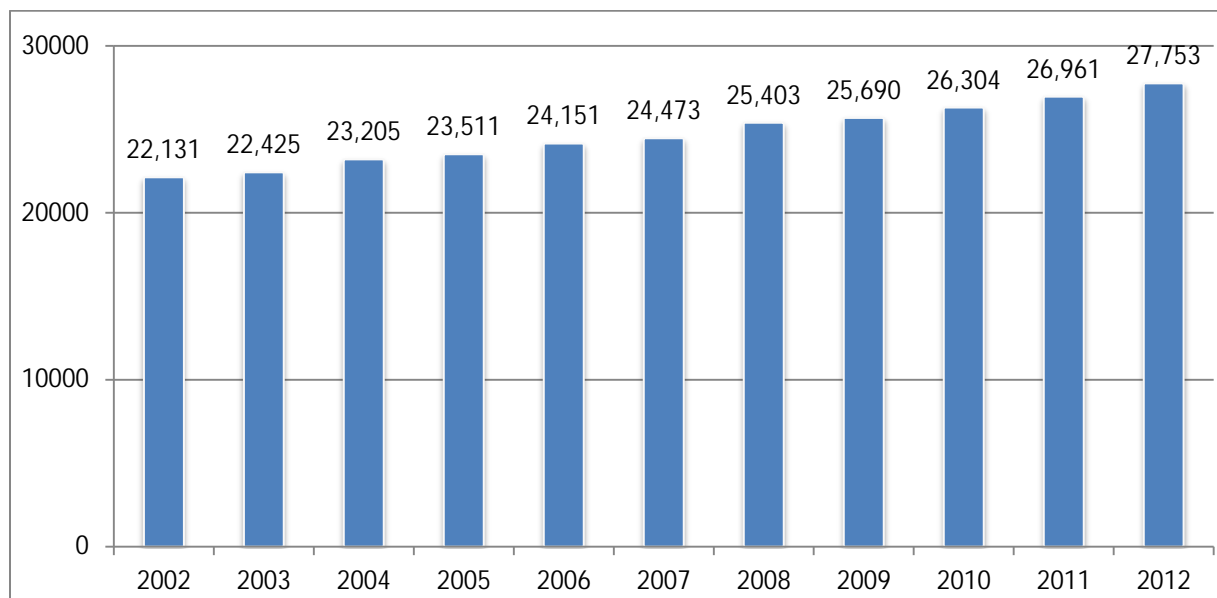
The average family size (i.e., number of people in the family) in Carmacks was 3.0 and the average number of children per family was 1.3, which is slightly higher than the territorial average of 2.8 people per family and 1 child per family.

4.1.3 Whitehorse

4.1.3.1 Current Population and Population Change

Of all Canadian provinces and territories, Yukon experienced the highest population growth rate between 2006 and 2011 at 11.6% according to the 2011 Census. Most of this growth occurred in Whitehorse (over 85%); populations in some smaller communities have actually declined over the past few years (Yukon Economic Development, 2010). The City of Whitehorse has grown approximately 13.8% between 2006 and 2011, which is about twice the national growth rate of 5.9% for the same period (Statistics Canada, 2012a).

As indicated in Figure 4-11, the population of the City of Whitehorse has experienced continued population gains during the past 10 years. Whitehorse's population grew from 22,131 in 2002 to 27,753 in 2012, representing an accumulated increase of 25%. In one year alone (December 2011 to December 2012), the city's population grew by 2.9%, representing a much higher rate than the national average of 1.1% (Statistics Canada, 2013f). The majority of the population growth is a result of net migration to the city, but the birth rate also exceeded the death rate, which represents another notable difference between Whitehorse and national population statistics, since the Canadian average indicates that the death rate is exceeding the birthrate) (CMHC, 2012).



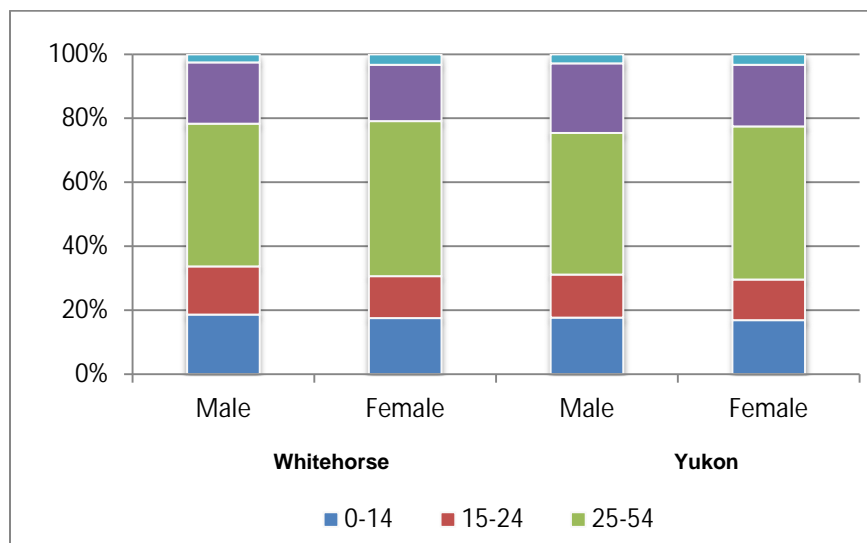
Source: Yukon Bureau of Statistics, 2013d; Based on Yukon Health Care Registration data.

Figure 4-11: City of Whitehorse Population

The 2011 HNS indicates that approximately 17% (3,770) of the Whitehorse residents are Aboriginal. This is below the Yukon average of 23%.

4.1.3.2 Gender and Age

In 2011, the median age of the Whitehorse population was 37.1 years, which is below the Yukon median of 39.1 years. Contrary to the Yukon trend, women tend to be older than men with a median age of 37.7 years, compared to 36.4 years for males (Statistics Canada, 2012a). The age and gender breakdown in Whitehorse is provided in Figure 4-12. Approximately 47% of the population comprises the 25 to 54 year-old age category, compared to 46% for the entire Yukon. Gender is somewhat evenly distributed in all age categories (Figure 4-12). Overall, Whitehorse has an almost equal proportion of males to females at 49.6% to 50.4%, respectively.

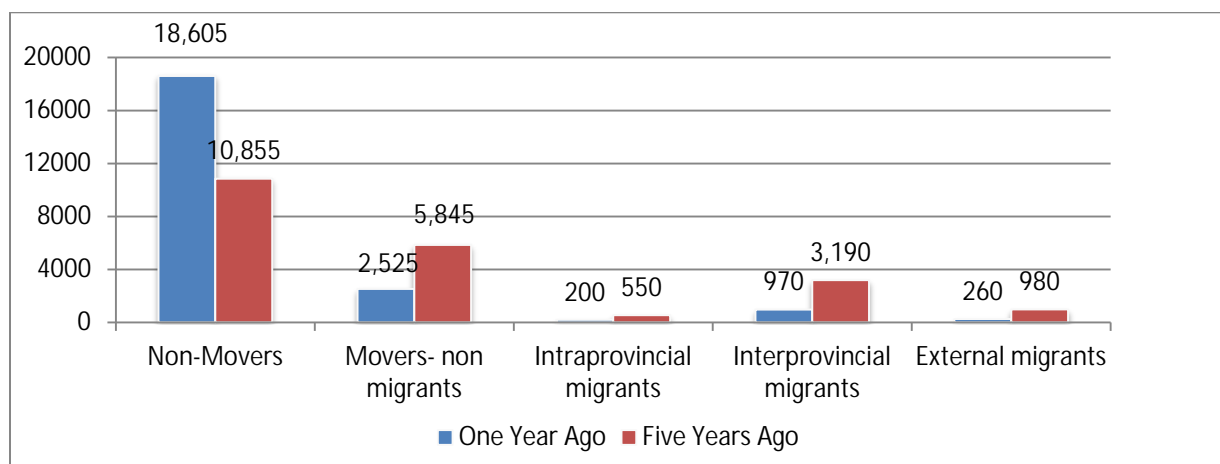


Source: Statistics Canada, 2012a

Figure 4-12: Breakdown of Age Groups by Gender in Whitehorse, 2011

4.1.3.3 Population Mobility

More than 82% of people in Whitehorse lived at the same address in 2011 as they did in 2010, while only 51% lived at the same address in 2011 as they did in 2006. As showed in Figure 4-13, over 10,500 people (approximately 49%) changed address during 2006 and 2011, of them 3,900 people moved during 2011. Movers within the last five years included 5,845 non-migrants (27% of residents) (i.e., people who moved to another location within Whitehorse) and 4,720 in-migrants (22% of residents) (i.e., people who moved in from another community or city outside of Whitehorse). The majority of the in-migrants moved to Whitehorse from other parts of Canada (3,190 or 15% of residents), while 5% (980 residents) moved from other countries.

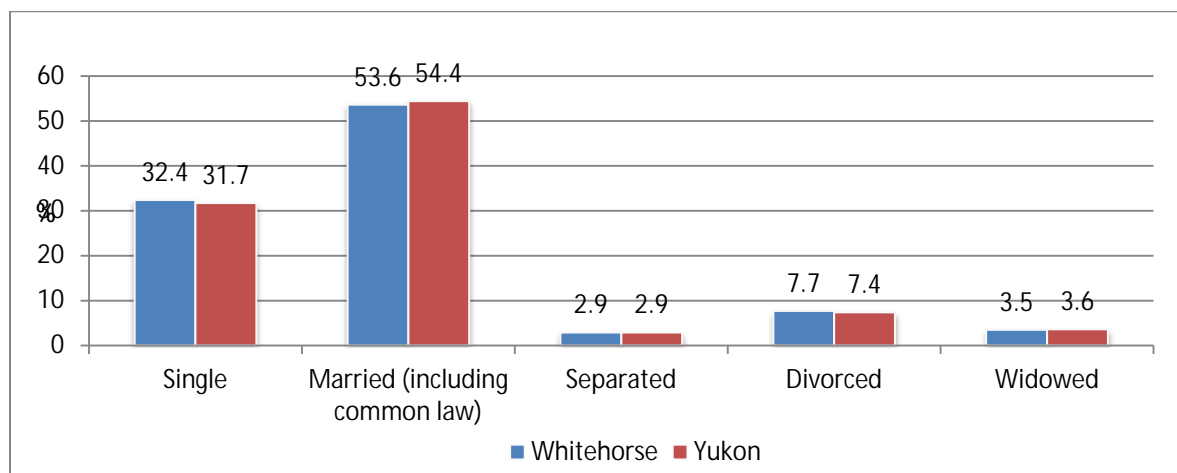


Source: Statistics Canada, 2013e.

Figure 4-13: Mobility Status within the Last Five Years at Whitehorse, 2006–2011

4.1.3.4 Family Characteristics

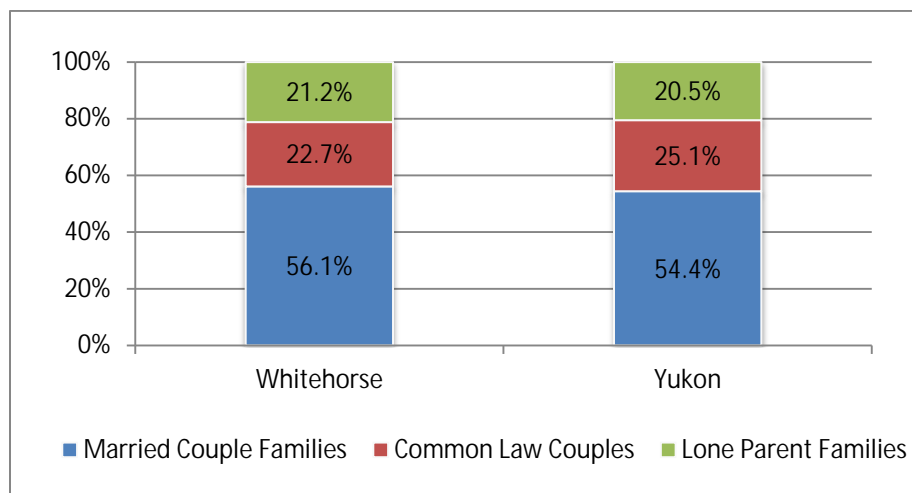
Figure 4-14 summarizes the marital status of the adult population (15 years of age or older) in Whitehorse and Yukon for 2011. Similar to Yukon, the majority of adults in Whitehorse were married or living with a common-law partner (53.6%), another 32.4% were single (never legally married), and the remainder were separated (2.9%), divorced (7.7%), or widowed (3.5%).



Source: Statistics Canada, 2012a.

Figure 4-14: Marital Status of the Population in Whitehorse, 2011

Unlike Pelly Crossing and Carmacks, the majority of families in Whitehorse (56.1%) consisted of married couples (with and without children), and another 22.7% were common law couples. Lone parent families accounted for approximately 21% of Whitehorse families, which was the lowest percentage among the LSA communities. Family structure in Whitehorse was similar to Yukon overall (Figure 4-15).



Source: Statistics Canada, 2012a.

Figure 4-15: Family Structure in Whitehorse, 2011

The average family size (i.e., number of people in the family) in Whitehorse was 2.9 and the average number of children per family was 1.1, which is slightly higher than the territorial average of 2.8 people per family and 1 child per family.

4.2 Community Well-being

The Canadian Community Health Survey in 2007/2008 determined that approximately 11% of Yukon residents rated their physical health as fair to poor, with the remainder indicating good, very good, or excellent. Those with a poor rating were typically with a lower income, elderly, or with lower education levels. These results are similar to the national results.

The survey also assessed mental health, with 6% of Yukon residents rating their mental health as fair to poor. The lower income group again had a larger representation in this rating, with higher incomes generally leading to a higher rating of mental health. These results were also similar to those found across Canada (Yukon Bureau of Statistics, 2010).

The survey also examined frequency and intensity of alcohol consumption. In the 2007/2008 period approximately 62% of Yukon residents over the age of 12 reported drinking alcohol once or more times a month, 15% were less than once a month, and 23% had not consumed alcohol within the past year. The survey found similar rates of alcohol consumption between urban and rural Yukon residents. These results were similar to national estimates. The survey also found a positive correlation between income and regular alcohol consumption, with a larger proportion of higher-income people being regular drinkers. Yukon residents were more likely to be frequent, heavy drinkers when compared to national estimates (*ibid*).

Health statistics for the leading causes of death in 2008 show similarities between Yukon and Canada, though the order of leading cause of death varies. Of note is the higher ranking for accidental (unintentional) deaths in Yukon, deaths which are largely preventable. Refer to Table 4-1 for details.

Table 4-1: Five Leading Causes of Death in 2008

Cause of Death	Canada		Yukon	
	Rank	Percent (%)	Rank	Percent (%)
Malignant neoplasms (cancer)	1	29.6%	1	29.8%
Heart disease	2	21.3%	2	16.2%
Cerebrovascular disease	3	5.8%	5	5.6%
Chronic lower respiratory diseases	4	4.6%	4	7.1%
Accidents (unintentional injuries)	5	4.3%	3	9.1%

Source: Statistics Canada, 2011e.

The 2010 Dimensions of Social Inclusion and Exclusion in Yukon report examined Yukoners' access to medical treatment for health, mental, or addiction problems (Yukon Bureau of Statistics, 2010). Access could be impeded by distance to services, but other barriers were also

identified, including difficulties in getting an appointment, transportation challenges, expenses, and wait times (*ibid*). These barriers are not surprising given the dispersed population in Yukon in a number of small communities and Whitehorse serving as the main medical services centre for the territory.

4.2.1 Community Well-being Index

The Aboriginal Affairs and Northern Development (AAND) Community Well-being Index (CWBI) is used to measure the general well-being of a community. The CWBI is based on four primary indicators: education, labour force activity, income, and housing conditions. CWBI scores range from 0 (lowest/worst) to 100 (highest/best). The current index is constructed from Census 2006 data, which are the most comprehensive data currently available. No index was calculated for First Nation communities with less than 65 inhabitants due to limited data availability.

4.2.1.1 Pelly Crossing

As noted in section 4.1.1, the majority of the population of Pelly Crossing is First Nation, comprising approximately 91% of the entire population (Statistics Canada, 2013e). The CWBI score for the First Nation and non-First Nation population collectively in Pelly Crossing in 2006 was 71, which is 7 points below the Yukon CWBI average of 78 and 14 points above the Canadian First Nation CWBI average score of 57 (AAND, 2006). In the territories (Yukon, Northwest Territories, and Nunavut) the average CWBI scores for First Nation communities was 66 in 2006; higher than the overall Canadian average but below the Pelly Crossing CWBI score of 71 (AAND, 2006). Pelly Crossing scored the second lowest in Yukon for education scores. Table 4-2 includes the scores for each of the CWBI indicators in Pelly Crossing.

Table 4-2: Pelly Crossing CWBI Scores

Category	Score
Income	80
Education	43
Housing	78
Labour Force	82
Overall CWBI Score	71

Note: CWBI = Community Well-being Index

Source: AAND, 2006

4.2.1.2 Carmacks

In 2006, the AAND CWB score for Carmacks population (of which approximately 76% is First Nation) was 70. This is 8 points below the Yukon CWB average of 78 and 13 points above the Canadian First Nation CWBI average of 57 (AAND, 2006). In the territories (Yukon, Northwest Territories, and Nunavut) the average CWBI scores for First Nation communities was 66 in 2006; higher than the overall Canadian average but below the

Carmacks CWBI score of 70 (AAND, 2006). Similar to Pelly Crossing, Carmacks had relatively low scores for education as indicated in Table 4-3 below.

Table 4-3: Carmacks CWBI Scores

Category	Score
Income	76
Education	44
Housing	74
Labour Force	84
Overall CWBI Score	70

Note: CWBI = Community Well-being Index

Source: AAND, 2006

4.2.1.3 Whitehorse

In 2006, the AAND CWBI score for Whitehorse (First Nation and non-First Nation population collectively) was 85 (AAND, 2006), which is 7 points above the Yukon CWBI average of 78 (AAND, 2006). Table 4-4 includes the scores for each of the CWBI indicators in Whitehorse.

Table 4-4: Whitehorse CWBI Scores

Category	Score
Income	92
Education	64
Housing	93
Labour Force	90
Overall CWBI Score	85

Note: CWBI = Community Well-being Index

Source: AAND, 2006

4.2.2 Price Index

Another indicator of community well-being is the Spatial Price Index, which measures the differences in prices between locations at a particular point in time, and is essentially a comparison of prices of a specific basket of goods and services in different locations. An issue of concern in some remote Yukon communities relates to the high price of food and the impact it has on community members. For example, many community members travel to Whitehorse to do their grocery shopping; however, fuel is expensive and not all community members have the ability to travel and must therefore rely on local grocery stores (EMR, 2013, pers. comm.; Tantalus, 2013, pers. comm.).

Typically, the cost of living in remote areas such as Carmacks is higher than in Whitehorse. In fact, the disparity between the costs of food in remote Yukon communities versus Whitehorse has been slightly increasing since 2008. The high cost of food reinforces the role of the traditional economy and traditional foods. The Spatial Price Index in Carmacks in 2011 was 112.3, with Whitehorse at 100. Thus, consumers in Carmacks pay 12.3% more for household goods, groceries, gasoline, heating, and other items (Yukon Bureau of Statistics, 2012c). No index was available for Pelly Crossing, but it can be reasonably expected to be higher due to the greater distance from Whitehorse.

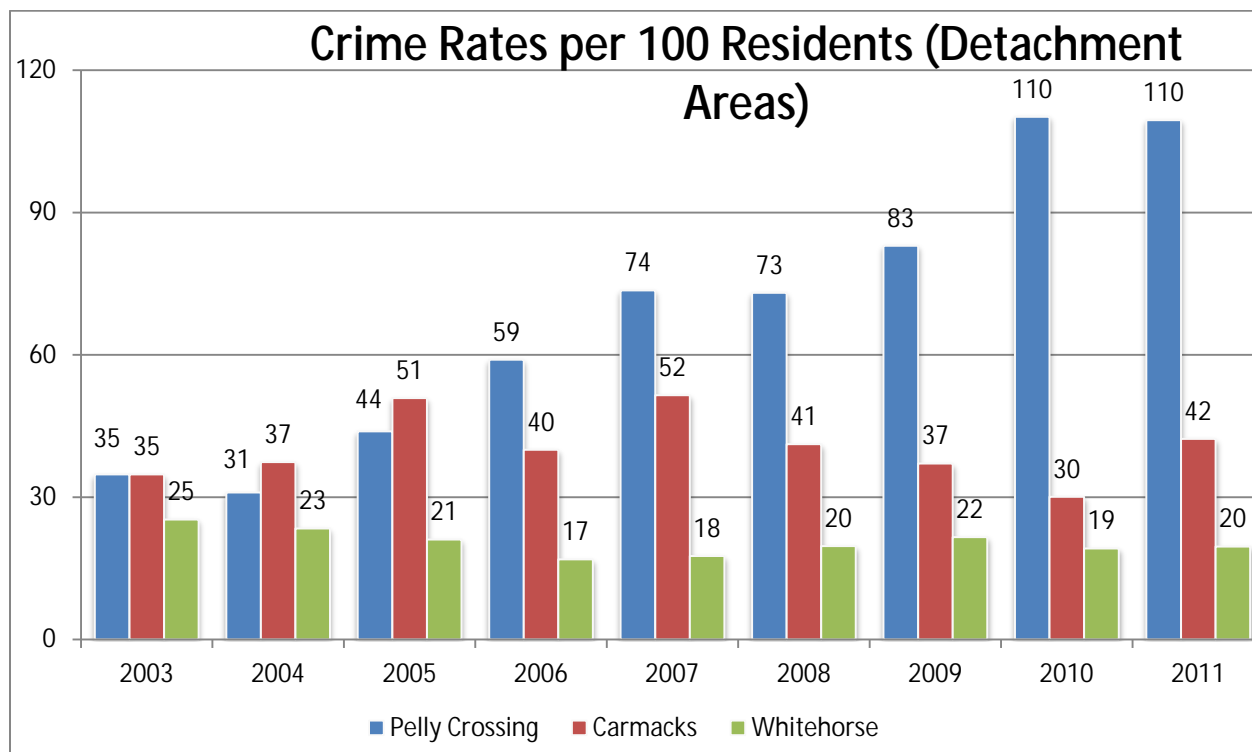
With respect to inflation, Whitehorse ranks higher than the rest of Canada. In comparing March 2012 to March 2011, the year-over-year rate of inflation in Whitehorse was 2.6%, which is approximately 37% higher than the 1.9% national rate of inflation for 2012. Year-over-year increases for Whitehorse in March were seen in rent, fuel, and gasoline (Yukon Bureau of Statistics, 2012c).

4.2.3 Incidence of Crime

Crime rates tally all criminal incidents (excluding traffic and drug violations) and are typically counted per capita (per 100,000 persons). The three territories (Yukon, Nunavut, and Northwest Territories) have the highest crime rates in the country (Statistics Canada, 2011c), although Yukon has the lowest rate in the territories. The General Social Survey (GSS) on Victimization (based on self-reported data collected through telephone and personal interviews rather than police-reported statistics) was administered in the territories in 2004 and 2009. Results from this survey indicate that assault is the most common reported crime in the territories. Police reported and self-reported data indicate that the provinces typically experience non-violent crime while nearly half of self-reported incidents in the territories were assaults, and nearly half of that total is committed by a spouse or partner (Perreault and Mahony, 2009). There was little variation in the rates of victimization between the capital cities of the three territories (Yellowknife, Whitehorse, and Iqaluit). Reasons for higher rates of criminal activity in the territories might be related to a number of factors including higher alcohol consumption, unemployment, and economic disparity.

4.2.3.1 Crime Rates

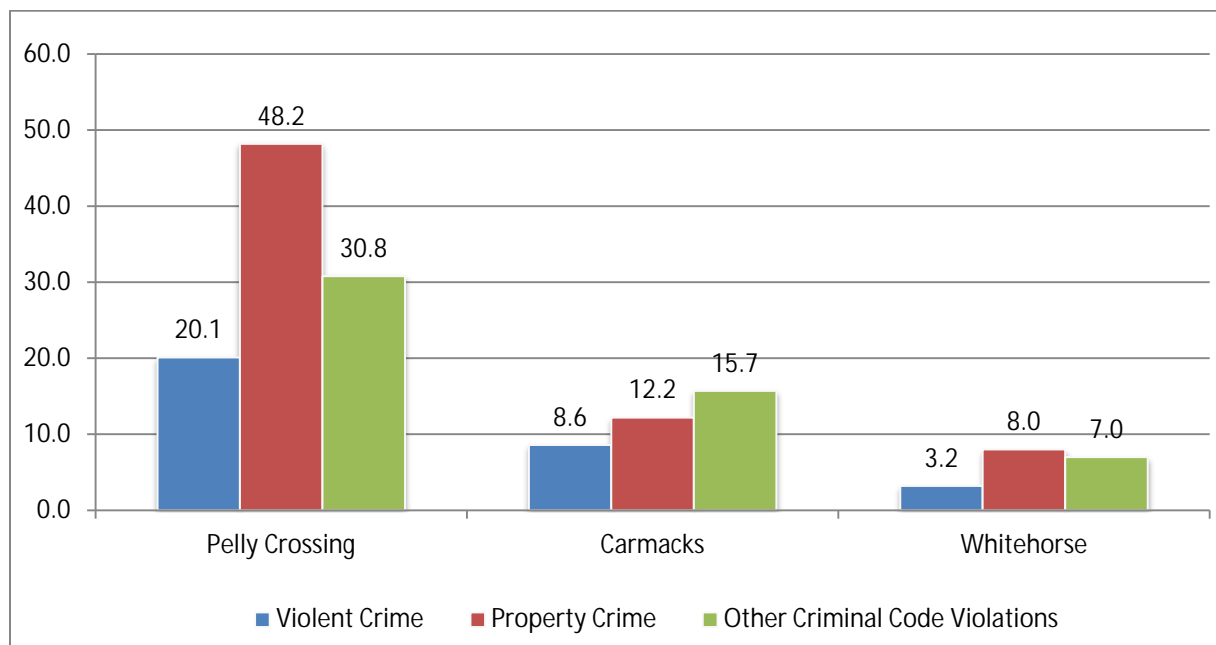
Figure 4-16 summarizes reported crime rates per 100 residents, based on Yukon RCMP detachment areas. It depicts crime rates for the three LSA communities, including Pelly Crossing, Carmacks, and Whitehorse. There is a considerable difference in crime rates among the study communities; Pelly Crossing has the highest crime rates in the LSA, representing almost six times the crime rate in Whitehorse and two and a half times the crime rate in Carmacks. Crime rates in Pelly Crossing have steadily increased from 2004 to 2011, while Carmacks has experienced moderate spikes in crime rates during the same period. Crime rates in Carmacks decreased from 2008 to 2010 but increased again in 2011. Crime rates in Whitehorse have gradually decreased from 2003, although they slightly increased between 2007 and 2009. Whitehorse has the lowest crime rates among the LSA communities (Figure 4-16).



Source: Yukon Bureau of Statistics, 2013d. Based on Statistics Canada, Canadian Centre for Justice Statistics,

Figure 4-16: Crime Rates per 100 Population (all Violations), 2003–2011

Figure 4-16 shows the crime rate categories for the LSA communities for 2011, expressed in terms of the number of reported crimes per 100 people. At a rate of 48.2/100, property crime was the most prevalent in Pelly Crossing. Property crime was also the most common in Whitehorse, at a rate of 8/100. However, this was well below the Pelly Crossing rate. Pelly Crossing also reported the highest rate of violent crime at 20.1/100, followed by Carmacks at 8.6/100, and Whitehorse at 3.2/100. The most prevalent crime at Carmacks was 'other' crime at a rate of 15.7/100 people.



Source: Yukon Bureau of Statistics, 2013d. Based on Statistics Canada, Canadian Centre for Justice Statistics,

Figure 4-17: Crime Rates per 100 Population by Type of Violation, 2011

Interviews with community representatives in Carmacks revealed that crime is perceived to be low in the community, in particular, violent crime. Although, they noted that there are occasional drug and alcohol related incidents (Tantalus, 2013; Village of Carmacks, 2013, pers. comm.). Informants also noted that crime is decreasing due to the efforts of the RCMP (Village of Carmacks, 2013, pers. comm.) and that most crimes are performed by recurrent offenders (EMP, 2013, pers. comm.).

Court and jail services are provided from Whitehorse; the court visits Carmacks once a month. It was noted that jails in Whitehorse operate at maximum capacity and that they are difficult to staff. There are three cells in Carmacks (EMP, 2013, pers. comm.).

5.0 EMPLOYMENT AND INCOME

Construction and operations of the Project will create employment and income opportunities for residents of the LSA and RSA. This section examines labour availability for each of the LSA communities and Yukon as a whole in terms of the overall size of the work force, labour force participation, and unemployment and employment rates. It also describes median earnings by residents of the LSA, the median incomes of households and the composition of total incomes.

5.1 Labour Force Characteristics

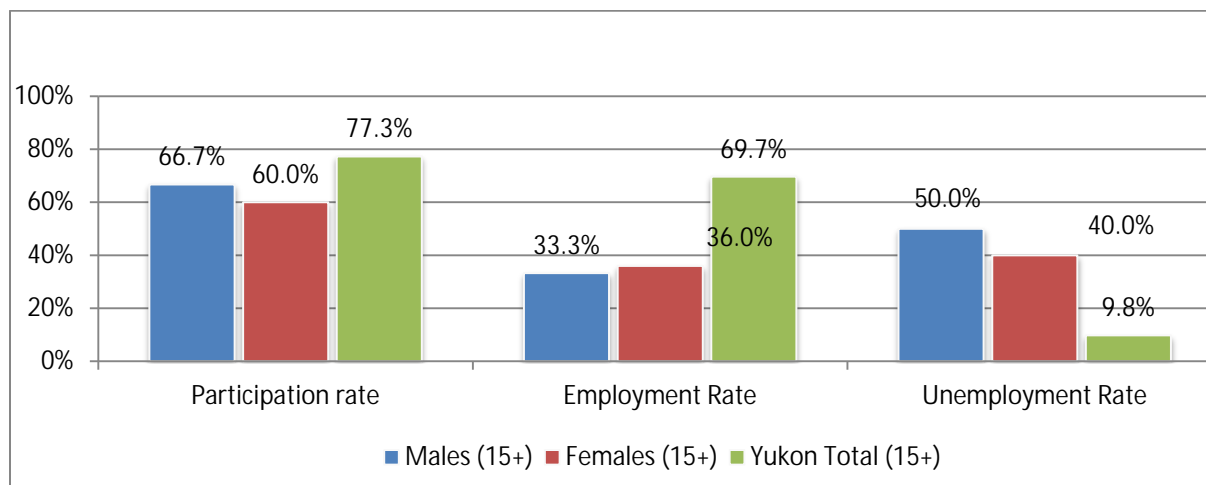
Labour force is described for each of the LSA communities in term of the overall size of the work force, labour force participation, and unemployment and employment rates.

5.1.1 Selkirk First Nation/Pelly Crossing

The following chart illustrates the most recent workforce statistics available for Pelly Crossing based on the 2011 NHS. Overall, the community had a workforce of approximately 185 people in 2011, which represents the number of people who were either working or were actively seeking work. The labour force participation rate (i.e., the portion of the population 15 years of age and over who were employed or seeking work) was 67% for males and 60% for females. The average participation rate for the community was 64%, which was significantly lower than the territorial average (77.3%) and the participation rate in 2006 (77%) (Statistics Canada, 2007).

In 2011, there were 85 unemployed people in Pelly Crossing, representing an unemployment rate of 46% (50% for males and 40% for females). This was almost double the unemployment rate in 2006 (24%) and represented the highest unemployment rate in Yukon.

The employment rate refers to the number of persons employed in a week expressed as a percentage of the total population 15 years of age and over. Males had an employment rate of 33%, while females had a rate of 36%. These rates are almost half the average employment rates for Yukon (70.3% for males and 69% for females) (Figure 5-1).



Source: Statistics Canada, 2013e

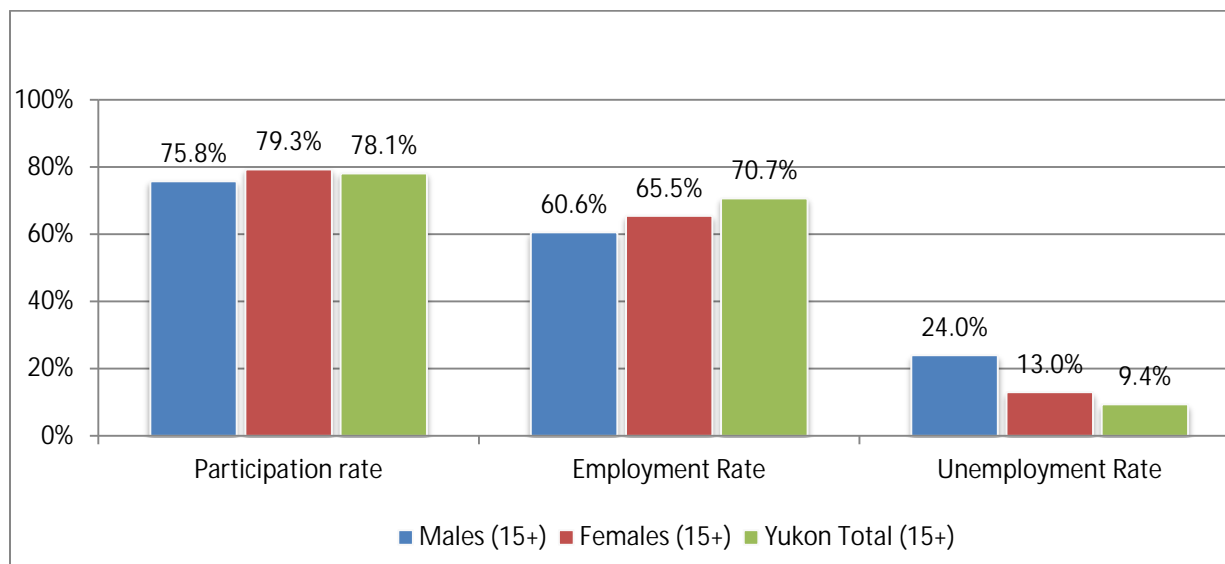
Figure 5-1: Pelly Crossing Labour Force Characteristics, 2011

According to the Yukon Bureau of Statistics, Pelly Crossing had 30 Employment Insurance Total Income Beneficiaries in February of 2012, which represents approximately 10% of the total Pelly Crossing population (Yukon Bureau of Statistics, 2012a).

5.1.2 Little Salmon/Carmacks First Nation and Village of Carmacks

Figure 5-2 illustrates the most recent employment characteristics available for Carmacks based on the 2006 Census. Comprehensive labour force data are not available for 2011 because NHS information for Carmacks was withheld due to low response rates. Overall, the community had a workforce of approximately 240 people in 2006. The labour force participation rate (the portion of the population 15 years of age and over who were employed or seeking work) was 75.8% for males and 79.3% for females. The average rate for Carmacks was 76.2%, which was slightly lower than the 78.1% participation rate for Yukon as a whole (79.9% for males and 76.2% for females).

At the time of the 2006 census, the overall community unemployment rate was 18.8%. Males in the community experienced a higher unemployment rate of 24.0% compared to 13.0% for females. The unemployment rate for males in Carmacks was more than twice as high as the territorial average of 11.0% (7.8% for females). As indicated, males had an employment rate of 60.6% in Carmacks while females had a rate of 65.5% (Figure 5-2). These rates were lower than the average employment rates for Yukon (71.1% for males and 70.3% for females).



Source: Statistics Canada, 2007

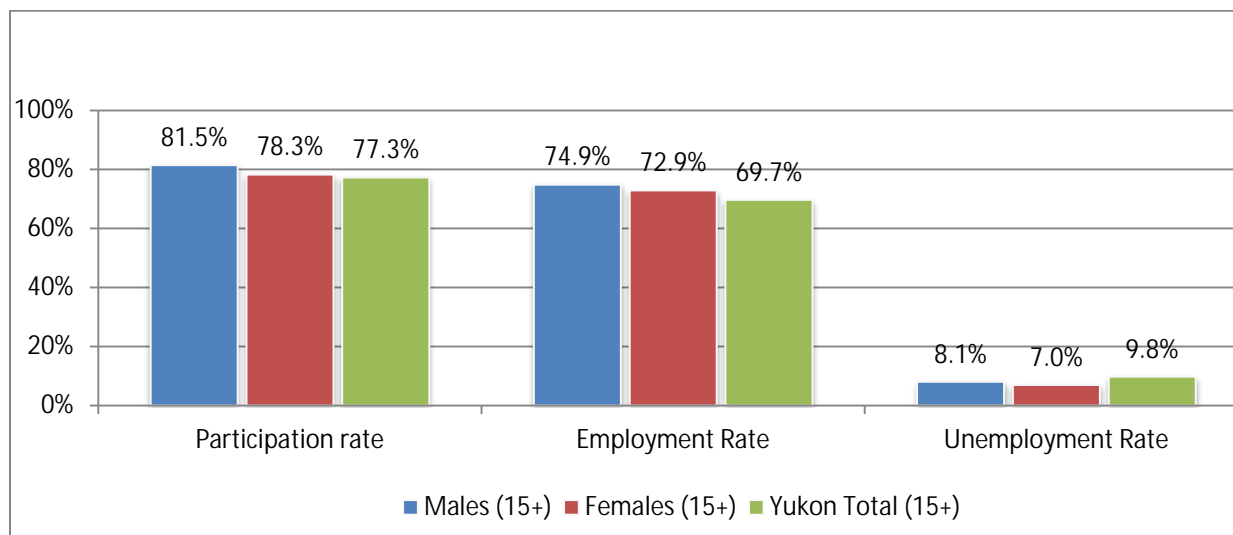
Figure 5-2: Carmacks Labour Force Characteristics, 2006

According to the Yukon Bureau of Statistics, Carmacks had 50 Employment Insurance Total Income Beneficiaries in February of 2012, which represents approximately 10% of the total population (Yukon Bureau of Statistics, 2012a).

5.1.3 Whitehorse

As of 2011, Whitehorse had a workforce of approximately 14,900 people and a labour force participation rate of 80%, which was slightly higher than the participation rate of 78.9% in 2006 (Statistics Canada, 2013e, 2007). During this same period, the unemployment rate in Whitehorse was 7.6% (8.1% for males and 7% for females), which is lower than the territorial rate of 9.8% (Figure 5-3).

With respect to gender, males and females had similar employment levels in 2011, with 6,880 males employed and 6,885 females employed, indicating employment rates of 74.9% for males and 72.9% for females.



Source: Statistics Canada 2013e

Figure 5-3: Whitehorse Labour Force Characteristics, 2011

5.2 Income and Earnings

5.2.1 Individual and Household Income

Information on income and earnings is available from the 2006 Census and relates to the 2005 calendar year. As indicated in Table 5-1, the median individual income for Pelly Crossing and Carmacks were estimated to be \$23,680 and \$22,912, respectively. The highest median individual income was found in Whitehorse at \$34,337. In Carmacks and Pelly Crossing females reported higher median income than males. The gender gap in Pelly Crossing was the biggest, with women reporting 50% more income than men. Families and individuals in Pelly Crossing and Carmacks had median incomes that were below the Yukon median.

Table 5-1: Median Income, 2005

Community	Household Income		Median Individual Income	Median Income by Gender (\$)	
	Median Income	Average Size		Male	Female
Pelly Crossing	\$47,168	2.6	\$23,680	\$18,112	\$27,392
Carmacks	\$36,992	2.4	\$22,912	\$22,720	\$23,744
Whitehorse	\$66,191	2.4	\$34,337	\$37,191	\$31,891
Yukon Territory	\$60,105	2.4	\$31,352	\$34,536	\$29,762

Source: Statistics Canada, 2007

5.2.2 Sources of Income

The following Table 5-2 provides a breakdown of individual income composition in the communities for the LSA and RSA, and includes the sources contributing to the total composition of income generated. Total income of citizens does not simply comprise income earned solely through employment; rather it can consist of government transfers and other money. Overall, more than 80% of income in all the communities in 2006 came from earnings. Residents of Carmacks were the least reliant on earned income (80.8%) and the most reliant on income from government transfers (15.6%). Income from other sources (including savings and investments) accounted for less than 8% in all the communities, although Whitehorse was more reliant on these sources than the others.

Table 5-2: Composition of Income, 2005

Community	Composition of Income (%)		
	Earnings	Government Transfer	Other
Pelly Crossing	86.9%	11.2%	3.8%
Carmacks	80.8%	15.6%	3.1%
Whitehorse	84.2%	7.9%	7.9%
Yukon Territory	83.9%	8.7%	7.4%

Source: Statistics Canada, 2007

5.2.3 Earnings from Employment

In 2006, only 52.2% of workers in the LSA were employed full-time, year round. This was slightly higher than the territorial rate (49.6%). Among the LSA communities, the percentage of people working full-time, year round was the highest in Whitehorse (52.6%) and the lowest in Pelly Crossing 37.5%. Carmacks had 42% of people working full-time, year round, which was below the territorial rate.

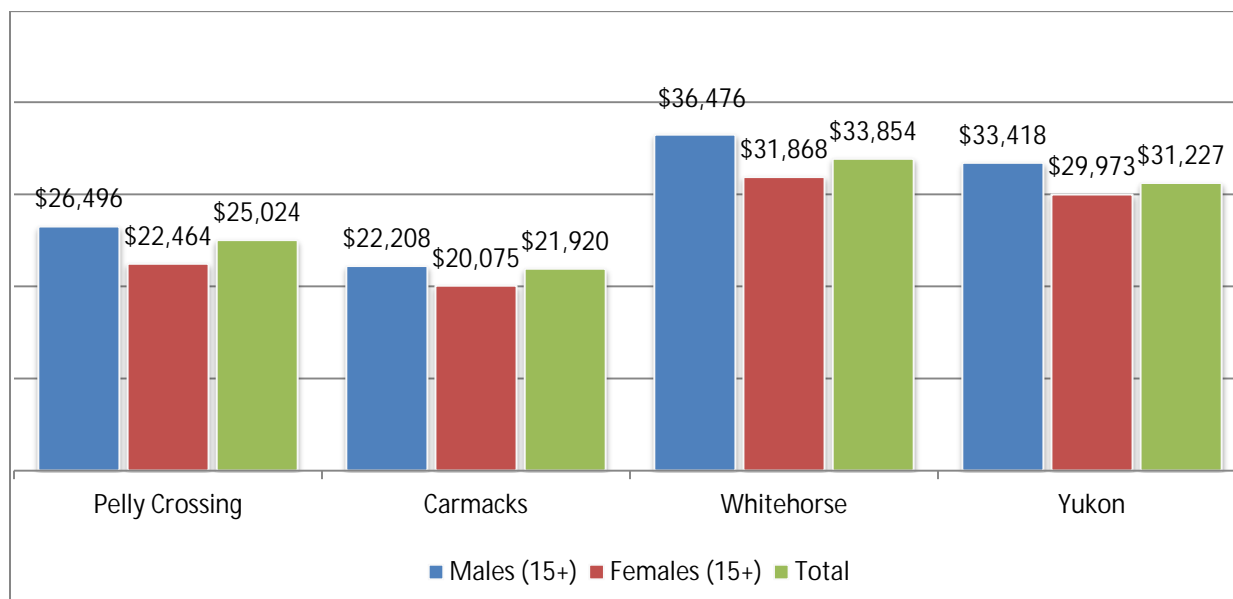
Table 5-3 shows that, in Yukon, people working full time, year round had employment earnings that were 59% higher than the median earnings for the entire workforce. This differential was significantly larger in the smaller communities of Carmacks and Pelly Crossing, where the differentials were 83% and 67%, respectively. In Whitehorse, this differential was 48%, which was lower than Yukon as a whole. Median earnings in Whitehorse were significantly higher than in the other communities and Yukon as a whole.

Table 5-3: Full and Part-time Employment and Associated Median Earnings, 2005

Community	Working Full Time Year Round (%)	Median Earnings (\$)	
		All Workers	Full Time Workers
Pelly Crossing	37.5	25,024	41,856
Carmacks	42.0	21,920	40,134
Whitehorse	52.6	33,854	50,122
Yukon Territory	49.6	31,227	49,787

Source: Statistics Canada, 2007

Figure 5-4 shows median earnings by gender for all people who reported employment income, with males in all communities reported higher earnings than females. The biggest differential in median earnings was reported in Pelly Crossing, where the median for males was 18% higher than for females. Carmacks has the smallest differential in median income between sexes, with males earning 10% more than females.

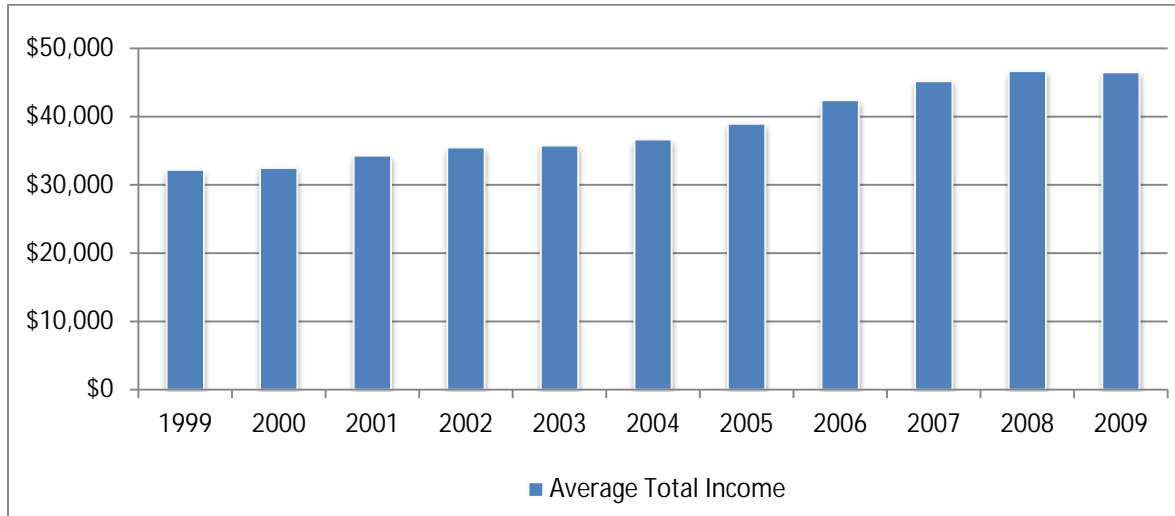


Source: Statistics Canada, 2007

Figure 5-4: Individual Earnings by Gender, 2006

5.2.4 Changes in Income Since 2005

Average income in Yukon has increased since the 2006 Census. According to Taxation Statistics (Yukon Bureau of Statistics, 2012e), the average total income in Yukon increased from \$38,964 in 2005 to \$46,519 in 2009, which represents an increase of 19.4% over the four years. Figure 5-4 shows that Yukon reported a sustained, steady growth in average total income over the past 10 years. Taxation data are not reported for individual communities.



Source: Yukon Bureau of Statistics, 2012e.

Figure 5-5: *Average Total Income in Yukon, 1999–2009*

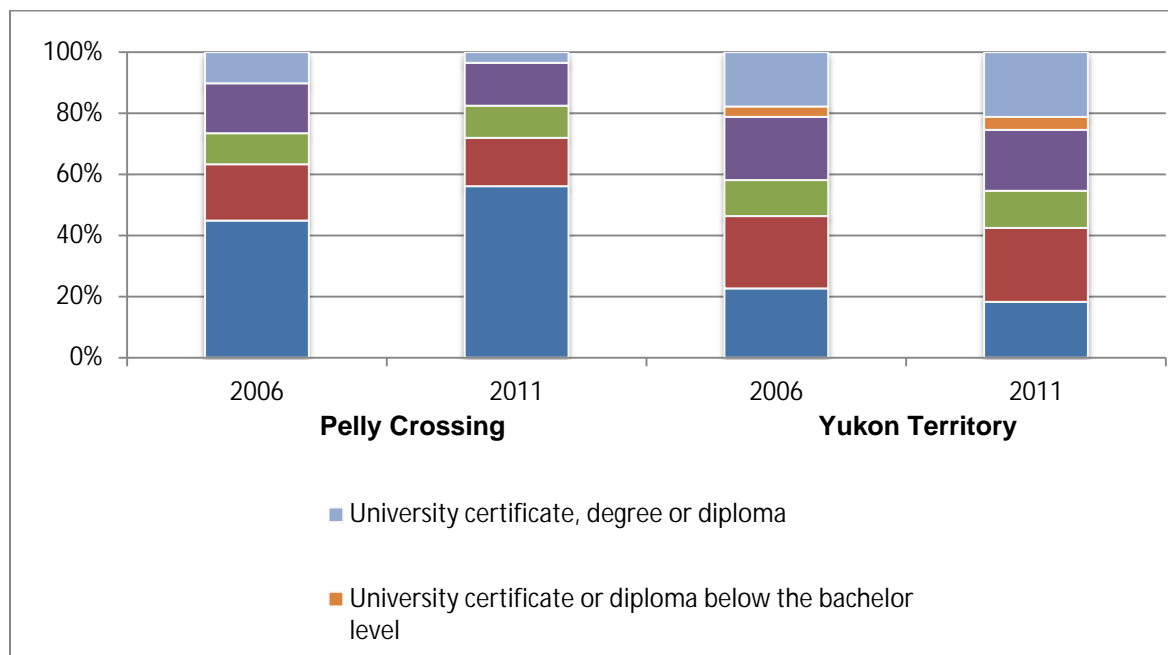
6.0 EMPLOYABILITY

Construction and operations of the Project may create employment opportunities for residents of the LSA and RSA. The potential for employment of regional residents will ultimately depend on their qualifications and experience. This section summarizes the educational attainment, training, and experience of study area residents.

6.1 Educational Attainment

6.1.1 Pelly Crossing

Educational characteristics of the adult population of Pelly Crossing (people 15 years of age and older) are shown in Figure 6-1. Adults in Pelly Crossing were less educated than Yukon residents overall. In 2006, 44.9% of adults in Pelly Crossing had no certificate, diploma, or degree, compared to 22.7% of adults in Yukon. By 2011, the percentage of adults in Pelly Crossing with no certificate, diploma, or degree had increased to 56.1%, while the territorial average decreased to 18.3%. Overall, in 2011, approximately 43.9% of adults in Pelly Crossing had some sort of formal education (certificate, diploma, or degree) compared to 81.7% of Yukon adult population. Approximately 10.5% (30 people) reported achieving apprenticeship or trades educations; 14% (40 people) reported completion of college education; and 3.5% (10 people) held university certificates or degrees (Statistics Canada, 2013e).



Source: Statistics Canada 2007, 2013e

Figure 6-1: Educational Attainment of People Aged 15+ Years in Pelly Crossing and Yukon, 2006 and 2011

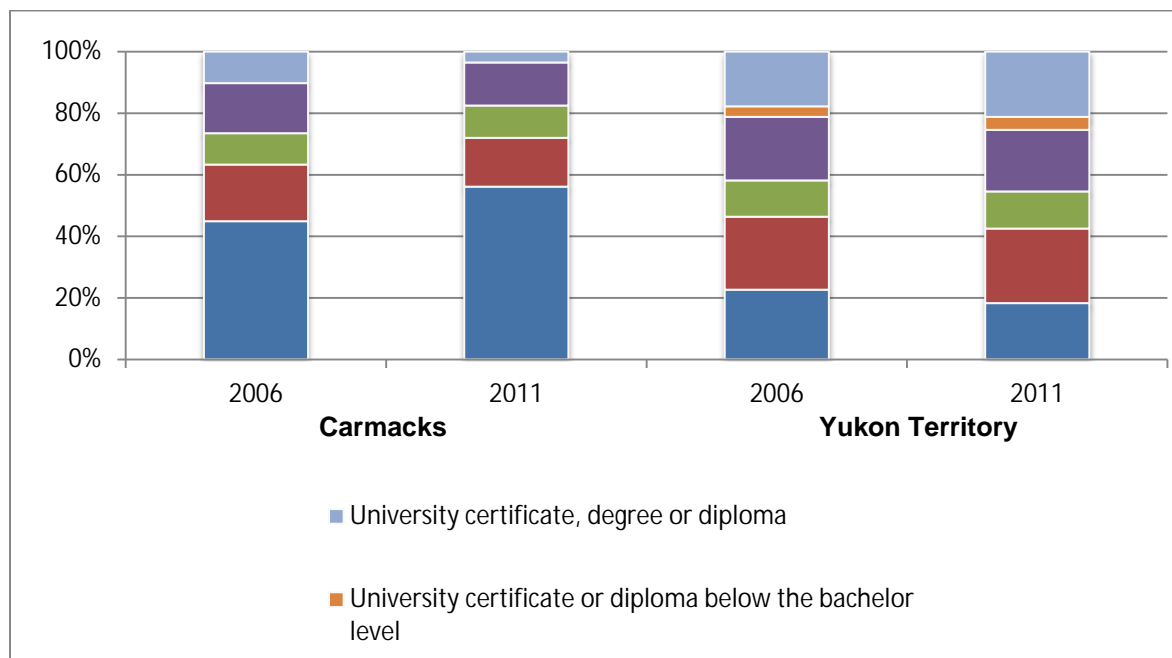
The 2006 Census provides additional insight on educational attainment by age category. In 2006, nearly 45% of Pelly Crossing residents 35 years of age and older had not completed high school or any form of post-secondary education; however, all residents 25 to 35 years of age had achieved a high school certificate, and many had gone on to pursue further trades, college, or university educations (Statistics Canada, 2007). This may indicate a trend towards younger generations improving levels of education in the community.

6.1.2 Carmacks

The most recent education statistics available for Carmacks are based on the 2006 Census. The 2011 NHS information for Carmacks was withheld due to low response rates.

In 2006, the majority of adults in Carmacks (15 years of age and over) had a certificate, diploma, or degree (57.4%); however, this was considerably below the 77.4% at the territorial level. In general, adults in Carmacks were less educated than Yukon residents as a whole, with 42.6% of adults not having any certificate, diploma, or degree, compared to 22.7% of adults in Yukon (Figure 6-2).

In 2006, approximately 13% of adults (40 people) reported having apprenticeship or trades educations; another 13% (40 people) reported having college education; and 3.3% (10 people) reported university certificates or degrees (Statistics Canada, 2007).

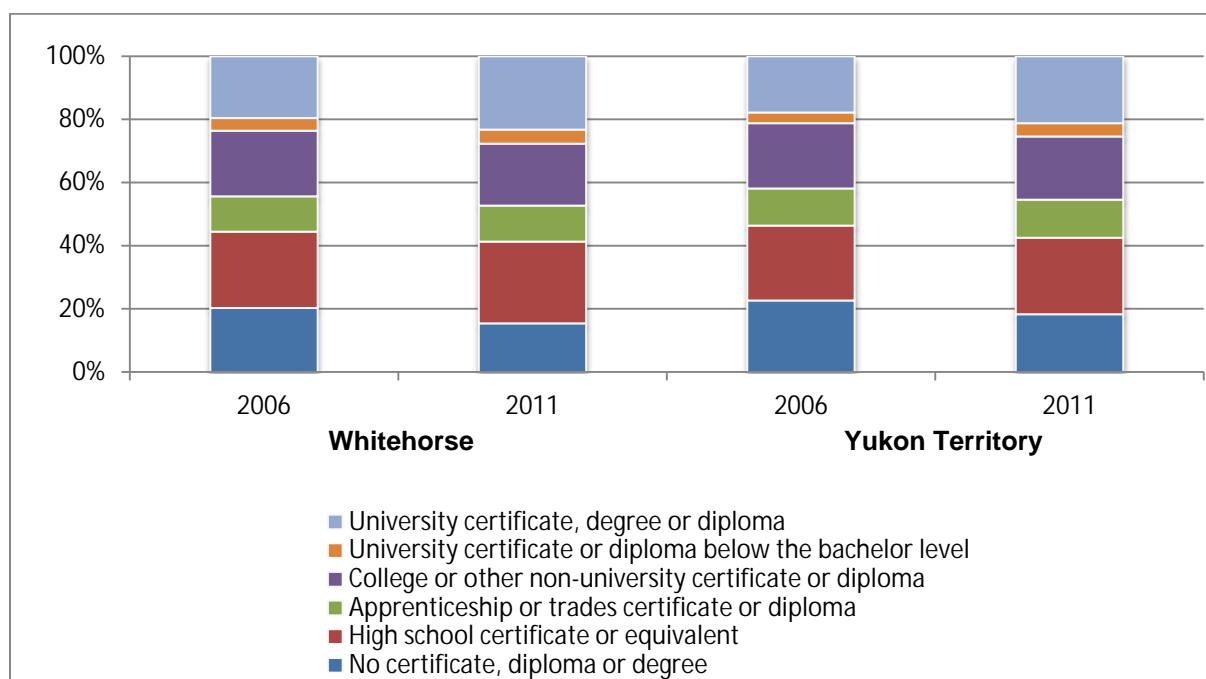


Source: Statistics Canada, 2007, 2013e.

Figure 6-2: Educational Attainment of the People Aged 15+ Years in Carmacks and Yukon, 2006

6.1.3 Whitehorse

As indicated in Figure 6-3, in 2006 nearly 80% of the adult population of Whitehorse (15 years of age and over) had some form of formal education, compared to 77.3% of adults in Yukon. In 2011, the percentage of adults with formal education increased to 84.6%, which was still higher than the territorial average (81.7%). Based on 2011 statistics, high school certificate or equivalent is most common in Whitehorse with 25.9% (4,820) of adults indicating its attainment, followed by university certificate, diploma, or degree at 23.2% (4,320) and college, or other non-university certificate or diploma at 19.6%. Between 2006 and 2011, there was a significant increase in the proportion of residents who reported having a university certificate diploma or degree, from 19.6% to 23.2% (Figure 6-3).



Source: Statistics Canada, 2007, 2013e.

Figure 6-3: Educational Attainment of People Aged 15+ Years in Whitehorse and Yukon, 2006 and 2011

6.2 Labour Force Experience

6.2.1 Labour Force by Industry

Table 6-1 shows labour force experience by industry in the study communities for 2006 and 2011. No data was available for 2011 for Carmacks, therefore, the analysis for this community relied on 2006 Census data. Within the LSA, the largest industry of employment was the public administration industry, which accounted for 73.1% of the experienced labour force in Pelly Crossing, 52.9% in Carmacks, and 27.1% in Whitehorse, compared to 28.9% in Yukon overall. Other important industries in Pelly Crossing and Carmacks included construction (11.5% and 5.9%, respectively), educational services (7.7% and 7.8%) and retail trade (7.7% and 5.9%),

while Whitehorse residents were more likely to be employed in business services (16.3%), retail trade (12.8%), and construction (9%) industries. In general, Whitehorse presented a more diversified labour force than the other two smaller communities.

Between 2006 and 2011, there were some changes in employment by industry within the LSA, in particular in Pelly Crossing. The most important change was the reduction in the percentage of the labour force with experience in agriculture and resource-based industries (including mining) and business services. Other important changes were the increase in the percentage of the labour force with experience in retail trade and construction industries, and the reduction in the percentage of the labour force with experience in business services, health and social services, and educational services.

Whitehorse labour force also experienced some changes. Between 2006 and 2011, there was an increase in the percentage of the labour force with experience in construction but a decrease in the percentage of the labour force with experience in health and social services.

Table 6-1: Labour Force by Industry, 2006 and 2011

Experience Labour Force by Industry 15 Years + ¹	Pelly Crossing (%)		Carmacks (%)		Whitehorse (%)		Yukon (%)	
	2006	2011	2006	2011	2006	2011	2006	2011
Agriculture and other resource-based industries	8.6	0.0	7.8	n.a	3.1	3.5	5.4	5.0
Construction	5.7	11.5	5.9	n.a	6.7	9.0	7.3	9.3
Manufacturing	0.0	0.0	0.0	n.a	2.6	1.6	2.3	1.6
Wholesale trade	0.0	0.0	0.0	n.a	2.3	1.1	1.9	1.1
Retail trade	0.0	7.7	5.9	n.a	4.7	12.8	4.8	10.8
Finance and real estate	0.0	0.0	0.0	n.a	3.8	2.4	3.1	2.1
Health care and social services	5.7	0.0	3.9	n.a	11.3	6.9	9.7	6.6
Educational services	11.4	7.7	7.8	n.a	7.0	5.6	7.2	5.7
Business services	11.4	0.0	5.9	n.a	17.4	16.3	16.1	14.8
Other services	0.0	0.0	9.8	n.a	16.4	13.8	16.8	14.0
Public administration	57.1	73.1	52.9	n.a	24.8	27.1	25.4	28.9

Source: Statistics Canada, 2007, 2013e

Note: ¹Refers to persons who, during the week prior to Census Day, were employed and the unemployed who had last worked for pay or in self-employment in either the census year or the previous year. Due to the small population numbers, data may contain rounding errors and/or omissions derived from original source.

Recent interviews with key informants confirmed that the government sector is the major employer in the Socio-economic Study Area, in particular in the smaller communities. The LS/CFN government manages health care, loans, fisheries, and wildlife and provides essential community services. It employs 80 workers in winter and 110 workers in summer (LS/CFN, 2013 pers. comm.).

Placer mining is also a predominant activity among local residents (EMR 2013, pers. comm.). Some local residents (including FN) work at Minto Mine, which began operations in late 2007. According to a presentation made by Capstone Mining Corporation, the Minto Mine currently employs 316 people annually, of which 54% are Yukon residents and 7% (or 22 employees) are from SFN (Capstone Mining Corp, 2012).

6.2.2 Labour Force by Occupation

Table 6-2 shows the labour force experience in the LSA communities and Yukon according to occupation. It shows that trades, transport, and equipment operators and sales and service were the most common occupations in Pelly Crossing and Carmacks. These two occupations together accounted for more than 45% of employment in both communities. Other major occupations in Pelly Crossing and Carmacks were occupations related to social science, education, government services and religion, and business, finance and administration.

Residents of Whitehorse were predominantly employed in sales and service occupations (21.1%) or in business, finance, and administration occupations (18.8%). Other Major occupations for Whitehorse residents included trades, transport and equipment operators and related occupations (16.1%).

Table 6-2: Labour Force by Occupation in the LSA and RSA, 2006 and 2011

Labour Force by Occupation 15 Years +	Pelly Crossing (%)		Carmacks (%)		Whitehorse (%)		Yukon (%)	
	2006	2011	2006	2011	2006	2011	2006	2011
Management	11.4	9.1	8.5	n.a.	12.4	12.0	12.9	12.0
Business, finance, and administration	11.4	15.2	10.6	n.a.	17.9	18.8	16.1	17.4
Natural and applied sciences	0.0	6.1	6.4	n.a.	7.5	7.6	6.8	7.8
Health	0.0	0.0	4.3	n.a.	5.8	4.5	4.8	4.5
Social science, education, government service, and religion	17.1	18.2	17.0	n.a.	12.1	14.2	12.0	14.4
Art, culture, recreation, and sport	8.6	0.0	0.0	n.a.	3.7	3.1	3.7	3.5
Sales and services	20.0	21.2	19.1	n.a.	23.9	21.1	23.1	19.5
Trades, transport, and equipment operators	17.1	24.2	27.7	n.a.	14.2	16.1	16.2	17.6
Primary industry	8.6	6.1	6.4	n.a.	1.8	1.1	3.5	1.9
Processing, manufacturing, and utilities	5.7	0.0	0.0	n.a.	0.7	1.4	0.8	1.4

Source: Statistics Canada, 2007, 2013e

Note: *Refers to persons who, during the week prior to Census Day, were employed and the unemployed who had last worked for pay or in self-employment in either 2005 or 2006. Due to the small population numbers, data may contain rounding errors and/or omissions derived from original source.

Between 2006 and 2011, there were some changes in the occupations of LSA residents. In 2011, Pelly Crossing had smaller percentages of people employed in occupations related to: primary industry; processing, manufacturing and utilities; and art, culture, and recreation. Higher percentages of people were employed in occupations in trades transport and equipment operators; natural and applied sciences; and business, finance, and administration.

Similarly, Whitehorse had smaller percentages of people employed in primary industry and processing, manufacturing, and utilities, but a higher percentage of people were employed in trades, transport and equipment operation; social sciences, education government services and religion; and business, finance and administration.

The 2006 Census provides more detailed information on the occupation and skills of the trades, transport, and equipment operators and this information is presented in Table 6-3. The LSA had a total of 1,905 workers with experience in the trades or as transportation and equipment operators or in related occupations. Most workers had occupations in construction trades (22%), mechanics (18%), and transportation equipment operators (17%). Trades helpers and labourers were importation occupations in Pelly Crossing and Carmacks, representing more than a third of occupation in trades, transport, and equipment operators.

Table 6-3: Occupations in Trades, Transport, and Equipment Operators, 2006

Labour Force 15 Years +	Pelly Crossing	Carmacks	Whitehorse	Yukon
Contractors and supervisors in trades and transportation	0	10	80	155
Construction trades	20	15	375	660
Stationary engineers, power station operators, electrical trades, and telecommunications occupations	0	0	170	225
Machinists, metal forming, shaping, and erecting occupations	0	0	85	135
Mechanics	0	0	335	460
Other trades, n.e.c.	0	0	50	70
Heavy equipment and crane operators, including drillers	0	10	160	405
Transportation equipment operators and related workers, excluding labourers	0	0	320	510
Trades helpers, construction and transportation labourers, and related occupations	10	20	235	440
Total	35	60	1,810	3,060

Source: Statistics Canada, 2011d.

Note: n.e.c = not elsewhere classified

More detailed information on the occupations and skills of construction workers is provided in Table 6-4. It shows a total of 815 workers in the LSA with experience in the construction industry, with most of them living in Whitehorse (790 workers or 97%). Of the total LSA construction labour force, 81% (660 workers) had occupations in the trades or as transportation and equipment operators or in related occupations. Workers in the construction trades accounted for 48% of these occupations (315 workers), while helpers and labourers accounted for another 17% (115 workers). Overall, the LSA construction labour force accounted for 62% of Yukon labour force with experience in the construction industry.

Table 6-4: Occupations in the Construction Industry, 2006

Construction Industry Labour Force by Occupation 15 Years +	Pelly Crossing	Carmacks	Whitehorse	Yukon
Management occupations	0	0	60	120
Business, finance, and administrative occupations	0	0	55	75
Natural and applied sciences and related occupations	0	0	20	25
Sales and service occupations	0	0	15	35
Trades, transport and equipment operators, and related occupations	10	10	640	1,040
Contractors and supervisors in trades and transportation	0	10	40	70
Construction trades	10	10	295	470
Stationary engineers, power station operators and electrical trades and telecommunications occupations	0	0	80	105
Machinists, metal forming, shaping and erecting occupations	0	0	10	20
Mechanics	0	0	20	35
Other trades, n.e.c.	0	0	15	15
Heavy equipment and crane operators, including drillers	0	0	50	115
Transportation equipment operators and related workers, excluding labourers	0	0	15	25
Trades helpers, construction, and transportation labourers and related occupations	0	10	105	175
Total Construction Industry Labour Force 15 Years+	10	15	790	1,305

Source: Statistics Canada, 2011d.

Note: n.e.c = not elsewhere classified. Due to the small population numbers data, may contain rounding errors and/or omissions derived from original source.

Mining did not have a large presence in the LSA communities in 2006 but is included in this report because the Project will require a skilled workforce with experience in mining. A breakdown of the mining labour force by occupation is shown in Table 6-5. In total, the LSA had a reported 295 workers with experience in the mining industry. Approximately 37% of them have experience as trades, transport, and equipment operators and an additional 25% have experience in primarily industry. Approximately 93% of the total workers in the LSA with experience in the mining industry reside in Whitehorse. Overall, the LSA accounted for 62% of Yukon labour force with experience in mining industry.

Table 6-5: Occupations in the Mining Industry, 2006

Mining Industry Labour Force by Occupation 15 Years +	Pelly Crossing	Carmacks	Whitehorse	Yukon
Management occupations	0	0	25	80
Business, finance, and administrative occupations	0	0	20	35
Natural and applied sciences and related occupations	0	0	40	70
Sales and service occupations	0	0	10	45
Trades, transport and equipment operators and related occupations	0	0	110	235
Occupations unique to primary industry	10	0	65	180
Occupations unique to processing, manufacturing and utilities	0	0	0	20
Total Mining Industry Labour Force 15 Years +	10	10	275	680

Source: Statistics Canada, 2011d

Note: n.e.c = not elsewhere classified. Due to the small population numbers, data may contain rounding errors and/or omissions derived from original source.

7.0 COMMUNITY INFRASTRUCTURE

The potential socio-economic effects of the Project on communities in the socio-economic study area will ultimately depend on the extent to which Project activities and Project-related population growth will result in increased demands on regional infrastructure and services. This section of the report provides an overview of the capabilities and capacities of existing infrastructure and services in the LSA communities.

7.1 Housing and Land Availability

7.1.1 Selkirk First Nation/Pelly Crossing

The 2011 Census reported 145 private dwelling units in Pelly Crossing (approximately 15% more than in 2006). Of these, 132 (or 91.0%) were considered to be permanently occupied by usual residents, suggesting that the remainder were being used as temporary or seasonal accommodation or were vacant. There are no developed lots available for future building; SFN first decides if or when to build, and then the lot is developed for the intended purpose (SFN, 2013, pers.comm.). Detailed information on housing in the study communities is available from the 2006 Census and provided in Table 7-1.

The 2006 Census indicates that, compared to the other LSA communities and Yukon as a whole, Pelly Crossing had a significantly higher percentage of rented housing (66.7%). This was more than double the Yukon average of 32.3%. Although, housing in Pelly Crossing was newer than in the rest of the LSA (less than 30% of housing was built before 1986), a higher proportion of housing was in need of major repairs (34.8% compared to 12.5% in the LSA and 14.7% in Yukon). Average dwelling value in Pelly Crossing was not available from Census data. However, other sources show that the average cost for a two-bedroom house in 2006 was \$60,000. At the time, the cost of rental housing averaged approximately \$500 per month (Fred, 2008a).

Table 7-1: Housing Characteristics, 2006

Population Segment	LSA				RSA
	Pelly Crossing	Carmacks	Whitehorse	Total LSA	Yukon
2011 Census					
Total Private Dwellings (Count)	145	246	9,649	10,040	16,259
Occupied Dwellings	132	196	9,309	9,637	14,117
Occupancy Rate (%)	91.0	79.7	96.5	96.0	86.8
2006 Census					
Total Private Dwellings (Count)	126	221	8,631	8,978	15,296
Occupied Dwellings	115	173	8,280	8,568	12,615
Occupancy Rate (%)	91.3	78.3	95.9	95.4	82.5

Population Segment	LSA				RSA
	Pelly Crossing	Carmacks	Whitehorse	Total LSA	Yukon
Percent Rented (%)	66.7	44.0	32.6	32.9	32.3
Constructed Before 1986 (%)	29.2	41.2	64.1	63.2	59.9
Needs Major Repair (%)	34.8	32.4	11.7	12.5	14.9
Average Number of Rooms	4.7	5.2	6.3	6.3	5.9
Average Value (\$)	n/a	135,647	224,673	n/a	211,008

Source: Statistics Canada, 2007, 2012a.

Note: Due to the small population numbers, data may contain rounding errors and/or omissions derived from original source.

In 2007, SFN and Pelly Crossing produced an Integrated Community Sustainability Plan that identifies infrastructure needs and partnership opportunities. The plan suggests that the availability of housing to meet local needs is an important concern (Inukshuk, 2007a). The major concerns include affordability and housing suitability, administration, design/construction, and maintenance.

The SFN Capital Department also identified a number of concerns in their 2000 Capital Plan and Housing Needs Report. The findings suggest that only 19% of homes meet what is considered to be good condition. Table 7-2 summarizes the housing conditions.

Table 7-2: Capital Land and Housing Needs, 2000

Condition	Number of Units	% of Units
Good ¹	18	19
Fair ²	59	61
Poor ³	17	18
Replace ⁴	2	2
Total	96	100

Source: Inukshuk Planning and Development. 2007a.

Notes: ¹ The house does not require repairs outside of regular maintenance;

² The house requires significant repairs such as failing foundations or replacement of plumbing;

³ The house requires extensive repairs such as re-wiring or foundation replacement.

The report suggests that increased demand for housing is a result of in-migration, a backlog of outstanding housing needs, and the incapacity of staff to meet demand. Other housing needs in the community include housing for elders, social housing, and special needs housing. SFN members may also continue to return to the community, contributing to increased demand over time (Inukshuk, 2007a).

A 2011 SFN newsletter suggests that lack of housing continues to be a major issue in Pelly Crossing. During the last few years, the SFN built more than 20 homes in Pelly Crossing, but housing remains insufficient to meet demand (SFN, 2011). To address continued demand, the

SFN Chief and Council are considering forming a Housing Authority to meet the needs for new home construction. The newsletter also suggests that increasing home ownership among SFN members is a priority.

In discussions with the Yukon Housing Corporation, representatives noted there may be a lack of housing supply in Pelly Crossing. This could be exacerbated by a lack of sufficient land base for construction, prohibitive construction costs associated with more remote Yukon communities and Canada Mortgage Housing Corporation (CMHC) lending regulations, which may limit lending in industry towns (Yukon Housing Corporation, 2012).

7.1.2 Little Salmon/Carmacks First Nation and Village of Carmacks

In 2011, there were approximately 246 private dwelling units in the Village of Carmacks, 11% more than in 2006. Of these, 196 (or 79.7%) were considered to be permanently occupied by usual residents. This represents the lowest occupancy rate among the LSA communities, which has almost remained invariant since the 2006 Census (Table 7-1). Census data for 2006 also show that Carmacks had a higher percentage of rented housing (44.0%) than the overall LSA (32.9%). It also shows that approximately 41% of housing in Carmacks was built before 1986 and that more than 32% of dwellings were in need of major repair. This is significantly higher than the proportion of housing in need of major repairs in the entire LSA (12.5%) and Yukon as a whole (14.9%) in 2006. The average value of housing in Carmacks was \$135,647, approximately 36% below the Yukon average.

In discussions with the Yukon Housing Corporation, representatives noted there may also be a lack of housing supply in Carmacks. This could be exacerbated by a lack of suitable land, prohibitive construction costs, and CMHC lending regulations (Yukon Housing Corporation, 2012a). It was also noted that there is a shortage of single family dwellings and apartments in the community and in particular a lack of housing for seniors (Tantalus, 2013, pers. comm.). There is land available for development that would serve both single family and multiple residential needs within the Village of Carmacks (Village of Carmacks, 2013, pers. comm.).

Temporary accommodation is offered in a number of establishments in and around the Village of Carmacks, including: Mukluk Manor B&B (4 rooms), Hotel Carmacks (20 rooms and 6 cabins), Sunshine Service Centre (4 rooms), and Coal Mine Campground (5 cabins), and the rental market is limited by available housing that is not inhabited.

In 2007, LS/CFN developed an Integrated Community Sustainability Plan that identifies infrastructure needs. Input was obtained from membership as well as the Village of Carmacks. Housing remains a major challenge for LS/CFN. Issues include design/construction and maintenance, administration, affordability and suitability, and capacity of stock to meet future demand (Inukshuk, 2007b). The report identifies lack of housing as a deterrent to members residing in their home community. This was confirmed in recent interviews with LS/CFN representatives (LS/CFN, 2013, pers. comm.).

LS/CFN identified a number of concerns in their 2003 funding proposal submitted to Indian and Northern Affairs Canada (now Aboriginal Affairs and Northern Development Canada). The findings suggest that 25% of homes require major renovations or replacement. Table 7-3 summarizes housing conditions.

Table 7-3: LS/CFN Housing Conditions, 2003

Condition	Number of Units	% of Units	Projected 2004-2008	
			Number of Units	% of Units
Adequate ¹	56	50	54	45
Minor Renovations ²	28	25	17	14
Major Renovations ³	22	19	28	23
Major Replacement ⁴	7	6	22	22
Total Number	113	100	121	100

Source: Inukshuk Planning and Development, 2007b.

Note: ¹ Meets CMHC code standards for house without major deficiencies;

² Renovations less than \$10,000 to bring to CMHC standards;

³ Seven homes will likely be demolished by the year 2008;

⁴ Assumes that LS/CFN will construct 3 new units each year.

The report suggests that the lack of adequate housing in the community is a significant financial constraint and undermines efforts of the LS/CFN to improve the quality of life. Other housing needs in the community include housing safety, housing for women and children, and assisted-living housing for people with disabilities (Inukshuk, 2007b).

During interviews, LS/CFN representatives identified high construction costs as the main driver for high housing prices and a main barrier for housing development. The average price of a home in the community is estimated to reach \$250,000 to \$300,000 (LS/CFN, 2013, pers. comm.). This would be almost twice the average value reported in the 2006 Census. Representatives also noted that access to housing loans is limited for Aboriginal communities. Financial institutions do not accept Aboriginal lands as collateral for mortgages since lands are not registered, but registering lands would mean losing Aboriginal title, which would contend the LSC constitution (LS/CFN, 2013, pers. comm.).

Another informant noted that there are many abandoned houses in the Carmacks area that cannot be rented out since they are on First Nations land (EMR, 2013, pers. comm.).

7.1.3 Whitehorse

The 2011 Census reported 9,649 private dwelling units in Whitehorse, which represents an 11.8% increase from 2006. Of the total housing, 9,309 units were occupied by local residents, suggesting that the remainder were being used as temporary or seasonal accommodation or were vacant. The occupancy rate for Whitehorse in 2011 was 96.5%, which was higher than occupancy rates for all the other LSA communities and Yukon as a whole (Table 7-1).

Table 7-1 also presents more detail housing characteristics available from the 2006 Census. In 2006, the majority of Whitehorse residents owned their residence rather than rented, with the proportion of rented housing being 32.6%. Housing in Whitehorse was older than in the rest of the LSA and Yukon as a whole, with more than 64% of housing built before 1986. However, approximately 11.7% of housing was in need of major repairs, compared to 34.8% in Pelly Crossing, 32.4% in Carmacks, and 14.9% in Yukon. The average value of housing in Whitehorse was \$224,673, approximately 6% higher than the Yukon average and more than 65% higher than in Carmacks.

Land Availability

Land availability in Whitehorse has been a concern with various organizations and economic think tanks. The pace at which land was being made available for purchase has been slow relative to the population growth. There are several reasons for this lack of land availability, including the federal government freezing the landbase while land claims negotiations were developing. During this time, most areas could not be developed due to the protection of parcels of land during negotiations. In addition, the City of Whitehorse faced neighbourhood resistance when attempting to develop the limited amount of unprotected land. During this time, many subdivisions were not developed (Falvo, 2012). After land claims were settled, most of the land that was set aside on an interim basis ended up being absorbed into the land claims settlements. The Devolution Transfer Agreement (signed in 2003) granted Yukon jurisdictional control over the landbase (Falvo, 2012). Nowadays, the City of Whitehorse is responsible for developing within the limits of the city. Once permitting is in place and consultations are concluded, the Government of Yukon is responsible for servicing the land (i.e., surveying, road building, sewers, etc.).

Housing Demand

Population growth in Whitehorse has resulted in increased demand for housing. Coupled with increases to household income and ownership, along with low residential density, housing demand in Whitehorse is high. There are challenges in meeting this demand due to land constraints, and suitable land is limited by the city's natural features, such as steep slopes, rocky terrain, and waterways (City of Whitehorse, 2012 pers. comm.). According to other sources, other constraints included the Government of Yukon's inability to release raw land to meet market needs and the city's constraints in acting as a public entity and land developer (DPRA, 2011a).

According to a workshop report developed by consultant DPRA, real estate and land development professionals believe the supply of housing in Whitehorse is 10 years behind the demand; essentially, demand for housing is exceeding supply (DPRA, 2011a). The lack of supply has affected property values, with the average price of a single family home increasing by 114.5% from 2004 to 2010 (from \$188,700 to \$404,800). Proceedings from the workshop highlight the view that Whitehorse lacks sufficient serviced land or land in reserve to meet the economic growth expectations projected by various organizations. Another recent report estimates that house prices in Whitehorse have increased by 80% between 2005 and 2011,

even after adjusting for inflation (Falvo, 2012). Falvo estimates that it costs approximately \$250 per square foot to build new housing in Whitehorse (excluding the cost of land). Therefore, a 1,500-square-foot family home could cost \$375,000 (plus the cost of land).

During interviews with City of Whitehorse representatives in summer 2011, respondents suggested that the city has been experiencing a housing crisis that may be exacerbated by development and operation of a project such as the Project (City of Whitehorse, 2011 pers. comm.). Concerns were raised regarding the potential for additional stress on the Yukon housing market, leading to social and economic pressures on local residents who may not be directly benefiting from such developments. However, more recent discussions with the City of Whitehorse, Yukon Housing Corporation and Whitehorse Chamber of Commerce suggest that housing concerns have eased (City of Whitehorse, 2012 pers. comm.; Yukon Housing Corporation, 2012a pers. comm.; Whitehorse Chamber of Commerce, 2012 pers. comm.).

New Developments

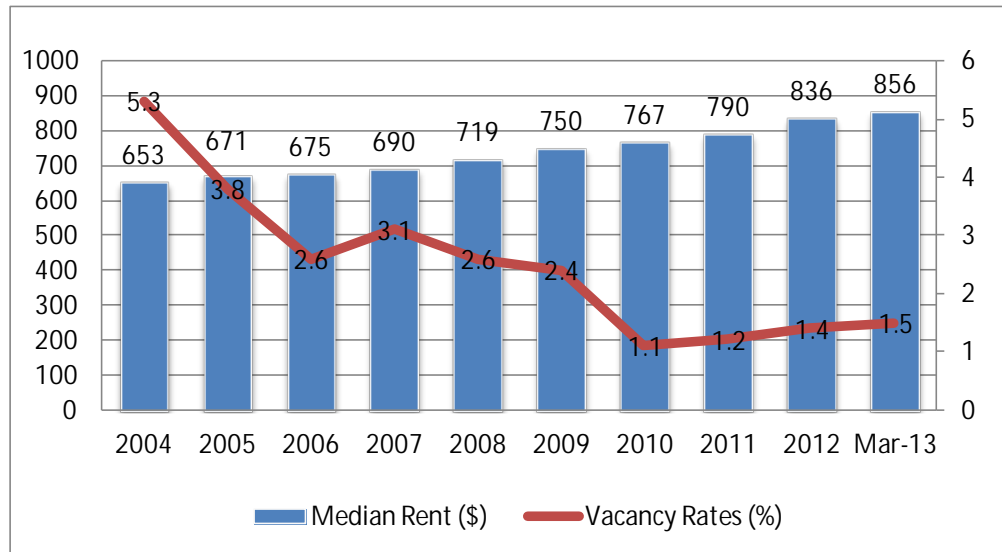
Whitehorse has experienced increased activity in the housing market in recent years. Housing starts in the city reached a record high in 2011 of 332 units, up 42% from the previous year. Development of existing housing lots such as the Whistle Bend Development (a new subdivision in Whitehorse that will eventually house 8,000 people) has reduced housing pressures in the city (City of Whitehorse, 2012 pers. comm.; Yukon Housing Corporation, 2012a pers. comm.; Whitehorse Chamber of Commerce, 2012 pers. comm.). The Whistle Bend project, comprising 20 acres, is set to be Yukon's biggest residential land development project and will consist of five phases. Phase 1 and Phase 2 have been designed and are currently under construction, with lot sales projected to occur in 2012 and 2013 (Whitehorse Chamber of Commerce, 2012 pers. comm.). Representatives noted that the Whistle Bend project would feasibly absorb a growing workforce from various projects such as the Project. Phase 1 is expected to consist of just over 400 new housing units. At completion of all five phases, the development could increase Whitehorse's total housing stock by approximately 3,000 units. Other private developments in Whitehorse include the development of 150 new affordable units at 18 Azure Road. This development received final zoning approval in March 2012 and unit prices will range between \$250,000 and \$275,000 (Falvo, 2012).

Rental Housing

Rental costs and lack of affordable rental housing in the City of Whitehorse have been expressed as concerns by Yukon representatives (City of Whitehorse, 2012 pers. comm.; Yukon Housing Corporation, 2012a pers. comm.; Whitehorse Chamber of Commerce, 2012 pers. comm.).

Average rent, however, has not experienced the same magnitude of increase as the average house price. The average rent in Whitehorse has only increased by 6% between 2001 and 2011, after adjusting for inflation (Falvo, 2012). More recent statistics show that the average and median rent have continued increasing during the last year. The median rent in Whitehorse increased by a total of 28.8% in the eight-year period between December 2004 and December

2012. After adjusting for inflation, the total median rent net increase is 9.9% for the same eight-year period. This indicates an average annual increase rate of 1.2% (Yukon Bureau of Statistics, 2012b, 2013b). The median rent in Whitehorse as of March 2013 is \$856 (up from \$825 in March 2012 and from \$700 in March of 2008) (Yukon Bureau of Statistics, 2013a; Yukon Bureau of Statistics, 2013b). This is the highest median rent on record. Average annual median rent in Whitehorse is presented in Figure 7-1.



Source: Yukon Bureau of Statistics, 2012d, 2013c .

Figure 7-1: Annual Median Rent and Vacancy Rates in Whitehorse 2004 to March 2013

Figure 7-1 also shows that rental vacancy rates in Whitehorse have significantly decreased. In March 2013, the vacancy rate was 1.5%, down from 4.1% in March 2008 (Yukon Bureau of Statistics, 2013c, 2012d) and significantly below the 2004 average annual rate of 5.3%. A healthy vacancy rate is in the range of 3% to 4% (Falvo, 2012). Vacancy rates have slightly recovered since 2010 but remain below 2%. There are concerns with respect to the state of rental housing, with representatives noting that some rental units are aging, and there have been conflicts with landlords over deteriorating conditions. Representatives noted that the Government of Yukon is currently reviewing the *Residential Landlord and Tenant Act* to rectify these disputes (City of Whitehorse, 2012; Legislative Assembly of Yukon, 2013).

Social Housing

Lack of social housing/affordable rental apartments appears to be an existing concern for the Government of Yukon, which has identified homelessness and housing inadequacy as an issue. In 2010, the Government of Yukon conducted a survey that identified more than 100 homeless people (0.37% of Whitehorse population). Whitehorse's only emergency shelter is located at the Salvation Army in downtown Whitehorse (Falvo, 2012). More than 250 people stay one or more nights per year at the shelter, and conditions at the shelter are strained. On a typical night,

shelter residents may have to sleep on a mat or even on a chair (Falvo, 2012). A lack of affordable rental accommodations and vacancies is noted to be a key cause of homelessness in the city (Yukon Health & Social Services, 2010).

7.2 Transportation

7.2.1 Roads and Highways

There are 12 primary highway routes in Yukon, totalling 2,027 km of core, northern, and remote networks (Transport Canada, 2008; Government of Yukon, 2009b). The Alaska Highway and Klondike Highway are most closely associated with the socio-economic study area (Government of Yukon, 2012, pers. comm.). Other major roads include the Robert Campbell, Silver Trail, and Dempster highways.

Approximately 1,900 km of roads in Yukon are serviced with Bituminous Surface Treatment (BST), an inexpensive paved surface for low-volume roads. BST is used as an asphalt replacement for general road repairs and has been utilized since the 1970s in Yukon due to its ease of use and the road system's frequent need of maintenance caused by annual freeze/thaw damage (Government of Yukon, 2008a). In 2007, the Yukon road system serviced approximately 25,000 vehicles, including 1,700 medium (25 million km driven) and 1,300 heavy vehicles (135 million km driven) (Transport Canada, 2008), totalling 300 million km of travel.

Since much of the Yukon highway system is exposed to extreme freezing and thawing episodes throughout the year, roadways are subject to more damage from truck traffic than normal paved roads. As a result, the Government of Yukon imposes seasonal weight restrictions on highway traffic (Department of Highways and Public Work, 2012, pers. comm.). Restrictions are generally maintained when ambient temperatures begin to thaw the road, as measured at various depths of the road structure (Government of Yukon, 2009b). Historical weight restriction dates are maintained by the Yukon Department of Highways and Public Works and vary based on the highway system. Current laws regarding vehicle weight restricts heavy-haul vehicles to a maximum gross weight of 77.1 tonnes under a special bulk commodity permit (typically purchased at 1 cent per tonne/kilometre over the normal limit), which allows for an above tare weight higher than the normal legal limit of 63.5 tonnes (ALCAN RailLink Inc., 2008).

Specific details for the public roads most likely to be used by the Project are described below, focusing on the Alaska Highway and Klondike Highway, which make up the route from the Freegold Road to the Port of Skagway.

7.2.1.1 Alaska Highway (Highway 1)

The Alaska Highway runs east-west, from Watson Lake, through Whitehorse and Haines Junction to Tok, Alaska. It becomes Highway 97 when it enters BC, near Watson Lake. In 2008, sections of the Alaska Highway experienced annual daily averages ranging from 219 to 5,645 vehicles, and average volumes in summer between 528 and 6,620 vehicles (Government of Yukon, 2008e). Higher traffic volumes are naturally expected around larger

population centres, such as Whitehorse. Approximately 40 km of the Alaska Highway travels through communities in the area of Whitehorse.

Since 1977, there has been a joint agreement (known as Shakwak Project) between the United States and Canadian governments in which the upgrading and maintenance of the section of Alaska Highway south of Haines Junction to the BC/Yukon border is managed by the Government of Yukon, and the section north of Haines Junction is the responsibility of the United States Government. This agreement covers capital improvements and general maintenance and was drafted in hopes of maintaining ease of access between Alaska and Yukon (Government of Yukon, 2009a).

In discussions with a representative from the Yukon Department of Highways and Public Works, the Alaska Highway was noted to be in good condition, although there may be significant upgrades occurring in spring 2013. The Alaska Highway was noted to be nearing capacity in terms of use (Government of Yukon, 2012, pers. comm.).

7.2.1.2 Klondike Highway (Highway 2)

The Klondike Highway runs south-north, from the BC border south of Carcross to Dawson City, and is approximately 630 km long. South of Carcross, the highway passes through a small section of BC before entering Alaska and ending in Skagway.

In 2008, sections of Highway 2 experienced an annual daily volume ranging between 196 vehicles at Pelly Airstrip to 1,824 vehicles at the Dome Road intersection near Whitehorse, with an average summer volume ranging between 437 and 2,566 vehicles (Government of Yukon, 2008e). Approximately 26 km of Highway 2 passes through the municipalities of Carmacks and Dawson City (Government of Yukon, 2009b).

The Yukon Department of Highways and Public Works noted that the Klondike Highway is not in need of any upgrades at this time. In addition, the respondent indicated that there is significant unused capacity on this highway (Government of Yukon, 2012, pers. comm.).

7.2.1.3 Freegold Road

Freegold Road is a public road extending from the Klondike Highway (near the Village of Carmacks) towards the Project mine site. The Government of Yukon studied the potential development of the Casino Trail in the late 1980s (Western Copper and Gold Corporation, 2007), and the route was surveyed in detail in 2009. The first 60 km of the road (stretching west of the Klondike Highway) has been developed and consists of a two-lane gravel road.

In 2008, a pneumatic counter at mile 0 of the Freegold Road (near Carmacks) recorded average daily traffic of 26 vehicles. Activity is concentrated between April/May and October. In recent years, average daily traffic has been as high as 41 vehicles (in 2007), and as low as 11 vehicles (in 2004) (Government of Yukon, 2008e).

Freegold Road is in poor condition and currently only suitable for exploration-type projects with low intensity and low activity on the road. The Government of Yukon maintains this road in winter only as it is up to a standard for economic maintenance in winter but not in summer (Government of Yukon, 2012, pers. comm.).

7.2.2 Commercial Trucking/Hauling

At least 30 private hauling companies serve Yukon, providing ground transport and logistics services throughout the territory and other parts of Canada. The majority of companies are based out of Whitehorse and provide truckload, bus, dump truck, food transport, towing, or specialized services such as heavy equipment moving. In order to ship goods within or outside of Yukon a Freight Vehicle pass is required from the Yukon Department of Highways and Public Works.

7.2.3 Bridges

The Yukon Department of Highways and Public Works maintains 128 bridges and 238 culverts over 2 m in diameter throughout the Yukon highway and community road system (Government of Yukon 2012, pers. comm.). Currently, the bridge network is considered to be in reasonable condition by the Yukon Department of Highways and Public Works, with 84% of bridges in acceptable condition and 27% in optimal condition. In addition, a seasonal ice bridge is used in the Dawson City area to cross the Yukon River, which carries a maximum weight of 36,000 kg. Representatives noted that 22 bridges in Yukon are expected to reach the end of their anticipated design lifespan during the next 20 years (Government of Yukon 2012, pers. comm.).

7.2.4 Trains

Railway development in Yukon is minimal. At present, the only major route is the White Pass & Yukon Railroad route, traversing between Whitehorse and Skagway, Alaska, which was constructed during the Yukon Gold Rush during the late 19th century. The route is primarily used by passenger trains and carries more than 400,000 tourists and other passengers between Yukon (Carcross) and Alaska per year (Government of Yukon, 2008d). Industrial use of the line has not occurred since 2004 (Transport Canada, 2008); however, historically, the railway was used by the resource sector to service the Port of Skagway between 1968 and 1982 when full-time freight operations ceased (Gartner Lee, 2006).

While there are no major commercial shipping services along the White Pass & Yukon Railroad route, the Government of Yukon has considered an expansion of rail infrastructure to accommodate growing industry (ALCAN, 2008). In 2008, the Department of Economic Development reported a potential \$2.3 billion short-track rail expansion between Carcross, Carmacks, and Ross River to accommodate future demand for industrial rail and reduce potential strain due to hauling on current public road infrastructure (ALCAN, 2008). The route would connect to the Port of Skagway in Alaska, providing transport for up to 3 million tonnes of haul per year to that facility within 20 years.

In 2005, Alaska-Canada Rail Link Inc. conducted a feasibility study of a \$10.5 billion connection between Alaska and the lower 48 states through Yukon and BC (ALCAN, 2007). The proposed route would create new rail links between the areas of Delta Junction and Skagway/Haines in Alaska; Carmacks, Whitehorse, and Watson Lake in Yukon; and Dease Lake, Fort Nelson, Hazelton, Minaret, and Mackenzie in BC. The rail project would increase connections between Asian shipping and Canadian and American markets.

7.2.5 Ferries and Barges

Two highway-based ferry services are offered by the Government of Yukon. The George Black Ferry crosses east-west over the Yukon River, connecting Dawson City and the Klondike Highway to the Top of the World Highway. It operates 24 hours a day in summer and regular hours in spring and fall with regular weekly service times (Government of Yukon, 2008c). In 2009, the George Black Ferry operated between 14 May and 25 October. The Pelly Barge crosses Ross River and connects the Canol Road near the Ross River Airport southeast of Faro. The barge operates regular hours until closing for winter. In addition, the Minto Mine operates a barge at Minto Landing during the open-water season to connect the mine with the Klondike Highway.

7.2.6 Shipping

The Beaufort Sea is the only coastline in Yukon and does not contain any ports. Marine transportation has historically been routed through the Alaskan ports of Skagway and Haines. Currently, these ports are major resupply nodes for Yukon, and handled 29,240 tonnes of freight moving through the area in 2004 (KPMG LLP, 2006; Gartner Lee, 2006). Skagway has focused its port development on the tourism industry as a cruise ship dock.

Historically, shipping along the Yukon River was commonplace during the Gold Rush and into the early 20th century. During this period there were between 240 and 280 steamships operating through the region (Lundberg, 2007). Currently, no major commercial shipping operations are located along the waterways in Yukon, but a limited number of commercial barge services offer transportation along the Yukon River from various landings.

7.2.6.1 Port of Skagway

The Port of Skagway has been used as the main industrial ocean shipping point for Yukon industries since the late 1960s and a major commercial dock for tourism since the 1990s. The port is connected by rail via the White Pass & Yukon Railroad route, and by road along Highway 2, south through BC and Alaska along the South Klondike Highway. Historically, the mining industry has utilized Skagway, including the Minto Mine, since 2007. Skagway is also the primary point for inbound freight and accommodates most of Yukon's fuel. Infrastructure at the port includes the Nahku Ore Terminal and the Broadway Dock (Gartner Lee, 2006).

Recently, a study was conducted by the Government of Yukon to consider the port for redevelopment. In 2006, a comprehensive feasibility study of the Skagway Port facility was conducted (KPMG LLP, 2006; Gartner Lee, 2006), and an updated analysis was completed in

2009 as the Skagway Port Development Plan. The Government of Yukon considers Skagway the most viable option for port re-development, given its existing infrastructure and ability to handle moderate traffic (KPMG LLP, 2006; Gartner Lee, 2006). Current infrastructure is believed to be sufficient to handle export volumes of approximately 3 million tonnes of mineral concentrates and coal.

7.2.7 Airplanes and Helicopters

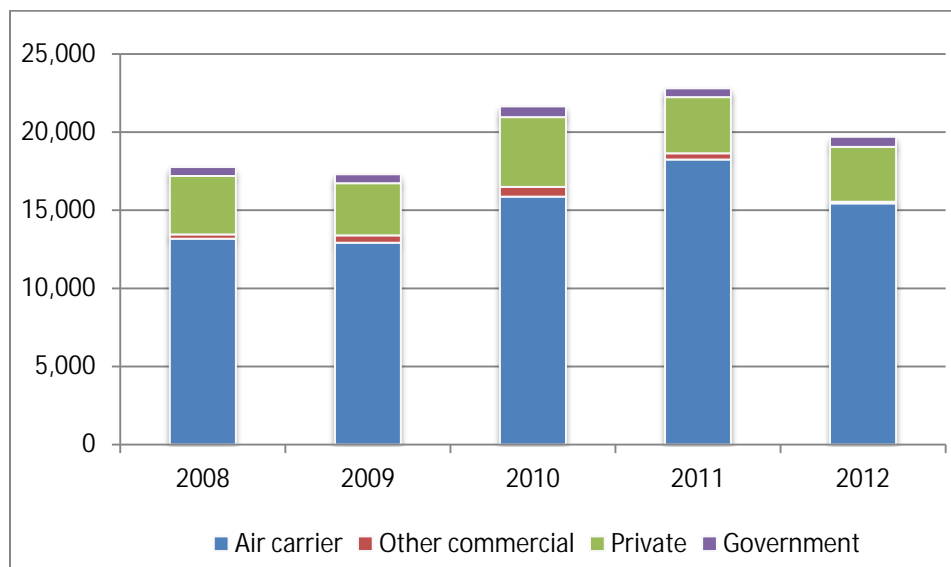
Yukon's airport infrastructure consists of a total of 29 landing strips, including 16 aerodromes, one international, three regional, and nine community airports operated by the Government of Yukon (Government of Yukon, 2008e; Transport Canada, 2008). The majority of airstrips in Yukon are gravel surfaced, and the territory's largest terminal is the Erik Nielsen International Airport (YXY) located in Whitehorse.

The Erik Nielsen International Airport is the primary aero hub in Yukon. The airport was established in 1920 when US Army Air Corps planes en route from New York to Nome made a scheduled stopover in Whitehorse. Regular commercial air operations then commenced in 1927. The original terminal was replaced in 1985, and in 2012 the terminal was expanded to accommodate up to 280 passengers at peak volume times. The new expansion included 2,767 square metres of additional space; a 230-person in-transit lounge; a new, larger luggage carousel; and oversized freight and passenger elevator; additional office space and additional space to process international travellers (Government of Yukon, 2013a). Between 1987 and 2012, the total number of passengers accessing the airport annually almost tripled, from 110,000 to 295,000 respectively (Seaman, 2013, pers. comm.).

Regularly scheduled carries include Air Canada and Air North (Yukon's Airline) with regular service to Vancouver, Calgary, Edmonton, Dawson City, and Kelowna. Seasonal flights are provided by Condor, West Jet, and Air North, which provide service to Frankfurt, Mexican destinations, and Las Vegas respectively. A number of charter and bush planes also access the airport.

The airport has three runways (548 m, 1,225 m, and 2,896 m long), which are all asphalt, and the terminal is open year-round. The runways are all-weather and have instrument approach. Planned improvements for 2014 include the expansion of the primary and secondary aprons as well as repaving the runways (Seaman, 2013, pers. comm.).

In 2012, the airport had 19,711 itinerant aircraft movements (flights from one airport to another). The number of itinerant movements increased from 17,312 in 2009 to 22,810 in 2011 but decreased to 19,711 in 2012. This is explained mainly because of the reduction in commercial air carrier movements (Figure 7-2).



Source: Statistics Canada, 2013g.

Figure 7-2: Annual Aircraft Movements by Type of Operator in Whitehorse Airport 2008–2012

Regional airports are located in Watson Lake (YQH), Old Crow (YOC), and Dawson City (YDA). In 2012, these airports saw between 1,331 (Old Crow) and 6,867 (Dawson City) itinerant movements (Statistics Canada, 2013h). Community airports are located in Mayo (YMA), Haines Junction (YHT), Beaver Creek (YXQ), Burwash (YDB), Carmacks (EX4), Ross River (YDM), Teslin (YZW), and Faro (ZFA). An additional four airstrips are located near the Project area between Carmacks and Mayo: McQuesten (FP4), Minto (no indicator), Pelly Crossing (FQ6), and Ft. Selkirk (no indicator). A summary of landing strip length, surface types, and provided services is included in Table 7-4, for regional and community aerodromes and airstrips located near the proposed Project area. Airstrips that offer Community Aerodrome Radio Stations (CARS) provide radio communications and airstrip landing and takeoff information for planes (Government of Yukon, 2008e).

Table 7-4: Summary of Aerodromes and Airstrips

Location	Maintenance	Strip Length	Surface	Services
International				
Whitehorse	Year round	9,497' x 150'	Asphalt	Air terminal building, Full Flight Simulator, and Air Traffic Services
	Year round	4,018' x 80'	Asphalt	Air terminal building, Full Flight Simulator, and Air Traffic Services
	Year round	2,075' x 75'	Asphalt	Air terminal building, Full Flight Simulator, and Air Traffic Services
Regional				
Watson Lake	Year round	5,500' x 150'	Asphalt	Air terminal building and CARS radio station
Old Crow	Year round	4,900' x 100'	Gravel	Air terminal building and CARS radio station
Dawson City	Year round	5,000' x 100'	Gravel	Air terminal building and CARS radio station

Location	Maintenance	Strip Length	Surface	Services
Community				
Mayo	Year round	4,856' x 100'	Gravel	Air terminal building and CARS radio station
Haines Junction	Year round	5,000' x 100'	Gravel	Air terminal building
Beaver Creek	Year round	3,730' x 100'	Gravel	Air terminal building and CARS radio station
Burwash	Year round	5,000' x 100'	Gravel	Air terminal building and CARS radio station
Carmacks	Limited	5,000' x 100'	Gravel	Air terminal building
Teslin	Year round	5,000' x 100'	Gravel	Air terminal building and CARS radio station
Ross River	Year round	5,113' x 100'	Gravel	Air terminal building
Faro	Year round	4,000' x 100'	Gravel	Air terminal building and CARS radio station
Airstrips (near Project area)				
McQuesten	As needed	3,000' x 75'	Gravel/Turf	N/A
Minto	As needed	4,000' x 75'	Turf	N/A
Pelly Crossing	Limited	3,305' x 100'	Gravel	N/A
Ft. Selkirk	As needed	2,000' x 75'	Turf	N/A

Source: Government of Yukon, 2011.

Air services providers that operate in Yukon include passenger and cargo carriers that primarily operate through the Whitehorse Airport, although a number of carriers provide passenger, freight, and charter services to regional and community airstrips. Regular commercial flight services are provided by Air Canada, Air North, West Jet, and First Air. Seasonal and charter services are offered by Condor Air, West Jet, and TransNorthern Aviation.

7.3 Telecommunications

Telephone service in Yukon is provided primarily by NorthwesterTel (a Bell Canada subsidiary). Mobile phone service is available in most communities. Private DSL internet is also available in most communities through NorthwesterTel; in addition, Whitehorse has access to cable internet services. A fibre optic network is available in Yukon through NorthwesterTel in the communities of Whitehorse, Carmacks, Carcross, Haines Junction, Teslin, Swift River, and Watson Lake.

Satellite communication services are provided by Total North Communications, including satellite phone, internet and radio services for remote areas. Other Yukon-based companies providing these services include Dilman Communications and Mynex Communications (a division of NorthwesterTel). Table 7-5 shows the available telecommunication services in the LSA communities.

Table 7-5: Telecommunications Infrastructure in the LSA

Community	Telephone	Cellular Telephone	Internet	Satellite
Pelly Crossing	NorthwesTel	NorthwesTel	NorthwesTel	Various Companies
Carmacks	NorthwesTel	NorthwesTel	NorthwesTel	Various Companies
Whitehorse	NorthwesTel	NorthwesTel	NorthwesTel and private providers	Various Companies

Source: NorthwestTel, 2013.

Private digital radio signals are available through NorthwesTel and the Canadian Broadcast Corporation (CBC), and community radio is available in most Yukon communities. Television service in Yukon is provided by the Government of Yukon and the CBC to areas surrounding community centres and three regional areas (Ferry Hill, Horsecamp Hill, and Paint Mountain). This includes access, where available, to the CBC, Aboriginal Peoples Television Network, and Community Television Service. Private cable television service is available through NorthwesTel and Bell, although full service is only available in some communities.

7.4 Energy

The Yukon Energy Corporation is the primary energy supplier in Yukon, operating three hydro-electric plants, a wind facility, and a number of diesel facilities. Additional energy is generated by the Yukon Electrical Company Limited (YECL), which provides a number of communities with diesel power, as well as operating a hydro plant (Yukon Energy Corporation, 2009).

As of November 2012, Yukon's power capacity totalled 132 megawatts (MW) of electricity (Yukon Energy Corporation, 2012) (a MW can service approximately 1,000 homes). Approximately 92 MW of the total power capacity in Yukon is provided by Yukon Energy Corp's existing hydro stations: 40 MW in Whitehorse Rapids, 37 at Aishihik Hydro Facility, and 15 MW at Mayo Hydro. In addition, 39 MW is generated from internal combustion (primarily diesel), which Yukon Energy Corporation only uses as back-up. Yukon Energy Corporation also operates two wind turbines located on Haeckel Hill near Whitehorse, which have a combined capacity of 0.8 MW of power.

The 2012–2013 Strategic Plan for the Yukon Energy Corporation refers to load forecasts that indicate a requirement for approximately 100 to 150 Gigawatt hour (GWh) new generation by 2014. This represents an increase of approximately 40%, with loads anticipated to increase from 385 GWh in 2010 to 543 GWh in 2015. Population growth and new mine development are the drivers for this increase, and planning studies and supply options are being considered. Load forecasts, not being connected to the North American Grid, and Yukon Energy's current load/supply curve all create challenges. Additional challenges arise from the difficulty in accurately predicting the scale and scope of mining energy requirements into the future (Yukon Energy Corporation, 2012).

A transmission line extension between Carmacks and Stewart Crossing, connecting the Mayo and Whitehorse-Aishihik-Faro (WAF) systems to a single grid, was completed recently. Pelly Crossing now has access to the grid power system. In addition, an expansion of the hydro facility was recently completed in Mayo (Mayo B project), which added an additional turbine to expand the capacity of this facility from 5 MW to 10 MW.

7.4.1 Pelly Crossing

The community of Pelly Crossing was recently connected to the Yukon power grid through the construction of the WAF transmission line between Carmacks and Stewart Crossing. The community also has diesel facilities operated by the Yukon Energy Corporation (Yukon Energy Corporation, 2008). The Carmacks-Stewart Power Line runs from Carmacks to Pelly Crossing with a spur to the Minto Mine. The power line was completed and energized in November 2008, which has allowed Yukon Energy Corporation to provide the Minto Mine and the community of Pelly Crossing with surplus hydro power (previously both were on diesel). It is noted to have led to reductions in greenhouse gas emissions of between 25,000 and 30,000 tonnes per year (Yukon Energy Corporation, 2012). There is additional capacity from the power line to service growth in Pelly Crossing and would require an increased capacity step-down facility to tap into the transmission line and feed to the community. This would not be considered a significant issue to address in the future if needed (Yukon Energy, 2013, pers. comm.).

7.4.2 Carmacks

The Village of Carmacks draws power from the WAF transmission line, as well as the Carmacks diesel facility operated by the Yukon Energy Corporation, generating approximately 1.30 MW of power (Yukon Energy Corporation, 2008). There is additional capacity from the line to service growth in the Village of Carmacks and LSC/FN community and would require an increased capacity step-down facility to tap into the transmission line and feed to the community. This would not be considered a significant issue to address in the future if needed (Yukon Energy, 2013, pers. comm.).

Power and heating fuel are considered to be expensive by local residents (Tantalus, 2013, pers. comm.).

7.4.3 Whitehorse

Power in Whitehorse is primarily generated by two hydro facilities: Whitehorse Rapids and Aishihik Lake. According to the Yukon Energy Corporation, the combined seasonal maximum output of these plants is 77 MW (Yukon Energy Corporation, 2012). Additionally, diesel facilities in Whitehorse produce 25 MW, and the Haeckel Hill wind power plant generates approximately 0.81 MW. The Fish Lake hydroelectric plant operated by the Yukon Energy Corporation produces 1.30 MW of power. There is adequate capacity in the supply of electricity to Whitehorse to meet the needs of moderate growth (Yukon Energy, 2013, pers. comm.; Yukon Electrical Company, 2013, pers. comm.).

Power generated from these sites is transmitted along the WAF 138 kV transmission line, which travels from Aishihik Lake to Whitehorse north to Pelly Crossing and on to Faro (Yukon Energy Corporation, 2009). Secondary transmissions lines connect communities south and west of Whitehorse, and east of Faro and the Minto Mine site.

7.5 Water and Sewage Treatment Services

7.5.1 Water

The majority of Yukon residents get their water from private wells, 2,000 of which exist in Yukon (Government of Yukon, 2009b). Whereas municipalities regulate water services, which are either supplied locally or delivered by truck, and most rural communities depend on self haul or trucked water. Outside of municipal facilities, water treatment is regulated by the Health and Social Services branch of the Government of Yukon, which offers free well water testing services. Water supplies are managed by the Community Services department of the Community Development branch; municipal and private water management and licensing is overseen by the Yukon Water Board, regulated under the *Waters Act* (Government of Yukon, 2002).

7.5.1.1 Pelly Crossing

The community of Pelly Crossing utilizes private wells and truck-delivered water to some areas of the community. Additionally, SFN owns a private water supply (Infrastructure Development, 2012, pers. comm.). A representative from Infrastructure Development noted that piped water is now provided to some parts of the community. SFN built a pump house and the water is distributed around the community of Pelly Crossing, primarily to membership (Infrastructure Development, 2012, pers. comm.). Additional development of the water infrastructure at Pelly Crossing would involve the design of a pipe system and new aquifer.

Long-standing water quality issues were identified in Pelly Crossing in 2007. Concerns were raised regarding high bacteria levels and poor taste due to high manganese and iron levels in the drinking water. At the time, residents experienced skin rashes that might have been due to high mineral levels in the water (Inukshuk Planning and Development, 2007a).

7.5.1.2 Carmacks

The Village of Carmacks does not provide treated water to community residents (Village of Carmacks, 2013, pers. comm.). The residents obtain drinking water from truck delivery and private, self-haul wells (Government of Yukon, 2009b; Infrastructure Development, 2012, pers. comm.; Tantalus, 2013, pers. comm.; Village of Carmacks, 2013, pers. comm.). Access to clean drinking water was identified as an outstanding public health concern in the LS/CFN community in 2007. During that time, the Village of Carmacks and LS/CFN had been on a boil water advisory for an extended period of time. At the time, *E. coli*, coliform, gasoline, and fecal matter were found in the water through testing (Dyck, 2011). In recent interviews, LS/CFN representatives expressed concerns regarding the suitability of drinking water in Carmacks. They noted that water is contaminated with chemicals leaking from old mine tailing dams that are starting to melt (LS/CFN, 2013, pers. comm.).

LS/CFN representatives also noted that the LS/CFN community has now access to a new water treatment plant, which started operations two years ago and provides fresh drinking water to LS/CFN and other non-Aboriginal residents outside the municipality boundaries (LS/CFN, 2013, pers. comm.). This new water treatment plant also provides piped water to the newly constructed government and health centre buildings in the community.

7.5.1.3 Whitehorse

Whitehorse supplies water to its residents via local government or municipal means from primarily groundwater sources (Government of Yukon, 2009). Water is treated with chlorine and distributed by pipe throughout the city from five reservoirs, comprising a system that includes a pumping and booster station. Two reservoirs (Porter Creek and Valley View) have been expanded and a new truck line built. The Selkirk Aquifer has an adequate supply of water for the foreseeable future (20 year horizon with maximum projected growth), and can supply the new development of Whistle Bend (City of Whitehorse, Water and Waste Services, 2013, pers. comm.). Rural areas around the city are not supplied from the Whitehorse system and rely upon private wells or truck-delivered water.

7.5.2 Liquid Waste

Sewage systems in Yukon consist of a combination of private septic as well as piping and treatment systems where available. Stages of wastewater treatment include preliminary, primary, secondary, and tertiary treatments, which range from the removal of solid materials to biological treatments and the removal of pollutants. The stage of treatment utilized varies between communities and the capability of the facilities (Government of Yukon, 2009b).

7.5.2.1 Pelly Crossing

The community of Pelly Crossing uses septic systems, which employ disposal services that truck waste to a primary filtration treatment pit located near the landfill (Government of Yukon, 2009b). The pit is operated by SFN.

At present, there is no piped sewage available in Pelly Crossing (Infrastructure Development, 2012, pers. comm.).

7.5.2.2 Carmacks

Sewage in the core section of Carmacks is treated at the Carmacks Sewage Treatment Plant, located north of the Village. This primary treatment facility removes large solid and inorganic materials from the water (Government of Yukon, 2009b; Village of Carmacks, 2013, pers. comm.). The system utilizes sewer mains (servicing the core of the Village of Carmacks) and discharges into Yukon River. The community has a new treatment plant that was developed with assistance of the Government of Yukon and the Government of Canada (Village of Carmacks, 2013, pers. comm.). The Carmacks sewer system serves only the core portion of the town where sewer pipes have been installed but has the capacity to serve twice the current population (Village of Carmacks, 2013, pers. comm.).

Most residents of LS/CFN community use septic tanks or septic fields. LS/CFN government has expressed interest in partnering the Village of Carmacks to develop additional community infrastructure (LS/CFN, 2013, pers. comm.).

7.5.2.3 Whitehorse

Serving the urban Whitehorse area, the Whitehorse wastewater system consists of three independent sewer systems and two lagoons. The three systems are: the Crestview Sewerage System, the Porter Creek Sewerage System and the Marwell Lift Contributing Area. Rural areas outside of the city use in-ground septic systems and rely upon private disposal. The three systems collect from various communities and have a combined maximum capacity of 42,000 people within the city (Government of Yukon, 2009b) and currently processes 4.4 million cubic metres per year with a capacity of 5 million cubic metres (City of Whitehorse, Water and Waste Services, 2013 pers. comm.). Waste is transferred by a system of buried mains to the Livingston Trail Environmental Treatment Facility on the west side of Yukon River where a three-celled lagoon system is located. The facility provides tertiary level treatment of waste, removing biological and inorganic pollutants before annually discharging into a local lake connected to the Yukon River.

7.5.3 Solid Waste

Solid waste in Yukon is regulated under the *Public Health and Safety Act* (Government of Yukon, 2002b), and consists of a number of community landfill locations throughout Yukon. Five strategies of waste management are utilized, including: burial of waste in trenches; open-trench burning and burial; burn vessels; burial of ash; and unmanned and manned transfer station disposal (Government of Yukon, 2002b, 2009b). Maintenance of each facility outside of Whitehorse is provided by private contractors or community members. Government monitoring of the air, land, and water pollution generated at these sites is conducted at the Whitehorse and Dawson City landfills. Waste collection is primarily managed by municipal staff, although private contractors are used in Whitehorse (Government of Yukon, 2009b).

In 2009, the Government of Yukon conducted a comprehensive assessment of waste management practices throughout Yukon. The resulting Yukon Solid Waste Action Plan seeks to modernize practices and establish a sustainable waste management system for all communities. This plan has provided improvements to existing infrastructure and services; new regional transfer station routes; improved recycling, waste reduction, and diversion programs; and partnerships with community groups, municipalities and First Nations (Yukon Community Services, 2009).

7.5.3.1 Pelly Crossing

Public waste facilities in Pelly Crossing are provided by the Government of Yukon and are located at km 458 on the Klondike Highway, south of the community. The facility has 300 regular users and receives 260 tonnes of waste per year. Disposal services are provided to the community by private contract to the Department of Community Development (Government of

Yukon, 2008b). Weekly burns are conducted at this facility and SFN has expressed concerns over potential damage to local salmon habitat (EBA, 2009).

Garbage collection occurs at a transfer station and there is also a municipal dump in the community (Infrastructure Development, 2012, pers. comm.).

7.5.3.2 Carmacks

A landfill is located 1.2 km southeast of the Village of Carmacks along the Alaska Highway, which services the Village. The landfill is operated by the Village of Carmacks and services approximately 472 regular users and received 247 tonnes of waste per year (EBA, 2009; Government of Yukon, 2009b). The Carmacks landfill does not take refuse from other communities and operates as a non-burn facility (Village of Carmacks, 2013, pers. comm.). A separate recycling centre was recently constructed. According to the 2006 Integrated Community Plan, the landfill site helps meet the goals set out in the 25-year Solid Waste Management Plan. The lifespan of the landfill facility is considered to be at least 18 years.

In recent interviews, LS/CFN representatives expressed some concerns regarding the current location of the landfill and the potential contamination of aquifers (LS/CFN, 2013, pers. comm.).

7.5.3.3 Whitehorse

The disposal facility for the Whitehorse area is located north of the city along the Alaska Highway at the War Eagle Landfill. The site services approximately 23,000 users from Whitehorse and the surrounding communities (Government of Yukon, 2009b). The site receives 22,500 tonnes of waste per year and operates as a no-burn facility. A recycling centre is located in town, and the municipality also collects household compost. The landfill is expected to have a 40-year lifespan (City of Whitehorse, Water and Waste Services, 2013, pers. comm.).

Table 7-6 presents an overview of the water and sewage treatment services available in Pelly Crossing, Carmacks, and Whitehorse.

Table 7-6: Overview of Available Water and Sewage Treatment Services in the LSA

	Pelly Crossing	Carmacks	Whitehorse
Water	Private wells and truck delivered water.	Water needs for the Village of Carmacks are provided by private wells and truck delivered water. LS/CFN has a water plant to provide water to membership and non LS/CFN residents outside the municipality boundaries	Wells that draw from underground aquifers. Piped water system distributes water from five reservoirs to the city. Rural areas are served by private wells and truck delivered water. Adequate supply for the foreseeable future (20 years).

	Pelly Crossing	Carmacks	Whitehorse
Liquid Waste	<p>Septic system.</p> <p>Sewage trucked to primary filtration treatment pit operated by SFN.</p> <p>No piped sewage is available.</p>	<p>Village of Carmacks has a new secondary treatment facility with a design capacity for twice Carmacks current population but currently serves the core part of the community.</p> <p>Those parts of Carmacks not connected to sewer mains and served by the new sewage facility utilise septic fields.</p> <p>LS/CFN residents currently use septic systems for liquid waste treatment.</p>	<p>Wastewater system consisting of three separate networks.</p> <p>Rural areas use in-ground septic systems and rely on private disposal.</p> <p>Liquid waste is transferred to treatment facility and lagoon system.</p> <p>The treatment of waste is currently involves approximately 4.4 million cubic metres/year with a system capacity of 5 million cubic metres/year</p>
Solid Waste and Waste Management	<p>No curbside pickup. Residents drop off garbage to transfer station or municipal dump.</p> <p>Solid waste is transported to landfill outside the community, where waste is burned weekly.</p>	<p>There is no garbage collection in the Village of Carmacks, other than private collection for housing units owned by Yukon Housing. Solid waste is transported to landfill located outside the community, which operates as a non-burn facility.</p> <p>There is a new recycling facility in the Village of Carmacks. The landfill is expected to have a 18-year lifespan.</p> <p>There is private garbage collection arranged for residents of the community of Little Salmon/Carmacks First Nation.</p>	<p>Solid waste is transported to landfill located north of the city. Landfill operates as a non-burn facility.</p> <p>The city has a recycling centre and municipality collects household compost.</p> <p>The landfill is expected to have a 40-year lifespan</p>

Source: Government of Yukon, 2009b; Village of Carmacks, 2013, pers. comm.; LS/CFN, 2013, pers. comm.; City of Whitehorse, Water and Waste Services, 2013, pers. comm.

7.6 Recreational Facilities

7.6.1 Selkirk First Nation/Pelly Crossing

Although Pelly Crossing is a small community, it accommodates several community and recreational facilities, including a Heritage Centre, community library, community hall, RV campground, and a renovated recreation centre housing an arena and curling rink. The Tommy McGinty Baseball Park is well used in summer. There is also a youth centre in town, providing exercise equipment, a TV, pool table, foosball table, and supplies for crafts and games.

Stick gambling is also popular in the community. Typically, residents practice and compete during winter and spring. In June, there is a Yukon-wide competition (Yukon Community Profiles 2004b).

Hunting and fishing serve as important community activities while providing a source of food. During the salmon run, the community typically empties as people move to their cabins or fish camps near the river to catch and preserve fish for immediate and winter consumption.

7.6.2 Little Salmon/Carmacks First Nation and Village of Carmacks

The Village of Carmacks offers many recreational activities throughout the year. The recreational facilities located in the community include a campground, boat launch, tennis court, park and playground, cross-country ski and walking trails, baseball diamond, school library and gym, community hall, outdoor ice rink, curling rink, and summer-use swimming pool.

Similar to SFN, stick gambling is also an important activity for LS/CFN residents. Participants from both communities typically participate in the Yukon First Nations Annual Stick Gambling Championships, which are held each year in First Nation communities throughout Yukon.

Carmacks residents enjoy a wilderness lifestyle that includes hunting, fishing, trapping, berry-picking, hiking, canoeing, and snowmobiling. These activities play an important role in the lifestyle of residents today. Hunting, fishing, and other types of harvesting also supply food for residents.

The community recreation centre provides a curling rink, rental facilities, outdoor ice rink, covered outdoor pool during summer, and several parks and playgrounds. The centre offers extensive programming, including after-school programs for children, family dinners, and teen nights. The centre is perceived as having good capacity to serve the community (Village of Carmacks, 2013, pers. comm.; Tantalus, 2013, pers. comm.).

7.6.3 Whitehorse

As would be expected in the largest city in the Yukon, Whitehorse offers a variety of outdoor activities including fishing, hunting, skiing (cross-country and downhill), snowmobiling, dog mushing, canoeing, hiking, biking, camping, baseball, soccer, football, track and field, racquet sports, and orienteering. There are also a number of venues in which residents can enjoy a variety of outdoor recreation, including:

- Parks—The city has more than 10 parks, providing users with a range of attractions and amenities, including formal gardens, wilderness, sculptures, picnic areas, bird watching opportunities, walking trails, bike tracks, playgrounds, and historical sites;
- Trails and Open Spaces—There is an estimated 150 km of existing trails of city-wide significance and at least 700 km of local and neighbourhood trails used by Whitehorse residents;

- Neighbourhood Rinks—There are 30 outdoor skating rinks located throughout the city, as well as one curling rink facility; and
- Other facilities include golf courses, RV parks, hot springs, and museums.

The city also offers a number of public facilities including a large Canada Games Centre that provides residents with access to a swimming pool, ice arenas, running track, and childcare. In addition, Whitehorse's Parks and Recreation department manages three other recreation centres in the city.

8.0 COMMUNITY SERVICES

The potential effects of the Project on community services within the socio-economic study area are dependent upon Project-related population growth and activities and the existing capacity of community services. The following section outlines current service delivery and capacity.

8.1 Educational Services and Facilities

There are 28 primary and secondary schools in Yukon, with 14 in Whitehorse and 14 situated in the rural communities. Enrolment numbers range from less than 10 students to more than 600. The Annual Report 2011–2012 Academic Year published by Yukon Education flags a number of program initiatives under the Accountability Framework involving tools such as the Pyramid of Intervention and Yukon Assessment Matrix that focus on adequate student support and assessment of student progress. Capacity to house additional students from people moving to Yukon does not appear to be an issue in the study area at this time, as one of the drivers for increasing expenditure per student is declining enrolment (Yukon Education, 2013).

8.1.1 Primary and Secondary Education

8.1.1.1 Pelly Crossing

There is one school, the Eliza Van Bibber School, in Pelly Crossing, which offers kindergarten to grade 12. According to the school website, the school has faced challenges with a significant number of staff and administration changes over the last few years. The school has been working hard to re-establish stability, consistency, and trust within the school, as well as increasing involvement of parents, the school council, the community, and elders. Good progress is being made with a focus on improving student achievement with accurate assessment, developing a cultural program that integrates SFN traditions and aspirations with academic requirements and building a coordinated student and school response to improving learning conditions. Overall student enrolment was 48 for 2012, as compared to a high of 75 in the late 1990s, and professional staff number 15 at the school (Eliza Van Bibber Community School, 2013).

8.1.1.2 Carmacks

The Tantalus School in Carmacks offers kindergarten to grade 12. School amenities include a gymnasium, library, and computer lab. According to the school's website, student enrolment for 2012 exceeded 104 students. Approximately 98% of students are of First Nation Ancestry (Tantalus, 2011, 2013, pers. comm.). The school employs nine teachers, two educational assistants, two learning assistant teachers, two administrative assistants, and a principal (Tantalus, 2013, pers. comm.).

School programs reflect the Northern Tutchone values and follow the BC Ministry of Education curriculum and exams. Currently, the school has 5 to 10 graduates per year. School representatives noted that most students who complete grade 9 are very likely to graduate. Representatives also

noted that the school can accommodate considerably more students, in particular, in the kindergarten and high school programs. Currently, there are 35 students in high school, but the school could easily enrol up to 150 to 175 students (Tantalus, 2013, pers. comm.).

The school has a new building and is undergoing additional renovations, including adding another classroom. During interviews it was noted that the new building is smaller and has no lockers or showers. In terms of required updates, the school needs more equipment for the gym and science lab, and bigger classrooms and offices. There is also need for additional funding for the students food program (Tantalus, 2013, pers. comm.).

LS/CFN representatives identified inadequate school education as a barrier for local employment and postgraduate education. They noted that, as in most Yukon communities, there is a need for rising academic levels of local students in Carmacks. It was noted that grade 12 students do not have the qualifications required for university or college admission. Most students have to go to schools in Whitehorse to upgrade their education (LS/CFN 2013, pers. comm.). It was also noted that many families send their children to schools in Whitehorse (EMR, 2013, pers. comm.).

8.1.1.3 Whitehorse

There are 14 public schools in the City of Whitehorse, including 10 elementary schools, three secondary schools, and one kindergarten to Grade 12 French Language School. Like all schools in Yukon, the curriculum is based on BC Ministry of Education curriculum, and students are eligible to write BC departmental exams. As of 2011, total primary and secondary enrolment in Whitehorse schools was 4,100 students. Capacity to house additional students does not appear to be an issue in the socio-economic study area at this time, as one of the drivers for increasing expenditure per student is declining enrolment (Yukon Education, 2013).

8.1.2 Post-secondary Education

8.1.2.1 Yukon College

Yukon College is the only post-secondary institution in Yukon. It is based in Whitehorse (Ayamdigut Campus) and has campuses located in 12 other communities in Yukon, including Dawson City, Carmacks, Mayo, and Pelly Crossing. Each of the 12 community campuses offers online courses and video-conferencing capabilities (Yukon College, 2012).

Yukon College also offers university credit programs in arts, sciences, northern studies, renewable resources management, and environmental officer training. Trades programs are available at the apprentice level and pre-employment training is also offered. In addition, the college offers vocational and academic training for certificate, diploma, and degree programs in five major schools of study.

Highlights include a partner degree program with the University of Alberta in environmental conservation sciences, diploma programs in information technology and renewable resources management, as well as pre-employment certificates in electrical, carpentry, and welding.

Additionally, continuing education programs are offered in all Yukon College campuses and provide technical, language, and safety training throughout the year. Representatives from Yukon College noted that although the College has recently been given the right to grant degrees, this has not yet been offered to students. Currently, degrees are granted from universities outside of Yukon (Yukon College, 2012).

Enrolment at Yukon College has continued to grow by approximately 5% to 10% per year (Yukon College, 2012) and representatives noted that there are some funding constraints. Although the college receives core funding, there is little support through corporate donations, which may limit the college's success. Representatives noted that Yukon's mining industry has not been particularly supportive of the college, although in other jurisdictions such as Alberta, the oil and gas industry contribute extensively to the education sector (Yukon College, 2012).

Representatives noted that mining activity has increased in Yukon and it is viewed as key to economic development. As a result, the college recently created a School of Mining and Technology (Yukon College, 2012). In addition, a new Mining Industry Advisory Committee was created to assist Yukon College in being more responsive to mining-related trends in the region. The Advisory Committee, which comprises representatives primarily from mining organizations in the region, assists the college in identifying gaps, technologies, skills-related gaps, and mining trends (Yukon College, 2012).

Apprenticeship training is offered extensively at Yukon College. Although the college has not experienced challenges in attracting students to the program, they are facing constraints in finding businesses that are willing to provide on-the-job training to apprentices (Yukon College, 2012).

The college actively engages Yukon First Nations, and a First Nations Initiative program operates through the President's Office, promoting awareness of culture and developing partnerships with First Nations communities.

The Northern Research Institute, housed at Ayamdigut Campus in Whitehorse, serves to promote and coordinate research in Yukon. Many instructors at the college are also active researchers in a variety of fields. Yukon College is also a member of the University of the Arctic, an international network of higher-education institutions around the circumpolar north (Yukon Community Profiles, 2004c).

8.1.2.1.1 Pelly Crossing Campus

The Pelly Crossing campus is located in SFN's previous administration office and was constructed in 2011. The cost of the building was approximately \$1.4 million and was funded by the federal government (Yukon College, 2012). The facility offers three classroom spaces with capacity for 12 to 15 students per classroom, as well as office space. Representatives from Yukon College estimated that there is capacity to teach nearly 400 students per year (three to four classes per day in addition to the potential for weekend classes).

The campus at Pelly Crossing has a Northern Tutchone name, Hets'edan ku', which means "learning house." Staff at Hets'edan ku', in partnership with SFN, offer programming that is locally relevant (SFN 2012). Local programs and courses include:

- Academic upgrading;
- Computers;
- Accounting;
- Office administration;
- Pre-trade programs;
- Oil and gas entry-level preparation;
- Art and culture; and
- Youth employment preparation.

Additional courses are available through video-conferencing, and include credentialed courses such as early childhood education, accounting, and academic upgrading.

8.1.2.1.2 Carmacks Campus

Yukon College also has a campus in the Village of Carmacks, providing adult education programs to the community. The local campus staff work with the LS/CFN, developing and delivering training courses and programs designed to enhance local administrative capacity. Other programs at the campus include academic upgrading, employability skills, craft and small business, computer skills, first aid, accounting, pre-trades and trades, and youth employment training.

8.1.2.2 Other Training and Capacity Development Institutions

A number of labour related training programs exist in Yukon, many of which focus on the mining industry, as well as building skills within Aboriginal communities. The following are several examples of these educational initiatives.

8.1.2.2.1 Yukon Mine Training Association

The Yukon Mine Training Association (YMTA) links Yukon First Nations with some of Yukon's mining and resource-related industries. Their central goal is the training and development of a skilled workforce made up of First Nations and Yukon residents to meet the current and future needs of the mining and resource sectors. YMTA partners with communities, corporations, and industry partners to offer courses and on-the-job learning opportunities (YMTA, 2010). During discussions with YMTA in fall 2012, representatives noted that the association had recently experienced a loss of funding, which had previously been provided through the Aboriginal Skills and Employment Partnership Program, which was discontinued in March 2012. As a result, the association reduced their service offerings to online courses or client consultations (i.e., help with resumes). YMTA also has a job board where job seekers can apply or search for jobs (YMTA, 2012 pers. comm.). A new funding agreement of \$2 million over two years was confirmed early in 2013 and sources the Federal Skills and Partnership Fund. This new funding is client driven and focused on providing life and career coaching and training. Once training is finished, clients search for employment and they can access a wage subsidy (YMTA, 2013, pers. comm.).

Aboriginal Labour Market Programs

Aboriginal Labour Market Programs are available to increase workforce participation and help Aboriginal people prepare for, find, and maintain jobs. These programs are delivered across Canada by Aboriginal agreement holders (Human Resources and Skills Development Canada (HDRDC), 2013). In Yukon, the Council of Yukon First Nations and the Aboriginal Labour Force Alliance are Aboriginal agreement holders and receive funding through this program to assist Aboriginal people to prepare for, find, and keep jobs.

The Aboriginal Skills and Employment Training Strategy (ASETS) is a key component of the Aboriginal Labour Market Programs, designed to provide Aboriginal Canadians with training and skills upgrading that respond to labour market demands. Under this Strategy, Aboriginal agreement holders design and deliver employment programs and services best suited to meet the unique needs of their communities. All Aboriginal people may access ASETS programs and services, which include: skills development; training for high-demand jobs; job finding; programs for youth; programs for urban and Aboriginal people with disabilities; and access to child care (Human Resources and Skills Development Canada (HDRDC), 2013).

The Government of Yukon's first full-time placement office, Employment Central, receives funding to develop employment skills programs through HDRDC under the Canada-Yukon Labour Market Development Agreement. The program is designed to support training programs specific to the industry needs in the region (Employment Central n.d.).

8.1.2.2.2 Yukon Department of Education

The Advanced Education branch of the Yukon Department of Education also provides programs and support services for the Yukon labour force. The branch develops and implements programs in partnership with other Government of Yukon departments, the federal government, businesses,

labour organizations, Yukon College, First Nations, equity groups, and other provincial jurisdictions. Programs include apprenticeship and trades training programs, student training and employment, student financial assistance, community training funds, literacy programs, targeted initiative for older workers, Yukon nominee program for critical impact worker and skilled worker, and registration of trades schools (Yukon Department of Education, 2011a).

The Advanced Education branch, through its Labour Market Programs and Services unit, also works with labour, women's organizations, youth, the private sector, non-profit organizations, communities, First Nations, and the federal government to develop and implement labour market development strategies and policies. The Labour Market Programs and Services unit works with partners and stakeholders to implement five action plans: comprehensive skills and trades training, immigration, recruitment, employee retention, and labour market information (Yukon Department of Education, 2011b).

Mine-related training has occurred in some Yukon communities. For example, in 1997, SFN entered into a Cooperation Agreement with Minto Explorations Ltd. (a wholly-owned subsidiary of Capstone Mining Corp.) regarding the development of the Minto Mine. Training is a major element included in the agreement to support jobs in construction, mining operations, and the processing plant (Natural Resources Canada (NRCAN), 2008).

8.2 Health and Social Services and Facilities

8.2.1 Selkirk First Nation/Pelly Crossing

Pelly Crossing has a local community health centre with regular hours from Monday to Friday; the centre also provides 24-hour emergency service. An informal discussion was held in early summer 2012 regarding the temporary nurse stationed at the health centre. To date, the following aspects about the community health centre have been noted:

- There has been no permanent nurse based in the community, with staffing provided by temporary staff who work under contract and who temporarily live in the community for the duration of their contract;
- The operational hours were respected by the community members and there was a positive relationship with the health staff;
- Specialist services are provided on an infrequent basis by doctors or other health providers who periodically visit the community;
- The ability exists to obtain remote, real-time medical advice by contacting staff in Whitehorse; and
- Patients in need of emergency care are transported to hospitals either by ambulance or aircraft from the local airstrip.

There is one social worker in town, stationed at the SFN office, while a Government of Yukon employee provides health and social services on a half-time basis (the health and social services worker divides her time between Pelly Crossing and Mayo).

A representative from the Yukon Health and Social Services department was interviewed regarding available services in Pelly Crossing. Services provided by the Government of Yukon include child welfare (e.g., responses to reports of child abuse or neglect), foster home services, family support services, social assistance (assessments for benefits), youth justice-related services, youth probation services, and adult protection-related services (Health and Social Services 2012, pers. comm.).

The SFN Department of Health and Social Programs provide services to members in the areas of social assistance, recreation, community wellness, and elder home care and benefits. Programs offered are tailored to expecting parents, elders, students, and youth. Aboriginal court worker services are administered through the Northern Tutchone Council in Pelly Crossing.

Representatives noted that a hospital is being constructed in Dawson City and was set to open in April 2013 (Whitehorse General Hospital (WGH), 2012), though this has been delayed until fall 2013. It is likely that residents of Pelly Crossing would receive emergency services at the hospital in Dawson City, once it is open.

8.2.2 Little Salmon/Carmacks First Nation and Village of Carmacks

The Village of Carmacks offers a community health centre that operates from Monday to Friday, 8:00 a.m. to 4:30 p.m. The centre also provides after-hours emergency services and ambulance dispatch. Occasionally, dental clinics are offered by dentists from Whitehorse (Yukon Community Profiles, 2004c). A visit to the health centre and interviews with key representatives during 2012 and 2013 revealed the following aspects about the community health centre:

- The current health centre is not large enough to accommodate the Village of Carmacks. The centre has two exam rooms; one can be used for trauma as required and only one room is available to see patients. The centre also has an x-ray machine, a laboratory, and a pharmacy. Each room has cameras that allow conferencing with doctors in Whitehorse.
- The centre has two nurses stationed in the community and is currently lobbying to have a third nurse. It was noted that staffing for community centres in Pelly Crossing and Carmacks are lower than in other Yukon communities such as Mayo or Faro with comparable populations.
- Major health concerns in the community include diabetes, high blood pressure, and injuries from motor vehicle accidents.
- The health centre offers specialized programming for women such as the Well Woman Program (provides preventative health screening services to women) and pre-natal care.
- The Minto Mine is more likely to use the Carmacks health centre to treat injuries than the health centre in Pelly Crossing.

Other community social services include Yukon Health and Social Services social workers (estimated to be three staff committed to this community as of 2013), a Yukon Housing Corporation part-time office, a safe house for women and children, and a daycare centre. The

Yukon Family Services Association provides itinerant services from its Whitehorse office. Probation services are also provided from Whitehorse. The types of services provided in Carmacks from Yukon Health and Social Services include child welfare (e.g., responses to reports of child abuse or neglect), foster home services, family support services, social assistance (assessments for benefits), youth justice-related services, youth probation services, and adult protection-related services (Health and Social Services, 2012, pers. comm.; EMR, 2013, pers. comm.).

LS/CFN also offers social services to its members, including counselling, social assistance, adult care, and homecare, and the Yukon Health and Social Services department is currently looking for opportunities to partner with LS/CFN in Carmacks (Health and Social Services, 2012, pers. comm.). Aboriginal court worker services are administered through the Northern Tutchone Council in Pelly Crossing.

In 2007, the Integrated Community Sustainability Plan (ICSP) noted the health and social service building was too small to meet the needs of the First Nation community. Aspects of the services provided require a degree of privacy that was difficult to accommodate in the building. Staffing and staff continuity were also noted as an issue. The report identified a need for more family support workers to relieve some of the burden on the current social workers and families under care by providing a respite during stressful times.

It is likely that residents of Carmacks would also receive emergency services at the new regional hospital in Dawson City, once it is open.

8.2.3 Whitehorse

A full range of health care services is available in Whitehorse, including services provided by WGH (e.g., medical daycare, visiting clinics for specialist doctors, gynaecology, medical imaging, cancer care and chemotherapy, and emergency clinic care) (WGH, 2012 pers. comm.). The hospital serves as a regional referral centre for the Yukon and serves the rural nursing stations through a system of ground and air ambulance as well as other communication means such as tele-medicine. Fifteen visiting specialist physicians provide clinic services such as ophthalmology, orthopaedics, and ear/nose and throat on a regular basis. First Nations health programs are also provided at the hospital, which aim to provide care that is culturally sensitive. Dentists' services are readily available, as is a full-time ambulance service. There are also three extended-care facilities, seniors' housing, and a senior citizens' centre. In addition, there are a number of family doctors and four walk-in clinics available (WGH, 2012 pers. comm.).

WGH has an average annual operating budget of \$70 million, and provides approximately 55 beds with a staff of 111 nurses. Representatives from WGH noted that there is an average of 100 patients per day visiting the Emergency Room (WGH, 2012 pers. comm.). Representatives noted that although the operating budget for the hospital has increased over time, it has not increased in accordance with population demands. As a result, the 55 beds available are often full (WGH, 2012 pers. comm.).

WGH also provides maternity care. WGH representatives noted that in 2011 there were 420 births at the hospital. This number is expected to continue to increase (WGH, 2012 pers. comm.); however, high-risk pregnancies are not accommodated at the hospital and are transferred out to hospitals in larger centres in British Columbia and Alberta.

In addition to WGH, Whitehorse also has several private medical dental and optometry clinics located throughout the city.

The Yukon Family Services Association and the Yukon Housing Corporation provide services from their main offices in Whitehorse, and the Yukon Territorial Government Health and Social Services department provides a range of services in the Whitehorse area. A women's transition house, Kaushee's Place, provides emergency shelter as well as longer-term housing assistance and counselling services.

The Kwanlin Dun First Nation and Ta'an Kwach'an Council provide a range of social services to their members, including social assistance and elder care.

The sustainability of Yukon's health care system appears to be a concern. A recent health care review commissioned by the Premier and the Minister of Health found that Yukon residents believe the quality of health care in Yukon is being jeopardized by such issues as: extended wait times; a lack of family doctors; inadequate access to long-term, palliative and home care; fraudulent use of Yukon's health care system; limited substance abuse treatment and programming; patient transport issues; limited mental health services; and lack of prevention programs and human resources in communities (Yukon Health Care Review Committee, 2008).

8.3 Protective Services

8.3.1 Selkirk First Nation/Pelly Crossing

Protective services are provided by the RCMP, which operates a detachment in Pelly Crossing, staffed by a corporal and two constables. Probation officer and Aboriginal court worker services are provided from Mayo.

A fire chief and six volunteer firefighters provide fire department services.

8.3.2 Little Salmon/Carmacks First Nation and Village of Carmacks

Protective services and policing are provided by one sergeant and two constables out of the local RCMP detachment. Probation services are delivered from Whitehorse, and fire and ambulance services are provided through a volunteer service. There are ten volunteer firefighters in the community, and known challenges include finding volunteers, retention, and training (Village of Carmacks, 2013, pers. comm.). Community representatives noted that search and rescue services are disorganized. Volunteers lack appropriate training and there are concerns over liability (EMR, 2013, pers. comm.).

Public safety concerns mentioned in the ICSP for Carmacks include the lack of a street numbering system and pedestrian movement along the Klondike Highway and across both bridges (Inukshuk, 2007).

The Wildland Fire Management Division of the Department of Community Services provides wildfire management services. Pelly Crossing and Carmacks are served by the Tatchun Regional Fire Management Area. The division has 11 staff in Carmacks (only 1 permanent) and 3 staff in Pelly Crossing. Most positions are seasonally filled through 4- to 6-month contracts that run from May to August or April to September. The division's mandate is to protect the communities, and is heading toward an all-risk protection strategy that also includes floods management and other community protection services (Wildland Fire Management, 2013, pers. comm.).

8.3.3 Whitehorse

The Yukon headquarters of the RCMP operates in Whitehorse and provides policing with approximately 40 officers, including an inspector and First Nation community constables. An aircraft section of the RCMP, based out of Whitehorse, has one aircraft. The RCMP also has a satellite office in the McIntyre subdivision. Services provided by the RCMP include:

- Community policing;
- Prevention and enforcement of criminal activity that involves violent, criminal, or property crime;
- Volunteer victim's assistance programs;
- Awareness training in schools to prevent drug and alcohol abuse; and
- Basic policing services (Whitehorse RCMP, 2012, pers. comm.).

Probation services are provided in Whitehorse, which is also the location of Yukon's main correctional centre, a secure facility for young offenders, as well as a halfway house.

During personal communication with the Whitehorse RCMP, representatives noted that key issues in the city include family violence, drug and alcohol abuse, mischief, and petty crime (Whitehorse RCMP, 2012 pers. comm.). These issues were not limited to any particular ethnic or age group, but criminal activity was noted to increase in summer due to a rise in activity resulting from increased tourism.

The City of Whitehorse fire department is staffed by a chief, 20 full-time employees, and approximately 30 volunteer firefighters. The fire department operates 24 hours a day from two well-equipped fire halls. The fire department responds to approximately 500 to 600 incidents per year, which averages 5 to 10 calls per week and fluctuates throughout the year (City of Whitehorse, 2013). The fire department provides the following services to the community: fire suppression, rescue, hazardous material response, and fire prevention and public education. There are no current issues in providing services and it is anticipated that the fire department could accommodate the Project in 2020 (Whitehorse Fire Department, 2013, pers. comm.).

A 911 service is available in Whitehorse and surrounding areas to respond to emergency police, fire, and ambulance situations in the city and surrounding community.

Table 8-1 summarizes the RCMP and fire services available in Pelly Crossing, Carmacks, and Whitehorse.

Table 8-1: RCMP and Fire Protection Services in the LSA Communities

Community	No. of RCMP Staff	Fire Department	
		No. of Fire Fighters	Average No. of Calls Per Year
Pelly Crossing	1 corporal and 2 constables	1 fire chief and 6 volunteers	-
Carmacks	1 sergeant and 2 constables	10 volunteers	-
Whitehorse	40 officers, including 1 inspector and First Nation community constables	1 fire chief, 20 full-time employees, and approximately 30 volunteers	500 to 600

Source: Whitehorse RCMP, 2012; EMR 2013, pers. comm.

8.4 Workplace Health and Safety

The Yukon Workers' Compensation Health and Safety Board (YWCHSB) administers workers' compensation and occupational health and safety in Yukon. The organization promotes safety awareness, provides training and education, and conducts inspections, compliance, and investigations.

According to the YWCHSB, there were fewer reported injuries in 2010 than previous years, although there was an increase in the number of accepted claims. In total, Yukon had 453 injured workers requiring time off work and receiving time-loss benefits (YWCHSB, 2010).

Yukon experienced two worker fatalities in 2010. A young worker at the Wolverine Mine was fatally injured when a section of wall in an underground area collapsed on 25 April 2010. Another worker died due to an occupational disease. The worker was diagnosed in 2007 with lung disease caused by asbestos, and succumbed to the disease in October 2010.

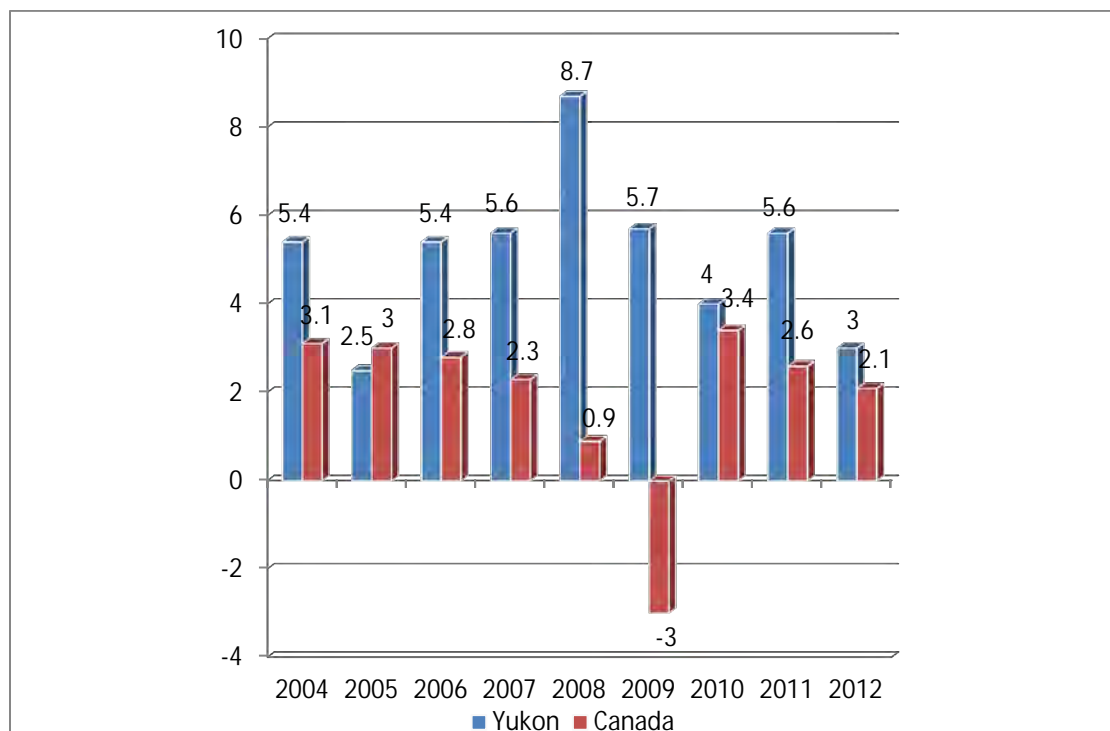
The fatality at the Wolverine Mine near Ross River has resulted in charges being laid against Yukon Zinc Corporation (Yukon Zinc) and Procon Mining and Tunnelling Limited (Procon). The charges are related to the tunnel cave-in that killed the worker. Inspectors with YWCHSB accused Yukon Zinc and Procon of failing to ensure a safe workplace for its workers. Procon is facing similar charges in connection with the 2009 death of another employee at the Wolverine Mine, where it is believed that an emergency brake on a parked vehicle was unable to hold the vehicle in place and the vehicle rolled down the hill, striking the employee (YWCHSB, 2010).

9.0 ECONOMIC DEVELOPMENT AND BUSINESS SECTOR

The potential economic effects of the Project on communities in the LSA and RSA will ultimately depend on the capabilities and capacities of businesses to supply the goods and services needed for construction and operations of the Project. This section provides an overview of the broader regional economy, the major economic development sectors that are currently driving it, and the current regional business capacity.

9.1 Economic Growth

Economic growth and the size of the economy are typically measured by Gross Domestic Product (GDP). Territorial GDP is calculated annually by Statistics Canada and is republished by the Yukon Bureau of Statistics. Figure 9-1 illustrates the real GDP growth in Yukon compared to Canada as a whole.



Source: Yukon Economic Development, 2012

Note: 2012 values are forecasted.

Figure 9-1: Real GDP Growth (%)

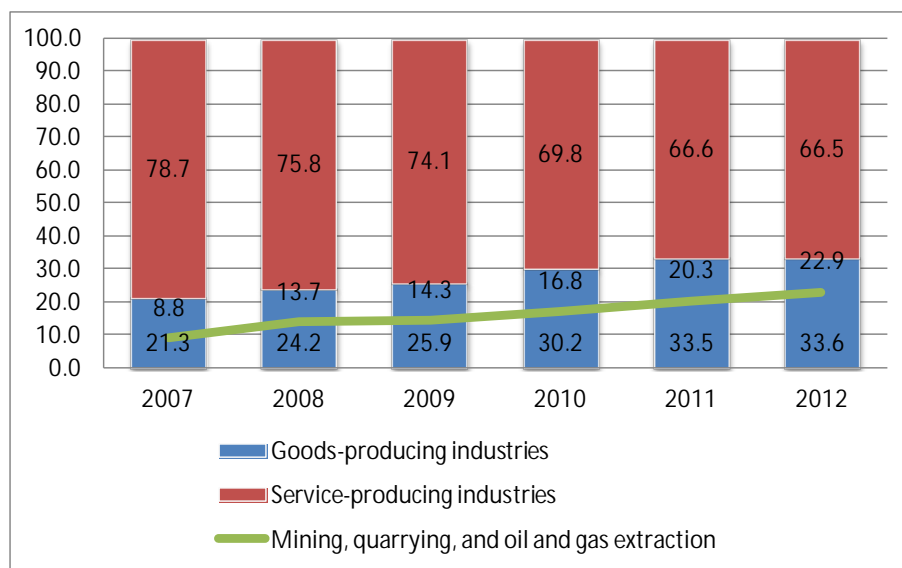
As shown in Figure 9-1, Yukon's economy has consistently grown over the past nine years, with a peak growth of 8.7% in 2008. In 2011, the economy reported a growth of 5.6% over the previous year. This was more than double the national growth rate of 2.6%. The forecast for 2012 is for the Yukon economy to continue expanding, with an expected growth of 3% in real GDP. The Economic Outlook, released by the Government of Yukon in May 2012, suggests that the growth

was largely attributed to the mining sector. The recent permitting and operation of three mines and record level mineral exploration have contributed significantly to Yukon's economy. Additional sectors that contributed to the Yukon's GDP growth included construction (21% reported growth), retail trade (6.6% reported growth), and finance, insurance, and real estate (4.7% reported growth).

The Conference Board of Canada has acknowledged the demand for metals and the role that new mines in Yukon will play in meeting that demand, which in turn leads to strong mineral prices, most notably gold. Capital investment for mineral exploration in recent years in Yukon has contributed to the strength of the territory's economic climate. According to Yukon Economic Development, exploration expenditures in 2011 totalled nearly \$307 million, which is significantly greater than the 2010 figure of \$157 million. Similarly, the number of claims being staked increased by 38% from 2010 to 2011; up from 83,161 to 114,587. Mineral exploration spending of just under \$150 million in 2012 was a decrease with respect to the record level reported in 2011, although it remained above the historic average. Lower exploration spending of approximately \$60 million in 2013 is expected due to weaker mineral prices, with this being the lowest level of spending since the mid 2000s. 2014 exploration spending is expected to increase marginally to approximately \$75 million (Yukon Economic Development, 2013b).

9.2 Important Industries

The Yukon economy has become increasingly dependent on goods-producing industries, which comprises both primary industries (forestry, mining, fishing, and agriculture) and secondary industries (construction, utilities, and manufacturing). In 2012, the goods sector accounted for 33.6% of Yukon GDP up from 21.3% in 2007 (Figure 9-2).



Source: Statistics Canada, 2013a

Figure 9-2: Goods and Service Sector Contribution to Yukon's Real GDP, 2007–2012 (% share)

Within the goods sector, mining is the main industry in terms of contribution to the territorial GDP, accounting for 22.85% of 2012 Yukon's GDP. It was followed by construction (8.08%), manufacturing (1.26%), and utilities (1.23%). Agriculture, forestry, fishing, and hunting contributed to less than 0.13% of the territorial GDP in 2013 (Table 9-1). The contribution of the mining industry to Yukon's GDP has been significantly increasing over time. It has almost tripled in the last five years (Figure 9-2). During the last year alone, mining GDP grew by approximately 21%, from \$541.7 million in 2011 to 656.3 million in 2012. Conversely, the construction industry decreased by approximately 24% in the same period, although it remained an important industry in Yukon (Figure 9-1).

Table 9-1 also shows that the service sector contributed to approximately 66.5% to the territorial GDP. Within it, the major contributors were the public administration and the real state and rental and leasing industries, representing 20.1% and 12.3% of Yukon's GDP respectively.

Table 9-1: Contribution of Resource and Service Industries to Yukon Economy, 2011/2012

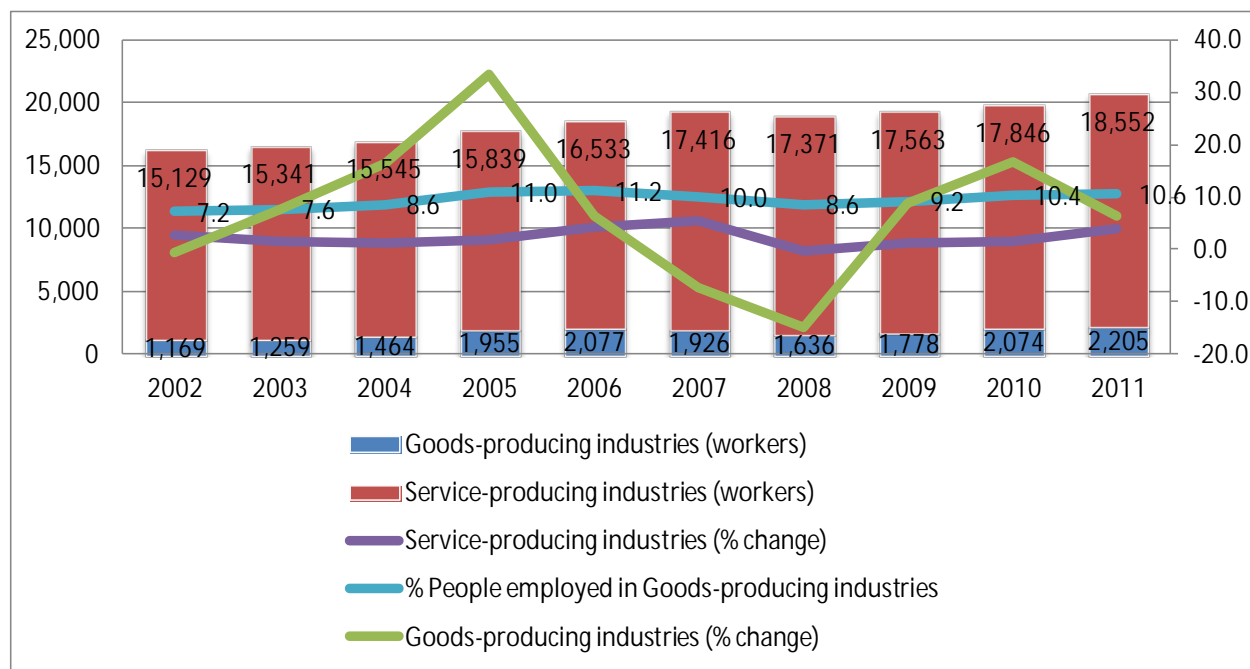
Sector/Industry	GDP by Industry 2011		GDP by Industry 2012	
	Million Dollars* (\$)	Percent of Total (%)	Million Dollars* (\$)	Percent of Total (%)
Good-producing industries	799.8	33.45	848.4	33.55
Agriculture, forestry, fishing, and hunting	3.7	0.14	3.7	0.13
Mining, quarrying, and oil and gas extraction	541.7	20.34	656.3	22.85
Utilities	32.8	1.18	34.4	1.23
Construction	228.1	10.69	172.6	8.08
Manufacturing	13.6	1.1	17.8	1.26
Service-producing industries	1,543.8	66.55	1575.8	66.45
Wholesale trade	31.1	1.15	30.1	1.06
Retail trade	110.4	4.18	109	4.03
Transportation and warehousing	66.9	2.82	69.7	2.87
Information and cultural industries	59.6	2.45	60.6	2.44
Finance and insurance	60.8	2.32	61.4	2.28
Real estate and rental and leasing	282.1	12.09	295.1	12.31
Professional, scientific, and technical services	58.5	2.6	58	2.52
Management of companies and enterprises	7.5	0.35	8.3	0.38
Administrative support, waste management, and remediation services	30	1.33	31.4	1.31
Educational services	120.2	5.24	123.1	5.12
Health care and social assistance	160.5	7.24	164.3	7.25
Arts, entertainment, and recreation	9.3	0.43	9.5	0.42
Accommodation and food services	70	2.85	71.5	2.87

Sector/Industry	GDP by Industry 2011		GDP by Industry 2012	
	Million Dollars* (\$)	Percent of Total (%)	Million Dollars* (\$)	Percent of Total (%)
Other services (except public administration)	34.1	1.52	33.9	1.5
Public administration	444.1	19.97	450.8	20.09
Total – All industries	2,324.3	100	2,403.7	100

Source: Statistics Canada, 2013a, 2013b.

Note: *GDP expressed in millions of chained 2007 dollars. Totals may not sum up due to rounding at the source.

Industries within the goods sector typically contribute to employment less than they do to GDP, with the exception of construction and agriculture, forestry, fishing, and hunting that are labour-intensive. As shown on Figure 9-3, the proportion of employment in goods-producing industries has been increasing since 2009, although it has been less than proportional to its contribution to Yukon's GDP. In 2012, 2,205 people were employed in goods-producing industries, which represented a 6% increase from the previous year (2,074), whereas 18,552 people were employed in service-producing industries, 4% more than the previous year. Employment in goods-producing industries has increased faster than in the service-producing industries during the last years but also has presented more volatility.



Source: Statistics Canada, 2013c

Figure 9-3: Goods and Service Sector Contribution to Yukon Employment 2003–2012 (% share)

9.2.1 Boom and Bust Cycles

Resource-based economies that are heavily influenced by commodity prices are particularly prone to boom and bust cycles, which are exaggerated for communities or regions that depend on a single employer or economic sector. Growing globalization, the advent of new commodity supply areas, changing technology and markets, currency fluctuations, labour unrest/peace for major producers, and a number of other factors all contribute to the fluctuations in global commodity prices and profitability for the resource extraction sector.

The Yukon economy is subject to global commodity prices, particularly in the mining sector, and faces additional challenges, including distance to market, infrastructure and service distances and costs, challenging climate and geography, and other aspects common to northern jurisdictions. Historically, mining has been the primary economic driver for Yukon. As with other single or limited sector-driven economies, there is a growing appreciation of the benefits of economic diversification, which can create an increased resilience within the economy to adjust to changing markets, and can reduce the costs associated with rapid expansion or contraction. Rapidly growing economies such as China, India, and Brazil will continue to drive the market demand for commodities such as minerals, but global economic contractions such as experienced within the last decade are typically more serious for single-sector economies or those with a limited number of sectors.

9.2.2 Other Traditional Industries

9.2.2.1 Outfitting

In Yukon, outfitting activities are managed through outfitting concessions. A total of 19 registered outfitters operate in Yukon, each with concession rights to guide non-resident hunters. Outfitting concession boundaries are legally defined and each outfitter can maintain hunting camps, airstrips, horse grazing areas, and trails. Outfitting concessions within the Project area have been granted with consent from SFN (AECOM, 2009).

The socio-economic study area overlaps with two outfitting concessions: Mervyn's Yukon Outfitting and Devilhole Outfitters (part of the Prophet Muskwa companies). Preliminary discussions have been held with both outfitters, and additional interviews are anticipated in 2013. Both outfitters have expressed concern about increased access to the Project area but have indicated a willingness to discuss potential mitigation methods.

Mervyn's Yukon Outfitting covers 25,900 km² (10,000 square miles) of Outfitting Area 13, and is located to the north and west of Whitehorse, extending from the capital up to the Yukon River at the approximate latitude of Pelly Crossing. The outfitting territory encompasses rolling and mountainous terrain reaching altitudes of 2,286 m (7,500 feet). Guests are typically met at the Yukon Airport, and flown out by bush plane the next day to the base camp, where guests meet their assigned guide and wrangler or cook. There are never more than two hunters to a camp, and horse teams are used for the hunt. Species hunted include: Alaska Yukon moose, black bear, mountain grizzly, wolf, wood bison, Dall sheep, and mountain caribou. Clientele originate from

around the world, and typically spend one week at the camp, and approximately 20 hunts are held per year. All-inclusive prices for hunts are approximately \$20,000 (Mervyn's Yukon Outfitting n.d.).

Devilhole Outfitters is situated on 6,475 km² (2,500 square miles) in the south-western corner of Yukon, with mountainous terrain, lakes, streams, alpine meadows, and glaciers. The main base camp is located on the shores of Kusawa Lake; there are two other base camps at Howard Lake and Granite Lake. The majority of the hunting is done on horseback, and all hunts are run on a one-on-one basis, unless otherwise requested. Most hunts are run from spike camps away from the base camp. Dall sheep, Alaskan moose, and grizzly bear are the main species hunted. All-inclusive prices for hunts are approximately \$20,000 (2008 prices), with a 14-day all-inclusive hunt approximately \$20,500 (Devilhole Outfitters n.d.).

9.2.2.2 Trapping

Trapping in Yukon is managed under the *Wildlife Act* and the Council of Yukon First Nations Umbrella Final Agreement (including individual First Nation Final Agreements) (Council of Yukon First Nations, 1990). The *Wildlife Act* is administered by the Government of Yukon and regulates trapping activities (Government of Yukon, 2002a). A registered trapping concession is a parcel of land on which the holder is granted the rights to harvest fur-bearing animals. There are 14 species of furbearing mammals trapped for their fur: beaver, coyote, fisher, coloured fox, Arctic fox, lynx, marten, mink, muskrat, otter, squirrel, weasel, wolf, and wolverine (Environment Yukon, 2013)

Trapping provides Yukon with important economic value, providing an important source of revenue during winter months in smaller communities. During the past 20 years, Yukon's fur harvest has fluctuated in value from \$250,000 to more than \$1.5 million annually. In addition to the direct economic benefits it produces, the trapping industry also provides economic spin-offs worth two to three times the direct economic impacts (*ibid*).

More than 400 Yukon residents hold trapping licenses, most of whom are trapping concession holders (the others are assistant trappers). There are 333 Registered Trapline Concessions (RTCs) in Yukon and 18 group areas, most of which are held either by a collective group of family or First Nation members (Environment Yukon, 2013).

There are 11 registered trapline concessions that are overlapped by the Land Use Study Area associated with the mine site footprint and access road (Figure 9-2).

Table 9-2: Registered Trapline Concessions

Registered Trapline Concession	Trapline Area (ha)	% of Trapline Within LSA
116	146,462	2.0
121	129,827	4.5
122	113,682	3.6
131	216,996	1.4
146	106,380	4.0
147	77,325	2.5
148	135,364	0.9
149	32,091	2.7
150	21,082	11.2
151	20,943	0.2
408	3,115	18.2

Note: ha = hectare; % = percent; LSA = Local Study Area

Source: Geomatics Yukon, 2013; Registered Trapping Concessions; Environment Yukon. 2013; Harvest Coordinator, pers. comm.

There are both Aboriginal and non-Aboriginal trapline holders in the Project area. Two of the Registered Trapline holders identified were interviewed in fall 2012. Each trapper provided information regarding accessibility of the traplines, as well as trapping seasonality, activity, and harvests. It is worth noting that the traplines in this region may be considered remote, meaning that access to the traplines can be time-consuming and costly (Registered Trapline Holder, 2012, pers. comm.). Trapping season generally occurs from January to March, although this may differ from trapline to trapline. Species most commonly targeted in the two traplines include wolf, wolverine, lynx, and marten, while the species most commonly caught include marten and lynx (Registered Trapline Holders, 2012, pers. comm.). Representatives were asked if they valued one species over another, but each noted that all of the species trapped are valued, although the highest economic return may be more commonly associated with lynx and marten (Registered Trapline Holders, 2012).

Each trapline holder noted that trapping does not provide a high economic return and it is not the motivation behind trapping. Trapping was described as an activity that contributes to trappers' lives by allowing them to be present on the land and connected to the wilderness and wildlife that inhabit these areas.

A 2011 SFN newsletter identified development of trapping infrastructure, and the traditional economy were identified as priorities that are being incorporated into the 2011/2012 budget (SFN, 2011). Similarly the LS/CFN Integrated Community Sustainability Plan also identifies subsistence hunting, fishing, and trapping as a way of life for their membership (Inukshuk Planning and Development, 2007).

Trapping courses are available to local residents through the Renewable Resource Councils and the heritage centres (EMR, 2013, pers. comm.).

9.3 Government Finances

Historical information on territorial government revenues and expenditures was obtained from Statistics Canada and the most recent information available was for 2009. More recent estimates for the 2013–2014 budget period were obtained from the Government of Yukon.

9.3.1 Revenues

Revenues reported for Yukon over the period 2005 to 2009 are shown in Table 9-3. General government transfers represented the main source of revenues in Yukon, accounting for approximately 62% of total revenues in 2009 or \$575 million. Own sources revenues represented another 21% of total revenues (\$198 million), while government transfer for specific purposes represented another 17% of total revenues (\$156 million). Within own sources revenues, income taxes was the primary contributor to total revenues, accounting for 34% of own source revenues and 7% of total revenues (\$68 million). Revenues from own sources had the largest increase during the last year compared to other sources of revenue. Overall, total revenues tend to be increasing over time.

Table 9-3: Government of Yukon Revenues, 2005–2009 (million dollars)

Revenue Sources	2005	2006	2007	2008	2009
Own source revenue	116	150	168	186	198
Income taxes	41	52	56	62	68
Consumption taxes	22	23	25	26	30
Property and related taxes	2	2	3	3	3
Other taxes	8	8	9	10	10
Contributions to social security plans	7	12	18	25	26
Sales of goods and services	12	21	24	25	30
Investment income	20	30	32	34	30
Other revenue from own sources	3	2	1	1	1
General purpose government transfers	489	550	527	553	575
Specific government transfers	93	124	185	147	156
Total Revenue	698	824	880	886	929

Source: Statistics Canada, 2013d.

9.3.2 Expenditures

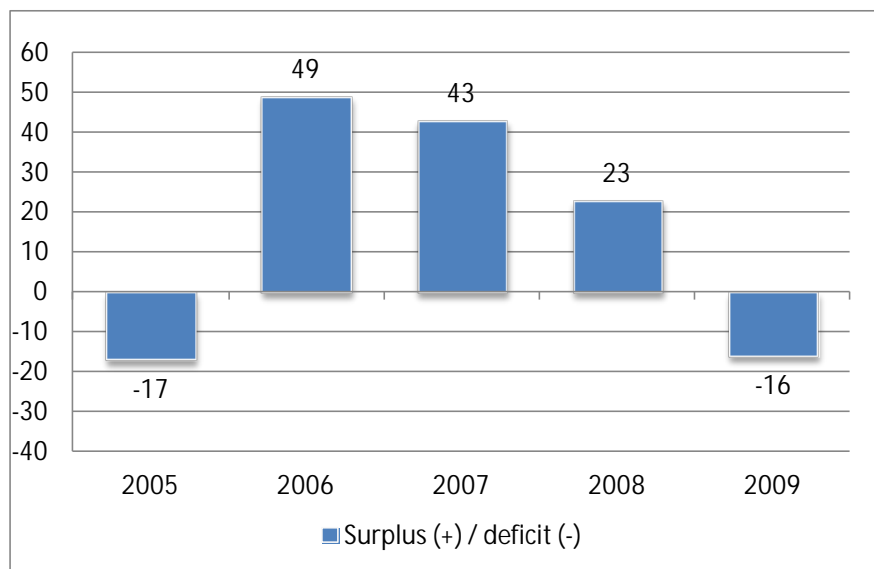
Table 9-4 shows the breakdown of Yukon annual expenditures from 2005 to 2009. For the latest year where data were available, Yukon allocated the largest percentage of its budget (16.1%; \$152 million) to transportation and communication, follow by education (15.4%; 146 million) and health services (14.7%; 139 million). Other major expenditures items included social services, government services, and resource conservation and industrial development. Overall, total expenditures tend to be increasing overtime.

Table 9-4: Government of Yukon Expenditures, 2005–2009 (million dollars)

Revenue Sources	2005	2006	2007	2008	2009
General government services	72	78	81	85	89
Protection of persons and property	80	65	63	74	79
Transportation and communication	104	111	118	129	152
Health	100	106	126	130	139
Social services	92	100	109	112	114
Education	116	126	138	143	146
Resource conservation and industrial development	75	82	82	80	85
Environment	14	14	13	17	23
Recreation and culture	16	31	18	20	21
Housing	12	20	30	26	32
Regional planning and development	19	27	46	30	45
General purpose transfers to other government subsectors	12	13	13	14	15
Debt charges	3	3	3	3	3
Total Expenditures	715	775	837	863	945

Source: Statistics Canada, 2013d.

Although both Yukon's revenues and expenditures have been growing during the last years, in 2009, total expenditures exceeded total revenues resulting in a net deficit of \$16 million. This is mainly due to significant expenditure increases in housing, environment and regional planning, and development services. Yukon had net surpluses (revenues exceeded expenditures) from 2006 to 2008.



Source: Statistics Canada, 2013d

Figure 9-4: Government of Yukon Net Surplus/Net Deficit 2005–2009 (million dollars)

The Government of Yukon estimates its 2013-2014 budget expenditures at \$1.1 billion, less than projected revenues of \$1.2 billion for a surplus of \$73 million. Taxes and general revenue raised by the Government of Yukon will only account for \$151 million, or 12.6% of revenue. Most revenue for Yukon (\$979 million, or 81%) will come from transfers from the Government of Canada. Of the revenue raised by the territorial government, most (61%) came from income taxes, individual and corporate. The size of the Yukon budget has doubled over the last decade in order to fund rapid growth in services and infrastructure. The largest budget item is health and social services at \$348 million (31% of expenditures), followed by community and transportation at \$252 million (22% of expenditures), and education at \$188 million (17% of expenditures) (Government of Yukon, 2013b).

9.4 Local and Regional Businesses

Economic development in Yukon has been closely linked to mining over the past century. The major metals produced by the mining industry in Yukon include lead, gold, silver, copper, and zinc. The Yukon mining industry also supports oil and gas wells, aggregate quarries, and mining-related services. The volatility of the mining industry has had implications for the Whitehorse economy based on its significant contribution to the economy.

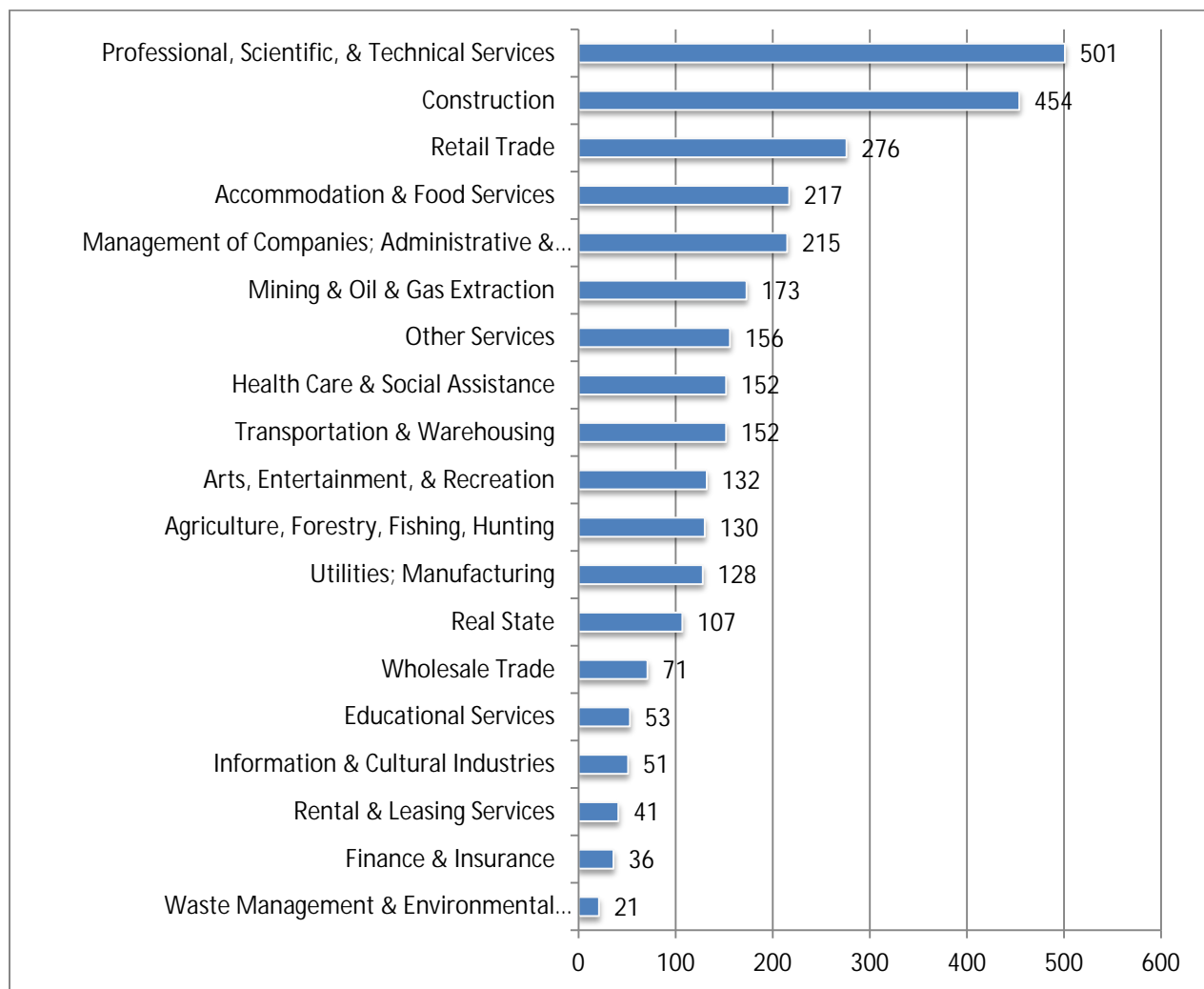
Many of the businesses that provide services to the mining industry are headquartered in Whitehorse. When the mining industry is experiencing a decline, the Whitehorse economy tends to suffer, with increased unemployment and some population loss. The future of the mining industry in Yukon will continue to be uncertain and will depend upon metal values, domestic and international demand, and corporate decisions of mining companies. A considerable amount of time and money has been invested in infrastructure and exploration in Yukon. This should assist in attracting future mining activity to Yukon, and will have an effect on Whitehorse's economy.

Tourism is growing in importance to the Whitehorse economy. The community benefits directly from visiting tourists, and through providing the transportation and business base for tourism activities elsewhere in Yukon.

Whitehorse-based businesses and services related to the mining industry include a number of contracting companies, heavy equipment sales and rentals, transportation and logistics services (Whitehorse Chamber of Commerce, 2013). Some services and organizations related to the mining industry are described in the annual Yukon Mining and Exploration Directory (Yukon Chamber of Mines, 2013). A wide variety of services are offered, including:

- Communications, catering, and camp services;
- Reconnaissance, surveying, and mapping;
- Drilling and heavy equipment operations;
- Engineering, environmental, and geological consulting;
- Construction and contracting;
- Trucking and hauling;
- Mine development contracting;
- Aboriginal and community engagement consulting;
- Expediting, logistics, and transportation; and
- Mining inspections.

In 2010, the Yukon Bureau of Statistics surveyed over 3,000 Yukon businesses (i.e., businesses that conducted business in Yukon) and compiled information about industry, employees, revenue level, and other relevant information. Out of the 3,000 businesses surveyed, 173 (6%) worked in the Mining and Oil and Gas Extraction industry, while 454 (15%) worked in the Construction industry. The Construction industry had the second greatest number of business after the Professional, Scientifics, and Technical Services industry. This category includes businesses such as legal, accounting, engineering, and consulting services (Figure 9-3).



Source: Yukon Bureau of Statistics, 2011

Figure 9-5: Number of Yukon Businesses by Industry, 2010

The construction industry has experienced the largest growth between 2001 and 2010 in terms of number of businesses. The number of businesses in this industry increased by more than 100% in the 10-year period for which data are available, from 225 in 2001 to 454 in 2010 (Yukon Bureau of Statistics, 2011).

In terms of employment, businesses in the Retail Trade industry were the major employers (16%), followed by businesses in Accommodation and Food Services (13%). Construction businesses and Professional, Scientific, and Technical Services businesses were also significant employers. The Construction industry had the largest number of employees of home-base businesses at 684. Businesses in the Information and Cultural industries had the greatest average number of workers (10.1 employees), followed by Retail Trade (7.6 employees) and Accommodation and Food Services (7.5 employees). Table 9-5 summarizes the number of employees by industry.

Table 9-5: Number of Employees by Industry, 2010

Industry of Businesses Surveyed	No. of Employees Reported			% of Total	Average No. of Employees*
	Non-Home-Based	Home-Based	Total		
Agriculture, Forestry, Fishing, Hunting	45	144	189	1.5	1.5
Mining and Oil & Gas Extraction	680	156	836	6.5	4.8
Utilities; Manufacturing	398	93	491	3.8	3.8
Construction	907	684	1,591	12.4	3.5
Wholesale Trade	260	53	313	2.4	4.4
Retail Trade	1,948	155	2,103	16.4	7.6
Transportation and Warehousing	836	160	996	7.8	6.6
Information and Cultural Industries	463	54	517	4.0	10.1
Finance and Insurance	231	7	238	1.9	6.6
Real Estate	370	69	439	3.4	4.1
Rental and Leasing Services	116	22	138	1.1	3.4
Professional, Scientific, and Technical Services	980	496	1,476	11.5	2.9
Management of Companies and Enterprises; Administrative and Support Services	184	272	456	3.6	2.1
Waste Management and Environmental Remediation Services	66	18	84	0.7	4.0
Educational Services	18	48	66	0.5	1.2
Health Care and Social Assistance	423	113	536	4.2	3.5
Arts, Entertainment, and Recreation	165	166	331	2.6	2.5
Accommodation and Food Services	1,481	136	1,617	12.6	7.5
Other Services	280	110	390	3.0	2.5
Total	9,851	2,956	12,807	100.0	4.2

Source: Yukon Bureau of Statistics, 2011.

Note: *Calculated by dividing the total number of employees by the total number of businesses surveyed. This number might be slightly overstated since the total number of businesses surveyed might be higher than the total number of businesses reporting employees.

Of the 2010 employees reported, 6,720 (66%) were employed full-time and 2,342 (23%) were employed part-time. In addition, 1,083 (11%) workers were employed on casual or temporary basis at the time of the survey.

The vast majority of the businesses that conducted business in Yukon were located within the territory (92% or 2,792), while the remainder 8% (247 businesses and 919 employees) had main offices located outside Yukon. Within Yukon, most of the businesses and employees were located in Whitehorse. Whitehorse businesses accounted for 72% (2,182) of all businesses surveyed and 80% (10,259) of all employees. Dawson City was the second main location for

businesses, with 197 businesses and 609 employees located in the city. Carmacks and Pelly Crossing reported fewer businesses: Carmacks reported 18 businesses and 65 employees, and Pelly Crossing reported 8 businesses and 13 employees (Figure 9-6).

Table 9-6: Yukon Businesses and Employees by Community, 2010

Location of Business*	No. of Businesses Reporting	Total No. of Employees
Beaver Creek	8	9
Carcross	27	61
Carmacks	18	65
Dawson City	187	609
Destruction Bay	7	18
Faro	25	43
Haines Junction	63	185
Marsh Lake	37	60
Mayo	44	100
Old Crow	6	13
Pelly Crossing	8	13
Ross River	14	31
Tagish	19	18
Teslin	27	43
Watson Lake	105	320
Whitehorse	2,182	10,259
Other Yukon	15	23
Yukon Total	2,792	11,870

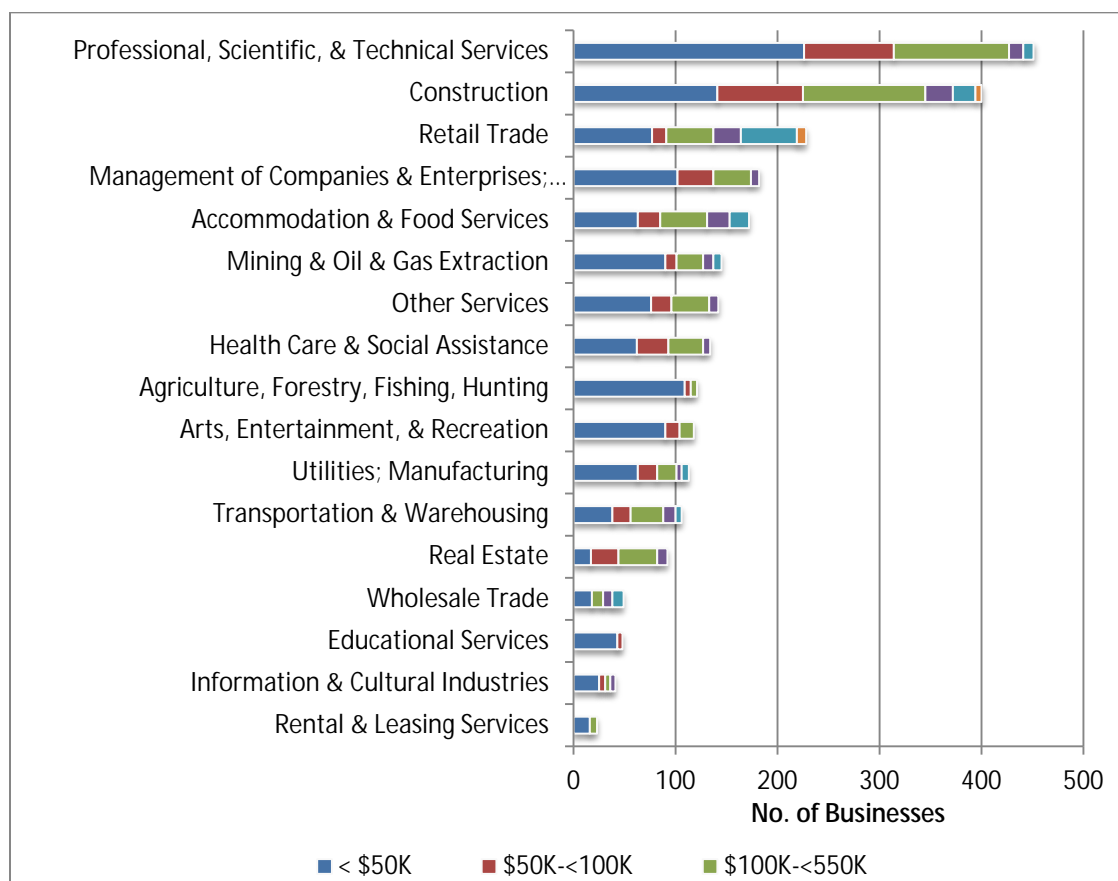
Source: Yukon Bureau of Statistics, 2011.

Note: *For businesses with offices in Yukon

Among the businesses located outside Yukon, the bulk of the businesses were located in BC (57% or 140) and Alberta (23% or 56), while 14 businesses (6%) were located in the United States. The balance of businesses was located in other parts of Canada.

The majority of Yukon businesses were sole proprietorship (52%), followed by corporations (33%) and partnerships (13%). Another 1% of businesses were owned by First Nation Development Corporations and 0.2% were owned by Yukon First Nations, and the remainder 1.5% had other ownership arrangements. Of the sole proprietor and partnership businesses, 6% owners were identified as First Nation citizens. SFN and LS/CFN had 15 and 9 businesses owners, respectively (Yukon Bureau of Statistics, 2011).

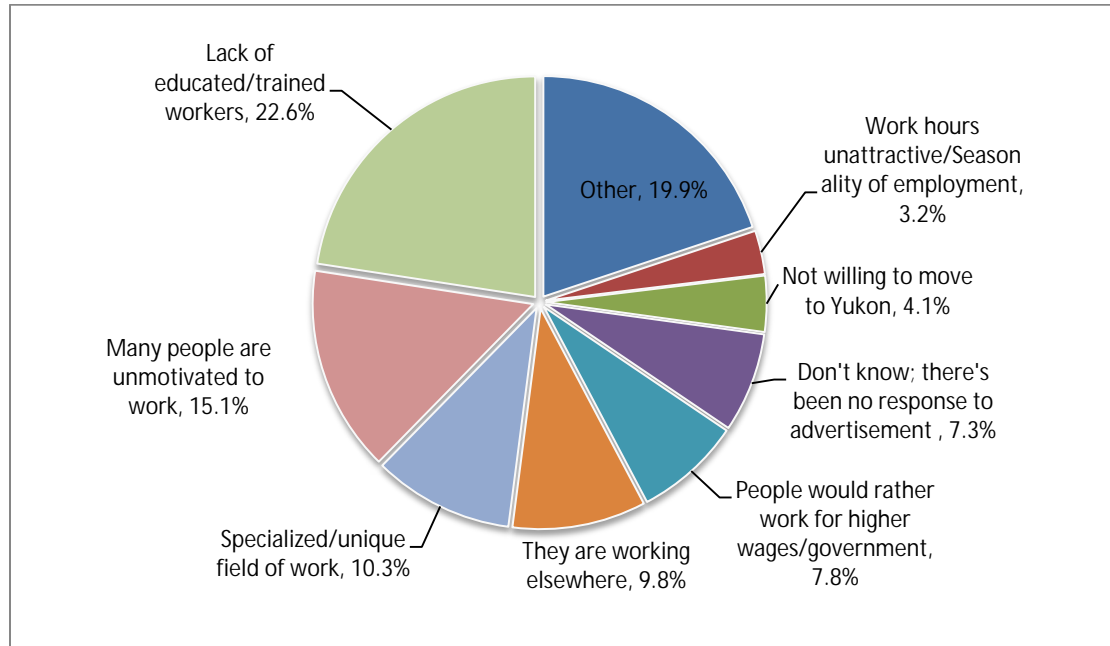
Of the businesses that reported revenues, the majority (47% or 1,268) had revenues below \$50,000 for the previous survey year (2009). Another 16% had revenues between \$50,000 and \$99,999, while 23% reported revenues between \$100,000 and \$549,999, and 7% reported revenues between \$550,000 and \$999,999. Seven percent (30 businesses) had revenues above \$1 million. The majority of businesses that reported revenues greater than \$1 million worked in the retail trade and construction industries (Figure 9-6).



Source: Yukon Bureau of Statistics, 2011

Figure 9-6: Total Number of Yukon Businesses by Gross Revenue by Industry, 2009

Of the total businesses surveyed, 59% reported having difficulties recruiting staff in the past six months. Seventy percent of responses indicated difficulty recruiting from Yukon, 22% indicated difficulty recruiting Canadian residents from outside Yukon, and 7% indicated difficulty recruiting employees from outside of Canada. Ninety-two percent of businesses reported having difficulties finding experience or skilled staff due to: lack of educated/trained workers (22.6%), lack of motivation to work (15.1%), and specialized/unique field of work (10.3%). Approximately 3% of responses indicated working schedule as a challenge to find experience/skilled workers (Figure 9-7).



Source: Yukon Bureau of Statistics, 2011.

Figure 9-7: Problems Finding Experienced/Skilled Staff, 2010

Businesses responded to labour shortages by: extending work hours of owner/operator/manager, raising staff wages, extending hours of existing employees, reducing operating hours, and other steps (Yukon Bureau of Statistics, 2011).

9.4.1 Business Opportunities

A 2011 study commissioned by Economic Development Yukon identifies and assesses potential secondary business opportunities in Yukon's mining sector. The research is meant to facilitate the maximum possible benefits to Yukon from upcoming major mining activities.

The study identified services and suppliers currently in low availability and in high demand, including:

- Specialized trades or "hard trades" (pipefitting, iron workers, skilled operator, etc.);
- Reagents/chemical supplies;
- Larger industrial construction companies;
- Explosive materials;
- Piping and plumbing equipment; and
- Motors/drives/belting.

The Village of Carmacks and LS/CFN has specified an interest in contract and business opportunities with the mining sector. The community is working on a new Economic Development Plan that identifies mining and tourism as key economic sectors (Village of Carmacks, 2013, pers. comm.).

Both SFN and LS/CFN have established Development Corporations and have communicated with Casino Mining Corporation about potential business opportunities related to the Project.

10.0 CULTURAL CONTINUITY

This section of the socio-economic baseline report addresses cultural continuity and the potential of the Project to affect existing cultural resources in and near the LSA and RSA.

10.1 Traditional Language

SFN and LS/CFN people are part of the Northern Tutchone cultural and Athapaskan language group. As described in section 4, the majority of the population in Pelly Crossing (91%) and Carmacks (76.5%) are of Aboriginal identity. Whitehorse also has a significant proportion of First Nation residents (17%).

Table 10-1 provides a comparison of language characteristics for Aboriginal identity population in the socio-economic study area based on the 2006 Census. It indicates that English was the most commonly known language by Aboriginal population in all communities, comprising 68% in Carmacks, 75% in Pelly Crossing, and 86% in Whitehorse.

Table 10-1 also shows that Aboriginal people in Carmacks were more likely to have knowledge of an Aboriginal language than Aboriginal residents living in the other communities. Approximately 32% of Aboriginal residents in Carmacks reported to know an Aboriginal language, compared to 25% in Pelly Crossing and 7% in Whitehorse. Females were slightly more likely to have knowledge of Aboriginal languages in Pelly Crossing and Whitehorse but not in Carmacks, where more men had more knowledge of Aboriginal languages than women (Table 10-1). As previously mentioned in section 8.1.1, in Pelly Crossing and Carmacks in particular, there is an effort to incorporate Northern Tutchone culture and beliefs into the school curriculum with language training being a major element.

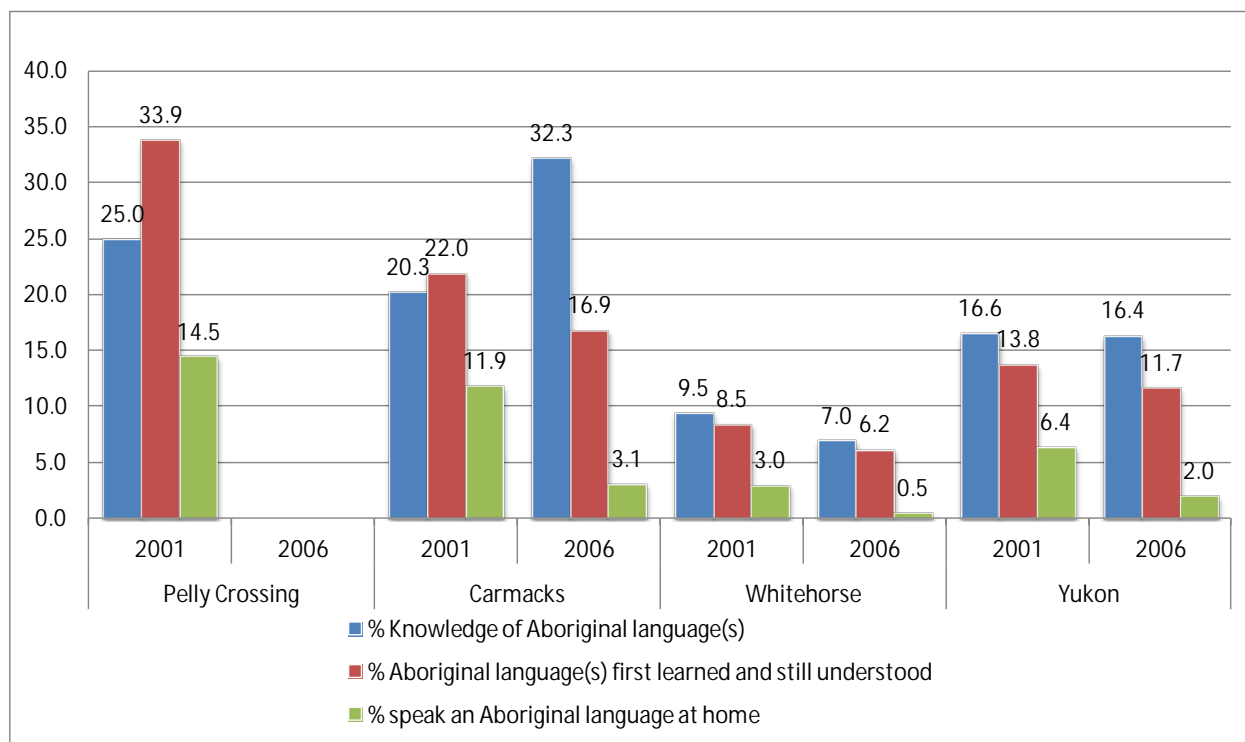
Table 10-1: Language Characteristics – Aboriginal Identity Population, 2006

	Pelly Crossing*			Carmacks			Whitehorse		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Aboriginal identity population	280	145	135	325	165	165	3,780	1,735	2,045
Knowledge of Aboriginal language(s)	25%	24%	30%	32%	33%	30%	7%	5%	9%
Knowledge of English only	75%	76%	70%	68%	67%	67%	86%	89%	84%
Knowledge of French only	–	–	–	–	–	–	–	–	–
Knowledge of English and French only	–	–	–	–	–	–	5%	5%	6%
Knowledge of other languages	–	–	–	–	–	–	2%	1%	2%
Total	100%	100%	100%	100%	100%	97%	100%	100%	100%

Source: Statistics Canada 2002, 2007b.

Note: * Data for Pelly Crossing refers to 2001 census since no data were available for 2006. Totals might not sum up due to rounding errors and/or omissions derived from original source.

Census data also indicate that use of Aboriginal languages has decreased between 2001 and 2006 in all communities and Yukon as a whole (Figure 10-1). In all three communities, Aboriginal residents were less likely to understand or speak an Aboriginal language in 2006 than they were in 2001. Figure 10-1 also shows that knowledge of Aboriginal language increased in Carmacks but decreased in Whitehorse and Yukon as a whole between 2001 and 2006. No data were available for Pelly Crossing for 2006.



Source: Statistics Canada, 2002, 2007b.

Figure 10-1: Knowledge and Use of Aboriginal Language among Aboriginal Population by Community 2001 and 2006

10.2 Places of Historical, Cultural, and Archaeological Value

No existing spiritual or aesthetic sites have been identified thus far for the Project area (AECOM, 2009), other than the Yukon River. A number of historical and archaeological sites have been identified in the Project area, including Britannia Creek, Patton Gulch, and Patton Hill, which are all in the immediate vicinity of the Project. All sites have been recorded with the Yukon archaeological and place name database. Additional details regarding historical and archaeological sites are provided in the Archaeology & Heritage Baseline (Appendix 18A)

In addition, Fort Selkirk, a historic townsite 70 km east of the Project, is a traditional gathering place for SFN members and is located at the confluence of the Pelly River and Yukon River. Fort Selkirk has been in use for at least 8,000 years and was the general location of the of the first Hudson's Bay trading post established in 1848 and later relocated in 1852. Attacked by Chilkat Tlingit warriors who looted the post in protest to perceived interference to their trade route with interior Athapaskan First Nations, the fort was rebuilt approximately 40 years later and became an important supply point along the Yukon River. It fell into disuse during the mid-1950s after the Klondike Highway bypassed it and the fall in Yukon River traffic. Many of the buildings have been restored and the Fort Selkirk Historic Site is co-managed by SFN and the Government of Yukon (AECOM, 2009). Fort Selkirk serves as a place for spiritual and cultural renewal and provides evidence of some of the historical activities of the Selkirk people (Yukon Department of Tourism and Culture, 2013). Access to Fort Selkirk is via the Yukon River or the

nearby Fort Selkirk Aerodome. Fort Selkirk is located outside the expected area of influence of the Project.

10.3 Traditional Knowledge

The proponent has had discussions with SFN and LS/CFN to initiate traditional knowledge and traditional land use studies in the socio-economic study area in 2012 and 2013, with guidance from surrounding communities. Discussions with SFN Lands Department (SFN, 2012, pers. comm.) indicated a lack of capacity to conduct a Traditional Knowledge and Traditional Land Use (TKTLU) study for the Project, and three options were presented:

- CMC's consultant supporting SFN to develop the capacity and assist in conducting the TKTLU study;
- SFN hiring a consultant to conduct the TKTLU study; and
- CMC's consultant conducting the TKTLU study.

TKTLU has been discussed in ongoing discussions between SFN and Casino Mining Corporation, and it is anticipated that a TKTLU study may be conducted sometime in the future. Discussions with LS/CFN have indicated that a TKTLU study may be considered after the EA submission to YESAB and LS/CFN have had an opportunity to assess potential affects (LS/CFN, 2013, pers. comm.).

Traditional Use information is provided in this section (as well as in the Land Use Baseline Report – Appendix 19A) along with additional information provided for SFN and LS/CFN. Both First Nations are members of the Northern Tutchone, and as such, would carry out similar activities in varying parts of their respective territories. Harvests of animals, fish, or plants are managed to ensure that populations are sustainable and activities are moved or rotated throughout the traditional territories based on availability and regeneration of the populations. Traditional activities play an important role in providing food, medicine, and materials and supplement income and foodstuffs/materials purchased from stores. There is an inter-relationship between traditional (bush economy) and employment (cash economy), with the latter helping fund traditional activities. More distant areas are more costly to access, and as such are not used as often with limited income derived from them. More distant areas remain important and are harvested when game/fish/plant numbers are high and increased demands lead to these areas being accessed again. Gathering is more frequently practised than trapping, and the historical flexibility of where and when to trap is now limited by the requirements of registered traplines and specific areas to harvest (Pearse and Weinstein, 1988).

Big Creek was an important fishing site for residents of both Selkirk and Carmacks. Its outlet was a valuable place for grayling, whitefish, chum salmon, and king salmon. In the middle reaches, people fished for whitefish, grayling and kings; while in the upper reaches kings and grayling could still be caught. The creek has a fall run of grayling, and in low water years people could easily catch them in shallow pools (Pearse and Weinstein, 1988). The areas around Apex

and Prospector Mountains and the headwaters of Coffee and Casino Creeks are described as marten homeland. Another core area is on the highlands between upper Big Creek and Hayes Creek, which are particularly good marten habitat. The same principle holds true for sheep, whose homelands are also on Prospector Mountain but who winter in the lower reaches of Big Creek. There is great concern that the road and attendance mining activity will impair the capacity of these special places to harbour the required populations of animals (*ibid*).

Hunting, trapping, fishing, and gathering remain important traditional activities for members of SFN and are carried out in a cycle from approximately May through October. Caribou was once the principal species hunted for food, but as the caribou populations declined, moose became increasingly important and is now the major food source hunted (McClellan, 1981). Salmon and other freshwater fish are caught, often using fish camps, and either dried or frozen for consumption. Plants are gathered for food, medicine, or for use in constructing tools or goods, with summer being the season for most of this activity (Gotthardt, 1987), though spring has historically been important for birch bark and sap to be gathered for canoes and baskets.

LS/CFN also carries out traditional activities based on the season with various parts of the years spent hunting, trapping, fishing, and gathering for food, medicines and goods throughout their territory. A wide variety of birds, waterfowl, large game, wolf, wolverine, fox, and marten are harvested for food, clothing, and other uses (Yukon Bureau of Statistics, 2013b). Plants gathered include Arctic raspberry, Labrador tea, cranberries, blackberries, stoneberries, and mushrooms (Nicholson, 2002).

The loss of the Northern Tutchone language and traditional practices were noted as concerns by community representatives. Tutchone elders have developed booklets on Northern Tutchone history and culture. This material will be available at schools and incorporated into the curricula (LS/CFN, 2013, pers. comm.; Tantalus, 2013, pers. comm.).

10.4 Social, Community, and Cultural Activities

10.4.1 Pelly Crossing

Pelly Crossing holds several community events throughout the year, including sports-related events (baseball and hockey tournaments), potlatches, and other community-based activities. Stick gambling remains popular in the community. Cultural retreats are arranged on a regular basis to promote the Northern Tutchone culture.

Big Jonathan House serves as the SFN cultural centre in Pelly Crossing. This is a replica of a building found in Fort Selkirk, an earlier SFN community with a history intertwined with the fur trade. Big Jonathan House serves as a gallery for works of local artists as well as locally made crafts such as beaded clothing, birch bark baskets, traditional baby bunting bags, and tools. Some articles are for sale and there are displays of a model of a fish trap and a fish rack that demonstrate the catching, drying, and smoking of summer fish for wither use. It is open from mid-May to mid-September and serves as an important cultural resource for SFN.

Every February, Pelly Crossing serves as one of the checkpoints of the 1,600 km (1,000 mile) International Sled Dog Race that runs between Whitehorse and Fairbanks, Alaska. The Yukon Quest follows historical Gold Rush and mail delivery sled dog routes from the end of the 20th century.

10.4.2 Carmacks

Several community events are held throughout the year in Carmacks, including sports-related events such as the Terry Fox Run, as well as curling, baseball and hockey tournaments, potlatches, and other community events. Stick gambling remains popular in the community. Cultural retreats are arranged on a regular basis to promote the Northern Tutchone culture.

Carmacks also serves as one of the checkpoints of the 1,600 km (1,000 mile) International Sled Dog Race that runs between Whitehorse and Fairbanks, Alaska.

Carmacks residents also have access to a community garden. Garden resources go to people with diabetes, single mothers, and elders (CRRC, 2013, pers. comm.).

During interviews, community representatives noted that attendance to social and community events has decreased during the last years (Tantalus, 2013, pers. comm.).

10.4.3 Whitehorse

The City of Whitehorse hosts and sponsors numerous community events throughout the year for its residents and surrounding communities. These include:

- Arctic Winter Games;
- OUT North Queer Film Festival;
- Rotary Music Festival;
- Celebration of Swans;
- Yukon Trade Show;
- Fireweed Farmer's Market;
- Arts in the Park;
- Francophone Day;
- City of Whitehorse Triathlon;
- Kluane Mountain Bluegrass Festival;
- Dustball Slowpitch Tournament;
- Kluane Chilkat International Bike Relay;
- National Aboriginal Day & Summer Solstice;
- Midnight Sun Gold Tournament;
- 4 Hours of Light Mountain Bike Event;
- Sunstroke Music Festival;

- Yukon River Quest Canoe and Kayak Race;
- Canada Day Parade and Celebrations;
- Adaka Cultural Festival;
- Frog Mountain Music Festival;
- Yukon 1000 Canoe and Kayak Race;
- Canada's Parks Day;
- Yukon River Trail Marathon;
- Klondike Trail Road Relay;
- Winter Spruce Bog Crafts Sale;
- Santa Claus Parade;
- Cranberry Fair; and
- Christmas Lights Tour.

Whitehorse serves as the starting point of the 1,000 mile (1,600 km) International Sled Dog Race that runs between Whitehorse and Fairbanks Alaska every February.

In addition, Whitehorse is home to many active arts organizations, including several performing and visual arts groups, a choral society, and a historical society. Cultural facilities include a library, museums of Yukon history, historical archives, two movie theatres, and two small performing arts theatres. The Yukon Arts Centre, which opened in May 1992, comprises a 430-seat auditorium and an art gallery capable of housing national travelling exhibits.

10.5 Subsistence and Recreational Harvesting

10.5.1 Hunting

Hunting is a common activity for residents in Yukon for both subsistence and recreation. Hunting licensing is regulated by Environment Yukon, which oversees permitting for hunting, fishing, and trapping activities in Yukon. Hunting harvest data for the seven Game Management Areas (GMAs) in the Project area (crossed by the existing Freegold Road and the proposed Freegold Road Extension) from 1979 to 2013 are provided in Table 10-2. GMAs are legal boundaries that define an area within which big game management is monitored by specific regulations. Harvest kills data are not separated by license type or hunter category; thus, kills by resident hunters, outfitters, non-residents, and First Nations are combined. In addition, First Nations members do not require hunting licenses; therefore, harvest data for this group cannot be reliably inferred from the available data.

Table 10-2: Hunting Harvest Data for Game Management Areas in the Project Area

Caribou	Sheep	Bison	Grizzly Bear	Black Bear	Deer	Elk	Grand Total
		Closed	0	0	Closed	Closed	7.06
5.9	1		2	3			22.08
10.8	3		2	2			27.97
10.1	0		2	1			28.59
8.5	1		0	1			30.12
25.6	0		3	2			47.78
6.5	0		0	4			17.50
4.9	0		3	4			15.98
2.1	0		1	6			15.63
4.0	0		2	3			12.70
0.0	0		1	0			1.51
1.9	0		3	2			6.89
0.0	0		0	1			3.02
2.0	1		3	3			12.90
0.0	0		0	3			5.00
4.0	0		0	2			12.31
6.0	4		2	5			25
2	0		1	2			9
2	0		1	3			10
8	1	0	0	0			10
2	0	0	0	1			8
4	3	1	0	1			13
3	0	1	2	2			8
11	3	0	2	2			20
5	1	1	3	0			10
2	0	0	0	4			9
3	0	0	0	0			4
11	0	0	1	3	0		15
4	3	0	1	2	0		11
9	0	0	2	2	0		20
9	0	1	0	1	0	0	15
7	1	0	1	1	0	0	12
9	0	2	0	3	0	0	17
10	0	0	1	1	0	0	12
193.19	22	6	39	70	0	0	495.04

Source: Environment Yukon, 2013; Harvest Coordinator, pers. comm.

Note: NR = Non-resident; Res = Resident

In 2000, hunting efforts were evaluated at approximately \$610 per hunter per year (Yukon Environment, 2003). Areas accessible by boat were most frequented, followed by hiking and driving access.

Approximately 97% of moose hunters reported hunting for subsistence purposes, not trophies (Yukon Environment, 2003), and the harvested meat can have a high replacement cost value for northern and Aboriginal households. In addition to the meat-replacement cost, the subsistence harvesting activities also represent an invaluable cultural and traditional experience for Aboriginal harvesters and a meaningful recreational pursuit (AECOM, 2009). Aside from hunting and trapping, subsistence activities may also include fishing and plant harvests.

A 2011 SFN newsletter identified development of hunting and the traditional economy as a priority that is being incorporated into the 2011/2012 budget (SFN, 2011). SFN maintains strong links to hunting with many members obtaining a significant portion of their food supply through this means (Yukon Community Profiles, 2004a). Similarly, a significant proportion of LS/CFN residents use hunting to meet their families' food needs. LS/CFN families hunt one to two moose per year (LS/CFN, 2013, pers. comm.).

10.5.2 Fishing

In Yukon, commercial fishing accounts for less than 5% of fish harvested (Environment Yukon, 2010). Commercial licences are limited to the larger Yukon lakes and target lake trout and whitefish. It is not anticipated the Project will affect commercial fishing activity.

First Nations, residents, and non-residents enjoy fishing as a popular year-round activity in the area, for both subsistence and sporting purposes. Arctic grayling is the most popular fished species in the area, and Northern pike and lake trout are fished in the region's lakes. Yukon domestic and recreation salmon fisheries were closed in 2008 due to declining returns.

LSC is highly involved in salmon fishing, with many members participating in this activity. Salmon populations are declining and in 2012 local residents were advised to reduce the catch of salmon (LS/CFN, 2013).

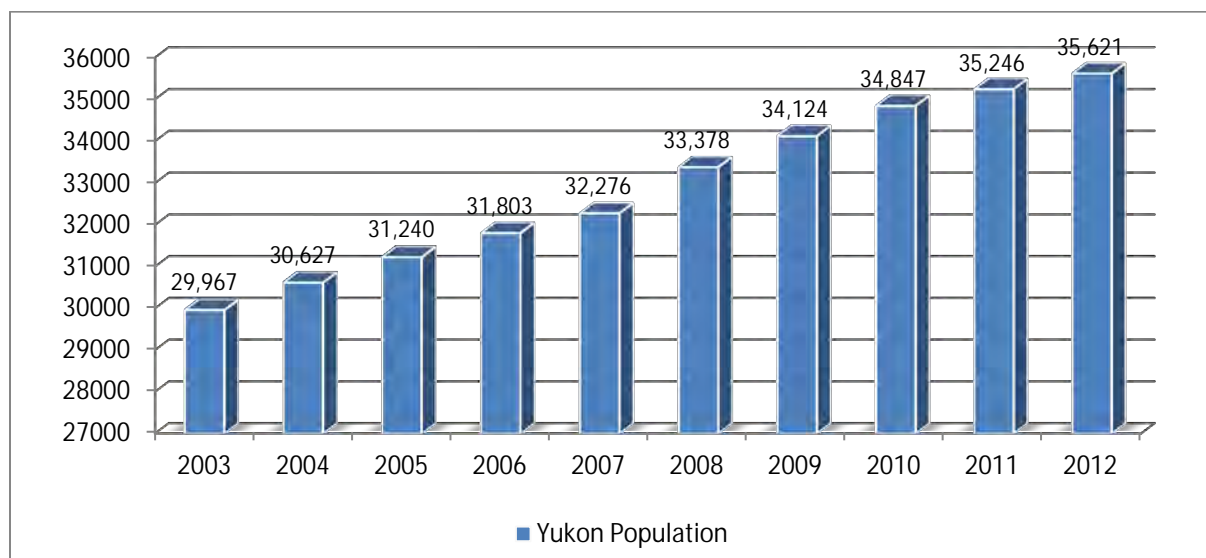
10.5.3 Gathering

Northern Tutchone peoples have traditionally relied on the gathering and harvesting of plants as a source of food and medicine or construction materials. For example, in spring, birch bark and sap were used to construct canoes and baskets. In summer, the Northern Tutchone gathered berries and other edible or medicinal plants (Gotthardt, 1987). This was also a time when stones, copper, birch bark, and spruce roots were collected to make tools and utensils. In autumn, SFN people stored their dried food in various caches, usually several kilometres inland from the rivers. In winter, during times of extreme hunger, people sometimes collected dried roots, berries, and mushrooms from squirrel and mouse caches.

11.0 REGIONAL STUDY AREA—YUKON

11.1 Population

The population in Yukon has been steadily increasing since 2003, as seen on Figure 11-1. The June 2012 Population Report compiled by the Yukon Bureau of Statistics indicates that the projected population for 2012 is 35,621, which is an approximate increase of 375 residents from 2011 (1%), as well as an increase of approximately 5,654 (18%) since 2003.



Source: Yukon Bureau of Statistics. Population Report, June. 2012.

Figure 11-1: Yukon Population 2003–2012

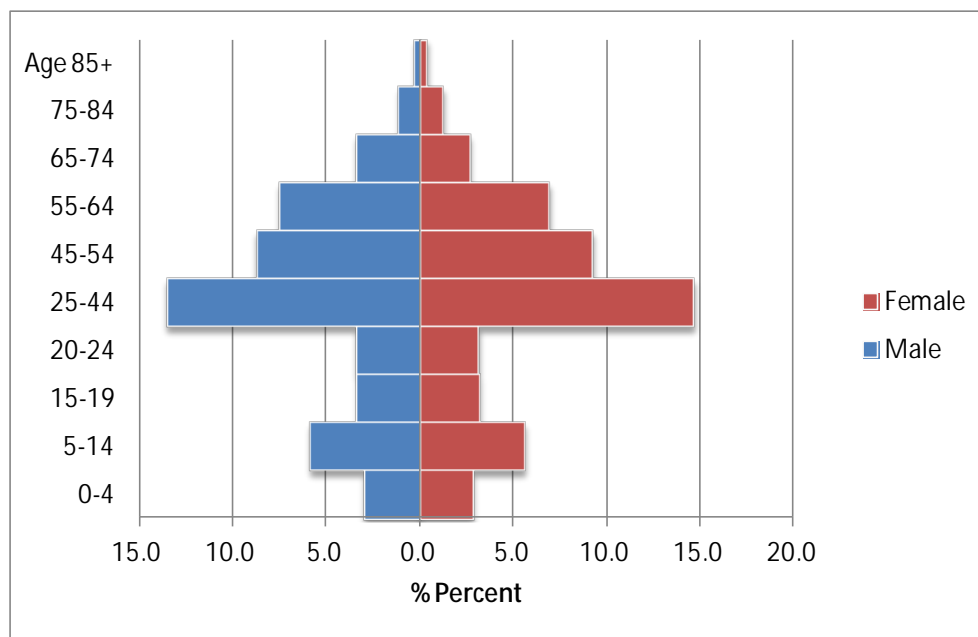
Yukon's Aboriginal population, as per the 2011 NHS, was 7,705 out of 33,325, or 23% of the total population. The proportion of Aboriginal population has remained relatively constant from previous censuses, which reported 25% of Aboriginal population in 2006 and 23% in 2001.

Table 11-1 and Figure 11-2 present the age and gender distribution for Yukon residents. In 2011, the median age of Yukon residents was 39.1 years, higher than the 38.4 years in 2006 and 35.1 years in 2001. The largest age cohort is those aged 25 to 44 years in all three Census years, and a significant difference is evident in the number of males and females in this age category, although the difference has shortened in the last Census. There were 12% more females than males in 2001, 13% more in 2006, and 8% more females than males in 2011 in the 25 to 44 year-old age category. There is another significant gender difference in the 55 to 64 year-old age category, where there were 22% more males than females in 2011 and 18% more males than females in 2006 and 2001. Overall, there were slightly more men than women in the territory, with a male to female ratio of 50.3% to 49.7% in 2011. This has been consistent in all three Censuses.

Table 11-1: Yukon Age Composition, 2001–2006

Age	2001 Population Counts		2006 Population Counts		2011 Population Counts	
	Male	Female	Male	Female	Male	Female
0-4	850	845	885	855	1,020	955
5-14	2,255	2,090	2035	1940	1,995	1,890
15-19	1,180	1,115	1225	1050	1,140	1,075
20-24	815	825	960	925	1,160	1,065
25-44	4,455	5,005	4,110	4645	4,585	4,950
45-54	2,620	2,450	2915	2905	2,965	3,120
55-64	1,385	1,070	1960	1685	2,550	2,340
65-74	630	515	815	665	1,160	900
75-84	205	240	315	315	390	420
85+	60	80	65	115	95	135
Total	14,600	14,395	15,535	15,300	17,060	16,850

Source: Statistics Canada, 2002, 2007, 2013e.

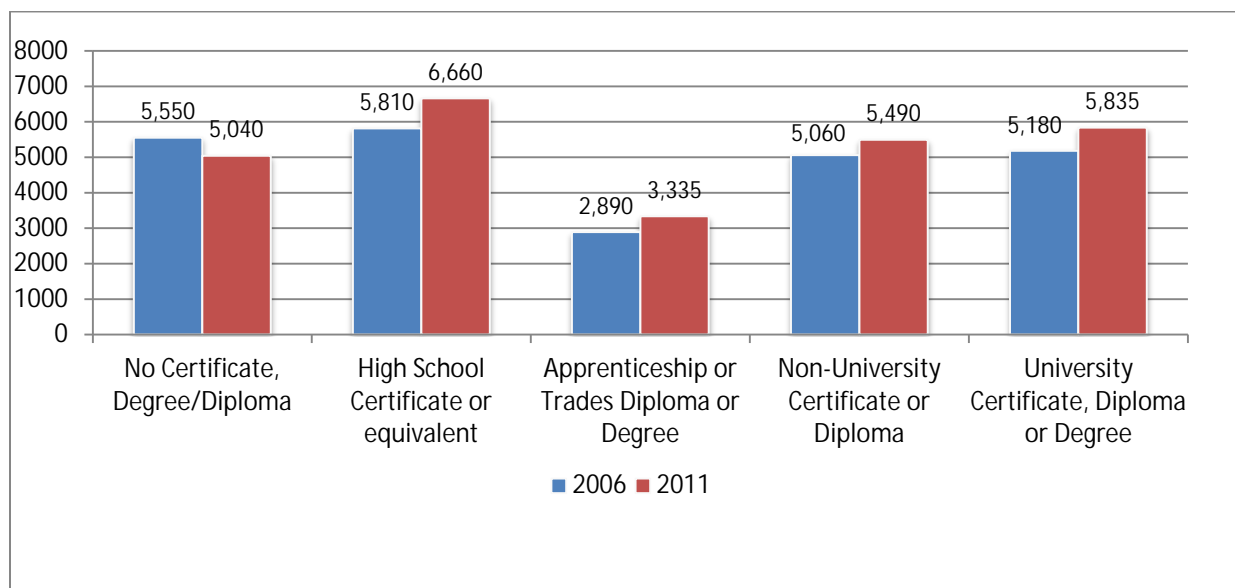


Source: Statistics Canada, 2013e.

Figure 11-2: Yukon Population by Age and Gender, 2011

11.2 Educational Attainment

As seen on Figure 11-3, approximately 24% of Yukon residents 15 years of age and older have attained a high school diploma or the equivalent, as per the 2011 Census. An additional 14,660 residents (57.5%) had secured some additional form of education, the most common being a university certificate, diploma, or degree followed by a college or other non-university certificate or diploma. Between 2006 and 2011, there was an increase in the number of residents that reported having any type of formal education.



Source: Statistics Canada, 2007, 2013e.

Figure 11-3: Educational Attainment of the People Aged 15+ Years in Yukon, 2006 and 2011

11.3 Employment

Two major sources of employment in Yukon are government and natural resources. Of Yukon's 19,100 employed persons in 2011, just over 5,000 work for the Government of Yukon, another 610 work for the federal government, and 573 work for municipal governments. In terms of the dollar value of production, copper and gold are currently Yukon's most important natural resources (Yukon Bureau Statistics, 2012a; Falvo, 2012). The following section provides a detailed breakdown of Yukon's labour force as well as the labour force by occupation and industry.

The Statistics Canada Labour Force Survey dated June 2012 reported a national unemployment rate of 7.2% while the Yukon Bureau of Statistics reported a June unemployment rate of 7.4%. Yukon Bureau of Statistics (Table 11-2) indicates the unemployment rate has decreased since 2009 and as of 2011 was at 5.4%, down from 6.9% in 2010. Table 11-2 demonstrates a steady increase in the number of people in the labour force while the unemployment rate is decreasing, statistics that represent a growing economy. Updated statistics for 2012 show an unemployment rate of 6.9%. This is explained mainly due to an increase in the labour force and a slight decline in average employment. The number of people employed in 2012 fell to 18,900 people. While down

from 2011 (19,100 people), it represented the second highest level in the Yukon's history (Yukon Economic Development, 2013a).

Table 11-2: Labour Statistics

Year	In the Labour Force (No.)	Employed (No.)	Unemployed (No.)	Not in the Labour Force (No.)	Participation Rate (%)	Employment Rate (%)	Unemployment Rate (%)
2003	16,900	15,200	1,700	5,700	74.4	67.0	10.1
2004	17,800	16,700	1,100	5,200	76.7	72.0	6.2
2005	18,100	17,200	900	5,200	76.4	72.6	5.0
2006	18,200	17,400	800	5,300	75.8	72.5	4.4
2007	18,100	17,200	900	6,100	74.2	70.5	5.0
2008	18,900	18,000	900	5,700	75.9	72.3	4.8
2009	18,700	17,300	1,300	6,000	73.9	68.4	7.0
2010	18,900	17,500	1,300	6,700	72.7	67.3	6.9
2011	20,200	19,100	1,100	6,300	76.2	72.1	5.4

Source: Yukon Bureau of Statistics

Note: No. = number; % = percent

Table 11-3 describes the labour force according to the type of occupation. The majority of Yukon's workers in 2006 and 2011 were employed in Sales and Service Occupations (23.1% and 19.5%, respectively), followed by business, trades, transport and equipment operators, and related occupations (16.2% and 17.6%, respectively) and finance and administrative occupations (16.1% and 17.4%, respectively). In 2006, females were most likely to work in sales and service occupations (27.1%), but in 2011 they were most likely to work in business, finance, and administrative occupations (27.4%), while males dominated the trades and transportation occupations in both 2006 and 2011 (29.7% and 32.4%, respectively).

Table 11-3: Yukon Labour Force by Occupation, 2006 and 2011

Occupation	2006			2011		
	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)
Management occupations	12.9	15.7	9.9	12.0	13.0	11.0
Business, finance, and administrative occupations	16.1	5.9	26.9	17.4	7.8	27.4
Natural and applied sciences and related occupations	6.8	10.1	3.4	7.8	11.8	3.6
Health occupations	4.8	2.2	7.6	4.5	1.7	7.4
Occupations in social science, education, government service, and religion	12.0	7.1	17	14.4	9.2	19.9
Occupations in art, culture, recreation, and sport	3.7	2.1	4.2	3.5	2.1	4.9
Sales and service occupations	23.1	19.3	27.1	19.5	16.4	22.6
Trades, transport, and equipment operators and related occupations	16.2	29.7	2.0	17.6	32.4	2.4
Occupations unique to primary industry	3.5	5.6	1.4	1.9	3.2	0.5
Occupations unique to processing, manufacturing, and utilities	0.8	1.3	0.3	1.4	2.5	0.3
TOTAL (No.)	18,895	9,690	9,205	20,880	10,600	10,275

Source: Statistics Canada, 2002, 2007b

Note: % = percent

Table 11-4 describes the labour force in terms of employment by industry for both 2006 and 2011. Public Administration was the largest industry in Yukon and accounted for approximately 29% of the experienced labour force in 2011. This was followed by Retail Trade at 10.8% and Construction at 9.3%. There was a notable increase from 2006 to 2011 in the proportion of workers who worked in the Public Administration and Construction industries; as they reported increases of 35% and 20%, respectively; however, Health Care and Social Assistance decreased by almost 27%, from 9.1% in 2006 to 6.6% in 2006. There were some differences between genders with respect to employment industries. Females were five times more likely than males to be employed in the Health Care and Social Assistance industry; while males were seven times more likely than females to be employed in the Construction industry.

Table 11-4: Yukon Labour Force by Industry, 2006 and 2011

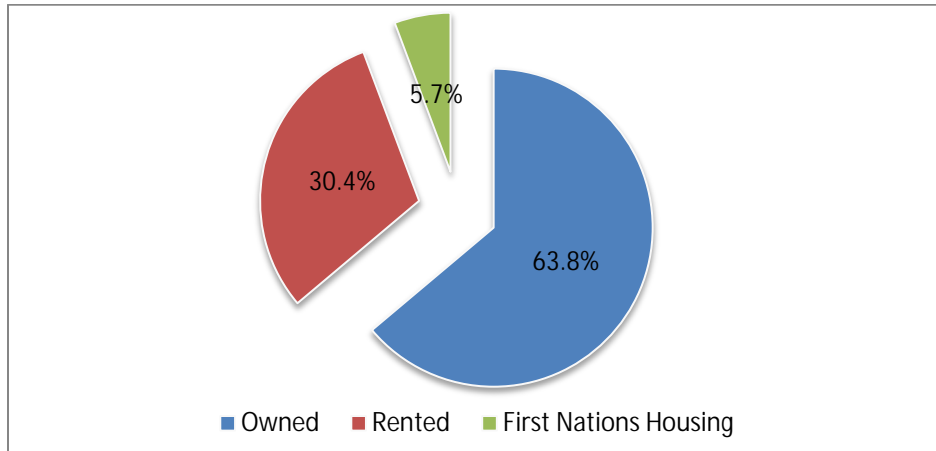
Industry	2006			2011		
	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)
Agriculture, forestry, fishing, and hunting	1.1	1.3	0.7	0.7	0.9	0.4
Mining and oil and gas extraction	3.6	6.0	1.1	3.4	5.2	1.5
Utilities	0.4	0.7	0.2	1.0	1.8	0.0
Construction	6.9	12.0	1.6	9.3	16.1	2.3
Manufacturing	2.1	3.1	1.1	1.6	2.8	0.3
Wholesale Trade	1.8	2.7	0.7	1.1	1.7	0.5
Retail Trade	10.2	10.2	10.2	10.8	11.2	10.5
Transportation and Warehousing	4.6	6.6	2.3	4.1	5.7	2.3
Information and Cultural Industries	3.0	3.4	2.6	2.8	2.6	3.0
Finance and Insurance	1.6	1.0	2.3	1.2	0.6	1.9
Real estate and rental leasing	1.3	1.5	1.0	0.9	1.2	0.5
Professional, scientific and technical services	4.3	4.5	4.1	5.0	4.9	5.1
Management of companies and enterprises	0.0	0.0	0.1	0.1	0.0	0.1
Administrative and support, waste management and remediation	3.3	3.3	3.3	2.8	3.1	2.6
Educational services	6.8	4.3	9.5	5.7	2.9	8.6
Health care and social assistance	9.1	3.8	14.7	6.6	2.4	11.0
Arts, entertainment and recreation	2.7	2.6	2.8	2.4	1.7	3.1
Accommodation and food services	8.9	6.9	11.0	7.0	5.7	8.3
Other services (except public administration)	4.2	4.2	4.3	4.6	3.6	5.7
Public administration	24.0	21.8	26.3	28.9	25.7	32.3
TOTAL (No.)	18,895	9,695	9,205	20,875	10,605	10,275

Source: Statistics Canada, 2007, 2013e.

Note: % = percent

11.4 Households and Housing

The majority of housing in Yukon is privately owned dwellings. As of 2006, there were a reported 12,610 dwellings occupied by usual residents, 63.8% of which were owned, 30.4% were rented, and a reported 5.7% were classified as First Nations housing. The composition of housing is on Figure 11-3. By 2011, the total number of private dwellings occupied by usual residents increased to 14,117, and the associated occupancy rate was 86.8%.



Source: Yukon Bureau of Statistics – Yukon, Housing Tenure, Census, 2006

Figure 11-4: Yukon Housing – Owned, Rented, and First Nations Housing, 2006

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